

APPENDIX IV.

DEFINITION OF ELEMENT RANKS,
NATURAL HERITAGE PROGRAM, THE NATURE CONSERVANCY

4.4.1 Definition of Ranks

Global, national, and state element ranks are listed and defined below.

GLOBAL ELEMENT RANKS:

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

- G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
- G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- GH = Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered (e.g., Bachman's Warbler).
- GU = Possibly in peril range-wide but status uncertain; need more information. NOTE: This rank should be used sparingly. Whenever possible, assign the most likely rank and add a question mark (e.g., G2?) to express uncertainty, or use a range (e.g., G2G3) to delineate the limits (range) of uncertainty.
- GX = Believed to be extinct throughout range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

NATIONAL ELEMENT RANKS

- N1 = Critically imperiled nationally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the nation.
- N2 = Imperiled nationally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation throughout the nation.
- N3 = Rare or uncommon nationally (on the order of 21 to 100 occurrences).

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- N4 = Apparently secure nationally, with many occurrences, though it may be quite rare in parts of its range, especially at the periphery.
- N5 = Demonstrably secure nationally, though it may be quite rare in parts of its range, especially at the periphery.
- NA = Accidental in nation, i.e., not part of the established biota (e.g., European Cuckoo, Yellow-nosed Albatross, many other bird species in the U.S.). See section 4.4.5 (rule 8) below for more information on how ranks for accidental species will be handled.
- NE = Exotic established in nation (e.g., Japanese Honeysuckle in the U. S.). See section 4.4.5 (rule 8) below for more information on how ranks for exotic species will be handled.
- NH = Of historical occurrence in nation, perhaps having not been verified in the past 20 years.
- NN = Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective conservation measures can be taken in nation (see explanation of SN below).
- NR = Reported from nation, but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.
- NRF = Reported falsely (in error) from nation but this error persisting in the literature.
- NU = Possibly in peril in nation but status uncertain; need more information. This rank should be used sparingly.
- NX = Apparently extirpated nationally.

STATE ELEMENT RANKS:

- S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.

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- S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
- S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences).
- S4 = Apparently secure in state, with many occurrences.
- S5 = Demonstrably secure in state and essentially ineradicable under present conditions.
- SA = Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include European strays or western birds on the East Coast and vice-versa.
- SE = An exotic established in state; may be native elsewhere in North America (e.g., house finch or catalpa in eastern states).
- SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, and suspected to be still extant. Naturally, an element would become SH without such a 20-year delay if the only known occurrences in a state were destroyed or if it had been extensively and unsuccessfully looked for. Upon verification of an extant occurrence, SH-ranked elements would typically receive an S1 rank. The SH rank should be reserved for elements for which some effort has been made to relocate occurrences, rather than simply ranking all elements not known from verified extant occurrences with this rank.
- SN = Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective habitat conservation measures can be taken in the state; this category includes migratory birds (concentration sites for migratory birds are grouped in the "Other" category and ranked accordingly -- see Appendix II, p. II.3-7), bats, sea turtles, and cetaceans which do not breed in a given state but pass through twice a year or may remain in the winter (or, in a few cases, the summer); included also

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are certain lepidoptera which regularly migrate to a state where they reproduce, but then completely die out every year with no return migration. Species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation. Other nonbreeding, high globally-ranked species (such as the bald eagle, whooping crane or some seal species) which regularly spend some portion of the year at definite localities (and therefore have a valid conservation need in the state) should NOT be ranked SN, but rather S1, S2, etc. This rank is also not for "lost causes," which in someone's opinion cannot be saved. The reasons for assigning the SN rank may not be apparent from the fact pattern on the Element State Ranking Form, since there may be low numbers, etc. Therefore, the reasons must be carefully set out in SREASONS under SRANK.

SR = Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report. Some of these are very recent discoveries for which the program hasn't yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.

SRF = Reported falsely (in error) from state but this error persisting in the literature.

SU = Possibly in peril in state but status uncertain; need more information. NOTE: This rank should be used sparingly. Whenever possible, assign the most likely rank and add a question mark (e.g., S2?) to express uncertainty, or use a range (e.g., S2S3) to delineate the limits (range) of uncertainty.

SX = Apparently extirpated from state.

4.4.2 Ranking of Questionable Species

If an element's taxonomic classification as a species is a matter of conjecture among scientists, we should decide whether to treat it as a full species or as a subspecies or synonym.

If the element is to be treated as a full species, a qualifying "Q" is added after the global rank to denote its questionable taxonomic assignment, e.g., G2Q. Note however that the Q qualifier should be used only if the second character (or byte) of the global rank for the species will be affected (see second example below). The "Q," in other words, really denotes primarily a question as to whether or not the element really deserves the rank it is being assigned. In most cases where we are following standardized lists, the Q would indicate either (a) the element in question is not a full species in the reference list but is being treated as a full species on the basis of current taxonomic views or (b) the element is regarded as a species in a standard list but is being questioned.

As examples:

Clintonia alleghaniensis receives a G2Q when ranked as a separate species but would receive only a G5 if included under C. umbellulata.

In the case of Ptilimnium fluviatile, however, the rank is G2 when included with P. nodosum and also G2 when ranked separately. The Q qualifier should not be used in such circumstances because the rank would remain essentially the same. There is really no question in this case as to the global rarity of the element, whatever its taxonomic status.

Rubus huttonii, a rare West Virginia dewberry microspecies recognized as distinct in our standard list (Kartesz), is viewed as questionable by the West Virginia Wildlife/Heritage Database and lumped into the very widespread Rubus hispidus by Cronquist. It receives a G1Q to indicate the controversial status.

In all cases, taxonomic controversy should be cited on the ranking form under TAXCOM. Consistency in the use of the Q qualifier will be maintained by the National Science Department.

4.4.3 Ranks for Subspecies and Varieties

Subspecies, varieties, and races present a problem. They should not be treated as if they are as important as or equivalent to a full species, but most biologists feel they should not be ignored. Many taxa are considered subspecies by some authorities and full species by others. At any rate, subspecies can represent important genetic differences.

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We deal with subspecies and varieties by attaching a subspecific "subrank" to the global rank for the full species.

The global rank for the full species is available from the global tracking (EGT) database through direct access, or through your Regional Information Manager or the national office. If none has been assigned, a global form for the full species should be filled out and sent to the national office, which will add the rank to EGT. A subrank is then added made up of the letter "T" plus a number or letter 1, 2, 3, 4, 5, H, U, or X. The rules for assigning the second character are the same as the ranking rules for full species. A global form must be completed for all T subranks T3 and higher. Only those subspecies and varieties being inventoried need be assigned subranks (see Chapter 3, section 3.11 for a discussion on when to include infraspecific taxa on your inventory list). A "Q" qualifier is added to a T subrank when the taxonomic distinctness of the infraspecific entity is questionable.

As in the assignment of Q qualifiers, consistency in the use of T subranks in connection with global ranks will be maintained by the national Science Department.

The subranking convention has the advantage that a very rare subspecies of a very rare species (e.g., G1T1) can be distinguished, through the rank, from a very rare subspecies of a common species (e.g., G5T1). In this way, the true importance of the subspecies is immediately recognized.

As examples:

The element rank for the masked bobwhite (Colinus virginianus ridgwayi) is G5T1, the G5 indicating that as a species the bobwhite is not in trouble, the T1 indicating that the particular race is very rare and if it were a full species would get a G1.

The rank for the Warm Springs pupfish (Cyprinodon nevadensis pectoralis) is G2T1. The G2 reflects the fact that the species itself (C. nevadensis) collectively is rare, known from only a few locations along a short stretch of the Amargosa River between California and Nevada. The T1 indicates the subspecies (C. n. pectoralis) is even rarer; it occurs historically in a few springs within an area less than one kilometer in diameter.

T subranks are given to global ranks, not to state ranks. When a subspecies, variety, or race assigned a T subrank is considered at the state level, the assigned S rank will

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always relate to the subspecies, variety, or race. For example, no element can be ranked G5T2S1T1; instead it is ranked G5T2S1. As a specific example:

The smooth earth snake (Virginia valeriae) is found throughout most of the Southeast, parts of the Mid-Atlantic, and lower Midwest, and ranks G5. The mountain earth snake, V. v. pulchra, is limited to the unglaciated mountains and high plateaus of western Pennsylvania, extreme western Maryland (where it is very rare), adjacent West Virginia, and one county in Virginia. The global rank for pulchra is G5T2, reflecting that the species is common and the subspecies rather rare. The Maryland state rank is S1, reflecting that in Maryland the subspecies is very rare.
