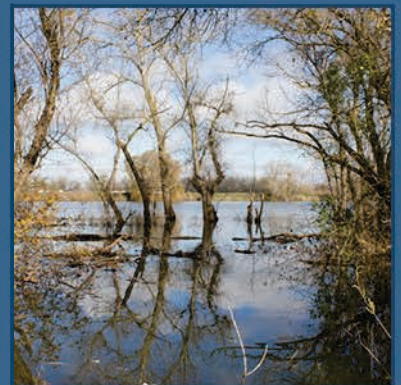
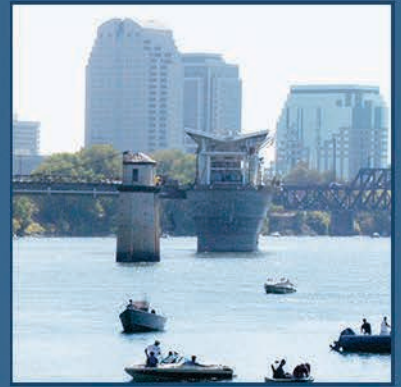


APPENDIX B

Habitats
and
Species



Appendix B. HABITATS AND SPECIES

The American River Basin (ARB) Region seeks to promote projects that contribute to improved ecosystem health. Assessment of projects will include consideration of sensitive species and habitats and the extent to which projects contribute to improvements or impacts. Following are a brief description of habitat in the ARB Region and the primary species of concern. Also listed are primary nonnative invasive species. These are of concern as nonnative species are pervasive throughout the Region and have negative effects such as competition with native species, unsuitability as habitat, and harm to recreational use. They may also have negative effects on floodways and disrupt natural sedimentation processes.

Habitat types in the ARB Region include wetland, riverine, riparian, grassland, woodland, cropland, and urban forest. Wetlands are found in association with the Region's rivers and creeks and their extended watersheds. Riverine habitat includes the aquatic habitat of the Sacramento, American, and Cosumnes rivers, as well as lesser sized streams and creeks. Riparian habitat is composed of the bank vegetation and forested areas adjacent to the Region's rivers, streams, and creeks; most notable is the riparian habitat found along the American River Parkway. Grassland is found throughout the Region's open areas, much of it converted from native prairie to grazing land consisting of mostly nonnative grasses. Scattered among the grazing land are vernal pools that harbor a number of state of California (state) and federally listed species. Blue oak woodland habitat is found on Sacramento County's eastern edge where the valley floor transitions to the lower foothills of the Sierra Nevada. Cropland is found through much of rural southern Sacramento County drawing irrigation waters from the Sacramento and Cosumnes rivers, as well as groundwater wells. The Region's urban forest is comprised of a broad mix of mostly nonnative deciduous and evergreen trees with a few stands of remnant and newly planted native oaks (Sacramento County, et. al. 2010).

These habitats support valuable ecological processes and sensitive species. The California Natural Diversity Database (CNDDDB) is a database maintained by California Department of Fish and Wildlife (CDFW) that lists the occurrence of sensitive species and habitats within California. Within the ARB Region, there are 17 sensitive plant and animal species that are candidates for, or listed as, rare, threatened, or endangered under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA). These species are listed in **Table B-1**.

Table B-1 Sensitive Species Within the Region

Sensitive Species	Federal Status	State Status
Plants		
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	--	E
El Dorado bedstraw (<i>Galium californicum ssp. sierra</i>)	E	Rare
Layne's ragwort (<i>Senecio layneae</i>)	T	Rare
Pine Hill ceanothus (<i>Ceanothus roderickii</i>)	E	Rare
Pine Hill flannelbush (<i>Fremontodendron decumbens</i>)	E	Rare
Slender Orcutt grass (<i>Orcuttia tenuis</i>)	T	E
Sacramento Orcutt grass (<i>Orcuttia viscida</i>)	E	E
Stebbins's morning glory (<i>Calystegia stebbinsii</i>)	E	E
Animals		
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Delisted	E
Bank swallow (<i>Riparia riparia</i>)	--	T
Central Valley fall/late-fall-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	C	C
Central Valley spring-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T	T
Sacramento River winter-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	E	E
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	T	--
California red-legged frog (<i>Rana draytonii</i>)	T	--
Giant garter snake (<i>Thamnophis gigas</i>)	T	T
Pacific fisher (<i>Martes pennanti</i>)	C	--
Greater sandhill cranes (<i>Grus canadensis</i>)	T	--
Swainson's hawk (<i>Buteo swainsoni</i>)	--	T
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T	--
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T	--
Vernal pool tadpole shrimp (<i>Lepidurus packard</i>)	E	--

Data Source: CDFW, CNDDDB 2012

Key:

C = Candidate

E = Endangered

T = Threatened

There are also eight sensitive terrestrial communities and two sensitive aquatic communities within the Region, listed in **Table B-2**.

Table B-2. Sensitive Habitats Within the Region

Terrestrial Communities
Alkali Meadow
Alkali Seep
Elderberry Savanna
Great Valley Cottonwood Riparian Forest
Northern Claypan Vernal Pool
Northern Hardpan Vernal Pool
Northern Volcanic Mud Flow Vernal Pool
Valley Needlegrass Grassland
Aquatic Communities
Central Valley Drainage Hardhead/Pikeminnow Stream
Central Valley Drainage Resident Rainbow Trout Stream

Data Source: CDFW, CNDDDB 2012

As noted above, sensitive species in the Region are strongly impacted by nonnative invasive species, which occur in every habitat type throughout the Region. Areas dominated by nonnative weeds prevent native plants from establishing, provide poor habitat quality for wildlife, and discourage recreational uses. Infestations of weed species increase hydraulic roughness during high-flow events, decrease the capacity of the floodway, and adversely affect bank erosion and sedimentation processes. The single largest noxious weed infestation is yellow star-thistle. Yellow star-thistle (*Centaurea solstitialis*) is intolerant of flooding and generally restricted to upland settings, but can quickly invade and dominate sites within several years following a flood event. Other invasive plant species are listed in **Table B-3**.

Table B-3. Invasive Plant Species Within the Region

Invasive Plant Species
Black locust (<i>Robinia pseudoacacia</i>)
Chinese elm (<i>Ulmus parvifolia</i>)
Chinese tallow tree (<i>Triadica sebifera</i>)
Cocklebur (<i>Xanthium strumarium</i>)
Fennel (<i>Foeniculum vulgare</i>)
Foxtail brome (<i>Bromus madritensis</i>)
French broom (<i>Genista monspessulana</i>)
Giant reed (<i>Arundo donax</i>)
Himalayan blackberry (<i>Rubus discolor</i>)
Mare's tail (<i>Hippuris vulgaris</i>)
Oleander (<i>Nerium oleander</i>)
Pampas grass (<i>Cortaderia selloana</i>)
Pepperweed (<i>Lepidium fremontii</i>)
Poison hemlock (<i>Conium maculatum</i>)
Pyracantha (<i>Pyracantha sp.</i>)
Red sesbania (<i>Sesbania punicea</i>)
Rip-gut brome (<i>Bromus diandrus</i>)
Siberian elm (<i>Ulmus pumila</i>)
Spanish broom (<i>Spartium junceum</i>)
Yellow star-thistle (<i>Centaurea solstitialis</i>)

Data Source: Sacramento County 2008

These invasive plant species are often able to out-compete native plants such as willow (*Salix* spp.) and cottonwood (*Populus* spp.) and do not provide similar habitat value for fish and wildlife (Sacramento County 2008). Invasive animal species in the Region include several nonnative fish species, such as American shad (*Alosa sapidissima*) and striped bass (*Morone saxatilis*), as well as New Zealand mud snail (*Potamopyrgus antipodarum*), which has been documented in the lower American River (Montana State University 2009). The New Zealand mud snail is a concern because if large colonies of exotic snails establish, they could successfully compete with native snails and aquatic insects for food, impacting an important part of the aquatic food chain (Water Forum 2005).