

Appendix D

Mad River Biologists Consultants Report

DRAFT
Program Environmental Impact Report
for
Gravel Mining
Mad River, Humboldt County

Wildlife

prepared by

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I. Introduction

The purpose of this PEIR is to identify existing and potential significant environmental impacts resulting from instream gravel extraction operations on the lower Mad river, Humboldt County, California, and to consider feasible alternatives to instream mining. The geographic scope of this PEIR is described elsewhere in this document. This section focuses on the effects of instream mining on the non-fish vertebrate wildlife species, i.e.. amphibians, reptiles, birds and mammals.

Concern has been expressed over the effect of gravel mining on the wildlife and habitats of the study area. This report will describe the wildlife habitats of the study area, the wildlife species that are to be expected in each habitat, and the effect (both historical and projected) of changes in these habitats on the wildlife species. Special attention will be given to those species considered endangered, threatened, or of special concern by the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

II. Habitats

Riparian

[Definition of Riparian Habitat included in Botanical Section by Karen Theiss including a discussion of riparian scrub, developing riparian forests and mature riparian forests.]

Riparian habitat as a whole, in all of its successional stages, is a significant resource. Any activity that damages it would be considered to be significantly adverse -- whether or not any sensitive animals were found during the course of this or other studies. Presently, not enough information exists to assess the value of the various successional stages to wildlife. Some attempt will be made to determine each stages wildlife habitat values during this spring field season.

Significant stands of developing and well-developed riparian vegetation exists along the Mad River in the study area (KT). The actual acreage of riparian has ???? over the past ???? years (see discussion by MS,SC,KT?).

The riparian forest provides habitat for nearly all of the reptile, amphibians, birds and mammals listed in Attachment A. Even those that do not use this habitat for feeding, nesting or cover, depend to some extent on the productivity of this habitat. Furthermore, the aquatic habitats (both riverine and pond) adjacent to the riparian forests not only receive organic matter (in the form of plant and animal material) from the riparian forest, but owe much of their physical structure to the influence of the riparian forests.

Gravel mining operations have three potential affects on riparian habitat. The first is the actual removal of riparian habitat due to construction of roads or processing sites. This effect can be mostly avoided in the design of future operations. The extent of past removal of riparian along the study area for the construction of existing gravel operations is ??????

The second is the direct effect of noise and dust from the mechanical operation. The noise and movement of equipment has an immediate effect on wildlife. While many species can become acclimatized to predictable and/or constant noise, others will simply be displaced. Our present knowledge of wildlife reaction to noise and disturbance does not allow accurate general assessments of affect. Site-specific and species-specific recommendations will be made after the spring field season. The consequences of dust coating riparian vegetation is also of concern, as a layer of dust can inhibit or prevent both plant growth and insect use of plants, both of which consequently affect wildlife use of the habitat, by either directly or indirectly affecting food availability. Watering roads and other operational sites can reduce this dust and minimize its effect.

The third potential effect of gravel mining would result from changes in the location of the river channel as a result of the mining activity. These changes could alter the health and distribution of the riparian habitats. In particular, there is concern that the early successional stages could be altered on a regular basis, preventing the later successional stages from ever developing. An analysis of the distributional history of the riparian forests being done by others (MS,SC?) might shed light on this problem.

Riverine

An important habitat to the fish and aquatic invertebrates of the Mad River system is the river itself. The health of the river obviously effects those species that depend on the fish and aquatic invertebrates for food, such as Double-crested Cormorant, Bald Eagle, Osprey, Common Merganser, and Dipper. A more complete discussion of gravel mining's effect on fish habitat can be found elsewhere in this report (Scientific Committee). In addition, water quality concerns such as spilled petroleum products, waste water, and other by-products of the mining operation could have consequences for wildlife. Strict control over this aspect of the mining operation is necessary.

Gravel Bars

The gravel bar is the habitat most directly affected by the present mining operations. Gravel bars provide feeding habitat for birds such as Spotted Sandpiper and Killdeer, other shorebirds, and various raptors such as Bald Eagle and Turkey Vulture, and roosting sites for gulls and mergansers. In addition, the earliest successional stages of the riparian forests begin on the gravel bars

The actual effect on wildlife using the gravel bars from mining operations will depend on the method used and the amount of gravel mined. In general, operations should be designed to minimize the disruption of natural river events. Where disruption is necessary, the operation should be designed to mimic naturally occurring events when possible. As a last resort, operations should be designed to create mitigating habitat elsewhere, e.g. the creation of ponds through pit mining.

Further management recommendations regarding actual mining plans will be suggested after the spring field season.

Temporary Pools and Backwaters

This habitat category is defined to include the seasonal and temporary quiet waters that develop along the river's course. These can be shallow ponds that are flooded at high water

and then disappear as the season progresses, or backwaters and low sites within the river bed that stay wet all year long because of ground water. These ponds are considered temporary because their structure and distribution can change dramatically during high flow events. During the past few drought years, many of these ponds have developed healthy stands of emergent aquatic vegetation and have become the breeding site for amphibians.

This is one of the most important habitats for the Red-legged Frog and the Western Pond Turtle. In addition, Foothill Yellow-legged Frog, Bullfrog and other amphibians can use this habitat extensively.

We have little data on the importance of these waters for local populations of these species. This spring's field work will attempt to assess the value of these ponds, but future work at other seasons and other years will likely be necessary.

Freshwater Marshes and Ponds (including pits).

Various freshwater marsh and pond habitats occur adjacent to the river channel. These are distinguished from the above classification by their more-or-less permanent nature. As a consequence of their permanent nature, the aquatic vegetation is often well-developed and a more complex habitat structure results providing homes for a variety of wildlife.

Some of these ponds are natural, but many have come about as a consequence of past mining activity. There is potential for creating wildlife habitat using these ponds. This spring field season will attempt to assess their relative value to the species of special concern.

II. Species Accounts

**Table 1.
Species of Special Concern**

Northern Red-legged Frog.....	<i>Rana aurora aurora</i>	CA2,SC
Foothill Yellow-legged Frog.....	<i>Rana boylei</i>	CA2,SC
Bullfrog.....	<i>Rana catesbeiana</i>	I,HA
Northwestern Pond Turtle	<i>Clemmys marmorata marmorata</i>	CA2,SC
Double-crested Cormorant.....	<i>Phalacrocorax auritus</i>	SC
Bald Eagle.....	<i>Haliaeetus leucocephalus</i>	CE,FE,CP
Northern Spotted Owl.....	<i>Strix occidentalis caurina</i>	ST
Sharp-shinned Hawk	<i>Accipiter striatus</i>	SC
Cooper's Hawk.....	<i>Accipiter cooperi</i>	SC
Merlin.....	<i>Falco columbarius</i>	SC
American Peregrine Falcon.....	<i>Falco peregrinus anatum</i>	CE,FE,CP
Willow Flycatcher	<i>Empidonax trailii</i>	CE
Purple Martin.....	<i>Progne subis</i>	SC
Black-capped Chickadee	<i>Parus atricapillus</i>	SC
California Yellow Warbler.....	<i>Dendroica petechia brewsteri</i>	SC
White-footed Vole.....	<i>Arborimus albipes</i>	CA2,SC

CE - Listed as Endangered by the State of California
FE - Listed as Endangered by the Federal Government
CP - California Protected Species

CT - Listed as Threatened by the State of California

CA2 - Category 2 Candidate for listing by the Federal Government (existing information indicates listing may be warranted, but necessary biological data are lacking).

I - Introduced

HA - Harvested Species

Northern Red-legged Frog (*Rana aurora aurora*)

The Northern Red-legged Frog is typically found in ponded areas along the coast and cascade ranges from northern California to southern British Columbia. Here on the north coast of California it is widespread in ponds and along rivers where there is quiet water and emergent aquatic vegetation providing cover. When not breeding this species wanders widely in damp woods, including riparian and coniferous forests. Breeding takes place in late winter and early spring. Red-legged frogs have a weak voice and are consequently inconspicuous. Egg masses consisting of up to 2-3,000 eggs are deposited in water up to 6" deep. Most young are completely transformed into adults by mid-summer or earlier. The diet of Red-legged Frogs consists primarily of insects captured near water.

The Northern Red-legged Frog is considered a Species of Special Concern in California and is a Category 2 Candidate for Federal Listing. The main reasons for concern in California are declining habitat and predation by the introduced Bullfrog.

Locally, we find the Red-legged Frog is not as common along the rivers as the Foothill Yellow-legged Frog. Along the Eel River, Red-legged Frogs were found in **Temporary Pools and Backwaters** where emergent aquatic vegetation had developed to provide sufficient cover. This emergent vegetation probably developed more extensively during the last few drought years. Red-legged Frogs are also found in many **Freshwater Marshes and Ponds** in the study area vicinity.

Gravel mining operations should avoid any disturbance of Red-legged Frog breeding ponds and maintain the integrity of adjacent riparian forests.

One goal of the field surveys to be undertaken in April and May of this year will be to assess the relative value of the permanent ponds and the temporary pools and backwaters to the Red-legged Frogs of the study area. Mitigation measures might include enhancement of Red-legged Frog habitat by the maintenance or construction of quiet water areas where aquatic vegetation can develop. Some forms of gravel mining could, with careful management, provide Red-legged Frog habitat.

Foothill Yellow-legged Frog (*Rana boylei*)

The Foothill Yellow-legged Frog is found in coastal and foothill habitats throughout northern California. Its preferred habitat is along streams and rivers, especially where riffles are present. The Yellow-legged Frog escapes into the water and hides among vegetation or in the bottom when disturbed. It is less likely to use the riparian forests and other adjacent habitats than other frogs. Breeding takes place later in the spring, when high water flows have subsided. Eggs are laid in a mass of up to 1,000 eggs and are attached to rocks in shallow, flowing water. Larvae transform into frogs during the summer.

The Foothill Yellow-legged Frog is considered a Species of Special Concern in California and is a Category 2 Candidate for Federal Listing. The main reasons for concern in California are declining habitat and predation by the introduced Bullfrog.

Along the north coast, Yellow-legged Frogs are found in most rivers and large streams. Its specific status along the Mad River in the study area needs to be determined. This species seems to prefer more sunny areas than the Red-legged Frog. It is found downstream at least to the Water District parks, but may avoid the coastal fog zone. In inland portions of the Eel River, the Yellow-legged Frog has been replaced by the introduced Bullfrog.

Depending on the results of the spring field surveys, management recommendations would include avoidance of disturbance of riffle habitat during the breeding season. Furthermore, any activities that would increase silting in the river during the late spring and early summer could be damaging to larval and transforming young frogs.

Mitigation for deleterious effects on this species would be more difficult than for the Red-legged Frog. The maintenance and/or creation of healthy flowing streams and rivers covers the primary need for this species.

Bullfrog (*Rana catesbeiana*)

The Bullfrog has been introduced in California and now is found in almost all aquatic habitats excepting the high mountains and deserts. It prefers permanent waters, especially with well-developed vegetation and muddy bottoms. It is highly aquatic and rarely ventures from water. The breeding season depends on the particular site but can be anytime from February to July. Anywhere from 10-20,000 eggs are laid in a mass. Larvae may not transform into adults until the second year of life. The Bullfrog has a varied diet that includes insects and other invertebrates, fish, small reptiles, birds, small mammals and other amphibians. Its habit of eating other frogs has caused a decline in both red-legged and Yellow-legged Frogs in the west and its presence is a significant part of the reason that the latter two species are of special concern.

The Bullfrog is a Harvest Species in California that is managed by California Fish and Game.

Bullfrogs are widespread and seemingly becoming more common along the north coast. In the study area, the Bullfrogs specific status needs to be determined.

Management recommendations concerning the Bullfrog are geared towards reducing its population. Elsewhere, Bullfrog management has been suggested as a mitigating measure for disturbance to red and Yellow-legged Frog populations. Depending on the occurrence of Bullfrogs in the study area, similar activities may be suggested here.

Northwestern Pond Turtle (*Clemmys marmorata marmorata*)

The Western Pond Turtle is the only native aquatic turtle in California. It is widely distributed west of the Sierra-Cascade Mountains. Pond Turtles are found near and in water, especially slow moving or quiet waters, primarily ponds, small lakes, reservoirs and quiet streams and rivers. They can be found basking on rocks, logs or on the bank along aquatic vegetation. Places to bask seem an important component of their habitat needs. Females lay a clutch of 5-11 eggs between April and August in a small hole in a dirt bank, sometimes at a distance from her home water. The diet of Pond Turtles consists of aquatic plants, fish, invertebrates and carrion.

The Northwestern Pond Turtle is considered a Species of Special Concern in California and is a Category 2 Candidate for Federal Listing.

Along the north coast of California, the Pond Turtle is sparsely distributed, mainly at ponds in the interior. Its status along the Mad River needs documenting. It is found downstream at least to the Blue Lake bridge area. This species, like the Yellow-legged Frog, seems to prefer sunny areas and so may avoid the coastal fog belt.

Any management recommendations or mitigation measures for the Northwestern Pond Turtle will depend on the results of this springs surveys.

Double-crested Cormorant (*Phalacrocorax auritus*)

The Double-crested Cormorant is a widely distributed species throughout North America. It is the only cormorant to occur regularly in fresh water habitats. Breeding takes place in colonies on islands (especially in ocean environments) or in stands of large trees, often in riparian areas. Food consists of mainly of fish and invertebrates, especially crustaceans.

The Double-crested Cormorant is a Species of Special Concern in California.

In the study area, Double-crested Cormorants are common along the Mad River throughout the year. There are no known nesting areas in the study area, the nearest nesting sites are on the abandoned Arcata Wharf in Humboldt Bay and along sea stacks in and around Trinidad Harbor north of the Mad River mouth.

Management recommendations and mitigation activities for Double-crested Cormorant populations in the study area consist of maintaining a healthy river habitat for fish and other components of the cormorants diet.

Bald Eagle (*Haliaeetus leucocephalus*)

The Bald Eagle is found throughout North America and California. Concentrations of Bald Eagles are found where their preferred food is concentrated, i.e. in major waterfowl wintering areas and along major salmon streams and rivers with adjacent snags for perching. Nesting takes place in large stick nests, often high in a tree, living or dead. Eggs can be laid as early as January, incubation is 30-45 days and the young take their first flight approximately 2 and 1/2 months after hatching. Their food consists largely of fish, either caught themselves or stolen from Ospreys. Bald Eagles also feed upon a wide variety of small mammals, aquatic birds and even carrion.

The Bald Eagle is listed as endangered both in California and the United States. It is a California Protected Species.

Bald Eagles are rare in Humboldt County. Three nests are known in the county, one of which is above Korbel in the present study area. Scattered sightings of Bald Eagles along the

coastal portion of the Humboldt Bay area may refer to this pair and its offspring, or the occasional visitor from elsewhere.

Disturbance to the nest should obviously be avoided. At the present, gravel operations do not take place near the known nest. Site-specific recommendations should be developed in the event of new operations near the nest area. In addition, care must be taken to preserve the integrity of salmon and steelhead habitat in the study area as these are the main food sources for Bald Eagles locally. Maintaining resting and feeding perches in large trees along the river should also be done.

Sharp-shinned Hawk (*Accipiter striatus*)

The Sharp-shinned Hawk is found throughout North America. It is found in a wide variety of forested and scrub habitats where it preys primarily on small birds. Populations in North America have declined due to pesticide residues, habitat destruction and the general decline of songbird populations, its major prey.

The Sharp-shinned Hawk is a Species of Special Concern in California.

Locally, the Sharp-shinned Hawk is an uncommon winter resident and rare summer breeder.

Management recommendations would depend on the location of nests and would consist of reducing or eliminating disturbance during the nesting season. In general, riparian habitats, which support song bird populations, should be protected for the health of this species.

Cooper's Hawk (*Accipiter cooperi*)

The Cooper's Hawk is found throughout North America. It is found in a wide variety of forested and scrub habitats where it preys primarily on song birds. Populations in North America have declined due to pesticide residues, habitat destruction and the general decline of songbird populations, its major prey.

The Cooper's Hawk is a Species of Special Concern in California.

Locally, the Cooper's Hawk is an uncommon winter resident and rare summer breeder.

Management recommendations would depend on the location of nests and would consist of reducing or eliminating disturbance during the nesting season. In general, riparian habitats, which support song bird populations, should be protected for the health of this species.

Merlin (*Falco columbarius*)

The Merlin is found throughout North America. It is found in a wide variety of open habitats where it preys primarily on shorebirds and song birds. Populations in North America have declined due to pesticide residues and habitat destruction.

The Merlin is a Species of Special Concern in California.

Locally, the Merlin is an uncommon winter resident that occasionally hunts along the lower stretches of the Mad River where it preys on Pine Siskins and other small birds.

Management recommendations consist of protecting riparian habitats, which support song bird populations.

American Peregrine Falcon (*Falco peregrinus anatum*)

The Peregrine Falcon is found throughout North America. It is often found in aquatic habitats where it preys primarily on water birds, both shorebirds and ducks. Populations in North America have declined due to pesticide residues, nest disturbances (including the illegal removing of chicks for falconry) and habitat destruction. There seems to be some recovery of the species recently.

The Peregrine Falcon is an Endangered Species in California and the United States and is a California Protected Species.

Locally, the Peregrine Falcon is an uncommon winter resident and rare summer breeder. It is fairly common in the lower reaches of the Mad River (e.g. below the 299 bridge) where it hunts for shorebirds along the river and in the adjacent fields.

Management recommendations would depend on the location of nests in the study area, none of which are known to date.

Northern Spotted Owl (*Strix occidentalis caurina*)

The Northern Spotted Owl is an uncommon and reportedly declining species of old growth forests in the Pacific Northwest. Its habitat is in old-growth or older second growth forests.

The Northern Spotted Owl is a California Threatened Species.

Near the study area, Spotted Owls are locally common in suitable habitat.

None of the present gravel mining operations would impact Spotted Owls in adjacent suitable habitat.

Willow Flycatcher (*Empidonax trailii*)

The Willow Flycatcher is found throughout the northern half of the continental United States. Its preferred habitat is wet meadow and montane riparian habitats dominated by willow thickets. The Willow Flycatcher breeds almost exclusively in dense willow thickets, using the lower branches for feeding and singing perches. This species nests are parasitized by the Brown-headed Cowbird, a significant part of the reason for its California listing.

The Willow Flycatcher is a California Endangered Species.

In Humboldt County the Willow Flycatcher is not yet known to nest, although singing males exhibiting territorial behavior have been noted along the Eel River near Dyerville.

Spring surveys for the Willow Flycatcher will be done in late May to attempt to find territorial birds or evidence of nesting. Management recommendations and/or mitigation activities will result from those surveys. In general, the protection and maintenance of healthy riparian habitats, especially the early seral stages with willow thickets, is important.

Black-capped Chickadee (*Parus atricapillus*)

The Black-capped Chickadee is possibly the most abundant and best-known chickadee in North America. In California it is found almost exclusively in willow/cottonwood habitats along the north coast south to the vicinity of Ferndale.

The Black-capped Chickadee is a Species of Special Concern in California

It has become fairly common along the Mad River from the Mad River County Park upstream in suitable habitat to at least the Blue Lake bridge.

Management recommendations for this species would center around the maintenance of healthy riparian woodland.

California Yellow Warbler (*Dendroica petechia brewsteri*)

Found throughout North America, the Yellow Warbler has been declining as a breeding bird in California due to habitat destruction and parasitization by the Brown-headed Cowbird. Its breeding habitat is in riparian deciduous forests of almost any size.

The Yellow Warbler is a Species of Special Concern in California.

In Humboldt County the Yellow Warbler is a fairly common breeder in riparian habitats including the riparian forests downstream from the Blue Lake bridge.

Management recommendations consist of maintaining healthy riparian woodlands.

White-footed Vole (*Arborimus albipes*)

The White-footed Vole is found along the coastal regions of Oregon and extreme northern California. Its preferred habitat is humid coastal forests of Redwood, Douglas-fir and riparian species. White-footed Voles feed principally on the leaves of green plants, red alder seems to be preferred in some areas.

The White-footed Vole is a Species of Special Concern in California and is a Category 2 Candidate for Federal Listing.

Locally this species is not well known, but seems to prefer riparian vegetation along small streams within the coastal coniferous forests. Field surveys during this March and April will search for this species, but it is not expected in the Cottonwood/willow type of riparian forests of the study area.

Management recommendations will depend on its status as elucidated by field studies.

Future Monitoring Recommendations

Surveys are planned during the months of March, April and May to elucidate the status of the above discussed species on a site by site basis. The methods and results of these surveys, and any specific management recommendations resulting from them, will be described in the Final PEIR.

Since the activity, and even the presence, of these sensitive species is greatly dependent on river flows and season, it is recommended that additional surveys take place during the summer months of July and August. Furthermore, given the great variation in annual rainfall and its consequent effect on river flows and gravel replenishment, it is recommended that annual monitoring of the study area and its sensitive species be established. This could be done on a simple level by repeating, with minor modification as necessary, the methods to be used this spring. This monitoring should be planned for at least 5 years and then the monitoring scheme itself should be reevaluated.

It is further recommended that a wildlife biologist be consulted during the actual planning of the gravel mining method on a site specific basis. The environmental (habitat and hydrologic) impacts of gravel extraction will be very different depending on which extraction scenario is adopted (skimming, trenching or pit mining). Simple on-site modifications have the potential to reap important benefits for wildlife.

Note: I will be happy to expand on the effect of different gravel extraction methods on the sensitive wildlife species after reviewing the other's reports.

