BOTANY 300S J.E. Eckenwalder
Systematic Botany 13 March 2001

TERM TEST II

Section 1. Nomenclatural problems in *Juniperus* L. (Cupressaceae)

The redcedars are a group of upright growing junipers found in North America from the Atlantic Ocean to Puget Sound and from southern Ontario and central British Columbia to central Florida and the Mexican border. As with other junipers, there are few obvious taxonomic characters in the group, but 3 taxa are often recognized as species or varieties, with consequent variations in nomenclature. The following relevant names have been published and associated with the corresponding types:

Juniperus Linnaeus, 1754 (type: *J. communis* L.)
Sabina Miller, 1755 (type: *J. sabina* L.)

Juniperus communis Linnaeus, 1753 (type: specimen '**A**')
J. sabina Linnaeus, 1753 (type: specimen '**B**')
J. virginiana Linnaeus, 1753 (type: specimen '**C**')
J. scopulorum Sargent, 1897 (type: specimen '**D**')
Sabina silicicola Small, 1923 (type: specimen '**E**')
Juniperus virginiana Linnaeus var. *crebra* Fassett, 1945 (type: specimen '**F**')

In addition, the following combinations based upon the above names have been published:

Sabina virginiana (Linnaeus) Antoine, 1857
Juniperus virginiana Linnaeus var. *scopulorum* (Sargent) Lemmon, 1900
Sabina scopulorum (Sargent) Rydberg, 1905
Juniperus silicicola (Small) Bailey, 1933

In the following problems, you have made a series of taxonomic judgments concerning the disposition of the types cited above. For each problem, choose the correct name(s) with author citations, or make new combinations or propose new names as necessary. All taxa are considered distinct until appropriate taxonomic changes are made as stated and conditions cited in earlier questions hold until they are explicitly changed.

1) If specimens **'A'** to **'E'** each belong to a different species of the same genus, while specimen **'F'** belongs to the same species as specimen **'E'**, what are the correct names of the species containing specimens **'C'**, **'D'**, and **'E'**, the redcedars? [7 pts.]

2) If the 3 taxa of redcedars are considered varieties of a single species, what are their correct names? [7 pts.]

3) Now suppose that specimen **'F'** actually belongs to the same variety as specimen **'C'** rather than specimen **'E'**, what are the correct names of the varieties containing specimens **'C'** and **'E'**? [5 pts.]

4) Some taxonomists consider the junipers with needlelike leaves, such as specimen **'A'**, to belong to a different genus than the junipers with scalelike leaves, such as the redcedars and specimen **'B'**. If this were true, what would be the correct names of the redcedars if they are considered separate species? [7 pts.]

5) If specimen **'F'** turns out to belong to a separate species from all the others, what is its correct name? [3 pts.]

Section 2. Taxonomic evidence

6A) Construct and explain an advancement index based on Bessey's dicta for flowers with the following floral formulas. [10 pts.]

Ipomoea	K 5	(C (5)	A 5)	G (2)
Jacquinia	K 5	C (5)	A 5	G (5)
Kalanchoe	K 5	C 5	A 10	G 5

Lemerrillia	P 5 + 5		A		G		
Malus	K 5	C 5		A 20		G (5)	

6B) List the five genera in order from most primitive to most advanced based on your index. [2 pts.]

6C) Which genus might belong to the superorder Magnolianae and what characteristics suggest that assignment? [3 pts.]

7) Name 3 different features that are useful in wood identification and state whether each is most readily visible in radial, tangential, or transverse sections (or some combination of these)? [3 pts.]

8) Why do we often find varying flowers, fruits, leaves, and woods within superorders, while finding similar ones shared by genera in different superorders? [10 pts.]

total: 57 pts.