

## Attachment 4. Life Cycle Models Produced

### "R" Species (Recovery) (15)

TYPE	COMMON NAME	SCIENTIFIC NAME
Fish	Central Valley fall-/late-fall-run chinook salmon ESU	<i>Oncorhynchus tshawytscha (fr)</i>
	Central Valley spring-run chinook salmon ESU	<i>Oncorhynchus tshawytscha (spring)</i>
	Sacramento River winter-run chinook salmon ESU	<i>Oncorhynchus tshawytscha (wr)</i>
	Central Valley steelhead ESU	<i>Oncorhynchus mykiss (cv)</i>
	Delta smelt	<i>Hypomesus transpacificus</i>
	Green sturgeon	<i>Acipenser medirostris</i>
	Longfin smelt	<i>Spirinchus thaleichthys</i>
	Sacramento splittail	<i>Pogonichthys macrolepidotus</i>
Invertebrates	Lange's metalmark butterfly	<i>Apodemia mormo langei</i>
	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>
Plants: Inland Dune Special-Status Plant Species	Antioch Dunes evening primrose	<i>Oenothera deltoides ssp. howellii</i>
	Contra Costa wallflower	<i>Erysimum capitatum ssp. angustatum</i>
Plants: Tidal Brackish and Freshwater Marsh Special-Status Plant Species	Mason's lilaopsis	<i>Lilaeopsis masonii</i>
	Soft bird's-beak	<i>Cordylanthus mollis ssp. mollis</i>
	Suisun marsh aster	<i>Aster lentus</i>

**"r" Species (contribute to recovery) (20)**

<b>TYPE</b>	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
Birds	Bank swallow	<i>Riparia riparia</i>
	California black rail	<i>Laterallus jamaicensis coturniculus</i>
	California yellow warbler	<i>Dendroica petechia brewsteri</i>
	Greater sandhill crane	<i>Grus canadensis tabida</i>
	Least Bell's vireo	<i>Vireo bellii pusillus</i>
	Little willow flycatcher	<i>Empidonax traillii brewsteri</i>
	Swainson's Hawk	<i>Buteo swainsoni</i>
	Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>
Fish	Sacramento perch	<i>Archoplites interruptus</i>
Inverts	Delta green ground beetle	<i>Elaphrus viridis</i>
Mammals	Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>
	San Joaquin Valley woodrat	<i>Neotoma fuscipes riparia</i>
Plants: Vernal Pool Special-Status Plant Species	Alkali milkvetch	<i>Astragalus tener</i> var. <i>tener</i>
	Crampton's tuctoria (Solano grass)	<i>Tuctoria mucronata</i>
Plants: Tidal Brackish and Freshwater Marsh Special-Status Plant Species	Delta coyote thistle (Delta button-celery)	<i>Eryngium racemosum</i>
	Delta mudwort	<i>Limosella subulata</i>
	Bristly sedge	<i>Carex comosa</i>
	Delta tule pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>
Plants	Northern California black walnut	<i>Juglans californica</i> var. <i>hindsii</i>
Reptiles	Giant garter snake	<i>Thamnophis gigas</i>

**"H" Species (harvestable) (14)**

<b>TYPE</b>	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
Fish	American shad	<i>Alosa sapidissima</i>
	Striped bass	<i>Morone saxatilis</i>
	White sturgeon	<i>Acipenser transmontanus</i>
Invertebrates	Grass shrimp	<i>Crangon franciscorum</i>
	Signal crayfish	<i>Pacifastacus leniusculus</i>
Nonnative warmwater game fishes	Largemouth bass	<i>Micropterus salmoides</i>
	White catfish	<i>Ameiurus catus</i>
Upland Game	Pheasant	<i>Phasianus colchicus</i>
	Quail	<i>Callipepla californica</i>
Waterfowl	Canvasback	<i>Aythya valisineria</i>
	Mallard	<i>Anas platyrhynchos</i>
	Northern Pintail	<i>Anus acuta</i>
	White Fronted Goose	<i>Anser albifrons</i>
	Wood duck	<i>Aix sponsa</i>

**"m" Species (maintain) (17)**

<b>TYPE</b>	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
Amphibians	California red-legged frog	<i>Rana aurora draytonii</i>
	California tiger salamander	<i>Ambystoma californiense</i>
	Western Spadefoot toad	<i>Scaphiopus hammondii</i>
Fish	Hardhead	<i>Mylopharodon conocephalus</i>
Birds	Western least bittern	<i>Ixobrychus axillis</i>
	Tricolored blackbird	<i>Agelaius tricolor</i>
	Western Burrowing owl	<i>Athene cunicularia hypugea</i>
Plants: Perennial Grassland Special-Status Plant Species	Recurved larkspur	<i>Delphinium recurvatum</i>
Plants	Eel-grass pondweed	<i>Potamogeton zosteriformis</i>
Plants: Vernal Pool Special-Status Plant Species	Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>
	Colusa grass	<i>Neostapfia colusana</i>
	Contra Costa Goldfields	<i>Lastenia conjugens</i>
	Mad-dog (or Blue) skullcap	<i>Scutellaria lateriflora</i>
	Rose-mallow	<i>Hibiscus lasiocarpus</i>
Plants: Tidal Brackish and Freshwater Marsh Special-Status Plant Species	Greene's legenere	<i>Legenere limosa</i>
	Heartscale	<i>Atriplex cordulata</i>
Reptiles	Western pond turtle	<i>Clemmys marmorata</i>

**Non-native Invasive Species (Stressor) (27)**

<b>TYPE</b>	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
Invasive Aquatic Plants	Brazilian elodea	<i>Egeria densa</i>
	Water hyacinth	<i>Eichhornia crassipe</i>
	Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
	Floating pennywort	<i>Hydrocotyle ranunculoides</i>
Invasive Riparian & Marsh Plants	Giant Reed	<i>Arundo donax</i>
	Perennial Pepperweed	<i>Lepidium latifolium</i>
	Tree-of-Heaven	<i>Ailanthus altissima</i>
	Yellow starthistle	<i>Centaurea solstitialis</i>
	Edible fig	<i>Ficus carica</i>
	Eucalyptus	<i>Eucalyptus spp.</i>
	Purple loosestrife	<i>Lythrum salicaria</i>
	Salt cedar	<i>Tamarix spp.</i>
Invasive Aquatic Organisms	Asiatic freshwater clam	<i>Corbicula fluminea</i>
	Chinese mitten crab	<i>Eriocheir sinensis</i>
	Zebra Mussel	<i>Dreissena polymorpha</i>
	Inland silverside	<i>Menidia berylina</i>
	Wakasagi	<i>Hypomesus nipponensis</i>
	Northern pike	<i>Esox lucius</i>
	Mysid shrimp	<i>Acanthomysis bowmani</i>
	New Zealand mud snail	<i>Potamopyrgus antipodarum</i>
Nonnative Wildlife	Bullfrog	<i>Rana catesbeiana</i>
	Brown headed Cowbird	<i>Molothrus ater</i>
	Red Fox	<i>Vulpes vulpes regalis</i>
	Red-eared Slider	<i>Trachemys scripta elegans</i>

European starling	<i>Sturnus vulgaris</i>
Norway rat	<i>Rattus norvegicus</i>
Black rat	<i>Rattus rattus</i>