

Appendix C

Dichotomous Key to INL Site Plant Communities

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Dichotomous Key Information

This key was designed for use in collecting accuracy assessment data to support the final vegetation map. Because specific ranges of cover values are difficult to estimate rapidly in the field, dichotomies in the key are driven by relative abundance concepts like; “dominant,” “co-dominant,” “abundant,” “common,” and “rare.” While these concepts facilitate efficient data collection, they necessarily oversimplify the range of variability present in most plant communities. In some cases, neither choice in a dichotomy describes a specific assemblage encountered in the field very well. Under those circumstances, the user was encouraged to choose the better of the two options. On rare occasions, plant communities were dominated by species not represented in the key. This occurred most often in assemblages dominated by non-native species which are not characteristic of a semi-natural vegetation class. When this situation occurred, the user was directed to make choices based on the most abundant species which are represented in the key. Classes 1 and 9 were combined subsequent to the development of the key, therefore any community that keys to either 1 or 9 may be considered as keying to 1/9.

INL Site Plant Community Key

1a Trees are common to abundant, providing at least 10% absolute canopy cover

Wooded or Woodland Vegetation Classes pg C-2

1b Trees are absent to sparse; when present, individuals are scattered with less than 10% absolute canopy cover

2a Shrubs clearly dominate the plant community; herbaceous species may be common, but don't contribute substantial relative vegetation cover

3a Dominant shrub species generally exceed 50 cm in height at maturity

Shrubland Vegetation Classes pg C-3

3b Dominant shrub species are generally less than 50 cm in height at maturity*

Dwarf Shrubland Vegetation Classes pg C-5

2b Herbaceous species are abundant, providing substantial relative vegetative cover

4a Shrub species are abundant to co-dominant and contribute substantial cover

5a Dominant shrub species generally exceed 50 cm in height at maturity

Shrub Herbaceous Vegetation Classes pg C-7

5b Dominant shrub species are generally less than 50 cm in height at maturity*

Dwarf Shrubland Vegetation Classes pg C-5

4b Herbaceous species clearly dominate the plant community; shrubs may be common, but don't contribute substantial cover

6a Dominant herbaceous species are native

Herbaceous Vegetation Classes pg C-10

6b Dominant herbaceous species are introduced

Semi-natural Vegetation Classes pg C-12

Wooded or Woodland Vegetation Classes

1a *Juniperus osteosperma* clearly dominates the plant community; absolute canopy cover is greater than 25% with individual crowns closely spaced to nearly touching

Class 11d – Utah Juniper Woodland

- 1b** *Juniperus osteosperma* forms an open canopy with crowns widely spaced and absolute canopy cover of less than 25%; shrubs and/or grasses generally co-dominate the plant community

Class 11c – Utah Juniper Wooded Shrub and Herbaceous Vegetation

Shrubland Vegetation Classes

- 1a** The shrub stratum of the plant community is dominated or co-dominated by an *Artemisia* species
- 2a** *Artemisia tripartita* is the dominant sagebrush species, or *Artemisia tripartita* and *Artemisia tridentata* ssp. *wyomingensis* co-dominate the shrub stratum
- 3a** *Chrysothamnus viscidiflorus* is absent to sparse; when present, individuals occur only sporadically and don't contribute significant cover

Class 18 – Three-tip Sagebrush Shrubland

- 3b** *Chrysothamnus viscidiflorus* is abundant
- 4a** *Artemisia tridentata* ssp. *wyomingensis* is abundant to co-dominant

Class 7 – Wyoming Big Sagebrush Shrubland

- 4b** *Artemisia tridentata* ssp. *wyomingensis* is absent to sparse

Class 4b – Green Rabbitbrush/Bluebunch Wheatgrass Shrub Herbaceous Vegetation

- 2b** *Artemisia tridentata* is the dominant sagebrush species

- 5a** *Artemisia tridentata* subspecies are mixed and/or hybridized

Class 2 – Big Sagebrush Shrubland

- 5b** *Artemisia tridentata* subspecies are uniform and easily identified
- 6a** *Artemisia tridentata* ssp. *tridentata* is the dominant big sagebrush subspecies
- 7a** Shrub species associated with remnant riparian areas, including *Salix exigua*, *Populus angustifolia*, *Rosa woodsii*, *Ribes aureum*, etc. are also abundant in the plant community

Class 17b – Remnant Riparian Shrub Herbaceous Vegetation

- 7b** Shrub species associated with remnant riparian areas are absent to sparse in the plant community

Class 6 – Basin Big Sagebrush Shrubland

- 6b** *Artemisia tridentata* ssp. *wyomingensis* is the dominant big sagebrush species

Class 7 – Wyoming Big Sagebrush Shrubland

- 1b** The shrub stratum of the plant community is dominated by non-*Artemisia* species

- 8a** Shrub species associated with remnant riparian areas, including *Salix exigua*, *Populus angustifolia*, *Rosa woodsii*, *Ribes aureum*, etc. are the dominant shrubs in the plant community

Class 17b – Remnant Riparian Shrub Herbaceous Vegetation

- 8b** Upland shrub species dominate the plant community

- 9a** *Chrysothamnus viscidiflorus* is the dominant shrub species

- 10a** *Chrysothamnus viscidiflorus* is clearly the dominant species in the shrub stratum, other shrub species are not abundant

Class 4a – Green Rabbitbrush Shrubland

- 10b** *Chrysothamnus viscidiflorus* dominates or co-dominates the shrub stratum, but additional shrub species are also abundant and contribute significant cover

- 11a** *Artemisia tridentata* subspecies are abundant in the shrub stratum

- 12a** *Artemisia tridentata* subspecies are mixed and/or hybridized

Class 2 – Big Sagebrush Shrubland

- 12b** *Artemisia tridentata* subspecies are uniform and easily identified

- 13a** *Artemisia tridentata* ssp. *tridentata* is the most abundant big sagebrush species in the shrub stratum

Class 6 – Basin Big Sagebrush Shrubland

- 13b** *Artemisia tridentata* ssp. *wyomingensis* is the most abundant big sagebrush species in the shrub stratum

Class 7 – Wyoming Big Sagebrush Shrubland

11b *Krascheninnikovia lanata* is abundant in the shrub stratum

Class 5 – Green Rabbitbrush – Winterfat Shrubland

9b Other shrub species dominate the community

14a *Grayia spinosa* is the dominant shrub species

Class 20 – Spiny Hopsage Shrubland

14b *Tetradymia canescens* is the dominant shrub species

15a Herbaceous species are predominantly introduced

Class 8 – Green Rabbitbrush/Desert Alyssum Shrub Herbaceous Vegetation

15b Herbaceous species are predominantly native

16a *Pseudoroegneria spicata* is common

Class 4b – Green Rabbitbrush/Bluebunch Wheatgrass Shrub Herbaceous Vegetation

16b *Pseudoroegneria spicata* is absent to sparse

Class 5 – Green Rabbitbrush – Winterfat Shrubland

Dwarf Shrubland Vegetation Classes

1a The shrub stratum of the plant community is dominated or co-dominated by an *Artemisia* species

2a *Artemisia arbuscula* is the dominant shrub species

3a *Artemisia arbuscula* is clearly the dominant species in the shrub stratum, other shrub species are not abundant

Class 19 – Low Sagebrush Dwarf Shrubland

3b *Artemisia arbuscula* dominates the shrub stratum, but *Chrysothamnus viscidiflorus* and/or *Krascheninnikovia lanata* are also abundant and contribute significant cover

Class 5 – Green Rabbitbrush – Winterfat Shrubland

2b *Artemisia nova* is the dominant shrub species

Class 16b – Black Sagebrush / Sandberg Bluegrass Dwarf-shrub Herbaceous Vegetation

1b The shrub stratum of the plant community is dominated by non-*Artemisia* species

4a The shrub stratum of the plant community is dominated by an *Atriplex* species

5a *Atriplex falcata* is the dominant shrub species

Class 15 – Sickle Saltbush Dwarf Shrubland

5b *Atriplex confertifolia* is the dominant shrub species

6a *Atriplex confertifolia* is clearly the dominant species in the shrub stratum, other shrub species are not abundant

Class 22 – Shadscale Dwarf Shrubland

6b *Atriplex confertifolia* dominates the shrub stratum, but additional shrub species are also abundant to and contribute significant cover

7a *Artemisia tridentata* ssp. *wyomingensis* is abundant

Class 7 – Wyoming Big Sagebrush Shrubland

7b *Artemisia tridentata* ssp. *wyomingensis* is absent to sparse

8a *Chrysothamnus viscidiflorus* is abundant

Class 5 – Green Rabbitbrush – Winterfat Shrubland

8b *Chrysothamnus viscidiflorus* is absent to sparse

9a *Artemisia arbuscula* is abundant in the shrub stratum

Class 19 – Low Sagebrush Dwarf Shrubland

9b *Artemisia nova* is abundant in the shrub stratum

Class 16b – Black Sagebrush / Sandberg Bluegrass Dwarf-shrub Herbaceous Vegetation

4b The shrub stratum of the plant community is dominated by other shrub species

10a The shrub stratum is dominated by *Ericameria nana* and/or *Gutierrezia sarothrae*

Class 21 – Dwarf Goldenbush Dwarf Shrubland

10b The shrub stratum is dominated by *Krascheninnikovia lanata*

Class 5 – Green Rabbitbrush – Winterfat Shrubland

Shrub Herbaceous Vegetation Classes

1a *Agropyron cristatum* or *Agropyron desertorum* clearly dominate the herbaceous stratum, other herbaceous species are not abundant

Class 10 – Crested Wheatgrass Semi-natural Herbaceous Vegetation

1b *Agropyron cristatum* or *Agropyron desertorum* ranges from absent to common and native herbaceous species provide significant cover in the herbaceous stratum

2a *Chrysothamnus viscidiflorus* is the most abundant shrub species in the plant community

3a Native perennial grasses are the most abundant herbaceous species in the plant community

4a Bunchgrasses are the most abundant grass species

5a *Pseudoroegneria spicata* dominates the herbaceous stratum

Class 4b – Green Rabbitbrush/ Bluebunch Wheatgrass Shrub Herbaceous Vegetation

5b Other species of native perennial bunchgrasses dominate the herbaceous stratum

6a *Elymus elymoides* and/or *Poa secunda* are the dominant species in the herbaceous stratum

Class 4a – Green Rabbitbrush Shrubland

6b *Achnatherum hymenoides* and/or *Hesperostipa comata* are the dominant species in the herbaceous stratum

7a Relative cover of *Achnatherum hymenoides* and *Hesperostipa comata* is roughly equal

Class 12 – Indian Ricegrass Herbaceous Vegetation

7b Either *Achnatherum hymenoides* or *Hesperostipa comata* clearly dominates the herbaceous layer, both species are not abundant

8a *Achnatherum hymenoides* is the most abundant species in the herbaceous stratum

Class 12 – Indian Ricegrass Herbaceous Vegetation

8b *Hesperostipa comata* is the most abundant species in the herbaceous stratum

Class 3 – Needle and Thread Herbaceous Vegetation

4b Rhizomatous grasses are the most abundant grass species

Class 1 – Streambank Wheatgrass Herbaceous Vegetation

3b Introduced annuals are the most abundant herbaceous species in the plant community

Class 8 – Green Rabbitbrush/Desert Alyssum Shrub Herbaceous Vegetation

2b Species other than *Chrysothamnus viscidiflorus* are the most abundant shrubs in the plant community

9a *Artemisia* species are the most abundant shrubs in the plant community

10a *Artemisia tridentata* is the most abundant sagebrush species in the plant community

11a *Artemisia tridentata* subspecies are mixed and/or hybridized

Class 2 – Big Sagebrush Shrubland

11b *Artemisia tridentata* subspecies are uniform and easily identified

12a *Artemisia tridentata* ssp. *tridentata* is the most abundant big sagebrush subspecies in the plant community

Class 6 – Basin Big Sagebrush Shrubland

12b *Artemisia tridentata* ssp. *wyomingensis* is the most abundant big sagebrush subspecies in the plant community

Class 7 – Wyoming Big Sagebrush Shrubland

10b Other *Artemisia* species are the most abundant shrubs in the plant community

13a *Artemisia tripartita* is the most abundant shrub in the plant community

Class 18 – Three-tip Sagebrush Shrubland

13b Dwarf sagebrush species are the most abundant shrubs in the plant community

14a *Artemisia arbuscula* is the most abundant shrub species in the plant community

Class 19 – Low Sagebrush Dwarf Shrubland

14b *Artemisia nova* is the most abundant shrub species in the plant community

Class 16b – Black Sagebrush/Sandberg Bluegrass Dwarf-shrub Herbaceous Vegetation

9b Non-*Artemisia* species are the most abundant shrubs in the plant community

15a Dwarf shrubs species are the most abundant shrubs in the plant community

16a The plant community occurs on a basalt outcropping

Class 21 – Dwarf Goldenbush Dwarf Shrubland

16b The plant community occurs on soil, generally fine in texture

17a *Atriplex falcata* is the most abundant shrub species in the plant community

18a *Poa secunda* is abundant to co-dominant, providing substantial cover

Class 16a – Sandberg Bluegrass Herbaceous Vegetation

18b *Poa secunda* is absent to sparse

Class 15 – Sickle Saltbush Dwarf Shrubland

17b *Krascheninnikovia lanata* is the most abundant shrub species in the plant community

19a *Artemisia tridentata* ssp. *wyomingensis* is also common in the plant community

Class 7 – Wyoming Big Sagebrush Shrubland

19b *Artemisia tridentata* ssp. *wyomingensis* is sparse to non-existent in the plant community

20a *Poa secunda* is abundant to co-dominant, providing substantial cover

Class 16a – Sandberg Bluegrass Herbaceous Vegetation

20b *Poa secunda* is absent to sparse

Class 5 – Green Rabbitbrush – Winterfat Shrubland

15b Taller stature shrub species are the most abundant shrubs in the plant community

21a Shrub species associated with remnant riparian areas, including *Salix exigua*, *Populus angustifolia*, *Rosa woodsii*, *Ribes aureum*, etc. are the most abundant shrubs in the plant community

Class 17b – Remnant Riparian Shrub Herbaceous Vegetation

21b Upland shrub species are the most abundant shrubs in the plant community

22a *Grayia spinosa* is the most abundant shrub species in the plant community

Class 20 – Spiny Hopsage Shrubland

22b *Tetradymia canescens* is the most abundant shrub species in the plant community

23a Herbaceous species are predominantly introduced

Class 8 – Green Rabbitbrush/Desert Alyssum Shrub Herbaceous Vegetation

23b Herbaceous species are predominantly native

24a *Pseudoroegneria spicata* is abundant

Class 4b – Green Rabbitbrush/Bluebunch Wheatgrass Shrub Herbaceous Vegetation

24b *Pseudoroegneria spicata* is absent to sparse

Class 5 – Green Rabbitbrush – Winterfat Shrubland

Herbaceous Vegetation Classes

1a The herbaceous stratum is dominated by native perennial bunchgrasses

2a *Poa secunda* is abundant to dominant in the herbaceous stratum

3a *Poa secunda* clearly dominates the plant community, other species are not abundant

Class 16a – Sandberg Bluegrass Herbaceous Vegetation

3b Other species are abundant to dominant in the plant community

4a *Pseudoroegneria spicata* is abundant to dominant in the plant community

Class 11ab – Bluebunch Wheatgrass – Sandberg Bluegrass Herbaceous Vegetation

4b *Artemisia nova* is abundant in the plant community

Class 16b – Black Sagebrush/Sandberg Bluegrass Dwarf-shrub Herbaceous Vegetation

2b *Poa secunda* is absent from the herbaceous stratum or occurs with low relative cover

5a *Achnatherum hymenoides* and/or *Hesperostipa comata* are the dominant species in the herbaceous stratum

6a Relative cover of *Achnatherum hymenoides* and *Hesperostipa comata* is roughly equal

Class 12 – Indian Ricegrass Herbaceous Vegetation

6b Either *Achnatherum hymenoides* or *Hesperostipa comata* clearly dominates the herbaceous layer, both species are not abundant

7a *Achnatherum hymenoides* is the most abundant species in the herbaceous stratum

8a Dwarf shrubs are abundant, contributing substantial cover

9a *Atriplex falcata* is the most abundant dwarf shrub species

Class 15 – Sickle Saltbush Dwarf Shrubland

9b *Krascheninnikovia lanata* is the most abundant dwarf shrub species

Class 5 – Green Rabbitbrush – Winterfat Shrubland

8b Dwarf shrubs are absent to sparse

Class 12 – Indian Ricegrass Herbaceous Vegetation

7b *Hesperostipa comata* is the most abundant species in the herbaceous stratum

Class 3 – Needle and Thread Herbaceous Vegetation

5b *Leymus cinereus* is the dominant species in the herbaceous stratum

Class 14 – Basin Wildrye Herbaceous Vegetation

1b The herbaceous stratum is dominated by native perennial rhizomatous grasses

10a Relative cover of *Elymus lanceolatus* and *Pascopyrum smithii* is roughly equal

Class 1 – Streambank Wheatgrass Herbaceous Vegetation

10b Either *Elymus lanceolatus* or *Pascopyrum smithii* clearly dominates the herbaceous layer, both species are not abundant

11a *Elymus lanceolatus* is the most abundant species in the herbaceous stratum

Class 1 – Streambank Wheatgrass Herbaceous Vegetation

11b *Pascopyrum smithii* is the most abundant species in the herbaceous stratum

Class 9 – Western Wheatgrass Herbaceous Vegetation

Semi-natural Vegetation Classes

1a Introduced perennial species dominate or co-dominate the plant community

2a *Agropyron cristatum* or *Agropyron desertorum* clearly dominate the plant community, other species are not abundant

Class 10 – Crested Wheatgrass Semi-natural Herbaceous Vegetation

2b *Agropyron cristatum* or *Agropyron desertorum* dominate or co-dominate the plant community, but *Alyssum desertorum* and/or *Chrysothamnus viscidiflorus* are abundant

Class 8 – Green Rabbitbrush/Desert Alyssum Shrub Herbaceous Vegetation

1b Introduced annual and/or biennial species dominate the plant community

2a *Bromus tectorum* clearly dominates the plant community, other species are not abundant

Class 13 – Cheatgrass Semi-natural Herbaceous Vegetation

2b Introduced annual forbs are abundant and *Bromus tectorum* ranges from sparse to co-dominant

3a *Ericameria nana* and/or *Gutierrezia sarothrae* are present

Class 21 – Dwarf Goldenbush Dwarf Shrubland

3b *Ericameria nana* and *Gutierrezia sarothrae* are absent

4a *Sisymbrium altissimum* is the most abundant introduced annual species or *Sisymbrium altissimum* and *Bromus tectorum* co-dominate the plant community

5a Riparian shrub species including *Salix exigua*, *Populus angustifolia*, *Rosa woodsii*, *Ribes aureum*, etc. are present

Class 17b – Remnant Riparian Shrub Herbaceous Vegetation

5b Riparian shrub species are absent

Class 17a – Tall Tumble Mustard – Cheatgrass Semi-natural Herbaceous Vegetation

4b *Sisymbrium altissimum* is absent or sparse

6a *Alyssum desertorum* is the most abundant introduced annual species

7a *Chrysothamnus viscidiflorus* is abundant in the plant community

Class 8 – Green Rabbitbrush/Desert Alyssum Shrub Herbaceous Vegetation

7b *Hesperostipa comata* is abundant in the plant community

Class 3 – Needle and Thread Herbaceous Vegetation

6b *Halogeton glomeratus* or *Salsola kali* is the most abundant introduced annual species

8a *Halogeton glomeratus* is the most abundant introduced annual species

9a Shrubs are abundant in the plant community

10a *Artemisia tridentata* ssp. *wyomingensis* is the most abundant shrub species

Class 7 – Wyoming Big Sagebrush Shrubland

10b *Artemisia tridentata* is sparse to absent

11a *Chrysothamnus viscidiflorus* and/or *Krascheninnikovia lanata* are the most abundant shrub species

12a *Krascheninnikovia lanata* is present

Class 5 – Green Rabbitbrush – Winterfat Shrubland

12b *Krascheninnikovia lanata* is absent

Class 4a – Green Rabbitbrush Shrubland

11b *Atriplex falcata* is the most abundant shrub species

Class 15 – Sickle Saltbush Dwarf Shrubland

9b Shrubs are sparse to absent in the plant community

13a *Agropyron cristatum* or *Agropyron desertorum* are abundant in the plant community

Class 10 – Crested Wheatgrass Semi-natural herbaceous Vegetation

13b *Elymus lanceolatus* is abundant in the plant community

Class 1 – Streambank Wheatgrass Herbaceous Vegetation

8b *Salsola kali* is the most abundant introduced annual species

14a *Bromus tectorum* is abundant to co-dominant

15a *Sisymbrium altissimum* is abundant

Class 17a – Tall Tumblemustard – Cheatgrass Semi-natural Herbaceous Vegetation

15b *Sisymbrium altissimum* is sparse to absent

Class 13 – Cheatgrass Semi-natural Herbaceous Vegetation

14b *Bromus tectorum* is sparse

16a *Pascopyrum smithii* is the most abundant native graminoid

Class 9 – Western Wheatgrass Herbaceous Vegetation

16b *Achnatherum hymenoides* is the most abundant native graminoid

Class 12 – Indian Ricegrass Herbaceous Vegetation

* Dwarf shrub species include; *Artemisia arbuscula*, *Artemisia nova*, *Krascheninnikovia lanata*, *Atriplex falcata*, *Atriplex confertifolia*, *Ericameria nana*, and *Gutierrezia sarothrae*.