

## Section 2.0 – PLANT SEARCH QUERIES

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## 2.0 PLANT SEARCH QUERIES

### 2.1 Introduction to PLANT SEARCH

The **PLANT SEARCH** module allows the planner to access a form-driven database query tool that facilitates 1) searches for species or mixtures within the **eVegGuide** that are currently available for use in revegetation planning; and 2) searches for species or mixtures that are keyed to or match selected plant record parameters by which the planner wants a search constrained.

Once a species search is conducted and an individual species (or species component of a mixture) is selected, **PLANT SEARCH** can then be used to display all pertinent biological parameters associated with that selected species that are within the **eVegGuide** database. All plant records thus displayed also contain active links to other sources of biological, ecological, taxonomic, and commercial availability information pertaining to that species – such as is found in direct links to Calflora and USDA-PLANTS databases, CNPLX (commercial availability database), Calscape, CalPhotos, PlantID.net, Jepson eFlora, efloras.org, etc.

When querying the **eVegGuide** database for plant record information, first access the **DATA** tab at the top of the introductory screen (Figure 1). Once within the **DATA** window, click on **PLANT SEARCH**.

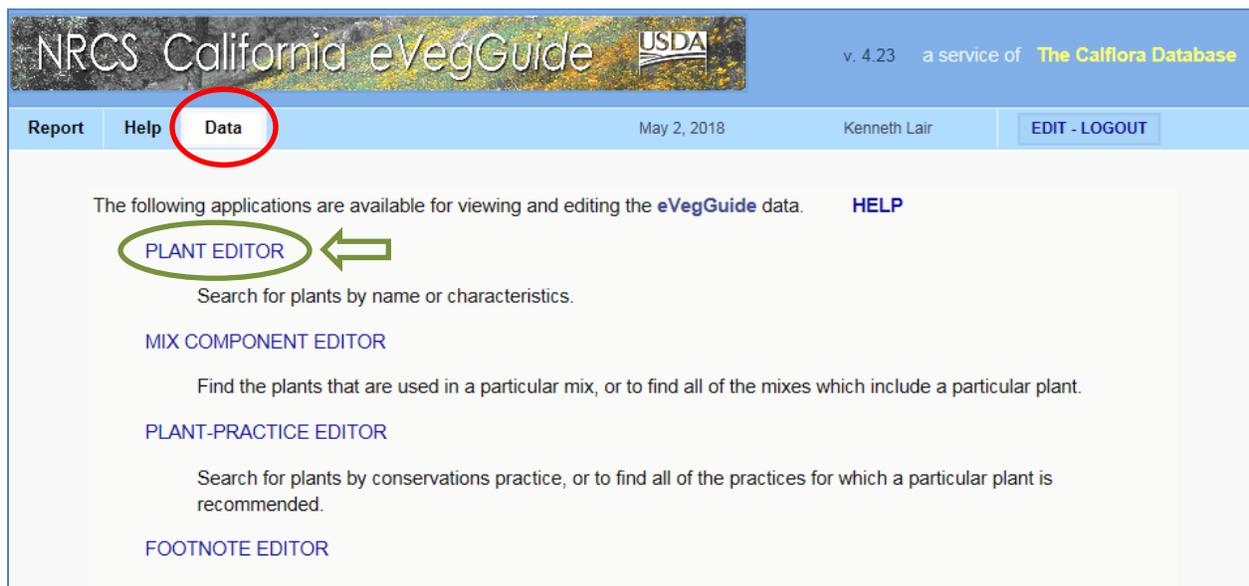


Figure 1. **eVegGuide** introductory screen, indicating **PLANT SEARCH** option.

### 2.2 Navigating the PLANT SEARCH Window

The blank **PLANT SEARCH** window then appears (Figure 2). Any data field (one or more) within this window can serve as search parameters to query the **eVegGuide** database for the species or mixture in which you may be interested. These can be used in any combination to constrain the search for a species or mixture.

The screenshot shows a web interface for searching plant records. At the top, there are navigation tabs for 'Search', 'Results', and 'Detail', and a 'HELP' link. Below the navigation is a search bar with a 'SEARCH' button and the text 'Enter criteria below to search for Plant records'. The search criteria are organized into several rows of fields:

- ID:** A text input field.
- Common Name:** A text input field with a scroll arrow on the right.
- Scientific Name:** A text input field with a scroll arrow on the right.
- Plant Type:** A dropdown menu with 'any' selected.
- Growth Cycle:** A dropdown menu with 'any' selected.
- Resident Status:** A dropdown menu with 'any' selected.
- Bloom:** A text input field.
- PLANTS Code:** A text input field.
- Materials:** A dropdown menu with 'any' selected.
- Pollinator Habitat:** A checkbox.
- Ease (3: easiest):** A text input field.
- Spacing:** A text input field.
- Calflora #:** A text input field.
- Footnotes:** A text input field.
- 4ETa Zones:** A text input field.
- Veg Soil Groups:** A text input field.
- Salt Tolerance:** A dropdown menu with 'any' selected.

Figure 2. Blank PLANT SEARCH screen, showing all searchable data fields.

Some data entry boxes have drop-down selection lists (e.g., Plant Type, Growth Cycle, Resident Status, Materials, and Salt Tolerance), which are initially denoted in default mode within the field as “any” (see the red boxes in Figure 3). Click on each of these fields to see the available selection list of parameters.

This screenshot is identical to Figure 2, but with red boxes highlighting the drop-down selection lists for the following fields:

- Plant Type** (dropdown menu)
- Growth Cycle** (dropdown menu)
- Resident Status** (dropdown menu)
- Materials** (dropdown menu)
- Salt Tolerance** (dropdown menu)

Figure 3. Blank PLANT SEARCH screen, with drop-down selection list searchable fields highlighted by red boxes.

Other fields (i.e. those not showing “any” as a selection) require actual data entry (e.g., ID, Common Name, Scientific Name, Bloom Period, PLANTS code, Pollinator Habitat, Ease,

Spacing, Calflora #, Footnotes, 4ETa Zones, and Veg Soil Groups) as the searchable parameter (see the green boxes in Figure 4).

The screenshot shows a web interface for searching plant records. At the top, there are tabs for 'Search', 'Results', and 'Detail', and a 'HELP' link. Below the tabs is a search bar with a 'SEARCH' button and the text 'Enter criteria below to search for Plant records'. The search criteria are organized into several sections, each enclosed in a green box:

- ID**: A text input field.
- Common Name**: A text input field with a dropdown arrow.
- Scientific Name**: A text input field with a dropdown arrow.
- Plant Type**: A dropdown menu with 'any' selected.
- Growth Cycle**: A dropdown menu with 'any' selected.
- Resident Status**: A dropdown menu with 'any' selected.
- Bloom**: A text input field.
- PLANTS Code**: A text input field.
- Materials**: A dropdown menu with 'any' selected.
- Pollinator Habitat**: A checkbox.
- Ease (3: easiest)**: A text input field.
- Spacing**: A text input field.
- Calflora #**: A text input field.
- Footnotes**: A text input field.
- 4ETa Zones**: A text input field.
- Veg Soil Groups**: A text input field.
- Salt Tolerance**: A dropdown menu with 'any' selected.

**Figure 4. Blank PLANT SEARCH screen, with actual data entry searchable fields highlighted by green boxes.**

Descriptions for actual data entry fields, to guide your search, include –

**ID** – an internal tracking number assigned within the **eVegGuide** program to a given species or mixture when it was initially added to the **eVegGuide**. This can be used as a search term if the species or mixture internal ID is known.

**Common Name** – common name of the species desired, in accordance with USDA PLANTS database approved nomenclature.

**Scientific Name** – scientific name of the species desired, in accordance with USDA PLANTS database approved nomenclature.

**Bloom** – peak bloom period for a species, described as a range of calendar months. For example, a bloom period of 3-5 corresponds to March (3) through May (5). Bloom periods may range across calendar years (e.g., 10-5), and are determined from Calflora, CNPS and NRCS observances for the species.

**PLANTS code** – plant symbol of the species desired, in accordance with USDA PLANTS database approved nomenclature.

**Pollinator Habitat** – checked box indicates a species favorable to pollinators, as determined by NRCS, Xerces Society, and pertinent literature. An unchecked box indicates no known pollinator benefit, and also permits a global species search without respect to pollinator benefit.

**Ease** – ease of establishment and/or subsequent maintenance, with '3' = easy to establish; '2' = moderately easy to establish; and '1' = slightly difficult to establish. Refer to the **HELP** page for basis and complete descriptions of the ease ratings.

**Spacing** – recommended guideline spacing for species for conservation practices (e.g., 380, 422, 612, etc.) typically requiring specified within-row, between-row, or systematic grid layout spacing between plants. The recommended plant spacing is based on anticipated mature plant canopy diameter for the species, as synthesized from NRCS, Calflora, and CNPS Calscape data.

**Calflora #** -- taxon report identification number for a species, independently assigned by Calflora (see <http://www.calflora.org/>).

**Footnotes** – identification number of the footnote(s) (if any) applicable to an individual species. Multiple footnotes are separated by commas (e.g., 11,22,35) with no spaces between numbers. Enter the footnote number(s) by which you wish the species search to be confined. Refer to the **FOOTNOTE SEARCH** under the **DATA** tab for complete footnote descriptions (with active links to supporting literature, as applicable).

**4ETa Zones** – enter the 4ETa zone(s) to which you wish the species or mixture search to be confined. Zones can be single letter or multiple letter combinations, as in the graphic above. Refer to the **HELP** page for basis and complete descriptions of 4ETa Zones.

**Veg Soil Groups** – enter the Vegetative Soil Group(s) to which you wish the species or mixture search to be confined. Zones can be single letter or multiple letter combinations, as in the graphic above. Refer to the **HELP** page for basis and complete descriptions of Vegetative Soil Groups.

## 2.3 Targeted Species Search

When searching for a single species within the eVegGuide, enter either the scientific name or common name of the species of interest. Spelling must be exact, and in accordance with USDA PLANTS database approved nomenclature for the species in question. For example, search for purple needlegrass by entering *Nassella pulchra* in the **Scientific Name** data field (Figure 5). Then click on **SEARCH** box at the top-left of the window.

The screenshot shows the 'Search' tab of the eVegGuide interface. At the top left, a 'SEARCH' button is circled in red. Below it, the text 'Enter criteria below to search for Plant records' is displayed. The 'Scientific Name' field is highlighted with a green oval and contains the text 'Nassella pulchra', with a green arrow pointing to it from the right. Other fields include 'ID', 'Common Name', 'Plant Type' (set to 'any'), 'Growth Cycle' (set to 'any'), 'Resident Status' (set to 'any'), 'Bloom', 'PLANTS Code', 'Materials' (set to 'any'), 'Pollinator Habitat' (checkbox), 'Ease (3: easiest)', 'Spacing', 'Calflora #', 'Footnotes', '4ETa Zones', 'Veg Soil Groups', and 'Salt Tolerance' (set to 'any').

**Figure 5. Initiating a single species search from the blank PLANT SEARCH screen using *Nassella pulchra* as the example.**

The next window displays summary plant data within the **eVegGuide** for the requested plant (Figure 6).



Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
Nassella pulchra	Purple needle grass	Grass	Perennial	native	Mar-May	Seeds	2	

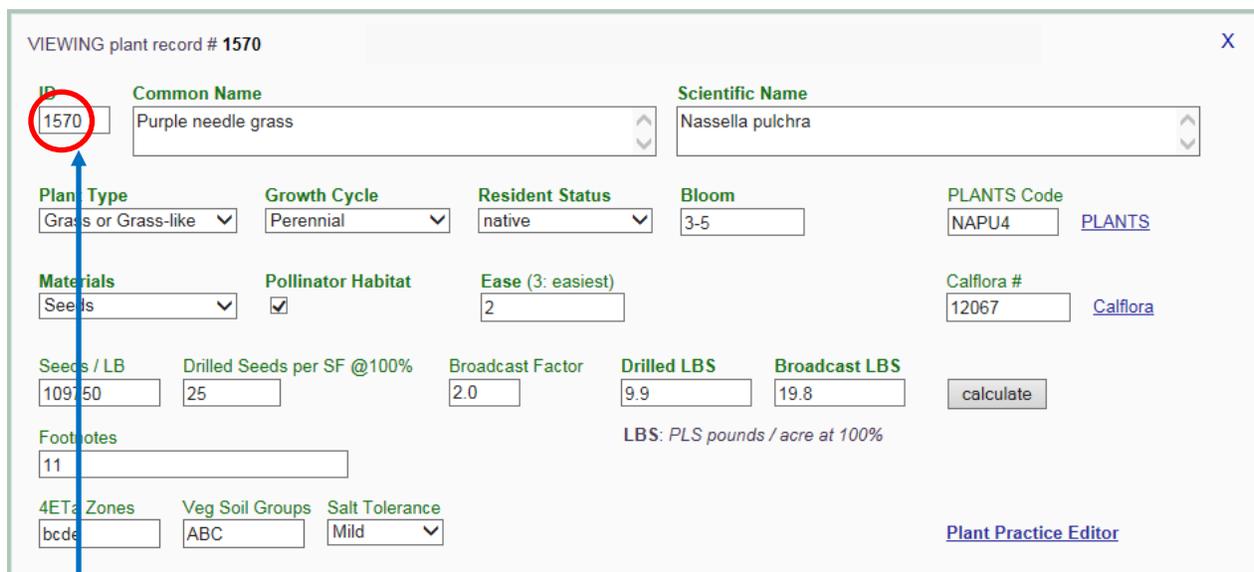
Figure 6. Listing of species selection within the **eVegGuide** matching the search name.

Now click on the blue dot (●) (Figure 7) to view the full data record for the example purple needlegrass (Figure 8).



Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
● Nassella pulchra	Purple needle grass	Grass	Perennial	native	Mar-May	Seeds	2	

Figure 7. Illustration of blue dot (●) usage in order to view the full data record for the selected example species, *Nassella pulchra*.



VIEWING plant record # 1570

ID: 1570

Common Name: Purple needle grass

Scientific Name: Nassella pulchra

Plant Type: Grass or Grass-like

Growth Cycle: Perennial

Resident Status: native

Bloom: 3-5

PLANTS Code: NAPU4

Materials: Seeds

Pollinator Habitat:

Ease (3: easiest): 2

Calflora #: 12067

Seeds / LB: 109.50

Drilled Seeds per SF @100%: 25

Broadcast Factor: 2.0

Drilled LBS: 9.9

Broadcast LBS: 19.8

Footnotes: 11

4ETa Zones: bcde

Veg Soil Groups: ABC

Salt Tolerance: Mild

LBS: PLS pounds / acre at 100%

calculate

Plant Practice Editor

Figure 8. Display of all plant record data available within the **eVegGuide** for the selected example species, *Nassella pulchra*.

Note that *Nassella pulchra* is assigned an **eVegGuide** internal tracking (plant record) ID number of '1570' (top-left corner of the window). Every species and mixture within the **eVegGuide** is assigned a tracking ID number, which then can be used (if known) in queries for a species without having to use a common name, scientific name, or other parameter combination. This

internal tracking ID number is assigned internally by the eVegGuide, and functions independently of the Calflora ID # for a given species.

There are non-searchable fields within a plant record for a given species – i.e., data that are used for seeding rate calculations (see the red box in Figure 9). Although these data fields are species-specific, they are currently not available as search criteria. Two of these fields – **Drilled Seeds per SF (@100%)** and **Broadcast Factor** – are constants that apply to nearly all species, and therefore offer no real value for searching. The other seeding rate data fields are seldom used for locating plants or mixtures, and thus were not designed to be searchable.

VIEWING plant record # 1570

ID	Common Name	Scientific Name
1570	Purple needle grass	Nassella pulchra

Plant Type	Growth Cycle	Resident Status	Bloom	PLANTS Code
Grass or Grass-like	Perennial	native	3-5	NAPU4 <a href="#">PLANTS</a>

Materials	Pollinator Habitat	Ease (3: easiest)	Calflora #
Seeds	<input checked="" type="checkbox"/>	2	12067 <a href="#">Calflora</a>

Seeds / LB	Drilled Seeds per SF @100%	Broadcast Factor	Drilled LBS	Broadcast LBS	calculate
109750	25	2.0	9.9	19.8	

Footnotes: 11

LBS: PLS pounds / acre at 100%

4ETa Zones	Veg Soil Groups	Salt Tolerance
bcde	ABC	Mild

[Plant Practice Editor](#)

Figure 9. Illustration of non-searchable fields (data used for seeding rate calculations) within a plant record for a given species.

If a planner wishes to change the search to another species, simply click on ‘**Search**’ in the initial species listing window (Figure 10). The blank **PLANT SEARCH** window returns, where all previously entered search parameter(s) can then be cleared or edited to another species.

Search Results

1 result Click on  to view a record

Scientific Name	Common Name
<input checked="" type="radio"/> Nassella pulchra	<input type="radio"/> Purple needle grass

VIEWING plant record # 1570

ID	Common Name	Scientific Name
1570	Purple needle grass	Nassella pulchra

Plant Type	Growth Cycle	Resident Status	Bloom	PLANTS Code
Grass or Grass-like	Perennial	native	3-5	NAPU4 <a href="#">PLANTS</a>

Bloom period may vary from the values shown here depending upon local environmental variables.

Materials	Pollinator Habitat	Ease (3: easiest)	Calflora #
Seeds	<input checked="" type="checkbox"/>	2	12067 <a href="#">Calflora</a>

Seeds / LB	Drilled Seeds per SF @100%	Broadcast Factor	Drilled LBS	Broadcast LBS	calculate
109750	25	2.0	9.9	19.8	

Footnotes: 11

LBS: PLS pounds / acre at 100%

4ETa Zones	Veg Soil Groups	Salt Tolerance
bcde	ABC	Mild

[Plant Practice Editor](#)

Figure 10. Illustration of using ‘Search’ to return to the blank PLANT SEARCH window.

As a broader-scope variant of a species search, a planner can also search by genus only for all species within that genus that are currently in the **eVegGuide**. Again using *Nassella* as an example, enter *Nassella* only in the **Scientific Name** data field, then click on **SEARCH**, as in Figure 11.

**Figure 11.** Illustration of using only the genus name (e.g., *Nassella*) to locate one or more species.

The next window shows all the potential selections within the **eVegGuide** matching that genus name (Figure 12). In this case, three species are displayed, revealing all the *Nassella* species currently in the **eVegGuide**.

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
<input checked="" type="radio"/> Nassella cernua	Nodding needlegrass	Grass	Perennial	native	Feb-Jul	Seeds	1	
<input type="radio"/> Nassella lepida	Foothill needlegrass	Grass	Perennial	native	Mar-May	Seeds	1	
<input type="radio"/> Nassella pulchra	Purple needle grass	Grass	Perennial	native	Mar-May	Seeds	2	

**Figure 12.** Results of the genus name only query using *Nassella* as an example.

When there are multiple line entries generated for a results window (such as in Figure 12), all of the columns can be sorted by any column heading shown in **bold, blue** font. Simply click on a **column heading** to sort all the data in the results table, in ascending order, by that column type.

Now click on the blue dot (●) corresponding to the line for your species of interest, to view the full data record for that species. In this next example, *Nassella cernua* is selected, yielding the following plant record data (Figure 13).

VIEWING plant record # 492 X

<b>ID</b> 492	<b>Common Name</b> Nodding needlegrass	<b>Scientific Name</b> Nassella cernua		
<b>Plant Type</b> Grass or Grass-like	<b>Growth Cycle</b> Perennial	<b>Resident Status</b> native	<b>Bloom</b> 2-7	<b>PLANTS Code</b> NACE <a href="#">PLANTS</a>
Bloom period may vary from the values shown here depending upon local environmental variables.				
<b>Materials</b> Seeds	<b>Pollinator Habitat</b> <input type="checkbox"/>	<b>Ease (3: easiest)</b> 1	<b>Calflora #</b> 12042 <a href="#">Calflora</a>	
<b>Seeds / LB</b> 223680	<b>Drilled Seeds per SF @100%</b> 25	<b>Broadcast Factor</b> 2.0	<b>Drilled LBS</b> 4.9	<b>Broadcast LBS</b> 9.8 <a href="#">calculate</a>
<b>Footnotes</b> 11				
<b>4ETa Zones</b> cdef	<b>Veg Soil Groups</b> ABC	<b>Salt Tolerance</b> Mild	<a href="#">Plant Practice Editor</a>	

LBS: PLS pounds / acre at 100%

**Figure 13. Full plant record for the example *Nassella cernua*.**

Note that when selecting a line-item species entry from a table of multiple line-item species results (as illustrated in Figure 12), the user does not have to 'X-out' or escape from this **Plant Record** summary window in order to select a new species from the original results table. Simply click on another blue dot (●) for the next line-item entry to be examined, and the existing **Plant-Practice Record** summary window will automatically change to reveal full descriptions for the newly selected species.

Using **PLANT SEARCH** for a plant search, one can even use an abbreviated portion of a name as a form of a quasi-wildcard search. For example, to find all species in the eVegGuide whose scientific genus or species name contains the abbreviation "hord", enter 'hord' in the **Scientific Name** data field, and then click on **SEARCH**, as in Figure 14.

Search Results Detail HELP

**SEARCH** Enter criteria below to search for Plant records

<b>ID</b> 	<b>Common Name</b> 	<b>Scientific Name</b> hord		
<b>Plant Type</b> any	<b>Growth Cycle</b> any	<b>Resident Status</b> any	<b>Bloom</b> 	<b>PLANTS Code</b> 
<b>Materials</b> any	<b>Pollinator Habitat</b> <input type="checkbox"/>	<b>Ease (3: easiest)</b> 	<b>Spacing</b> 	<b>Calflora #</b> 
<b>Footnotes</b> 				
<b>4ETa Zones</b> 	<b>Veg Soil Groups</b> 	<b>Salt Tolerance</b> any		

**Figure 14. Illustration of a quasi-wildcard plant search using "hord" as the search term under Scientific Name.**

This example search yields 7 results for species containing “hord” in either the genus or species name (Figure 15). Six results are from the genus *Hordeum*, while one result displays a *Bromus* species name containing “hord”. This type of search can be performed for essentially any abbreviated word portion that may be located within a scientific or common name.

<a href="#">Search</a> <a href="#">Results</a> <a href="#">Detail</a> <a href="#">HELP</a>									
7 results   Click on <a href="#">○</a> to view a record									
Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing	
<a href="#">○</a> Bromus hordeaceus	Soft brome, Soft chess	Grass	Annual	introduced	Apr-May	Seeds	3		
<a href="#">○</a> Hordeum brachyantherum ssp. brachyantherum	Meadow barley	Grass	Perennial	native	Jun-Jul	Seeds	1		
<a href="#">○</a> Hordeum brachyantherum ssp. californicum	California barley	Grass	Perennial	native	May-Jul	Seeds	1		
<a href="#">○</a> Hordeum depressum	Alkali barley	Grass	Annual	native	Apr-May	Seeds	2		
<a href="#">○</a> Hordeum intercedens	Vernal barley	Grass	Annual	native	Mar-Jun	Seeds	1		
<a href="#">○</a> Hordeum jubatum	Fox tail barley	Grass	Perennial	native	May-Jul	Seeds	2		
<a href="#">○</a> Hordeum vulgare	Barley	Cereal Grain	Annual	introduced	Mar-May	Seeds	3		

**Figure 15. Results of the quasi-wildcard plant search using “hord” as the search term under Scientific Name.**

A further example of a quasi-wild card plant search is using a descriptive “key word” search term in the Common Name data field. Click on ‘**Search**’ at the top-left, and clear / remove “hord” from the **Scientific Name** data field. Now enter “Purple” as the search term in the **Common Name** data field in this next example, and click on **SEARCH** again. We then obtain 8 results for species (Figure 16) where the common name includes the descriptive term “Purple”, either as a stand-alone word or as a portion of a longer word.

<a href="#">Search</a> <a href="#">Results</a> <a href="#">Detail</a> <a href="#">HELP</a>									
8 results   Click on <a href="#">○</a> to view a record									
Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing	
<a href="#">○</a> Aristida purpurea	Purple three awn	Grass	Perennial	native	Feb-Mar	Seeds	3		
<a href="#">○</a> Asclepias cordifolia	Purple milkweed	Forb	Perennial	native	Mar-Jul	Container, Seeds	2	4	
<a href="#">○</a> Clarkia purpurea	Purple clarkia	Forb	Annual	native	Apr-Jul	Container	2	4	
<a href="#">○</a> Nassella pulchra	Purple needle grass	Grass	Perennial	native	Mar-May	Seeds	2		
<a href="#">○</a> Salix purpurea	Purpleosier willow	Shrub	Perennial	introduced	Mar-May	Container, Cuttings	1	20	
<a href="#">○</a> Salvia leucophylla	Purple sage	Shrub	Perennial	native	Apr-Jul	Container, Seeds	3	3	
<a href="#">○</a> Sanicula bipinnatifida	Purple sanicle	Forb	Perennial	native	Mar-May	Container, Seeds	1	4	
<a href="#">○</a> Vicia benghalensis	purple vetch	Legume	Annual	introduced	Mar-Jun	Seeds	3		

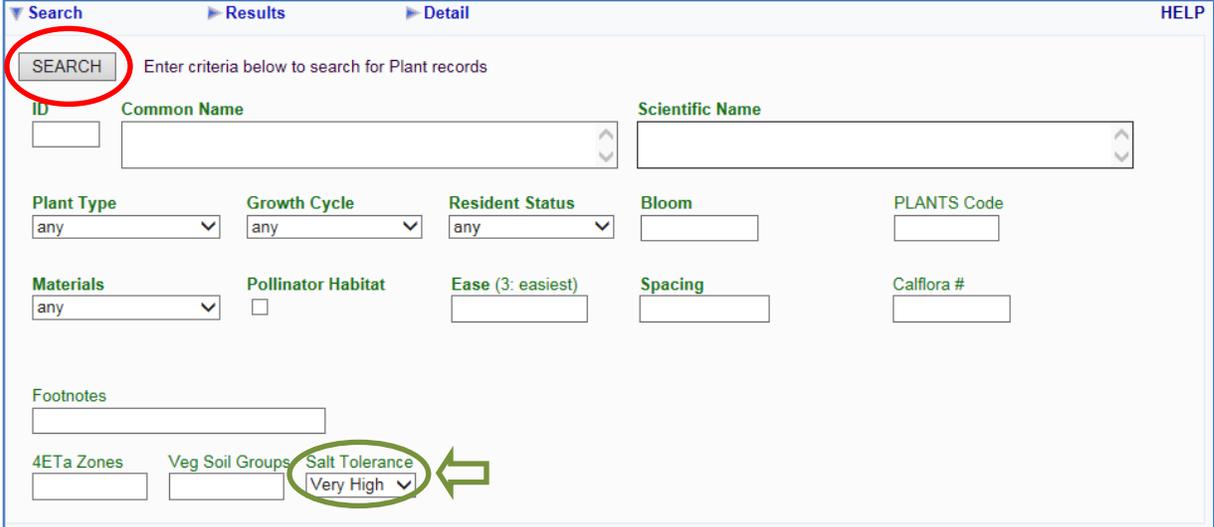
**Figure 16. Results of the quasi-wildcard plant search using “Purple” as the key word search term under Common Name.**

## 2.4 Multiple Species Search

In contrast to searching for a single species using the Scientific Name or Common Name, lists of multiple species that meet selected search criteria can be generated using a search constrained by selected plant record parameters. As depicted in Figure 2 above, the blank **PLANT SEARCH** screen displays all the searchable parameters by which a plant search can be constrained. As previously noted, any data field (one or more) within this window can serve as search variable(s) to query the **eVegGuide** database for the species in which you may be interested. These can be used in any combination to constrain the search for a species or mixture.

Four example searches are provided using biological and/or commercial parameters as search terms.

1. First example – the planner wishes to find all species within the **eVegGuide** that exhibit a 'Very High' salt tolerance (i.e., rated as tolerant of EC's > 12 dS m<sup>-1</sup>). Select this level from the drop-down list in the **'Salt Tolerance'** data field, and then click on **SEARCH** (Figure 17).



The screenshot shows the 'Search' tab of the 'PLANT SEARCH' window. The 'SEARCH' button is circled in red. The 'Salt Tolerance' dropdown menu is circled in green, with a green arrow pointing to it. The dropdown menu is set to 'Very High'. Other search criteria include: ID, Common Name, Scientific Name, Plant Type (any), Growth Cycle (any), Resident Status (any), Bloom, PLANTS Code, Materials (any), Pollinator Habitat (checkbox), Ease (3: easiest), Spacing, Calflora #, Footnotes, 4ETa Zones, and Veg Soil Groups.

**Figure 17.** Using a single-parameter search from the blank **PLANT SEARCH** window. In this example, 'Very High' salt tolerance (from the drop-down selection list) is the lone search constraint.

The results of this search (the full list is abbreviated here to conserve space) are depicted in Figure 18, displaying over 90 species that exhibit a salt tolerance rating exceeding an EC of 12 dS m<sup>-1</sup> (i.e., 'Very High').

A similar or parallel search could be conducted, querying for all plants that have an associated Footnote 13, which flags a species as exhibiting 'very high' salt tolerance. In this latter instance, rather than using the drop-down list and selecting for 'Very High' in the **Salt Tolerance** data field, the planner could enter '13' in the **Footnote** data field, and then click on **SEARCH**. Refer to the **FOOTNOTE SEARCH** under the **DATA** tab for complete footnote descriptions (with active links to supporting literature, as applicable).

Search		Results		Detail		HELP		
93 results		Click on  to view a record						
Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
 <i>Abronia umbellata</i>	Beach sand verbena	Forb	Perennial	native	Jan-Dec	Container	1	3
 <i>Acacia longifolia</i>	Sydney golden wattle	Legume	Perennial	introduced	Jun-Aug	Container	1	10
 <i>Achillea millefolium</i>	Common yarrow	Forb	Perennial	native	Apr-Aug	Container, Seeds	3	2
 <i>Agropyron cristatum</i>	Crested wheatgrass	Grass	Perennial	introduced	Jun-Aug	Seeds	3	
 <i>Agropyron desertorum</i>	Desert wheatgrass	Grass	Perennial	introduced	Jun-Aug	Seeds	3	
 <i>Allenrolfea occidentalis</i>	Iodine Bush	Shrub	Perennial	native	Jul-Nov	Container, Seeds	1	3
 <i>Alopecurus pratensis</i>	Meadow foxtail	Grass	Perennial	introduced	Mar-May	Seeds	3	
 <i>Ammi majus</i>	Large bullwort AKA: Bishop's weed	Forb	Annual	introduced	May-Jul	Seeds	1	
 <i>Amsinckia menziesii</i> var. <i>menziesii</i>	Menzie's fiddleneck	Forb	Annual	native	Mar-May	Container	1	4
 <i>Anemopsis californica</i>	Yerba mansa	Forb	Perennial	native	Feb-Mar	Seeds	3	
 <i>Apium graveolens</i>	Celery	Forb	Annual	introduced	May-Jul	Seeds	1	
 <i>Argemone corymbosa</i>	Mojave prickly poppy	Forb	Perennial	native	Apr-May	Seeds	1	
 <i>Asclepias subulata</i>	Ajamete	Forb	Perennial	native	Jan-Dec	Container, Seeds	2	4
 <i>Atriplex canescens</i>	Fourwing saltbush	Shrub	Perennial	native	May-Jun	Container, Seeds	3	6
 <i>Atriplex confertifolia</i>	Shadscale saltbush	Shrub	Perennial	native	Jun-Jul	Container, Seeds	1	6
 <i>Atriplex lentiformis</i> ssp. <i>breweri</i>	Brewer saltbush	Shrub	Perennial	native	Jun-Jul	Container, Seeds	3	6
<b>(section omitted for abbreviation)</b>								
 <i>Suaeda moquinii</i>	Bush seepweed, Mojave seablite	Shrub	Perennial	native	May	Container, Seeds	2	6
 <i>Tetradymia axillaris</i>	Longspine horsebrush	Shrub	Perennial	native	Apr-May	Container, Seeds	1	6
 <i>Tetradymia glabrata</i>	Littleleaf horsebrush	Shrub	Perennial	native	Aug-Sep	Container, Seeds	1	6
 <i>Thinopyrum ponticum</i>	Tall wheatgrass	Grass	Perennial	introduced	Jun-Jul	Seeds	1	
 <i>Trifolium fragiferum</i>	Strawberry clover	Legume	Perennial	introduced	May-Jun	Seeds	3	
 <i>Typha latifolia</i>	Common cattail	Grass	Perennial	native	May-Jun	Plugs	2	3
 <i>Vulpia myuros</i>	Annual fescue	Grass	Annual	introduced	Feb-May	Seeds	3	

Figure 18. Results from using 'Very High' salt tolerance as the lone search constraint in the blank PLANT SEARCH window.

- Second example – the planner wishes to determine all species within the **eVegGuide** that meet the following criteria: 1) native; 2) perennial; 3) legumes; and 4) available as containerized stock in commercial nurseries in California (Figure 19).

The screenshot shows the 'Search' tab of a web application. At the top, there are tabs for 'Search', 'Results', and 'Detail', and a 'HELP' link. Below the tabs is a 'SEARCH' button (circled in red) and a text input field for entering search criteria. The main form contains several fields and dropdown menus:

- ID:** A text input field.
- Common Name:** A text input field.
- Scientific Name:** A text input field.
- Plant Type:** A dropdown menu with 'Legume' selected (circled in green).
- Growth Cycle:** A dropdown menu with 'Perennial' selected (circled in green).
- Resident Status:** A dropdown menu with 'native' selected (circled in green).
- Bloom:** A text input field.
- PLANTS Code:** A text input field.
- Materials:** A dropdown menu with 'Container' selected (circled in green).
- Pollinator Habitat:** A checkbox.
- Ease (3: easiest):** A text input field.
- Spacing:** A text input field.
- Calflora #:** A text input field.
- Footnotes:** A text input field.
- 4ETa Zones:** A text input field.
- Veg Soil Groups:** A text input field.
- Salt Tolerance:** A dropdown menu with 'any' selected.

**Figure 19. Using a multiple-parameter search from the blank PLANT SEARCH window. In this example, four parameters (all from drop-down selection lists) form the combined search constraints.**

This search results in the following list of 30+ species that meet the combination of stipulated search criteria above (Figure 20). As noted previously, all of the columns can be sorted by the column heading (shown in **bold, blue** font) when there are multiple line entries generated for a results window. Simply click on a **column heading** to sort all the data in the results table, in ascending order, by that column type.

**NOTE:** this type of constrained criteria search can also be conducted in combination with a conservation practice, a practice purpose, and an MLRA, further delimiting the species search to a certain locale and treatment application. However, this more advanced search must be done in the **PLANT-PRACTICE SEARCH** mode, *which will be fully described and demonstrated with examples in Section 4.0 of the User's Manual.*

In a closely related search, the planner wishes to search by the same constraining criteria, except that the planner wishes to determine what perennial, native, legume species are known to be available commercially (within the **eVegGuide**) as seed. To accomplish this, just click on **“Search”** at the top-left of the window, which returns to the plant record window. In the Materials drop-down list, now select **‘Seeds’** instead of **‘Container’**, and then click on **SEARCH**. The search results are now considerably shortened (Figure 21), reflecting fewer species that meet the new combination of stipulated search criteria.

Search Results Detail HELP

32 results Click on  to view a record

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
 <i>Amorpha fruticosa</i>	western false indigo	Legume	Perennial	native	Feb-Apr	Container	3	4
 <i>Astragalus trichopodus</i>	Santa barbara milk vetch	Legume	Perennial	native	Feb	Container	1	4
 <i>Cercis occidentalis</i>	Western redbud	Legume	Perennial	native	Feb-Apr	Container	3	10
 <i>Hoita orbicularis</i>	Creeping leather root	Legume	Perennial	native	Apr	Container	1	4
 <i>Lupinus albifrons</i>	Silver bush lupine	Legume	Perennial	native	Apr	Container	3	6
 <i>Lupinus albifrons var. collinus</i>	Silver bush lupine	Legume	Perennial	native	Apr	Container	2	4
 <i>Lupinus chamissonis</i>	Dune bush lupine	Legume	Perennial	native	Apr-Jun	Container	1	3
 <i>Lupinus excubitus</i>	Grape lupine	Legume	Perennial	native	May	Container	2	4
 <i>Lupinus formosus</i>	Summer lupine	Legume	Perennial	native	Jun-Aug	Container, Seeds	1	4
 <i>Lupinus formosus var. robustus</i>	Giant western lupine	Legume	Perennial	native	Jun-Oct	Container	1	4
 <i>Lupinus latifolius</i>	Broad leaf lupine	Legume	Perennial	native	Apr	Container	2	4
 <i>Lupinus longifolius</i>	long leaf bush lupine	Legume	Perennial	native	Jan-Dec	Container	2	4
 <i>Lupinus polyphyllus</i>	Bog lupine	Legume	Perennial	native	May	Container	3	4
 <i>Lupinus propinquus</i>	Coastal bush lupine	Legume	Perennial	native		Container	1	6
 <i>Lupinus sericatus</i>	Cobb mtn. lupine	Legume	Perennial	native	Mar	Container	1	4
 <i>Lupinus versicolor</i>	Varied lupine	Legume	Perennial	native	Apr	Container	1	4
 <i>Oleña tesota</i>	Desert ironwood	Legume	Perennial	native	Feb-Mar	Container	2	10
 <i>Parkinsonia florida</i>	Blue paloverde	Legume	Perennial	native	Apr-May	Container	3	10
 <i>Parkinsonia microphylla</i>	Littleleaf paloverde or Yellow paloverde	Legume	Perennial	native	Mar-May	Container	3	10
 <i>Pickeringia montana</i>	chaparral pea	Legume	Perennial	native	May-Aug	Container	1	4
 <i>Prosopis glandulosa</i>	Honey mesquite	Legume	Perennial	native	Apr-Aug	Container	3	12
 <i>Prosopis glandulosa var. torreyana</i>	Western honey mesquite	Legume	Perennial	native	Apr-Aug	Container	1	12
 <i>Prosopis pubescens</i>	Screw bean mesquite	Legume	Perennial	native	Feb	Container	3	4
 <i>Psoralea schottii</i>	Schott's dalea or Indigo bush	Legume	Perennial	native	Mar-May	Container, Seeds	1	6
 <i>Psoralea spinosa</i>	Smoketree	Legume	Perennial	native	Jun-Jul	Container	2	10
 <i>Robinia neomexicana</i>	Desert locust	Legume	Perennial	native	May	Container	2	4
 <i>Rupertia physodes</i>	Common rupertia	Legume	Perennial	native	May	Container	1	4
 <i>Senegalia greggii</i>	Catclaw acacia	Legume	Perennial	native	Apr-Jun	Container	2	14
 <i>Senna armata</i>	Desert senna or Spiney senna	Legume	Perennial	native	Mar-Jul	Container	1	6
 <i>Senna covesii</i>	Coves's cassia	Legume	Perennial	native	Mar	Container	1	6
 <i>Thermopsis macrophylla</i>	Santa ynez false lupine	Legume	Perennial	native	Apr	Container	1	4
 <i>Vicia americana</i>	American vetch	Legume	Perennial	native	May	Container, Seeds	2	4

Figure 20. Results from using a multiple-parameter search from the blank **PLANT SEARCH** window. In this example, all resulting species are 1) native; 2) perennial; 3) legumes; and 4) available as containerized stock in commercial nurseries in California.

Search Results Detail HELP

11 results Click on  to view a record

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
 Lotus argophyllus	Silver bird's-foot trefoil	Legume	Perennial	native	Apr-Jun	Seeds	1	
 Lotus scoparius	Common deerweed	Legume	Perennial	native	Mar-Aug	Seeds	2	
 Lotus unifoliolatus var. unifoliolatus	American bird's-foot trefoil	Legume	Perennial	native	Jun-Aug	Seeds, Plugs	1	4
 Lupinus arboreus	Yellow bush lupine	Legume	Perennial	native	Apr-May	Seeds	1	
 Lupinus breweri	Gray lupine	Legume	Perennial	native	Jun-Aug	Seeds	1	
 Lupinus formosus	Summer lupine	Legume	Perennial	native	Jun-Aug	Container, Seeds	1	4
 Lupinus grayi	Sierra lupine	Legume	Perennial	native	May-Jul	Seeds	1	
 Lupinus nanus	Sky lupine	Legume	Perennial	native	Mar-May	Seeds	2	
 Psoralea schottii	Schott's dalea or Indigo bush	Legume	Perennial	native	Mar-May	Container, Seeds	1	6
 Trifolium fucatum	Bull clover	Legume	Perennial	native	Apr-Jun	Seeds	1	
 Vicia americana	American vetch	Legume	Perennial	native	May	Container, Seeds	2	4

Figure 21. Results from using the revised multiple-parameter search where all resulting species are 1) native; 2) perennial; 3) legumes; and 4) available as seed from commercial dealers in California.

As previously described, on any table of results like these (Figures 20, 21), click on the blue dot () to view the full data record for any individual species within the multiple species listing.

- Third example – the planner wishes to determine all species within the **eVegGuide** that meet the following criteria: 1) native; 2) perennial; 3) shrub; 4) pollinator species; and 5) ease of establishment rates as easiest (code 3) (Figure 22).

Search Results Detail HELP

SEARCH Enter criteria below to search for Plant records

ID

Common Name

Scientific Name

Plant Type  Growth Cycle  Resident Status  Bloom

Materials  Pollinator Habitat  Ease (3: easiest)  Spacing

PLANTS Code

Calflora #

Footnotes

4ETa Zones  Veg Soil Groups  Salt Tolerance

Figure 22. Using a multiple-parameter search from the blank **PLANT SEARCH** window. In this example, five parameters (from both drop-down selection lists and actual data entries) form the combined search constraints.

This third search (the full list is abbreviated here to conserve space) results in a list of 60+ species that meet the combination of stipulated search criteria above for example three (Figure 23).

<a href="#">Search</a> <a href="#">Results</a> <a href="#">Detail</a> <a href="#">HELP</a>									
61 results   Click on  to view a record									
Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing	
 <i>Arctostaphylos uva-ursi</i>	Bearberry manzanita	Shrub	Perennial	native	Mar-Jun	Container	3	3	
 <i>Aristolochia californica</i>	California Dutchman's Pipe	Shrub	Perennial	native	Jan-Apr	Container	3	6	
 <i>Artemisia californica</i>	California sagebrush	Shrub	Perennial	native	Apr-Oct	Container, Seeds	3	4	
 <i>Artemisia douglasiana</i>	Mugwort	Shrub	Perennial	native	May-Oct	Container, Seeds	3	4	
 <i>Artemisia tridentata</i>	Big sagebrush	Shrub	Perennial	native	Jul-Aug	Container, Seeds	3	6	
 <i>Atriplex canescens</i>	Fourwing saltbush	Shrub	Perennial	native	May-Jun	Container, Seeds	3	6	
 <i>Baccharis pilularis</i>	Coyote brush	Shrub	Perennial	native	Sep-Jan	Container	3	6	
 <i>Baccharis salicifolia</i>	Mule-fat	Shrub	Perennial	native	Jan-Dec	Container, Cuttings	3	8	
 <i>Ceanothus arboreus</i>	Island ceanothus	Shrub	Perennial	native	Feb-Apr	Container	3	6	
 <i>Ceanothus gloriosus</i>	Wild lilac	Shrub	Perennial	native	Mar-Apr	Container	3	6	
 <i>Ceanothus impressus</i>	Santa barbara ceanothus	Shrub	Perennial	native	Apr-May	Container	3	6	
 <i>Cephalanthus occidentalis</i>	Buttonbush, California buttonwillow	Shrub	Perennial	native	Aug-Oct	Container, Cuttings	3	6	
 <i>Clematis ligusticifolia</i>	Western white clematis	Shrub	Perennial	native	Jun-Aug	Container	3	6	
 <i>Cylindropuntia prolifera</i>	Coastal cholla	Shrub	Perennial	native	Apr-Jul	Container	3	6	
 <i>Ericameria nauseosa</i>	Rubber rabbitbrush	Shrub	Perennial	native	Jul-Oct	Container, Seeds	3	3	
 <i>Eriodictyon californicum</i>	Yerba Santa	Shrub	Perennial	native	May-Jun	Container	3	6	
 <i>Eriodictyon crassifolium</i>	Thick-leaf yerba santa	Shrub	Perennial	native	Mar-Jun	Container, Seeds	3	6	
 <i>Eriogonum arborescens</i>	Island buckwheat	Shrub	Perennial	native	Apr-Oct	Container	3	6	
 <i>Eriogonum fasciculatum</i>	California buckwheat	Shrub	Perennial	native	Apr-Sep	Container, Seeds	3	3	
 <i>Eriogonum giganteum var. compactum</i>	Santa Barbara Island buckwheat	Shrub	Perennial	native	May-Aug	Container	3	6	
 <i>Eriogonum giganteum var. formosum</i>	San Clemente Island buckwheat	Shrub	Perennial	native	May-Aug	Container	3	6	

(section omitted for abbreviation)

 <i>Salvia leucophylla</i>	Purple sage	Shrub	Perennial	native	Apr-Jul	Container, Seeds	3	3	
 <i>Salvia mellifera</i>	Black sage	Shrub	Perennial	native	Mar-Jul	Container	3	6	
 <i>Salvia spathacea</i>	hummingbird sage	Shrub	Perennial	native	Feb-Jul	Container	3	4	
 <i>Spiraea douglasii</i>	Douglas spiraea	Shrub	Perennial	native	Jul-Aug	Container, Cuttings	3	6	
 <i>Symphoricarpos albus var. albus</i>	Common snowberry	Shrub	Perennial	native	Jun-Jul	Container	3	6	
 <i>Trichostema lanatum</i>	Woolly blue curls	Shrub	Perennial	native	Mar-Jun	Container, Seeds	3	6	
 <i>Vitis californica</i>	California wild grape	Shrub	Perennial	native	May-Jun	Container	3	6	

**Figure 23. Results from using the revised multiple-parameter search where all resulting species are 1) native; 2) perennial; 3) shrub; 4) pollinator species; and 5) with ease of establishment rates as easiest (code 3).**

4. Fourth example – the planner wishes to determine all species within the **eVegGuide** that meet the following criteria: 1) occur in 4ETa zones ‘e’ or ‘f’; 2) are adapted to Vegetative Soil Groups C, D, E, or F; and 3) exhibit very high salt tolerance – i.e., species that are adapted primarily to lower precipitation (higher ET) zones, more clayey or poorly drained soils, and more highly saline sites (Figure 24).

The screenshot shows the 'Search' tab of the PLANT SEARCH interface. The search criteria are as follows:

- 4ETa Zones: ef
- Veg Soil Groups: CDEF
- Salt Tolerance: Very High

**Figure 24.** Using a multiple-parameter search from the blank **PLANT SEARCH** window. In this example, three parameters (from both a drop-down selection list and actual data entries) form the combined search constraints.

This third search results in the following list of only 3 species that meet the combination of stipulated search criteria above for example four (Figure 25).

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
Allenrolfea occidentalis	Iodine Bush	Shrub	Perennial	native	Jul-Nov	Container, Seeds	1	3
Distichlis spicata	Saltgrass	Grass	Perennial	native	Jul-Aug	Seeds	2	
Sporobolus airoides	Alkali sacaton	Grass	Perennial	native	Jul-Aug	Seeds, Plugs	3	1

**Figure 25.** Results from using the revised multiple-parameter search where all resulting species exhibit 1) 4ETa zones of ‘e’ and/or ‘f’; 2) Vegetative Soil Groups of ‘C’, ‘D’, ‘E’, and/or ‘F’; and 3) ‘Very High’ salt tolerance.

## 2.5 Mixture Searches using PLANT SEARCH

Two primary modules within the eVegGuide are available to query and examine components of pre-set, guideline seed mixtures within the **eVegGuide** – **PLANT SEARCH** and **MIX COMPONENT SEARCH**. Both of these modules are accessible under the **DATA** tab (Figure 26).

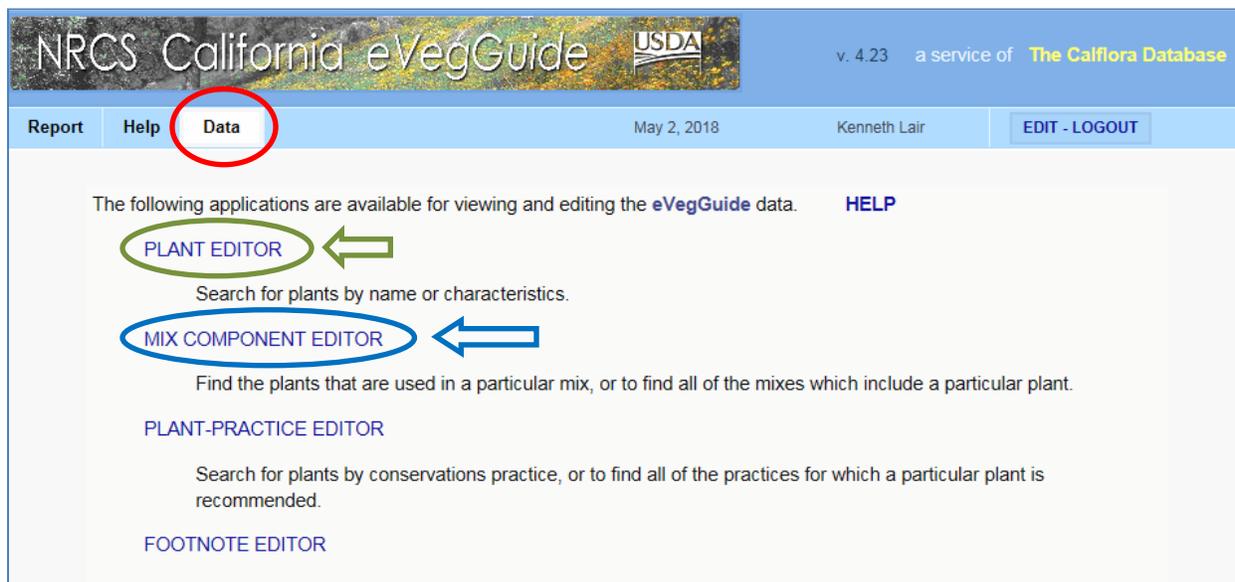


Figure 26. The primary modules within the eVegGuide available to query and examine components of pre-set, guideline seed mixtures within the eVegGuide.

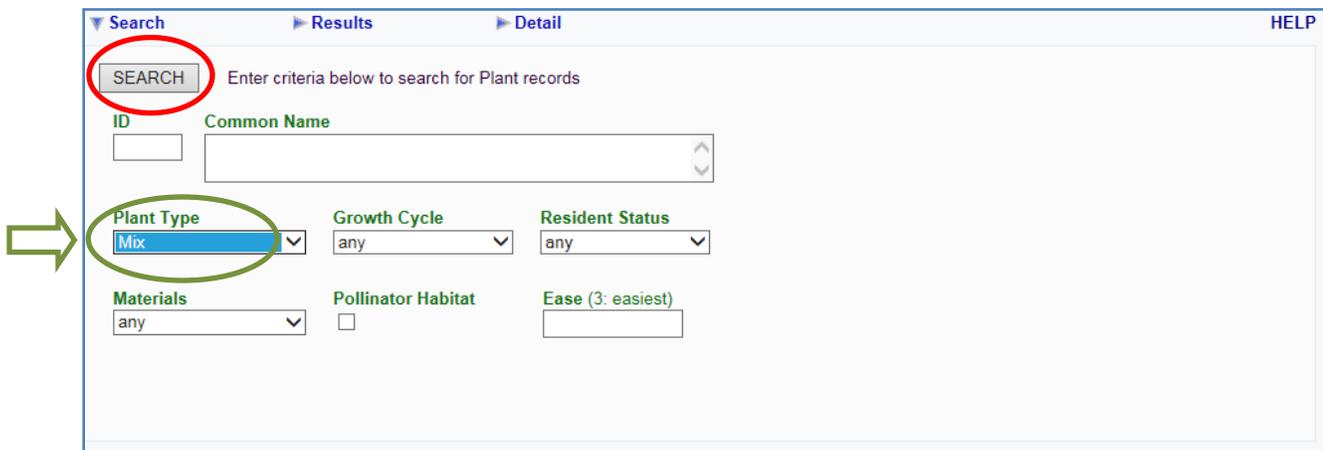
The **PLANT SEARCH** module is more oriented toward basic searches for all available pre-set guideline mixtures by mixture name, and/or with selected other parameters pertaining to mixtures that can be used to filter or constrain the search. Upon selection of an available mixture, using the blue dot (•) to access and view the full data record for any individual mixture, a planner can then access mixture component species through direct links to **MIX COMPONENT SEARCH**.

The **MIX COMPONENT SEARCH** is much more oriented toward directly accessing and examining individual species within pre-set mixtures, including the ability to search for species within mixtures using parameters that constrain searches to data elements such as percent composition, ease of establishment, and other mixture component parameters. *A full discussion and demonstration of MIX COMPONENT SEARCH features follows in the next user manual section.*

In **PLANT SEARCH**, in order to search for pre-set guideline mixtures that reside within the eVegGuide, select 'Mix' from the drop-down selection list in the 'Plant Type' data field. Note that the window changes significantly upon the selection of 'Mix', reducing the number of data field parameters that can be used for a mixture query (Figure 27).

### 2.51 Global Mixture Searches

To obtain a full listing of all pre-set guideline mixtures within the eVegGuide, simply click on **SEARCH** with only 'Mix' selected in the 'Plant Type' data field. The results of such a global search (the full list is abbreviated here to conserve space) are displayed in Figure 28, indicating nearly 200 pre-set mixtures currently available for use.



**Figure 27. Illustration of conducting a global search for all pre-set guidelines mixtures available within the eVegGuide, using the blank mixture editor window in PLANT SEARCH, without regard for other search constraints.**

This large listing is useful for familiarizing the planner with the naming protocols of the various mixtures, along with their associated parameters of growth form, resident status, and plant materials type – without respect to association with conservation practice or MLRA location.

The **PLANT-PRACTICE SEARCH**, *to be discussed in Section 4.0 of the User’s Manual*, is used to search for and examine pre-set mixtures keyed to and delimited by specific conservation practices, practice purposes (if applicable), and MLRA(s).

As previously described, when there are multiple line entries generated for a results window (such as in Figure 28), all of the columns can be sorted by any column heading shown in **bold, blue** font. Simply click on a **column heading** to sort all the data in the results table, in ascending order, by that column type. Data for ‘**Bloom Period**’ and ‘**Spacing**’ are not displayed because 1) the mix of bloom periods across all mixture component species that may be present in a given mixture; and 2) all mixtures are seed-based, and thus not amenable to non-seed spacing requirements as with containers, plugs, sprigs, cuttings, etc.

Likewise, as on any table of results, click on the blue dot (●) to view the plant record summary for the mixture of interest. In this example, click on the blue dot (●) for the first listed mixture – “Subterranean Clover Mix for Orchards”— as displayed under the **Common Name** column heading in Figure 28.

The resulting window (Figure 29) displays the mixture record summary. In this latest window, note that the selected mixture has an assigned record tracking ID number of ‘**1794**’ (top-left corner of the window). This number can be used in future mixture searches to access this same mixture again for further review, without having to search using any other parameter to find this mixture. Each mixture within the eVegGuide has such an ID number assigned, and can be thus accessed if the number is known.

This mixture record summary (Figure 29) displays the ‘**Mixture Name**’ and also a ‘**Mixture Description**’, providing further detail for the intended application of this mixture in terms of, as examples, land use and management, applicable MLRA(s), species varietal recommendations,

Search Results Detail HELP

187 results Click on [○](#) to view a record

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
<a href="#">○</a>	Subterranean Clover Mix for Orchards	Mix	Annual	introduced		Seeds	3	
<a href="#">○</a>	MLRA 17 -- Native Grass Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	
<a href="#">○</a>	Native Grass / Legume / Shrub Mixture 2	Mix	Annual / Perennial	native		Seeds	2	
<a href="#">○</a>	Pollinator Annual mix MLRA 14,15, 17,18,19,20	Mix	Annual / Perennial	both		Seeds	3	
<a href="#">○</a>	MLRA 20 -- Mixed Shrub / Forb / Grass Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	2	
<a href="#">○</a>	Pollinator Habitat MLRA 4b, 5, 14, 15, 17, 18	Mix	Annual / Perennial	native		Seeds	2	
<a href="#">○</a>	Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	Mix	Annual / Perennial	native		Seeds	2	
<a href="#">○</a>	MLRA 19 -- Mixed Shrub / Forb Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	
<a href="#">○</a>	MLRA 19 -- Mixed Shrub Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	
<a href="#">○</a>	Pollinator MLRA 15, 17, 18 Annual & Perennial mix	Mix	Annual / Perennial	native		Seeds	3	
<a href="#">○</a>	MLRA 19 -- Mixed Shrub Mixture 2 (DRAFT)	Mix	Perennial	native		Seeds	3	
<a href="#">○</a>	MLRA 20 -- Mixed Native Grass Mixture 2 (DRAFT)	Mix	Perennial	native		Seeds	2	
<a href="#">○</a>	Napa Vineyards: Hillside Shallow Soil Erosion Control Mix (formerly NAPA1 mixture).	Mix	Annual	introduced		Seeds	3	

(section omitted for abbreviation)

<a href="#">○</a>	MLRA's 21, 23 -- Critical Area Planting Mixture 5	Mix	Perennial	native		Seeds	2	
<a href="#">○</a>	MLRA's 21, 23 -- Critical Area Planting Mixture 1a	Mix	Perennial	native		Seeds	2	
<a href="#">○</a>	MLRA's 21, 23 -- Critical Area Planting Mixture 2	Mix	Perennial	native		Seeds	2	
<a href="#">○</a>	MLRA's 22A, 22B -- Rangeland Forage Mixture 8	Mix	Perennial	both		Seeds	2	
<a href="#">○</a>	MLRA's 22A, 22B -- Rangeland Forage Mixture 9	Mix	Perennial	both		Seeds	2	
<a href="#">○</a>	MLRA's 22A, 22B -- Rangeland Forage Mixture 10	Mix	Perennial	both		Seeds	2	
<a href="#">○</a>	MLRA's 22A, 22B, 26 -- Pasture Forage and Hay Mixture 12	Mix	Perennial	introduced		Seeds	2	
<a href="#">○</a>	MLRA's 22A, 22B, 26 -- Pasture Forage Mixture 18	Mix	Perennial	introduced		Seeds	3	
<a href="#">○</a>	MLRA's 14, 15, 16 -- Irrigated or Dryland Pasture, Legume Emphasis Mix	Mix	Annual	introduced		Seeds	3	
<a href="#">○</a>	Drought Annual Clover Mix	Mix	Annual	introduced		Seeds	3	

Figure 28. Results of a global search for all pre-set guidelines mixtures within the eVegGuide, without regard for other search constraints.

special seeding rates, and/or other descriptive information that identifies and distinguishes this specific mixture. Other parameters for this specific mixture are also displayed – i.e., Plant Type, Growth Cycle, Resident Status, Materials type, Pollinator Habitat, and Ease of establishment. Within this mixture record summary, there are also links at the bottom of the window that will access and display several supporting data elements that further define this specific mixture.

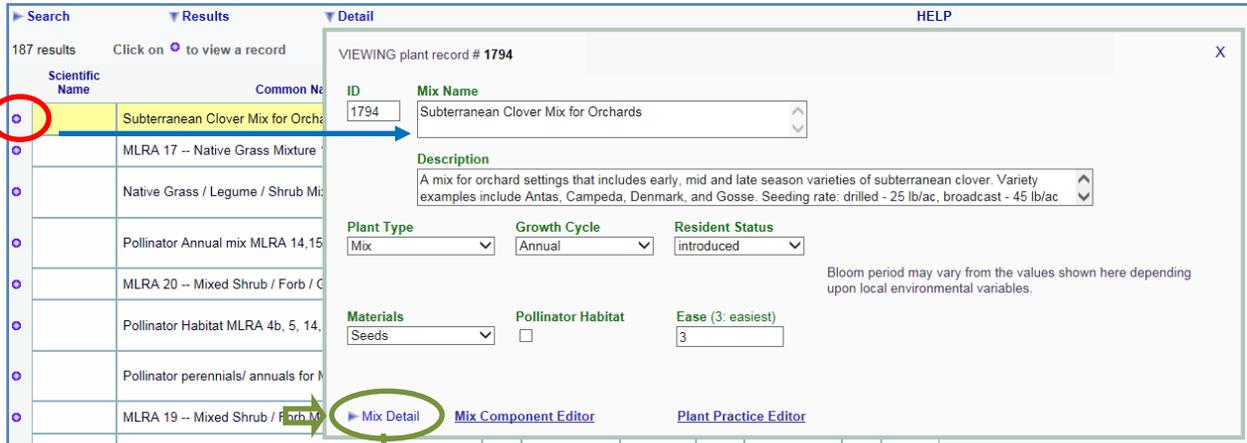


Figure 29. Illustration of selecting one specific mixture (in this example, “Subterranean Clover Mix for Orchards”) from the global mixture list, with resultant mixture record summary window.

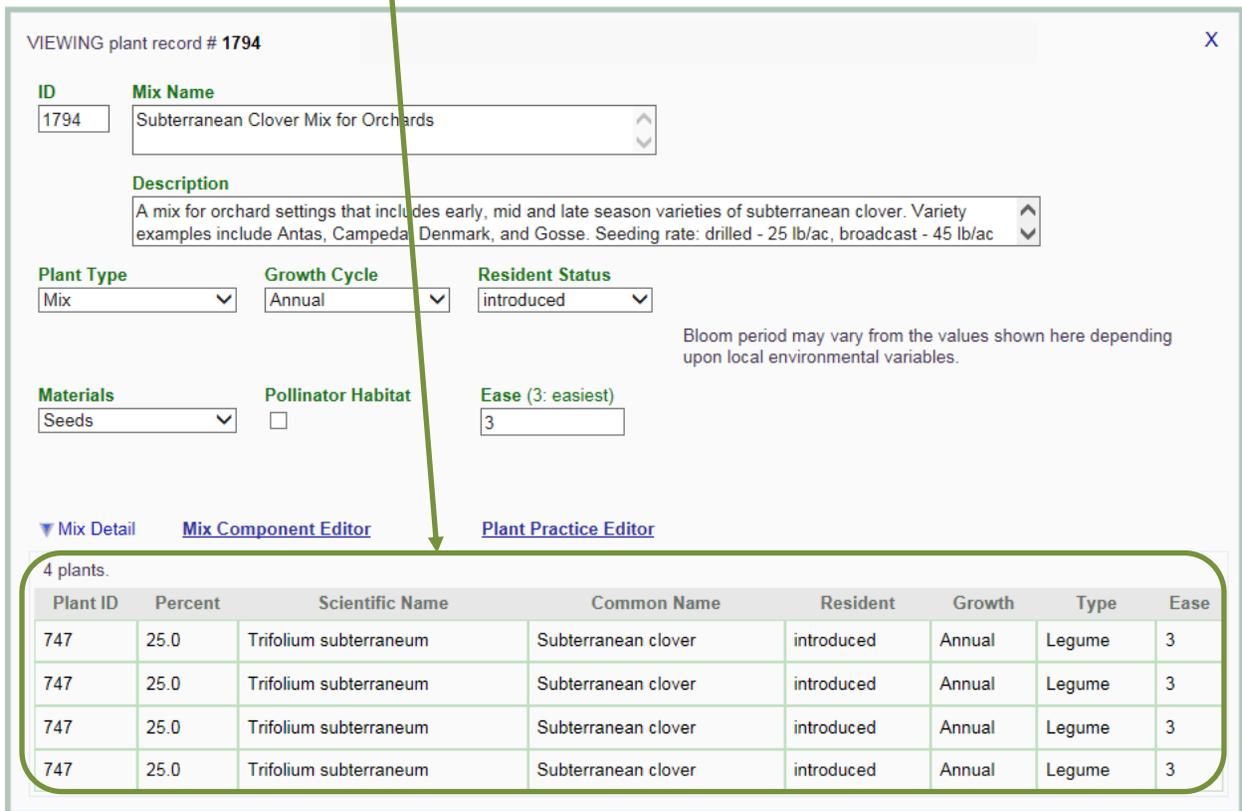
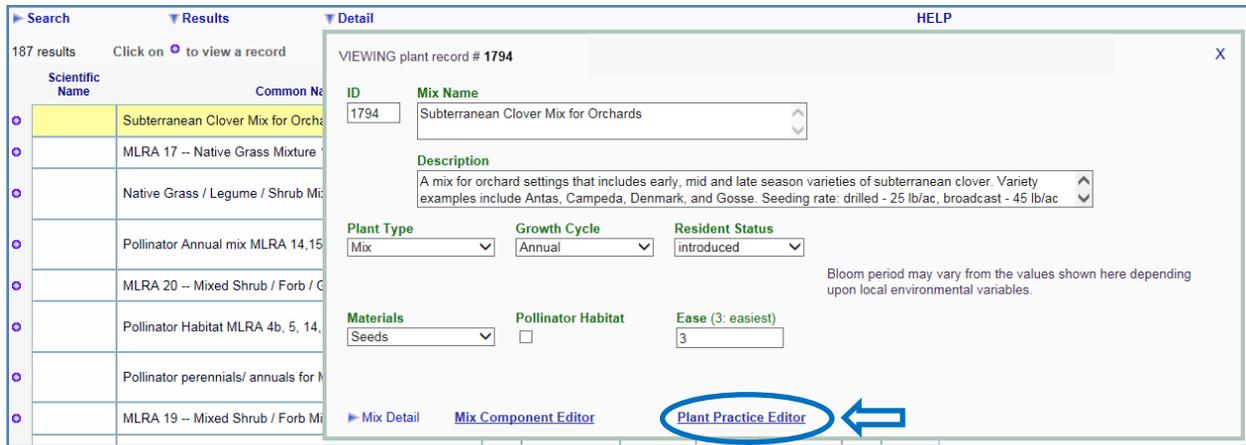


Figure 30. Results of using ‘Mix Detail’ to display the component species of the selected mixture.

A listing of component species of the mixture is accessed by clicking on **Mix Detail** (Figure 30). This basic listing is not sortable by column heading. *The list should be interpreted and applied in light of any constraints or recommendations noted in the mixture ‘Name’ and/or ‘Description’ shown above it in the mixture record summary.*

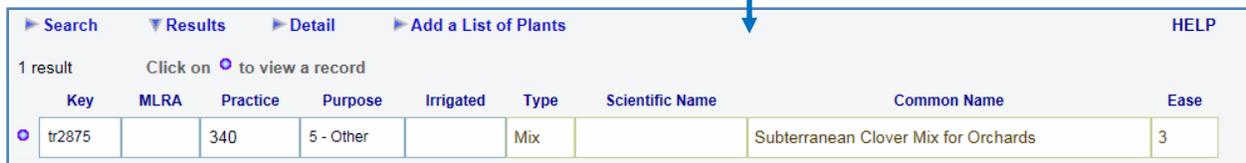
The second link in this mixture record summary window (Figure 31) is to **PLANT-PRACTICE SEARCH**. This link provides a cross-reference and listing of where this specific mixture is located within the eVegGuide in relation to conservation practice, practice purpose (if applicable), and MLRA(s) where it applies.



**Figure 31.** Illustration of the **PLANT-PRACTICE SEARCH** link from a mixture search, indicating where this specific mixture is located within the eVegGuide in relation to conservation practice, practice purpose (if applicable), and MLRA(s).

The **PLANT-PRACTICE SEARCH** module will be fully described and demonstrated in Section 4 of this User's Manual.

Figure 32 displays these latter results, indicating this example mixture is applicable only to conservation practice 340 (Conservation Cover); practice purpose 5 – Other Use; and thus as a 340 mixture is applicable to all California MLRA's.



**Figure 32.** Results of using **PLANT-PRACTICE SEARCH** to display the conservation practice, practice purpose (if applicable), and applicable MLRA(s) for the selected mixture.

Let's examine another mixture selection from the global listing of mixtures currently available within the **eVegGuide** using our results from Figure 28. Click on the blue dot (●) for the listed mixture – “Pollinator perennials / annuals for MLRA's 14, 15, 19, 20”— as displayed under the **Common Name** column heading in Figure 33. The resulting window (Figure 34) displays the plant record summary for the newly selected mixture.

Search Results Detail HELP

187 results Click on  to view a record

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
<input type="radio"/>	Subterranean Clover Mix for Orchards	Mix	Annual	introduced		Seeds	3	
<input type="radio"/>	MLRA 17 -- Native Grass Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	
<input type="radio"/>	Native Grass / Legume / Shrub Mixture 2	Mix	Annual / Perennial	native		Seeds	2	
<input type="radio"/>	Pollinator Annual mix MLRA 14,15, 17,18,19,20	Mix	Annual / Perennial	both		Seeds	3	
<input type="radio"/>	MLRA 20 -- Mixed Shrub / Forb / Grass Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	2	
<input type="radio"/>	Pollinator Habitat MLRA 4b, 5, 14, 15, 17, 18	Mix	Annual / Perennial	native		Seeds	2	
<input checked="" type="radio"/>	Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	Mix	Annual / Perennial	native		Seeds	2	
<input type="radio"/>	MLRA 19 -- Mixed Shrub / Forb Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	
<input type="radio"/>	MLRA 19 -- Mixed Shrub Mixture 1 (DRAFT)	Mix	Perennial	native		Seeds	3	

Figure 33. Illustration of selecting a new mixture (in this example, “Pollinator perennials / annuals for MLRA 14, 15, 19, 20”) from the global mixture list.

VIEWING plant record # 1803 X

**ID** 1803 **Mix Name** Pollinator perennials/ annuals for MLRA 14, 15, 19, 20

**Description** Pollinator Native forbs Habitat for Southern, Coastal areas

**Plant Type** Mix **Growth Cycle** Annual / Perennial **Resident Status** native

Bloom period may vary from the values shown here depending upon local environmental variables.

**Materials** Seeds **Pollinator Habitat**  **Ease (3: easiest)** 2

[Mix Detail](#) [Mix Component Editor](#) [Plant Practice Editor](#)

Figure 34. Resultant mixture record summary window for the new mixture selection.

Clicking on ‘**Mix Detail**’ now reveals a much different species composition for this latter mixture (Figure 35).

VIEWING plant record # 1803

ID: 1803  
 Mix Name: Pollinator perennials/ annuals for MLRA 14, 15, 19, 20

Description: Pollinator Native forbs Habitat for Southern, Coastal areas

Plant Type: Mix  
 Growth Cycle: Annual / Perennial  
 Resident Status: native

Materials: Seeds  
 Pollinator Habitat:   
 Ease (3: easiest): 2

Bloom period may vary from the values shown here depending upon local environmental variables.

Mix Detail    Mix Component Editor    Plant Practice Editor

10 plants.

Plant ID	Percent	Scientific Name	Common Name	Resident	Growth	Type	Ease
1010	25.0	Clarkia amoena	Farewell to spring	native	Annual	Forb	2
362	23.0	Gilia capitata	Blue Field Gilia	native	Annual	Forb	2
496	10.0	Nemophila menziesii	Baby blue eyes	native	Annual	Forb	2
1041	9.5	Eriophyllum confertiflorum	Yellow yarrow	native	Perennial	Shrub	2
327	8.0	Eschscholzia californica	California poppy	native	Perennial	Forb	3
83	8.0	Achillea millefolium	Common yarrow	native	Perennial	Forb	3
510	7.0	Phacelia californica	Rock phacelia	native	Perennial	Forb	2
367	6.0	Grindelia camporum	Great Valley gumweed	native	Perennial	Forb	3
899	2.0	Helianthus annuus	common sunflower	native	Perennial	Forb	2
450	1.5	Lupinus densiflorus var. densiflorus	chick lupine	native	Annual	Legume	3

Figure 35. Results of using 'Mix Detail' to display the component species of the newly selected mixture.

The **PLANT-PRACTICE SEARCH** link in this latter mixture summary record provides the new listing of where this newly selected mixture is applicable. Figure 36 displays these latter results, which indicate that this mixture is applicable to conservation practice 327 (Conservation Cover); to practice purpose 2 – Upland Wildlife Habitat; and to sites within MLRA's 14, 15, 19, and 20.

Search    Results    Detail    Add a List of Plants    HELP

4 results    Click on  to view a record

Key	MLRA	Practice	Purpose	Irrigated	Type	Scientific Name	Common Name	Ease
<input type="radio"/> tr9794	20	327	2 - Upland Wildland		Mix		Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	2
<input type="radio"/> tr9795	19	327	2 - Upland Wildland		Mix		Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	2
<input type="radio"/> tr9796	15	327	2 - Upland Wildland		Mix		Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	2
<input type="radio"/> tr9797	14	327	2 - Upland Wildland		Mix		Pollinator perennials/ annuals for MLRA 14, 15, 19, 20	2

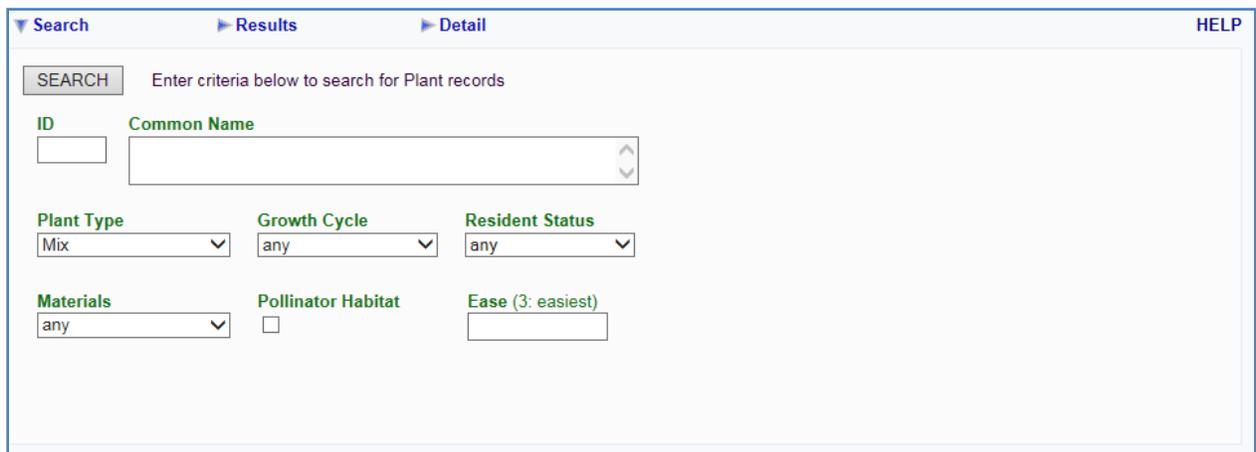
Figure 36. Results of using **PLANT-PRACTICE SEARCH** to display the conservation practice, practice purpose (if applicable), and applicable MLRA(s) for the newly selected mixture.

## 2.52 Targeted Mixture Searches

A search for a mixture by mixture name must be conducted using **PLANT SEARCH**. When searching for a mixture by the mixture name, enter the specific mixture name in the **Common Name** data field of the blank species of interest in the appropriate data field of the blank mixture editor window (Figure 37). Spelling must be exact, but abbreviated phrases or key words within the full mixture name (if correctly spelled and punctuated) can also be used.

## 2.53 Parameter-Constrained Mixture Searches

Searches for mixtures using **PLANT SEARCH** can also be conducted more specifically by employing the data elements shown in Figure 37 as filters or constraints on this search – i.e., **Plant Type**, **Growth Cycle**, **Resident Status**, **Materials** type, **Pollinator Habitat**, and **Ease** of establishment.



The screenshot shows a web interface for searching plant records. At the top, there are three tabs: 'Search' (selected), 'Results', and 'Detail', along with a 'HELP' link. Below the tabs is a search bar with a 'SEARCH' button and the text 'Enter criteria below to search for Plant records'. The search criteria are organized into several sections:

- ID**: A text input field.
- Common Name**: A text input field with a scrollable dropdown arrow on the right.
- Plant Type**: A dropdown menu with 'Mix' selected.
- Growth Cycle**: A dropdown menu with 'any' selected.
- Resident Status**: A dropdown menu with 'any' selected.
- Materials**: A dropdown menu with 'any' selected.
- Pollinator Habitat**: A checkbox that is currently unchecked.
- Ease (3: easiest)**: A text input field.

**Figure 37. Blank mixture record summary window, displaying all the parameters by which a search for a particular mixture or mixtures can be constrained.**

As an example, let's now search for a seed mixture within the eVegGuide for which we don't know the mixture name, but is 1) a mixture of annuals and perennials; 2) a mixture of native and introduced species; 3) is rated as beneficial for pollinators; and 4) is 'easy' (code 3) to establish (Figure 38). Click on **SEARCH**, and the following results table is displayed (Figure 39), indicating only three mixtures that meet the stipulated constraints.

SEARCH Enter criteria below to search for Plant records

ID  Common Name

Plant Type: Mix

Growth Cycle: Annual / Perennial

Resident Status: both

Materials: Seeds

Pollinator Habitat:

Ease (3: easiest): 3

**Figure 38. Using a multiple-parameter search from the blank mixture record summary window. In this example, four parameters (from both drop-down selection lists and actual data entries) form the combined search constraints.**

3 results Click on to view a record

Scientific Name	Common Name	Type	Growth	Resident	Bloom	Materials	Ease	Spacing
	Pollinator Annual mix MLRA 14,15, 17,18,19,20	Mix	Annual / Perennial	both		Seeds	3	
	Almond Pollinator Mix	Mix	Annual / Perennial	both		Seeds	3	
	California Almond Orchard Understory Mix	Mix	Annual / Perennial	both		Seeds	3	

**Figure 39. Results from using the revised multiple-parameter search where all resulting mixtures are comprised of 1) both native and introduced species; 2) both annual and perennial species; 3) species (at least in part) that are beneficial to pollinators; and 4) with ease of establishment rated as easiest (code 3).**

As previously illustrated, clicking on the blue dot () for either of the listed mixtures will then provide the mixture record summary for that mixture. This latter window then allows active link access to “**Mix Detail**” (i.e., a basic listing of the component species), and to **PLANT-PRACTICE SEARCH** (which provides the cross-referenced listing of where these specific mixtures are located in relation to conservation practice(s), practice purpose (if applicable), and MLRA(s)).