## Section 3.0 – MIX COMPONENT SEARCH QUERIES

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## Section 3.0 – MIX COMPONENT SEARCH QUERIES

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3.0 MIX COMPONENT SEARCH QUERIES

3.1 Introduction to MIX COMPONENT SEARCH

The MIX COMPONENT SEARCH module allows the planner to access a form-driven database query tool that facilitates 1) searches for component species or whole mixtures that match selected mixture or individual plant record parameters by which the planner wants a search constrained; and 2) searches for pre-set guideline seed mixtures within the eVegGuide that are currently available for use in revegetation planning using a known Mix ID. 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.

MIX COMPONENT SEARCH can be used to display all component species within a pre-set mixture, including the usual links to other sources of biological, ecological, taxonomic, and commercial availability information pertaining to that species – as described above under section 2.1 under PLANT SEARCH.

When querying the eVegGuide database for seed mixture information, first access the DATA tab at the top of the introductory screen (Figure 1). Once within the DATA window, click on MIX COMPONENT SEARCH.

![Figure 1. eVegGuide introductory screen, indicating MIX COMPONENT SEARCH option.](image)

3.2 Navigating the MIX COMPONENT SEARCH Window

The blank MIX COMPONENT 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 mixtures or component species in which you may be interested. These can be used in any combination to constrain the search, as under PLANT SEARCH.
Figure 2. Blank MIX COMPONENT SEARCH screen, showing all searchable data fields.

Some data entry boxes have drop-down selection lists (e.g., Resident Status, Growth Cycle, and Plant Type), which are 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.

Figure 3. Blank MIX COMPONENT 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., Mix ID, Plant ID, Percent (for a component species within a mixture), Scientific Name, Common Name, Footnotes, Bloom period, and Ease of establishment) as the searchable parameter (see the green boxes in Figure 4).

Figure 4. Blank MIX COMPONENT SEARCH screen, with actual data entry searchable fields highlighted by green boxes.
Descriptions for actual data entry fields, to guide your search, include –

**Mix ID** – an internal tracking number assigned to a pre-set guideline mixture when it was initially added to the eVegGuide. This can be used as a search term if the mixture internal ID is known.

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

**Percent** – an integer representing the percentage of a component species within a mixture. It is used as a search term for any component species exhibiting that percentage composition in any seed mixture (global search) or a specified mixture.

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

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

**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). , for 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).

**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.

**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.

### 3.3 Targeted Mixture Search by Mix ID

If the **Mix ID** is known – from when the mixture was first formulated and entered into the eVegGuide, or from a PLANT SEARCH search for mixtures (see Figure 29 in Section 2.5) – this ID number can then be entered in the **Mix ID** data field (Figure 5). For this example, enter Mix ID number ‘1803’. Then click on the SEARCH box at the top-left of the window.

Results of this search are displayed in Figure 6, showing all component species within mixture 1803, with their corresponding percentage composition (‘Percent’ column heading). As with all other tables displaying results of a search, columns can be sorted in ascending order by clicking on any column heading shown in bold, blue font. For this results table in MIX COMPONENT SEARCH, the ‘Percent’ column cannot be used for sorting because the data in this column is automatically sorted in ascending order.
In results tables generated in the MIX COMPONENT SEARCH module (per the example above in Figure 6), active link footnotes applicable to each species are displayed under the ‘Notes’ column. Clicking on any of these individual footnote numbers (shown in blue font) links to footnote descriptions with associated active links. Refer to the FOOTNOTE SEARCH under the DATA tab for complete footnote descriptions (with active links to supporting literature and other reference materials, as applicable).

To examine further data pertaining to any of the component species within the selected mixture, click on the blue dot (○) to view the mix component record for the component species of interest. In this example, click on the blue dot (○) for the first listed species – “Clarkia amoena” – as displayed under the Scientific Name column heading in Figure 6.

The resulting window (Figure 7) displays a mix component record for that component species. This abbreviated plant record summary displays several parameters associated with that species – namely, the Plant ID assigned to this species within the eVegGuide (in this example,
Figure 7. Illustration of selecting one specific component species (in this example, “Clarkia amoena”) from the full mixture listing of component species, with resultant mix component record window.

‘1010’; its percentage composition in mixture ‘1803’ (in this example, 25%); and selected biological parameters for the component species, including Resident status, Growth form, Plant Type, Bloom period, and Ease of establishment.

Additionally in the mix component record (Figure 7), the stand-alone 100% seeding rate (in PLS pounds per acre) for this species is displayed, as taken directly from the species’ plant record. This is not to be confused with the mixture seeding rate (at 25% composition, in this mixture example) for this species, which is computed and displayed in the PLANT OR SEED MIX REPORT module (see Section 1.0). This latter module is where this mixture is selected for a final seeding recommendation report to be included in the client’s conservation plan.

Note that when selecting a line-item species entry from a table of multiple line-item species results (as illustrated in Figure 7), 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 species to be examined, and the existing Plant-Practice Record summary window will automatically change to reveal full descriptions for the newly selected species.

From the mix component record (as displayed in Figure 7), two additional options are available to further describe either the selected component species, or the pre-set guideline mixture as a whole. These options are ‘Plant Details’ and ‘Mix Details’, respectively.

Clicking on ‘Plant Details’ accesses the full plant record for the selected component species, displayed exactly as if it was accessed using PLANT SEARCH (as previously described in association with Figure 8 under Section 2.2). Also as described previously, other links are available from this plant record, including Calflora and USDA-PLANTS databases, CNPLX (commercial availability database), Calscape, CalPhotos, PlantID.net, Jepson eFlora, efloras.org, etc.

Clicking on ‘Mix Details’ accesses a summary record for the selected mixture as a whole (in this example, for mixture ‘1803’) (Figure 8). Parameters displayed for this mixture include the full ‘Mix Name’ and ‘Mix 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, special seeding rates, and/or other descriptive information that identifies and distinguishes this specific mixture.

Additional parameters are displayed in this mixture summary record (Figure 8), describing the overall or composite rating of the whole mixture for Growth Cycle (in this example for mixture 1803, a combination of annual and perennial species); Resident Status (in this example, native species only); Pollinator Habitat (in this example, the mixture as a whole is rated as beneficial to pollinators); and Ease of Establishment (in this example, the mixture as a whole is rated as ‘2’ or moderately easy to establish). Plant Type (Mix) and Materials (Seeds) are defaults for a pre-set mixture.

As previously described in Section 2.5 under the PLANT SEARCH module, clicking on ‘Mix Detail’ in this latter mixture record window then displays the full species composition for the selected mixture – in this example, pre-set guideline mixture 1803 (Figure 9).
Figure 9. Results of using ‘Mix Detail’ to display the component species of the selected pre-set mixture, ID No. 1803.

As described earlier, the PLANT-PRACTICE SEARCH link in this latter mixture summary record provides the new listing of where this newly selected mixture is located. Figure 10 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.

Figure 10. Results of using PLANT-PRACTICE SEARCH to display the conservation practice, practice purpose (if applicable), and applicable MLRA(s) for the selected pre-set mixture, ID No. 1803.
The **PLANT-PRACTICE SEARCH** module will be fully described and demonstrated in Section 4 of this User's Manual.

### 3.4 Targeted Mixture Search by Mix Name

The primary intent of the **MIX COMPONENT SEARCH** module is to facilitate searches for, and examination of, data for **component species** within pre-set guideline mixtures that are currently available within the eVegGuide. While a search for a particular mixture by **Mix ID** can be performed, this module does not allow for mixtures searches by **Mix Name** or **Mix Description**.

A search for a mixture by **mixture name** (if known in advance) must be conducted using **PLANT SEARCH**, as described in reference to Figure 37 in Section 2.52. 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.

### 3.5 Parameter-Constrained Search for Component Species in a Mixture

In contrast to searching for a single mixture using the **Mix ID** (in **MIX COMPONENT SEARCH** mode) or **Mixture Name** (in **PLANT SEARCH** mode), lists of component species that meet selected search criteria can be generated using a search constrained by selected mixture record parameters. As depicted in Figure 2 above, the blank **Mixture Record** window displays all the searchable parameters by which a mixture component species 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 mixture component species in which you may be interested.

Example searches are provided using biological / commercial parameters as search terms.

1. First example – the planner wishes to find all mixtures available (and their associated site and land use applicability data) within the eVegGuide that contain *Leymus cinereus* (Basin wildrye). Enter this search term in the **Scientific Name** data field, and then click on **SEARCH** (Figure 11).

![Figure 11](image-url)  
**Figure 11.** Using a single-parameter search from the blank MIXTURE RECORD window. In this example, the search is for all pre-set guideline mixtures containing *Leymus cinereus* (Basin wildrye) as the lone search constraint.
The results of this search are depicted in Figure 12, displaying 7 mixtures that contain 'Leymus cinereus' as a component species. Note that in each of these mixtures (with Mix ID's of 914, 917, 918, 1747, 1748, 1766, and 1767), the species composition within the respective mixture varies from 20 - 25%, depending upon the specific mixture.

Now that the Mix ID's are known for this subset of mixtures, the planner can then search for the full component species list and associated site applicability data [i.e., conservation practice, practice purpose, and MLRA(s)] for the displayed mixtures using the search procedures described above in Section 2.3.

Figure 12. Results from the search for all pre-set guideline mixtures containing ‘Leymus cinereus’ (Basin wildrye) as the lone search constraint.

A similar search could be conducted, querying for all mixtures that contain component species within the genus ‘Leymus’ (Figure 13). Click on ‘Search’ at the top-left of the Mixture Record summary window. This action returns to the blank data entry window, where ‘Leymus cinereus’ can then be over-written with ‘Leymus’ only in the Scientific Name data field. Then click on SEARCH (Figure 13).

Figure 13. A revised, wider search for all pre-set guideline mixtures containing species within the genus ‘Leymus’.

The results of this revised search are depicted in Figure 14, now displaying 11 mixtures that contain component species within the genus ‘Leymus’. Note that now two species are listed
(Leymus cinereus and Leymus triticoides), with each species' line item entry showing the Mix ID with which it is associated, and its corresponding mixture composition percentage.

As above, now that the Mix ID’s are known for this subset of mixtures, the planner can then search for the full component species list and associated site applicability data [i.e., conservation practice, practice purpose, and MLRA(s)] for the displayed mixtures using the search procedures described above in Section 2.3.

Figure 14. Results of a revised, wider search for all pre-set guideline mixtures containing species within the genus ‘Leymus’.

2. Second example – the planner wishes to locate and examine all component species contained within eVegGuide pre-set guideline mixtures that meet the following criteria: 1) native; 2) shrub; and 3) characterized by Footnote 13 (i.e., very high salinity tolerance, EC’s > 12 dS m⁻¹) (Figure 15).

Figure 15. A revised multiple-parameter search from the MIXTURE RECORD window, incorporating three new parameters (Resident Status and Plant Type with drop-down selection lists, and Footnotes with actual data entry) to form the combined search constraints.
The search results (Figure 16) display over 20 line-item listings of component species (many are repeat species that occur across different mixtures and/or with different percentage composition) that meet the combination of stipulated search criteria above. 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.

Figure 16. Results from the revised multiple-parameter search using three parameters (Resident Status, Plant Type, and Footnotes) to form the combined search constraints.

The planner can now search for the full component species list and associated site applicability data [i.e., conservation practice, practice purpose, and MLRA(s)] for the displayed mixtures. As previously described, click on the blue dot (○) to view the full mixture record, and then proceed using the search procedures described above in Section 2.3.

3. Third example – the planner wishes to locate and examine mixtures within the eVegGuide whose component species meet the following criteria: 1) native; 2) forb; 3) peak bloom period includes the month of March (code 3); and 4) characterized by Footnote 26 (i.e., highly preferred by native bees) (Figure 17).
Figure 17. Another revised multiple-parameter search from the MIXTURE RECORD window, incorporating four new parameters (Resident Status, Plant Type, Bloom Period, and Footnotes) to form the combined search constraints.

The search results (Figure 18) display 14 line-item listings of component species (many are repeat species that occur across different mixtures and/or with different percentage composition) that meet the combination of stipulated search criteria above.

Figure 18. Results from the revised multiple-parameter search using four parameters (Resident Status, Plant Type, Bloom Period, and Footnotes) to form the combined search constraints.

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)).