# Raw Recommended Conservation Measures Received from Species Specialists at and Subsequent to Workshops for "R" Goal Plants

| Goal Prescription | Conservation Measure |
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| **Soft bird's-beak** ***(Cordylanthus mollis ssp. mollis)*** | |
| Reduce the risk of current and imminent threats to maintaining the current distribution and existing populations of soft bird's-beak and reestablish and maintain viable populations throughout its historic range. | 1. Research the habitat requirements and reasons for rarity of the variety. Determine microhabitat requirements and salinity and other habitat management needs. |
| | 2. Identify opportunities for establishing new populations or expanding existing populations and habitat. |
| | 3. Establish soft bird's-beak populations to existing and restored suitable habitat. |
| | 4. Expand potential habitat by improving tidal circulation to diked wetlands that sustain some existing exchange. |
| | 5. Control and reduce populations of non-native marsh species with potential effects on soft bird's-beak and potential soft bird's-beak habitat. |
| | 6. Monitor the population size and vigor of all extant occurrences at a two-year interval for the duration of the CALFED program and design and implement remediation measures recovery goal is not met. |
| | 7. Modify conservation measures according to the adaptive management process as more understanding is developed of recovery needs. |
| **Suisun thistle** ***(Cirsium hydropilum var. hydrophilum)*** | |
| Protect and maintain all extant occurrences, establish 10 new populations and increase overall population size ten-fold. | 1. Research the habitat requirements and reasons for rarity of the variety. Determine microhabitat requirements and salinity and other habitat management needs. Design and implement habitat enhancement and management measures. |
| | 2. Identify opportunities for establishing new populations or expanding existing populations and habitat. |
| | 3. Study vulnerability to hybridization with non-native *Cirsium* species, and design and implement non-native *Cirsium* control measures, when hybridization is likely to occur. |

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| | 4. Study vulnerability to agents for biological control of non-native thistles, and design and implement actions to reduce the effects of biological control agents when biological control effects are likely.. |
| | 5. Control and reduce populations of non-native marsh species with potential effects on suisun thistle and potential suisun thistle habitat. |
| | 6. Monitor the population size and vigor of all extant occurrences at a two-year interval for the duration of the CALFED program and design and implement remediation measures when recovery goal is not met. |
| | 7. Modify conservation measures according to the adaptive management process as more understanding is developed of recovery needs. |
| **Antioch Dunes evening-primrose *(Oenothera deltoides* ssp. *howellii),* Contra Costa wallflower *(Erysimum capitatum* ssp. *angustatum)* and Lange's metalmark butterfly *(Apodemia mormo langei)*** | |
| Achieve recovery goals identified in the recovery plan. | 1. Enhance and maintain existing occurrences. |
| | 2. Identify sites with suitable soils for restoration (Tinnin soils). |
| | 3. Identify opportunities for permanent protection, restoration, and management at sites suitable for restoration. |
| | 4. Restore existing habitat and create new habitat. |
| | 5. Establish propagules at restored sites (include host plant and propagules of the Lange's metalmark butterfly). |
| | 6. Annually monitor establishment success and modify establishment and management techniques as needed using adaptive management. |
| **Mason's lilaeopsis *(Lilaeopsis masonii)* and Suisun Marsh aster *(Aster lentus)*** | |
| Expand suitable habitat by 100 linear miles and protect at least 90% of the currently occupied habitat including 90% of high quality habitat, including occurrences in the North , South and East Delta and Napa River Ecological Management Units. | 1. Maintain processes that support the dynamic habitat distributed throughout the species range and associated with existing source populations (species occur on eroding margins of levees). |
| | 2. For each linear foot of occupied habitat lost, create 5-10 linear feet, depending on habitat quality, of potential habitat within one year of loss. |

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| | 3. Conduct research into the extent and physical and biological qualities of existing habitat and populations prior to levee or restoration actions. |
| | 4. Create unvegetated, exposed substrate habitat at tidal margins of tidal fresh emergent wetland and riparian habitat. |
| | 5. Incorporate suitable habitat for these species in bank protection designs used in CALFED actions. |
| | 6. Maintain and restore habitat and populations throughout the species' geographic ranges and expand habitat and populations to their historical and ecological ranges based on hydrologic, salinity and other habitat requirements of the species. |
| | 7. Incorporate sufficient edge habitat to support the species in levee set back and channel island habitat resoration designs. |
| | 8. Maximize sinuosity of restored and created slough channels to increase water-land edge habitat. |
| | 9. Monitor all occurrences and habitat of the species at five-year intervals over the duration of the CALFED program, and design and implement a remediation plan if the recovery prescriptions are not met. |