# Sensitive Communities Definition & Ranking

Julie Evens, CNPS Vegetation Program Director Tom Reyes, CNPS Associate Vegetation Ecologist



## **Ranking Vegetation Types**

#### Primary ranking criteria

Determine classification units Estimate range / distribution Estimate abundance / condition Evaluate threats / trends

### State (S) a/o Global (G) rankings

Ranks produced by CDFW and CNPS staff Re-evaluate ranking when more data are available **Example** of the ranking process

Where we are in the ranking process



## Classification / Mapping

- Identify classification units through sampling and analysis
  - Alliance & Association levels
- Obtain descriptions and mapping during local or regional vegetation projects



Arctostaphylos (crustacea, tomentosa) Alliance, Arctostaphylos confertiflora Association on Santa Rosa Island



## Obtain Data – 2 Primary Factors for Assessing Rarity

Estimate extent of the type's range (across state or globally)

Refine through additional review throughout its range

Estimate # occurrences and acreage of occupied areas (through maps or other available data) RANGE/EXTENT of *Arctostaphylos* (crustacea, tomentosa) Alliance



## Evaluate – Threats and Trends

- Inc. ground-based data, map data, and other sources
- Refine with local / expert input

Distur	Dance code / Intensity (L,M,H): <u>23/</u> <u>,</u>	/,		
II. HA	BITAT AND VEGETATION DESCRIPTION		Addel	NE AVELA
T <del>ree D</del> Shrub	<b>BH (stand):</b> <u><b>T1</b> (&lt;1" dbh), <u><b>T2</b> (1-6" dbh), <u><b>T3</b> (6-11" d</u> (stand): <u><b>S1</b></u> seedling (&lt;3 yr. old), <u><b>S2</b></u> young (&lt;1% dead</u></u>	bh), <u>T4</u> On Live I	(11-24 <sup>*</sup> Plants),	dbh), <u>T</u>
Herb H	It (stand): $\underline{H1}$ (<12"), $\underline{H2}$ (>12")   Non-Vas % cov	er (canop	y): <u> </u>	_, Non-V
% Cov	er (plot) - Conifer tree / Hardwood tree:	<u></u>	Reg	enerating
Height	Class (plot) - Conifer tree / Hardwood tree:		Reg	generating
Height	classes: 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m	05=5-10	)m 06	=10-15m
Species % cove	<b>5</b> , <b>Stratum, and % cover. (</b> Stratum categories: T=Tree, <i>r intervals for reference</i> : <1%, 1-5%, >5-15%, >15-25%, >	S = Shrut 25-50%, >	o, H= H 50-75%	lerb, $E = SI$ %, >75%.)
Species % cove	s, Stratum, and % cover. (Stratum categories: T=Tree, r intervals for reference: <1%, 1-5%, >5-15%, >15-25%, > Species	S = Shrub 25-50%, > % cover	o, H= H 50-75% C	lerb, $E = S$ %, >75%.) Strata
Species % cove Strata	s, Stratum, and % cover. (Stratum categories: T=Tree, r intervals for reference: <1%, 1-5%, >5-15%, >15-25%, > Species ARCTOSTAPHYCOS (ONTERTITIOR A	S = Shrut 25-50%, > % cover /4	o, H= H 50-75% C	E = S $(6, >75%)$ Strata

Threat						
Category		Calculated				
Code	<b>Threat Category</b>	Impact	Scope	Severity	Timing	Comments

TH

**Calculated Overall Threat Impact** 

Assigned Overall Threat Impact B = High

**Overall Threat Impact Comments** 

Threatened by road construction and widening, non-native plants, and dumping, expansion of wastewater treatment facility, and development. In addition, subspecies bakeri is also threatened at one occurrence by heavy grazing and bulldozing (CNDDB 2003).

#### **Overall Threat Impact Adjustment Reasons**

## Factors for Assigning Ranks

## Range/Distribution

Range Extent Area of Occupancy

## > Abundance/Condition

## Threats

Overall Threat Impact Intrinsic Vulnerability (optional)

## Trends (if known)

Short-term Trend Long-term Trend NatureServe Methodology for Assigning Ranks

#### NatureServe Conservation Status Assessments: Methodology for Assigning Ranks

NatureServe Report Revised Edition June 2012



## Global and State Ranks – Definitions/ Example \*

**G1 S1: Critically Imperiled** at very high risk. Ex: 1–5 viable occurrences worldwide statewide and < 100 ha (up to 1 km<sup>2</sup>)

**G2 S2: Imperiled** at high risk. Ex: 6–20 viable occurrences worldwide/ statewide and from 100–2,000 ha (1–20 km<sup>2</sup>)

**G3 S3: Vulnerable at moderate risk. Ex:** 21–80 viable occurrences worldwide/ statewide and from 2,000–10,000 ha (20–100 km<sup>2</sup>)

**G4 S4: Apparently secure** and at fairly low risk of extinction; Ex: 81–300 viable occurrences worldwide/ statewide and >10,000–50,000 ha (100–500 km<sup>2</sup>) without significant threats and low concern

**G5 S5: Secure** and demonstrably widespread because of its worldwide / statewide abundance and little to no concern of decline

\*\***Caveat:** Various factors can play a role in modifying these values, including Condition, Viability or Ecological Integrity of Vegetation, Threats, and Trends

\*Modified from previous Manual of CA Vegetation (MCV) and NatureServe / National Vegetation Classification (NVC) ranking definitions

#### https://explorer.natureserve.org/AboutTheData/Statuses



#### Variant National and Subnational Conservation Status Ranks

RANK	DEFINITION
N# S#	<b>Range Rank</b> —A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
NU SU	<b>Unrankable</b> —Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NNR SNR	Unranked—National or subnational conservation status not yet assessed.
NNA SNA	<b>Not Applicable</b> —A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems; see Master et al. 2012, Appendix A, pg 49 for further details).
Not Provided	Species or ecosystem is known to occur in this nation or state/province. Contact the appropriate NatureServe network program for assignment of conservation status.

#### **Rank Qualifier**

RANK	DEFINITION
N#?	Inexact Numeric Rank—Denotes inexact numeric rank; this should not be used with any of the Variant
S#?	National or Subnational Conservation Status Ranks, or NX, SX, NH, or SH.

#### See also: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=181808&inline

## NatureServe Rank Calculator:

- Allows for G & S ranks for all elements (species, natural communities, ecosystems)
- Is a standardized, rigorous method, vetted across different taxa and ecosystems to provide accurate and consistent rankings
- Provides flexibility, such as spatial pattern -- vegetation patches from large, small, and matrix



Factor			Combination Options for Meeting the Minimum Core Factors Requirement			
Category	Subcategory	Core Factor	Combination A	Combination B		
	Range/ Distribution	<ul> <li>Range Extent</li> <li>Area of Occupancy</li> </ul>	1 Range/ Distribution Subcategory Factor	70% of weight		
Rarity	Abundance/ Condition	<ul> <li>Population Size (species only)</li> <li>Number of Occurrences</li> <li>Number of Occurrences or Percent of Area Occupied with Good Viability/ Ecological Integrity</li> </ul>	1 Abundance/ Condition Subcategory Factor	ranking		
Threats		<ul> <li>Overall Threat Impact</li> </ul>		30% 1 Threats OR		
Trends		<ul><li>Short-term Trend</li><li>Long-term Trend</li></ul>		Trends Factor		

## **Threats** provide **30% weight** in the ranking with two factors (**Scope** and **Severity**)

Species or Ecosystem Scientific Name Arctostaphylos (bakeri, montana) Alliance						
Element ID	tra	nsferred	Elcode	37.324.00		
			-			
Overall Threat Impact Calculation Help			Level 1 Threat Impact Co	unts		
	Thr	eat Impact	high range	low range		
	A	Very High	0	0		
	В	High	0	0		
	C	Medium	1	1		
	D	Low	5	5		
Calcula	ated	Overall Threat Impact:	High	High		
Assig	ned	Overall Threat Impact:	B = High			
Overall Threat In	npac	t Adjustment Reasons:				
			Place cursor in cell to	see dropdown arrow		
	Im	pact (calculated)	Scope	Severity		
No known threats						
Unknown/undetermined	1					
Residential & commercial development	D	Low	Restricted (11-30%)	Slight or 1-10% pop. de		
Housing & urban areas	D	Low	Restricted (11-30%)	Slight or 1-10% pop. de		
Commercial & industrial areas						
Tourism & recreation areas						
Agriculture & aquaculture						
Annual & perennial non-timber crops						
Wood & pulp plantations				v		



## Threat factors influence the G & S ranks

- Residential & commercial development
- Agriculture & aquaculture
- Energy production & mining
- Transportation & service corridors
- Biological resource use
- Human intrusions & disturbance

- Natural system modifications
- Invasive & other problematic species, genes & diseases
- Pollution
- Climate change & severe weather
- Other options/threats

# Summary - How do we rank how sensitive a vegetation type is?

- Determine all classification units of vegetation types through sampling during local or regional vegetation project E.g., Alliance and Association levels
- Estimate extent of the type's range (across state or globally) Refine through additional review throughout its range
- Estimate # occurrences and acreage of occupied areas (through maps or other available data), Subfactor on condition
- Evaluate threats and impacts Inc. ground-based data, map data, and other sources Refine with local / expert input

### > Determine State (S) a/o Global (G) ranking

Done by CDFW and CNPS staff Re-evaluate the ranking when more information becomes available Current Extent of Fine-scale Vegetation Mapping



# What questions do we ask when doing SNC ranking?

### > Do we have **enough** data to do the ranking?

- $\succ$  IF YES  $\rightarrow$  Begin ranking, knowing flexibility is built into system
- ➢ IF NO →Obtain more ground-based data, map data, and other sources; Refine with local / expert input
- What data gaps do we still have, for the Range Extent, Occurrence, Threat info?
  - > Factor our data gaps into the ranking
- > What **limitations** do we have with the data?
  - For example, if an area has Alliance level mapping, but we intend to rank an Association, extrapolate from ground-based data and other sources

## Vegetation Description and Mapping:

From detailed, County or Regionally- based Efforts in the Greater Bay Area and North Coast regions

Region includes traditional lands of the Pomo, Wappo, and Miwok tribes



Fine-scale Vegetation Map from Sonoma Co.

Vegetation is defined and mapped in a **standard way** based on classification rules with **wall-to-wall** representation in the project area. You can **query and analyze** specific types



**Step 1**: Evaluate **range** and **acreage** based on available vegetation survey and map data

Step 2: Extrapolate range from existing data on diagnostic species (e.g., Botanical specimen collections from CCH, surveys from CNDDB) and other layers (e.g., geology)

Step 3: Collect additional groundbased data if necessary to further identify occurrences and evaluate type





Expression of *Arctostaphylos (bakeri, montana)* Alliance and *A. bakeri* Association along North Coast in Sonoma County and *A. montana* in Marin County

### General ecological range of Arctostaphylos bakeri Association



Number of stands and acreage known:

Count Polys:262Occurrences:7Minimum size:0.2 haMaximum size:16.9 haSum of area:386 haMean size:1.47 ha

Total estimated range un-verified in veg map: 15%

# Step 4: Assessing ecological integrity and threats

Mapping and description of *Arctostaphlos bakeri* Association occurrences are of good to excellent condition.

Many stands are in preserves

Some fragmented by or near development and roads/trails

Also, non-native plants threaten at least 2 stands

-- Low to moderate threats for at least 85% of known stands



Data sources: CNDDB, ESRI base imagery

## Arctostaphylos (bakeri, montana) Alliance → S3 G3 Ranking

# occurrences: 21-80
 Estimated 21 so far

 Direct estimate: 5-20 km2
 Estimated 7.3 km2

Threats / Impacts: High 1 medium and >3 low impacts

ate attitude, taking	care to identi	fy the most likely plausible range of values, excluding extrem-
NRanks, or Sranks:	S	change using dropdown; also affects Calculator Table
r Ecosystem Scie	ntific Name	Arctostaphylos (bakeri, montana) Alliance
nter "infraspecies"	for a T-Rank)	Other Ecological Type
al Pattern (for eco	systems only)	Small Patch
al Information:	Element ID	transferred
	Elcode	37.324.00
Co	ommon Name	Baker's or Mt. Tamalpais manzanita chaparral
C	lassification	International Vegetation Classification
or Subnation (for N	I- or S-Ranks)	California
	E	E = 5,000-20,000 sq km (~2,000-8,000 sq mi)
	F	FILL OUT ONLY 1 OF FOLLOWING 3 FIELDS
osystems) OR	F	F = 5-20 km2
cies) OR		
ear species)	1	
	С	C = 21 - 80
	-	
Integrity:	E	FILL OUT ONLY 1 OF FOLLOWING 2 FIELDS
nces OR	_	
upied	Е	E = Good percent (21-40%) of area with excellent or goo
(opt.)		· · · · · · · · · · · · · · · · · · ·
mpact	В	B = High
Threat Impact	8	B = High
pt.)		
requirement met?	TRUE	
	\$3	Always review the calculated rank.
	\$3	Calculated rank was verified; do not fill out the 'Rank Adjustm
s		
or	Catherine Cu	rley, Todd Keeler-Wolf
	23-Nov-2020	Enter Ctrl-semicolon (;) for today's date.
	CC, TKW, JME	
	12-Feb-2021	Enter Ctrl-semicolon (;) for today's date.
Notes	S Rank = G Ra	ank

### Natural Communities List — Updated 08/21/2021 Sorted by Alliance Scientific Name with Rarity (G & S, Y/N) in PDF and Excel

https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities

Arctostaphylos (bakeri, montana) All						
37.324.00	Baker's or Mt. Tamalpais manzanita chaparral		G3	<b>S3</b>		
37.307.01	Arctostaphylos montana		G2	S2	Y	
37.307.02	Arctostaphylos montana – Adenostoma fasciculatum		G2	S2	Y	
37.324.01	Arctostaphylos bakeri	Provisional	G2	S2	Y	
Arctostaphy	ılos (canescens, manzanita, stanfordiana)				Alliance	
37.323.00	Hoary, common, and Stanford manzanita chaparral		G3	<b>S3</b>		
37.311.01	Arctostaphylos canescens – Arctostaphylos glandulosa – Adenostoma fasciculatum	Provisional			Y	
37.323.01	Arctostaphylos manzanita		G3	<b>S</b> 3	Y	
37.323.02	Arctostaphylos stanfordiana	Provisional	G3	<b>S</b> 3	Y	
37.323.03	Arctostaphylos canescens	Provisional	G3	<b>S</b> 3	Y	
Arctostaphy	ılos (crustacea, tomentosa)				Alliance	
37.308.00	Brittle leaf – woolly leaf manzanita chaparral		G3	<b>S3</b>		
37.308.03	Arctostaphylos crustacea		G3	<b>S</b> 3	Y	
37.308.04	Arctostaphylos crustacea – Adenostoma fasciculatum – Ceanothus (cuneatus, papillosus)				Y	
37.308.05	Arctostaphylos crustacea – Arctostaphylos gabilanensis				Y	
37.308.06	Arctostaphylos confertiflora		G2	S2	Y	
37.308.07	Arctostaphylos insularis				Y	
37.308.08	Arctostaphylos catalinae	Provisional			Y	
Arctostaphy	ılos (nummularia, sensitiva) – Chrysolepis chrysophylla				Alliance	
37.340.00	Glossy leaf manzanita - Golden chinquapin chaparral		G2	<b>S2</b>		

## Sensitive Natural Communities List https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline

#### **California Sensitive Natural Communities**

Wednesday, August 18, 2021

This document provides the current list of Sensitive Natural Communities. State and Global rarity ranks are indicated for Alliance and some Associations. Natural Communities with ranks of 1-3 are considered Sensitive. Unranked Associations considered Sensitive are marked with a Y in the rightmost column. A "?" indicates our best estimate of the rank when we know we have insufficient samples over the full expected range of the type, but existing information points to this rank. Pending additions can be found at the bottom of the full Natural Community list. For more information, or to check for updates, please see:

https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities

#### California Natural Community List

CaCode	Name	e <u>I</u>	Primary Life form: Tree	Rarity	Sensitive			
Abies amab	oilis	Arctostaphy	ılos (bakeri, montana)					Alliance
88.800.00	Pacif	37.324.00	Baker's or Mt. Tamalpais manzanita chaparral			G3	<b>S3</b>	
88.800.01	Abies	37.307.01	Arctostaphylos montana			G2	S2	Υ
Abies bract	eata	37.307.02	Arctostaphylos montana – Adenostoma fasciculatum			G2	S2	Y
88.300.00	Santa	37.324.01	Arctostaphylos bakeri		Provisional	G2	S2	Y
88.300.01	Abies	Arctostaphy	ılos (canescens, manzanita, stanfordiana)					Alliance
88.300.02	Abies	37.323.00	Hoary, common, and Stanford manzanita chaparral			G3	<b>S3</b>	
Abies conco	lor	37.311.01	Arctostaphylos canescens – Arctostaphylos glandulosa – Adenostom	a	Provisional			Y
88.500.00	Whit		fasciculatum					
88.500.11	Abies	37.323.01	Arctostaphylos manzanita			G3	<b>S3</b>	Y
88.500.37	Abies	37.323.02	Arctostaphylos stanfordiana		Provisional	G3	<b>S</b> 3	Y
88.500.67	Abies	37.323.03	Arctostaphylos canescens		Provisional	G3	<b>S</b> 3	Y

# Where are we toward ranking vegetation with the NatureServe Rank Calculator?

- Around 100 of the > 450 Alliances have been ranked since 2017 (or ~20 to 25 per year on average)
- Need to ramp this up to at least 100 per year to complete this in the next 3 years
- Similarly, need to ramp up Association level ranking, since most are noted as "Y" or "N" for rarity

"Y" means a rank of S1, S2 or S3 is generally determined so far

![](_page_26_Picture_0.jpeg)

![](_page_27_Picture_0.jpeg)

![](_page_28_Picture_0.jpeg)

![](_page_28_Picture_1.jpeg)

#### Arctostaphylos (bakeri, montana) Shrubland Alliance

Baker's or Mt. Tamalpais manzanita chaparral

#### **Characteristic Species**

Arctostaphylos bakeri and/or Arctostaphylos montana is dominant or co-dominant in the shrub canopy with Adenostoma fasciculatum, Ceanothus cuneatus, Ceanothus jepsonii, Diplacus aurantiacus, Eriodictyon californicum, Frangula californica ssp. tomentella, Garrya elliptica, Heteromeles arbutifolia, Quercus durata and Toxicodendron diversilobum. Emergent trees may be present at low cover, including Hesperocyparis sargentii, Pseudotsuga menziesii or Umbellularia californica.

#### Vegetation Layers

Shrubs < 5 m; canopy is open to intermittent. Herbaceous layer is open or grassy.

#### **Membership Rules**

- Arctostaphylos montana > 30% relative cover in the shrub canopy (Evens and Kentner 2006, Buck-Diaz et al. 2021).
- Arctostaphylos montana > 50% relative cover in the shrub canopy (Keeler-Wolf et al. 2003a).
- Arctostaphylos bakeri > 30% relative cover in the shrub canopy (Klein et al. 2015).
- Arctostaphylos montana > 50% relative cover in the shrub canopy, or > 30% relative cover with Adenostoma fasciculatum and/or Quercus durata (Buck-Diaz et al. 2021).

#### Habitats

Outcrops, mesas, ridge tops, and upper slopes. Soils are typically shallow over serpentine (or sometimes sandstone) bedrock.

#### Other Habitat, Alliance and Community Groupings

MCV (1995): Not treated

NVCS (2009): Arctostaphylos hookeri ssp. montana shrubland alliance

#### **USDA Ecological Section Map**

![](_page_28_Picture_19.jpeg)

Eye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

#### **Summary Information**

- Primary Life Form: Shrub
- Elevation: 100-650 m
- State Rarity: S3
- Global Rarity: G3
- Distribution: USA: CA (NatureServe) (CalFlora)
- Endemic to California: Yes
- Endemic to California Floristic Province and Deserts: Yes
- Date Added: 2021/08/30

Step 4: Refinement of distribution and rarity from other detailed vegetation maps combined with threats (and trends if known).

![](_page_29_Figure_1.jpeg)