

Field Key to Calveg Alliances

South Coast and Montane – Zone 7

Revised March 3, 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) is $\geq 10\%$ 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 $\leq 80\%$ 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 $\geq 20\%$ of total tree canopy closure and conifers have relative canopy cover $\geq 10\%$ 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 $\geq 10\%$ 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 $\geq 10\%$ of plot or area ... **herbaceous lifeform** and go to **V. Key to Grasses and Forbs**
5B. If absolute cover of vascular vegetation is $< 10\%$ of plot or area ... **sparsely vegetated or non-vegetated lifeform** and go to **VI. Key to Sparsely Vegetated and Desert Types** or **VII Key to Non-Vegetated Types**

II. Key to Conifers

cc = conifer canopy cover

- 1A. A single naturally occurring conifer species has $\geq 50\%$ cc ... 2
1B. No single naturally occurring conifer species has $\geq 50\%$ cc ... 23
- 2A. Cuyamaca Cypress (**CUST**) has $\geq 50\%$ cc ... **Cuyamaca Cypress - MC**
2B. Otherwise ... 3
- 3A. Tecate Cypress (**CUFO2**) has $\geq 50\%$ cc ... **Tecate Cypress - MT**
3B. Otherwise ... 4
- 4A. Parry or Fourneedle Pinyon Pine (**PIQU**) has $\geq 50\%$ cc ... **Fourneedle Pinyon Pine - PQ**
4B. Otherwise ... 5

5A. Torrey Pine (**PITO**) has $\geq 50\%$ cc ... **Torrey Pine - PT**

5B. Otherwise ... 6

6A. Jeffrey Pine or Ponderosa Pine singly or in combination (**PSEUDO15: PIJE, PIPO**) have $\geq 75\%$ cc and Great Basin shrub species are present, including any of the following: Curlleaf Mountain Mahogany, Basin Sagebrush, Bitterbrush, Rabbitbrush, Flannel Bush, and/or Desert Almond (**PSEUDO16SHB: CELE3, ARTR2, PUGL2, PUTR2, CHNA2, CHRYS9, PIMO, FRCA6, PRFA**) and/or Dryland Conifers, including Singleleaf Pinyon Pine, Utah Juniper and/or Fourneedle Pinyon Pine (**PSEUDO16CON: PIMO, JUOS, PIQU**) are present ... **Eastside Pine - EP**

6B. Otherwise ... 7

7A. Jeffrey Pine or Ponderosa Pine singly or in combination (**PSEUDO15**) have $\geq 75\%$ cc and neither Great Basin shrub species (**PSEUDO16SHB**) nor any Dryland Conifers (**PSEUDO16CON**) are present ...

8

7B. Otherwise ... 9

8A. Jeffrey Pine has more cc than Ponderosa Pine ... **Jeffrey Pine - JP**

8B. Ponderosa Pine has more cc than Jeffrey Pine ... **Ponderosa Pine - PP**

9A. Bigcone Douglas-Fir (**PSMA**) has $\geq 75\%$ cc ... **Bigcone Douglas-Fir - DM**

9B. Otherwise ... 10

10A. Coulter Pine (**PICO3**) has $\geq 75\%$ cc ... **Coulter Pine - PC**

10B. Otherwise ... 11

11A. Limber Pine (**PIFL2**) has $\geq 75\%$ cc ... **Limber Pine - PL**

11B. Otherwise ... 12

12A. Knobcone Pine (**PIAT**) has $\geq 75\%$ cc ... **Knobcone - KP**

12B. Otherwise ... 13

13A. Grey Pine (**PISA2**) has $\geq 75\%$ cc ... **Grey Pine - PD**

13B. Otherwise ... 14

14A. Utah Juniper (**JUOS**) has $\geq 75\%$ cc ... **Utah Juniper - JU**

14B. Otherwise ... 15

15A. Singleleaf Pinyon Pine (**PIMO**) has $\geq 75\%$ cc ... **Singleleaf Pinyon Pine - PJ**

15B. Otherwise ... 16

16A. White Fir (**ABCO**) has $\geq 75\%$ cc ... **White Fir - WF**

16B. Otherwise ... 17

17A. Lodgepole Pine (**PICO**) has $\geq 75\%$ cc ... **Lodgepole Pine - LP**

17B. Otherwise ... 18

18A. Western Juniper (**JUOC**) has $\geq 75\%$ cc ... **Western Juniper - WJ**

18B. Otherwise ... 19

19A. Bishop Pine (**PIMU**) has $\geq 75\%$ cc ... **Bishop Pine - PM**

19B. Otherwise ... 20

20A. California Juniper, tree form (**JUCA7CON**) has $\geq 75\%$ cc ... **California Juniper - JT**

20B. Otherwise ... 21

21A. Sugar Pine (**PILA**) has $\geq 75\%$ cc ... **Sugar Pine - PE**

21B. Otherwise ... 22

22A. Pacific and/or Bigcone Douglas-Fir with Ponderosa Pine and/or with Coulter Pine in combination have $\geq 75\%$ cc (**PSEUDO2: PSME, PSMA, PIPO, PICO3**) and White Fir (**ABCO**) has $< 10\%$ cc ...

Douglas-Fir - Pine - DP

22B. Otherwise ... 23

REM: following are naturally occurring conifers having $< 50\%$ conifer cover or conifers occurring on managed lands

23A. Single or multiple species of conifers on agricultural sites have $\geq 50\%$ cc and agricultural hardwoods have $\geq 20\%$ of total tree canopy cover ... **Agricultural Nurseries - A8**

23B. Otherwise ... 24

24A. Single or multiple species of conifers on agricultural sites have $\geq 50\%$ cc and agricultural hardwoods have $< 20\%$ of total tree canopy cover ... **Conifer Agriculture - A1**

24B. Otherwise ... 25

25A. Non-native/ornamental conifer mixture has $\geq 50\%$ cc and non-native hardwood mixture also has $\geq 50\%$ of hardwood canopy cover ... **Non-Native/Ornamental Conifer-Hardwood - IM**

25B. Otherwise ... 26

26A. Single or multiple species of non-native/ornamental conifers have $\geq 50\%$ cc ... **Non-Native/Ornamental Conifer - IC**

26B. Otherwise ... 27

27A. Limber Pine and/or Western Juniper in combination (**PSEUDO18: PIFL2, JUOC**) have $\geq 25\%$ cc ... **Subalpine Conifers - SA**

27B. Otherwise ... 28

28A. Pacific and/or Bigcone Douglas-Fir with Ponderosa Pine and/or with Coulter Pine in combination have $\geq 75\%$ cc (**PSEUDO2: PSME, PSMA, PIPO, PICO3**) and White Fir (**ABCO**) has $< 10\%$ cc ...

Douglas-Fir - Pine - DP

28B. Otherwise ... 29

29A. Ponderosa Pine, Coulter Pine, Bigcone Douglas-Fir, and/or Sugar Pine in combination (none dominant) have $\geq 25\%$ cc (**PSEUDO19: PIPO, PICO3, PSMA, PILA**); Jeffrey Pine (**PIJE**) has $< 10\%$ cc ... **Mixed Conifer-Pine - MP**

29B. Otherwise ... 30

30A. Jeffrey Pine, Sugar Pine, Coulter Pine, Lodgepole Pine, and White Fir in combination (none dominant) have $\geq 25\%$ cc (**PSEUDO20: PIJE, PILA, PICO3, PICO, ABCO**) and Ponderosa Pine (**PIPO**) has $< 10\%$ cc ... **Mixed Conifer - Fir - MF**

30B. Otherwise ... **Unknown Conifer - XC**

III Key to Hardwoods

hc = hardwood canopy cover

1A. Non-desert hardwood species, including those in managed areas, are prominent; succulent, palm or thorn xeromorphic hardwood species are generally absent ... 2

1B. Desert succulent, palm or thorn xeromorphic hardwood species are prominent in the hardwood canopy; non-desert hardwood species are generally absent ... 26

2A. Valley Oak (**QULO**) has $\geq 50\%$ hc ... **Valley Oak - QL**

2B. Otherwise ... 3

3A. Fremont Cottonwood has $\geq 50\%$ hc (**PSEUDO21: POFR2, POFRA, POFRF3, POFRM, POFRP**) ... **Fremont Cottonwood - QF**

3B. Otherwise ... 4

4A. California Sycamore (**PLRA**) has $\geq 50\%$ hc ... **California Sycamore - QP**

4B. Otherwise ... 5

5A. White Alder (**ALRH2**) has $\geq 50\%$ hc ... **White Alder - QE**

5B. Otherwise ... 6

6A. Tree Willows: Unknown, Red, Black, Shining, Arroyo alone or in combination (**PSEUDO27**, trees only: **SALIX, SALA3, SAGO, SALU, SALA6**) have $\geq 50\%$ hc ... **Willow - QO**

6B. Otherwise ... 7

7A. Black Cottonwood (**POTR15**) has $\geq 50\%$ hc ... **Black Cottonwood - QX**

7B. Otherwise ... 8

8A. Bigleaf Maple (**ACMA3**) has $\geq 50\%$ hc ... **Bigleaf Maple - QM**

8B. Otherwise ... 9

9A. California Bay has $\geq 50\%$ hc (**PSEUDO24: UMCA**) ... **California Bay - QB**

9B. Otherwise ... 10

10A. A mixture of facultative riparian hardwood species in which no single species occupies $\geq 50\%$ hc; mixture includes at least two species from the following: Fremont Cottonwood, California Sycamore, Tree Willows, Valley Oak, White Alder, Bigleaf Maple, California Bay, Black Cottonwood, Ash, etc. (**PSEUDO22: PSEUDO2, PLRA, PSEUDO27, QULO, ALRH2, ACMA3, UMCA, POTR15, FRAXI**) ... **Riparian Mixed Hardwood - NR**

10B. Otherwise ... 11

11A. Coast Live Oak (**QUAG**) has $\geq 50\%$ hc ... **Coast Live Oak - QA**

11B. Otherwise ... 12

12A. Engelmann Oak (**QUEN**) has $\geq 50\%$ hc ... **Engelmann Oak - QN**

12B. Otherwise ... 13

13A. Black Oak (**QUKE**) has $\geq 50\%$ hc ... **Black Oak - QK**

13B. Otherwise ... 14

14A. Interior Live Oak (**QUWI2**) has $\geq 50\%$ hc ... **Interior Live Oak - QW**

14 B. Otherwise ... 15

15A. Blue Oak (**QUDO**) has $\geq 50\%$ hc ... **Blue Oak - QD**

15B. Otherwise ... 16

16A. Canyon Live Oak (**QUCH2**) has $\geq 50\%$ hc ... **Canyon Live Oak - QC**

16B. Otherwise ... 17

17A. Black Walnut (**JUGLA**) has $\geq 50\%$ hc ... **California Walnut - QV**

17B. Otherwise ... 18

18A. Tanoak has $\geq 50\%$ hc or combination of Tanoak and Madrone (**PSEUDO28: LIDE2, ARME**) has $\geq 50\%$ hc ... **Tanoak - QT**

18B. Otherwise ... 19

19A. California Buckeye (**AECA**) has $\geq 50\%$ hc ... **California Buckeye - QI**

19B. Not as above ... 20

20A. Eucalyptus species (**EUCAL**) alone or in combination have $\geq 50\%$ hc ... **Eucalyptus - QZ**

20B. Otherwise ... 21

21A. A mixture of montane hardwoods, none dominant, including some of the following: Black Oak, Madrone, Tanoak, Bigleaf Maple, and/or Tree Chinquapin in combination with other hardwoods have $\geq 50\%$ hc (**PSEUDO47: QUKE, ARME, LIDE3, ACMA3, CACH6, CHSE11**) ... **Montane Mixed Hardwood - TX**

21B. Otherwise ... 22

22A. A coastal mixture of hardwoods in which no one species occupies $\geq 50\%$ hc and where Coast Live Oak, Engelmann Oak and/or California Bay in combination with other hardwoods have $\geq 50\%$ hc (**PSEUDO10: QUAG, QUEN, UMCA**) ... **Coastal Mixed Hardwood - EX**

22B. Otherwise ... 23

23A. A mixture of more interior, terrestrial hardwoods in which no one species occupies $\geq 50\%$ hc. Indicators include Canyon Live Oak, Interior Live Oak, Blue Oak, Valley Oak, and California Buckeye; minor amounts of other hardwoods such as Black Oak (**QUKE**) or Madrone (**ARME**) may be in the mixture. Neither Coast Live Oak (**QUAG**) nor Engelmann Oak (**QUEN**) has $\geq 10\%$ hardwood cover alone or in combination (**PSEUDO23: AECA, QUCH2, QUDO, QULO, QUWI2**) ... **Interior Mixed Hardwood - NX**

23B. Otherwise ... 24

24A. Agricultural lands have $\geq 50\%$ hc ... **Orchard Agriculture - A4**

24B. Otherwise ... 25

25A. Non-native hardwood mixture occupies $\geq 50\%$ of hardwood canopy cover ... **Non-Native/Ornamental Hardwood - IH**

25B. Otherwise ... **Unknown Hardwood-XH**

Note: beginning of xeromorphic hardwoods

25A. Tree-form Curleaf Mountain Mahogany (**CELE3**) has $\geq 50\%$ hc ... **Curleaf Mountain Mahogany - FM**

25B. Otherwise ... 26

26A. Fan Palm has $\geq 50\%$ hc (**PSEUDO33: WAFI, WASHI**) ... **Fan Palm - UW**

26B. Otherwise ... 27

27A. Joshua Tree has $\geq 50\%$ hc (**PSEUDO34: YUBR, YUBRH, YUBRJ**) ... **Joshua Tree - UJ**

27B. Otherwise ... 28

28A. Desert Willow has $\geq 50\%$ hc (**PSEUDO35: CHLIA, CHILO, CHLI2**) ... **Desert Willow - UD**

28B. Otherwise ... 29

29A. Paloverde has $\geq 50\%$ hc (**PSEUDO36: CEFL6, CEMI6, PARK12, PAFL6, PAMI5**) ... **Paloverde - UP**

29B. Otherwise ... 30

30A. Mesquite has $\geq 50\%$ hc (**PSEUDO37: PRGLT, PRPU, PROSO**) ... **Mesquite - UM**

30B. Otherwise ... 31

31A. Smoke Tree (**PSSP**) has $\geq 50\%$ hc ... **Smoke Tree - UX**

31B. Otherwise ... 32

32A. Tamarisk has $\geq 50\%$ hc (**PSEUDO38: TAAP, TAAF, TAAR6, TACH2, TAMAR2, TAGA, TAPA4, TAPE, TARA**) ... **Tamarisk - UT**

32B. Otherwise ... 33

33A. Tree-form Catclaw Acacia has $\geq 50\%$ hc (**PSEUDO39: ACGR**) ... **Catclaw Acacia - UL**

33B. Otherwise ... **Unknown Hardwood - XH**

IV Key to Shrubs and Subshrubs

sc = shrub canopy cover

1A. A single naturally occurring shrub species or genus has $\geq 50\%$ sc ... 2

1B. No naturally occurring single shrub species or genus has $\geq 50\%$ sc ... 43

2A. Sumacs including Laurel Sumac, Sugarbush, Lemonade Berry and/or Skunkbrush and not including Poison Oak, alone or in combination have $\geq 50\%$ sc (**PSEUDO7: MALA6, RHOV, RHIN2, RHTR**) ...

Sumac - SM

2B. Otherwise ... 3

3A. California Buckwheat (**ERFA2**) has $\geq 50\%$ sc ... **Buckwheat - SB**

3B. Otherwise ... 4

- 4A. California Sagebrush (**ARCA11**) has $\geq 50\%$ sc ... **California Sagebrush - SS**
4B. Otherwise ... 5
- 5A. Encelia species alone or in combination have $\geq 50\%$ sc (**PSEUDO41: ENCA, ENFA, ENAC**)...
Encelia - SE
5B. Otherwise ... 6
- 6A. Riparian Baccharis species alone or in combination have $\geq 50\%$ sc (**PSEUDO20: BAEM, BASA2, BASA4, BASE, BABB, BACCH, BAGL2**) ... **Baccharis - ML**
6B. Otherwise ... 7
- 7A. Coyote Brush alone or in combination have $> 50\%$ sc (**PSEUDO26: non-riparian BACCH, BAPI, BAPIC2**) ... **Coyote Brush - CK**
7B. Otherwise ... 8
- 8A. Coastal Cacti such as Cane Cholla or Coastal Pricklypear alone or in combination (**PSEUDO42: OPPA2, OPOCL**) have $\geq 50\%$ sc ... **Coastal Cactus - SO**
8B. Otherwise ... 9
- 9A. Wedgeleaf Ceanothus (**CECU**) has $\geq 50\%$ sc ... **Wedgeleaf Ceanothus - CL**
9B. Otherwise ... 10
- 10A. Red Shank (**ADSP**) alone has $\geq 50\%$ sc or combination of Chamise (**ADFA**) with $\geq 25\%$ sc and Red Shank with $\geq 25\%$ sc ... **Redshank - CR**
10B. Otherwise ... 11
- 11A. Chamise (**ADFA**) has $\geq 50\%$ sc ... **Chamise - CA**
11B. Otherwise ... 12
- 12A. Mission Manzanita or Woolyleaf Ceanothus alone or in combination have $\geq 50\%$ sc (**PSEUDO30: XYBI, CETO**) ... **Southern Mixed Chaparral - CD**
12B. Otherwise ... 13
- 13A. Birchleaf Mountain Mahogany (**CEBE3**) has $\geq 50\%$ sc ... **Birchleaf Mountain Mahogany - WM**
13B. Otherwise ... 14
- 14A. Shrub form of California Juniper (**JUCA7**) has $\geq 50\%$ sc ... **California Juniper - JC**
14B. Otherwise ... 15
- 15A. Creosote Bush (**LADI2**) has $\geq 50\%$ sc ... **Creosote Bush - DL**
15B. Otherwise ... 16
- 16A. Blackbush (**CORA**) has $\geq 50\%$ sc ... **Blackbush - DA**
16B. Otherwise ... 17
- 17A. White Bursage (**AMDU2**) has $\geq 50\%$ sc ... **White Bursage - AD**
17B. Otherwise ... 18
- 18A. Chollas alone or in combination have $\geq 50\%$ sc (**PSEUDO54: OPAC, OPUNT**) ... **Cholla - DC**
18B. Otherwise ... 19

19A. Ocotillo (**FOSP2**) has $\geq 50\%$ sc ... **Ocotillo - DO**

19B. Otherwise ... 20

20A. Wright's or other shrub desert Buckwheats alone or in combination have $\geq 50\%$ sc (**PSEUDO55: ERIOG, ERWR**) ... **Desert Buckwheat - DB**

20B. Otherwise ... 21

21A. Horsebrush alone or in combination have $\geq 50\%$ sc (**PSEUDO56: TECA2, TETRA3**) ... **Horsebrush - TM**

21B. Otherwise ... 22

22A. Cheesebush (or Burrobush) (**HYSA**) has $\geq 50\%$ sc ... **Cheesebush - HS**

22B. Otherwise ... 23

23A. Scalebroom (**LESQ**) has $\geq 50\%$ sc ... **Scalebroom - LS**

23B. Otherwise ... 24

24A. Big Sagebrush (**ARTR2**) has $\geq 50\%$ sc ... **Big Sagebrush - BS**

24B. Otherwise ... 25

25A. Big Basin Sagebrush (**ARTRT**) has $\geq 50\%$ sc ... **Big Basin Sagebrush - TT**

25B. Otherwise ... 26

26A. Rabbitbrush alone or in combination has $\geq 50\%$ sc (**PSEUDO29: CHNA2, ERNA10, CHRYS9**) ... **Rabbitbrush - BR**

26B. Otherwise ... 27

27A. Saltbush species alone or in combination have $\geq 50\%$ sc (**PSEUDO57 ATRIP, ATCA2**) ...

Saltbush - BC

27B. Otherwise ... 28

28A. Curlleaf Mountain Mahogany (**CELE3**) has $\geq 50\%$ sc ... **Curlleaf Mountain Mahogany - BM**

28B. Otherwise ... 29

29A. Shrubby form of mesic Oaks alone or in combination have $\geq 50\%$ sc (**PSEUDO1: QUAGO, QUCHN, QUBE5, QUDU, QUDU4, QUERC, QUPA10, QUWIF**) ... **Scrub Oak - CS**

29B. Otherwise ... 30

30A. Ceanothus species, including Unknown species, non-dominant Mountain Whitethorn, Hoaryleaf, non-dominant Wedgeleaf, Wavyleaf, Cupleaf, Desert, Chaparral Whitethorn, Jim Brush, Greenbark, Hairy, Palmer, Woolyleaf and/or Bigpod (**PSEUDO3: CEANO, CECO, CECR, CECU, CEFO, CEGR, CEGRP, CEGR2, CEGRV2, CELE2, CESO2, CESP, CEOL, CEPA2, CETO, CEME**) in combination have $\geq 50\%$ sc ... **Ceanothus Chaparral - CC**

30B. Otherwise ... 31

31A. Shadscale (**ATCO**) has $\geq 50\%$ sc ... **Shadscale - DS**

31B. Otherwise ... 32

32A. Greasewood (**SAVE4**) has $\geq 50\%$ sc ... **Greasewood - BG**

32B. Otherwise ... 33

33A. Indigo Bush species alone or in combination (**PSEUDO48: PSORO, PSAR4, PSFR, PSPO, PSSC5**) have $\geq 50\%$ sc ... **Indigo Bush - DI**

33B. Otherwise ... 34

34A. Epehdra species alone or in combination (**PSEUDO58: EPHED, EPNE, EPVI**) have $\geq 50\%$ sc ... **Epehdra - FD**

34B. Otherwise ... 35

35A. Shrub Willows alone or in combination (**PSEUDO59: SASC, SALIX, SAEX, SALA6, SALU2**) have $\geq 50\%$ sc ... **Shrub Willow - WL**

35B. Otherwise ... 36

36A. Mountain Whitethorn (**CECO**) has $\geq 50\%$ sc ... **Mountain Whitethorn - CY**

36B. Otherwise ... 37

37A. Chaparral Yucca (**YUWH**) has $\geq 50\%$ sc ... **Chaparral Yucca - SY**

37B. Otherwise ... 38

38A. Xeromorphic/desert shrub oaks alone or in combination (**PSEUDO50: QUJO3, QUCO7, QUTU2**) have $\geq 50\%$ sc ... **Tucker Oak - CT**

38B. Otherwise ... 39

39A. Species of Sage (*Salvia* spp) alone or in combination (**PSEUDO51: SALVI, SAAP2, SACL, SALE3, SAME3**) have $\geq 50\%$ sc ... **Sage - SP**

39B. Otherwise ... 40

40A. Snowberry species alone or in combination (**PSEUDO52: SYMPH, SYVA, SYORO, SYOR2, SYMO, SYAC, SYAL**) have $\geq 50\%$ sc ... **Snowberry - TS**

40B. Not as above ... 41

41A. Manzanita species alone or in combination (**PSEUDO53: ARCTO3, non-dominant ARPA6, ARPA4, ARGL3, ARGL4, ARPU5, ARPR, ARPU10, ARRU2, ARTO2, ARRE5**) have $\geq 50\%$ sc ... **Manzanita Chaparral - SD**

41B. Otherwise ... 42

Note: beginning of agriculture shrubs and non-dominant shrub mixtures

42A. Agricultural lands have $\geq 50\%$ sc ... **Vineyard – Shrub Agriculture – A2**

42B. Otherwise ... 43

43A. Cheesebush (**HYSA**) has $\geq 25\%$ sc ... **Cheesebush - HS**

43B. Otherwise ... 44

44A. Horsebrush (**TETRA3, TECA2**) alone or in combination has $\geq 25\%$ sc and at least two other Great Basin (**PSEUDO16SHB, PSEUDO16CON**) or Desert Mixed shrub species (**PSEUDO5**) are present, such as Basin Sagebrush, Rabbitbrush, Flannel Bush, Desert Apricot, Desert Almond, Muller Oak, Curlleaf Mountain Mahogany, Bitterbrush, Cholla, Blackbush, Saltbush, Singleleaf Pinyon Pine, etc. ... **Horsebrush - TM**

44B. Otherwise ... 45

45A. Mission Manzanita and/or Woollyleaf Ceanothus in combination (**PSEUDO30: XYBI, CETO**) occupy $\geq 25\%$ sc ... **Southern Mixed Chaparral - CD**

45B. Otherwise ... 46

46A. Redshank (**ADSP**) has $\geq 30\%$ sc ... **Redshank - CR**

46B. Otherwise ... 47

47A. A coastal bluff condition in which a mixture of shrubs, subshrubs and perennial plants occur on cismontane bluffs. At least 30% of the shrub cover includes a mixture of shrubs and subshrubs such as coastal species of Saltbush, Heather Goldenbush, Croton, Fig Marigold, Coast Prickly Pear, Shaw's Agave, Lemonadeberry, Nuttall's Scrub Oak, California Encelia, Seacliff Buckwheat, and Bushrue (**PSEUDO11: ATRIP, ARHO3, ERER11, CROTO, CRCA2, CACH38, CAED3, OPLI3, AGSH, RHIN2, QUDU, ERPA8, ENCA, CNDU**). Perennials such as Cucumber Vine (**MAMA8**), Iceplant (**MECR3**), Morning-Glory (**CALYS**), Indian Paintbrush (**CASTI2**), Spineflower (**CHORI2**), Tickseed (**COREO2**), Dudleya (**DUDLE**), Seaside Daisy (**ERGL3**), and Desert Dandelion (**MALAC3**) also may occur ... **Coastal Bluff Scrub - SH**

47B. Otherwise ... 48

48A. A mixture of non-dominant Great Basin shrub species in combination (**PSEUDO16SHB**) has $\geq 50\%$ shrub cover; and warm Desert Mixed Shrub species, including Creosote, Blackbush, Ocotillo, White Bursage, Brittlebush, Jojoba, Boxthorn, Krameria, Interior Goldenbush, Desert Apricot, Wright's Buckwheat, and/or shrub form of Catclaw Acacia, Joshua Tree, and/or Mojave Yucca (**PSEUDO5: LATR2, CORA, FOSP2, AMDU2, ENFA, SICH, LYCO2, KRGR, KRER, ERLI6, HALI5, PRFR, ERWR, ACGR, YUBR, YUSC2**) have $< 50\%$ shrub cover ... **Great Basin Mixed Scrub - BQ**

48B. Otherwise ... 49

49A. A mixture of Upper Montane Mixed Chaparral species (**PSEUDO9**) has $\geq 25\%$ of the shrub cover and a mixture of Great Basin (**PSEUDO16SHB**) and/or desert fringe species (**PSEUDO63**) also has $\geq 25\%$ sc. Chamise (**ADFA**) has $< 5\%$ sc. Chaparral species may include those such as Palmer Ceanothus, Deerbrush, Mountain Whitethorn, Greenleaf, Parry, Mexican, or Pink-Bract Manzanitas; Redosier Dogwood; Utah Serviceberry; Fremont Silktassel; Thimbleberry; Snowberry; Creeping Snowberry; Western Choke Cherry; and/or Bitter Cherry and Bush or unknown Chinquapin (**PSEUDO9: CEPA, CEIN3, CECO, ARPA6, ARPA4, ARPU5, ARPR, ARPRD2, COST4, COSES, AMUT, GAFR, RUPA, SYMPH, SYMO, PRVI, PREM, CHSE11, CHRYS15**).

Great Basin shrubs may include mixes of generally non-dominant species such as Curlleaf Mountain Mahogany, Basin Sagebrush, Bitterbrush, Rabbitbrush, Tucker and/or Muller Oak, Flannel Bush and/or Desert Peach (**PSEUDO16SHB: CELE3, ARTR2, PUGL2, PUTR2, CHNA2, CHRYS9, ERNA10, QUJO3, QUCO7, FRCA6, PRAN2**). Others in warm desert fringe environments include Creosote, Blackbush, White Bursage, Desert Apricot, Desert Almond, Interior Goldenbush, Catclaw Acacia, Brittlebush, etc. (**PSEUDO63: PSEUDO16SHB and LATR2, CORA, AMDU2, PRFR, PRFA, ERLI6, HALI5, ACGR, ENFA**) ... **Great Basin - Mixed Chaparral Transition - BX**

49B. Otherwise ... 50

50A. Combinations of Great Basin and desert shrubs occur together. Great Basin species (**PSEUDO16SHB**) have $\geq 25\%$ of the shrub cover and Desert Mixed Scrub species (**PSEUDO5**) singly or in combination have $\geq 25\%$ of the shrub cover ... **Great Basin - Desert Mixed Scrub - BZ**

50B. Otherwise ... 51

51A. Riparian shrub species singly or in combination (**PSEUDO25**) have $\geq 50\%$ sc, including species of Shrub Willows (Unknown, Scouler's, Narrowleaf, Arroyo, and/or Shining) California Blackberry, Interior Rose, Silver Sagebrush and/or Unknown or Blue Elderberry (**PSEUDO25: SALIX, SASC, SAEX, SALA6, SALU2, RUUR, ROWO, ARCA13, SAMBU, SAME5**) ... **Riparian Mixed Shrub - NM**

51B. Otherwise ... 52

52A. Alkaline conditions in which desert succulent species (**PSEUDO12**) have $< 10\%$ shrub cover. Combinations of non-dominant Atriplex species, Greasewood, Iodine Bush, Budsage, Molly, Bush Seepweed, Winterfat, and/or Hopsage (**PSEUDO43: ATRIP, ATCA2, ATCO, ATPO, SAVE4, ALOC2, ARSP5, KOCHI, SUMO, KRLA2, GRSP**) have $\geq 50\%$ shrub cover ... **Alkaline Mixed Scrub - NA**

52B. Otherwise ... 53

53A. Colorado Desert wash condition where any of the following non-dominant shrubs in combination have $\geq 50\%$ sc: Saltbush species, Indigo Bush, Bush Seepweed, Desert Lavender, Desert Agave, Greasewood, Alkali Heath, Desert Almond, Bladder Sage, etc. (**PSEUDO31: ATRIP, ATCA2, PSSC5, SUMO, HYEM, AGDE, SAVE4, FRSA, PRFA, SAME**). The forbs and grasses Alkali Sacaton (**SPAI**), Saltgrass (**DISP**), and Pickleweed (**SALIC**) may also be found in this type. ... **Desert Mixed Wash Scrub - NB**

53B. Otherwise ... 54

54A. Alpine shrubs located near and above timberline occupy $\geq 50\%$ sc. Mixture includes dwarf and taller species such as Southern Alpine Buckwheat, Sulfur Flower Buckwheat, Rock Spirea, Wax Currant, Mountain Gooseberry, Purple Mountain Heath, Red Elderberry, Geyer's Willow, and Lemmon's Willow. It also may include perennials such as Southern California Draba (**DRCO**); Silky Raillardella (**RAAR**), Campion (**SIPA3**), Oneseed Pussypaws (**CIMO5**), Alpine Shooting Star (**DOAL**), Eschscholtz's Buttercup (**RAES**), Pumice Alpinegold (**HUVE**), Pioneer Rockcress (**ARPL**), Hoary Buckwheat (**ERSA6**), San Gabriel Alum (**HEAB**), Granite Prickly Phlox (**LEPU**), Woolly Mountain Parsley (**ORVE**), Rosy Pussytoes (**ANRO2**), Brewer's Rockcress (**ARBR**), Creeping Sibaldia (**SIPR**), Urnflower Alumroot (**HEEL2**), San Bernardino Beardtongue (**PECA3**), Davidson's Stonecrop (**SENI**) etc. (**PSEUDO40: ERKE2, ERUM, HOMI3, RICE, RIMO2, PHBR4, SARA2, SAGE2, SALE**) ... **Alpine Mixed Scrub - AX**

54B. Otherwise ... 55

55A. California Sagebrush (**ARCA11**), Sage species (**SALVI, SAAP2, SAME3, SALE3, SACL**), non-dominant California Buckwheat, Deerweed, Straggly Keckiella, Coyote Brush, California Encelia, Northern Bush Monkeyflower, Thicketleaf and Woolly Yerba Santa, Tree Tobacco, Sawtooth Goldenbush, and/or Mock Heather combined have $\geq 50\%$ sc (**PSEUDO8: ARCA11, ERFA2, SAAP2, SACL, SALE3, SALVI, SAME3, LOSC, KECO, BAPI, ENCA, MIAU, ERCR2, ERTO, NIGL, HASQ2, HAER**) ... **California Sagebrush / Coastal Sage Scrub mixture - SS**

55B. Otherwise ... 56

56A. An alluvial fan or wash xeric condition where no single species dominates. Indicator species are Scalebroom, Prickly Pears and Cholla, Chaparral Yucca, Sumacs, Fourwing Saltbush and California Juniper; others include California Buckwheat, California Sagebrush, White Sage, and Brittlebush (**ENFA**) (**PSEUDO13: LESQ, OPUNT, OPAC, OPOCL, YUWH, RHUS, ATCA2, JUCA7, ERFA2, ARCA11, SAAP2, ENFA**) ... **Riversidean Alluvial Scrub - RS**

56B. Otherwise ... 57

57A. A mixture of Colorado or Mojave Desert succulent species in mixture have $\geq 50\%$ sc. Indicators are: Teddybear Cholla, Buckhorn Cholla, Desert Agave, Desert Spinystar, Grizzlybear Pricklypear, Beavertail Pricklypear, Engelmann Pricklypear, Tulip Pricklypear, and/or Strawberry Cactus (**PSEUDO12: OPBI, OPAC, AGDE, ESVID, OPER, OPBA2, OPEN3, OPPH, MADE2, MADI3**) ...

Desert Mixed Succulent Scrub - DV

57B. Otherwise ... 58

58A. A mixture of warm (Mojave or Sonoran) desert scrub species that have $\geq 50\%$ of the shrub cover. At least three species are prominent in the mixture (**PSEUDO5**) and Great Basin shrub species (**PSEUDO16SHB**) have $< 50\%$ shrub cover. Desert shrubs include some of the following Creosote, Ocotillo, White Bursage, Brittlebush, Jojoba, Hopsage, Boxthorn, Krameria, Alkali Goldenbush, Interior Goldenbush, Desert Apricot, Wright's Buckwheat, shrub form of Catclaw Acacia. Minor amounts of desert succulents (**PSEUDO12**) may be included in the mixture and alkaline indicators (**PSEUDO43**) may also be present in minor amounts. (**PSEUDO5: LATR2, FOSP2, AMDU2, ENFA, SICH, GRSP, LYCO2, KRGR, KRER, ISACA2, ERLI6, PRFR, ERWR, ACGR**) ... **Desert Mixed Shrub - DX**

58B. Otherwise ... 59

59A. High Desert (mid-montane Mojave) shrub species including non-dominant Ephedra species, Spiny Menodora, Spiny Hopsage, Anderson Boxthorn, non-dominant Green Rabbitbrush, and/or Blackbush in combination (**PSEUDO49: EPHEd, EPNE, EPVI, MESP2, GRSP, LYAN, CHVI8, CORA**) have $\geq 50\%$ shrub cover. Other warm desert succulent species (**PSEUDO12**) and/or White Bursage (**AMDU2**) and/or Creosote (**LATR2**) have $< 10\%$ sc. ... **High Desert Mixed Scrub - NQ**

59B. Not as above ... 60

60A. A mixture of semi-woody species or combination of low elevation woody chaparral and semi-woody species has at least 50% of the shrub cover. Hard chaparral species, if present, have $\geq 25\%$ sc, including some in the following Lower Montane Mixed Chaparral group (**PSEUDO45**): Chamise, species of Ceanothus, Mission Manzanita, species of Manzanita, Birchleaf Mountain Mahogany, Shrub Oak, Shrub Interior and Canyon Live Oaks, Toyon, Lemonadeberry, Hollyleaf or Spiny Redberry, Sugarbush, Holly-leaved Cherry, Fuchsia-flowered Gooseberry, Red Shank, shrub form of Rebud, Chaparral Yucca, Flowering Ash, Canyon Silktassel, Poison Oak, and invasives such as Scotch Broom, etc. (**PSEUDO45: ADFA, CEANO, CECR, CEGR, CEGRP, CEOL, CETO, CECU, XYBI, ARCTO3, ARGL3, ARGL4, CEBE3, CEMOG, QUBE5, QUWIF, QUCHN, HEAR5, RHIN2, RHIL, RHCR, RHOV, PRIL, RISP, ADSP, CEOR9, YUWH, FRDI2, GAVE2, TODI, CYSC4**) and Semi-woody or short-lived species include some in the following group (**PSEUDO8**) which are often indicators of the Coastal Sage Scrub vegetation type or recent ground disturbance: California Sagebrush, California Buckwheat, White Sage, Other Sages, Deerweed, Straggly Keckiella, Coyote Brush, California Encelia, Northern Bush Monkeyflower, Thicket and Woolly Yerba Santa, Tree Tobacco, Sawtooth Goldenbush, and/or Mock Heather (**PSEUDO8: ARCA11, ERFA2, SAAP2, SACL, SALE3, SALVI, SAME3, LOSC2, KECO, BAPI, ENCA, MIAU, ERCR2, ERT0, NIGL, HASQ2, HAER**) ... **Soft Scrub - Mixed Chaparral - SQ**

60B. Otherwise ... 61

61A. A higher elevation mixture of shrubs in combination (**PSEUDO9**) has $\geq 50\%$ sc. Minor amounts of Lower Montane Mixed Chaparral shrubs in combination (**PSEUDO45**) may be included but, Chamise (**ADFA**) has $< 5\%$ sc, and Low or High Desert or Great Basin shrubs, alone or in combination (**PSEUDO5, PSEUDO49, PSEUDO16SHB**) have $< 25\%$ sc ... **Upper Montane Mixed Chaparral - CX**

61B. Otherwise ... 62

62A. A mixture of Lower Montane Mixed Chaparral species (**PSEUDO45**) and Desert Mixed Scrub (**PSEUDO5**) and/or High Desert Mixed Scrub (**PSEUDO49**) species. Hard chaparral species have $\geq 50\%$ sc and the desert indicator species (**PSEUDO5**, **PSEUDO49**) have $\geq 25\%$ sc ... **Semi-Desert Chaparral - CZ**

62B. Otherwise ... 63

63A. A lower elevation mixture of common hard chaparral species (**PSEUDO45**) combine to occupy $\geq 50\%$ sc and desert indicator species (**PSEUDO5**, **PSEUDO49**) have $< 25\%$ sc ... **Lower Montane Mixed Chaparral - CQ**

63B. Otherwise ... 64

64A. Non-native or ornamental cultivated shrubs $\geq 50\%$ sc ... **Non-Native/Ornamental Shrub-IS**

64B. Otherwise ... **Unknown Shrub-XS**

V. Key to Grasses and Forbs

hbg = herbaceous canopy cover

1A. Habitat is seasonally flooded or permanently flooded or saturated occasionally ... 2

1B. Habitat is not seasonally flooded ... 8

2A. Coastal brackish or salt marshes surrounding open water containing mixtures of Pickleweed: [Unknown (**SALIC**), Dwarf Saltwort (**SABI**), Slender Glasswort (**SAEU**), Parish's Glasswort (**SASU2**), Virginia Glasswort (**SAVI**)] and/or Cordgrasses: [Unknown (**SPART**), Smooth (**SPAL**), Denseflowered (**SPDE2**), California (**SPFO**), Saltmeadow (**SPPA**)] and/or Saltgrass (**DISP**) in any combination having $\geq 50\%$ hbg ... **Pickleweed-Cordgrass - HC**

2B. Otherwise ... 3

3A. Fresh to brackish marshes containing mixtures of Tule (**SCIR**, **SCAC**), other Bulrushes (**SCAM2**, **SCCA**, **ISCE**, **SCKO**, **SCMA**, **SCMI2**, **SCPU3**), Cattails (**TYPHA**, **TYAN**, **TYDO**, **TYLA**), and Spikerushes (**ELEOC**, **ELAC**, **ELMA5**, **ELMO2**, **ELRA**, **ELPA4**) species in mixture with other forbs and grasses ... **Tule – Cattail - HT**

3B. Otherwise ... 4

4A. Agricultural lands have $\geq 50\%$ hbg in row crops and are flooded in certain seasons ... **Flooded Row Crop Agriculture – A5**

4B. Otherwise ... 5

5A. A mixture of alkaline-tolerant herbaceous species, including the following annual and perennial forbs: Western Miterwort (**NIOC2**); Alkali Weed (**CRTR5**); Poverty Weed (**IVAX**); invasive weeds such as Halogeton (**HAGL**) and Oakleaf Goosefoot (**CHGL3**); Torrey's Blazing Star (**METO2**); Salt Heliotrope (**HECU3**); Alkali Sacaton (**SPAI**)] and salt-tolerant grasses such as Saltgrass (**DISP**) that have $\geq 50\%$ hg ... **Alkaline Mixed Grasses and Forbs - HA**

5B. Otherwise ... 6

6A. Hydrophytic grasses and grass-like species: [various grasses such as Bluegrass (**POA**), Bentgrass (**AGROS2**), Hairgrass (**DESCH**), Wheatgrass (**ELYMU**), Barley (**HORDE**), Wildrye (**LEYMU**), Muhly

(**MUHLE**), etc.; Sedges (**CAREX**), and Rushes (**JUNCU**)] in mixture with hydrophytic herbaceous species [False Hellebore (**VERAT**, **VECA2**), Lily (**LILIU**), Gentian (**GENTI**, **GEAF**), etc.] growing mainly in organic soil have ... **Wet Meadows - HJ**

6B. Otherwise ... 7

7A. A mixture of non-native or invasive grass-like riparian species such as Pampas Grasses (**CORTA**) or Giant Reed (**ARDO4**) have $\geq 50\%$ hbg ... **Giant Reed / Pampas Grass - IA**

7B. Otherwise ... 8

Note: areas below are not consistently or deliberately flooded

8A. Non-native herbaceous species, either planted or invasive, have $\geq 50\%$ hg ... **Non-Native/Invasive Forb/Grass - IF**

8B. Otherwise ... 9

9A. Annual grasses [such as Bromes (**BROMU**), Oat (**AVENA**), Ryegrass (**LOLIU**), European Hairgrass (**AIRA**), etc.] mixed with annual and/or perennial forbs [such as Stork's Bill (**ERIOD**), Tumblemustard (**SISYM**), Lupines (**LUPIN**), Mustards (**BRASS2**), Star Thistle or Knapweed (**CENTA**), Sowthistle (**SONCH**), Owl's Clover (**TRIPH3**), etc.] which generally have limited surface or subsurface moisture in midsummer having $\geq 50\%$ hbg ... **Annual Grasses and Forbs - HG**

9B. Otherwise ... 10

10A. 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 having $\geq 50\%$ hbg ... **Perennial Grasses and Forbs - HM**

10B. Otherwise ... 11

11A. Agricultural lands have $\geq 50\%$ hbg in row crops and are not usually flooded ... **Pastures and Crop Agriculture - A6**

11B. Otherwise ... 12

12A. Agricultural lands have $\geq 50\%$ hbg ... **Agriculture - AG**

12B. Otherwise ... 13

13A. Other Non-native cultivated grasses and herbaceous cover have $\geq 50\%$ hbg ... **Non-Native/Ornamental Grass-IG**

13B. Otherwise ... **Unknown Herbaceous-XG**

VI. Key to Sparsely Vegetated and Desert Types

1A. If vascular vegetation is $< 5\%$ of plot or area ... VII. Key to Non-Vegetated Types

1B. If vascular vegetation is $\geq 5\%$ of plot or area ... go back to I. Key to Lifeforms using $\geq 5\%$ absolute canopy cover values for each lifeform, keeping relative canopy cover values as given.

VII. Key to Non-Vegetated Types

nvc = non-vegetated cover

- 1A. Coastal or interior dunes comprise $\geq 50\%$ nvc ... **Dunes - DU**
1B. Not as above ... 2
- 2A. Snow or ice fields at the highest elevations comprise $\geq 50\%$ nvc ... **Snow/Ice - SN**
2B. Not as above ... 3
- 3A. Dry urbanized or developed lands have $\geq 50\%$ nvc ... **Urban-related Bare Soil - IB**
3B. Not as above ... 4
- 4A. Wet urbanized or developed lands have $\geq 50\%$ nvc ... **Developed Water Features - IW**
4B. Not as above ... 5
- 5A. Urban or otherwise developed landscapes (highways, etc.) have $\geq 50\%$ nvc ... **Urban or Developed - UB**
5B. Not as above ... 6
- 6A. Dry agricultural lands have $\geq 50\%$ nvc ... **Tilled Earth - A3**
6B. Not as above ... 7
- 7A. Wet agricultural lands have $\geq 50\%$ nvc ... **Agricultural Ponds or Surface Water - A7**
7B. Not as above ... 8
- 8A. Open water or confined water courses occupy $\geq 50\%$ nvc ... **Water - WA**
8B. Not as above ... 9
- 9A. Playas, dry alkaline lake beds and other alkaline flats occupy $\geq 50\%$ nvc ... **Alkaline Flats - AK**
9B. Otherwise ... 10
- 10A. Oceanside littoral areas comprised of unconsolidated sand occupy $\geq 50\%$ nvc ... **Beach Sand - OS**
10B. Otherwise ... 11
- 11A. Otherwise naturally barren landscapes (cliffs, bedrock, etc.) occupy $\geq 50\%$ nvc ... **Barren - BA**
11B. Otherwise ... Unknown Non-Vegetated - XZ