Clean and Reliable Hydro Power

ENVIRONMENTAL RESOURCES OF SMUD'S UARP

General Location

SMUD's Upper American River Project (UARP) is located in the rugged Sierra Nevada Mountains, between the southern shores of Lake Tahoe and Sacramento. Directly east of the UARP is the 42,000-acre Desolation Wilderness, a spectacular high-country area of rugged peaks, basins and more than 80 mountain lakes. Streams and rivers in this area serve as the headwater source of the UARP. The drainages within which the various UARP facilities reside include the Rubicon River, Silver Creek and South Fork American River. The majority of the UARP facilities are located within the Eldorado National Forest and the 85,000-acre Crystal Basin Recreation Area.

For the past 45 years, SMUD has been a responsible steward of environmental resources with respect to the UARP, working cooperatively with the U.S. Forest Service and the California Department of Fish and Game to preserve and enhance natural resources. Within the Crystal Basin, for example, UARP recreation facilities have been planned and managed to create high quality recreation while preserving wildlife resources. The UARP reservoirs provide habitat that would otherwise be unavailable for some species, such as the American bald eagle and osprey. And water is continuously released into streams below UARP dams to preserve and protect downstream aquatic resources.

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The Sierra Nevada – "The Range of Light" *John Muir*

The Crystal Basin Information Station, located near Union Valley Reservoir, provides information on the values of conservation, land stewardship and responsible recreation. Visitors walk away with an appreciation of the "Leave No Trace and Tread Lightly!" philosophy.

Physical Conditions

One of the unique features of the UARP is the range in elevation of the different project facilities. The uppermost facility, Rubicon Reservoir, lies at an elevation of 6,545 feet, while the lowermost facility, White Rock Powerhouse, is at 995 feet.

The landscape and topography of the UARP area reflects this change in elevation. The large expanses of exposed granite rock, common in the upper elevations, are the result of glaciers pushing volcanic rock layers away to expose the underlying granite. Former valley glaciers also moved many miles down the west slope of the mountains, carving out the steep-walled river valleys characteristic of the range. The cutting action of streams has continued the process, deepening the canyons of the Rubicon River, Silver Creek, and the South Fork American River. Canyon wall vertical drop is as much as 1,000 feet in some places and as steep as 100 percent, rendering some of the river canyons nearly inaccessible.

California's mediterranean type climate creates warm, dry summers and cold, wet winters. Average annual precipitation varies from 40 to 70 inches, with more than 90 percent of this precipitation occurring from October through April. Mainly falling as snow in the higher elevations, a snow pack of 5 to 10 feet is common above 6,500 feet from December to May.

The water quality within the UARP drainages is very good. Representative of westslope Sierra Nevada conditions, project area streams are typically clear, cold streams that are naturally highly oxygenated, are low in dissolved ions and nutrients, and exhibit low instream plant or algal growth.

Biological Resources

Biological resources within the UARP are as varied as the elevations and types of ecosystems in which they are found.

At the mid-elevation range (1,500 to 5,000 feet), a wide variety of plant and animal resources can be observed. Amphibian, reptile and fish species such as California newt, foothill yellow-legged frog, alligator lizard, garter snake, western rattlesnake, rainbow trout and brown trout may be found. Bird and mammal species include red-breasted merganser, mountain quail, mourning dove, Stellar's jay, western bluebird, mountain chickadee, warblers, squirrels, skunk, chipmunk, grey squirrel, coyote, mule deer, black bear and mountain lion. Typical trees include ponderosa pine, sugar pine, white fir, black oak and incense cedar.

In the higher elevation range (above 5,000 feet) the ecosystem is less diversified, as can be immediately seen in the less dense vegetation. White fir, Jeffrey pine, western juniper, red fir and lodgepole pine are dominant trees, with huckleberry oak the dominant shrub. Granite outcrops are commonplace, with very little vegetation found in some areas. Some animal species that may be found include mule deer, marmot, coyote, fox and black bear.

With few exceptions, the high mountain lakes and streams above 6,000 feet were historically fishless -dominated instead by amphibians, insects and small aquatic invertebrates, such as fresh-water shrimp. It has been only within the last few decades that fish were introduced in the higher elevation lakes. One aquatic species of particular interest to biologists is the mountain yellow-legged frog, a highly aquatic frog that lives in lakes, meadow streams and isolated ponds that may be found in gently sloping terrain.

ENVIRONMENTAL RESOURCES

Species of Special Concern

Within the Eldorado National Forest, nine federally listed species (designated as either threatened or endangered) likely exist, including the American bald eagle, California red-legged frog, the valley elderberry longhorn beetle and Layne's butterweed. An additional 29 species designated by the Forest Service as sensitive species are thought to inhabit the forest, including the California spotted owl, northern goshawk, pine marten, foothill and mountain yellow-legged frog and hardhead fish.

Over the years, SMUD has worked to protect special-status species. For example, SMUD has cooperated in protecting a bald eagle pair that has nested at Union Valley Reservoir for the past several years. Forest Service biologists and SMUD project managers have worked together to ensure successful fledging of offspring, and will continue to do so as long as the pair nests at the reservoir.

UPPER AMERICAN RIVER PROJECT
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For additional information, please contact:

SMUD Hydro Relicensing Project
P.O. Box 15830, M.S. A352
Sacramento, CA 95852
(916) 732-5838
hydrorelicensing@smud.org