

# FOLSOM

General Plan/Resource Management Plan



## APPENDICES



**APPENDIX A: Land Use Designation Descriptions – Upland Management Zones**

Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park

General Plan/Resource Management Plan

		<i>Upland Management Zones</i>				
		<i>Recreation – High Intensity</i>	<i>Recreation – Medium Intensity</i>	<i>Conservation</i>	<i>Preservation</i>	<i>Administration</i>
<i>Primary Goal</i>		<ul style="list-style-type: none"> <li>• Provide for outdoor recreation activities in a fully developed and structured setting on lands suitable for high-intensity use and easy vehicle access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for outdoor recreation activities in a mostly-developed and structured setting on lands suitable for medium-intensity use and easy vehicle access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for outdoor recreation activities in diverse and mostly-natural settings on lands suitable for low-intensity use and limited vehicle access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for the preservation and protection of sensitive or unique natural and/or cultural resources and interpretive activities with limited-access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for the operation and maintenance of the Unit and of Folsom Lake and Lake Natoma for the purposes of flood control, water supply, and power generation, with restricted access.</li> </ul>
<i>Visitor Experience</i>		<ul style="list-style-type: none"> <li>• Highest levels of visitor use in the Unit</li> <li>• Access to the full range of recreation/interpretive facilities and activities</li> <li>• Fair exposure to the natural and cultural resources of the Unit while remaining in close proximity to vehicles, visitor structures, and visitor services</li> <li>• Fairly high levels of ambient noise and frequent contact with other visitors expected</li> <li>• Good access to park staff and concessionaires</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate levels of visitor use</li> <li>• Access to a range of recreation/interpretive facilities and activities</li> <li>• Moderate exposure to the natural and cultural resources of the Unit while remaining in close proximity to vehicles, visitor structures, and visitor services</li> <li>• Moderate levels of ambient noise and frequent contact with other visitors expected</li> <li>• Fairly good access to park staff and concessionaires</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate to low levels of visitor use</li> <li>• Access to limited recreation/interpretive facilities and activities located mostly in transition areas</li> <li>• Good exposure to the natural and cultural resources of the Unit and transition from developed recreation areas to semi-primitive and primitive areas</li> <li>• Generally limited proximity to vehicles, visitor structures, and visitor services</li> <li>• Generally low levels of ambient noise near recreation areas to natural quiet in more remote locations</li> <li>• Limited to infrequent contact with other visitors expected</li> <li>• Limited and infrequent access to park staff</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate to low levels of visitor use depending upon location and access</li> <li>• Limited interpretive facilities and activities depending upon location and access</li> <li>• Good exposure to the natural and cultural resources of the Unit in generally semi-primitive and primitive areas</li> <li>• Generally limited proximity to vehicles, visitor structures, and visitor services</li> <li>• Generally low levels of ambient noise near recreation areas to natural quiet in more remote locations</li> <li>• Generally limited to infrequent contact with other visitors expected depending upon facilities and access provided</li> <li>• Generally limited and infrequent access to park staff depending upon facilities and access provided</li> </ul>	<ul style="list-style-type: none"> <li>• Limited visitor use depending upon location and access</li> <li>• Limited recreation/interpretive facilities and activities depending upon location and access</li> <li>• Fair exposure to the natural and cultural resources of the Unit while remaining in close proximity to vehicles, visitor structures, and visitor services</li> <li>• Moderate levels of ambient noise and frequent contact with other visitors and park staff depending upon facilities and access provided</li> </ul>
<i>Appropriate Visitor Activities</i>		<ul style="list-style-type: none"> <li>• Activities include motorized/non-motorized boat launching, swimming, sunbathing, picnicking, family/group camping, hiking, bicycling, mountain biking, horseback riding, interpretive/ educational programs</li> <li>• Activities may include large-scale special events such as sporting competitions and tournaments, sporting exhibits/displays, live theater/music, and cultural/holiday celebrations</li> </ul>	<ul style="list-style-type: none"> <li>• Activities include motorized/non-motorized boat launching, swimming, sunbathing, picnicking, family/group camping, hiking, bicycling, mountain biking, horseback riding, interpretive/ educational programs</li> <li>• Activities may include smaller-scale special events such as sporting competitions and tournaments, sporting exhibits/displays, live theater/music, and cultural/holiday celebrations</li> </ul>	<ul style="list-style-type: none"> <li>• Generally challenge- and adventure-based activities include non-motorized boat launching, primitive camping, hiking, mountain biking, horseback riding, nature observation and contemplation, photography, sketching, writing, and minimal interpretive/educational programs</li> <li>• Activities may include self-guided/guided tours</li> </ul>	<ul style="list-style-type: none"> <li>• Activities include nature observation and contemplation, photography, sketching, writing, and interpretive/educational programs</li> <li>• Activities may include self-guided/guided tours</li> <li>• Staging and orientation for interpretive/ educational programs may occur offsite to protect natural and cultural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Activities include those related to Unit operation and maintenance, and the operation and maintenance of facilities related to flood control, water supply, and power generation</li> <li>• Activities may include self-guided/guided tours related to interpretive/educational programs</li> </ul>

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		<i>Upland Management Zones</i>				
		<i>Recreation – High Intensity</i>	<i>Recreation – Medium Intensity</i>	<i>Conservation</i>	<i>Preservation</i>	<i>Administration</i>
<i>Appropriate Visitor Facilities</i>	<ul style="list-style-type: none"> <li>Facilities include visitor centers, museums, marinas, boat launch ramps, hand launch docks, swimming beaches, picnic areas, playgrounds, amphitheaters, flush toilets/showers, concession operations, developed campgrounds, paved/dirt trails, trailheads, interpretive trails/displays, internal roads, and parking areas</li> <li>Boardwalks, overlooks, pedestrian paths and fencing as needed to protect resources and provide accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Facilities include boat launch ramps, hand launch docks, picnic areas, playgrounds, flush toilets/showers, developed campgrounds, paved/dirt trails, trailheads, interpretive trails/displays, internal roads, and parking areas</li> <li>Boardwalks, overlooks, pedestrian paths and fencing as needed to protect resources and provide accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Facilities include smaller and less developed boat launch facilities, primitive picnic areas which utilize native vegetation, flush/vault toilets, camping (including group), paved/dirt trails, trailheads, interpretive trails/displays, smaller and less developed parking/staging areas</li> <li>Boardwalks, overlooks, pedestrian paths and fencing as needed to protect resources and provide accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Facilities include interpretive trails/displays, including boardwalks, overlooks, pedestrian paths and fencing as needed to protect resources and provide accessibility</li> <li>Supporting facilities located adjacent to the management zone may include dirt parking/ staging areas, vault toilets, and access trails</li> </ul>	<ul style="list-style-type: none"> <li>Facilities related to park operations, including administration offices, maintenance areas, staff housing, and utility infrastructure</li> <li>Facilities related to operation of Folsom Lake and Lake Natoma for the purposes of flood control, water supply, and power generation, including dams, hydro-electric generating equipment, maintenance areas, utility infrastructure, and administration offices</li> </ul>	
<i>Visitor Access</i>	<ul style="list-style-type: none"> <li>Primary visitor gateway with full access, primarily by motor vehicle, but also public transit, bicycle, pedestrian, equestrian, and aquatic</li> <li>Majority of facilities provide ADA access</li> </ul>	<ul style="list-style-type: none"> <li>Secondary visitor gateway with full access, primarily by motor vehicle, but also public transit, bicycle, pedestrian, equestrian, and aquatic</li> <li>Majority of facilities provide ADA access</li> </ul>	<ul style="list-style-type: none"> <li>Primary access modes are pedestrian, bicycle, equestrian, and aquatic with minimal provision for vehicle access</li> <li>Facilities may provide ADA access depending on potential natural/cultural resource impacts and economic feasibility</li> <li>Minimal way finding skills and physical exertion may be required to access these areas</li> <li>Access may be restricted as needed to protect resources</li> </ul>	<ul style="list-style-type: none"> <li>Primary access modes are pedestrian, bicycle, equestrian, and aquatic with generally no provision for vehicle access</li> <li>Possible ADA access depending on potential natural/cultural resource impacts and economic feasibility</li> <li>Access may limited to staff accompaniment or restricted as needed to protect resources</li> </ul>	<ul style="list-style-type: none"> <li>Access generally restricted to staff and related personnel associated with park operations and the operation of Folsom Lake and Lake Natoma for the purposes of flood control, water supply, and power generation</li> </ul>	

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<i>Resource Management</i>		<ul style="list-style-type: none"> <li>• Modification and management of non-sensitive natural and cultural resources as necessary to support high-intensity visitor use with natural features retained as necessary to reflect park-like setting</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary, including adaptive reuse of historic structures</li> <li>• Eliminate/manage plant and animal invasive exotic species as necessary</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, protective barriers, and sustainable design</li> <li>• Visitor use generally takes precedence over natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Modification and management of non-sensitive natural and cultural resources as necessary to support medium-intensity visitor use with natural features retained as necessary to reflect park-like setting</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary, including adaptive reuse of historic structures</li> <li>• Eliminate/manage plant and animal invasive exotic species as necessary</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, protective barriers, and sustainable design</li> <li>• Visitor use generally takes precedence over natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Slight modification and management of non-sensitive natural and cultural resources as necessary to support moderate to low-intensity visitor use with natural features retained as necessary to reflect mostly-natural setting</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary. Adaptive reuse of historic structures may be considered</li> <li>• Eliminate/manage plant and animal invasive exotic species as necessary</li> <li>• Minimize/prevent habitat fragmentation by visitor use</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, limited access, and sustainable design</li> <li>• Natural processes take precedence over visitor use</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal modification and management of non-sensitive natural and cultural resources as necessary to support low-intensity visitor use with natural features retained as necessary to reflect natural setting</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary. Adaptive reuse of historic structures may be considered</li> <li>• Eliminate/manage plant and animal invasive exotic species as necessary</li> <li>• Habitat manipulation only as necessary to preserve species or associations representing the basis for this designation</li> <li>• Prevent habitat fragmentation by visitor use</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, limited access, and sustainable design</li> <li>• Natural processes take precedence over visitor use</li> </ul>	<ul style="list-style-type: none"> <li>• Modification and management of non-sensitive natural and cultural resources as necessary to support park operations and operation of Folsom Lake and Lake Natoma for the purposes of flood control, water supply, and power generation</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary, including adaptive reuse of historic structures</li> <li>• Eliminate/manage plant and animal invasive exotic species as necessary</li> <li>• Prevent possible additional disturbance to resources through management guidelines, regulation enforcement, protective barriers, and sustainable design</li> <li>• Operation and maintenance use generally takes precedence over natural processes</li> </ul>

## APPENDIX A: LAND USE DESIGNATION DESCRIPTIONS – AQUATIC MANAGEMENT ZONES

Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park  
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		<i>Aquatic Management Zones</i>		
		<i>Recreation – High Intensity</i>	<i>Recreation – Medium Intensity</i>	<i>Conservation</i>
<i>Primary Goal</i>		<ul style="list-style-type: none"> <li>• Provide for recreation activities in a mostly-developed setting on waters suitable for high-intensity use and very good access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for recreation activities in a moderately-developed setting on waters suitable for medium to low intensity use and good access.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for recreation activities in a largely undeveloped setting on waters suitable for low-intensity use and fair access.</li> </ul>
<i>Visitor Experience</i>		<ul style="list-style-type: none"> <li>• Highest levels of visitor use in the Unit</li> <li>• Access to the full range of recreation facilities and activities</li> <li>• Fair exposure to the natural resources of the Unit while remaining in close proximity to launch points, visitor structures, and visitor services</li> <li>• High levels of ambient noise and frequent contact with other visitors expected</li> <li>• Good access to park staff and concessionaires</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate to low levels of visitor use</li> <li>• Access to a range of recreation facilities and activities</li> <li>• Moderate exposure to the natural resources of the Unit while remaining in close proximity to launch points, visitor structures, and visitor services</li> <li>• Moderate levels of ambient noise and frequent contact with other visitors expected</li> <li>• Fairly good access to park staff and concessionaires</li> </ul>	<ul style="list-style-type: none"> <li>• Low levels of visitor use</li> <li>• Access to limited recreation facilities and activities located mostly in transition areas</li> <li>• Good exposure to the natural resources of the Unit and transition from developed recreation areas to semi-primitive and primitive areas</li> <li>• Generally limited launch points, visitor structures, and visitor services</li> <li>• Generally low levels of ambient noise near recreation areas to natural quiet in more remote locations</li> <li>• Limited to infrequent contact with other visitors expected</li> <li>• Limited and infrequent access to park staff</li> </ul>
<i>Appropriate Visitor Activities</i>		<ul style="list-style-type: none"> <li>• Activities include jet boating, water skiing, jet skiing, windsurfing, sailing, fishing, canoeing, kayaking, and swimming</li> <li>• Activities may include large-scale special events such as sporting competitions and tournaments, including sailing regattas, fishing tournaments, and in-water boat shows and exhibits</li> <li>• Activities may include boating lessons and safety training</li> </ul>	<ul style="list-style-type: none"> <li>• Activities include jet boating, water skiing, and jet skiing where motorized craft are permitted, windsurfing, fishing, canoeing, kayaking, rowing, and swimming</li> <li>• Activities may include smaller-scale special events such as sporting competitions and tournaments, including rowing competitions, fishing tournaments, and in-water boat shows and exhibits</li> <li>• Activities may include primitive camping (boat-in)</li> <li>• Activities may include boating lessons and safety training</li> </ul>	<ul style="list-style-type: none"> <li>• Activities include fishing, canoeing, kayaking, rowing, rafting, and swimming</li> <li>• Activities may include primitive camping (boat-in)</li> <li>• Activities may include self-guided/guided tours</li> <li>• Activities may include boating lessons and safety training</li> </ul>
<i>Appropriate Visitor Facilities</i>		<ul style="list-style-type: none"> <li>• Facilities include marinas, training facilities, boat storage, boat launch ramps, hand launch docks, swimming beaches, floating toilets, marked watercourses, and concession services (boat-in/launch)</li> </ul>	<ul style="list-style-type: none"> <li>• Facilities include training facilities, boat storage, boat launch ramps, hand launch docks, swimming beaches, floating toilets, marked watercourses, concession services (launch), and primitive campsites (boat-in)</li> </ul>	<ul style="list-style-type: none"> <li>• Facilities include primitive/hand-launch boat ramps, floating toilets, and primitive campsites (boat-in)</li> </ul>

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		<i>Aquatic Management Zones</i>		
		<i>Recreation – High Intensity</i>	<i>Recreation – Medium Intensity</i>	<i>Conservation</i>
<i>Visitor Access</i>		<ul style="list-style-type: none"> <li>• Primary visitor gateway with full water access for boaters (motorized and non-motorized watercraft) and non-boaters</li> <li>• Majority of facilities provide ADA access</li> </ul>	<ul style="list-style-type: none"> <li>• Secondary visitor gateway with full water access for boaters (motorized and non-motorized watercraft) and non-boaters</li> <li>• Majority of facilities provide ADA access</li> </ul>	<ul style="list-style-type: none"> <li>• Limited water access for boaters (non-motorized watercraft) and non-boaters with most visitors generally pursuing challenge- and adventure-based activities originating in another water zone</li> <li>• Facilities may provide ADA access depending on potential natural/cultural resource impacts and economic feasibility</li> <li>• Minimal way finding skills and physical exertion may be required to access these areas</li> <li>• Access may be restricted as needed to protect resources</li> </ul>
<i>Resource Management</i>		<ul style="list-style-type: none"> <li>• Modification and management of non-sensitive natural and cultural resources as necessary to support high-intensity visitor use</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary</li> <li>• Eliminate/manage aquatic plant and animal invasive exotic species as necessary</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, protective markers, and sustainable design</li> <li>• Visitor use generally takes precedence over natural processes</li> </ul>	<ul style="list-style-type: none"> <li>• Slight modification and management of non-sensitive natural and cultural resources as necessary to support moderate to low-intensity visitor use</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary</li> <li>• Eliminate/manage aquatic plant and animal invasive exotic species as necessary</li> <li>• Minimize/prevent habitat fragmentation by visitor use</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, limited access, and sustainable design</li> <li>• Natural processes generally take precedence over visitor use</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal modification and management of non-sensitive natural and cultural resources as necessary to support low-intensity visitor use</li> <li>• Protect, enhance, and restore sensitive natural resources as necessary</li> <li>• Protect and maintain sensitive cultural resources as necessary</li> <li>• Eliminate/manage aquatic plant and animal invasive exotic species as necessary</li> <li>• Prevent habitat fragmentation by visitor use</li> <li>• Prevent possible additional disturbance to resources through education, management guidelines, regulation enforcement, limited access, and sustainable design</li> <li>• Natural processes take precedence over visitor use</li> </ul>

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## APPENDIX B

### Invasive Exotic Plant Species Management Guidelines for Folsom Lake State Recreation Area (SRA)

#### Management Priorities

The practicability of managing invasive plants within the Folsom Lake SRA varies by species, depending on factors such as species invasiveness, extent of infestation, and the State's ability to influence the process of reintroduction (vector control). Given these variables, a management priority rating system was developed and applied to a list of invasive plant species that are known to occur in the park, unless stated otherwise. The rating system is based on each species' degree of invasiveness, the ecological damage it causes, its current distribution in the SRA and control feasibility. The details of the rating system are provided in Table B-1, which begins on page B-10. Based on the results of the rating system, species were assigned to one of four management priorities as described below.

**Priority One.** Species in this priority classification have a high degree of invasiveness, can cause significant habitat degradation, and several appear to be limited in extent (one or a few infestations that could feasibly be controlled or eradicated). It is important to eradicate or control infestations of these species as soon as possible to avoid further spread and to prevent further adverse effects on natural resources. Successful control or eradication is highly likely if management actions begin in the near future. However, eradication does not ensure that re-infestations will not occur. Several of these species are found on properties adjacent to the park. Their seed will be a constant source of infestation. Public education should be incorporated into eradication efforts for these and any other invasive plants. Long-term monitoring for the presence of these weed species in the park will be required. Priority One species are the following:

<b>Parrot feather</b>	<i>(Myriophyllum aquaticum)</i>
<b>Broom Sp.</b>	<i>(Cytisus sp., Genista sp., Spartium junceum)</i>
<b>Pampas grass</b>	<i>(Cortaderia selloana)</i>
<b>Tree of heaven</b>	<i>(Ailanthus altissima)</i>
<b>Water hyacinth</b>	<i>(Eichhornia crassipes)</i>
<b>Yellowflag iris</b>	<i>(Iris Pseudacorus)</i>
<b>Klamathweed</b>	<i>(Hypericum perforatum)</i>
<b>Black locust</b>	<i>(Robinia pseudoacacia)</i>

<b>Russian thistle</b>	<i>(Salsola sp.)</i>
<b>Tree tobacco</b>	<i>(Nicotiana glauca)</i>
<b>Giant Reed/arundo</b>	<i>(Arundo donax)</i>
<b>Hydrilla</b>	<i>(Hydrilla verticillata)</i>
<b>Perennial pepperweed</b>	<i>(Lepidium latifolium)</i>
<b>Scarlet wisteria/red sesbania</b>	<i>(Sesbania punicea)</i>

**Priority Two.** Species in this priority classification have a low to moderate degree of invasiveness in the park due to the dry climate of the Central Valley (though may be more invasive in other habitats, such as the coastline of California) and or other factors. Populations of these species should be monitored and eradicated when feasible, but eradication priority should be given to species listed under Priority One first.

<b>Cotoneaster</b>	<i>(Cotoneaster sp.)</i>
<b>English Ivy</b>	<i>(Hedera helix)</i>
<b>Firethorn/ Pyracantha</b>	<i>(Pyracantha sp.)</i>
<b>Privet</b>	<i>(Ligustrum sp)</i>
<b>Salt cedar/tamarisk</b>	<i>(Tamarix sp.)</i>
<b>Oleander</b>	<i>(Nerium sp.)</i>
<b>Common fig</b>	<i>(Ficus carica)</i>
<b>Chinese tallow</b>	<i>(Sapium sebiferum)</i>
<b>Woolly mullein</b>	<i>(Verbascum Thapsus)</i>
<b>Vinca</b>	<i>(Vinca major)</i>

**Priority Three.** Most of the species in this priority classification are highly invasive and have infested large areas, causing significant habitat degradation in the SRA. Due to the extent of infestation, eradication or control of these species is probably not feasible in the foreseeable future. Rather, management should consist of two elements: (1) near-term (3-5 years) implementation of control or eradication efforts in specific areas (size of areas varies by species and extent of infestation) where other park priorities may warrant such an effort; and (2) long-term (10-20 years or more) land management strategies to reduce the overall presence of the species and to prevent the spread of the species into new areas.

Priority Three species are the following:

<b>Bull thistle</b>	<i>(Cirsium vulgare)</i>
<b>Medusahead</b>	<i>(Taeniatherum caput-medusae)</i>
<b>Himalayan blackberry</b>	<i>(Rubus discolor)</i>

<b>Yellow starthistle</b>	<i>(Centaurea solstitialis)</i>
<b>Italian thistle</b>	<i>(Carduus pycnocephalus)</i>
<b>Barbed Goat Grass</b>	<i>(Aegilops triuncialis)</i>
<b>Fennel</b>	<i>(Foeniculum vulgare)</i>
<b>Black mustard</b>	<i>(Brassica nigra)</i>
<b>Poison Hemlock</b>	<i>(Conium maculatum)</i>
<b>Rush skeletonweed</b>	<i>(Chondrilla juncea)</i>

**Priority Four.** Species in this priority classification are not currently known to occur in the Folsom Lake SRA, however there is a strong likelihood for colonization to occur due to the presence of these weeds in close proximity to the park. Such colonization could result in a rapid spread and significant habitat degradation. Priority Four species should be immediately eradicated if observed in the SRA. Priority Four species are the following:

<b>Brazilian waterweed</b>	<i>(Egeria sp.)</i>
<b>Pondweed</b>	<i>(Potamogeton spp.)</i>

## Treatment Approaches

The following management prescriptions are based on various approaches in current literature, particularly Bossard et al. (2000). These treatments are not intended as definitive park actions, nor are they exhaustive, but they may provide a basis for future development of specific plans by park resource management experts. In particular, the document does not recommend or prescribe the use of any specific herbicide. Plans for usage of herbicides, their application rates and techniques must be prepared in the form of an herbicide recommendation by a licensed pest control advisor certified by the State of California. All weed management activities in the Unit should also be performed in accordance with the Bureau of Reclamation's CCAO Operations and Maintenance Plan (BOR 2002).

**Aquatic Weeds: Water hyacinth, parrot's feather, Brazilian waterweed, hydrilla, curly-leaf pondweed.** The on-going management of water hyacinth in the Lake Natoma vicinity has proven to effectively control this aquatic weed in the locations where it is known to occur (Alder Creek, Willow Creek, and Mississippi Bar). Management has entailed manual removal combined with introduction of a biological control agent (*Neochetina weevil*). A vigilant annual monitoring program for water hyacinth, as well as other aquatic weeds should

also be conducted with priority given to streams and backwaters in and around Lake Natoma. This program could be conducted by trained volunteers.

**Thistle Species.** In late winter through early summer, treat plants in the seeding, rosette, or pre-bud stage with an appropriate post-emergent herbicide. Pre-emergents may also be used prior to the germination of seedlings. The precise date when thistle plants will be in the appropriate growth stage for treatment will be determined by species and local climatic conditions and will vary from year to year. The treatment crew must include at least one person able to identify thistle and to distinguish it from native thistles that grow in the same area. Identification is needed for the following growth stages: seedling, rosette, pre-bud, flowering and setting seed. Four to six weeks after initial treatment, check the condition of treated plants and retreat any live plants and newly emerged rosettes with herbicide. Repeat treatments on an annual basis at the appropriate time until no plants have been observed for two consecutive years. Hand pulling is an effective way to control small infestations of thistles. Hand pulling is most effective when the plant has bolted yet not gone to seed and there is some moisture still left in the soil, allowing for removal of the entire root of the plant.

***Control of Large Infestations of yellow star-thistle (park-wide management).*** There are three major options for gradually reducing, or at least limiting the further spread of yellow starthistle on a park-wide basis, as follows:

- ***Burning.*** Where grasslands have become heavily invaded by yellow starthistle (as depicted on the vegetation maps), the burn plan should aim to control starthistle for fuel reduction and habitat enhancement. Under this approach, repeated burns would be used to gradually reduce the starthistle seedbank. Timing is critical for such burns to be effective. Typical burns must be conducted during the early summer (June-July) after native species have dispersed their seeds, but prior to maturation of starthistle seedheads. However, given the dearth of native species in many of the Unit's grasslands, the primary determining factor as to when burns should be conducted will be the status of starthistle seedhead maturation.
- ***Bio-control.*** The U.S. Department of Agriculture has approved the use of several insect species (weevils and flies) that are the natural enemies of yellow starthistle. The California Department of Food and Agriculture (CDFA) may be willing to release one or more of the insects into the Unit if it is determined (as is likely) that the

population of yellow starthistle is large enough to sustain the insects at a level where they can be effective. The use of biological controls may be the most cost effective and safe means of controlling starthistle. The insects are all host specific to yellow starthistle and do not require significant investments in infrastructure or personnel. However, the insects may not be effective in significantly reducing yellow starthistle populations, except over an extended period of many years (Bossard *et. al.* 2000).

**Chinese tallow; scarlet wisteria tree; tree of heaven.** These tree species may be removed by hand or with weed wrenches when they are immature. Control of these trees when they have reached maturity is done most easily and effectively with an herbicide treatment. Note, cutting of tree of heaven without immediate application of herbicide to the cut stump will cause extensive resprouting.

**Cotoneaster, pyracantha and privet.** The most appropriate control method will depend on the size of individual plants. In the case of seedlings, hand pulling is effective if conducted after a rain when the entire seedling and root system can be pulled. For larger seedlings and small saplings, pulling the plants with weed wrenches<sup>1</sup> may be effective, provided that the work is conducted under very wet soil conditions. For mature shrubs, cutting or girdling, immediately followed by applications of systemic herbicides, is recommended. Following all treatment approaches, it is essential that there be follow-up monitoring for one or more growing seasons.

**English ivy.** Hand cut the vines using pruning shears, pulling the upper portions from the trees and pulling-up the lower portions from the ground. If the cut upper portions cannot be easily removed, they can be left to die in place. The process will likely need to be repeated within the control area for several years thereafter. Herbicide will be required for eradication of this plant without excessive ground disturbance.

**Broom species.** Broom has a seed that can survive in the soil for several decades. Any control efforts should focus on eliminating any future seed set. Treatment options for this species are numerous. Repeated treatments for several years will likely be needed because of the potentially large seedbank. One option for small infestations is to pull the entire plant,

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<sup>1</sup> Weed wrenches are hand tools that have been specifically designed to use leverage to uproot shrubs and small trees. They have proven to be particularly effective in the management of numerous noxious weed species in California.

including roots, by hand pulling or using a weed wrench. For larger infestations, an herbicide treatment is usually more cost effective. The time of year for the treatment will vary depending on the herbicide(s) used and the type of herbicide treatment. Prescribed burning can also be used to stimulate seed germination of the seedbank. Follow-up with an herbicide or manual or mechanical treatment will be necessary.

**Arundo (giant reed).** Treat infestations as soon as they are discovered. Hand-pull plants less than 6 feet tall, removing the entire plant including the rhizome. Removal of all roots may also be facilitated using hand tools such as pick-axes or mattocks. All plant material, including the roots should be bagged and removed from the site or moved well away from water or roads/trails where plant fragments can be carried off and establish new infestations. Even fragments a few inches in length can be viable for half a year and produce new plants when they come into contact with adequate soil and water. Larger plants may be cut, followed by immediate treatment of the cut stem with an appropriate herbicide. Spraying of large infestations with an appropriate herbicide during the period from late August to November is effective. For all treated areas, diligent monitoring is a must, meaning that each treatment site shall be visited several times a year to catch any new populations or resprouts.

**Himalayan blackberry.** Identify key locations along riparian corridors (*e.g.*, outlier populations, places where human or wildlife access should be facilitated). In these locations, Himalayan berry can be physically removed by cutting the branches as far back as possible. This should be followed by herbicide applications and replanting of the infested areas with rapidly growing native riparian shrub species.

The yellow-breasted chat, a California Species of Special Concern (see Natural Resources – Animal Life – page AL-39), is known to frequent riparian areas with dense stands of Himalayan blackberry. Therefore, surveys for this species during the nesting season (early May- mid-July) would need to be conducted within any area proposed for Himalayan blackberry management. No management work should be conducted until the nesting season is completed, all young have fledged and the nests have been abandoned.

**Klamathweed.** For limited infestations such as may occur at the Snipes-Pershing Preserve, manually uproot plants, removing entire plant including tap root and rhizomes. This technique is most effective when there is moisture in the ground and the entire root can be removed. If plants are too large to effectively remove roots, an herbicide treatment may be

effective. Revisit the site for at least three consecutive years to re-treat new sprouts as needed. Larger infestations have been successfully treated in California with adult klamathweed beetles, an effective bio-control agent, approved by the USDA and CDFA for use against this weed species.

**Medusahead.** Properly timed applications of a combination of prescribed fire and herbicide may effectively reduce, or at least limit the further spread of medusahead. Prescribed fire treatments should be conducted in the late spring or early summer after seeds have set but before they have scattered. An herbicide only treatment affect may also be effective for small patches.

**Oleander.**<sup>1</sup> Cut the trees to the bases and immediately treat the freshly cut stumps with an appropriate herbicide.

**Pampas grass.** Pull or hand grub seedlings. To manually remove large clumps of mature plants, cut them with a chainsaw or weedeater down to the crowns. Cut and bag any inflorescences prior to plant removal in order to prevent seed dispersal. Remove the entire crown and top section of roots to prevent re-sprouting. Herbicides are also an effective treatment method, particularly in late summer and fall. Follow-up treatments will be necessary to control resprouts, misses, and new seedlings.

**Perennial pepperweed.** Around May or early June, spray foliage of all plants (seedlings and adults) with an appropriate herbicide. If there is a high potential to adversely affect adjacent native plant species, use a wick applicator instead. In July, check the condition of sprayed plants and respray any that have resprouted or appear to still be alive. In July or early August, cut the flower stalks (if any), bag, remove from the site and dispose of stalks using a method that precludes seed dispersal and germination, for example, burning or disposal in a landfill. During May-June of the following years, check the condition of all plants and respray any that have resprouted, using the method described above. Continue treatment until no live plants have been observed for two consecutive years. Do not attempt to pull out or cut this plant. Doing so does not effectively kill the plant and resprouting will occur.

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<sup>1</sup> Oleander is included here not because of its ecological harm but because of its potential public safety problems in or near picnic or camping areas.

**Rush skeletonweed.** For limited infestations such as may occur at the Snipes-Pershing Preserve, treat newly emerged plants with an appropriate herbicide while soil is still moist (April is best in year with average rainfall). After herbicide treatment is completed, attach colored flagging to the old flower stalk or plant base so that plants can be quickly relocated for retreatment. The treatment crew should include at least one person able to identify rush skeletonweed in all growth stages: seedling, rosette, and plants with flowers and seed heads. Six to eight weeks after initial treatment, treat rosettes sprouting from base of plant or from rootstocks and any new plants. The leaves of these resprouts will be smaller and more succulent than normal leaves. Repeat herbicide treatments each year until no plants have been observed for two consecutive years.

**Salt cedar.** Remove infestations as soon as discovered by cutting all trees near the ground and immediately treating the cut stumps with an appropriate herbicide. Small trees (stems less than 4 inches in diameter) may be killed without cutting, using a basal bark herbicide treatment. In subsequent years, conduct follow-up hand pulling of seedlings until no seedlings are observed for at least two consecutive years.

**Woolly mullein.** For limited infestations such as may occur at the Snipes-Pershing Preserve, remove plants in the rosette stage (leaves only), typically in July or August. Plants should be hand-pulled, or the root should be cut beneath the lowest leaf base using a hoe, pulaski or similar equipment. Rosettes can be left on-site in an upside-down position (to prevent re-rooting). For plants in the flowering or seed-producing stage, remove the flowers and seed capsules with clippers. Cut the root beneath the lowest leaf base, turn rosettes upside down (to prevent re-rooting) and leave on-site. Plant clippings should be bagged, removed from the site, and disposed of using a method that precludes seed dispersal and germination, for example, burning or landfill disposal. Repeat treatment actions on an annual basis until no plants have been observed for two years in a row.

## Coordinating Efforts with Adjacent Landowners

Invasive plants inevitably do and will continue to cross property boundaries, making eradication difficult or impossible without coordinated efforts with adjacent landowners. Each proposed eradication project should be considered in its regional, local, and community context. Projects that expand on the efforts of adjacent landowners should be given priority. Public education should be incorporated, to the extent feasible, into each

invasive plant removal effort in the park. Volunteer and community work days should be utilized where feasible to remove invasive plant populations to help build an understanding of the issue and the work involved in addressing the problem.

## Follow-up Treatments, Revegetation and Monitoring

A key to successful long-term management of invasive exotic plants is a commitment to follow-up treatments and monitoring. Park resource management personnel should plan to annually visit management locations, as well as other similar locations around the park, to monitor the status of existing infestations and to detect and record with GPS receivers the locations of any additional spread. Visits should be timed to optimally detect each plant species based on phenology. Monitoring results should be input into an exotic plant data layer in GIS.

Treatment of noxious weeds is often an exercise in futility if not followed-up by an effort to restore native vegetation in the treatment areas. This is particularly true where treatments involve manual or mechanical removal techniques that disturb the soils. In order to mitigate disturbance to the soil surface after manual removal of weeds, it may be necessary to re-compact the disturbed soils and cover with weed-free mulch. Weed control fabric or polyethylene sheet plastic may also be used to avoid new infestations and re-introductions. Where soil disturbance has been extensive, a native seed mix should be applied following re-compaction of the soil surface. In riparian or oak woodland areas, a native tree and shrub replanting program may need to be conducted following weed treatments.

**Table B-1. Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA**

**Evaluation System**

**Ecological Threat:** **High** = Weed species is known to displace native plant populations and/or significantly diminish habitat functions. **Moderate** = Weed species has the potential to displace native plant populations and/or significantly diminish habitat functions. **Low** = Weed species is unlikely to displace native plant populations and/or significantly diminish habitat functions.

**Degree of Invasiveness:** **High** = Weed species has the ability to rapidly colonize and spread within native habitats. **Moderate** = Weed species has the ability to rapidly colonize and spread, however usually requires at least a moderate amount of prior habitat disturbance. **Low** = Weed species not known to rapidly colonize and spread within native habitats.

**Control Feasibility:** **Feasible** = Control can often be achieved using relatively simple techniques over a short period of treatment (1-3 years). **Difficult** = Control can often be achieved but requires complex or precise techniques that may take a long period of treatments and re-treatments (3-10 years or longer). **Very Difficult** = Control unlikely to be achieved except in limited situations. Complex or precise techniques required that may take a long period of treatments and re-treatments (3-10 years or longer).

**Current Distribution in Folsom Lake SRA Vicinity:** **Very Limited** = Known to occur in a single location in the park. **Limited** = Known to occur in a few locations or extensively in a single location in the park. **Widespread** = known to occur in numerous locations throughout the park. **Unknown** = Not known to occur in the park but presence of this weed species in the region suggest that it could occur in the park.

**Potential for Successful Management in the SRA:** **High** = Treatment likely to result in successful eradication of this weed species from the park. **Moderate** = Species too widespread for successful eradication but treatment likely to achieve control. **Low** = Species too widespread for successful control but eradication from small areas within the park may be achieved if deemed desirable.

**Cal-IPC Ranking** = California Invasive Plant Council ranking under *Exotic Pest Plants of Greatest Ecological Concern in California* (February 2006), as follows:

**High** = These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

**Moderate** = These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

**Limited** = These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

**Evaluated but not Listed** = Sufficient information necessary to assign a rating was lacking or the available information indicates that the species does not have significant impacts at the present time.

## Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Management Priority One:</b>					
<b>Klamathweed</b>  <i>Hypericum perforatum</i>	<b>Moderate.</b> Invades in grassland, savanna habitats and seasonal wetlands; replaces native species.  <b>(Cal-IPC: Moderate)</b>	<b>High.</b> Reproduces both vegetatively and from seed; grows new stems from taproots and rhizomes; capable of producing viable seed with or without pollination	<b>Feasible.</b> Manual/mechanical techniques and herbicide application are effective for small infestations. Large populations can be controlled with biocontrol agents.	<b>Widespread.</b> Grows in several locations in the park from Peninsula to Snipes-Pershing. Found in low to moderate density.	<b>High.</b> The low numbers of this plant in the park make control feasible.
<b>Pampas grass</b>  <i>Cortaderia selloana</i>	<b>High.</b> Displaces native vegetation along stream banks, riparian areas and shorelines. Increases fire risk due to the dense vegetative masses it forms.  <b>(Cal-IPC: High)</b>	<b>High.</b> Highly invasive from both seed and root runners. Root pieces displaced from the parent plant can also produce new plants if adequate moisture is available.	<b>Feasible.</b> Can be controlled through manual or mechanical removal and/or use of herbicides.	<b>Widespread.</b> Grows in disturbed areas around Lake Natoma and along the bike path downstream of Folsom Dam. Other populations have been found on the north fork arm of the American River above Avery's Pond.	<b>High.</b> Though populations on adjacent private/public lands will make eradication difficult, control is very feasible.
<b>Parrot feather; Eurasian milfoil</b>  <i>Myriophyllum aquaticum</i>	<b>High.</b> Forms dense water-choking mats in freshwater lakes, ponds and slow moving channels.  <b>(Cal-IPC: High)</b>	<b>Moderate.</b> Not known to produce viable seed in California. Spread is from root sprouting from fragmented stems. Distributed to new locations by water flow, boats, water fowl, and by dumping of aquarium water.	<b>Difficult.</b> Once established, labor-intensive mechanical removal is required. Limited control may also be attained with herbicides approved for use in aquatic systems.	<b>Limited.</b> Found in the Mississippi Bar ponds and may occur in other ponds and backwaters of Lake Natoma.	<b>Moderate.</b> Spread to other aquatic locations in the park could be prevented through mechanical removal. Priority should be given to those ponds and backwaters that have surface water connections to Lake Natoma.

### Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Russian thistle; tumbleweed</b> <i>Salsola tragus</i>	<b>Moderate.</b> Readily colonizes disturbed areas, but can also invade grasslands and seasonal wetlands. Can pose a serious wildfire hazard. Plant is a common allergen to people. <b>(Cal-IPC: Limited)</b>	<b>Moderate.</b> Reproduces prolifically by seed. Is noted for the tendency of its mature individuals to break free from the soil and be blown about.	<b>Difficult.</b> Most effective approach is herbicide applications to immature plants. Once established, herbicide use is less effective. For small infestations, mowing of young plants would probably be effective.	<b>Limited.</b> Known to occur in the Snipes-Pershing Preserve and likely in other areas of Lake Natoma/Folsom Lake.	<b>Moderate.</b> Potential spread of this weed within the park may be controlled if dealt with in the near future.
<b>Scotch Broom</b> <i>Cytisus scoparius</i>	<b>High.</b> Will invade various terrestrial habitat types forming dense monotypic stands, if not controlled. Inhibits regeneration of native vegetation and significantly increases wildfire risk. <b>(Cal-IPC: High)</b>	<b>High.</b> Large populations can result from only one plant due to prolific seed production and long distance seed dispersal.	<b>Difficult.</b> Can be controlled using one or more techniques: manual and mechanical removal; herbicides, and prescribed fire	<b>Limited.</b> Thought to occur within a few locations of the park, though distinction among broom species has been problematic.	<b>Moderate.</b> Spread of this weed within the park could be controlled, though the long lived seeds and any adjacent populations just outside of park boundaries will make eradication difficult.

## Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Tree of heaven</b></p> <p><i>Ailanthus altissima</i></p>	<p><b>High.</b> Readily invades riparian zones as well as drier environments (cobblestone surrounding Lake Natoma. Reduces habitat diversity.</p> <p><b>(Cal-IPC: Moderate)</b></p>	<p><b>High.</b> Prolific root sprouter with new plants up to 50 feet away from nearest shoot. Seeds are light and wind dispersed. Often spread by water, birds and on vehicle tires. Produces allelopathic chemical that allows it to out-compete native species.</p>	<p><b>Difficult.</b> Control can be achieved through manual/mechanical removal and herbicide treatments. Repeated removal or treatment of seedlings required over several seasons.</p>	<p><b>Widespread.</b></p> <p>Grows all around Lake Natoma. Several hundred plants are also found at Peninsula, adjacent to the entrance kiosk. The plant has been observed at Granite Bay and Beal’s Point Access as well.</p>	<p><b>Moderate.</b> Further spread of this weed in the park could be controlled if known infestations are dealt with soon. Control is foreseeable though eradication is unlikely due to extent of plant on adjacent properties, particularly in the city of Folsom.</p>
<p><b>Water hyacinth</b></p> <p><i>Eichhornia crassipes</i></p>	<p><b>High.</b> Forms dense floating mats that choke freshwater lakes, ponds and slow moving channels. Decaying vegetation reduces dissolved oxygen in water and promotes eutrophication.</p> <p><b>(Cal-IPC: High)</b></p>	<p><b>High.</b> Spreads rapidly by breaking apart into pieces, each of which develops into a separate plant. Also reproduces sexually by producing self-pollinating flowers. Released seeds can remain viable in the bottom sediments for several years.</p>	<p><b>Difficult.</b> Herbicides may be effective but require careful planning and permitting. Mechanical removal requires long-term (5-10 years) labor commitment. Release of bio-control insects may provide effective long-term control. Repeated manual removal can provide effective control.</p>	<p><b>Limited.</b> Historically at the mouths of Alder and Willow Creeks, and in Mississippi Bar ponds. May have been eradicated in the ponds through chemical spraying. On-going manual eradication efforts at Alder and Willow Creeks for the past 6 years are achieving success. Biocontrol weevils were released into the Willow Creek area in the summer of 2002.</p>	<p><b>Moderate.</b> Continuation of on-going control efforts may effectively eradicate this aquatic weed from the park, but landowners upstream will need to implement consistent control efforts in order to do so.</p>

## Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>French broom</b>  <i>Genista monspessulana</i>	<b>High.</b> Will invade various terrestrial habitats forming dense monotypic stands; inhibits regeneration of native vegetation; significantly increases wildfire risk; reduces wildlife habitat value by displacing native forage species and reducing arthropod populations.  <b>(Cal-IPC: High)</b>	<b>High.</b> Can establish from only one plant due to prolific seed production and long distance seed dispersal. Dispersal can also be accomplished by seeds floating in rainwater and by mud lodged in crevices of boots, machinery, and vehicles.	<b>Difficult.</b> Can be controlled using one or more techniques: manual and mechanical removal, herbicides, and prescribed burning.	<b>Limited.</b> Thought to occur at Mountain Oak Court Access in various densities.	<b>Moderate.</b> Long lived seedbank will make eradication difficult. Control is feasible. Other limitations may be access to site and populations on adjacent lands.
<b>Giant reed</b>  <i>Arundo donax</i>	<b>High.</b> Rapidly invades riparian habitats, reducing food supply, insect populations and habitat accessibility for wildlife. Reduces aquatic habitat value for fish and amphibians by reducing streamside shade.  <b>(Cal-IPC: High)</b>	<b>High.</b> Reproduces vegetatively either by extension of underground rhizomes or from drifting plant fragments that later produce roots.	<b>Difficult.</b> Manual or mechanical removal of the entire plant combined with herbicide applications can effectively control infestations. Herbicide application alone is also an option and will minimize potential for spread.	<b>Limited.</b> Observed at Avery's Pond in small numbers, on the north fork above Avery's Pond and downstream of Folsom dam. There is a high potential for it to colonize areas in and near perennial streams and ponds, particularly in the Lake Natoma area.	<b>Moderate.</b> Sources outside of the park boundary will make eradication difficult but control is achievable with diligent monitoring.

## Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Hydrilla</b>  <i>Hydrilla verticillata</i>	<b>High.</b> Forms dense mats in lakes, marshes, ponds, and streams, diminishing native aquatic plants, decreasing habitat for fish and wildlife and increasing sedimentation. Decaying vegetation diminishes dissolved oxygen. <b>(Cal-IPC: High)</b>	<b>High.</b> Spreads from reproduction of fragmented stems and tubers that root in sediments. Propagules can be distributed to new locations by sticking to boats, fishing equipment, and wildlife.	<b>Feasible.</b> Infestations must be reported to the CDFG which will coordinate quarantine and eradication efforts. Control efforts include manual removal of entire plants, dredging of bottom sediments, use of herbicides and/or bio-control agents (sterile carp), as authorized by CDFG.	<b>Unknown.</b> Not observed in the park, but there is a high potential for it to colonize both Lake Natoma and Folsom Lakes as well as perennial streams and ponds.	<b>High.</b> If observed, a rapid response could prevent infestation.
<b>Perennial pepperweed</b>  <i>Lepidium latifolium</i>	<b>High.</b> Extremely invasive in seasonal wetlands, vernal pools, and marshes. Dense stands diminish habitat value for associated floral and faunal species. <b>(Cal-IPC: High)</b>	<b>High.</b> Tolerant of saline and alkaline soils. Spreads by either seed production or reproduction of underground stem fragments. Short-distance spread of seed is by water or wind-borne seed. Long-distance spread is by contaminated rice straw and possibly waterfowl.	<b>Difficult.</b> Mechanical hand-pulling or disking is unsuccessful because plant regenerates from remnant rootstock. Herbicide use is successful if treatments are properly timed and selectively applied.	<b>Limited.</b> Observed in low numbers at Mormon Island Preserve and the north side of Lake Natoma close to Nimbus Dam.	<b>Moderate.</b> Given the limited control strategies and the prolific seedbank that probably exists, eradication will be difficult.

### Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Scarlet wisteria tree</b> <i>Sesbania punicea</i></p>	<p><b>High.</b> This plant has the potential to invade riparian areas and lakeshores, forming a monoculture, devoid of valuable native riparian habitat.  (Cal-IPC: High)</p>	<p><b>High.</b> Produces abundant, buoyant seed pods that may be dispersed long-distance by water.</p>	<p><b>Feasible.</b> Control can probably be achieved through manual removal and herbicide treatments.</p>	<p><b>Very Limited.</b> Found in small numbers in main drainage of Snipes-Pershing.</p>	<p><b>High.</b> Rapid response can prevent further infestation. Diligent monitoring will be necessary to maintain control /eradication.</p>
<p><b>Spanish broom</b> <i>Spartium junceum</i></p>	<p><b>High.</b> Will colonize a variety of habitats displacing native vegetation and contributing to fuel loads.  (Cal-IPC: High)</p>	<p><b>High.</b> Abundant seeds are produced that are spread by water, animals, and people.</p>	<p><b>Feasible.</b> Control can probably be achieved via manual, mechanical and chemical treatments.</p>	<p><b>Limited.</b> One population exists at Negro Bar Access and more is thought to occur in the park, possibly at Mooney Ridge.</p>	<p><b>Moderate.</b> Rapid response could prevent further spread. Infestations on adjacent lands could make eradication difficult without consistent coordinate removal efforts.</p>
<p><b>Yellow flag Iris</b> <i>Iris pseudacorus</i></p>	<p><b>Moderate.</b> Displaces native vegetation in natural wetland and riparian areas. Is toxic if eaten in quantities by wildlife or livestock.  (Cal-IPC: Limited)</p>	<p><b>High.</b> Can reproduce vegetatively and by seed.</p>	<p><b>Feasible.</b> Control can probably be achieved via manual or mechanical treatments.</p>	<p><b>Limited.</b> Occurs in dense stands around the shore of Avery's Pond and at Negro Bar near Natoma Crossing. Like pampas grass, it has escaped from gardens.</p>	<p><b>Moderate.</b> Infestation can probably be significantly reduced but would require repeated removal efforts over 5-10 years.</p>

### Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA

Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Black Locust</b> <i>Robinia pseudoacacia</i>	<b>Moderate.</b> Tall tree (100 feet) that shades habitat and displaces native vegetation. Early successional species that grows best on clear-cuts, abandoned pastures, or roadways. <b>(Cal-IPC: Limited)</b>	<b>Moderate.</b> Can reproduce from seeds but mostly produces by suckers or sprouting from roots. This species has been in California for many years but has not spread significantly.	<b>Feasible.</b> Control can probably be achieved through manual removal and herbicide treatments.	<b>Unknown</b>	<b>Unknown.</b> Potential for success may be high if infestations are localized and limited. However, repeated removal efforts would be required over several years.
<b>Tree Tobacco</b> <i>Nicotiana glauca</i>	<b>Moderate.</b> First planted as a landscape ornamental, Tree Tobacco has escaped and can now be found widespread along roadsides, disturbed sites, waste areas, riparian areas, and recently burned sites. This species displaces native plants. <b>(Cal-IPC: Moderate)</b>	<b>Moderate.</b> Prolific seed producer with seed set approaching 100% in manually self-pollinated flowers. Seeds are produced in large quantities in capsules. The seeds are minute and can be carried long distances either by falling on bypassing animals or by moving in watersheds. Trees grow rapidly and produce viable seed within a couple of years.	<b>Feasible.</b> Control can be achieved with foliar or basal bark treatment with herbicides. Mechanical treatment probably not feasible.	<b>Unknown</b>	<b>Unknown.</b> Potential for success may be high if infestations are localized and limited. Infestation can probably be significantly reduced but would probably require extensive and repeated treatments.

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Management Priority Two:</b>					
<b>Cotoneaster</b>  <i>Cotoneaster</i> spp.	<b>Medium.</b> Aggressive invader of riparian and oak woodland in coastal California. Not nearly as aggressive in FLSRA. Displaces native tree and shrub species.  <b>(Cal-IPC: Moderate)</b>	<b>High.</b> Seeds are readily dispersed by birds; seeds are long-lived. Invasiveness seems to be greatly diminished in drier climate of the Valley.	<b>Feasible.</b> Requires cutting and treatment of stumps with herbicide within a limited timeframe (after fruits have set but before they mature). Repeated follow-up removal of coppices required.	<b>Very Limited.</b> Known to occur in the Mississippi Bar vicinity and possibly near Lake Natoma Inn.	<b>High.</b> The spread of this weed within the park can be controlled/eradicated in its current stage of infestation.
<b>English ivy</b>  <i>Hedera helix</i>	<b>High.</b> Rapidly covers and displaces native riparian vegetation along stream corridors, reducing overall habitat value and access to streams for some wildlife species.  <b>(Cal-IPC: High)</b>	<b>High.</b> Seeds are readily dispersed by birds; will also expand rapidly via vegetative growth and by root pieces dispersed downstream.	<b>Very Difficult.</b> Once well-established along a stream corridor, difficult to control without extensive labor and herbicide use. Best management approach is to control early infestations.	<b>Limited.</b> Distribution appears to be limited. There is one known location – in the Granite Bay subdivision.	<b>Moderate.</b> The spread of this weed within the park may be controlled in its current stage of infestation. Eradication will be difficult if populations on adjacent lands are not controlled.
<b>Firethorn</b>  <i>Pyracantha angustifolia</i>	<b>Moderate.</b> Forms locally dense stands in riparian, woodland and chaparral habitats.  <b>(Cal-IPC: Limited)</b>	<b>Moderate.</b> Produces prolific berries that are dispersed by birds and will readily germinate along the edges of wooded areas and in disturbance zones.	<b>Feasible.</b> Can be controlled by manual removal or herbicides.	<b>Limited.</b> Known occurrences found in the Alder Creek, Negro Bar and Mississippi Bar areas.	<b>Moderate.</b> Firethorn is found in the yards of adjacent landowners, providing a constant seed source. Control is possible, eradication is unlikely.

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Oleander</b> <i>Nerium oleander</i>	<p><b>Low.</b> Although found in riparian areas, does not appear to displace native species. Highly toxic to people, particularly if used as firewood. Is a host plant for the glassy-winged sharpshooter.</p> <p>(Cal-IPC: Eval, No List)</p>	<p><b>Low.</b> Not considered highly invasive in California, mainly a local escapee from landscape settings.</p>	<p><b>Feasible.</b> Can be controlled by manual/mechanical removal or herbicides.</p>	<p><b>Limited.</b> Grows in the Negro Bar vicinity. Has been planted by non-park personnel at Folsom Point picnic and kiosk area and has been observed invading drainages near houses.</p>	<p><b>High.</b> Could be readily removed where warranted such as any setting in which the public could potentially try to use it as firewood or as food stakes for campfires or barbecues.</p>
<b>Privet</b> <i>Ligustrum vulgare</i>	<p><b>Moderate.</b> Unknown effects on natural systems, however known to invade riparian areas.</p>	<p><b>Moderate.</b> Produces abundant fruit that are eaten and spread by birds; seeds remain viable and produce multitudes of seedlings.</p>	<p><b>Feasible.</b> Can be controlled through manual or mechanical removal and/or herbicide treatments.</p>	<p><b>Widespread.</b> Grows in the Granite Bay area of the park and in the Lake Natoma vicinity.</p>	<p><b>Moderate.</b> Privet is found in the yards of adjacent landowners, providing a constant seed source. Control is possible, eradication is unlikely.</p>
<b>Woolly mullein</b> <i>Verbascum thapsus</i>	<p><b>High.</b> Perennial herb that invades disturbed sites, but can also invade grasslands, savanna, seasonal wetlands, and chaparral sagebrush scrub.</p> <p>(Cal-IPC: Limited)</p>	<p><b>High.</b> Individual plants are capable of producing 100,000 to 240,000 seeds, which can remain viable in the soil for 35 to 100 years.</p>	<p><b>Feasible.</b> Control can be achieved by various methods, including manual removal and herbicides.</p>	<p><b>Limited.</b> Known occurrence in the Snipes-Pershing Preserve, on the north side of Lake Natoma. Additional occurrences suspected on the southern side as well.</p>	<p><b>High.</b> The potential spread of this weed within the park may be controlled.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Chinese tallow</b></p> <p><i>Sapium sebiferum</i></p>	<p><b>Moderate.</b> Not currently a serious problem in the park; has the potential to invade wetlands, riparian areas, and lakeshores.</p> <p>(Cal-IPC: <b>Moderate</b>)</p>	<p><b>High.</b> Most likely to spread downstream from existing seed sources. Grows rapidly, produces abundant viable seed, and can reproduce from cuttings; seeds spread by birds, and may also float for great distances.</p>	<p><b>Feasible.</b> Control can probably be achieved through manual removal and herbicide treatments.</p>	<p><b>Unknown.</b> Only observation to date is in the main drainage at Snipes Pershing.</p>	<p><b>High.</b> Rapid response can easily provide control in the known drainage. Eradication may be difficult given populations found on adjacent lands outside of the park.</p>
<p><b>Salt cedar</b></p> <p><i>Tamarix parviflora</i></p>	<p><b>High.</b> Colonizes stream banks, lake shores, pond margins and other moist locations. Changes the dynamics of stream geomorphology, reduces riparian habitat value and increases fire risk.</p> <p>(Cal-IPC: <b>High</b>)</p>	<p><b>High.</b> Spreads by both vegetative root sprouting and by prodigious production of long-distance dispersed seeds; seeds are dispersed by both wind and water.</p>	<p><b>Difficult.</b> Mechanical or manual removal unsuccessful unless followed by herbicide treatment and seedling removal for several years. Control feasibility increases if early infestations are treated before infestations mature.</p>	<p><b>Very limited.</b> One small population thought to exist at Negro Bar Access.</p>	<p><b>High.</b> This plant can be controlled or eradicated at its current stage of infestation.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Common fig</b> <i>Ficus carica</i></p>	<p><b>Moderate.</b> Forms dense stands within native riparian forests and woodlands. Common fig is sometimes the only woody species found in these dense stands. <b>(Cal-IPC: Moderate)</b></p>	<p><b>Moderate.</b> Capable of producing abundant fruit and seed two or three times per year. The plants also spread vegetatively via root sprouts and via broken branches that make contact with the soil and form roots. These broken branches may be carried great distances in flood waters, washing up in a new location where they may establish a new population.</p>	<p><b>Feasible.</b> Control can be achieved through manual removal and herbicide treatments.</p>	<p><b>Unknown</b></p>	<p><b>Unknown.</b> Potential for success may be high if infestations are localized and limited.</p>
<p><b>Vinca</b> <i>Vinca major</i></p>	<p><b>Moderate.</b> Once established, vinca forms a dense carpet where it excludes native herbs and out-competes native vegetation. Areas infested with vinca can have root masses that extend several feet into the ground. Thrives in disturbed areas typical of riparian corridors. <b>(Cal-IPC: Moderate)</b></p>	<p><b>Moderate.</b> Spreads by sprouting from fragmented stems. These broken stem fragments are able to float on water to begin new vinca colonies.</p>	<p><b>Feasible.</b> Control can be achieved through manual removal and herbicide treatments.</p>	<p><b>Limited.</b> Periwinkle was observed growing near homes in Granite Bay and near Negro Bar.</p>	<p><b>Moderate.</b> The spread of this weed within the park may be controlled in its current stage of infestation. However, eradication will be difficult due to the probability of populations on adjacent lands are not controlled.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Management Priority Three:</b>					
<b>Rush skeletonweed</b> <i>Chondrilla juncea</i>	<b>High.</b> Invades grasslands, although usually limited disturbed areas. Depletes soil of nutrients and moisture. Reduces forage for wildlife.  (Cal-IPC: Moderate)	<b>Moderate.</b> Reproduces by cloning from roots or from seed apomixis (seeds produced without pollination). One plant can produce 15,000 to 20,000 seeds in a season.	<b>Difficult.</b> May be controlled with properly timed applications of herbicides. Manual/mechanical techniques may be in option in Spring.	<b>Widespread.</b> Found in grasslands, disturbed areas around Folsom Lake and Lake Natoma.	<b>Low.</b> The extent of this species in the park and outside of park boundaries as well as the limited control options will make eradication unlikely.
<b>Bull thistle</b> <i>Cirsium vulgare</i>	<b>Moderate.</b> Invades a variety of habitats. Displaces native species and reduces forage for native grazers. Spines also interfere with grazing and movement by native animals. (Cal-IPC: Moderate)	<b>High.</b> Produces abundant, airborne seeds that can disperse up to 90 feet under low wind conditions.	<b>Very Difficult.</b> Control with chemicals, mowing and/or cutting is feasible for small infestations (tens of acres) but less practical once established over a large area. Requires properly-timed and repeated treatments prior to seed set for several years.	<b>Widespread.</b> Ubiquitous throughout the park, occurring in virtually all upland habitats.	<b>Low.</b> Due to widespread distribution, significant reduction of this weed species in the park is not feasible. However, localized eradication within small areas (i.e. tens of acres) may be feasible where other management goals warrant such an effort.

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Himalayan blackberry</b>  <i>Rubus discolor</i>	<b>High.</b> Extremely invasive in riparian habitat; displaces native vegetation; dense stands prevent access to water for some wildlife species. Despite its negative attribute, its berry serves as a food plant for small mammals and avifauna that frequent riparian areas.  <b>(Cal-IPC: High)</b>	<b>High.</b> Thrives on low fertility soils and a wide range of soils. Long-lived berry seeds are dispersed after passing through the digestive system of animals. Reproduces from cane tips that contact the ground and also from root pieces.	<b>Difficult.</b> Control over limited areas (< 1 acre of dense growth) can be achieved using mechanical/manual means followed by herbicide treatment and re-treatments of new sprouts for several years. Control of large infestations becomes less practical without a major commitment of labor and resources.	<b>Widespread.</b> Ubiquitous in the park, occurring in riparian zones, pond edges, moist ravines, and along the edges of Lake Natoma and Mississippi Bar.	<b>Low.</b> Due to widespread distribution, significant reduction of this weed species in the park is not feasible. However, localized eradication within small areas (i.e. tens of acres) may be feasible where other management goals warrant such an effort.
<b>Italian thistle</b>  <i>Carduus pycnocephalus</i>	<b>High.</b> Invades disturbed or heavily grazed grasslands, oak woodland, savannah and chaparral. Becomes locally dominant, displacing native species, and reducing forage for native grazers. Spines interfere with grazing by native animals.  <b>(Cal-IPC: Moderate)</b>	<b>High.</b> Seeds of this species are spread primarily by wind, although they may also be spread by animals, seed-contaminated soils, and hay.	<b>Difficult.</b> Control using manual or mechanical removal techniques are feasible for small infestations but becomes less practical once established over a large area. Herbicides may be effective for larger populations. Requires properly-timed and repeated treatments prior to seed set each year.	<b>Widespread.</b> Ubiquitous throughout the park, occurring in virtually all upland habitat types, particularly at Peninsula.	<b>Low.</b> Due to widespread distribution, significant reduction of this weed species in the park is not feasible. However, localized eradication within small areas (i.e. tens of acres) may be feasible where other management goals warrant such an effort.

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Medusahead</b></p> <p><i>Taeniatherum caput-medusae</i></p>	<p><b>High.</b> Rapidly spreads in many ecosystems, particularly grasslands and savanna. Out-competes native grass and forb species. Forms dense stands that cause an elevated fire danger. Mature plants have high silica content, making them unpalatable to native grazing animals.</p> <p><b>(Cal-IPC: High)</b></p>	<p><b>High.</b> Rapidly spread by wind, on the coats of grazing animals, and on machinery, tires and clothing.</p>	<p><b>Difficult.</b> Properly-timed prescribed burning may be effective.</p>	<p><b>Widespread.</b> Ubiquitous throughout park grasslands and oak savanna.</p>	<p><b>Low.</b> Due to widespread distribution, significant reduction of this weed species in the park is probably not feasible. However, localized eradication within small areas (i.e. tens of acres) may be feasible where other management goals warrant such an effort.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p><b>Yellow star-thistle</b></p> <p><i>Centaurea solstitialis</i></p>	<p><b>High.</b> Displaces native flora and fauna in annual grasslands, oak woodland and savanna habitats. Plant spines are injurious to animals and people. Depletes soil moisture reserves.</p> <p><b>(Cal-IPC: High)</b></p>	<p><b>High.</b> Readily dispersed by human activities and animals.</p>	<p><b>Difficult.</b> Once established over a large area, it is difficult to control. Requires many years (3-5 years or more) of effort involving multiple techniques including, burning, herbicides, and manual removal. Best approach for gradually reducing large infestations is biological control using USDA-approved insect releases.</p>	<p><b>Widespread.</b> This weed is ubiquitous throughout the park, occurring in virtually all upland habitats. Dense infestations occur in open grasslands throughout the park except at Peninsula where its presence in most grasslands is still relatively low.</p>	<p><b>Low.</b> Due to widespread distribution and difficulty to control, significant reduction of this weed species in the park is not feasible. However, localized eradication within small areas (i.e. tens of acres) may be feasible where other management goals warrant such an effort. Applications of properly timed, repeated prescribed burns may reduce the presence of this weed in the Peninsula area in conjunction with routine herbicide applications. Release of bio-control insects may be the best means for reducing the presence of this weed park-wide.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<p>Barbed Goat Grass</p> <p><i>Aegilops triuncialis</i></p>	<p>Moderate. Often found in disturbed roadside environments, but has been observed to be in other sites, including ponds and open grassy areas, particularly with some moisture. This species changes fire frequency and utilizes high amounts of soil moisture. It can form near monotypic stands and populations of 50% cover and greater are common. Awns can be harmful to wildlife.</p> <p>(Cal-IPC: High)</p>	<p>High. Can rapidly take over a grassland area. Over the past 10 years it appears to be rapidly expanding range in California. Seeds can be distributed on the fur and feathers of animals.</p>	<p>Very Difficult. Properly-timed mowing or grazing regimes may help reduce or at least manage seed production and ultimately manage infestations in grasslands.</p>	<p>Unknown.</p>	<p>Unknown.</p>
<p>Fennel</p> <p><i>Foeniculum vulgare</i></p>	<p>Low. Typically inhabits roadsides and other disturbed areas. Usually found in areas that are so disturbed as to be of low ecological quality. Once firmly established, it excludes almost all other vegetation.</p> <p>(Cal-IPC: High)</p>	<p>Moderate. Can reproduce from both crown and seeds. Seeds germinate at almost any time of the year and seed production per plant is in the tens of thousands during its first year of growth and hundreds of thousands during its second year of growth.</p>	<p>Very Difficult. Requires a long-term effort using mechanical and chemical treatment and reducing disturbed soils conditions.</p>	<p>Unknown.</p>	<p>Unknown.</p>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Black Mustard</b>  <i>Brassica nigra</i>	<b>Moderate.</b> Occurs in habitat openings caused by natural disturbances such as roads, agricultural fields, and urban development. This species has invaded shrublands, grasslands, and riparian areas. Can produce large amounts of biomass. <b>(Cal-IPC: Moderate)</b>	<b>Moderate.</b> Produces a large number of fruits year-round that often weigh the plant down.	<b>Difficult.</b> Properly timed mowing or grazing and/or repeated applications of herbicides should reduce the presence of this species.	<b>Unknown.</b>	<b>Unknown.</b>
<b>Poison Hemlock</b>  <i>Conium maculatum</i>	<b>Low.</b> Requires disturbance for colonizing an area. Following disturbance, can become common in shady areas, particularly riparian woodlands and open flood plains of rivers and streams. Can form very dense stands and crowd out other vegetation. Suppresses light. <b>(Cal-IPC: Moderate)</b>	<b>Moderate.</b> Spreads rapidly in newly disturbed sites. Most seed fall to base of parent plant. Some long distance movement in water when plants are growing near streams.	<b>Feasible.</b> Manual and/or mechanical and chemical treatment methods for 3 -5 years can effectively reduce the presence of this species.	<b>Unknown.</b>	<b>Unknown.</b>

Summary of Management Priority Evaluation for Noxious Weed Species – Folsom Lake SRA					
Species Name	Ecological Threat (Cal-IPC Ranking)	Degree of Invasiveness	Control Feasibility	Current Distribution in Folsom Lake SRA Vicinity	Potential for Successful Management in the SRA
<b>Management Priority Four:</b>					
<b>Brazilian waterweed</b>  <i>Egeria densa</i>	<b>High.</b> Forms dense weed beds in lakes, ponds and slow-moving waters, diminishing native aquatic plants and increasing sedimentation.  <b>(Cal-IPC: High)</b>	<b>High.</b> Spread is by root sprouting from fragmented stems that float on water and can be distributed to new locations by water flow, boats, animals, water fowl, and dumping aquarium wastes.	<b>Difficult.</b> Mechanical removal can promote its spread by creating thousands of stem fragments. Herbicides are effective but must be applied at very specific application standards. Most effective approach is the use of bio-control agent (sterile carp), as authorized by CDFG.	<b>Unknown.</b> Has not been observed in the park but likely to occur in ponds and backwater areas of Mississippi Bar as well as in the perennial tributaries of Lake Natoma.	<b>Moderate.</b> If observed, a rapid response using chemicals could prevent it from spreading.
<b>Curly-leaf Pondweed</b>  <i>Potamogeton crispus</i>	<b>High.</b> Forms dense weed beds in lakes, ponds and slow-moving waters, diminishing native aquatic plants; decaying vegetation reduces dissolved oxygen.  <b>(Cal-IPC: Moderate)</b>	<b>High.</b> Spreads rapidly via reproduction of fragmented stems; also has viable seeds that float.	<b>Difficult.</b> (see Brazilian waterweed)	<b>Unknown.</b> Not observed in the park, but is likely to colonize aquatic habitats due to its presence in other regional water bodies.	<b>High.</b> If observed, a rapid response could prevent infestation.

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## APPENDIX C

### Native and Non-native Animal Control Guidelines for Folsom Lake State Recreation Area (SRA)

#### Pests and Nuisance Species

Control or removal of animal pests or nuisance species may be undertaken to reduce a threat to natural and/or cultural resources, public health or safety, park facilities or private property. Only limited removal of native species is normally justified. Alteration of facilities or visitor behavior, warning signs or other strategies may be preferable to control or eradication of animals. In the park, native species which can become a pest or nuisance include ground squirrels, yellow jackets, geese, raccoons and black bears. The level of management required for each of these species varies, depending on the degree of threat and the ecological value of the species. Management approaches are summarized below:

#### Animal Control - Native Species

Control and management of native wildlife species will only be undertaken when: unnaturally high population concentrations threaten native communities; to protect a special status species as part of a recovery plan; to protect human health and safety; to protect specific cultural resources; to protect property where it is not possible to change the pattern of human activities.

**California ground squirrel (*Spermophilus beechyii*).** This species can become a nuisance in situations where it has opportunities to readily establish burrows in close proximity to human activities such as picnic and campgrounds. In these situations, ground squirrels actively move among people seeking food remnants and handouts. Squirrels that are used to being fed become aggressive and will readily approach people, increasing the potential for people to be bitten or scratched. Squirrels in campgrounds will chew through tents, backpacks and styrafoam coolers to get to food. Ground squirrels can harbor bubonic plague which can be transmitted to humans by fleas carried on the squirrels.

Ground squirrels can also damage facilities, including wing dams and dikes, paved bike paths and concrete pads. Unnaturally high concentrations of ground squirrels in picnic areas and campgrounds can undermine and damage oak trees.

Ground squirrels are an important prey species for many of the park's predator species and its burrows provide important habitat for amphibian, reptile, bird and mammal species in the park. Therefore, management efforts should be limited to problem areas in the immediate vicinity of areas with a high level of human usage. These include campgrounds and picnic areas at Beals Point, and picnic areas at Granite Bay and Brown's Ravine.

Given the proximity to human use and activities many control methods used in agricultural situations are not appropriate. Currently park managers are utilizing pesticide bait stations designed to limit impacts to non-target species during the late fall or early winter when portions of picnic and campground areas can be closed to public use during the treatment. Risk to gray squirrels can be reduced by not pre-baiting outside the bait stations and by keeping bait stations at least 25 feet away from the base of foothill pines. Other design features help prevent impacts to mice and kangaroo rats. Park managers will update control methods as new information and strategies are developed regarding effective treatment of this pest in areas of human use.

It is not desirable nor feasible to eradicate ground squirrels in public use areas. The goal is to control unnaturally high concentrations of ground squirrels in these high public use areas.

- *Burrow Destruction.* In addition to eradicating squirrels in problem areas, it is important for park personnel to destroy vacated burrows because ground squirrels will reinhabit them. Old burrows should be destroyed by collapsing them with hand tools. Filling in the burrows with soil may not prevent re-invasion because ground squirrels will readily re-excavate and use the filled-in burrows. Prior to any such burrow destruction, all burrows should be inspected for the potential presence of burrowing owls, a special status species, following the guidelines discussed in policies GRASSLAND-2 and GRASSLAND-3 of the General Plan.
- *Signage.* Warning signs should be posted around picnic and campground areas, where warranted, advising visitors of the dangers of feeding ground squirrels.

**Yellow Jackets (*Vespula sp.*).** Yellow jackets attempt to forage among the food stuffs of day visitors in picnic areas and campgrounds. They constitute a hazard to picnickers because at times their numbers can be quite large and they will readily sting during their foraging activities and to defend their nests. When scavenging, wasps will crawl into empty soda cans

and bottles which can cause stings on the lips, or inside the mouth or throat. For most visitors, wasp stings produce a short-term, painful sensation but for persons who are allergic to bee and wasp stings, the reaction can be life-threatening.

Most social wasps such as yellow jackets provide a beneficial service by eliminating large numbers of other insect pests through predation. Therefore they should be controlled only in the immediate vicinity of picnic areas and campgrounds.

Park staff currently utilize “over the counter” wasp traps to control this species in high public use areas. The University of California-Davis Integrated Pest Management Program recommends the trapping of wasp queens.

- *Trapping of Wasp Queens.* This following trapping program is excerpted from the control methodology recommended by the UCD Integrated Pest Management Program:

“Trapping wasps is an ongoing effort that needs to be initiated in spring and continued into summer and fall, especially when the yellowjacket population was large the previous year. In spring there is a 30- to 45-day period when new queens first emerge before they build nests. Trapping queens during this period has the potential to provide an overall reduction in the yellowjacket population for the season, and a study is currently underway to test this theory in some California Mosquito and Vector Control districts. The more traps put out in spring on an area-wide basis to trap queens, the greater the likelihood of reducing nests later in the summer. Usually one trap per acre is adequate in spring for depletion trapping of queens; in fall, more traps may be necessary to trap scavenging wasps, depending on the size of the population. There are two types of wasp traps: lure and water traps.”

Lure traps, such as those commonly available at commercial outlets, can be effective queen traps if used during the late winter and early spring. In the summer and fall they may assist in reducing localized foraging wasps, but they will effectively reduce large populations. For lure traps to remain effective, they need to have this attractant bait changed frequently (every 2 months in the spring; at least once a month in the summer).

- *Elimination of Nests.* Population reductions may be achieved in association with the ground squirrel burrow removal program discussed above. The most common yellow jacket species in California is a ground nester that will commonly use rodent burrow, such as those created by ground squirrels.

**Canada geese (*Branta canadensis*) and other Waterfowl.** At Nimbus Flat, and to a lesser extent at other picnic grounds with turf areas in the park adjacent to water, Canada geese (*Branta canadensis*) as well as domesticated ducks and geese congregate to rest and browse. Many of these birds are resident Canada geese that do not migrate and nest in the area. The resident population of Canada Geese at Nimbus Flat has grown over the past decade. There are now approximately 300 resident geese that use the area. The growth of the population and the behavior of resident geese has been exacerbated by park visitors who feed these animals.

Most of the subspecies of Canada geese migrate to the arctic and sub-arctic to nest during the summer season. However, some geese do not migrate and nest in the lower 48 States and are identified as resident Canada geese. Resident Canada geese are considered a separate subspecies and are not known to interbreed with the various migratory sub-species. For a variety of reasons, resident Canada geese populations have increased dramatically in the past several decades. Resident Canada geese, particularly those in landscaped urban and suburban areas, have an abundance of preferred habitat (open grassy areas near water) with few predators and are accustomed to human presence. Human feeding of the geese exacerbates this problem.

The unnaturally high concentrations of geese and other waterfowl in public use areas can render turf areas unusable due to the amount of droppings which are a human health concern. There is also a concern that the feces from concentrations of waterfowl can degrade water quality, causing elevated fecal coliform levels, excessive algae growth, and eutrophication. Reclamation water quality monitoring has noted heightened levels of fecal coliform levels during certain periods. Further analysis has not yet been conducted to determine the cause of these heightened levels of fecal coliform. Additionally, domesticated geese and waterfowl that become accustomed to feeding by humans can behave aggressively and chase or bite park visitors.

In order to reduce these problems, signs have been posted at Nimbus Flat warning visitors to not feed waterfowl and advising of the water contamination caused by these animals. This strategy has not been effective in reducing the human feeding of waterfowl. Larger signs are likely needed along with additional education and enforcement actions, including issuing citations. State Parks may also consider obtaining a permit from the USFWS to control waterfowl populations in these locations. Canada geese are protected under the federal Migratory Bird Treaty Act and require a permit to conduct such activity. In conducting control strategies on resident geese populations there is a concern with impacting migratory Canada geese populations that will interact and overlap with resident populations during the fall winter and spring months. Population control strategies include harassment through the use of trained dogs, habitat modification (altering the turf areas), nest and egg destruction and trapping or culling adults.

**Other Nuisance Wildlife.** Raccoons (*Procyon lotor*) and skunks (*Mephitis mephitis*) become accustomed to the presence of people and can carry rabies. They are a potential problem at all the park's picnic and campgrounds. Black bears (*Ursus americanus*), which will raid campgrounds and can seriously injure campers, are a potential problem at the Peninsula campground. Management efforts should be directed toward reducing attractants to these species through public education and modification of camp and picnic ground facilities. The National Park Service, U.S. Forest Service and California State Parks have dealt with this issue for many years at numerous other facilities around the state and have developed well-tested techniques for reducing human encounters with bears, raccoons and other nuisance mammals. These techniques do not need to be repeated in detail here. However, in general, they include such techniques as posting of warning signs around campgrounds, informational brochures, use of bear-proof food storage lockers, bear-proof trash containers, regular campground policing and issuance of citations by park rangers. All of these techniques should be considered at the park.

## Animal Control – Non-Native Species

The presence of non-native species is inconsistent with the Department's mission to maintain native species and natural systems. Because it may not be feasible to eliminate all non-native species or all individuals, the decision to control these species should consider the current or potential impact on native species and habitats, the threat to human health and safety and the feasibility of control or eradication.

At this time, the exotic animal species of primary concern at Folsom Lake SRA are wild turkey, bullfrog, red-eared slider and domestic cat. These species have the potential to cause adverse changes to the structure and composition of native biotic communities in the park. A fourth species, wild pig, is not currently known to be present in the park, however it has the potential to migrate into the park and cause substantial harm should it become established.

**Wild Turkeys** (*Meleagris gallopavo*). The wild turkey is not native to California and was introduced outside the park as a game species by the California Department of Fish and Game (CDFG). Turkeys have spread from release sites to State Park property where they are protected from hunting, resulting in park units functioning as refuges for this exotic game species. DPR does not support the introduction of non-native species onto State Park System property. This species may cause ecological harm if their populations become so large that they may out-compete native species by diminishing available resources. As opportunistic omnivores, wild turkeys eat a wide variety of plants, seeds fruits, nuts, and insects which may deprive native animals of these same resources in some areas. A management plan should be developed for wild turkeys in the park. This will require baseline surveys on the size and distribution of the existing population. Park managers should contact the California Department of Fish and Game to coordinate development of such a management plan.

**Bullfrog** (*Rana catesbeiana*). This species is a highly successful competitor with and predator of native species in aquatic habitats. It has been a factor in the decline of California red-legged frog, a federally-listed threatened species, and may also cause significant harm to populations of other species of native amphibians, fish and aquatic invertebrates. Because bullfrogs are present in aquatic habitats throughout Folsom Lake SRA, it would be unrealistic and probably fruitless to attempt to control their population on a unit-wide basis. However, focused management of bullfrogs at specific locations such as Avery's Pond, Mormon Island Wetlands Natural Preserve and the ponds at Missisppi Bar may benefit native aquatic habitats.

Park managers may want to assess the feasibility and benefits of eradicating or controlling bullfrog populations at selected locations in the SRA. Criteria for evaluating implementing such a program include the benefit to native species and habitat and the feasibility of successful eradication. This bullfrog eradication evaluation could be conducted in conjunction with an analysis of the desirability and feasibility of restoring or re-introducing native frog species (red-legged or yellow-legged) or Western pond turtle. However, DPR has

specific criteria for re-introduction of native species including whether the population can be self-perpetuating, natural re-establishment is unlikely and re-introduction is likely to be successful, a full analysis of ecosystem effects has been conducted, the genetic integrity of the source population proposed for re-introduction, a restoration plan that includes long-term monitoring has been developed.

**Domestic Cat (*Felis catus*).** This common pet species can cause considerable harm to native bird and small mammal populations through its predatory behavior, and they compete with small native predators and feral cats can transmit diseases to pets. In Folsom Lake SRA, domestic cats belonging to residents in nearby subdivisions are likely to roam within oak woodlands, grasslands and riparian habitats that border the subdivisions. Feral populations of cats are also likely to be found in these areas. There are locations in the Park, particularly around Lake Natoma, where people regularly leave food on park property for feral cats. Feral cats are non-native species and DPR policy does not permit feeding or maintaining feral cat colonies on DPR property, including programs such as the trap, neuter, and release of feral cats. Park managers can help reduce the impact of these animals through a public education program conducted with homeowners associations, civic groups and local schools. Homeowners need to be made aware of the considerable harm that free-roaming cats do and the fact that indoor cats live longer, healthier lives than free-roaming cats. Park managers also need to work with the local Humane Society and county animal control agencies in developing a program to capture and remove feral cats from the Park.

**Red-Eared Slider Turtle (*Trachemys scripta elegans*).** These non-native turtles are the most common pet turtle and are released onto park property by owners who no longer want the pets. The exotic sliders compete with native Western pond turtles for food and basking spots and can introduce diseases to the native turtles. Sliders grow to be larger and tend to be more aggressive than native Western pond turtles. Sliders have been seen in Lake Natoma and are likely to be more abundant than the native Western pond turtle in the Park. Park managers should consider a program to educate visitors and the public about the adverse effects of releasing non-native turtles and other exotic species onto Park property and develop a program to capture and remove non-native red-eared sliders from the Park.

**Florida Water Snake (*Nerodia fasciata pictiventris*) or Southern Water Snake (*Nerodia fasciata*).** This non-native snake has been sighted and captured in the lower portion of Willow Creek and at the mouth of the Creek at Lake Natoma. They have been found further

upstream in the Willow/Humbug Creek watershed beyond the Folsom lake SRA boundary. The full extent of habitat or population of this snake has not been assessed in the SRA. It is presumed that the source of these exotic snakes is from the pet trade. The California Department of Fish and Game has proposed regulations to make it illegal to import, transport or possess the entire genus *Nerodia* (none of which are native to CA) without a permit in California. The snakes are live bearers and can produce up to 50 young. They prey on crayfish, salamanders, frogs and fish. There is concern that this exotic snake could pose a threat (disease, competition) to the federally listed native giant garter snake which occupies habitat downstream of Lake Natoma in the Sacramento Valley.

**Wild Pig** (*Sus scrofa*). This animal is not known to currently occur in Folsom Lake SRA. However, it has been known to occur in El Dorado and Placer Counties and has the potential to become established in the park. Once established, wild pigs can cause significant harm to native landscapes and wildlife populations. For example their feeding upon oak mast crop can lead to a decline in oak woodland regeneration and in the native species (e.g., deer, squirrels, bear) that also feed on acorns. Their grubbing behavior can seriously damage native vegetation and the nests of ground-nesting birds.

The most effective way to avoid the problems caused by wild pigs is to prevent their establishment from ever happening. Park managers should annually survey the park for evidence of wild pigs. Surveyors should look for the tell-tail signs of wild pig grubbing damage within random locations in oak woodland and savanna habitat. The surveys should concentrate in the areas that are most likely to be the points of entry for migrating wild pigs (*i.e.*, Peninsula, South Fork, North Fork areas).

## References

California Department of Fish and Game (CDFG). 2002. *Draft Strategic Plan for Wild Turkey Management*. Prepared by Scott Gardner, Wildland Programs Branch and the CDFG Wild Turkey Management Team. 32pp.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White(Eds.). 1990b. *California's Wildlife, Mammals. Vol. 3*. California Department of Fish and Game, Sacramento. 407 pp.

[www.ipm.ucdavis.edu/PMG/PESTNOTES](http://www.ipm.ucdavis.edu/PMG/PESTNOTES)

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**APPENDIX D: Management Guidelines for Specific Plant Communities by Management Zone**

Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park

General Plan/Resource Management Plan

	Management Zones																																							
	1. Nimbus Dam	2. Nimbus Flat/Shoals	3. Lake Overlook	4. Mississippi Bar	5. Negro Bar	6. Natoma Canyon	7. Folsom Powerhouse	8. Natoma Shore - North	9. Natoma Shore - South	10. Alder Creek/Pond	11. Lower Lake Natoma	12. Upper Lake Natoma	13. Beals Point	14. Mooney Ridge	15. Granite Bay South	16. Granite Bay North	17. Placer Shore South	18. Rattlesnake Bar	19. North Fork Shore	20. Anderson Island	21. Middle North Fork Shore	22. Peninsula	23. Darrington	24. Skunk Hollow/Salmon Falls	25. El Dorado Shore South	26. Brown's Ravine	27. Mormon Island Cove	28. Mormon Island Preserve	29. Folsom Point	30. Folsom Dam	31. Folsom Lake	32. Middle North Fork	33. Upper North Fork	34. Middle South Fork	35. Upper South Fork					
<i>Management Guidelines</i>		✓	✓	✓	✓	✓		✓	✓				✓	✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓									
– Conduct surveys for burrow sites in areas where improvements are proposed. Avoid burrow areas to the extent possible. Implement passive relocation protocols, if necessary.		✓	✓	✓	✓	✓		✓	✓				✓	✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
– Attempt to re-establish burrowing owl colonies by relocation efforts and establishments of artificial burrows.			✓	✓		✓			✓										✓				✓	✓	✓	✓		✓	✓	✓	✓									
<i>Loggerhead Shrike in Grasslands</i>																																								
– Conduct surveys during the nesting season in areas where improvements are proposed. Avoid nesting sites until after the young have fled.		✓	✓	✓	✓	✓		✓	✓				✓	✓	✓		✓	✓	✓				✓	✓		✓		✓	✓	✓	✓	✓								
<b>Ruderal, Barren, and Developed Area Management</b>																																								
<i>Burrowing Owl in Ruderal, Barren and Developed Areas</i>																																								
– Conduct CDFG-protocol surveys for burrow sites in areas where improvements are proposed. Avoid burrow areas to the extent possible. Implement passive relocation protocols, if necessary.	✓	✓	✓	✓	✓	✓		✓	✓				✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓		✓	✓				✓					
<i>Bats in Ruderal, Barren, and Developed Areas</i>																																								
– Conduct surveys to detect roosting locations in areas where improvements are proposed. Avoid roosting sites at least until the young have matured enough to fly.	✓	✓				✓	✓						✓		✓	✓									✓	✓	✓	✓		✓	✓				✓					
<b>Vernal Pool Protection and Management</b>																																								
<i>Vernal Pool Habitat Protection</i>																																								















## APPENDIX E: General Plan Implementation and Monitoring

Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park

General Plan/Resource Management Plan [*Note: Implementation and Monitoring Program to be completed after Plan adoption.*]

<i>Proposed Action</i>	<i>Responsible Agency/Group</i>	<i>Priority (High: 0-5 yrs. Med: 0-10 yrs. Low: 10+ yrs.)</i>	<i>Estimated Timeframe</i>
<b>Resource Management</b>			
PLANTS-2: Develop and implement vegetation management plans.		High	
PLANTS-3: Implement a prescribed fire program.		High	
PLANTS-6: Develop and implement invasive exotic plant management plan.		High	
WILDLIFE-4: Develop and implement strategies for heron/egret rookeries and roosting sites.		High	
WILDLIFE-8: Develop and implement nuisance wildlife species plan.		High	
HYDRO-1: Develop and implement a water quality protection program.		High	
CHAPARRAL-1: Prepare project burn plans for each burn unit upon approval of unit-wide plan.		High	
CHAPARRAL-4: Develop a seasonal access restriction plan for chaparral habitat areas during periods of high fire danger.		High	
WOODLAND-5: Use grazing instead of prescribed fires to control invasive exotic plant species where existing constraints preclude safe burning.		High	
VERNAL-2: Establish zones of protection around vernal pool habitat areas.		High	
VERNAL-8: Provide small boardwalks in Lake Overlook and Mormon Island Wetland Preserve locations for vernal pool habitat interpretation.		High	
MARSH/POND-1: Assign a representative to participate in Corps process of planning the restoration of Alder Pond.		High	
UPLAND-1: Develop a nuisance wildlife management plan in close consultation with Fish and Game.		High	
WATER-1: Develop a central water quality data sharing program.		High	
WATER-3: Expand bacteriological monitoring at swim beaches to ensure that they meet State standards for bacteria.		High	
WATER-4: Develop a Memorandum of Understanding with Office of Emergency Service or adjacent jurisdictions to ensure State Parks is notified of any sewage spill in the park.		High	
WATER-5: Establish a rapid response team in the event of a sewage spill in the park.		High	

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NIMBUSFLAT-7: Work with Bureau and the CSUS Aquatic Center to manage water quality in area of Nimbus Flat.		High	
POWERHOUSE-7: Locate and protect bat roost sites in the management zone from human disturbance.		High	
ALDERCREEK-1: Work with Corps, Alder Creek Coalition, and other agencies to determine future of Alder Creek and Pond.		High	
ALDERCREEK-2: Establish monitoring and removal program for water hyacinth in Alder Creek and Pond.		High	
GRANBAY/NO-3: Prohibit vehicle use outside designated roadways and provide designated low water access and parking areas in specific locations.		High	
GRANBAY/NO-4: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		High	
RATBAR-3: Prohibit vehicle use outside designated roadways and provide designated low water access and parking areas in specific locations.		High	
ANDERSON-1: Consider establishing exclusion zone around Anderson Island for watercraft during the nesting season.		High	
PLANTS-5: Explore re-introduction of rare and endangered plant species.		Med.	
PLANTS-7: Implement aquatic weed management program.		Med.	
WILDLIFE-3: Protect and restore important under-protected and sensitive habitat resources.		Med.	
WILDLIFE-5: Conduct field surveys in Conservation and Preservation areas for special status animal species.		Med.	
CHAPARRAL-6: Conduct special status plant surveys in chaparral habitat areas.		Med.	
WOODLAND-1: Conduct special status plant surveys in oak woodland habitat areas.		Med.	
WOODLAND-7: Use biological controls as a cost effective and safe means of controlling starthistle.		Med.	
VERNAL-4: Conduct annual sheep grazing or mowing to promote high quality vernal pools.		Med.	
VERNAL-6: Conduct special status plant and animal surveys in vernal pool habitat areas.		Med.	

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RIPARIAN-9: Enact a park-wide management protocol for valley elderberry longhorn beetle (VELB) habitat.		Med.	
RIPARIAN-16: Protect active or potential rookery locations from disturbance during the nesting season.		Med.	
RIPARIAN-17: Develop a public stewardship program to protect rookery sites during the nesting seasons.		Med.	
OVERLOOK-11: Protect and manage vernal pool habitat in the management zone.		Med.	
OVERLOOK-12: Close and block access to all informal trails running down bluff to Lake Natoma Bike Path and Nimbus Shoals.		Med.	
MISSISSIPPI-9: Protect and manage vernal pool habitat in Snipes-Pershing Ravine area.		Med.	
NEGROBAR-6: Consider reducing or removing the paved parking area above boat ramp.		Med.	
NEGROBAR-7: Restore upland area along shoreline at Rainbow Rocks to more natural conditions.		Med.	
NATSHORE/N-2: Eliminate off-trail access to shoreline areas for the purposes of natural resource protection and visitor safety.		Med.	
NATSHORE/S-10: Protect and manage heron/egret roosting area and rookery in the management zone.		Med.	
NATSHORE/S-11: Protect and manage vernal pool habitat in the management zone.		Med.	
FOLSOMDAM-7: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
BEALSPPOINT-5: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
MOONEY-3: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
GRANBAY/NO-5: Protect and manage seasonal wetland and vernal pool habitat in Doton's Point area of the management zone.		Med.	
PLACERSHORE-3: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	

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RATBAR-5: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
NORTHFORK-4: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
PENINSULA-7: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
PENINSULA-8: Re-establish natural fire cycle in chaparral areas of the management zone to improve habitat conditions.		Med.	
PENINSULA-10: Protect and manage chaparral areas of the management zone that are known or potential habitat for California horned lizard.		Med.	
DARRINGTON-4: Re-establish natural fire cycle in chaparral areas of the management zone.		Med.	
DARRINGTON-6: Protect and manage chaparral areas of the management zone that are known or potential habitat for the California horned lizard.		Med.	
DARRINGTON-7: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
SKUNK/SALMON-3: Re-establish natural fire cycle in chaparral areas of the management zone.		Med.	
SKUNK/SALMON-5: Protect and manage chaparral areas of the management zone that are known or potential habitat for the California horned lizard.		Med.	
ELDOSHORE-5: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
ELDOSHORE-6: Re-establish natural fire cycle in chaparral areas of the management zone.		Med.	
ELDOSHORE-8: Protect and manage chaparral areas of the management zone that are known or potential habitat for the California horned lizard.		Med.	
MORMONCOVE-3: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	

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MORMONPRES-5: Protect and manage vernal pool habitat in the management zone.		Med.	
MORMONPRES-7: Protect and manage the Preserve as a known or potential habitat for special status bird species, such as the Tri-colored blackbird.		Med.	
FOLSOMPOINT-10: Protect and manage areas of Valley Elderberry Longhorn Beetle (VELB) habitat in the management zone.		Med.	
WILDLIFE-7: Manage lake corridor zones for wildlife movement.		Low	
GRASSLAND-3: Re-establish burrowing owl colonies in suitable grassland habitat areas.		Low	
RIPARIAN-10: Enhance selected reaches of streams and lake shorelines for VELB habitat.		Low	
MARSH/POND-6: Deepen and manage Avery's Pond as one of three possible options relative to fisheries.		Low	
MARSH/POND-7: Collect monthly water quality data for the pond to properly evaluate restoration options.		Low	
NATOMA/LOW-1: Phase out use of gas engines in this portion of Lake Natoma.		Low	
NATOMA/LOW-2: Limit motorized use in this portion of Lake Natoma to electric trolling motors for public use.		Low	
NATOMA/UP-1: Phase out use of gas engines in this portion of Lake Natoma.		Low	
NATOMA/UP-2: Limit motorized use in this portion of Lake Natoma to electric trolling motors for public use;		Low	
RATBAR-4: Manage and enhance Avery's Pond as a warm water fishery.		Low	
<b>Interpretation and Education</b>			
INTERPRET-15: Interpret significant habitats and features in the park.		High	
INTERPRET-18: Interpret scenic views and landscape features at Lake Overlook, Negro Bar, Peninsula, and Observation Point.		High	
INTERPRET-19: Develop an updated Interpretive Plan for the park.		High	
INTERPRET-25: Develop a recreation map of the park displaying visitor facilities and interpretive features.		High	

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NIMBUSFLAT-8: Work with Bureau and Fish and Game to interpret proposed naturalized fish passage channel across Nimbus Shoals.		High	
NEGROBAR-3: Develop Negro Bar Cultural Center in consultation with Sacramento African American Cultural and Historical Society.		High	
POWERHOUSE-1: Complete implementation of 1992 Folsom Powerhouse Area Development Plan.		High	
NATSHORE/S-5: Reserve Museum Flat area of management zone as potential site for California Indian Cultural Center and Museum.		High	
RATBAR-6: Provide interpretive nature trail to Avery's Pond including displays related to various aspects of the area and pond.		High	
INTERPRET-17: Interpret landscape restoration efforts at Mississippi Bar and Negro Bar.		Med.	
MISSISSIPPI-16: Develop public education and interpretive programs related to restoration and ecosystem enhancement at Mississippi Bar.		Med.	
MISSISSIPPI-17: Provide interpretive nature trails and displays to interpret various aspects of area.		Med.	
FOLSOMDAM-3: Consider inclusion of a park visitor center as part of the consolidated administrative complex should existing facilities need to be relocated to accommodate western landing of proposed bridge across the American River.		Med.	
NATOMACAN-6: Consider restoration of old olive grove as a natural and cultural resource in the park.		Low	
<b>Recreation</b>			
VISIT-23: Work with Bureau of Land Management and El Dorado County to prepare and implement a whitewater facilities management plan.		High	
VISIT-30: Redistribute and redesign campsites in the park.		High	
VISIT-34: Prepare a Trail Master Plan for the park.		High	
VISIT-35: Establish a Trail Coordinator position in the Gold Fields District.		High	
VISIT-52: Prepare a map of trail system and make available to general public at park entrances.		High	

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VISIT-56: Develop a partnership program with local businesses or civic groups to sponsor trail projects.		High	
NIMBUSFLAT-10: Support creation of whitewater recreation water features in conjunction with removal of existing in-stream fish diversion structure in the American River and development of a naturalized fish passage channel across Nimbus Shoals.		High	
NIMBUSFLAT-3: Permit hand launching of paddling/rowing watercraft on the American River at Nimbus Shoals.		High	
MISSISSIPPI-23: Upgrade Snipe-Pershing pedestrian/equestrian trail as necessary to improve user safety.		High	
NEGROBAR-1: Relocate group campground to another location within park and convert vacated area for group picnic use.		High	
NEGROBAR-2: Provide a paddling dock at existing boat ramp for hand launching of paddling/rowing watercraft.		High	
NATOMACAN-1: Work with City of Folsom and Department of Corrections to identify preferred alignment for a new trail corridor extending from Powerhouse Loop trail east across Folsom State Prison lands to East Natoma Street.		High	
POWERHOUSE-4: Work with City of Folsom and owners of Lake Natoma Inn to identify preferred alignment for a new trail corridor extending from Lake Natoma Crossing to Historic Truss bridge.		High	
BEALSPPOINT-1: Relocate existing family campground to another location within park and convert vacated area for group camping use.		High	
BEALSPPOINT-2: Convert existing campfire center into a pavilion to support group camping experience.		High	
GRANBAY/SO-2: Replace existing lifeguard tower at main beach with a new building with adequate space classrooms and equipment storage.		High	
GRANBAY/SO-3: Replace existing activity center with an expanded and improved facility at same location.		High	
GRANBAY/NO-1: Establish a small trailhead at informal Twin Rocks Road/Boulder Road access.		High	
GRANBAY/NO-2: Designate and upgrade trails on newly acquired Hoffman property.		High	

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<i>Proposed Action</i>	<i>Responsible Agency/Group</i>	<i>Priority (High: 0-5 yrs. Med: 0-10 yrs. Low: 10+ yrs.)</i>	<i>Estimated Timeframe</i>
PLACERSHORE-1: Work with Placer County to explore potential for providing a small trailhead, including parking and trail information sign, at informal Los Lagos/Auburn-Folsom Road access.		High	
PLACERSHORE-2: Work with Placer County to establish a small trailhead at informal access at end of Horseshoe Bar Road.		High	
PENINSULA-1: Expand Peninsula Campground by 50 sites to accommodate capacity lost resulting from conversion of Beals Point Campground to group camping.		High	
PENINSULA-2: Provide shower facilities at Peninsula campground to enhance visitor comfort.		High	
PENINSULA-4: Provide small trailhead at Peninsula Campground.		High	
DARRINGTON-8: Upgrade Darrington pedestrian/mountain bike trail to improve user safety.		High	
SKUNK/SALMON-1: Establish new trail corridor from Skunk Hollow to potential U.S. Bureau of Land Management trail along western shoreline.		High	
ELDOSHORE-1: Designate and upgrade informal trail between Old Salmon Falls and Sweetwater Creek.		High	
ELDOSHORE-2: Provide a small trailhead at Sweetwater Creek area of Salmon Falls Road.		High	
ELDOSHORE-3: Provide a trailhead at Falcon Crest area of Old Salmon Falls.		High	
BROWNS-1: Increase slip capacity at Folsom Lake Marina by roughly 40 percent—or between 260 and 290 slips—by extending existing dock system.		High	
BROWNS-5: Eliminate dry boat storage at marina to increase parking capacity necessary to accommodate increased slip capacity.		High	
BROWNS-9: Prepare management plan for Brown's Ravine management zone to coordinate various planning efforts and establish a unified approach to future development.		High	
MORMONCOVE-1: Relocate existing trailhead facility at Mormon Island Dam closer to Green Valley Road and intersection with Sophia Parkway.		High	
MORMONPRES-1: Develop Class I bike path around perimeter of Mormon Island Wetland Preserve to direct interpretive visitor use to area perimeter while preserving area core.		High	

## APPENDIX E: General Plan Implementation and Monitoring

### Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park

General Plan/Resource Management Plan [*Note: Implementation and Monitoring Program to be completed after Plan adoption.*]

<i>Proposed Action</i>	<i>Responsible Agency/Group</i>	<i>Priority (High: 0-5 yrs. Med: 0-10 yrs. Low: 10+ yrs.)</i>	<i>Estimated Timeframe</i>
MORMONPRES-2: Upgrade existing trailhead at Preserve to improve interpretive access and visitor experience.		High	
MORMONPRES-4: Upgrade existing boardwalk trail in Preserve to enhance interpretation and education opportunities.		High	
FOLSOMPOINT-5: Work with City of Folsom to connect Class I bike path at Dike 7 to City's on-street bike lanes along East Natoma Street.		High	
VISIT-27: Establish a park visitor center to increase visitor awareness of recreational and interpretive opportunities.		Med.	
VISIT-40: Implement periodic trail user surveys to assist in trail system planning and management.		Med.	
VISIT-47: Increase access to park trail system by establishing new access points and formalizing previously informal access points.		Med.	
VISIT-64: Eliminate existing unauthorized access points and connections to park trail system.		Med.	
OVERLOOK-4: Develop a vista point/viewing platform.		Med.	
OVERLOOK-5: Develop a small picnic area with shade ramadas.		Med.	
OVERLOOK-6: Provide a trailhead including parking and trail information sign.		Med.	
MISSISSIPPI-18: Develop a picnic area with shade ramadas, flush toilets, and drinking water.		Med.	
MISSISSIPPI-19: Expand the existing system of paddling channels and lagoons as part of the area's restoration.		Med.	
MISSISSIPPI-20: Provide opportunities for flycasting in expanded system of paddling channels and lagoons.		Med.	
NATSHORE/S-13: Upgrade and enhance the Willow Creek day use area to improve overall function and appearance of the facility.		Med.	
GRANBAY/SO-1: Consider reconfiguration of boat ramps as a means of maximizing launch capacity and reducing congestion during peak times.		Med.	

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RATBAR-1: Develop picnic facilities, including a group picnic area, with shade ramadas and vault toilets.		Med.	
RATBAR-2: Explore potential of extending boat ramp further into Folsom Lake to improve low water access.		Med.	
NORTHFORK-1: Provide a trail bridge across North Fork to connect Pioneer Express pedestrian/equestrian trail on Placer County side of American River with proposed North Fork trail on El Dorado County side of river.		Med.	
NORTHFORK-2: Provide a trail bridge across North Fork to connect Pioneer Express pedestrian/equestrian trail on Placer County side of American River with Cool trail on El Dorado County side of river.		Med.	
NORTHFORK-3: Establish a new trail corridor from Peninsula area to proposed North Fork trail bridge.		Med.	
PENINSULA-5: Convert portions of abandoned roadways in area for trail use.		Med.	
SKUNK/SALMON-2: Prepare management plan including strategies to manage access, parking, queuing, and raft take-out at Skunk Hollow and Salmon Falls.		Med.	
BROWNS-6: Consider reconfiguration of marina and Hobie Cove boat ramps to maximize launch capacity and reduce congestion during peak times.		Med.	
BROWNS-7: Reconfigure marina parking area to provide designated queue lane and suitable turnaround area at main boat ramp.		Med.	
BROWNS-8: Consider development of multi-use facility for the primary purpose of water safety training.		Med.	
MORMONCOVE-2: Develop Class I bike path from trailhead at Mormon Island Dam to Dike 7.		Med.	
FOLSOMPOINT-1: Upgrade and enhance Folsom Point day use area to improve overall function and appearance of facility.		Med.	
FOLSOMPOINT-2: Reconfigure boat ramp to maximize launch capacity and reduce congestion during peak times.		Med.	

## APPENDIX E: General Plan Implementation and Monitoring

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General Plan/Resource Management Plan [*Note: Implementation and Monitoring Program to be completed after Plan adoption.*]

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FOLSOMPOINT-3: Consider development of a multi-use facility for the primary purpose of water safety training.		Med.	
FOLSOMPOINT-4: Provide a small trailhead at Dike 7.		Med.	
MISSISSIPPI-22: Improve the Shadow Glen equestrian facility to reduce operation impacts and enhance aesthetic quality.		Low	
FOLSOMPOINT-7: Develop multi-use facility at Observation Point for the primary purpose of public use and amenity.		Low	
<b>Operations</b>			
EVENT-3: Prepare a special event policy for the park.		High	
FLOOD-1: Pursue established mitigation funding under the Water Forum Agreement.		High	
FLOOD-2: Work with SAFCA to develop a Flood Response Plan for recreation facilities on Folsom Lake.		High	
ADA-1: Ensure that ADA access to facilities and activities in the park is provided to the greatest extent possible.		High	
CAPACITY-1: Establish a visitor capacity management program to monitor carrying capacity of each management zone and establish appropriate use limits for protection of park resources.		High	
MISSISSIPPI-2: Encourage Corps to excavate for borrow material on State-owned portion of Mississippi Bar instead of on federally-owned portion as proposed.		High	
MISSISSIPPI-6: Work with Corps to identify and acquire lands adjacent to park with blue oak woodland as a means of replacing loss of any similar habitat areas.		High	
MISSISSIPPI-8: Coordinate preparation of a Mississippi Bar Restoration Plan with Corps, SAFCA, and the Bureau.		High	
NEGROBAR-10: Study additional methods for protecting park users on Lake Natoma bike path from rockfalls along Natoma Bluffs.		High	

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NATSHORE/S-1: Work with Corps to identify most appropriate location in the management zone for borrow material storage and transfer.		High	
BEALSPPOINT-6: Provide a State Parks boat dock here or at Granite Bay.		High	
GRANBAY/SO-6: Provide dry boat storage facility for on-site storage of concessionaire and State Parks watercraft.		High	
GRANBAY/SO-7: Provide a State Parks boat dock here or at Beals Point.		High	
PENINSULA-13: Control access to area during periods of high fire danger.		High	
DARRINGTON-1: Assess eligibility of archaeological resources and sites along South Fork shoreline for classification as a Cultural Preserve.		High	
DARRINGTON-10: Control access to area during periods of high fire danger.		High	
SKUNK/SALMON-6: Control access to area during periods of high fire danger.		High	
ELDOSHORE-11: Control access to Sweetwater Creek trail area during periods of high fire danger.		High	
FOLSOMLAKE-5: Monitor boat noise levels during heavy use periods to document current conditions, determine need for adopted standards, and permit accurate assessments of potential noise effects from future boat-related development.		High	
NORTHFORK/MID-2: Monitor aquatic activity in area of Anderson Island Nature Preserve to determine need to establish an exclusion zone around island during nesting season.		High	
NORTHFORK/UP-1: Extend 5 mph zone south to Rattlesnake Bar from its current location just above Mormon Ravine.		High	
ACQUIRE-1: Acquire land for the purposes of protecting viewsheds, watersheds, significant or threatened habitat types or vegetation communities, and cultural resources.		Med.	
MISSISSIPPI-4: Work with Corps to ensure that area is completely restored consistent with the General Plan once excavation activities are complete.		Med.	
NATSHORE/N-1: Work with Sacramento Regional Transit District (RT) and City of Folsom to coordinate pedestrian and bicycle links between park and future LRT station.		Med.	

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FOLSOMDAM-1: Consider consolidating Gold Fields District office of State Parks, Mid-Pacific Region Office of the Bureau, and American River Water Education Center into one administrative complex if existing facilities need to be relocated to accommodate western landing of proposed bridge across the American River.		Med.	
BROWNS-10: Upgrade stormwater system at Folsom Lake Marina to accommodate increased flow volumes resulting from surrounding development.		Med.	
FOLSOMLAKE-1: Increase patrol and enforcement in key congestion areas during peak season weekends to provide a management presence, reduce potential for user conflicts, and increase awareness of aquatic safety and etiquette.		Med.	
FOLSOMLAKE-3: Conduct aquatic visitor surveys on Folsom Lake at regular intervals to monitor visitor use and satisfaction with both landside facilities and experience on the water.		Med.	
NORTHFORK/MID-1: Increase patrol and enforcement to provide a management presence, reduce potential for user conflicts, and increase awareness of aquatic safety and etiquette.		Med.	
NORTHFORK/MID-3: Monitor boat noise levels during heavy use periods to document current conditions, determine need for adopted standards, and permit accurate assessments of potential noise effects from future boat-related development.		Med.	
SOUTHFORK/MID-1: Increase patrol and enforcement in area to provide a management presence, reduce potential for user conflicts, and increase awareness of aquatic safety and etiquette.		Med.	
SOUTHFORK/MID-2: Monitor boat noise levels during heavy use periods to document current conditions, determine need for adopted standards, and permit accurate assessments of potential noise effects from future boat-related development.		Med.	
<b>Access</b>			
CIRCULATE-2: Use temporary electronic message boards on Douglas Boulevard and Folsom-Auburn Road for use when Granite Bay and Beals Point day use areas are at capacity.		High	
CIRCULATE-3: Prepare public service announcements for radio for use when day use areas in the park are at capacity.		High	

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CIRCULATE-10: Coordinate with local transit agencies to establish direct transit service to primary park gateways.		High	
CIRCULATE-11: Coordinate with local transit agencies, neighboring jurisdictions, and local businesses the feasibility of establishing a park shuttle service.		High	
CIRCULATE-14: Explore parking strategies and opportunities to minimize upland area used for parking.		High	
CIRCULATE-15: Explore alternatives for accommodating special event parking conditions.		High	
NIMBUSFLAT-2: Prohibit vehicle access to Nimbus Shoals. Block commonly-used access points and delineate pedestrian and boat access to water.		High	
NATSHORE/S-15: Work with Sacramento Regional Transit District (RT) and City of Folsom to coordinate pedestrian and bicycle links between park and future LRT station.		High	
CIRCULATE-8: Eliminate informal, illegal access to the park from private property.		Med.	
CIRCULATE-12: Explore options for accommodating water-based transit service on Folsom Lake such as water taxi or ferry service.		Med.	
MISSISSIPPI-24: Provide limited vehicle access and a small parking area in previously disturbed portion of area in vicinity of Sunset and Main avenues.		Med.	
BEALSPPOINT-4: Reconfigure and redesign vehicle entrance to improve visitor and emergency access, reduce congestion, and minimize neighborhood impacts.		Med.	
GRANBAY/SO-5: Reconfigure and redesign vehicle entrance to improve visitor and emergency access, reduce congestion, and minimize neighborhood impacts.		Med.	
<b>Scenic</b>			
VISUAL-2: Work with local jurisdictions to protect key park views from visual intrusion from surrounding development.		High	
VISUAL-4: Minimize existing elements that detract from visual quality and scenic character of the park.		High	

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### Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park

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VISUAL-9: Work with local jurisdictions to protect the park from adjacent existing and future ambient light sources.		High	
NEGROBAR-8: Remove or screen temporary storage container used by concessionaire at beach.		High	
POWERHOUSE-6: Complete various improvements to enhance overall aesthetic quality of Powerhouse area.		High	
NATSHORE/S-16: Remove or screen temporary storage container used by concessionaire at Willow Creek.		High	
GRANBAY/SO-9: Remove or screen temporary storage container used by boating concessionaire at main beach.		High	
EVENT-3: Prepare a special event policy for the park.		High	
VISUAL-1: Expand recreation and interpretation opportunities associated with visual and scenic resources of the park.		Med.	
NIMBUSFLAT-11: Provide additional landscaping along driveway to Nimbus Flat between entrance at Hazel Avenue and gatehouse.		Med.	
OVERLOOK-7: Provide additional landscaping along the park's northern boundary abutting residential development.		Med.	
OVERLOOK-8: Replace existing guard rail along entrance road and parking area with aesthetically pleasing alternative.		Med.	
OVERLOOK-9: Work with Bureau to relocate and replace security fencing along southern edge of parking area.		Med.	
OVERLOOK-10: Work with Bureau to screen its corporation yard located at foot of Lake Overlook.		Med.	
GRANBAY/SO-8: Reconfigure and landscape main beach parking area.		Med.	
GRANBAY/NO-6: Provide additional landscaping along park boundary at equestrian staging area in Beeks Bight to minimize visual intrusion of urban development.		Med.	

*Source: State Parks; Wallace Roberts & Todd, 2006.*

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## APPENDIX F

### Cultural Resources Management

#### *Cultural Resources Management Guidelines*

Appendix F provides additional detail for the cultural resources management guidelines provided in Chapter 3 of this Plan. This additional specific detailed information is referenced by the guideline number to which it pertains.

#### **CULTURE-1 – Archival Research**

- Archival research should also include a review of antiquated USGS topographic maps, Government Land Office survey notes and maps and Mexican Land Grant maps and records. Relevant insurance information and maps (e.g. Sanborn maps) should also be checked. In addition to DPR sources, these records and maps could be located at the Sacramento State University, University of California at Davis, the Bancroft Library at University of California at Berkeley, California State Archives, California State Library, Sacramento County Museum and Archives and at the Huntington Library in San Marino.
- Conduct a cultural resource record search at the NCIC every five years and disseminate the results to Reclamation and DPR.
- Conduct oral histories with long-time residents and informants as part of the archival research.
- An historical background of the American River watershed should be investigated and written. A special attempt should be made to find and collect records that pertain the American River watershed which predate the Gold Rush and Statehood. As part of the archival research and historical background, a comprehensive bibliography should be developed and included.

### **CULTURE-5: Survey**

For archaeological survey, the entire survey process should be documented in an Archaeological Survey Report (DPR 649). All survey locations and methodology should be recorded and mapped on topographic maps (or the GIS equivalent). Transect intervals should be described and the location graphically depicted on a topographic map. If pedestrian coverage was not possible in a certain location, the reason for the lack of coverage should be documented (e.g. impenetrable brush, sensitive plant or wildlife area, dangerous conditions). If parts of the survey include areas below high pool, records should document the water levels at the time the survey took place. If the survey is related to a proposed action or project, the survey must also be documented in an inventory report which contains the information Reclamation needs to conduct Section 106 consultation.

### **CULTURE-6: Site Verification**

- Known sites should be relocated. If a DPR 523 site record is old but contains all of the required documentation, a short narrative indicating its adequacy should be written on a Continuation Sheet (DPR 523 L) and attached to the site record. If known sites are inundated or could not be found, that information should be documented on a dated Continuation Sheet (DPR 523L) and attached to the site record.

### **CULTURE-6&7: Site Verification and Recordation**

- Define sites by type— prehistoric, historic or multi-component.
- Establish a datum and site boundaries for each site. Manually and electronically document the UTM coordinates of the site datum and site boundaries. All electronic data should be entered into a GIS database universally accessible to all land managers.
- If feasible, UTM coordinates of surface artifacts and features could be electronically recorded. Preliminary assessments about site integrity and research potential should be documented on the site record. Proximal sites, whether thought to be related or not, should be referred to in the site record by trinomial or field designation. Develop a comprehensive site location map that can be integrated into a GIS database.

- Single component sites that could possibly be eligible for a programmatic treatment (e.g. CARIDAP) should be identified.
- Develop detailed Site Sketch Maps (DPR 523 K) that include the location of the datum, surface artifacts and features, site boundary, legend and orientation. All Site Sketch Maps should be drawn to scale. The scale size should be written on the Site Sketch Map and illustrated by a bar scale.
- The site should be thoroughly photo-documented. At a minimum, the site datum, artifacts, features, site overview all should be photographed. Any site disturbance (impacts from development, vandalism, erosion) should be photographically documented and described in the site record and on an ASCAR form. Any vandalism or looting which occurs on federal property will be reported to Reclamation as a possible ARPA violation.
- Each artifact and feature should be recorded on its appropriate DPR 523 form. For example, a bedrock mortar should be recorded on the overall Site Record forms 523A and 523 C. Additionally, it ought to be recorded and drawn on a Milling Station Record form DPR 523 F. The location of the bedrock mortar should be on the Site Sketch Map. Diagnostic artifacts should be recorded on the Artifact Record form DPR 523H and, if possible, on the sketch map.
- A Site Location Map (DPR 523J) should identify the site location on a USGS topographic quadrangle map. The shape and size of the site should be in proportion with the scale of the topographic quadrangle map.
- Insure that sensitive cultural resource data is protected from inadvertent disclosure to the public. Appropriate firewalls and other measures need to be implemented to protect cultural resource GIS data. Personnel with access to this data need to be made aware of it's sensitive nature and the need to limit disclosure.

### **CULTURE-9: Recording Linear Features**

- Linear features should be recorded on DPR site record forms 523 A, 523 B, 523 E and 523 J. Using historic ditches as an example, the location of ditch specific features like ditch-switches, rock reinforced sections, elevational drops, flumed areas, holding ponds and the location of ditch tenders cabins should all be mapped, electronically located by GPS, and documented on the proper forms.

### **CULTURE-13&14: Cultural Resource Protection and Management**

- Prehistoric Resources. Using the data from the Cultural Resource Table developed as part of the Resource Inventory for this General Plan process, the known site location data needs to be plotted on USGS topographic maps or the GIS equivalents. All cultural resources sites should be avoided until these sites are fully recorded and evaluated. Prehistoric sites listed as “village,” “house floor,” house pit,” “midden,” “burial,” “cremation,” “flake scatter,” or those containing “beads” have the potential to be of particular sensitivity.
- Historic Resources. Using data from the Cultural Resource Table, developed as part of the Resource Inventory for this General Plan process, the known historic site location data needs to be plotted on USGS topographic maps or the GIS equivalents. All cultural resources sites should be avoided until these sites are fully recorded and evaluated. However, any sites listed as “foundations,” “cellars,” “stampmills,” “cabins,” “wells,” “town sites,” “grave depressions,” “mines,” “holding ponds,” or “bridges,” have the potential to be of particular sensitivity.
- Linear Features. Linear features, orchards, tailings, rock walls and trash scatters should be also preserved. Special attention should be given to diagnostic artifacts and features. Historic ditches and roads, which are currently being used as recreational trails and facilities, should be recorded. Breaches in linear features should be sanctioned at specific intervals- the location of which would be determined on a case-by-case basis. All breaches should be perpendicular to the linear feature. Buffer zones should be determined on a case-by-case basis and the features protected from damage. In general, tailings should be preserved and protected. The method of mining that created the tailings should be determined.

- Orchards. Orchards are historic features and should be recorded and researched. Many orchards contain heritage strains or varieties of trees that are no longer available. Since they have survived without care, these trees offer a unique opportunity to analyze and propagate hardy, often pest resistant strains that could increase our knowledge about biodiversity.
- Trash Scatter. If projects are proposed which have the potential to impact trash scatter sites, the site should be avoided, with an appropriate buffer to ensure no impacts occur. The trash scatter should be preserved until it can be analyzed and evaluated. Trash scatters should be analyzed by content with a vision towards potential temporal and cultural associations. Trash scatters are always associated with habitation, industry or transportation routes. All associated sites should be found and documented.
- Bedrock Mortars. Using the data from the Cultural Resource Table developed as part of the Resource Inventory for this General Plan process, all sites that are listed as bedrock mortars (BRMs) should be re-found. Attempts should be made to identify the associated living area. In all likelihood, the living areas would be closer to the ancestral American River that farther away. If reservoir water levels do not permit investigation, that information should be recorded on a Continuation Sheet and added to the site record. If possible, these locations should be investigated when water levels are propitiously low. If they are not investigated at low water, that information should also be recorded on a Continuation Sheet and attached to the existing site record. Depending on the project, site buffer zones should be established on a case-by-case basis and protected from damage.

### **CULTURE-23: Reclamation/DPR Agreement**

The agreement should:

- Describe the process by which compliance with all applicable State and federal cultural resource laws may be achieved in as efficient a manner as possible. For projects on State land, DPR is required to meet CEQA and PRC 5024 compliance requirements. For projects on federal land, Reclamation is required to comply with the National Historic Preservation Act and specifically the Section 106 process, ARPA, NAGPRA and NEPA. Specific information is required for each of these separate compliance processes. To the

extent that efficiencies can be found in the gathering and evaluation of information which will serve both processes, Reclamation and DPR should seek to realize these efficiencies.

- Describe the process which ensures Reclamation staff can comply with Reclamation Cultural Resource Policy, Directives and Standards including LDN P01, LND 02-02, LND 07-01, DM 411, and Museum Property Policy and Directives and Standards, once finalized.
- Develop a 5-year ARPA permit with the DPR District Archaeologist to conduct specific archaeological activities, for which an ARPA permit is required, within specific constraints and criteria to be defined in the permit. These activities would be those types of actions necessary for a professional archaeologist to perform in ongoing protection and management of archaeological resources at Folsom Lake SRA. Such activities may include may include collections of artifacts only when necessary to protect resources and under specific limits specific in the permit, shovel testing and other minimally ground disturbing activities necessary for cultural resources protection and management. Reporting requirements would be defined in the agreement. This permit would be reviewed and renewed, as appropriate, at the end of the 5-year period.
- Provide State Parks and Reclamation with a mutually agreed upon collection policy. See ARPA Permit above.
- Develop mitigation measures that are appropriate to the significance of the resource. This should incorporate the level of effect and a cost/benefit analysis.
- Describe how Reclamation will review State Parks' performance of archaeological projects and resource management within the park. It is recommended that the Agreement establish a periodic review process which requires meeting between Reclamation and State Parks no less than every two years.
- Identify methods and opportunities for consultation with Native American groups, historical and community organizations, and the public regarding cultural resources.

- Clarify the appropriate steps for the treatment of human remains, including any differences if the remains are found on State or federal lands. The requirements for State lands are found in Cal NAGPRA, California Health and Safety Code 7050.5, California PRC Section 5097. The requirements and process for Reclamation lands are specified in Reclamation Directives and Standards LND 07-01 (Inadvertent Discovery of Human Remains on Reclamation Lands), NAGPRA, and 43 CFR Part 10.
- Discuss how disputes will be resolved.
- Provide a procedure for amendment or termination of the agreement.
- Indicate where and under what conditions archaeological collections will be stored.
- Include a procedure for handling unanticipated discoveries.

### *Cultural Resource Laws and Regulations*

Cultural resources are considered part of the environment and the effects or impacts to cultural resources must be analyzed and disclosed as part of an environmental review prepared to comply with either the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA). NEPA is required for actions taking place on federal lands and CEQA is required for projects taken by State and local governments or for projects occurring on State lands. These laws are discussed elsewhere in this document. Below are federal and State laws specific to cultural resources.

#### **Federal Cultural Resources Law and Regulations**

##### *National Historic Preservation Act of 1966, as Amended.*

The National Historic Preservation Act (NHPA) of 1966, as amended in 1992, established the federal government's policy on the protection and preservation of significant cultural resources. The Section 106 process of the NHPA follows a series of steps that are designed to identify interested parties, determine the area of potential effects (APE), conduct cultural resource inventories, evaluate the significance of identified properties within the APE, and

assess adverse effects on historic properties. In the event that historic properties occur within the APE, the Section 106 process is generally completed with the signing of an agreement document to resolve adverse effects. Historic Properties are those cultural resources that are either listed or eligible for listing on the National register of Historic Places (National Register). The NHPA requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties. The steps in the process are described in the 36 CFR Part 800 regulations that implement the NHPA.

Native American tribes are participants in the section 106 process. The regulations require federal agencies to consult with federally recognized tribes to determine if sites of religious or cultural significance are present within the APE for a specific action. Non-federally recognized tribes may also have concerns and Reclamation involves such tribes as interested members of the public pursuant to 36 CFR Part 800.2(d).

The National Register recognizes historic properties that are significant at local, state, and national levels. The criteria for inclusion in the National Register are found at 36 CFR Part 60.4. In order for a cultural resource to be determined to be a historic property it must retain integrity and meet at least one significance criteria. A property must be:

- A. associated with events that have made a significant contribution to the broad patterns of our history; or
- B. associated with the lives of persons significant in our past; or
- C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. yield, or may be likely to yield, information important in prehistory or history.

*Archaeological Resources Protection Act.*

The Archaeological Resources Protection Act of 1979 (ARPA) regulates access to archaeological resources – defined as the material remains of past human activities which are over 100 years old – on federal lands and/or tribal lands administered by the federal government. ARPA restricts excavation or removal of archaeological resources on federal and/or tribal lands to individuals and groups with permits from the relevant federal land management agency. It also forbids the sale, purchase, exchange, transport, or receipt of any materials obtained in violation of ARPA. ARPA can be used by federal land-managing agencies to prosecute individuals suspected of illegal removal of archaeological items from public lands. Criminal and civil penalties are possible under ARPA.

*Native American Graves Protection and Repatriation Act.*

The Native American Graves Protection and Repatriation Act of 1989 (NAGPRA) provides that the ownership or control of Native American human remains and associated funerary objects excavated or discovered on Federal or tribal lands after November 16, 1990 belongs to the lineal descendants of the Native American buried or, if lineal descendants cannot be identified, ownership belongs to the tribe which has “...the closest affiliation with such remains or objects and which, upon notice, states a claim for such remains or objects.” (25 USC 3002 §3 (a)). When such remains are discovered on Federal or tribal property, NAGPRA mandates consultation between the agency that manages the property and the tribe which is associated with the remains. NAGPRA applies to Native American remains within the Unit that are found on federal land. Reclamation Directives and Standards LND07-01 describes the process for complying with NAGPRA for the discovery of NAGPRA item found on Reclamation land.

*American Indian Religious Freedom Act.*

The American Indian Religious Freedom Act states that Native Americans have the freedom to practice their traditional religions, “. . . including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites” (42 CFR 21 (I) § 1996). Under AIRFA, the lead agency on a proposed federal or federally-assisted undertaking should consult with area tribes about whether the undertaking will affect the access to religious practices.

*Archaeological and Historic Preservation Act of 1974 (Moss-Bennett).*

The Archaeological and Historical Preservation Act of 1974 (AHPA), also known as the Archaeological Data Preservation Act of 1974 (ADPA), directs federal agencies to report to the Secretary of the Interior undertakings which may cause the loss of “significant scientific, prehistorical, historical, or archaeological data;” it permits agencies to recover this data themselves or request that data recovery be conducted by the Department of the Interior; and it authorizes agencies to transfer up to one percent of the total cost of a project to the Department of the Interior to fund data recovery, although a waiver of this one percent cap can be obtained.

*Historic Sites Act of 1935.*

The Historic Sites Act of 1935 declared that it was a national policy “. . . to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States” (16 U.S.C. 461). It gives specific powers and duties related to cultural resources to the Secretary of the Department of the Interior and the National Park Service.

*Antiquities Act of 1906.*

The Antiquities Act provides for fining and imprisonment of individuals who “appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States,” without a permit issued by the agency with jurisdiction over the property in question. The act also authorizes the President to create national monuments and permits the issuance of permits for scientific and educational excavation of archaeological sites. Other laws have superseded many of the provisions of the Antiquities Act and it is currently primarily used to designate national monuments.

**California Cultural Resources Law and Regulations**

*California Native American Graves Protection and Repatriation Act (2001)*

This law ensures that all California Native American human remains and cultural items are treated with due respect and dignity. The act also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California. Likewise, the act outlines the mechanism with which California Native American tribes not recognized by the federal government may file claims to human remains and cultural items held in agencies or museums.

California Public Resources Code, Sections 5020-5029.5

This series of codes changes the name of the California Historic Landmarks Committee, which had been created in 1939, to the State Historic Resources Commission. In addition, the Commission defines the criteria for commission membership and commission duties; establishes policies and guidelines for the development of a yearly statewide historical resources list and historical resources plan; and develops methodology and criteria for determining the significance of archaeological sites. PRC section 5024.5 states “No state agency shall alter the original or significant historical features or fabric, or transfer, relocate, or demolish historical resources on the master list maintained pursuant to subdivision (d) of Section 5024 without, early in the planning processes, first giving notice and a summary of the proposed action to the officer who shall have 30 days after receipt of the notice and summary for review and comment.” If potential adverse effects are not properly considered, “the officer shall report to the Office of Planning and Research for mediation in instances of state agency refusal to propose, to consider, or to adopt prudent and feasible alternatives to eliminate or mitigate adverse effects on historical resources on the master list as specified in subdivision (f) of Section 5024.” Implicit in this code is that any identified historic or prehistoric resource is potentially eligible for the national and state registers even if it has not been evaluated for significance.

California Public Resources Code, Section 5097.9

Procedures are detailed under California Public Resources Code (PRC) Section 5097.9 for actions taken whenever Native American remains are discovered. No public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require. The commission, pursuant to Sections 5097.94 and 5097.97 shall enforce the provisions of this chapter.

California Health and Safety Code, Section 7050.5

Every person who knowingly mutilates, disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public

Resources Code. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission.

## Appendix G: Acknowledgements

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