

Issues (and Supporting Information Sources):

IV. BIOLOGICAL RESOURCES -- Would the project:

	<i>Potentially Significant Impact</i>	<i>Potentially Significant Unless Mitigation Incorporation</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SETTING

MCARTHUR-BURNEY FALLS MEMORIAL STATE PARK, BOWMAN DITCH, AND AHJUMAWI PROPERTY

The McArthur-Burney Falls Memorial State Park is located on the shore of Lake Britton, the storage reservoir of a PG&E Hydropower (Pit 3) Powerhouse. This 15,137-acre park, established in 1926, includes a 128-unit campground, a day use area and store near the falls on Burney Creek, a tributary to Lake Britton.

The Burney Falls PG&E Property, proposed for transfer for inclusion in the park, is approximately 182 acres and extends about two miles from east to west along the south shore of Lake Britton and up to about one-quarter mile south from the shoreline. The Park and State Highway 89 at the easterly extension bound the Property on the south. This shoreline Property is

used primarily for water based recreation, and includes a parking area, floating boat docks, camping areas, and a small beach.

Natural habitat in the area includes mostly steep slopes with fairly dense stands of old growth mixed conifers, and annual and perennial grasses on the more level grounds, especially along the shores of Lake Britton. Most of the 182-acre Property is developed for recreation and offers little natural wildlife habitat. Surrounding land and waters, however, offer considerable natural biological resources.

Six occupied bald eagle nests are located along the shores of Lake Britton – one is within the Burney Falls Property. This resident eagle population has been studied and monitored since 1983. Numerous reports and publications have resulted from these studies (citations are available in the PG&E PEA: 4-28-29). Other special status birds, including spotted owl, osprey, and great blue heron, are known to nest and forage in the area.

Lake Britton, a 1,264-acre hydropower storage reservoir in the Pit River drainage, provides habitat for a mixture of introduced and native fish species. PG&E (PEA, 2000) notes twelve native fish species as present in Lake Britton. Of these, four are considered of special status: bigeye marbled sculpin, rough sculpin, pit roach, and hardhead (PG&E, PEA 2000); of these, the first three are endemic only to the Middle Pit Drainage. Native steelhead and Chinook salmon once were found in the Pit drainage, but have been largely extirpated from the area by downstream impoundments (e.g., Shasta Lake). Game fishes in Lake Britton are mostly introduced species and include rainbow and brown trout, largemouth and smallmouth bass, and channel catfish. The fantail crayfish is native to these waters, but it is suspected that the signal crayfish has displaced them. Shasta crayfish, a state and federal endangered species, is documented from multiple locations upstream of Lake Britton (see setting for McArthur Swamp land transfer below for more on Shasta crayfish).

Bowman Ditch and the Ahjumawi Property are within Ahjumawi State Park, except at the southern end of Bowman Ditch, where it abuts private property as it drains into the Little Tule River. Bowman Ditch is a four-acre strip of land containing a “ditch,” which was constructed sometime in the early 1940s to collect and transfer water from several streams in the area into the Tule River. The purpose of Bowman Ditch is to enhance water flow for downstream hydropower production.

Ahjumawi State Park is on the north shores of Big Lake, Tule, and Little Tule rivers. Ahjumawi State Park, established in the 1970s, is approximately 5,890 acres of rugged volcanic lava flows, grasslands, and open water areas. The Park is managed for a primitive recreational experience; vehicle travel, hunting, and livestock grazing are prohibited within Ahjumawi State Park.

Levees were constructed along the Tule River to enhance water flow and reduce flooding in Ahjumawi State Park. Similar levees are on the other side of the Tule River to protect other PG&E lands that are part of the land transfer Project (i.e., McArthur Swamp, as described below). A levee break in 1997 flooded much of the Ahjumawi Park, including portions of the 544 acres

proposed for transfer as part of the land transfer Project. The levees are not currently being repaired or maintained because of the presence of Shasta crayfish, and the resulting flooding has provided an opportunity to return of the property to its natural, wetland habitat condition.

The lands and waters of Bowman Ditch and the Ahjumawi Property provide natural habitat for a variety of aquatic, wetland, and upland species. Uplands are predominantly annual grasslands, which provide habitat for a variety of small mammals such as voles, mice, rats, and rabbits. These animals provide valuable prey for an abundance of raptors found in the area. Bald eagle, osprey, prairie falcon, red-tailed hawk, and rough-legged hawks are known to forage in the area.

The waters of the Tule River and Bowman Ditch provide habitat for several fish and aquatic invertebrates of special importance. Special status aquatic species found in waters adjacent to the Properties include three fishes, two mollusks, and one crustacean. Particular interest in the crustacean -- the Shasta crayfish, which is listed as an endangered species with both sand federal fish and wildlife agencies -- has created controversy over levee repairs in the vicinity including those protecting the Ahjumawi Property (See Shasta crayfish discussion below from McArthur Swamp discussion).

MCARTHUR SWAMP AND GLENBURN DREDGE SITE

The McArthur Swamp Property is a 7,400-acre parcel of land and water in mountainous northern California lying across the Tule River from the Ahjumawi Property described above. Like much of the Ahjumawi Property, the site was originally a large wet meadow-fringed marsh -- fed by a network of springs that form the headwaters of the Fall River, a tributary to the Pit River, which is a major tributary to Lake Shasta. These original wetlands were diked from water flow and became grasslands.

Currently, the McArthur Swamp Property consists of the following habitats: about 6,000 acres of terrestrial habitat consisting primarily of grasslands and wet meadow (protected from seasonal and permanent inundation by the levee) and about 1,400 acres of open water, including primarily Big Lake, Tule River, and some canals. Grasslands are maintained through managed grazing on most of the property. A portion of the area -- about 670 acres -- is part of the FERC license lands and is not grazed. This area, known as WHIP (Wildlife Habitat Improvement Project) is not grazed and has developed into a wet meadow habitat.

The McArthur Swamp Property provides a mix of relatively undisturbed aquatic, wetland, and upland grassland habitat for a variety plants and animals. Waterfowl are particularly abundant in this area due to the availability of wide, sluggish waters with high productivity adjacent to open meadow and grassland habitat.

An abandoned muskrat farm that once existed on the McArthur Swamp property has enabled establishment of a feral muskrat population at the site. This population apparently found suitable habitat in the network of dikes and waterways that interconnect uplands and aquatic resources of

the area. Though considered a nuisance species, state law prohibits trapping and removal of this population from the area.

Birds use the area extensively for both year-round and seasonal habitat. The aquatic resources, including lakes, rivers, and canals found throughout the area, provide an extensive network of waterfowl habitat. The site is renowned as a migratory and foraging site for at least 20 waterfowl species. These waters and abundant riparian habitat also provide valuable foraging for bald eagle and osprey, which feed primarily on fish and other aquatic fauna.

Managed with a patchwork of fences, the approximately 6,000 acres of grasslands are grazed with cattle on a rotation system designed to maintain grassland characteristics favorable to wildlife of the area, with special interest in waterfowl nesting and rearing habitat enhancement. The MSMP states that this effort has not been entirely successful due to limited water availability. These grazed grasslands provide foraging opportunities for a number of raptor species including prairie falcon, golden eagle, red-tailed hawk, rough-legged hawk, northern harrier, ferruginous hawk, and Swainson's hawk. These grassland raptors forage primarily on small mammals, although other small terrestrial prey such as reptiles may be taken; prairie falcons also capture smaller birds in flight over open areas.

ESA staff observations of the McArthur Swamp Project site in January 2001, indicated an uncommon abundance of raptors on the project lands. Rough-legged hawks seemed particularly plentiful. Other raptors observed in lesser numbers included red-tailed hawk, prairie falcon, harrier, and bald eagle. From these observations, it was apparent that the grasslands at the McArthur Swamp property is a well-used winter raptor foraging area, and that the project may provide particularly good habitat for rough-legged hawks. The importance of the area for other raptors at other times of year is not known, but PG&E (PEA, 2000) states that 19 species of raptors are known to use the site.

The sluggish, spring-fed lakes and rivers of this low-lying area support productive aquatic fauna represented by both native and introduced species as identified in the PG&E Environmental Assessment, Tables 4.7-2 and 4.7-4. The Fall River population of rainbow trout is renowned for large specimens and attracts fisher persons from other areas. Other native fishes found in the waters adjacent to the McArthur Swamp area include three species of sculpin (Cottidae), Pit-Klamath brook lamprey, Sacramento sucker, and several native minnows (Cyprinidae). The area waters also contain numerous introduced species that have affected the aquatic ecology of the area, including contributing to declines of some native species. Non-native fishes in the area include smallmouth and largemouth bass, brown trout, carp, mosquitofish, catfishes, bluegill and crappie.

Many of the fish and other aquatic organisms found in the area are endemic, rare, and/or special interest. Special status aquatic species include three fishes, two mollusks, and one crustacean, the Shasta crayfish as noted in PG&E Environmental Assessment, Table 4.7-4. Considerable attention to the Shasta crayfish has been associated with the PG&E Pit River hydro project.

A “Recovery Plan for the Shasta Crayfish,” prepared by the USFWS, gives details of the species’ ecology, and historical and current status (USFWS, 1998a). The USFWS is currently preparing a Biological Opinion for the FERC license, which includes an amendment that will allow the McArthur Swamp land transfer. There is reportedly a close association of this species’ decline to levee construction and maintenance, as well as other water development and activities in the area (USFWS, 1998a). USFWS is concerned that the land transfer and potential subsequent actions might affect Shasta crayfish, and has not endorsed the PG&E MSMP and proposed land transfer. Because of potential effects to, and regulatory concern for, Shasta crayfish in relation to the proposed McArthur land transfer, the following discussion provides more information of Shasta crayfish in relation to McArthur Swamp and associate levees and proposed ownership transfer.

Shasta Crayfish

The Shasta crayfish historically occurred only in the waters of the Fall River and Pit River drainages. They evolved as a distinct species specializing in inhabiting the cool, spring-fed waters percolating from the lava substrate that predominate in many areas of the watersheds where they are found. They are generally found only where there is lava substrate and year-round cool spring-fed waters; these factors limit their distribution to several distinct, and geographically separated, sub-populations, even within their overall historical range.

Shasta crayfish are now limited to even smaller, and more geographically separated, sub-populations. Habitat loss and interactions with the signal crayfish (Light et al. 1995) have displaced several historical populations. Many historical activities associated with levee maintenance and water use in the area are reported to have contributed to the endangered status of this crayfish. Other factors reported as contributing to the species’ decline include competition and predation by introduced species (most notably, the signal crayfish), habitat losses from work in the river, water flow alterations, and population fragmentation from construction of several dams within their historical range (USFWS, 1998a). The continued invasion of signal crayfish is likely the greatest continuing threat to the Shasta crayfish.

Some of these sub-populations are currently in greater risk of extirpation than others. A major factor is the status of signal crayfish invasion. One of the sub-populations is located in the vicinity of McArthur Swamp. This sub-population is cited as the “Upper Tule River Population” in the Recovery Plan (USFWS, 1998a). Shasta crayfish from this population are found in small groups along the McArthur Swamp levee, as well as across the river adjacent to Horr Pond and in Big Lake. Big Lake, which is bordered on the south by the McArthur Swamp levee, contains one of the few areas with Shasta crayfish where signal crayfish have not yet been found. Protection of this sub-population from signal crayfish invasion would be valuable, if not necessary, for continued existence of Shasta crayfish.

The current Clean Water Act, Section 404 permit that specifies conditions for maintenance of the McArthur Swamp Levees includes a Biological Opinion from the USFWS on potential effects of levee maintenance on the Shasta Crayfish (COE, 1998). This Biological Opinion concluded that levee maintenance would not jeopardize the existence of the Shasta crayfish if various mitigation

measures, as defined within the permit conditions, are incorporated into the maintenance activities.

The USFWS is currently preparing a Biological Opinion for the Federal Energy Regulatory Commission (FERC) relicensing of PG&E hydropower facilities in the area. The FERC relicensing addresses numerous issues related to continued operation of the Pit hydropower units, including downstream flows and habitat enhancement that potentially affect Shasta crayfish. This FERC relicensing, as proposed, would include implementation of the McArthur Swamp, and other, land transfer projects. There are, however, no activities other than levee maintenance and improvement that would be associated with the MSMP and thus with the land transfer aspect of the FERC license, that would potentially affect Shasta crayfish. The USFWS Biological Opinion for Shasta crayfish regarding the FERC relicensing is not expected to identify any new information or requirements regarding levee maintenance and repair that has not already been given in the Biological Opinion for the COE Clean Water Act permit discussed above (personal communication, Gary Taylor USFWS, personal communication, 2001).

REGULATORY SETTING

State and federal laws and regulations related to biological resources for the above-described land transfer properties include the following:

- The *Federal Endangered Species Act (ESA)* protects plant or animal species designated by the USFWS or National Marine Fisheries Service (NMFS) as either endangered, threatened, or of special concern. The current list of designated species protected by the ESA includes several species found in the area as noted above. Proponents of projects that may affect listed species are required to consult with the appropriate agency regarding potential adverse impacts and mitigation development. A Biological Opinion, in accordance with ESA Section 7, was prepared by USFWS for potential adverse impacts to the federally endangered Shasta crayfish; this was required through a Clean Water Act permit required by the Corps of Engineers (see Clean Water Act below) for levee maintenance adjacent to the McArthur Swamp and Ahjumawi Properties.
- The *Federal Power Act*, administered by FERC, required licensing of hydropower facilities; the licensing process requires associated compliance with a variety of federal laws including various other environmental laws and regulations noted below, including the Fish and Wildlife Coordination Act, which allows federal and state natural resource agencies to participate in the licensing process. Much of the lands addressed in this land transfer Project are included in FERC licenses for PG&E projects in the area. Transfer of the FERC-administered properties from PG&E to CWA, as proposed in the McArthur Swamp land transfer, would require FERC approval and amendments to the existing license conditions. The FERC relicensing process is currently awaiting completion of a Biological Opinion by USFWS on the effects of the proposed FERC relicensing on the Shasta crayfish.
- The *California Endangered Species Act (CESA)* protects plant or animal species designated by the Fish and Game Commission as endangered, threatened, or of special concern. The current list of designated species protected by CESA includes several species found in the area as noted above. Proponents of projects that may affect listed species are required to consult with the CDFG regarding potential adverse impacts and mitigation development. Many of the species found in and around the Project Lands are covered by CESA as noted above.

- The *California Native Plant Protection Act* directs the CDFG to preserve, protect, and enhance endangered plants in the state. CDFG designates native plants as endangered or rare, and requires permits for collecting, transporting, or selling such plants. This law parallels CESA protection for endangered and threatened plant protection, and adds protection for plants that are also “rare.”
- The *Clean Water Act, Section 404, (CWA)* is administered by the USACOE and is intended primarily to protect water quality and water resources. Regulations developed pursuant to this act provide extensive protection to wetlands for both hydrologic and ecological functions. Maintenance of the levees along the Properties noted above requires USACOE permits through this regulation. The current COE permit for levee maintenance was issued in 1998. This permit includes measures to mitigate potential effects of levee maintenance on the federally endangered Shasta crayfish.
- The *Migratory Bird Treaty Act* regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR 10.13. This Act applies to birds that migrate through more than one country and is enforced by the USFWS. The Act was amended in 1972 to specify protection for migratory birds of prey (raptors). Most of the raptors and waterfowl found at the project site would be protected by this Act. Rough-legged hawks, for example, nest in the Arctic, and migrate across Canada into winter foraging areas in the United States.

BIOLOGICAL RESOURCES IMPACTS DISCUSSION

MCARTHUR-BURNEY FALLS MEMORIAL STATE PARK, BOWMAN DITCH, AND AHJUMAWI PROPERTY

The land transfer at McArthur-Burney Falls Memorial State Park does not include any actions that would affect Biological Resources. Transfer of the property would not change the existing land use or habitat related to fish and fauna found at or adjacent to the property.

The land transfer associated with Bowman Ditch would affect biological resources. The transfer would result in termination of the ditch maintenance. This would allow succession along the ditch to eventually establish greater wetland vegetation along the ditch border. This would not result in any significant impacts. There are no known special status species inhabiting the ditch that would be displaced by this transition. The area affected is very small – probably less than an acre of habitat would be altered.

The land transfer associated with the Ahjumawi Property does not include any actions that would change existing conditions or affect Biological Resources. Transfer of the property would not change the existing land use or habitat related to fish and fauna found on or adjacent to the property. The Transfer prevents the repair of existing failed levee system resulting in the habitat. The Property also includes grassland habitat on lands above the line of inundation. The lands and waters of the Ahjumawi Property provide natural habitat for a variety of aquatic, wetland, and upland species. Uplands are predominantly annual grasslands, which provide habitat for a variety of small mammals such as voles, mice, rats, and rabbits. These animals provide valuable prey for an abundance of raptors found in the area.

The current Ahjumawi Property is isolated from human use and not grazed. The un-grazed nature of this property allows grass height that probably does not provide valuable raptor forage for

grassland species common on the McArthur Property, although some raptor species such as the northern harrier are adapted for foraging in tall grasses and probably use this area. The harrier can also forage effectively in the existing wetland meadow habitat. The wetland habitat also provides more productive habitat for several birds, including many waterfowl that are found in the area. Continuing the policy of not repairing levees is expected to benefit aquatic species including the Shasta crayfish.

MCARTHUR SWAMP AND GLENBURN DREDGE SITE

Over the five year period following the transfer of McArthur Swamp to CWA, the MSMP calls for CWA, and its successors, to take specified actions to stabilize levees, improve wildlife habitat, and improve grazing and vegetation management. Actions specified in the MSMP that might affect Biological Resources include the following:

Improvement of McArthur Swamp Levee

Approximately 4.8 of 5.8 miles of levees along the south shore of Big Lake and the south and east banks of the Tule River will be improved from the landside of the levees to assist an effective long-term levee maintenance program. The levee and road will be widened and strengthened to reduce the risk of muskrats' burrows undermining the levee and causing a breach.

Development of Fresh Emergent Wetlands

The MSMP calls for development of over 700 acres of fresh emergent wetlands, primarily in two places, Hollenbeak Field and Ash Field Pond. Approximately 670 acres of this work would occur in Hollenbeak Field WHIP lands which are currently un-grazed and have developed into a wet meadow habitat. This area is primarily vegetated by bulrush. The 30-acre portion of Ash Field Pond is currently grazed grasslands. Development and management as wetlands will involve re-contouring some of the land, adding water control structures, and adding fences to prevent authorized grazing from interfering with propagation of waterfowl or the production of waterfowl forage plants.

Development of Reverse Cycle Wetlands

CWA will construct two ponds in fenced areas. Each pond would be approximately 10 acres in size, with additional acreage set aside for brood habitat. Fencing will be used to limit livestock access to the area of the ponds. The MSMP also calls for habitat preservation and enhancement in an area surrounding an existing pond referred to as the "Rat Farm Pond." Improvement of this area will be achieved through fencing, vegetation management, and limiting grazing.

Development of Nesting Habitat

Development of nesting habitat will occur primarily on two areas, totaling about 254 acres, of McArthur Swamp. Fencing and reduction or elimination of grazing will be used to protect and foster nesting habitat.

POTENTIAL EFFECTS FROM THESE ACTIONS

Maintenance and Improvement of McArthur Swamp Levee

Levee maintenance activities would be required to prevent flooding on the McArthur Swamp grasslands. Maintenance and improvement of McArthur Swamp Levee could create temporary impacts on aquatic and terrestrial organisms located immediately adjacent to the levees. Levee repair and maintenance can affect aquatic species through water quality degradation, from the release of organic and other suspended solids into the water column, and from substrate smothering or disturbance, which can displace suitable habitat or directly harm individual specimens. Bottom dwelling, sessile or slow moving organisms, such as mussels, clams, and crayfish are particularly susceptible to these impacts. Levee maintenance has historically included dredging for levee materials. This activity could substantially adversely affect special status aquatic organisms and their habitat in the vicinity of the McArthur Swamp property, including the endangered Shasta crayfish.

A 1988 Corps of Engineers permit, authorizing placement of fill material in the Tule River for levee maintenance and repair includes a variety of special conditions which include conformance with a USFWS Biological Opinion on levee maintenance for the Corps permit (COE, 1998). The Biological Opinion concluded that levee maintenance, with conditions, is not likely to jeopardize the continued existence of the Shasta crayfish. This conclusion includes several terms and conditions to minimize and avoid effects to Shasta crayfish (USFWS, 1998b). These conditions include the following:

- elimination of further dredging near existing Shasta crayfish populations;
- use preferred Shasta crayfish substrate (i.e., lava cobble) for in-water levee fill materials;
- use of an approved biologist to assist and monitor levee repairs to minimize disturbances to Shasta crayfish; and
- planting of native riparian vegetation on the levees.

These conditions are required by the Corps permit. The MSMP, as proposed, would include conformance with the Corps permit for required levee maintenance conducted following a land transfer. These conditions would mitigate potential negative effects of levee maintenance on the Shasta crayfish as follows:

- Dredging for levee repair materials are actions, which would likely affect water quality and cause habitat degradation, prohibited near existing Shasta crayfish populations. This prohibition should avoid water quality impairment and habitat degradation that would likely adversely affect Shasta crayfish populations or their habitat.
- Materials placed in the water for levee repair or improvement would be less favorable for Shasta crayfish habitat (i.e., lava cobble), avoiding the creation of substrate habitat unsuitable

to Shasta crayfish than imported materials, and thus minimize continued degradation of Shasta crayfish habitat near their existing populations.

- Any in-water work would be monitored and follow the guidance of an approved biologist. This measure would minimize the potential for activities to harm individual Shasta crayfish that might be located within an impact zone.
- Native vegetation would be planted on the levees. This measure would stabilize levee soils and reduce erosion and subsequent water quality and habitat effects that might adversely affect Shasta crayfish or their habitat.

Water Delivery and Management

The installation of irrigation water well and delivery lines, construction of water diversions, and control structures will create short-term, ground-disturbance impacts to any species inhabiting the areas directly disturbed. The affected areas are not large, and long-term habitat modification would not be substantial. Construction activities would be of short-term and should not substantially affect any nearby wildlife populations.

Create Wetlands to Enhance Waterfowl Production and Development of Waterfowl Nesting Habitat

The contouring, fencing, grazing management plan, and water management outlined in the MSMP designed to improve waterfowl reproduction will alter terrestrial habitats present in these areas. Three aspects of the waterfowl habitat enhancement would result in direct displacement of habitat or organisms. 1) Construction of two ten-acre ponds for waterfowl use would displace terrestrial organisms currently occupying these areas. 2) Creating short-grass to provide ideal goose grazing habitat may change the species composition of terrestrial organisms currently occupying those areas. 3) Creation of approximately 700 acres of seasonally flooded wetlands and other fringe wetland habitat along the levees and adjacent to the two ponds noted above would alter availability of those areas to species currently occupying those areas.

None of the direct habitat effects noted above, although almost certain to occur, are substantial. Small mammals potentially affected would include voles, shrews, mice, rats, and rabbits. Although alterations in habitat and species structure may occur from these actions, none of the known species or other potential inhabitants of the affected areas are likely of special status.

The following potential effects to Biological Resources are those that occur not from direct displacement, but from potential offsite effects on species resulting from habitat alterations:

Water Quality Effects

Increased waterfowl productivity in the areas that are currently grasslands will increase the potential for water quality degradation from accumulations of waterfowl feces. The area is already a very productive waterfowl area. The waters of the area are spring-fed. Rivers are sluggish, with little seasonal runoff scouring, and many ponds and lakes occur in the watershed.

The upland grasslands where waterfowl habitat is proposed may not have adequate flushing hydrology. Water quality degradation often occurs in areas with poor flushing ability and abundant waterfowl.

The MSMP does not specify measures to avoid poor water quality developing in areas of intense waterfowl production. It is possible that the two ponds to be created for waterfowl on the Property from groundwater sources would not receive adequate natural flushing to prevent a long-term accumulation of fecal material that eventually causes water quality problems either directly at the pond site, or following a runoff event that deposits contaminated water or substrate into other areas.

Although there is potential for a water quality effect, it is not likely that the effect would be substantial. Although the nearby waters have several sensitive and special status species potentially affected by water quality degradation, it is unlikely that the accumulation would be sufficient to cause offsite effects from a runoff event. There may be a very localized accumulation of poor water quality in the seasonal wetlands and ponds, but it is unlikely that there are any special status species in those areas directly affected by that result (see direct effects above). Potential water quality degradation and subsequent effects on biological resources would not be substantial.

Species Population/Habitat Changes

Most of the organisms directly affected from habitat alterations noted above are small mammals that feed either on grassland seeds and herbs, or invertebrates that live in the soil, grasses, and wet meadow areas. These organisms would be directly displaced by wetland and pond creation. In turn, these small mammals are common prey for a variety of species found in the area, including an abundance of raptors such as red-tailed hawk, prairie falcon, and rough-legged hawk. Losses of the small mammal populations in the affected areas could indirectly affect other wildlife, such as raptors, that currently prey on those species.

About 30 acres of existing grazed grassland will be converted to un-grazed emergent wetlands or wet meadow habitats. This may reduce abundance of small mammals that find habitat in those areas, while enhancing the area for waterfowl production. This reduction in prey accessibility may adversely affect raptor population foraging success in minor portions of the McArthur Swamp property. Conversion of the 670-acre Hollenbeak Field, which is currently a wet meadow, into a managed seasonal emergent wetland would increase this area's value to waterfowl and have little effect on raptors species since the area is currently a dense stand of bulrush which is poor raptor foraging habitat.

GLENBURN DREDGE SITE TRANSFER

CWA will take ownership of Glenburn Dredge site subject to conditions stated in the MSMP, which in part requires CWA to re-establish public access to the Fall River at the Glenburn Dredge Site. Re-establishment of access would include repair of the car-top boat launch, weeding at the parking area and placement of a portable toilet and trash container.

Transfer of this property and dredge has no potential for environmental impact because the land transaction is administrative in nature and the mooring for the dredge will remain in place. The dredge would not change in location or status (i.e., inactive). The proposed actions to improve public access have the potential to temporarily disturb aquatic and terrestrial resources present at the site. Activities such as weed removal at the car-top boat launch, general weed removal in the parking area, and the replacement of a portable toilet and trash may affect organisms that reside in the affected areas. However, impacts should be minimal since the site was used by the public until recently and has been used as a permanent berthing point for the dredge since 1963. Improved public access may increase angling opportunities in the immediate vicinity. It is expected that the number of anglers at the site will return to levels present prior to the closure of access in 1996.

None of the effects noted above would have significant effects on biological resources. The minor changes in vegetation at the boat launch site would not affect any special status species, and those effects would not cause substantial losses of any vegetation or wildlife values.

CHECKLIST IMPACT CONCLUSIONS

- a) The land transfer Project would not have a substantial adverse effect, through habitat modification, on species identified as a candidate, sensitive, or special status, in local or regional plans, policies, or regulations and laws administered by the CDFG or USFWS. Actions associated with the MSMP for the McArthur land transfer will alter existing habitat within the McArthur Swamp uplands. Alterations in existing habitat have been designed to benefit primarily waterfowl that are found in the area and include primarily actions to diversify wetland habitat within the approximately 6,000 acres of grassland and wet meadow habitat. These alterations would not substantially alter habitat for species of concern found in the area; therefore, the effect is a **less than significant impact**.
- b) Levee repair and maintenance activities associated with the McArthur land transfer Project could have short-term aquatic disturbance and the potential for long-term habitat alterations that might adversely affect riparian habitat and other sensitive natural community values identified by the USFWS. Several aquatic and riparian species in the area, including the Shasta crayfish which is identified by the USFWS as an endangered species (USFWS, 1998), would be susceptible to adverse effects from levee maintenance that affects water quality or aquatic substrate quality. The Corps of Engineers permit for levee work, however, requires measures delineated by the USFWS to minimize and avoid impacts to Shasta crayfish from levee repair and maintenance activities. **With these measures, potential impacts to Shasta crayfish would be less than significant.**
- c) The Land Transfer Project would have a less than significant effect on federally protected wetlands through direct removal and filling activities associated with levee maintenance and repair. Levee repair and maintenance activities associated with the McArthur Land Transfer Project would remove and fill some riparian areas associated with the current levee configuration. Substantial attention, however, has been devoted to development of

procedures to minimize such activities where they might cause adverse effects. Proposed levee protection measures, for example, with imported rock materials, would only be done on the inside levee embankment – the River side will be left in its existing vegetated conditions to avoid impacts to aquatic organisms. The main reason for this attention is the presence of, among other special status aquatic species, the Shasta crayfish. **Potential effects on wetlands would be less than significant.**

- d) The Land Transfer Project would have **no impact** on movement of native resident and migratory species or the use of native wildlife nursery sites. Although the Project area provides substantial habitat for migratory waterfowl and raptors, there are no aspects associated with the land transfers, including various actions associated with the McArthur Swamp MSMP, that would affect species' migrations or movements to and from, or within, the Project site.
- e) The Land Transfer Project **would not conflict** with any local policies or ordinances protecting biological resources. There are no known local ordinances or policies protecting biological resources.
- f) The Land Transfer Project **would not conflict** with the provisions of any Habitat Conservation plans.

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