

FIELD KEY TO CALVEG ALLIANCES

GREAT BASIN - ZONE 9

Revised November 2, 2010

Using NRCS codes from the Plants Database

Pseudospecies lists are used in accuracy assessment protocols

I. Key to Lifeforms

- 1A. If absolute canopy closure (cover) of trees (conifers and/or hardwoods) > 10% of plot or area ... 2
1B. If absolute canopy closure (cover) of trees is < 10% of plot or area ... 4
- 2A. **Tree Dominated Order:** if conifers have relative canopy cover > 80% of total tree canopy closure ... **conifer lifeform** and go to **II. Key to Conifers**
2B. **Tree Dominated Order:** if conifers have relative canopy cover ≤ 80% of total tree canopy closure ... 3
- 3A. If hardwoods have relative canopy cover > 90% of total tree canopy closure ... **hardwood lifeform** and go to **III. Key to Hardwoods**
3B. If hardwoods have relative canopy cover ≥ 20% of total tree canopy closure and conifers have relative canopy cover ≥ 10% of total tree canopy closure ... **mixed lifeform** and go to **II. Key to Conifers** for conifer component and **III. Key to Hardwoods** for hardwood component
- 4A. **Shrub Dominated Order:** if absolute cover of shrubs is ≥ 10% of plot or area ... **shrub lifeform** and go to **IV. Key to Shrubs and Subshrubs**
4B. If absolute cover of shrubs is < 10% of plot or area ... 5
- 5A. **Herbaceous or Non-Vascular Dominated Order:** if absolute cover of other vascular vegetation is ≥ 10% of plot or area ... **herbaceous lifeform** and go to **V. Key to Grasses and Forbs**
5B. If absolute cover of other vascular vegetation is < 10% of plot or area ... **sparsely vegetated or non-vegetated lifeform** and go to **VI. Key to Sparsely Vegetated and Non-Vegetated Types**

II. Key to Conifers

cc = conifer canopy cover

- 1A. One conifer species (or genus) has ≥ 50% cc ... 2
1B. No single conifer species (or genus) has ≥ 50% cc ... 21
- 2A. Lodgepole Pine (**PICO**) has ≥ 75% cc ... **Lodgepole Pine - LP**
2B. Otherwise ... 3
- 3A. Mountain Hemlock (**TSME**) has ≥ 75% cc ... **Mountain Hemlock - MH**
3B. Otherwise ... 4
- 4A. Red Fir (**ABMA**) has ≥ 75% cc ... **Red Fir - RF**
4B. Otherwise ... 5
- 5A. Bristlecone Pine (**PSEUDO51: PIARL, PILO**) has ≥ 75% cc ... **Bristlecone Pine – BP**

5B. Otherwise ... 6

6A. Limber Pine (**PIFL2**) has $\geq 75\%$ cc ... **Limber Pine - PL**

6B. Otherwise ... 7

7A. White Fir (**ABCO**) has $\geq 75\%$ cc ... **White Fir - WF**

7B. Otherwise ... 8

8A. Jeffrey Pine (**PIJE**) has $\geq 75\%$ cc and Great Basin shrub species (**PSEUDO1**) and/or eastside conifers such as Utah Juniper and/or Singleleaf Pinyon Pine (**PSEUDO2: JUOS, JUUT, PIMO**) are not present. Shrubs include Bitterbrush, Rabbitbrush, Nevada Dalea, Curlleaf Mountain Mahogany, Basin Sagebrush, Mountain Sagebrush, Low Sagebrush, Black Sagebrush, Silver Sagebrush, Wyoming Sagebrush, and/or Ocean Spray in combination (**PSEUDO1: PUGL2, CHRYS9, ERNA10, CHVI8, PSPO, CELE3, ARTR2, ARTRV, ARVA2, ARAR8, ARNO4, ARCA13, ARTRW8, HOMI3**) ... **Jeffrey Pine - JP**

8B. Otherwise ... 9

9A. Jeffrey Pine alone or combination with Ponderosa Pine (**PSEUDO46: PIJE, PIPO**) has $\geq 75\%$ cc and Great Basin shrub species (**PSEUDO1**) and/or eastside conifers (**PSEUDO2**) are present in any combination ... **Eastside Pine - EP**

9B. Otherwise ... 10

10A. Ponderosa Pine (**PIPO**) has $\geq 75\%$ cc and Great Basin shrub species (**PSEUDO1**) and/or eastside conifers (**PSEUDO2**) are not present ... **Ponderosa Pine - PP**

10B. Otherwise ... 11

11A. Singleleaf Pinyon Pine (**PIMO**) has $\geq 75\%$ cc ... **Pinyon-Juniper - PJ**

11B. Otherwise ... 12

12A. Utah Juniper (**PSEUDO3: JUOS, JUUT**) has $\geq 75\%$ cc ... **Utah Juniper - JU**

12B. Otherwise ... 13

13A. Western White Pine (**PIMO3**) has $\geq 75\%$ cc ... **Western White Pine - WW**

13B. Otherwise ... 14

14A. Western Juniper (**JUOC**) has $\geq 75\%$ cc ... **Western Juniper - WJ**

14B. Otherwise ... 15

15A. Red Fir and/or White Fir in combination (**PSEUDO4: ABMA, ABCO**) have $\geq 75\%$ cc and Red Fir cc is $>$ White Fir ... **Red Fir - RF**

15B. Otherwise ... 16

16A. White Fir and/or Red Fir in combination (**PSEUDO4**) have $\geq 75\%$ cc and White Fir cc is $>$ Red Fir ... **White Fir - WF**

16B. Otherwise ... 17

17A. Singleleaf Pinyon Pine has $\geq 50\%$ cc and Utah and/or Western Junipers alone or in combination (**PSEUDO5: PIMO, JUOS, JUUT, JUOC**) are present ... **Pinyon - Juniper - PJ**

17B. Otherwise ... 18

18A. Whitebark Pine (**PIAL**) has $\geq 75\%$ cc ... **Whitebark Pine - WB**

18B. Otherwise ... 19

19A. Incense Cedar (**CADE27**) has $\geq 75\%$ cc ... **Incense Cedar - MD**

19B. Otherwise ... 20

20A. Washoe Pine (**PIWA**) has $\geq 75\%$ cc ... **Washoe Pine – WP**

20B. Otherwise ... 21

21 A. Ponderosa Pine (**PIPO**) has $\geq 50\%$ cc; White Fir (**ABCO**) has $\geq 20\%$ cc ... **Ponderosa Pine - White Fir - PW**

21 B. Otherwise ... 22

22A. Douglas-Fir (**PSME**) has $\geq 50\%$ cc; White Fir (**ABCO**) has $\geq 20\%$ cc ... **Douglas-Fir - White Fir - DW**

22B. Otherwise ... 23

Note: no single species or genus has $\geq 50\%$ cc

23A. Any combination of two or more high elevation conifers, including Whitebark Pine, Limber Pine, Foxtail Pine, Mountain Hemlock, Bristlecone Pine, Western White Pine, Red Fir and/or Lodgepole Pine are present; none have $\geq 50\%$ cc alone (**PSEUDO7: PIAL, PIFL2, PIBA, TSME, PILO, PIARL, PIMO3, ABMA, PICO**) ... **Subalpine Conifers - SA**

23B. Otherwise ... 24

24A. Western Juniper has $\geq 25\%$ cc and either Ponderosa Pine or Jeffrey Pine (**PSEUDO46: PIPO, PIJE**) has $\geq 25\%$ cc and their combination (**PSEUDO34: JUOC, PIPO, PIJE**) has $\geq 75\%$ cc ... **Yellow Pine – Western Juniper - JJ**

24B. Otherwise ... 25

25A. White Fir and/or Red Fir alone or in combination (**PSEUDO4**) have $\geq 30\%$ cc and Jeffrey Pine (**PIJE**) and/or Lodgepole Pine (**PICO**) (**PSEUDO8: PIJE, PICO**) are often present ... **Mixed Conifer - Fir - MF**

25B. Otherwise ... 26

26A. Ponderosa Pine and/or Sugar Pine (**PSEUDO9: PIPO, PILA**) in combination have $\geq 10\%$ cc ... **Mixed Conifer - Pine - MP**

26B. Otherwise... 27

27A. Hardwoods have $\geq 20\%$ of total plot cover. Non-native/ornamental conifer mixture has $\geq 50\%$ cc and non-native hardwood mixture has $\geq 50\%$ of the hardwood canopy cover ... **Non-Native/Ornamental Conifer-Hardwood - IM**

27B. Otherwise ... 28

28A. Mixture of non-native/ornamental conifers has $\geq 50\%$ cc ... **Non-Native/Ornamental Conifers - IC**

28B. Otherwise ... 29

29. Otherwise ... **Unknown Conifer - XC**

III. Key to Hardwoods

hc = hardwood canopy cover

1A. One single hardwood species or genus has $\geq 50\%$ hc ... 2

1B. No single hardwood species or genus has $\geq 50\%$ hc ... 9

2A. Tree Willows of any species alone or in combination (**PSEUDO12: SALIX, SAAL2, SALA3**) have $\geq 50\%$ hc ... **Willow - QO**

2B. Otherwise ... 3

3A. Quaking Aspen (**POTR5**) has $\geq 50\%$ hc ... **Aspen - QQ**

3B. Otherwise ... 4

4A. Fremont Cottonwood (**POFR2**) has $\geq 50\%$ hc ... **Fremont Cottonwood - QF**

4B. Otherwise ... 5

5A. Curlleaf Mountain Mahogany (**PSEUDO52: CELE3-tree form**) has $\geq 50\%$ hc ... **Curlleaf Mountain Mahogany - FM**

5B. Otherwise ... 6

6A. Black Cottonwood (**PSEUDO56: POTR15, POBAT**) has $\geq 50\%$ hc ... **Black Cottonwood - QX**

6B. Otherwise ... 7

7A. Water Birch (**BEOC2**) has $\geq 50\%$ hc ... **Water Birch - FO**

7B. Otherwise ... 8

8A. Black Oak (**QUKE**) has $\geq 50\%$ hc ... **Black Oak - QK**

8B. Otherwise ... 9

Note: no single species has $\geq 50\%$ hc

9A. Black and/or Fremont Cottonwood (**PSEUDO12: POTR15, POBAT, POFR2**) and White and/or Mountain Alder are present (**PSEUDO13: ALRH2, ALTE2**) ... **Cottonwood - Alder - QJ**

9B. Otherwise ... 10

10A. Combination of tree-form riparian species such as Fremont Cottonwood, Black Cottonwood, Aspen, Water Birch, Willows and/or Velvet Ash (**PSEUDO14: POFR2, POTR15, POBAT, POTR5, BEOC2, SALIX, SAAL2, SALA3, FRVE2**) have $\geq 50\%$ hc ... **Mixed Riparian Hardwoods - NR**

10B. Otherwise ... 11

11A. Non-native hardwood species alone or in mixture $\geq 50\%$ of hardwood canopy cover ... **Non-Native/Ornamental Hardwood - IH**

11B. Otherwise ... **Unknown Hardwood - XH**

IV. Key to Shrubs

sc = shrub canopy cover

- 1A. Alpine and subalpine areas with indicator shrubs and dwarf shrubs singly or in combination: Fern Bush, Mountain Snowberry, Spineless Horsebrush, Wax Currant, Low Sagebrush and/or Rothrock Sagebrush (**PSEUDO17: CHMI2, SYRO, TECA2, RICE, ARAR8, ARRO4**) have $\geq 50\%$ sc ... **Mixed Alpine Scrub - AX**
1B. Otherwise ... 2
- 2A. One naturally occurring species or genus has $\geq 50\%$ shrub canopy cover (sc) ... 3
2B. No single naturally occurring species or genus has $\geq 50\%$ shrub cover ... 29
- 3A. Rabbitbrush (**PSEUDO18: CHRYS9, ERNA10, CHVI8, CHNAC3**) has $\geq 50\%$ sc ... **Rabbitbrush- BR**
3B. Otherwise ... 4
- 4A. Bitterbrush (**PSEUDO21: PUGL2, PUTR2**) has $\geq 50\%$ sc ... **Bitterbrush - BB**
4B. Otherwise ... 5
- 5A. Shrub form of Curlleaf Mountain Mahogany (**PSEUDO53: CELE3** - shrub form) has $\geq 50\%$ sc ... **Curlleaf Mountain Mahogany - BM**
5B. Otherwise ... 6
- 6A. Shadscale (**ATCO**) has $\geq 50\%$ sc ... **Shadscale - DS**
6B. Otherwise ... 7
- 7A. Any species of Saltbush (**PSEUDO22: ATRIP, ATCA2**, non-dominant **ATCO, ATPO**) alone or in combination has $\geq 50\%$ sc ... **Saltbush - BC**
7B. Otherwise ... 8
- 8A. Creosote (**LATR2**) has $\geq 50\%$ sc ... **Creosote - DL**
8B. Otherwise ... 9
- 9A. Mormon Tea or any species of Ephedra (**PSEUDO23: EPHED, EPNE, EPVI**) has $\geq 50\%$ sc ... **Ephedra - FD**
9B. Otherwise ... 10
- 10A. Low Sagebrush (**PSEUDO54: ARAR8, ARARA, ARARL2, ARARA2**) has $\geq 50\%$ shrub cover ... **Low Sagebrush - BL**
10B. Otherwise ... 11
- 11A. Basin Sagebrush, subspecies unidentified (**PSEUDO20: ARTR2**) has $\geq 50\%$ sc...**Basin Sagebrush-BS**
11B. Otherwise ... 12
- 12A. Indigo Bush, any species alone or in combination (**PSEUDO24: PSORO, PSAR4, PSFR, PSPO, PSSC5**) has $\geq 50\%$ sc ... **Indigo Bush - DI**
12B. Otherwise ... 13
- 13A. Greasewood (**SAVE4**) has $\geq 50\%$ sc ... **Greasewood - BG**
13B. Otherwise ... 14

14A. Blackbush (**CORA**) has $\geq 50\%$ sc ... **Blackbush - DA**

14B. Otherwise ... 15

15A. Horsebrush or Cottonthorn, any species alone or in combination (**PSEUDO13: TETRA3, TEAR, TEAX, TECA2, TECO2, TEDI, TEGL, TEST2**) has $> 50\%$ sc ... **Horsebrush - TM**

15B. Otherwise ... 16

16A. Snowbrush (**CEVE**) has $\geq 50\%$ sc ... **Snowbrush - CV**

16B. Otherwise ... 17

17A. Spiny Menodora (**MESP2**) has $\geq 50\%$ sc ... **Spiny Menodora - DJ**

17B. Otherwise ... 18

18A. Littleleaf Mountain Mahogany (**CEIN7**) has $\geq 50\%$ sc ... **Littleleaf Mountain Mahogany - BI**

18B. Otherwise ... 19

19A. Shrub Willow, any species alone or in combination (**PSEUDO44: SALIX, SABR, SAEX, SALA6, SALU, SALU2**) has $\geq 50\%$ sc ... **Willow - WL**

19B. Otherwise ... 20

20A. Mat Buckwheat (**ERCA8**) has $\geq 50\%$ sc ... **Desert Buckwheat - DB**

20B. Otherwise ... 21

21A. Eastern Mojave Buckwheat and/or unknown Buckwheat (**PSEUDO32: ERFAP, ERFA2, ERIOG**) has $\geq 50\%$ sc ... **Buckwheat - SB**

21A. Otherwise ... 22

22A. Mountain Sagebrush (**PSEUDO40: ARTRV, ARTRV2, ARVA2**) has $\geq 50\%$ shrub cover ... **Mountain Sagebrush - TV**

22B. Otherwise ... 23

23A. Big Basin Sagebrush (**PSEUDO51: ARTRT**) has $\geq 50\%$ shrub cover ... **Big Basin Sagebrush - TT**

23B. Otherwise ... 24

24A. Greenleaf Manzanita (**ARPA6**) has $\geq 50\%$ shrub cover ... **Greenleaf Manzanita - CG**

24B. Otherwise ... 25

25A. Snowberry of any species, such as Unknown species, Sharpleaf, and Mountain (**PSEUDO43: SYMPH, SYAC, SYOR2, SYVA**) has $\geq 50\%$ shrub cover ... **Snowberry - TS**

25B. Otherwise ... 26

26A. Black Sagebrush (**ARNO4**) has $\geq 50\%$ shrub cover ... **Black Sagebrush - TN**

26B. Otherwise ... 27

27A. Silver Sagebrush (**PSEUDO51: ARCA13**) has $\geq 50\%$ sc ... **Silver Sagebrush - TU**

27B. Otherwise ... 28

28A. Quaking Aspen, shrub form (**POTR5**) has $\geq 50\%$ sc ... **Quaking Aspen - KQ**

28B. Otherwise ... 29

Note: no single species or genera has $\geq 50\%$ sc

29A. Mojave Desert species, such as Creosote, Ephedra, Blackbush, White Bursage, Spiny Menodora, Spiny Hopsage, Horsebrush, Sonoran Scrub Oak and/or Opuntia species (**PSEUDO31: LATR2, EPHED, EPNE, EPVI, CORA, AMDU2, MESP2, GRSP, TEAR, TEAX, TECA2, TECO2, TEDI, TEGL, TEST2, TETRA3, QUTU2, OPUNT, OPPA2, OPER, OPPU**) in various combinations have $\geq 50\%$ shrub cover ... **Mixed (Mojave) Desert Shrub - DX**

29B. Otherwise ... 30

30A. Riparian shrub species singly or in combination have $\geq 50\%$ sc, including Interior Rose; riparian Shrub Willows; Blue Elderberry; California Blackberry; White-stemmed Gooseberry; and/or Silver Sagebrush (**PSEUDO37: ROWO, SALIX, SABR, SAEX, SALA6, SALU, SALU2, SAMBU, SAME5, RUUR, RIIN2, ARCA13**) ... **Riparian Mixed Shrub - NM**

30B. Otherwise ... 31

31A. Great Basin species: Bitterbrush, Rabbitbrush; Nevada Dalea; Curlleaf Mountain Mahogany; Sagebrushes; and/or Ocean Spray singly or in combination (**PSEUDO36: PUGL2, PUTR2, CHRYS9, ERNA10, CHVI8, PSPO, CELE3, ARTR2, ARTRV, ARTRT, ARAR8, ARNO4, ARCA13, ARTRW8, ARVA2, HOMI3**) have $\geq 50\%$ shrub cover; Mojave shrub species (**PSEUDO31**) have $< 20\%$ sc. Species of Currant or Gooseberry (**RIBES**), Wax Currant (**RIVE**), Snowberry (**SYMPH, SYOR2, SYORO, SYVA**) or Rose (**ROSA5, ROWO**) are often present ... **Basin Mixed Scrub - BQ**

31B. Otherwise ... 32

32A. Cacti species (**PSEUDO30: OPUNT, OPPA2, OPER, OPPU**) have $< 10\%$ shrub cover. Combinations of halophytes such as non-dominant Atriplex species; Greasewood; Iodine Bush; Horsebrush species; Budsage; Molly; and/or Hopsage (**PSEUDO45: ATRIP, ATCA2, ATCO, ATPO; SAVE4; ALOC2; TETRA3, TEAR, TEAX, TECA2, TECO2, TEDI, TEGL, TEST2; ARSP5; KOCHI; GRSP**) have $\geq 50\%$ shrub cover... **Alkaline Mixed Scrub - NA**

32B. Otherwise ... 33

33A. Higher elevation non-dominant desert species Ephedra and Green Ephedra; Spiny Menodora; and/or Horsebrush in combination (**PSEUDO49: EPHED, EPVI, MESP2, TETRA3**) have $\geq 50\%$ shrub cover; Certain Mojave species: Cacti, White Bursage and Creosote (**PSEUDO50: OPUNT, OPPA2, OPER, OPPU, AMDU2, LATR2**) have $< 10\%$ sc. Other Mojave Desert species such as Blackbush (**CORA**), Hopsage (**GRSP**), and/or Sonoran Scrub Oak (**QUTU2**) may be present ... **High Desert Mixed Scrub - NQ**

33B. Otherwise ... 34

34A. Combinations of Great Basin and Mojave Desert shrubs occur together. Great Basin species (**PSEUDO1**) have $\geq 25\%$ of the shrub cover and Mojave Desert species: (**PSEUDO31**) singly or in combination have $\geq 25\%$ of the shrub cover ... **Great Basin - Desert Mixed Scrub - BZ**

34B. Otherwise ... 35

35A. Mixture of two genera: Bitterbrush plus any combination of Artemisia species (Low Sagebrush, Mountain Sagebrush, Big Basin Sagebrush, Big Sagebrush, Wyoming Sagebrush, Black Sagebrush, Silver Sagebrush, Unknown Sagebrush in combination (**PSEUDO35: PUGL2, PUTR2, ARAR8, ARTRV, ARVA2, ARTRT, ARTR, ARTRW8, ARNO4, ARCA13, ARTEM**) have $\geq 50\%$ sc ... **Bitterbrush – Sagebrush - TB**

35B. Otherwise ... 36

36A. Any of the following species in combination have $\geq 50\%$ sc: Snowbrush, Bush Chinquapin, Fern Bush, Greenleaf Manzanita, Mountain Whitethorn, and/or Snowberry (**PSEUDO29: CEVE, CHSE11, CHMI2, ARPA6, CECO, SYOR2**) ... **Upper Montane Mixed Chaparral - CX**

36B. Otherwise ... 37

37A. Combination of Upper Montane Mixed Chaparral and Great Basin shrub species. Upper Montane Mixed Chaparral shrubs in combination (**PSEUDO29**) have $\geq 25\%$ shrub cover and Great Basin species (**PSEUDO1**) also have $\geq 25\%$ shrub cover ... **Great Basin - Mixed Chaparral Transition - BX**

37B. Otherwise ... 38

38A. Non-native or ornamental cultivated shrubs have $\geq 50\%$ sc ... **Non-Native/Ornamental Shrub - IS**

38B. Otherwise ... **Unknown Shrub - XS**

V. Key to Herbaceous

hg = herbaceous/grass canopy cover

1A. Exposed alpine and subalpine areas with various herbaceous plants and graminoids in the High Sierras; indicators are White Mountain Buckwheat (*Eriogonum gracilipes*), Covilles Phlox (*Phlox condensata*), Dwarf Alpine Indian Paintbrush (*Castilleja nana*), Prairie Flax (*Linum lewisii*), Stemless Goldenweed (*Stenotus acaulis*), Alpineflames (*Pyrocoma apargioides*), Spikerush Sedge (*Carex eleocharis*), Needleleaf Sedge (*Carex duriuscula*), Beatleys Clover (*Trifolium andersonii* var. *beatleyae*), Cushion Buckwheat (*Eriogonum ovalifolium*), the fern ally Watsons Spikemoss (*Selaginella watsonii*), Pussypaws (*Calyptidium umbellatum*), Rock-Jasmine (*Androsace septentrionalis*), Heller's Sedge (*Carex helleri*), Bottlebrush Squirreltail (*Elymus elymoides*), Pine Needlegrass (*Achnatherum pinetorum*) and Granite Pricklyphlox (*Leptodactylon pungens*). Other species in this variable Alliance include Junegrass (*Koeleria macrantha*), Dwarf Lupine (*Lupinus lepidus*), Pale Agoseris (*Agoseris glauca* var. *monticola*), Pennsylvania Cinquefoil (*Potentilla pensylvanica*), Pigmy Bitterroot (*Lewisia pygmaea*), Prickly Sandwort (*Arenaria kingii* var. *glabrescens*), Nearlyblack Sedge (*Carex subnigricans*), Cushion Whitlowgrass (*Draba breweri*), Rocky Mountain Pussytoes (*Antennaria media*), Alpine Fescue (*Festuca brachyphylla*), Tufted Hairgrass (*Deschampsia caespitosa*), Spiked Woodrush (*Luzula spicata*), Masons Sky Pilot (*Polemonium chartaceum*), Rambling Fleabane (*Erigeron vagus*), Roundspike Catseye (*Cryptantha humilis*), Coopers Hymonoxys (*Hymenoxys cooperi*), Sierra Draba (*Draba sierrae*), Sierran Beardtongue (*Penstemon heterodoxus*), Nuttalls Deserttrumpet (*Linanthus nuttallii*), Fewleaved Dock (*Rumex paucifolius*), Blackandwhite Sedge (*Carex albonigra*), Clubmoss Mousetail (*Ivesia lycopodioides* ssp. *scandalaris*), Spike Fescue (*Festuca kingii*), Torrey's Milk-Vetch (*Astragalus calycosus*), Dunhead Sedge (*Carex phaeocephala*), and Mertens Rush (*Juncus mertensianus*) ... **Alpine Grasses and Forbs - AC**

1B. Otherwise ... 2

2A. Annual grasses mixed with annual and/or perennial forbs which generally have limited surface or subsurface moisture in midsummer have $\geq 50\%$ hg. These include Bromes (*Bromus* spp.), Mexican Lovegrass (*Eragrostis mexicana*), Witchgrass (*Panicum capillare*), Sixweeks Fescue (*Vulpia octoflora*), Common Barley (*Hordeum vulgare*), Foxtail Fescue (*Vulpia myuros*) and Oats (*Avena* spp.) and non-native annual forbs such as Stork's Bill (*Erodium* spp.), Tumbleweed (*Amaranthus albus*), Tumble Mustard (*Sisymbrium altissimum*), Russian Thistle (*Salsola tragus*), Little Mallow (*Malva parviflora*), Prickly Lettuce (*Lactuca serriola*), Flix Weed (*Descurainia sophia*) and Wart Cress (*Coronopus didymus*) and native forbs such as Shortflowered Owl's Clover (*Orthocarpus cuspidatus* ssp. *cryptanthus*), and Freckled Milkvetch (*Astragalus lentiginosus*) ... **Annual Grasses and Forbs - HG**

2B. Otherwise ... 3

3A. Hydrophytic grasses and grass-like species [sedges (Carex spp.); nutsedges (Cyperus spp.); rushes (Juncus spp.); spikerushes or bulrushes (Eleocharis spp.); in mixture with hydrophytic herbaceous species annual grasses such as Bromes (Bromus spp.), native annual grasses such as Mexican Lovegrass (Eragrostis mexicana), Witchgrass (Panicum capillare) and Sixweeks Fescue (Vulpia octoflora) and non-native grasses such as Common Barley (Hordeum vulgare), Foxtail Fescue (Vulpia myuros) and Oats (Avena spp.). Non-native annual forbs such as Stork's Bill (Erodium spp.), Tumbleweed (Amaranthus albus), Tumble Mustard (Sisymbrium altissimum), Russian Thistle (Salsola tragus), Little Mallow (Malva parviflora), Prickly Lettuce (Lactuca serriola), Flix Weed (Descurainia sophia) and Wart Cress (Coronopus didymus), and native forbs such as Shortflowered Owl's Clover (Orthocarpus cuspidatus ssp. cryptanthus), and Freckled Milkvetch (Astragalus lentiginosus) may occur ... **Wet Meadows - HJ**

3B. Otherwise ... 4

4A. Unmanaged or natural areas containing mixtures of grasses and/or forbs that retain some moisture in midsummer, such as those in middle or higher elevations have $\geq 50\%$ hg, including Mules Ears (Wyethia mollis), both native and introduced Bluegrass (Poa spp.), the natives Indian Ricegrass (Achnatherum hymenoides), Nevada Needlegrass (Achnatherum nevadense), Pine Needlegrass (Achnatherum pinetorum), Thingrass (Agrostis pallens), Great Basin Wild Rye (Leymus cinereus), and Squirreltail (Elymus elymoides); the non-native Crested Wheatgrass (Agropyron desertortum), Tall Wheatgrass (Elytrigia elongata) and Quackgrass (Elytrigia repens); and native perennial forbs such as Eaton's Daisy (Erigeron eatonii), Glaucous Willowherb (Epilobium glaberrimum), Congdon's False Horkelia (Horkeliella congdonis) and Desert Biscuitroot (Lomatium foeniculaceum) ... **Perennial Grasses and Forbs - HM**

4B. Otherwise ... 5

5A. Fresh to brackish marsh herbaceous species [Tule (Scirpus acutus); Great Basin Bulrush (Scirpus nevadensis); Southern Cattail (Typha domingensis) and/or Broad-leaved Cattail (Typha latifolia)] have $\geq 50\%$ hg ... **Tule-Cattail - HT**

5B. Otherwise ... 6

6A. Native grasses such as Ashy Ryegrass (Leymus cinereus), Alkali Sacaton (Sporobolus airoides), Saltgrass (Distichlis spicata), One-sided Bluegrass (Poa secunda), and non-native forbs such as Herb Sophia (Descurainia sophia), and Halogeton (Halogeton glomeratus) occur in alkaline or saline flats and have $\geq 50\%$ hg ... **Alkaline Mixed Grasses and Forbs - HA**

6B. Otherwise ... 7

7A. Agricultural lands have $\geq 50\%$ hbg in row crops and are not usually flooded ... **Pastures and Crop Agriculture - A6**

7B. Otherwise ... 8

8A. Non-native cultivated grasses and herbaceous cover in mixture have $\geq 50\%$ hg ... **Non-Native / Ornamental Grasses - IG**

8B. Otherwise ... **Unknown Herbaceous - XG** (dry) or **XJ** (wet)

VI Key to Non-Vegetated Types

nvc = non-vegetated cover

1A. Agricultural uses comprise $\geq 50\%$ nvc ... Agriculture - AG

1B. Otherwise ... 2

2A. Snow or ice fields at the highest elevations comprise $\geq 50\%$ nvc ... Snow/Ice - SN

2B. Otherwise ... 3

3A. Dry urbanized or developed lands have $\geq 50\%$ nvc ... Urban-related Bare Soil - IB

3B. Not as above ... 4

4A. Urban or otherwise developed landscapes (highways, etc) occupy $\geq 50\%$ nvc ... Urban or Developed- UB

4B. Otherwise ... 5

5A. Open water or confined water courses occupy $\geq 50\%$ nvc ... Water - WA

5B. Otherwise ... 6

6A. Naturally barren landscapes (cliffs, bedrock, etc.) occupy $\geq 50\%$ nvc ... Barren - BA

6B. Otherwise ... 7

7A. Playas, dry alkaline lake beds and other alkaline flats occupy $\geq 50\%$ nvc ... Alkaline Flats - AK

7B. Otherwise ... Unknown Non-Vegetated - XZ