



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

MAR 15 1993

Honorable G. Edward Dickey
Acting Assistant Secretary (Civil Works)
Department of the Army
Washington, D.C. 20310

Dear Dr. Dickey:

In accordance with the provisions of the section 404(q) Memorandum of Agreement (MOA) between the Department of the Interior and the Department of the Army, as revised on December, 21, 1992, I am requesting your review of the Corps of Engineers, Sacramento District (District) Engineer's decision to issue a section 404 permit for the project described in Public Notice No. 199000126. This "after-the-fact" permit would authorize the applicant, Elliott Homes, to retain fill material and discharge additional fill in wetlands to construct residential housing and support infrastructure at the 640-acre Churchill Downs project site in central Sacramento County, California. The proposed project would ultimately result in the loss of 17.14 acres of vernal pools and other seasonal wetlands.

On February 9, 1993, the District notified the U.S. Fish and Wildlife Service (Service) of their intent to proceed with permit issuance. After a thorough review of background information on the project, I have determined that this case warrants elevation in accordance with the criteria found in Part IV of the revised section 404(q) MOA (Elevation of Individual Permit Decisions). That is, I have concluded that the proposed project will have substantial and unacceptable adverse effects on aquatic resources of national importance, even after considering proposed mitigation.

I am concerned that the District Engineer's proposed permit decision will allow the loss of additional wetlands on the project site which support imperiled and other important invertebrate species, provide habitat of high value to migratory and resident birds and other wildlife species, and may also support rare plant species. The Department of the Interior, acting through the Service, is vested with the authority and obligation to protect, conserve and enhance the Nation's fish and wildlife resources. These matters fall within our jurisdiction under the Fish and Wildlife Coordination Act, section 404(m) of the Clean Water Act, the Fish and Wildlife Act of 1956, the Endangered Species Act of 1973, as amended, and the Migratory Bird Treaty Act, as amended to implement international treaties regarding the conservation of migratory bird populations.

I have concluded that the proposed project will have an adverse impact on vernal pools and associated seasonal wetlands, which I have determined to constitute aquatic resources of national importance. Originally, about 4.2 million acres of vernal pool complexes are estimated to have occurred in California's Central Valley. However, agricultural conversion, flood control

projects, and residential/commercial development activities have eliminated more than 90 percent of the original vernal pool wetland base. Recent data compiled by the California Department of Fish and Game's Natural Diversity Database suggest that as little as 30,000 to 40,000 acres, or as little as one percent, of the Central Valley's original vernal pool complexes may remain. A decline in the abundance and diversity of plant and animal species associated with vernal pools has accompanied this wetland loss, which has been exacerbated by habitat fragmentation and the loss of dispersal corridors. In light of these trends, the loss of additional vernal pools and associated species due to the construction of non-water dependent residential housing becomes a substantial and, in my view, unacceptable adverse impact on a wetland ecosystem whose physical and biological functions have already been severely impaired.

Vernal pools on the project site support numerous invertebrate species, including California linderiella (*Linderiella occidentalis*) and vernal pool tadpole shrimp (*Lepidurus packardii*), two freshwater invertebrate species proposed for listing as endangered under the Endangered Species Act. These animals are found in vernal pools remaining on the project site, including pools that would be filled with permit issuance. The site's vernal pools are also likely to support the vernal pool fairy shrimp (*Branchinecta lynchi*), another freshwater invertebrate species proposed for listing as endangered. However, surveys by the applicant's environmental consultant have not been sufficient to determine its presence or absence. The site's remaining vernal pools provide winter resting and feeding habitat for Pacific Flyway migratory birds, particularly waterfowl and shorebirds. Mallards, green-winged teal, greater yellowlegs, and killdeer have been observed in the site's vernal pools. Wading birds, including great blue herons and egrets, are also found on the site. The vernal pool complexes support pocket gophers, mice, and jackrabbits which serve as prey for foraging raptors such as Cooper's hawks, American kestrels, and red-tailed hawks. In addition, the site's pools support the aquatic phases of several amphibians, including western toads and Pacific treefrogs.

Botanical surveys in the project area have revealed the presence of Boggs Lake hedge-hyssop (*Gratiola heterosepala*), a candidate for Federal listing. Several additional plant candidate species which are currently being considered for possible inclusion in a listing package of plant species restricted to vernal pools may also occur on the site, but adequate surveys have not been conducted to determine their presence or absence. The site's vernal pools, including pools outside the District's proposed preserves, contain a high diversity and abundance of plant species which are typically confined to this unique aquatic habitat type.

I have reviewed the Department of the Army's January 11, 1993, response to the Environmental Protection Agency's elevation of the same project proposal, and your decision to exclude vernal pools and seasonal swales outside the District's proposed preserves from classification as aquatic resources of national importance. Although I agree with your assessment of the value of the wetlands to be protected within the proposed preserves, I find that the vernal pools and seasonal swales remaining outside the proposed preserves must also qualify as aquatic resources of national importance, since there is clear

evidence that the biological values of the pools in these two areas cannot be distinguished on the basis of density, size, or depth, as determined in your response to the Environmental Protection Agency. Moreover, there is no biological basis for implying that the wetlands outside the proposed preserves are of lower biological value. On the contrary, the Department has determined that these wetlands support a diverse assemblage of unique vernal pool plants and invertebrates, including two proposed endangered animal species. I believe that all Federal agencies, including the Corps of Engineers, have an obligation under the Endangered Species Act to take positive steps to conserve imperiled species and their habitats, above and beyond the Act's requirements to avoid jeopardizing the continued existence of proposed and listed species.

Finally, the Department does not concur with the District's determination that information sufficient to assess project impacts on candidate plant and proposed animal species, and design adequate compensatory mitigation, has been collected and analyzed. We also do not concur with the District's contention that vernal pools can be created offsite to replace the original biological conditions found in natural pools. Although permit conditions may have been met for some past projects, this only demonstrates compliance with permit conditions, not full restoration of biological functions and values. We believe that considerably more baseline information is needed to accurately assess impacts on these species, and that avoidance of vernal pools is the only proven strategy for preserving their unique edaphic features, and biological functions and values. Accordingly, we have repeatedly recommended to the District that vernal pools in the project area be avoided, and that compensatory mitigation be implemented for wetlands the applicant has already filled without authorization.

In conclusion, I recommend that the District deny issuance of an "after-the-fact" section 404 permit for the Churchill Downs project unless the following issues are addressed and included as permit special conditions:

1. Important plant and wildlife resources remaining on the site will be preserved by requiring additional avoidance of project area wetlands. The onsite preserve in the northwest portion of the project area will be expanded to include those vernal pools and seasonal wetlands identified by the Department of the Interior as aquatic resources of national importance.
2. Compensatory mitigation will be confined to replacing lost habitat values from the already-filled wetlands and the few remaining wetlands that would be filled outside the expanded preserves.
3. Onsite compensation within the expanded preserves will be evaluated as an alternative to offsite compensation. Any compensatory mitigation, either onsite or offsite, will be determined in consultation with the Service.
4. Adequate baseline information will be required for all plant and wildlife resources, particularly plant candidate and animal proposed species, on the site. Performance standards and success criteria will be developed which target the affected species. This information will be reviewed by the Service prior to issuing a permit for the project.

Honorable G. Edward Dickey

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Enclosed is additional information addressing these and other issues relating to the proposed permit decision. I request your review of the decision by the District Engineer to issue the permit to Elliott Homes based on the information used, and procedures followed, in reaching the decision to proceed with permit issuance.

Sincerely,

Joseph C. Godding
Acting Assistant Secretary for Fish
and Wildlife and Parks

Enclosure

ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS'
EVALUATION AND REQUEST FOR REVIEW

CHURCHILL DOWNS PROJECT

PROJECT DESCRIPTION

Elliott Homes has applied for an "after-the-fact" Department of the Army permit pursuant to section 404 of the Clean Water Act to retain fill material, and to discharge additional fill in wetlands to construct residential housing and support infrastructure at the 640-acre Churchill Downs project site in central Sacramento County, California. The proposed project would ultimately result in the loss of 17.14 acres of vernal pools and other seasonal wetlands. Of this total, the applicant has already graded and filled 9.61 acres; approximately 0.9 acre were filled under a separate Nationwide 26 permit and about 8.7 acres were filled without authorization. Unauthorized fill activity by Elliott Homes between 1987 and 1990 allowed for the placement of major portions of the project's infrastructure to accommodate total project build-out. Permit issuance, as proposed by the Corps of Engineer's Sacramento District (District), will result in additional discharges of fill into 7.53 acres of vernal pools and other seasonal wetlands, most of which the Department of the Interior (Department) has determined to be aquatic resources of national importance. The project applicant proposes to mitigate wetland losses with a combination of onsite preservation and offsite compensation, which will not reduce project impacts to an acceptable level.

AQUATIC RESOURCES OF NATIONAL IMPORTANCE

Regional Resources

A vernal pool is defined as a shallow depression which is filled by rain for extended periods during the winter season, but completely dry by summer. This wetland type is found in the Mediterranean climate region of southern Oregon, California, and northern Baja California. Individual vernal pools and other seasonal wetlands are distributed within surrounding upland habitats, which in turn comprise the watersheds for the pools. Together, these form a complex of wetlands and uplands that are hydrologically and biologically interrelated.

Originally, about 4.2 million acres of vernal pool complexes are estimated to have occurred in California's Central Valley (Holland 1978). Since the arrival of European settlers, vernal pool complexes have sustained a significant and continuing loss from agricultural conversion, flood control activities, and residential/commercial development activities. As a result, by 1978 it was estimated that up to 90% of the original vernal pool habitat in the Central Valley had been lost (Holland 1978). However, recent data compiled by the California Department of Fish and Game's Natural Diversity Database suggest that as little as 30,000 to 40,000 acres, or as little as one percent, of the Central Valley's original vernal pool complexes may remain.

From a biological standpoint, the functional values of vernal pools include: 1) food chain support for a diverse group of animal species, 2) breeding and rearing areas for amphibians, 3) an ecological role within a larger regional ecosystem (i.e., foraging habitat during the dry period for birds of prey), and 4) habitat for vernal pool endemic flora and fauna (Ferrin and Gevirtz 1990). Additionally, vernal pools function as resting, feeding, breeding, and rearing areas for a variety of migratory birds, including waterfowl and shorebirds (Lovio 1983; Zedler 1987; Stromberg 1988; Holland 1988). Other significant values include production export, particularly to domestic livestock; scientific research; and passive recreation (Holland 1988).

A unique assemblage of plants and animals are adapted to the seasonal hydrologic regime of vernal pools. At least 101 plant species have been identified as "typical" of vernal pools, and 69 of these species are restricted to California (Holland and Jain 1977). Of vernal pool plant species found in the Central Valley, two species are listed as endangered under the Endangered Species Act of 1973, as amended (Act), while eight additional species are being considered for possible listing as either endangered or threatened. Statewide, ten vernal pool plant species are listed as endangered, while 55 rare vernal pool plant species are designated as candidates for possible Federal listing pursuant to the Act.

Intensive surveys by an invertebrate specialist in one vernal pool complex within the Central Valley identified at least 132 invertebrate species (Fields 1989). In addition, a recent survey of invertebrates in vernal pools in the western Sacramento Valley identified 26 new species of crustaceans (Brusca 1993a). Many of these invertebrates are an important food source for resident and migrant wildlife species, especially waterbirds dependent upon the vernal pool ecosystem. Presently, five freshwater invertebrate species restricted to vernal pools are proposed for listing as endangered pursuant to the Act.

Amphibians, such as Pacific tree frogs, western toads, western spadefoot toads, and California tiger salamanders, inhabit vernal pools during the aquatic phase of their life history throughout most of their geographic range. As a direct result of the significant losses of vernal pool habitat, the distribution and abundance of western spadefoot toad and California tiger salamander have been severely diminished. As a consequence, the U.S. Fish and Wildlife Service (Service) has been petitioned to list the salamander as endangered under the Act; a 90-day finding concluded the action may be warranted, and a formal review of the animal's status has been initiated (57 FR 54545).

Based upon Midwinter Waterfowl Surveys between 1955 and 1990, population indices for waterfowl average 4.6 million annually in the Central Valley. During the winter and spring, vernal pools provide important foraging grounds and resting areas for numerous species of migratory birds of the Pacific Flyway, particularly waterfowl and shorebirds, while numerous species of migrating songbirds utilize surrounding grasslands and woodlands (Zedler 1987; Lovio 1983). In addition, vernal pool complexes support resident and migrant wading birds, such as herons and egrets. Fourteen species of waterfowl, including Canada goose, green-winged and cinnamon teal, mallard, American widgeon, and northern pintail were documented foraging and resting in a single

vernal pool complex in the Central Valley (Lovio 1983). Mallard, northern pintail, cinnamon teal, and northern shoveler were also confirmed or suspected of breeding and rearing broods during the late spring in the same vernal pool complex. Fourteen species of shorebirds, including long-billed curlew, American avocet, black-necked stilt, greater and lesser yellowlegs, and several species of sandpipers and dowitchers were also present in the study area.

Throughout the year, vernal pool complexes provide habitat for reptiles and mammals including snakes, skinks, pocket gophers, voles, mice, and rabbits. These animals serve as a prey base for a variety of foraging raptors which overwinter and/or breed and rear young throughout the Central Valley. Ten species of raptors, including prairie falcon, Swainson's hawk, ferruginous hawk, and black-shouldered kite have been found foraging within a single vernal pool complex (Lovio 1983). In addition, burrowing owls establish colonies within the grasslands surrounding vernal pool complexes.

Site-Specific Resources

The Churchill Downs project site originally contained approximately 39 acres of vernal pools and other seasonal wetlands (vegetated swales) interspersed within surrounding annual grasslands. Vernal pools and seasonal swales on the site typically become saturated or inundated from November through April or May each year. During the remainder of the year, these areas are usually dry at the surface.

Boggs Lake hedge-hyssop (*Gratiola heterosepala*), a candidate for Federal listing, and a plant species listed as endangered by the State of California, is known to occur on the project site. The site's vernal pools support other plant species which are generally confined to this unique habitat type. Included among these are woolly marbles, Vasey's coyote thistle, popcorn flower, meadowfoam, goldfields, white-headed navarettia, downingia, Carter's buttercup, and flowering quillwort. Although appropriately-timed, species-specific surveys apparently have not been conducted to determine their presence, the project site's vernal pools are within the geographical range of several additional candidate plant species, including Hoover's spurge, Colusa grass, hairy Orcutt grass, slender Orcutt grass, Sacramento Orcutt grass, fleshy owl's-clover, and Greene's tuctoria. These species are currently being considered for possible inclusion in a package of vernal pool plant species being prepared as a proposal for Federal listing.

An analysis of the project site's wetlands by the applicant's environmental consultant using the Wetlands Evaluation Technique (WET) indicates high effectiveness values for aquatic diversity/abundance and uniqueness/heritage. The high values for aquatic diversity are substantiated by limited invertebrate survey data collected by the applicant's environmental consultant and field observations by Service staff which confirm that the vernal pool tadpole shrimp (*Lepidurus packardii*) and California linderiella (*Linderiella occidentalis*) occur in vernal pools on the site, including pools that would be filled with the proposed project. Furthermore, it is highly likely that the vernal pool fairy shrimp (*Branchinecta lynchi*) occurs on the site. However, adequate surveys by the applicant's environmental consultant have not been

conducted to determine its presence or absence. On May 8, 1992, these three freshwater invertebrate species were proposed for listing as endangered under the Act (57 FR 19856).

Migratory and resident waterbirds, including waterfowl, shorebirds, and wading birds, forage in the site's remaining vernal pool complexes. Mallards, cinnamon teal, green-winged teal, great egrets, snowy egrets, great blue herons, greater yellowlegs, and killdeer have been observed in the vernal pools on the site. In addition, Service staff have observed waterfowl rearing young in a vernal pool complex on the project site. The vernal pool complex supports pocket gophers, mice, and jackrabbits which serve as prey items for raptors such as Cooper's hawks, American kestrels, and red-tailed hawks, which have been observed foraging on the site. The site's pools also support the aquatic phases of several amphibians, including western toads and Pacific treefrogs.

The main concentrations of remaining vernal pools and seasonal swales at the Churchill Downs site are in the east and northwest portions of the project area, and are relatively intact and unaltered. In the Final Environmental Impact Report (EIR) prepared for the project in 1986, vernal pool botanist Dr. Robert Holland noted the pools in the northwest portion of the project area "are surrounded by hay fields, but have been spared direct disturbance (tractors go around the muddy depressions). As a result, good quality habitat has persisted in spite of hay culture." He also noted that "the eastern pools are in a pasture, so they have not been disturbed except by cattle trample" (Sacramento County 1986). Dr. Holland identified the undisturbed pools in the two areas on a map contained in the Final EIR.

In the draft decision document for Churchill Downs, the District proposes three preserves in the east and northwest portions of the project area to protect valuable vernal pool complexes. In its January 11, 1993, letter to the Environmental Protection Agency (EPA), the Department of the Army determined that the wetlands in the preserves "where concentrations of deeper vernal pools are interconnected and contain high plant diversity" qualify as aquatic resources of national importance. Although we concur with this finding, we further maintain that additional wetlands proposed for filling in the northwest portion of the property also qualify as aquatic resources of national importance.

In their draft decision document, the District implies (and the Department of the Army appears to have agreed in response to EPA) that a distinction can be drawn between the biological values of the wetlands in the proposed preserve, and other vernal pools and swales in the northwest portion of the project area that would be filled with issuance of the proposed permit. This distinction is based largely upon an arbitrary determination that pools outside the boundaries of the proposed preserve in this area are shallow and, therefore, must have lower plant and animal diversity, and lower biological values. However, the District provides no data to support this conclusion.

During site visits to vernal pools proposed for fill in the proposed northwest impact area, and earlier identified by Dr. Holland in the Final EIR as "good quality habitat" and worthy of extensive rare plant surveys, Service staff

observed a high diversity and abundance of vernal pool plants and invertebrates, amphibian reproduction, and use by numerous species of migratory and resident waterbirds, including waterfowl, shorebirds, and wading birds. Moreover, Service staff have observed high population densities of the vernal pool tadpole shrimp and California linderiella in a significant number of these pools, including small pools with water depths ranging from six to eight inches - what the District has termed "shallow" (i.e., lower value) pools. In addition, Service staff have found evidence of the vernal pool tadpole shrimp in a major swale system proposed for fill in the proposed northwest impact area. Swales provide important dispersal corridors for fairy shrimp, vernal pool tadpole shrimp, and other aquatic invertebrates. At another site near Churchill Downs, an environmental consultant also observed fairy shrimp utilizing swales as movement corridors (Helm 1992). During periods of high water the swales allow movement of animals between pools, thus maintaining genetic variability.

To supplement these field observations, and because quantifiable data are lacking for invertebrates in vernal pools at the Churchill Downs project site, the Service requested an analysis of the relationship between vernal pool depth and invertebrate populations from Dr. Rick Brusca at the San Diego Natural History Museum (Brusca 1993b). Dr. Brusca recently collected data from seventy-five pools ranging in depth from 1.6 to 35.3 inches along a 200-mile long random transect through vernal pool systems on the west side of the Sacramento Valley, between the Oregon border and the Delta region of central California. Based on this analysis, Dr. Brusca concludes "there clearly are no differences between the shallowest pools and the deepest pools, either in terms of (fairy shrimp, tadpole shrimp, or clam shrimp) species presence/absence or density. All the species that are known to occur in a given geographic area occur in both the shallow and deeper pools, at approximately the same densities. The same pattern holds for the other crustaceans in these invertebrate communities." Dr. Brusca further states "(o)ur data indicate that it is not possible to discriminate between 'shallow' and 'deep' pools on the basis of the aquatic invertebrate community. 'Shallow' pools are just as biologically rich as 'deep' pools." These results would also apply to conditions at Churchill Downs, since the sampling was random within the same geographic region.

Based upon field observations at Churchill Downs, identification of high-value, undisturbed vernal pool resources in earlier environmental documents (Sacramento County 1986), and an analysis derived from the only known quantifiable database on vernal pool invertebrates in the Central Valley, the Service can find no basis for the District assigning lower biological values to certain vernal pools based on their depth, size, or density, especially those outside the Corps' proposed preserve in the northwest portion of the project area. The Department maintains that these vernal pools and swales must also qualify as aquatic resources of national importance, since they contain high plant and invertebrate diversity and abundance, including at least two proposed endangered animal species, and support numerous species of migratory and resident birds.

SUBSTANTIAL AND UNACCEPTABLE IMPACTS

Between 1987 and 1990, the applicant filled 8.7 acres of vernal pools and seasonal swales without authorization, including 0.9 acre of wetlands for a road that bisects a once contiguous vernal pool complex, which the Corps subsequently classified as an aquatic resource of national importance. Furthermore, in 1990, the District issued a Nationwide 26 permit to fill about 0.9 acre of vernal pools and seasonal swales in a vernal pool complex, later also determined to be an aquatic resource of national importance, for the A.C. Butler School site.

Permit issuance as proposed will result in the additional loss of 7.53 acres of vernal pools and seasonal wetlands, most of which are biologically indistinguishable from wetlands the Corps has called aquatic resources of national importance. Permit issuance for the proposed project would result in the direct loss of important biological functions and values associated with vernal pools and other seasonal wetlands. The physical and biological integrity of the site's wetlands would be altered with the reduction in the overall area of remaining vernal pools and their watersheds, as well as through the loss or reduction in the diversity and abundance of plant and animal species. Replacement of the all biological values and functions of the site's wetlands will not be adequately compensated with proposed creation efforts at a compensation site 12 miles away. Key biological components that play a role in sustaining the overall health of vernal pool ecosystems have not been fully assessed at the project site. For example, native solitary bees, some species which are critical pollinators of endemic vernal pool plants, have not been addressed in the mitigation plan. Individuals of these species are generally restricted to relatively small areas such as single pools or confined areas of larger pools within a given vernal pool complex (Thorp 1990).

The substantial and largely unmitigated net losses of vernal pool wetlands are of particular significance in light of the overall status and trends of vernal pool resources described in the preceding sections. Vernal pool wetlands have declined to less than ten percent of their original area, with a concomitant decline in the abundance and diversity of associated plant and animal species. Habitat fragmentation and the loss of dispersal corridors have exacerbated these declines. As a result of this cumulative loss, and because the District has generally failed to take species status and the Service's recommendations for their conservation into account in its permit decisions, many of these species are likely to be added to the Federal list as threatened or endangered.

The Department concludes that the net effect of permit issuance, even after proposed mitigation is taken into consideration, would be substantial and unacceptable impacts to aquatic resources of national importance. Based on the individual impact concerns and the shortcomings of vernal pool compensatory mitigation, we find that permit issuance will result in the degradation of vernal pool wetlands, which are recognized as a critical and imperiled resource on a state, national and global basis. In addition to exceeding the resource value and impacts threshold of the 1992 Memorandum of Agreement, the Department maintains that permit issuance in the face of such

degradation and loss of these aquatic resources would be significant, and contrary to the requirements of section 230.10(c) of the 404(b)(1) Guidelines (40 CFR Part 230).

ALTERNATIVES TO THE PROPOSED PROJECT

The Department maintains that less environmentally damaging practicable offsite alternatives to the proposed Churchill Downs project may be available, but that the District's evaluation of practicable alternatives was not based on detailed information specific to the Churchill Downs project. Moreover, the District's onsite alternative analysis gave undue consideration to costs associated with previously authorized and unauthorized activities in its conclusion that further onsite avoidance would be impracticable. Proper consideration of alternatives would have the effect of avoiding or further minimizing adverse impacts to aquatic resources of national importance.

We believe that the District acted erroneously in relying heavily on an analysis of off-site alternatives developed for a different project (Department of the Army Permit 198900090, Elliott Ranch) in its 404(b)(1) determination of the least environmentally damaging practicable alternative. Furthermore, the Department has identified several flaws in the Elliott Ranch alternatives analysis. In particular, the alternatives analysis uses zoning as a determining factor and deletes other alternatives from consideration because of their non-urban zoning designation. However, rezoning is customarily used by project proponents to facilitate their projects. Therefore, otherwise suitable sites not presently zoned residential should not automatically be deleted from further analysis. While the District has used zoning designations to exclude alternative sites from further consideration because they are not zoned for urban development, it has at the same time viewed the Churchill Downs site as the preferred alternative, even though portions of the project area, including part of the northwest area of the property, are not currently zoned for the applicant's proposed residential development.

In applying the Elliott Ranch alternatives analysis, the District has also concluded that, since all alternatives have wetlands present, the project will "be in the position of affecting wetlands," regardless of whether the proposed project site or one of the alternatives is developed. Little discussion of the quality and extent of wetlands present on each site, much less their potential to qualify as aquatic resources of national importance, exists in the analysis and there is no in-depth comparison between sites of probable wetland impacts associated with project development. Without such a comparison, it is impossible to come to the conclusion that the project site at Elliott Ranch, and therefore at Churchill Downs, will have the least adverse effect on wetlands.

The Department further concludes that the applicant's site-specific alternatives analysis for the Churchill Downs project provided by the applicant contains flaws similar to the Elliott Ranch analysis, and lacks sufficient detail to confirm the assessment that less environmentally damaging practicable alternatives are not available. Because of these flaws in the two

analyses, and because of the inappropriateness of reusing the Elliott Ranch analysis, the District should have required and evaluated a detailed alternatives analysis for the Churchill Downs project.

Finally, the District has apparently accepted the applicant's claim that further onsite wetlands avoidance would lead to a net monetary loss and, thus, would not constitute a practicable alternative under the 404(b)(1) Guidelines. The Department contends that infrastructure costs incurred by the applicant prior to receiving authorization for a section 404 permit for the total project should not be included in the cost analysis for evaluating on-site project alternatives. During the preparation of environmental documents for the project in 1986, the District made Elliott Homes aware of the Corps' jurisdictional responsibilities concerning the filling of wetlands on the site, and this fact is documented in the final environmental impact document (Sacramento County 1986). By beginning project construction and filling jurisdictional wetlands before actually applying for and receiving a permit, the applicant accepted certain risks associated with those costs, and should not now be allowed to present those costs to attain a "practicable" threshold under the 404(b)(1) Guidelines. The end result of permitting these costs to be included in the cost analysis is that further wetlands avoidance in the project area is precluded by the District. Moreover, the District's decision to allow infrastructure costs derived from an unauthorized fill activity to be considered sets an improper precedent, and may provide an incentive to other developers who might contemplate filling wetlands without a Corps permit.

ADEQUACY OF PROPOSED COMPENSATION

Technology of Vernal Pool Creation

The District maintains that vernal pools can be created to successfully re-create the original biological conditions found in natural pools, and that in some cases pools can be created with higher biological values than those lost. The Department views vernal pool habitat as essentially irreplaceable, since there is little empirical evidence that current vernal pool creation techniques can successfully re-create lost habitat functions and values, and sustain them over the long term. Many vernal pool specialists agree with this view, and consider vernal pool creation to remain highly experimental. They recommend that creation not be pursued as compensation for loss of vernal pool functions and values in lieu of avoiding these unique wetlands altogether. In a review of 21 vernal pool creation projects in California, Ferren and Gevirtz (1990) concluded that no conclusive data exist to substantiate the hypothesis "that vernal pools can be restored or created to provide functional values within the range of variability of natural pools." A second study on the preservation and management of vernal pools concluded that the "science of vernal pool creation is still in its infancy and is primarily an experimental mitigation technique" (Jones and Stokes 1990).

In its draft decision document, the District relies almost exclusively on undocumented claims of "success" in creating vernal pools, even though it is acknowledged that most efforts are less than five years old. Moreover, the District has apparently limited its verification of their success to visual

observations, not quantitative evaluations. The Department is unaware of any vernal pool creation or restoration projects that have completed their five-year monitoring periods and, therefore, have met their required defined success criteria. Even if these criteria are eventually met, the question as to these wetlands having acquired the biological functions and values lost at the impact site will not have been answered. Since in nearly every case comprehensive baseline data are not provided, success criteria defined within a Corps permit are rarely specific enough to make satisfactory comparisons. Furthermore, due to the high cost of wetlands restoration and creation, the District has typically limited baseline data collection and performance monitoring requirements in an effort to reduce costs to permit applicants. Thus, the number of restoration and creation projects having the potential to yield useful results will continue to be extremely limited.

The District notes that although the vernal pool fairy shrimp, California linderiella, and vernal pool tadpole shrimp may have occurred in the 9.6 acres that have been filled by the applicant without authorization, these past impacts cannot be avoided, only mitigated "retrospectively". The District has concluded that if the mitigation plan and proposed special conditions are implemented, the project will not have a substantial effect on the populations of these species, since they assume a vernal pool ecosystem can be successfully created. The District claims that the applicant's consultant has demonstrated successful transplantation and maintenance of the three proposed endangered crustaceans at "all of their vernal pool creation sites over the past three years." The District further asserts that collection of the top layer of soil for the created pools will lessen impacts to the fairy shrimp and vernal pool tadpole shrimp. However, it is unlikely that the original invertebrate species composition, including the three crustaceans proposed for listing, will be successfully re-created in the artificial vernal pools at the compensation site.

The only known controlled vernal pool creation experiment with fairy shrimp was a failure (Brusca 1993a). Although there was good hatching the first year, the number of individuals diminished steadily each year, and by the fourth year there was essentially no hatch. Apparently there was no successful reproduction, and the fairy shrimp were only present until the egg bank in the original inoculum had been depleted. Furthermore, the reports of successful vernal pool creation have been generally poorly controlled, completely lacking in long-term monitoring, and do not appear in the peer reviewed scientific literature. Environmental requirements, not dispersal, are likely to be the limiting factor in the distribution of the vernal pool fairy shrimp, California linderiella, and vernal pool tadpole shrimp. The eggs of these crustaceans are probably dispersed by birds, such as waterfowl, wind, or the adults likely disperse during periods of high water or through swale systems. The three species are probably just as capable of dispersal as the other more widely distributed fairy shrimp and tadpole shrimp species. These animals require unknown, but specific environmental conditions, and there are no proven long-term populations of the three species in artificial habitats.

The removal of the soil from the vernal pools for transportation to created pools can damage eggs, and heat or humidity during storage can destroy them

because of mold or adverse environmental conditions. One vernal pool crustacean biologist has found that the vernal pool fairy shrimp, California linderiella, and vernal pool tadpole shrimp are exceedingly difficult to raise from eggs (King 1992). Another specialist reported that approximately 50% of the vernal pool fairy shrimp eggs collected from 2.35 acres of vernal pools in the Central Valley were damaged and killed (Simovich 1993). Changes in the soils of vernal pools after scraping and recontouring may result in incorrect water chemistry for the crustaceans. The hydrology of created pools may also be detrimental for the animals, because of incorrect water temperature or other environmental factors. For example, a creation experiment in the Sacramento Valley resulted in a pool which was hydrologically successful, but did not support a viable population of the vernal pool fairy shrimp (Simovich 1992).

Artificially created habitats, such as vernal pools, may also increase the threat of hybridization between the vernal pool fairy shrimp and other more widespread species. For example, Lindalh's fairy shrimp (*Branchinecta lindalhi*) is a widespread species found in western North America that inhabits a wide array of conditions ranging from pools whose salinity is high enough to support brine shrimp (*Artemia* sp.) to snow melt pools. Poorly planned, careless construction, or haphazard placement of the substrate during vernal pool creation may enhance conditions for species such as Lindalh's fairy shrimp. Studies have found that Lindalh's fairy shrimp and the vernal pool fairy shrimp readily hybridize in the laboratory, and they produce viable first generation hybrids (Fugate 1991). There is evidence that hybridization between other fairy shrimp has occurred in the field because of human actions. The westward dispersal from Texas and New Mexico of a desert fairy shrimp (*Streptocephalus dorotheae*) across extensive expanses of arid land into Arizona may be due to the cattle ponds and livestock watering holes that were built after the 1800's in the region. A crustacean biologist has reported that viable hybrid offspring are produced by this species and Mackin's desert fairy shrimp (*Streptocephalus mackini*), a resident species in Arizona.

In summary, the Department maintains that avoidance of vernal pools is the only proven strategy for preserving their physical and biological integrity. In particular, we have repeatedly recommended to the District that remaining vernal pools in the Churchill Downs project area be avoided, and that compensatory mitigation be implemented for the wetlands already filled by the applicant.

Habitat Evaluation Procedures Analyses

Two modified Habitat Evaluation Procedures (HEP) analyses were performed for the Churchill Downs project. The first HEP analysis was performed at the request of the District by the Service, in association with District staff and the applicant's environmental consultant, in October 1991. Contrary to the discussion in the District's draft decision document, the purpose of the first HEP analysis was to calculate only the mitigation acreage needed to replace the wetlands already filled by the applicant without Corps authorization, and at the school site as a result of the issuance of a Nationwide 26 permit, since the extent of future fills on the remainder of the site was unknown at the time the HEP was prepared. Since the applicant's unauthorized fill had

forever prevented an actual value assessment of pools filled between 1987 and 1990, an assumption was made that the habitat values determined for vernal pools and swales still existing on the site would be used for those already filled. This assumption was agreed upon by all participants in the first HEP analysis, including District staff. Therefore, subsequent claims by the District that lower habitat values were present within the area previously filled contradict this assumption.

The District's draft decision document also states that the Service "unilaterally" decided to perform a second HEP analysis. This assertion ignores several key points in the decisionmaking process leading up to the second analysis. On May 28, 1992, EPA notified the District that flaws existed in the first analysis, and requested that a second analysis be conducted to correct habitat value assessments, which were made by Service staff after only one visit to the site during the dry season at the end of a five-year drought. The Service subsequently concurred with EPA's determination after conducting additional site visits, and reviewing the first HEP analysis. On July 23, 1992, Mr. Tom Coe, Chief of the District's Central Valley Office, met with Service staff and requested a second HEP analysis, but declined to participate in conducting this analysis. The Service subsequently completed the second HEP analysis, and provided the results to the District on September 3, 1992.

Because data-validated models do not exist for vernal pools, both modified HEP analyses are somewhat "subjective in nature", not just the second HEP analysis, as the District's draft decision document implies. The second HEP analysis is based upon additional and substantive site-specific information gathered from field observations by Service staff at the site during the winter and spring of 1992, when the biological values of the pools were more apparent, and used invertebrate survey data that was not previously available. Accordingly, the Service maintains the second modified HEP analysis is much less subjective than the first and provides a better assessment of the habitat values at the project and proposed mitigation sites. In assigning values for the second HEP analysis, the Service believes that compensatory mitigation proposed by the applicant would not fully restore all biological functions and values at the mitigation site because of the experimental nature and unknown factors in creating this wetland type. The second analysis indicated that 20.27 acres of vernal pools and 21.06 acres of seasonal swales would be required to offset the 17.14 acres of wetlands that would be filled with issuance of the proposed permit.

Finally, the Department notes that the District has applied the results of the WET evaluation performed by the applicant's environmental consultant to the compensation ratios derived by the District from the results of the HEP analyses, and selected a lower ratio after considering other wetland functions, which were found to be "low". Such a combination of results is both incongruous and inappropriate, since it fails to consider that 1) HEP applies to habitat values only, 2) replacement should be based solely on those functions which the wetland can actually be expected to perform, not those which are absent or uncharacteristic of the particular wetland type, and 3) any ratio should be based on those functions and values that the District would seek to replace at the compensation site. In the case of vernal pools,

the values of functions such as flood runoff storage, groundwater discharge, and pollutant adsorption/uptake could only be high at the expense of their habitat or other biological values (i.e., a "vernal pool" having high floodwater storage capacity would probably have been assigned a lower value for aquatic diversity/abundance).

ENDANGERED SPECIES ACT COORDINATION

The District contends in the record for the draft decision document that sufficient information concerning candidate plant and proposed animal species was provided by the applicant to adequately evaluate project impacts to these species. Moreover, the District states "it is our determination that candidate species will not be adversely impacted through the permitting of the proposed project with the imposition of proposed special conditions." The Service does not concur with these determinations, and finds that considerably more baseline information is required to accurately assess impacts to plant candidate and animal proposed species.

Plants

Botanical surveys in the project area in April 1986 revealed the presence of Boggs Lake hedge-hyssop, but the botanists' survey report concluded that additional appropriately-timed surveys were needed to adequately ascertain whether a variety of rare plants, some of which are now being evaluated by the Service for listing under the Act, also occupied the vernal pools in the project area. This report was subsequently provided to the District as part of the applicant's permit application package. However, it appears such surveys were not required by the District and have never been pursued in the project area. In July 1992, the California Native Plant Society reviewed this survey report at the request of Service staff and concluded that it was insufficient to determine the presence of numerous rare and common vernal pool plants (California Native Plant Society 1992). Without suitable surveys revealing baseline conditions, the absence or presence of these rare plant species remains unknown, and the District cannot yet support a finding that these species will not be adversely affected by the proposed project.

Animals

On May 8, 1992, a proposed rule was published in the Federal Register (57 FR 19856) proposing to list five species of freshwater invertebrate species as endangered under the Act. The Service attempted to obtain invertebrate survey information for the Churchill Downs site from the District, but was unsuccessful. Subsequently, invertebrate survey data collected by the applicant's environmental consultants was received by the Service as part of an assessment of potential project impacts to these proposed species. The information provided, which consisted of a one-page survey summary, indicated that five vernal pools were surveyed in 1991 and three pools were surveyed in 1992. Data revealed that the vernal pool tadpole shrimp and California linderiella, two freshwater invertebrate species identified in the proposed rule, inhabited vernal pools in the project area. Recent field observations by Service staff further defined the distribution and abundance of these

species and numerous other invertebrate species in vernal pools and a seasonal swale that will be impacted with permit issuance (USFWS, Sacramento Field Office, data on file).

The Service reviewed the limited invertebrate survey data compiled by the applicant's environmental consultant. This material did not contain the level of specificity necessary to evaluate the potential impacts of this project on the three proposed endangered species. On September 23, 1992, the Service requested that the District initiate a conference on the project for these animals pursuant to 50 CFR 402.10(a). Subsequently, the District, apparently with little or no data available, determined that the survival and recovery of the proposed species would not be jeopardized with the proposed project, and therefore refrained from requesting a conference.

The Service continued to recommend conferencing and assured the District that conferencing would not represent a significant delay to permit issuance. On December 3, 1992, after a meeting between Service staff and Mr. Tom Coe of the District, the Service outlined conference procedures on the proposed endangered fairy shrimp and the vernal pool tadpole shrimp for projects affecting these species within the boundaries of the District's jurisdiction, including Churchill Downs. In addition to specifying survey methods for the animals, the Service agreed to make a reasonable effort to provide a conference opinion within 30 days of the receipt of adequate survey information and a written request from the District. If the time constraints precluded an adequate survey, and the District and the applicant agreed, the District stated that a conference could be conducted on the assumption that all vernal pools and swales at a specified site provide habitat for these species.

The District has proposed a permit special condition that would require sampling of the proposed endangered crustaceans to gather the "information necessary to generate a biological opinion, should the species be listed subsequent to permit issuance." By themselves, surveys and other studies are not adequate mitigation for impacts to listed or proposed species. Furthermore, the Service is concerned the failure of the District to resolve impacts to these species may eliminate or severely limit potential reasonable and prudent measures if the animals are listed under the Act.

RECOMMENDATIONS

The Department recommends that the District deny issuance of an "after-the-fact" section 404 permit for the Churchill Downs project unless the following issues are addressed and included as permit special conditions:

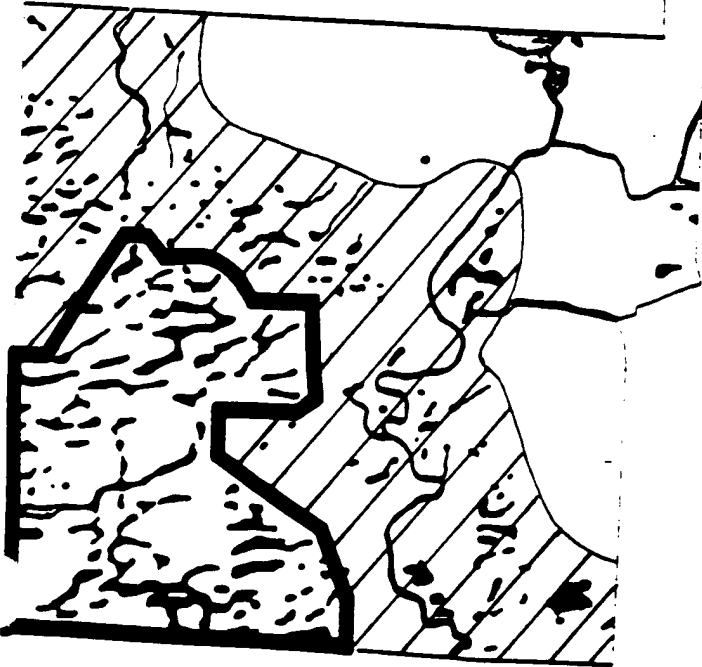
1. Important plant and wildlife resources remaining on the site will be preserved by requiring additional avoidance of project area wetlands. The onsite preserve in the northwest portion of the project area will be expanded to include those vernal pools and seasonal wetlands identified by the Department of the Interior as aquatic resources of national importance (see attached map).

2. Compensatory mitigation will be confined to replacing lost habitat values from the already-filled wetlands and the few remaining wetlands that would be filled outside the expanded preserves.
3. Onsite compensation within the expanded preserves will be evaluated as an alternative to offsite compensation. Any compensatory mitigation, either onsite or offsite, will be determined in consultation with the Service.
4. Adequate baseline information will be required for all plant and wildlife resources, particularly plant candidate and animal proposed species, on the site. Performance standards and success criteria will be developed which target the affected species. This information will be reviewed by the Service prior to issuing a permit for the project.





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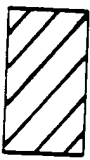
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WETLAND CLASSIFICATION

-  Vernal Pool
-  Seasonal Wetland
-  Drainage Ditch
-  Proposed Preserve Boundary

RECOMMENDED PRESERVE EXPANSION



A.C. BUTLER (MTHUN) 1912
 Old Grove Swamp District Under Construction
 (Previously authorized under 1978)

