



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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Memorandum

To: Manager, Environmental Compliance Group, Bureau of Reclamation, Lower Colorado Regional Office, Boulder City, Nevada

From: ^{Acting} Field Supervisor, Ecological Services - Carlsbad Field Office, Carlsbad, California

Subject: Biological and Conference Opinion for the All-American Canal Lining Project, Imperial County, California (CFO# 1-6-96-F-12/VFO#1-8-94-F-44)

This biological and conference opinion responds to your requests for formal consultation and conference with the U.S. Fish and Wildlife Service (Service) pursuant to section 7(a) of the Endangered Species Act of 1973, as amended (Act). Your requests were dated August 8, 1994, and June 22, 1995, and received by the Service on August 10, 1994, and June 28, 1995, respectively. At issue for the biological opinion are the effects that the proposed All-American Canal Lining Project may have on the federally listed endangered razorback sucker (*Xyrauchen texanus*) and Yuma clapper rail (*Rallus longirostris yumanensis*). Also at issue are the effects that the proposed project may have on Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) and the flat-tailed horned lizard (*Phrynosoma mcallii*), that are proposed for Federal listing as endangered and threatened species, respectively. Pursuant to 50 CFR 402.10(d), a conference opinion on these two species is incorporated into this biological opinion. The conference opinion issued for the Peirson's milk-vetch and the flat-tailed horned lizard may be adopted as the biological opinion if they are listed, provided that no new significant information is developed for the species and that no significant changes are made to the Federal action.

This biological and conference opinion was prepared using information from your August 8, 1994, and June 22, 1995, requests for a conference and biological opinion, the March 1994 Final Environmental Impact Statement/Report (FEIS/R) for the project, informal discussions

between our staffs, and the Service's files.

CONSULTATION HISTORY

The Service issued a previous biological opinion to the Bureau of Reclamation (Reclamation) regarding the proposed lining of the existing All-American Canal (existing canal) on July 3, 1985. The proposed action evaluated in that biological opinion involved the construction of a concrete-lined canal parallel to the existing canal from Pilot Knob to Drop 4. Because the flat-tailed horned lizard, the Peirson's milk-vetch, and the razorback sucker were not proposed or listed at that time, the July 3, 1985 biological opinion discussed only the endangered Yuma clapper rail.

In 1988 Reclamation formed a Biological Work Group (BWG) for the All-American and Coachella Canal Lining Projects. The BWG consisted of members from the Service, Bureau of Land Management (BLM), California Department of Fish and Game (CDFG), Reclamation, Coachella Valley Water District (CVWD), Imperial Irrigation District (IID), and Metropolitan Water District of Southern California (MWD). Through numerous meetings held between July 1988 and February 1994, the BWG performed fieldwork, described the existing environment, assessed the potential project impacts, and formulated mitigation measures. The primary assumption guiding the analysis was to treat all sensitive species as if they were already listed as either threatened or endangered under the Act. The BWG agreed that by using this assumption, if any species became listed during the project implementation the mitigation measures determined would be adequate and compliance with the Act would be streamlined. The species addressed in this planning process were:

Astragalus magdalenae var. *peirsonii* (Peirson's milk-vetch)
Helianthus niveus ssp. *tephrodes* (silver-leaved dune sunflower)
Pholisma sonorae (sand food)
Pilostyles thurberi (Thurber's pilostyles)
Croton wigginsii (Wiggin's croton)
Palafoxia arida var. *gigantea* (giant spanish needles)
Astragalus lentiginosus var. *borreganus* (Borrego dapple pod)
Phrynosoma mcallii (flat-tailed horned lizard)
Uma notata notata (Colorado desert fringed-toed lizard)
Pseudocotalpa andrewsi (Andrew's dune scarab beetle)
Rallus longirostris yumanensis (Yuma clapper rail)

After the proposed action was altered to constructing a concrete-lined canal parallel to the existing canal from Pilot Knob to Drop 3 (parallel canal), the Service and Reclamation concluded, through informal consultation, that the proposed action would not adversely

affect the Yuma clapper rails that occur in and adjacent to the proposed project site. The Service provided its concurrence to Reclamation by memorandum dated August 17, 1990. Groundwater elevations in this area were to be monitored by Reclamation, and if the level was lowered, as a result of this project, Reclamation would initiate discussions with the Service to implement reasonable measures that would ensure the maintenance of existing values for Yuma clapper rails within the wetlands between Drops 3 and 4. However, at the insistence of the MWD, the Service has included the Yuma clapper rail in this biological opinion.

Reclamation and the Service also consulted informally on the effects that the proposed action would have on the Yuma clapper rail and razorback sucker occurring along the Colorado River between Imperial Dam, where water currently enters the existing canal, and Davis Dam, where water that would be conserved by the parallel canal would be withdrawn into the Colorado River Aqueduct. Reclamation estimated that the proposed action would result in a decrease in water level of 1/2 inch in this reach of the Colorado River. Because the river's water level fluctuates greatly at present, this decrease would be "unmeasurable against the continual fluctuation in flow and the continual change in the river channel shape" (Reclamation 1994). On July 5, 1994, the Service concurred with Reclamation's conclusion that the proposed action would not adversely affect Yuma clapper rails, razorback suckers, or the critical habitat of the latter species along the Colorado River. Therefore, the effects of the project on the Yuma clapper rail, razorback sucker, and the critical habitat of the latter species along the Colorado River will not be discussed further in this biological opinion. However, the effects of the project on the razorback suckers occurring in the existing canal will be discussed.

Pursuant to the Fish and Wildlife Coordination Act, the Service prepared a final Fish and Wildlife Coordination Act Report (Service 1993b) for the project. This document evaluated the effects of each alternative on biological resources and provided recommendations for reducing negative effects.

BIOLOGICAL AND CONFERENCE OPINION

It is the biological opinion of the Service that the proposed construction, operation, and maintenance of the parallel canal one mile west of Pilot Knob to Drop 3 (a distance of 23 miles) adjacent to the existing canal in Imperial County is not likely to jeopardize the continued existence of the Yuma clapper rail or the razorback sucker or result in the destruction or adverse modification of critical habitat of the razorback sucker.

It is the conference opinion of the Service that the proposed construction, operation, and maintenance of a parallel canal, as described in the next section, is not likely to jeopardize the continued existence of the Peirson's milk-vetch and the flat-tailed horned lizard. Critical habitat has not been proposed for these species. Therefore, the proposed action would not result in the adverse modification of critical habitat.

DESCRIPTION OF THE PROPOSED ACTION

The 80-mile existing unlined canal originates at Imperial Dam on the Colorado River and flows west into the Imperial Valley. Under normal hydrological conditions, approximately 4,500,000 acre-feet per year are diverted into the existing canal at Imperial Dam. Of that amount 700,000 acre-feet are diverted for the purposes of hydroelectric power generation and are returned to the Colorado River. The remaining 3,800,000 acre-feet are used primarily for agricultural irrigation in the Yuma, Coachella and Imperial valleys. The Yuma Valley is served by six turnouts within the first fifteen miles of the existing canal, the largest of which is the Syphon Drop Power Plant at the head of the Yuma Main Canal. Approximately 21 miles from Imperial Dam, the Pilot Knob Power Plant and Wasteway turnout discharges to the Colorado River above the international boundary. The remaining major water diversions from the existing canal west of Pilot Knob are the Coachella Canal, the East Highline Canal, the Central Main Canal and the Westside Main Canal.

The unlined existing canal loses water to seepage along its entire length, with most of the seepage occurring in the eastern 40 miles. Seepage that occurs between Imperial Dam and Pilot Knob eventually returns to the Colorado River. Most of the water which leaves the existing canal between Pilot Knob and Drop 4 migrates underground to Mexico. About 105,000 acre-feet of water per year are lost to evaporation and seepage from the 30-mile long unlined section of the existing canal from Pilot Knob to Drop 4.

Title II of Public Law 100-675 (approved on November 17, 1988) authorized the Secretary of the Interior to line the unlined sections of the existing canal or pursue other means to recover the lost water. As no Federal funds were authorized to be appropriated to do this, the law authorizes specific southern California Contractors (Palo Verde Irrigation District, CVWD, IID, and the MWD) to fund the project and authorizes the beneficial use of the conserved water within the service areas of these California Contractors. Conserved water would not be diverted into the parallel canal but would be left in storage in Lake Mead. An agreement between MWD and IID would establish that MWD would fund and IID would implement the proposed All-American Canal

Lining Project.

Conserved water would be diverted into MWD's Colorado River Aqueduct behind Parker Dam rather than released below Parker Dam for diversion by the other California water contractors. Regardless of who provides the project's non-Federal funding, any of the California water contractors may use the conserved water provided the user pays its proportionate share of the cost of the conserved water used.

In the FEIS/R (Reclamation and IID 1994), Reclamation, MWD, IID, and CVWD identified the construction of the parallel canal from engineer's station 1250+00 near Pilot Knob to Drop 3 as the preferred alternative. About 67,700 acre-feet of water would be conserved under this project. The following project description is based on the information provided in the FEIS/R.

The centerline of the parallel canal would be offset from the centerline of the existing canal by 300 to 600 feet depending upon terrain, ease of construction, and location of existing structures. The parallel canal would lie north of the existing canal from Pilot Knob to Drop 1 and south of the existing canal from Drop 1 to Drop 3. At the Algodones Dunes, the parallel canal would be located as close to the existing canal as practicable to minimize excavation through the dunes:

The parallel canal design calls for a 50-foot wide bottom and side slopes of 1.5 horizontal to 1 vertical. The parallel canal would tie into the existing canal at existing drop structures and the two Interstate 8 bridges (10 tie-ins). Gates at each of the tie-in points would allow use of the abandoned sections of the existing canal in case of emergency. The tie-ins would be paved with concrete. Operation and maintenance roads on each side of the parallel canal would be 20 feet wide to match the existing canal roads.

Construction of the parallel canal would require excavation of 25 million cubic yards of material. Excavated materials in excess of that needed for the parallel canal embankments would be deposited in rows along the parallel canal. No borrow for earthfill would be required.

The width of construction disturbance, including the parallel canal, wind-rows, and maintenance roads is estimated at 600 feet through the high sand dunes (Drop 1 east to Interstate 8) and 400 feet elsewhere. However, the construction area may be somewhat larger or smaller in certain areas. Other land disturbances associated with construction are a 10-acre concrete batch plant and three 5-acre staging areas. In addition, several power lines and geodetic control monuments may need

to be relocated as a result of the parallel canal construction and would require disturbing additional areas.

Reclamation has estimated that 5.5 years would be required to construct the parallel canal. This time includes 2.5 years of preconstruction activities. Construction would begin in the third year and would be completed in the final three years. The parallel canal would be in service continuously and operated at as high a water level as possible. IID would operate and maintain the parallel and existing canal. IID would cooperate with BLM to prohibit and discourage public use and activities in the abandoned canal right-of-way.

The abandoned sections of the existing canal would be managed by IID as an emergency channel in the event of damage to the parallel canal from earthquakes or other catastrophic event. To accomplish this, a management plan for the old canal would be prepared during the project design phase in coordination with the BLM and other agencies. The plan would include the specific action needed to maintain the abandoned sections for the specified purpose of an emergency use channel. The plan would include actions needed to keep the abandoned canal prism and maintenance roads free of vegetation. Vegetation control may involve regular discing and the use of legally approved chemical herbicides. Standard care would be taken to limit the application of chemical herbicides to vegetation within the abandoned canal right-of-way only. Any dead plant or other material not left in-place would be burned on-site in accordance with Imperial County Air Pollution Control District regulations or would be disposed of at a licensed disposal facility.

The gates at the tie-ins between the parallel and existing canal would need to be exercised on an annual basis to ensure that they are operating properly. This would result in a small amount of water flowing into the abandoned sections once a year. A grader would construct a V-shaped channel down the center of the abandoned canal bottom such that flow resulting from water released during gate exercising would be directed to a narrow strip along the center of the abandoned canal.

Operation and maintenance for the parallel canal would not be significantly different than the existing canal. Vegetation control on the embankments and operation and maintenance of the roads for the parallel canal would be similar to that of the abandoned canal. Any damage that may occur to the concrete lining would be repaired as fluctuations in the water level and delivery of water permit. All concrete debris would be stockpiled on IID property for later uses such as irrigation canal bank riprap. Based on past experience,

dredging sediment out of the parallel canal would not be necessary for the foreseeable life of the project. Routine maintenance to all existing and new structures associated with the parallel canal and existing canal would continue as currently practiced. All traffic, including foot, passenger, and utility vehicle would be limited to existing and new operation and maintenance roads constructed as part of the project.

The mitigation measures proposed for the project are based substantially on the recommendations contained in the project's Fish and Wildlife Coordination Act Report (Service 1993b).

Impacts to wetlands would be mitigated in several ways. Mitigation for the loss of wetlands that have been created from the seepage between Drops 2 and 3 and that occur in the existing canal would consist of establishing 43 acres of riparian vegetation and 1 acre of marsh vegetation in the wetlands complex adjacent to the existing canal between Drops 3 and 4. To mitigate for the reduced flows on the Colorado River between Parker Dam and Imperial Dam, the project sponsor, through Reclamation, would fund backwater restoration, development, and enhancement in the amount of \$100,000. The location, purposes, and design of the backwater restoration project shall be coordinated through the appropriate entities and the Colorado River Backwaters Subcommittee of the Colorado River Management Work Group.

Mitigation for impacts to fishery resources would consist primarily of restoring shelter for juvenile fish by means of artificial reefs in the parallel canal. A total of 197 reefs would be created along the parallel canal. The reefs would be made of discarded automobile tires bound together into mats. Each tire reef would be about 16 by 50 feet and would be anchored to the parallel canal's side at a level to ensure it would be submerged at all times.

For any razorback suckers found stranded in the existing canal following drawdown or the annual exercising of the gates, IID shall adopt a procedure consistent with the existing program and procedure developed in cooperation with the Service and CDFG for handling the razorback suckers found within the IID's irrigation system. Razorback suckers collected from an abandoned section of the existing canal would be placed in anesthetic-treated water and transported by IID staff to IID's Grass Carp Hatchery in El Centro. CDFG and the Service would be notified about the number of razorback suckers collected and transported to the hatchery. Upon arrival at the hatchery, the razorback suckers would then be transferred from the fish hauler to a recovery tank. During this process, each razorback sucker would be measured, weighed, scale samples removed, and scanned for any existing passive integrated transponder (PIT) implants. If no PIT is present,

a new PIT would be implanted in the razorback sucker and recorded. A copy of all recorded data would be given to the Service and CDFG. Arrangements would be made for CDFG to transport the razorback sucker to the Colorado River for release into Senator Wash Reservoir.

For all areas disturbed by construction, all vegetation would be crushed rather than bladed, whenever practicable. In vegetated areas requiring blading, topsoil would be stripped prior to disturbance and stockpiled. Prior to abandonment, construction sites would be recontoured to approximate original topography and the surface soil materials replaced over the ground surface to facilitate natural revegetation.

To offset the loss of habitat of the terrestrial habitats of the Peirson's milk-vetch, the flat-tailed horned lizard, and several candidate species, MWD would acquire private lands which support similar habitat types. The lands acquired would be transferred to the BLM for the protection and benefit of the species. The acreage of habitat to be acquired would equal that lost during construction of the parallel canal. The reason this mitigation ratio was agreed to is the current condition (heavily impacted due to off road vehicle use) and designated use of the area (i.e., off road vehicle open area).

The delineation of habitats, based on surveys (Service 1993a), and the suitability of replacement lands would be determined in consultation with the appropriate entities. Acquisition of lands to replace flat-tailed horned lizard habitat would be prioritized as follows: 1) lands in the vicinity of the existing canal; 2) other lands in East Mesa; 3) West Mesa; 4) or the Yuha Basin area of Imperial County. These acquisitions would be in accordance with the BLM Flat-tailed Horned Lizard Management Plan. Within the sand dunes, the target species occupy slightly different types of habitat and quantification of the acreages of the specific types that would be affected by the proposed action would be extremely difficult. Therefore, the MWD, Reclamation, and the Service have agreed that the acquisition effort would target private lands that support similar habitat types, although the precise acreages of lost habitat of each species may not be acquired.

To the extent practicable, construction of staging areas and the batch plant would be limited to previously disturbed areas and would avoid areas where individuals of these species are relatively numerous. Qualified biologists from Reclamation, the Service, and CDFG would accompany the responsible engineer on-site to recommend areas to be used as disposal and equipment staging areas.

In addition, prior to construction of the parallel canal, abundance and habitat characterization studies would be conducted for the

Peirson's milk-vetch and the sand dune candidate species that could be disturbed by the project. Collections of plants and morphological data, including measurements and rooting characteristics, would be made for a representative sample of plants.

EFFECTS OF THE PROPOSED ACTION ON THE LISTED SPECIES

Species Account

Full species accounts for the candidate species which inhabit the sand dunes can be found in the Service's Fish and Wildlife Coordination Act Report (1993).

Razorback Sucker

Adult razorback suckers often exceed 3 kilograms in weight and 600 millimeters in length and are readily identifiable by the abrupt, sharp-edged dorsal keel behind the head and a large, fleshy, subterminal mouth that is typical of most suckers.

The razorback sucker was once abundant throughout 5,635 kilometers (km) of the Colorado River basin, primarily in the mainstem and major tributaries in Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, and in the States of Baja California Norte and Sonora of Mexico. In recent times, razorback sucker distribution has been reduced to about 25 percent of its original habitat. Razorback suckers are now mainly found along 1,208 km in the upper basin of the Colorado River, and a substantial population exists only in Lake Mohave in the lower basin of the Colorado River.

Information on the behavior and habitat needs of the razorback sucker is limited. Some adult razorback suckers migrate considerable distances to specific areas to spawn. Spawning is expected to occur from January through April in the lower basin and from April through June in the upper basin. Spawning occurs over gravel bars that are swept free of silt.

The past and continuing declines in the razorback sucker population can be attributed to several factors. The construction and operation of 15 dams on the Lower Colorado River have altered and continue to greatly alter razorback sucker habitat. Problems include blockage of passage, changed water temperatures, and altered flow. Predation by and competition with introduced fish are also considered to be significant threats to the razorback sucker. The razorback sucker was listed as a Federal endangered species on October 23, 1991 (56 *Federal Register* 54957). Critical habitat was designated on March 21, 1994 (59 *Federal Register* 13374).

Fifteen reaches of the Colorado River system are designated as critical habitat for the razorback sucker. These reaches total 2,776 km as measured along the center line of the river, representing 49 percent of the historical habitat of the razorback sucker. Within the lower basin of the Colorado River, portions of the Colorado, Gila, Salt, and Verde Rivers are critical habitat.

In December, 1992, the CDFG was informed by the IID that three razorback suckers had been captured in Galleano Reservoir in Imperial County. This species has also been documented on a very infrequent basis in reservoirs of the CVWD (Thiery, pers. comm., 1995). These fish reached the reservoirs through the existing canal. Therefore, some potential exists for individual razorback suckers to occur in the existing canal.

Yuma Clapper Rail

The Yuma clapper rail is a medium-sized, slate-brown bird restricted to fresh or brackish water marshes along the lower Colorado River Valley, the Salton Sea basin, and other isolated locations in California and Arizona. Yuma clapper rails forage for aquatic invertebrates and small fish in open or regenerating marshes in proximity to areas providing suitable nesting habitat, such as dense stands of mature bulrush (*Scirpus acutus*) and cattail (*Typha latifolia*). Yuma clapper rails also may build nests on dry hummocks or in low shrubs adjacent to water (Anderson and Ohmart 1985). Breeding and nesting take place from mid-March through July, and young are fledged in 63 to 70 days (Eddleman 1989).

Historically, Yuma clapper rails were most common in Mexico where the delta of the Colorado River supported large expanses of freshwater marsh. Following the large dam projects on the Colorado River during the late 1930's and early 1940's, the population of Yuma clapper rails shifted northward in response to loss of habitat downstream and development of new habitats above the dams (Steinhart 1990). In recent years, the pace of habitat loss, degradation, and fragmentation has increased, primarily because of intensive water management activities such as water diversions, dredging, erosion control, and mosquito abatement (Steinhart 1990). On March 11, 1967, the Service listed the the Yuma clapper rail as an endangered species (32 *Federal Register* 4001) because of loss of habitat and water diversions. A final recovery plan for the Yuma clapper rail was issued in 1983. Critical habitat has not been designated or proposed for the Yuma clapper rail.

Surveys for Yuma clapper rails between Drops 3 and 4 in the project area were conducted in 1981, and 1988 (Reclamation and IID 1991).

During the 1981 surveys, 17 Yuma clapper rails were detected (Service 1993b). Three Yuma clapper rails were detected during the 1984 and the 1988 surveys (Service 1993b). Approximately 111 acres of Yuma clapper rail habitat has been identified between Drops 3 and 4, and additional suitable habitat continues west of Drop 4. Based on field inspection, none of the wetlands between Drops 2 and 3 in the project area provide suitable habitat for the Yuma clapper rail (Reclamation and IID 1991).

Peirson's Milk-vetch

The Peirson's milk-vetch is a stout, short-lived perennial reaching 2 to 7 decimeters in height. Stems and leaves are covered with fine silky hairs. The leaves are 5 to 15 centimeters (cm) long with 8 to 12 small, oblong leaflets. The flowers are dull purple and are arranged in 10 to 17 flowered racemes. The pods are 2 to 3.5 cm long and are inflated with a triangular beak.

The Peirson's milk-vetch occurs on stable slopes, depressions, and conically shaped hollows of windblown sand dunes in the Sonoran Desert. Its historic distribution ranges from Borrego Valley in eastern San Diego County to Yuma on the California-Arizona boarder and south into northeastern Baja California. The Peirson's milk-vetch is currently known to occur along the northern and western flanks of the Algodones Dunes extending into northeastern Baja California. The primary land manager of the Algodones Dunes is the BLM.

The remaining populations of the Peirson's milk-vetch are threatened by several factors. The primary threat is the alteration of habitat from off-road vehicles. The plant is also threatened with stochastic extinction due to the limited size and number of its populations. On May 8, 1992, the Service published a proposed rule to list the Peirson's milk-vetch as endangered (57 *Federal Register* 19844).

Surveys for the Peirson's milk-vetch in the project area were conducted by the Service and Reclamation in 1984 and 1993. In the 1984 survey, 1,447 individuals were observed in the high sand dune habitat between Interstate 8 and Drop 1 (Reclamation and IID 1991). In the 1993 survey, 1,354 individuals were observed in the high sand dunes (Service 1993a). No Peirson's milk-vetch was observed in the low sand dunes (Interstate 8 to west of Sidewinder Road) during either survey.

Flat-tailed Horned Lizard

The flat-tailed horned lizard is a small cryptically colored iguanid that is restricted to flats and valleys of the western Sonoran Desert.

The flat-tailed horned lizard occurs in a variety of lowland, valley habitats typically characterized by open creosote scrub and sandy substrates. The species' range includes the Coachella Valley in Riverside County, portions of Imperial and San Diego Counties, and Yuma County, Arizona. In Mexico the flat-tailed horned lizard occurs in Baja California del Norte and northwestern Sonora in the vicinity of the delta of the Colorado River, the Gran Desierto, and Bahía de San Jorge. Flat-tailed horned lizards consume ants and other insects although through spring and summer their diet may consist almost entirely of ants.

Approximately 40 percent of the historic flat-tailed horned lizard habitat in California has been converted to other uses and no longer supports the species. Remaining optimal habitat in California is threatened by agricultural and urban development, off-road vehicle use, geothermal energy development, sand and gravel operations, military maneuvers, and road and highway construction. On November 29, 1993, the Service published a proposed rule to list the flat-tailed horned lizard as threatened (58 *Federal Register* 62624).

Surveys for the flat-tailed horned lizard in the project area were conducted in May 1984, and again in June 1993 (Reclamation and IID 1991, Service 1993a). Results of the two surveys were similar. The only areas in which flat-tailed horned lizards were observed were between Drops 1 and 3; however, scat was observed east of the eastern Interstate 8 crossing over the existing canal. The greatest number of scat was counted between Drops 1 and 2 and within 2.8 miles southeast of the eastern Interstate 8 crossing (Reclamation and IID 1991, Service 1993a). The Service (1993a) surmised that the species is probably absent from the high dunes between Drop 1 to about the eastern Interstate 8 crossing and in the eastern 4.2 miles of the project area.

Analysis of Impacts

The project could affect razorback suckers by stranding individuals that occur in the existing canal when it is emptied into the parallel canal. These individuals, which would die if left in the empty existing canal, could be transported to the Colorado River and released, if found during the drawdown. At this time, an organized salvage of stranded fish is not planned. Once the parallel canal is constructed, razorback suckers would likely continue to pass through it on an infrequent basis. In addition, exercising the gates at the parallel canal tie-ins to the abandoned sections of the existing canal could possibly result in razorback suckers being discharged into the abandoned sections where they would die if not salvaged and moved to appropriate habitat.

Along the Colorado River, the impact to average water levels would occur against a backdrop of weekly fluctuations of up to one foot and seasonal fluctuations of up to three feet. Extreme low flows and flood flows would not be affected by the project. The ratios of the reduced flow to average summer and winter flows are 0.8 percent and 2 percent, respectively. As such, there is no clear indication the project would have any impact on the existing habitat downstream of Parker Dam, including the designated critical habitat of the razorback sucker. In addition, the backwater restoration to mitigate for the potentially reduced flows on the Colorado River between Parker Dam and Imperial Dam would be expected to have a beneficial effect on razorback suckers in that reach of the Colorado River. The level of the benefit would depend on the type of the restoration completed.

As stated above, the Service concurs with Reclamation's assessment that the proposed project would have no adverse effects on the Yuma clapper rail between Drops 3 and 4 and along the Colorado River. In addition, the likelihood of a Yuma clapper rail occurring within the project area is very low, and, therefore, Yuma clapper rails would not likely be affected by the project. However, because Yuma clapper rail habitat does occur adjacent to the project area, a transient Yuma clapper rail could occur at some time in the project area. Such a transient bird could be disturbed, injured, or killed if it occurred near or in an area of construction.

The Peirson's milk-vetch and the flat-tailed horned lizard would be affected by mortality of individuals and permanent and temporary loss of habitat through the construction, operation, and maintenance of the project. The project would disturb a corridor adjacent to the existing canal. The corridor has been estimated at 600 feet in width through the large sand dunes north of Interstate 8 between the Interstate 8 crossing and Drop 1. This area supports over 1,000 individuals of the Peirson's milk-vetch.

The corridor has been estimated to be 400 feet in width elsewhere in the right-of-way, which includes known flat-tailed horned lizard habitat. Reclamation (1990a) calculated that 562 acres of creosote scrub and 916 acres of sand dune community would be destroyed by construction activities. These acreage calculations are preliminary while the exact acreage of habitat to be disturbed will be determined based on the final construction design of the parallel canal.

The MWD requested that the Service analyze the effects of the proposed action on the habitat of the flat-tailed horned lizard and Peirson's milkvetch as if critical habitat had been proposed for these species. To determine whether an action would destroy or adversely modify critical habitat, the Service must analyze the effects of the action

on the constituent elements of the critical habitat. The constituent elements are specifically defined in the proposed and final rules for critical habitat for each species. Therefore, because the Service has not proposed critical habitat for the flat-tailed horned lizard and Peirson's milkvetch, specific analyses for these species are not possible.

However, the general requirements for the development of constituent elements could be used to conduct a preliminary analysis of whether the proposed action would result in adverse modification or destruction of critical habitat. Constituent elements are those physical and biological attributes that are essential to the species' conservation, and can include: space for individual and population growth, and for normal behavior; food, water, and other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distribution of the species (50 CFR 424.12). The following evaluation of the proposed action, with regard to critical habitat for the flat-tailed horned lizard and Peirson's milkvetch, is based on the generalized description of constituent elements.

The flat-tailed horned lizard has a patchy distribution in the Coachella, Imperial, and Borrego Valleys of California, Yuma County in Arizona, and northeastern Baja California and northwestern Sonora, Mexico. The proposed action would result in the loss of 562 acres of creosote scrub which provides habitat for the flat-tailed horned lizard. This represents less than 0.06% of the 1,495 square miles of suitable habitat throughout the range of the species (Johnson and Spicer 1985). Flat-tailed horned lizard habitat that would be affected by the project would not likely play a role in the recovery of the species because the habitat is small in size, of linear configuration, and isolated from the large habitat areas in East Mesa and east of the Algodones Dunes by Interstate 8 and the existing canal. The proposed project would continue to isolate the remaining flat-tailed horned lizard habitat south of the existing canal from habitat to the north. Flat-tailed horned lizard populations in the East Mesa and east of the Algodones Dunes are currently isolated from southern populations in Baja California and Arizona by extensive agriculture, the Colorado River, the Rio Hardy, and other natural and human-created barriers. Loss of habitat due to the proposed action would not further fragment or isolate these populations. Because this species does not migrate, its normal behavior, food, cover sites, and reproductive capabilities throughout the remainder of the range would not be affected by the proposed project. The proposed project also would not eliminate any areas known to be protected from disturbance

or representative of the historic geographical and ecological distribution of the species.

The Peirson's milk-vetch occurs throughout the Algodones Dunes. Although the proposed action would result in the loss of 916 acres of sand dune habitat, the Peirson's milk-vetch occupies only a very limited area. The proposed project would not compromise the ability of the Peirson's milk-vetch to persist in the remaining habitat because the morphology of the dunes, and consequently the microhabitats required by the Peirson's milk-vetch, would not be altered by the proposed project.

As a result of this analysis, the Service concludes that the proposed project would not significantly change the habitat attributes that may be considered constituent elements of critical habitat, if critical habitat is designated for these species.

About half the total acreage disturbed would be required for the parallel canal prism, spoil berms, and access roads. Habitat of the Peirson's milk-vetch and the flat-tailed horned lizard occurring in areas designated for these uses would be permanently lost. Long-term, but possibly temporary impacts, would occur at staging areas, concrete batch plants, and access routes. The areas not permanently disturbed may recover, but reestablishment of a desert scrub community would likely take many decades, if not centuries (Vasek et al. 1975a and b). In addition, use of the existing canal by off-road vehicle enthusiasts, as has occurred on the old Coachella Canal, would inhibit establishment of vegetation and flat-tailed horned lizards. By placing staging areas and the batch plant, to the extent possible, in previously disturbed areas, a certain amount of harm of the Peirson's milk-vetch and flat-tailed horned lizards and their habitat may be avoided. Crushing all vegetation disturbed whenever possible or stripping topsoil and replacing it over the ground surface when blading is necessary would facilitate natural revegetation of disturbed areas and increase the chances of recovery of the Peirson's milk-vetch and flat-tailed horned lizard in these areas. In addition, acquiring and protecting lands with populations and habitat for the Peirson's milk-vetch and flat-tailed horned lizard would ensure that these species have some protection in the future.

Operation and maintenance activities for the parallel and existing canal would occur only on areas previously disturbed and would mainly involve vegetation removal. These activities would likely have no adverse effects on Peirson's milk-vetch and flat-tailed horned lizard because habitat for these species would not be able to establish in the locations of these activities.

The abundance and habitat characterization studies proposed by MWD and Reclamation for the Peirson's milk-vetch and candidate plants may provide information on the ecology of these species that would be useful in promoting their recovery. These studies would be performed only on plants located within areas to be disturbed by construction activities. Additionally, the collection of seeds and plants for restoration and research purposes may benefit the recovery of these species.

The Service believes the impacts described above would not jeopardize the continued existence of the razorback sucker, the Yuma clapper rail, the Peirson's milk-vetch, or the flat-tailed horned lizard. We present this conclusion for the following reasons:

1. Reclamation and the proponent have proposed actions to minimize take of the listed and proposed species and the loss of their habitats and to compensate for the loss of habitat that would occur.

2. The proposed project would not result in habitat destruction or fragmentation that could inhibit recovery.

Cumulative Effects

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project. Many of the actions that are reasonably expected to occur within the vicinity of the proposed project would be subject to future section 7 consultations because the Federal government administers large portions of the desert lands. Otherwise, no State or private actions that would affect the area are known at this time.

Incidental Take

Section 9 of the Act prohibits the take of listed species without special authorizations. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such take is in compliance with this

incidental take statement. The stipulations described as reasonable and prudent measures and terms and conditions are non-discretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

This biological and conference opinion anticipates the following forms of take:

1. All razorback suckers stranded in the existing canal when it is emptied into the parallel canal may be taken in the form of harassment during their salvage and return to the Colorado River.
2. Two (2) razorback suckers stranded in the existing canal when it is emptied into the parallel canal may be taken in the form of direct mortality or injury.
3. All razorback suckers stranded in the existing canal during annual exercising of the gates may be taken in the form of harassment during their salvage and movement to the Colorado River.
4. Two (2) razorback sucker per year stranded in the existing canal during annual exercising of the gates may be taken in the form of direct mortality or injury.
5. All Yuma clapper rails occurring in the project site while the parallel canal is being constructed may be taken in the form of harassment.
6. One (1) Yuma clapper rail occurring in the project site while the parallel canal is being constructed may be taken in the form of direct mortality or injury.
7. All flat-tailed horned lizards occurring within the area to be affected by the construction and associated staging areas and batch plants for the parallel canal may be taken in the form of harassment while being moved out of harms way.
8. All flat-tailed horned lizards occurring within the area to be affected by the construction and associated staging areas and batch plants for the parallel canal may be taken in the form of direct mortality or injury.
9. All flat-tailed horned lizards occurring along the maintenance roads or within the existing canal during maintenance of the road and existing canal may be taken in the form of harassment while being moved out of harms way.

10. Ten (10) flat-tailed horned lizards occurring along the maintenance roads or within the existing canal during maintenance of the road and existing canal may be taken per year in the form of direct mortality or injury.

This biological and conference opinion does not authorize any form of take that is not incidental to the construction, operation, and maintenance of the All-American Canal Lining Project.

The incidental take statement for the flat-tailed horned lizard does not become effective unless the species is listed and the conference is adopted as the formal consultation. At that time, the project will be reviewed to determine whether any take of the species has occurred. Modification of the biological opinion and incidental take statement may be appropriate to reflect that take. No take of the species may occur between the listing of the flat-tailed horned lizard and the adoption of the conference as a formal consultation.

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that the Act requires a Federal permit for the removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

The Service has determined in this biological and conference opinion that the destruction of the individuals of these plant species within the construction right-of-way would not jeopardize their continued existence. The Service has also determined that the ecological characterization study of the plants, to be conducted by MWD prior to their destruction, may yield information important to the recovery of these species. Because the plants would be destroyed by a legal action that would not result in jeopardy, and useful information may be obtained, the Service herein authorizes the ecological characterization studies, as proposed by MWD, and the collection of plants and seeds. All data thus collected shall be made available to the Service or CDFG within one week of their written request. Collected specimens and seeds shall be provided to a member institution of the Center for Plant Conservation. Rancho Santa Ana Botanic Garden is a local member of the Center for Plant Conservation.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take

authorized by this biological and conference opinion. The prohibitions found in section 9 of the Act against taking do not apply to proposed species r listing found in section 9 of the Act do not apply until they are listed. However, the Service advises Reclamation to consider implementing the following reasonable and prudent measure for the flat-tailed horned lizard. If the conference portion of this opinion is adopted as a biological opinion following a listing of the flat-tailed horned lizard, the measures, with implementing terms and conditions, will be non-discretionary.

1. Any razorback suckers found during drawdown of the existing canal or during the yearly exercising of the canal shall be appropriately handled and returned to the Colorado River.
2. Well-defined operational procedures shall be implemented by Reclamation to avoid take and habitat disturbance of the flat-tailed horned-lizard during construction, operation, and maintenance of the All-American Canal Lining Project.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. Terms and conditions are based primarily on the mitigation measures proposed by Reclamation in the request for formal consultation. Several of the proposed measures are modified or combined herein.

1. The following terms and conditions are established to implement reasonable and prudent measure 1:
 - a. IID shall adopt a procedure consistent with the existing program and procedure developed in cooperation with the Service and CDFG for handling of the razorback suckers found within the IID's irrigation system. The procedure for handling stranded razorback suckers shall be adopted prior to drawdown.
 - b. Appropriate salvage equipment will be available on site during draw down of the canal and exercising of the gates.
2. The following terms and conditions are established to implement reasonable and prudent measure 2:
 - a. To the extent practicable, construction activities, including access roads, staging areas, and batch plants,

shall avoid flat-tailed horned lizard habitat and shall be located within previously disturbed areas.

1. Construction zones shall be flagged prior to any surface disturbance and all activities shall be confined to these designated work areas.
 2. After construction is completed, Reclamation shall conduct an evaluation and quantification of the disturbance which occurred in creosote scrub habitat.
 3. All flat-tailed horned lizards observed during construction activities shall be moved to nearby habitat outside the construction area.
- b. Operation and maintenance activities shall be limited to the existing and parallel canals and their respective maintenance roads.
 - c. Operation and maintenance activities shall include the periodic removal of vegetation from the maintenance roads and canals to prevent the establishment of flat-tailed horned lizard habitat.
 - d. All workers involved with construction of maintenance activities shall be informed of the biological resources of the project area, including the flat-tailed horned lizard, and be provided with information to ensure that their activities do not unduly degrade habitat of the project area, including litter.
 - e. An impact assessment study shall be developed and implemented to assess impacts of operation and maintenance activities on the flat-tailed horned lizard. The study shall focus on this species use of the area and mortality sustained due to its presence. Mitigation measures shall be developed and implemented based on the results of the study.

Disposition of Sick, Injured, or Dead Razorback Suckers and Flat-tailed Horned Lizards

Upon locating dead, injured, or sick razorback suckers or flat-tailed horned lizards, initial notification must be made to the Service's Division of Law Enforcement in San Diego, California at (619) 557-5063 within three working days of the finding. The Service's Carlsbad Field Office should be notified concurrently at (619) 431-9440. Written notification to both offices must be made within five calendar

days and include the collection date and time, the location of the animal, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The remains of intact razorback suckers and flat-tailed horned lizards shall be placed with educational or research institutions holding the appropriate State and Federal permits.

CONSERVATION RECOMMENDATIONS

In furtherance of the purposes of sections 2(c) and 7(a)(1) of the Act that mandate Federal agencies to utilize their authorities to implement programs for the conservation of listed species, we recommend that Reclamation or the project sponsor implement the following conservation actions. These recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The proposed project will result in the conservation of 67,700 acre-feet of water. This is enough water to supply approximately 38,000 average families. It is not possible to identify and quantify impacts to specific listed species due to new development enabled by this conserved water. The reason for this is that the destination of the water is the service areas of IID and MWD that together encompass seven counties. Therefore, even though the construction of homes for an additional 38,000 families will likely impact sensitive habitats and their associated species, analyses of impacts and the development of appropriate mitigation measures will need to be conducted on a more refined scale and outside the formal consultation process. Given the growth enabling aspects of water in an arid region, the water agencies should participate in multispecies regional conservation planning.

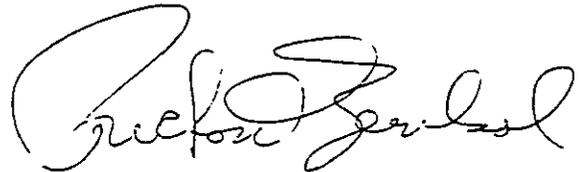
1. No new access to the dunes across either the parallel canal or the Coachella Canal should be created for the life of the project unless gated to prevent public use.
2. Reclamation should explore the availability of land with appropriate habitat at Salton Sea Test Base as compensation habitat for the sand dune species.
3. Reclamation should participate in multispecies conservation planning in the service areas of the water contractors benefitting from this project.

CONCLUSION

This concludes formal consultation and conference on the All-American Canal Lining Project, Imperial County, California. You may ask the Service to confirm the conference as a formal consultation if the Peirson's milk-vetch or the flat-tailed horned lizard becomes listed. The request must be in writing. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary.

Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is reached; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological opinion; or 4) a new species is listed or critical habitat is designated that may be affected by this action (50 CFR 402.16).

Any comments or questions should be directed to the Carlsbad Field Office at (619)431-9440.

A handwritten signature in cursive script, appearing to read "Rickon Zerkel". The signature is written in black ink and is positioned to the right of the text block.

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