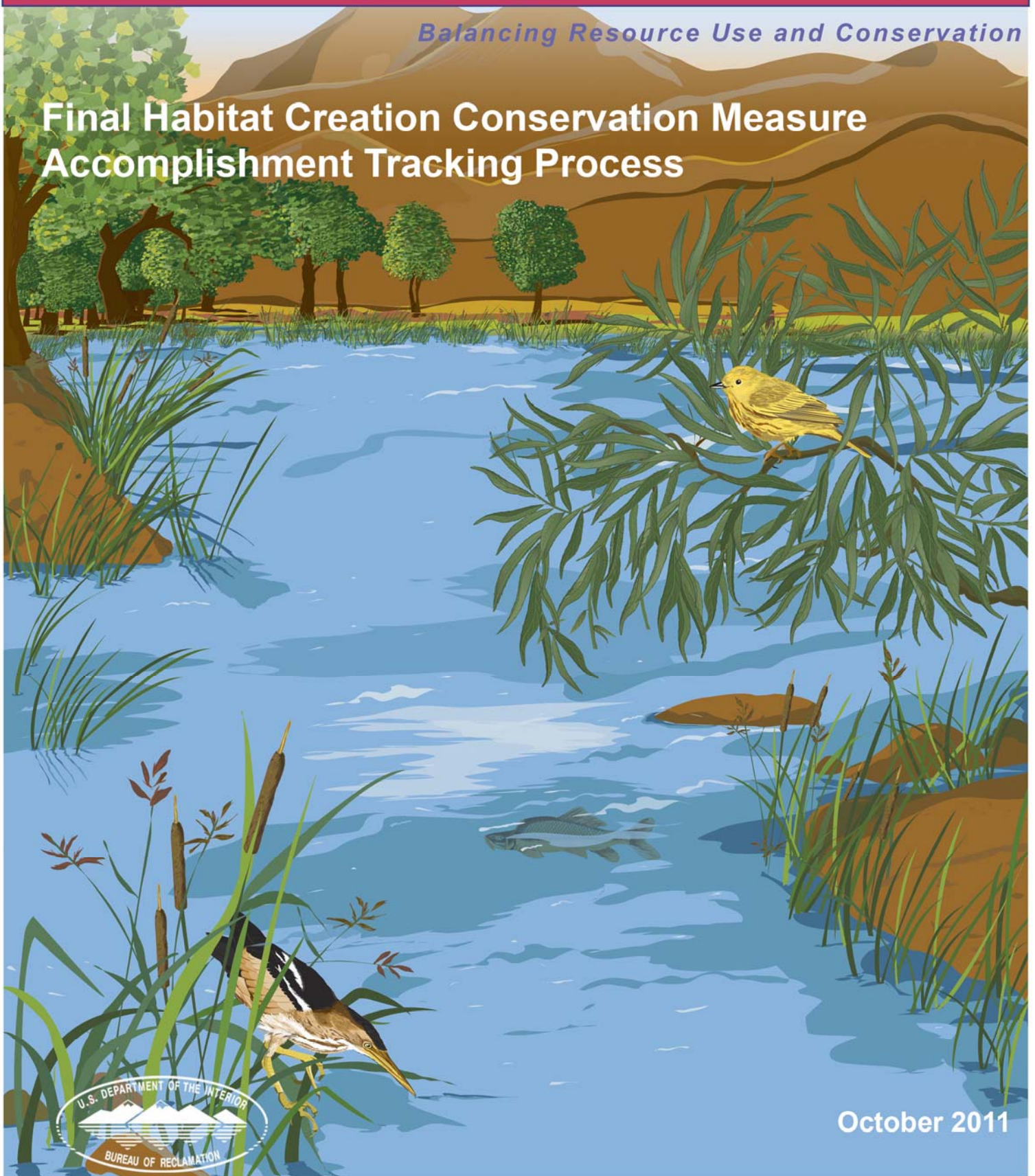




Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Final Habitat Creation Conservation Measure Accomplishment Tracking Process



October 2011

Lower Colorado River Multi-Species Conservation Program Steering Committee Members

Federal Participant Group

Bureau of Reclamation
U.S. Fish and Wildlife Service
National Park Service
Bureau of Land Management
Bureau of Indian Affairs
Western Area Power Administration

Arizona Participant Group

Arizona Department of Water Resources
Arizona Electric Power Cooperative, Inc.
Arizona Game and Fish Department
Arizona Power Authority
Central Arizona Water Conservation District
Cibola Valley Irrigation and Drainage District
City of Bullhead City
City of Lake Havasu City
City of Mesa
City of Somerton
City of Yuma
Electrical District No. 3, Pinal County, Arizona
Golden Shores Water Conservation District
Mohave County Water Authority
Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
Town of Fredonia
Town of Thatcher
Town of Wickenburg
Salt River Project Agricultural Improvement and Power District
Unit "B" Irrigation and Drainage District
Wellton-Mohawk Irrigation and Drainage District
Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

Other Interested Parties Participant Group

QuadState County Government Coalition
Desert Wildlife Unlimited

California Participant Group

California Department of Fish and Game
City of Needles
Coachella Valley Water District
Colorado River Board of California
Bard Water District
Imperial Irrigation District
Los Angeles Department of Water and Power
Palo Verde Irrigation District
San Diego County Water Authority
Southern California Edison Company
Southern California Public Power Authority
The Metropolitan Water District of Southern California

Nevada Participant Group

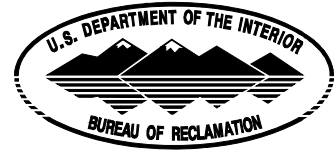
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Native American Participant Group

Hualapai Tribe
Colorado River Indian Tribes
Chemehuevi Indian Tribe

Conservation Participant Group

Ducks Unlimited
Lower Colorado River RC&D Area, Inc.
The Nature Conservancy



Lower Colorado River Multi-Species Conservation Program

Final Habitat Creation Conservation Measure Accomplishment Tracking Process

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Final
Habitat Creation Conservation Measure Accomplishment Tracking Process
October 27, 2011

Purpose

The purpose of this document is to describe an objective and transparent process for use by the Bureau of Reclamation (Reclamation) in determining Habitat Creation Conservation Measure accomplishment for conservation measures addressing habitat creation for 20 of the 26 covered species, specifically CLRA1, WIFL1, BONY2, RASU2, WRBA2, WYBA3, CRCR2, YHCR2, LEBI1, BLRA1, YBCU1, ELOW1, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, SUTA1, FLSU1, and MNSW2, contained in the Lower Colorado River Multi-Species Conservation Program (LCR MSCP).

Background

The Implementing Agreement (IA) states “The conservation measures described in Chapter 5 of the Habitat Conservation Plan (HCP) will fully mitigate the effects of incidental take of covered species resulting from the covered actions and covered activities and will, to the maximum extent practicable, minimize and mitigate the effects of incidental take of covered species resulting from the covered actions and covered activities” (IA, pg 8). The HCP outlines an approach to meet the conservation and biological goals through conservation measures that in combination, meet regulatory compliance. The measures include: 1) maintenance of existing habitat for covered species in the LCR MSCP planning area; 2) creation of new habitat, including long-term management of created habitat to maintain and preserve ecological functions; 3) avoidance and minimization of impacts on covered species and their habitat resulting from covered activities and LCR MSCP implementation; 4) population enhancement measures that directly or indirectly increase abundance of covered species; and 5) monitoring and research necessary to assess and improve conservation measure effectiveness and adaptively manage implementation of the LCR MSCP Conservation Plan over time (HCP, pg 5-6).

Within the broader conservation measures listed above, the HCP further defines General Species Conservation Measures (Section 5.6) and Species-Specific Conservation Measures (Section 5.7) to be implemented to meet those broader conservation measures and to fulfill a part of the conservation and biological goals. Under the General Species Conservation Measures, the HCP provides Monitoring and Research Measures (MRM) that are used to help guide the design and management of created habitats over the term of the LCR MSCP. MRM1 requires that surveys and research be conducted to collect

information necessary to better define the species habitat requirements¹ and to design and manage fully functioning created covered species habitat (HCP, pg 5-33). MRM2 requires that created covered species habitats be monitored and adaptively managed to maintain their functions as species habitat over time, and to determine the types and frequency of management activities that may be required to maintain created land cover as habitat for covered species (HCP, pg 5-34). Species-Specific Conservation Measures include Habitat Creation Conservation Measures that require the development and management of each of the species' habitats and describe habitat elements required by the species. These range from very specific measurable habitat elements (e.g., water levels maintained at depths no more than 12 inches for the Yuma clapper rail) to more general elements that do not list specific measurable criteria, such as RASU2 where "at a minimum, created backwaters will contain the physical, chemical and biological conditions suitable for the establishment and maintenance of healthy fish populations in the LCR" (HCP, pg 5-36). In the cases where the habitat elements in the species-specific conservation measures are not well defined, the HCP requires implementation of the MRM1 where surveys and research are conducted to better define the species habitat requirements (HCP, pg 5-35). If new information obtained through MRM1 and MRM2 is sufficient to cause a minor modification to a conservation measure, Reclamation will propose a minor modification under the procedure described in the IA (Section 14.1). When Reclamation completes a conservation measure, Reclamation will provide documentation to the US Fish and Wildlife Service (USFWS). The USFWS will then provide a letter of concurrence documenting completion of the conservation measure. As required by the Funding Management Agreement (FMA) (Section 7.4.1), accomplishment of a conservation measure will also be reported in the annual Implementation, Work Plan, and Budget, and Accomplishment Report prepared by Reclamation.

Habitat Creation

To meet species habitat creation requirements, the HCP provides goals for habitat creation based on land cover types. These land cover types are described using the Anderson and Ohmart vegetation classification system (Anderson and Ohmart, 1976, 1984; Younker and Anderson, 1986) (Appendix A). In total, the LCR MSCP is directed to design and create land cover types in a manner that will provide habitat for covered species in the following amounts (LCR MSCP 2004):

- 5,940 acres of cottonwood-willow (*Populus fremonti-Salix* spp.)
- 1,320 acres of honey mesquite (*Prosopis glandulosa*)
- 512 acres of marsh
- 360 acres of backwater

This is the minimum amount of each land cover type to be created to meet species habitat requirements.

¹For the other six species (BONY, FLSU, RASU, CRCR, YHCR, and MNSW) there are species-specific measures that address refinement of species habitat parameters.

The HCP specifies that created land cover types will be designed in an integrated mosaic and managed for more than one covered species, including habitat elements for each species. Table 5-5 of the HCP (HCP, after pg 5-10) lists each land cover type with specific acres to be created for each covered species.

Conservation areas are established by creating land cover types to meet covered species' needs. The HCP describes the design concept for creating cottonwood-willow, honey mesquite, marsh, and backwater land cover types. Created land cover types design and management requirements are listed in the species specific conservation measures within the HCP (HCP, pgs 5-35 through 5-73).

After establishment, a management plan will be developed for each conservation area that includes the targeted covered species, land cover types, species-specific habitat elements, and covered species habitat and land cover type acreage goals that will be managed for at the site. Species-specific habitat elements that are not well defined in the HCP will be provided in the Conservation Area Management Plans and determined by using the best available science through a review of existing knowledge, monitoring data, research projects, and input from species experts (LCR MSCP 2008). Information gathered through the adaptive management process will guide future site development and management of existing sites (LCR MSCP 2006c). The Conservation Area Management Plans will be prepared by Reclamation and provided to the landowner and USFWS. Any habitat created within California must also have a "Replacement Habitat Management Plan" approved by California Department of Fish and Game (CDFG) to meet California permittees CESA requirements. The Conservation Area Management Plans are intended to fulfill this requirement.

Tracking Process

In order to document completion of required Habitat Creation Conservation Measures, a procedure must be developed that describes and tracks the habitat creation accomplishments. Tracking will occur at both the conservation area level for land cover types and at the covered species level because conservation measures are species specific. Sites may be creditable as a management unit consisting of a full conservation area or a portion thereof. Habitat creation accomplishments will be reported in the annual Implementation, Work Plan and Budget, and Accomplishment Report.

Land cover type determination will be obtained from an Anderson and Ohmart vegetation classification of each conservation area using suitable techniques, including aerial photo interpretation to assess the larger scale ground level monitoring data collected at each conservation area as part of the post-development monitoring. Post-development monitoring at each created habitat will be used to determine whether habitat elements listed in the species-specific conservation measures found within the HCP or as revised through adaptive management are met. If a conservation measure does not clearly define required habitat elements, the information gathered under MRM1 and described in the Conservation Area Management Plans may be used to evaluate accomplishment. Once the land cover types and Species-Specific Conservation Measures have been determined, species-specific acreages will be tabulated and determined creditable. See example tables below (Table 1 and Table 2).

Table 1. Conservation Area Land Cover Type

Land Cover Type	Management Unit	Established Acres
Cottonwood-willow		
Mesquite		
Marsh		
Backwater		
Total		

Table 2. Conservation Area by Species Habitat Creation Conservation Measures

Species Habitat Creation Conservation Measures	Management Unit	Creditable Acres
WIFL1		
Total		
CLRA1		
Total		

Concurrence

When managed acres are creditable for the targeted species, Reclamation will send correspondence to seek concurrence from USFWS and CDFG (for California lands) that the management unit has met the Habitat Creation Conservation Measures for those species. The management unit will remain credited to the Habitat Creation Conservation Measure once concurrence is met.

Once a management unit has met the Habitat Creation Conservation Measure requirements for the targeted species, Reclamation will monitor and adaptively manage using management guidelines to maintain those requirements as identified in the Conservation Area Management Plans.

Changed Circumstances, Unforeseen Circumstances, and Wildfire

To maintain the requirements for creditable habitat if a changed circumstance, unforeseen circumstance, or wildfire has occurred, the procedures below will be followed.

The regulations that govern section 10 incidental take permits provide for inclusion of remedial measures to address changed circumstances in a HCP (Permit, W-1 pg 13). Remedial measures will be implemented, as necessary, to respond to changed circumstances. Change circumstances are defined as “changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for...” (50 C.F.R.§17.3). The HCP identified eight potential changed circumstances and their associated remedial

measures (Appendix B). If a changed circumstance occurs, as identified in Table 5-13 of the HCP, Reclamation will follow the process outlined in Section 5.12.3 of the HCP and implement the identified remedial measures. A remedial measures fund will be created to provide contingency funding for implementation of the remedial measures.

Unforeseen circumstances are defined as (17 C.F.R. §17.3): “changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the USFWS at the time of the conservation plan’s negotiations and development, and that result in a substantial and adverse change in the status of the covered species.” If unforeseen circumstances occur, Reclamation will follow the process outlined in 5.12.4 of the HCP.

The HCP requires the implementation of Conservation Area Management Measures (CMM) to maintain the intended functions and values of created covered species habitat over the term of the LCR MSCP. The conservation areas will be designed to contain wildfire and facilitate rapid response to suppress fires (CMM1). In the event of created-habitat degradation or loss as a result of wildfire, land management and habitat creation measures to support the reestablishment of native vegetation will be identified and implemented (CMM2) (HCP, pg 5-35). If site conditions change so that reestablishment is not biologically effective or cost efficient, Reclamation may replace lost habitat at an alternative conservation area. Reclamation will consult with USFWS and CDFG for Conservation Areas within California if an alternative conservation area is proposed.

REFERENCES

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2004. Lower Colorado River Multi-Species Conservation Program, Volume II; Habitat Conservation Plan. Final. December 17. (J&S 004500.00) Sacramento, CA.

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2004. Lower Colorado River Multi-Species Conservation Program, Funding and Management Agreement. April, 2005. Lower Colorado Region, Bureau of Reclamation, Boulder City, NV.

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2004. Lower Colorado River Multi-Species Conservation Program, Implementing Agreement. April, 2005. Lower Colorado Region, Bureau of Reclamation, Boulder City, NV.

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2006c. Draft Final Science Strategy. Lower Colorado Region, Bureau of Reclamation, Boulder City, NV.

DEFINITIONS

Adaptive Management: An iterative program (*process*) designed to review and use the results of information gathered through monitoring and research to adjust Conservation Measures, management strategies, and practices where appropriate in implementing the Conservation Plan (IA, pg 9).

Conservation Area: LCR MSCP lands on which land cover types are provided and/or created and managed to provide habitat for covered species.

Conservation Area Management Measures: Measures to maintain the intended functions and values of created covered species habitats over the term of the LCR MSCP.

- **CMM1—Reduce risk of loss of created habitat to wildfire.** Management of LCR MSCP conservation areas will include contributing to and integrating with local, state, and Federal agency fire management plans. Conservation areas will be designed to contain wildfire and facilitate rapid response to suppress fires (e.g., fire management plans will be an element of each conservation area management plan) (HCP, 5-35).
- **CMM2—Replace created habitat affected by wildfire.** In the event of created-habitat degradation or loss as a result of wildfire, land management and habitat creation measures to support the reestablishment of native vegetation will be identified and implemented (HCP, pg 5-35).

Conservation Goals: Goals to avoid, minimize, and fully mitigate impacts on all covered species and their habitats; contribute to the recovery of listed covered species; and reduce the likelihood for future listing of non-listed covered species (HCP, pg 5-1).

Conservation Measures: Measures identified in Chapter 5 of the HCP for the benefit of the Covered Species or developed pursuant to the Adaptive Management Program, including specific activities implemented on an annual basis by the Program Manager or, in appropriate circumstances, other Parties to this Agreement (FMA and IA definitions). Measures that are specific actions designed to achieve goals for covered species and research objectives for evaluation species. Most conservation measures are directed toward creation of species habitat, maintenance of existing habitat, and augmentation of species populations. (HCP, pg 5-1)

Covered Actions: Those actions described in Chapter 2 of the BA, for which Incidental Take Authorization of Covered Species is sought pursuant to the LCR MSCP (FMA and IA definitions).

Covered Activities: Those activities described in Chapter 2 of the HCP, for which Incidental Take Authorization of Covered Species is sought pursuant to the LCR MSCP (FMA and IA definitions).

Covered Species: Species that are listed or likely to be listed in the future that have the potential to be effected by covered actions and activities for which incidental take authorization was sought under the LCR MSCP. Specifically, the 26 covered species identified in the HCP are: bonytail, humpback chub, razorback sucker, desert tortoise, southwestern willow flycatcher, Yuma clapper rail, threecorner milkvetch, sticky buckwheat, MacNeill's sootywing skipper, flannelmouth sucker, relict leopard frog, flat-tailed horned lizard, western least bittern, California black rail, yellow-billed cuckoo, elf owl, gilded

flicker, Gila woodpecker, vermilion flycatcher, Arizona Bell's vireo, Sonoran yellow warbler, summer tanager, western red bat, western yellow bat, Colorado River cotton rat, and Yuma hispid cotton rat (IA, pgs 6-10).

Creditable: The managed acres of a conservation area that meet habitat creation conservation measures described in the HCP.

General Species Conservation Measures: Include impact Avoidance and Minimization Measures (AMM) and Monitoring and Research Measures (MRM) that apply to more than one covered or evaluation species. These general measures are not repeated in the species-specific conservation measures described in Section 5.7, "Species-Specific Conservation Measures" (HCP, pg 5-30).

Habitat: The vital physical environment that covered species occupy for survival and reproduction.

Habitat Creation Conservation Measures: Species-Specific Conservation measures addressing habitat creation for 20 covered species, specifically CLRA1, WIFL1, BONY2, RASU2, WRBA2, WYBA3, CRCR2, YHCR2, LEBI1, BLRA1, YBCU1, ELOW1, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, SUTI1, FLSU1, and MNSW2.

Integrated Mosaics: Site conditions where cottonwood-willow, honey mesquite, marsh and/or backwaters are created in proximity to each other to create a heterogenous complex of habitats for aquatic and terrestrial species (HCP, pg 5-11).

Land Cover Type: Land classified by plant community and structural type using the Anderson and Ohmart classification system (HCP pg. 3-11).

Management Unit: A Conservation Area or portion of a Conservation Area that has met the Habitat Creation Conservation Measures for those covered species it was developed for. Management Units may be designated when there is a distinct delineation between land cover types (spatial) or if habitat creation activities are delayed over a portion of the Conservation Area (Temporal).

Monitoring and Research Measures: Measures that help guide the design and management of created habitats. Surveys and research are conducted, as appropriate, to collect information necessary to better define the species habitat requirements. Created habitat will be monitored and adaptively managed to determine the types and frequency of management activities to maintain habitats (HCP, pg 5-33).

- **MRM1—Conduct surveys and research to better identify covered and evaluation species habitat requirements.** Conduct surveys and research, as appropriate, to collect information necessary to better define the species habitat requirements and to design and manage fully functioning created covered and evaluation species habitats (HCP, pg 5-33).
- **MRM2—Monitor and adaptively manage created covered and evaluation species habitats.** Created species habitats will be managed to maintain their functions as species habitat over the term of the LCR MSCP. Created habitat will be monitored and adaptively managed over time to determine the types and frequency of management activities that may be required to maintain created cottonwood-willow, honey mesquite, marsh, and backwater land cover as habitat for covered species (HCP, pg 5-34).

Species-Specific Conservation Measures: Each species-specific conservation measure described in Section 5.7 of the HCP, in addition to the general conservation measures described in Section 5.6, “General Species Conservation Measures,” that will be implemented to avoid, minimize, and fully mitigate the effects of implementing covered activities and contribute to the recovery of listed covered species/reduce the likelihood of future listing of nonlisted covered species (HCP, pg 5-35).

APPENDIX A.

Table 1. Riparian Vegetation Communities and Characteristics Used in Anderson and Ohmart Vegetation Classification System

Community	Characteristics
Cottonwood-willow	<i>Salix gooddingii</i> and <i>Populus fremontii</i> (the latter usually in low densities) constituting at least 10 percent of total trees (remaining trees are usually saltcedar)
Saltcedar	<i>Tamarix</i> spp. constituting 80-100 percent of total trees
Honey mesquite	<i>Prosopis glandulosa</i> constituting 90-100 percent of total trees
Saltcedar-honey mesquite	<i>P. glandulosa</i> constituting at least 10 percent of total trees; rarely found to constitute more than 40 percent of total trees
Saltcedar-screwbean mesquite	<i>P. pubescens</i> constituting at least 20 percent of total trees
Arrowweed	<i>Pluchea sericea</i> constituting 90-100 percent of total vegetation in area
Atriplex	<i>Atriplex lentiformis</i> , <i>A. canescens</i> , and/or <i>A. polycarpa</i> constituting 90-100 percent of total vegetation in area

Source: Anderson And Ohmart 1984; and Younker and Anderson, 1986.

Table 2. Riparian Vegetation Structural Types and Characteristics Used in Anderson and Ohmart Classification System

Structural Type	Characteristics
I	Mature stand with distinctive overstory more than 15 feet tall; intermediate class is 2-15 feet tall and understory is 0-2 feet tall
II	Overstory is more than 15 feet tall and constitutes more than 50 percent of the trees; little or no intermediate class present
III	Largest proportion of trees is 10-20 feet tall; few trees above 20 feet or below 5 feet tall
IV	Few trees above 15 feet tall; 50 percent of the vegetation is 5-15 feet tall and 50 percent is 1-2 feet tall
V	60-70 percent of the vegetation is 0-2 feet tall, the remainder is 5-15 feet tall
VI	75-100 percent of the vegetation is 0-2 feet tall

Source: Anderson And Ohmart 1984; and Younker and Anderson, 1986.

Table 3. Marsh Land Cover Types and Characteristics Used in Classification

Type	Characteristics
1	Nearly 100 percent cattail/bulrush; small amounts of <i>Phragmites australis</i> (common reed) and open water
2	Nearly 75 percent cattail/bulrush; many trees and grasses interspersed throughout cover
3	About 25-50 percent cattail/bulrush; some <i>P. australis</i> , open water, trees, and grass
4	About 35-50 percent cattail/bulrush; many trees and grasses interspersed throughout cover
5	About 50-75 percent cattail/bulrush; few trees and grasses interspersed throughout cover
6	Nearly 100 percent <i>P. australis</i> ; little open water
7	Open marsh (75 percent water) adjacent to sparse marsh vegetation; sandbars and mudflats visible when the Colorado River is low

Source: Anderson And Ohmart 1984; and Younker and Anderson, 1986.

APPENDIX B.

Table 1. Changed Circumstances and Remedial Measures	
Changed Circumstances	Remedial Measures
The creation of land cover as habitat for one or more covered species in accordance with the LCR MSCP Conservation Plan is unsuccessful, i.e., fails to provide essential habitat elements for one or more of the covered species whose habitat is expected to be provided by the land cover type.	The cause of failure will be identified through the monitoring and research that is part of the adaptive management process included in the LCR MSCP. The adaptive management process will be used to identify and develop measures to correct or replace the failed conservation measure or to implement an alternative conservation measure.
Insufficient water is available, regardless of cause (e.g., drought conditions, reduction in water allocations), to maintain established created land cover types as habitat for one or more covered species.	The Program Manager will coordinate with the USFWS to prioritize the distribution of available water among created habitats to ensure that the greatest benefits for covered species will be provided by the amount of water available for maintenance of created habitats.
Created backwater and marsh land cover that provide habitat for covered species in conservation areas are lost because of sedimentation resulting from floods.	Dredging will be implemented to restore patches of backwater and marsh land cover created as covered species habitat.
Created cottonwood-willow and honey mesquite land cover that provide habitat for covered species in conservation areas are lost as a result of floods.	Created habitats will be reestablished following loss to flooding. In the event of such loss, land management and created habitat restoration measures will be implemented in conservation areas to ensure the reestablishment of native vegetation through active management or natural processes.
Fish in rearing facilities or in the stocking process are lost, causing disruption of fish augmentation conservation measures.	Stocking will be increased in subsequent years and/or the time period will be extended within the permit term for fish augmentation to meet the total augmentation goals.
Rearing facilities or aquaculture techniques fail to provide sufficient numbers or sizes of fish to meet fish augmentation goals.	Other management activities will be identified, through monitoring and research, to provide benefits to the fish species.
A toxic or hazardous substance spill occurs, affecting LCR MSCP conservation areas.	In the event of such loss, land management and created-habitat restoration measures will be implemented in conservation areas to ensure the restoration of the conservation area through active management or natural processes.

Future listing of a non-listed covered species.	The USFWS will automatically authorize take of such newly listed covered species as prescribed by regulation (63 FR 35, February 23, 1998).
<i>LCR MSCP 2004</i>	