

Lower Colorado River Multi-Species Conservation Program



Balancing Resource Use and Conservation

Palo Verde Ecological Reserve 2009 Annual Report



February 2013

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

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



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Lower Colorado River
Multi-Species Conservation Program
Bureau of Reclamation
Lower Colorado Region
Boulder City, Nevada
<http://www.lcrmscp.gov>

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Contents

Background.....	1
Purpose.....	1
Site Information	4
Location/Description.....	4
Land Ownership.....	4
Water.....	4
Agreements	4
2009 Habitat Development	4
Planting	4
Irrigation	8
Site Maintenance.....	9
Management of existing habitat.....	10
Weed Management	10
Pest Management	10
Nursery Management.....	10
2009 Monitoring	10
Vegetation.....	10
Sootywing Skipper.....	14
Small Mammals	14
Bats	14
Avian Species.....	15
Established Land Cover and Habitat Credit.....	16
Adaptive Management	16
Operation and Maintenance	16
Soil Management	16
Water Management.....	16
Vegetation Management	16
Wildfire Management.....	17
Public Use	17
Law Enforcement.....	17
Future Habitat Development.....	17
Literature Cited	18

Figures and Tables

Figure 1. Proposed Phasing Map	2
Figure 2. Palo Verde Ecological Reserve, Managed Acres Through 2009	3
Figure 3. Phase 4 As-Built	6
Figure 4. Phase 3 As-Built.....	7
Figure 5. Mass Transplanting of Cottonwood Trees, March 2007	7
Figure 6. Soil Moisture Units.....	9
Figure 7. Collection of Plant Material	10

Table 1. Number of Trees and Shrubs Planted in Phase 4, Spring 2009	5
Table 2. Number of Trees and Shrubs Planted in Phase 3, Spring 2009	6
Table 3. Phase 1-5 Planted Acres	8
Table 4. Irrigation Water Applied Through September 2009.....	9
Table 5. Foliage Height Diversity at Palo Verde Ecological Reserve.....	11
Table 6. Palo Verde Ecological Reserve Overstory Tree, Intermediate Tree and Shrub Height, and Diameter Breast Height	11
Table 7. Mean Percent Ground Cover by Species at Palo Verde Ecological Reserve	12
Table 8. Mean Abundance of Target Tree Species Per Plot and Per Acre at Each Site/Phase....	13
Table 9. Mean Percent Crown Closure by Site.....	14
Table 10. Total Number of Call Minutes Recorded for FY07 Through FY09.....	15
Table 11. LCR MSCP Avian Species Detected at PVER, 2009.....	15

Acronyms and Abbreviations

CDFG	California Department of Fish and Game
CW	Cottonwood-Willow Land Cover Type
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
PVER	Palo Verde Ecological Reserve
Reclamation	U.S. Bureau of Reclamation
SWFL	Southwestern Willow Flycatcher

List of Common and Scientific Names

Bird

Abert's towhee	<i>Pipilo aberti</i>
black-tailed gnatcatcher	<i>Polioptila melanura</i>
black-chinned hummingbird	<i>Archilochus alexandri</i>
brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>
cliff swallow	<i>Petrochelidon pyrrhonota</i>
common raven	<i>Corvus corax</i>
Gambel's quail	<i>Callipepela gambelii</i>
greater roadrunner	<i>Geococcyx californianus</i>
great-tailed grackle	<i>Quiscalus mexicanus</i>
horned lark	<i>Eremophila alpestris</i>
house finch	<i>Carpodacus mexicanus</i>
killdeer	<i>Charadrius vociferus</i>
marsh wren	<i>Cistothorus palustris</i>
mourning dove	<i>Zenaida macroura</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>
song sparrow	<i>Melospiza melodia</i>
southwestern willowflycatcher	<i>Empidonax trailli extimus</i>
yellow-breasted chat	<i>Icteria virens</i>
western kingbird	<i>Tyrannus verticalis</i>
western meadowlark	<i>Sturnella neglecta</i>
white-winged dove	<i>Zenaida asiatica</i>
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>

Small Mammal

Colorado River cotton rat	<i>Sigmodon arizonae</i>
cactus mouse	<i>Peromyscus eremicus</i>
deer mouse	<i>Peromyscus maniculatus</i>
desert pocket mouse	<i>Chaetodipus penicillatus</i>
house mouse	<i>Mus musculus</i>

Bat

Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
western red bat	<i>Lasiurus blossevilli</i>
western yellow bat	<i>Lasiurus xanthinus</i>
California leaf-nosed bat	<i>Macrotus californicus</i>
hoary bat	<i>Lasiurus cinereus</i>
silver-haired bat	<i>Lasionycteris noctivagans</i>
pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>
western pipistrelle	<i>Pipistrellus hesperus</i>
cave Myotis	<i>Myotis velifer</i>

Background

The Palo Verde Ecological Reserve (PVER) encompasses 1,352 acres of the historical floodplain of the Colorado River near Blythe, California. Formerly, the property was known as the Riverview Ranch and was owned by the Travis family. The ranch was acquired by the Trust for Public Lands in 2004 to offset degradation of wildlife habitat along the lower Colorado River. On September 3, 2004, the property was conveyed to the State of California. California has identified up to 1,300 acres of active agricultural lands on this property for habitat restoration under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), a 50-year multi-partner program administered by the U.S. Bureau of Reclamation (Reclamation) (LCR MSCP 2004).

The California Department of Fish and Game (CDFG) and the LCR MSCP are jointly planning the conversion of portions of PVER from agricultural crops to a mix of native plant species. After planting is complete, the created habitats will be managed for species covered under the MSCP throughout the 50-year life of the program.

The project is being developed using a phased approach over a nine year period, with an estimated completion date of 2014 (Figure 1). An overview restoration development plan for the entire site was completed in 2006 (LCR MSCP 2006a). In 2006, Phase 1, a 30 acre riparian nursery, was planted (LCR MSCP 2006b). In 2007 and 2008, 160 acres of cottonwood-willow land cover type were planted during Phase 2 and Phase 3 (LCR MSCP 2006c, 2007c). In July 2009, CDFG proposed a land exchange at PVER involving the land they retained located to the west and north of Phase 5, for land identified as Phase 8 and the eastern part of Phase 9. This was determined to benefit both parties resulting in a contiguous riparian land area. This exchange will affect the phase schedule by increasing the acres developed in Phase 5 and decreasing the acres in Phase 8 (Figure 2).

Purpose

This annual report will provide information pertaining to the development and maintenance of riparian habitat, and summarized monitoring reports/results that would influence the adaptive management plan. After the 2009 planting, 69% of the acreage at PVER is planted in alfalfa and wheat. The intent is to eventually convert approximately 1,100 acres to riparian habitat which will be managed for the southwestern willow flycatcher (SWFL) and other LCR MSCP covered species that utilize cottonwood-willow land cover types.

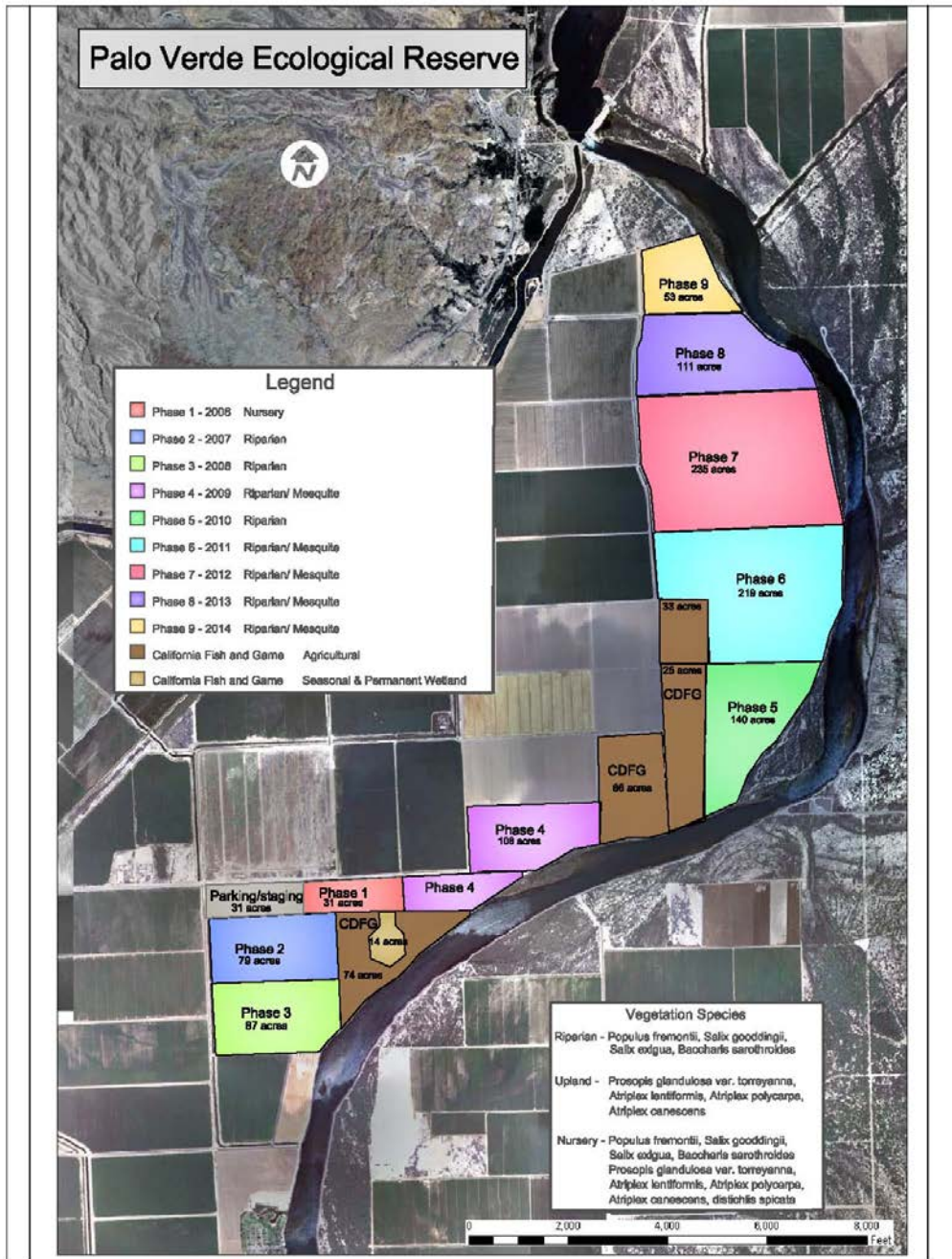


Figure 1. Proposed Phasing Map.

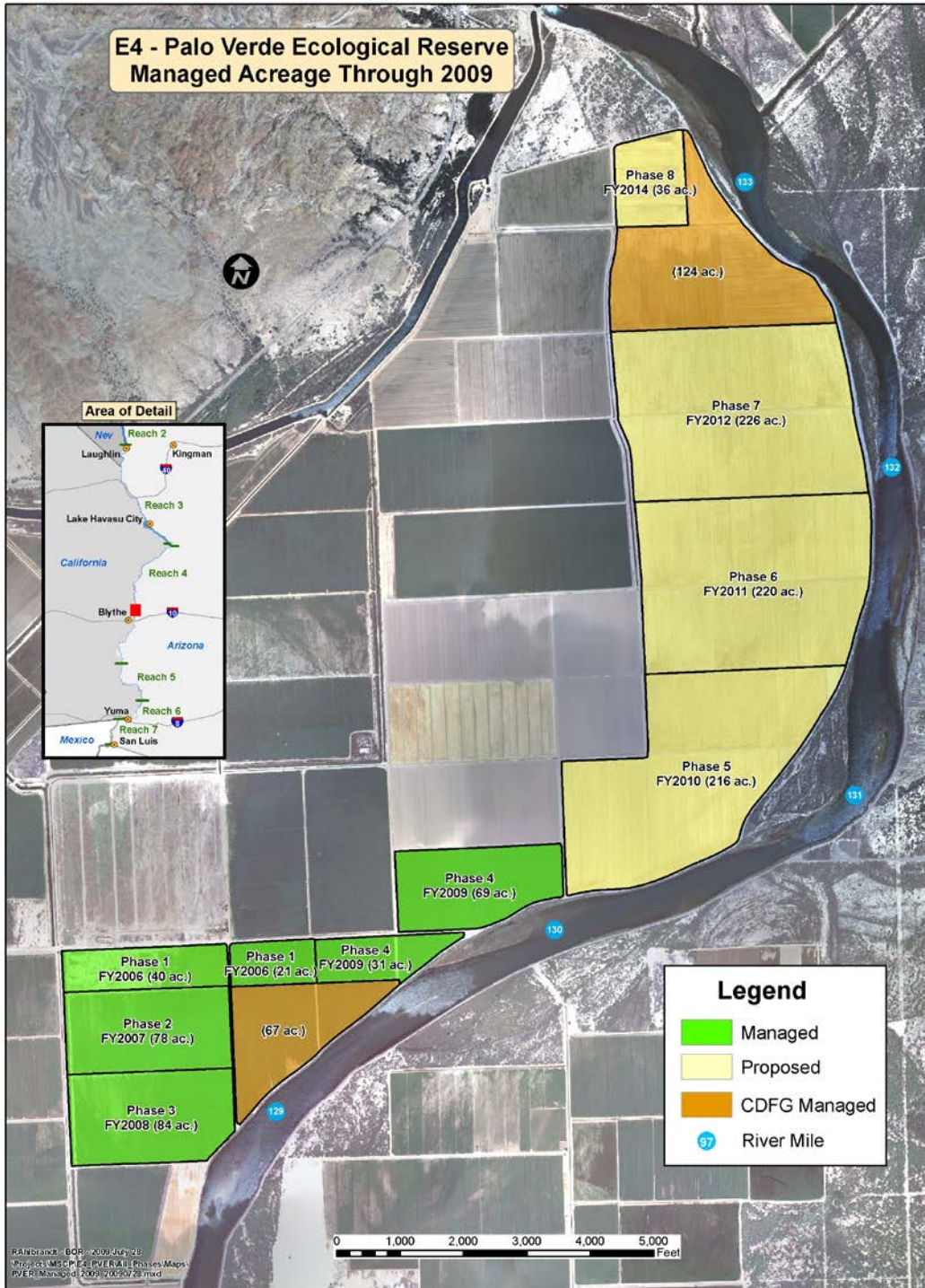


Figure 2. Palo Verde Ecological Reserve Managed Acreage Through 2009.

Site Information

Location/Description

PVER lies within the historic floodplain of the Colorado River in southeastern Riverside County, California, at Townships 5 and 6 South and Ranges 23 and 24 East. PVER is one of the northernmost parcels of agricultural land within the Palo Verde Valley, approximately 5 miles north of Blythe.

Existing infrastructure consists primarily of an irrigation system comprised of 9.2 miles of lined and unlined irrigation ditches and associated slide gates, a 100-horsepower electric pump, and approximately 14 miles of access roads. All the acreage has been in agricultural crops of grain, small melons, and alfalfa since the late 1930s. Currently, the land is leased and farmed with crops such as alfalfa and grain.

Land Ownership

PVER is owned by CDFG who leases approximately 1,000 acres to a local farmer who raises alfalfa and small grains. CDFG intends to continue the agricultural lease until the entire property comes under development by Reclamation.

Water

The Palo Verde Irrigation District (PVID) has an entitlement to Colorado River water for use on up to 104,500 acres of land within the PVID pursuant to a contract between the United States and PVID dated February 7, 1933. CDFG, as a landowner within the PVID, has the right to order Colorado River water from PVID for pumping through the PVID canal system to its fields. CDFG will make Colorado River water available for irrigation of the native plants.

Agreements

Reclamation and CDFG have signed an agreement to insure that the land and water resources will be available for the 50-year term of the LCR MSCP (*Agreement for Restoration Activities Consistent with the LCR MSCP, Palo Verde Ecological Reserve 2007*).

2009 Habitat Development

Planting

Approximately 100 acres (40.46 hectares) of cottonwood-willow land cover type were planted according to the design in Phase 4 (Figure 3). In Phase 3, approximately 12 acres of cottonwood-willow land cover type was planted in the spring of 2009, as well as 22 acres of mesquite for a combined total of 84 acres. Soil samples were taken by the contract crop consultant in Phase 4. It was recommended to add an application of 10-34-0 in an irrigation cycle.

The field was prepared and leveled using standard farming practices. The field was then divided into 16 checks (divisions of the acreage bordered by earthen mounds in which irrigation water can be controlled). A cover crop of 25 lbs. (13.6 kg) of alfalfa seed and 5 lbs. (2.3 kg.) of rye grass seed per acre were planted in checks 1-14. The cover crop was planted the day before the mass transplanting of the trees and shrubs. The purpose of planting the dense cover crop was to eliminate or reduce weed infestations by reducing the unplanted surface areas available for invasive plant germination. Additionally, certain cover crops, such as alfalfa fix nitrogen in the soil. Checks 15 and 16 were seeded by hand with the following native species: sea purslane, heliotrope, purple three-awn (check 15 only), side oats, and alkali sacaton.

In March, 2009, trees and shrubs were planted in Phase 4 with 40 inch rows and 6 foot in-line spacing in Checks 1-14, utilizing mass transplanting techniques (Figure 3). Over 188,000 trees and shrubs were planted within a 6-day period. The checks 1 through 16 were planted according to the design (*Palo Verde Ecological Reserve: Restoration Development Plan Phase 4, 2008*). Phase 4 was planted with the following averaged percentages: 17% cottonwood, 7% Baccharis, 36% Goodding’s willow and 36% coyote willow, 1% atriplex, and 0.05% mesquite. The average number of 2,100 plants is per acre (Table 1).

Phase 3, Checks 1-3 edges were planted with atriplex in 2008. In 2009, the midsections of each of these checks were hand planted with mesquite trees 20 feet on center (Figure 4). Checks 9 and 10 were planted with cottonwood-willow on 40-inch rows with 6 foot in-line spacing (Table 2).

Table 1. Number of Trees and Shrubs Planted in Phase 4, Spring 2009.

Check	Baccharis sarothroides	Baccharis salicifolia	Cottonwood	Goodding’s Willow	Coyote Willow	Honey Mesquite	Atriplex
1	288	72	1,224	2,160	3,600	0	0
2	360	72	1,224	3,888	3,600	0	0
3	360	72	1,224	3,888	3,600	0	0
4	360	72	1,224	3,888	2,592	0	0
5	360	72	1,224	3,888	2,592	0	0
6	0	0	1,224	8,064	12,240	0	0
7	1,152	432	3,168	5,472	1,152	0	0
8	1,152	432	3,168	5,472	5,544	0	0
9	1,152	432	3,138	5,472	5,544	0	0
10	1,152	432	3,168	5,472	5,544	0	0
11	1,080	432	3,168	5,472	5,544	0	0
12	1,080	432	3,024	5,328	5,328	0	0
13	1,080	576	2,808	4,968	4,896	0	0
14	792	576	2,376	4,104	4,104	0	0
15	0	0	0	0	0	550	2,232
16	0	0	0	0	0	550	2,232

Table 2. Number of Trees and Shrubs Planted in Phase 3, Spring 2009.

Check	Baccharis sarothroides	Baccharis salicifolia	Cottonwood	Goodding's Willow	Coyote Willow	Honey Mesquite	Atriplex
1						594	0
2						594	0
3						594	0
9	1,008	0	2,010	3,960	2,952	0	0
10	1,152	0	2,304	4,536	3,312	0	0

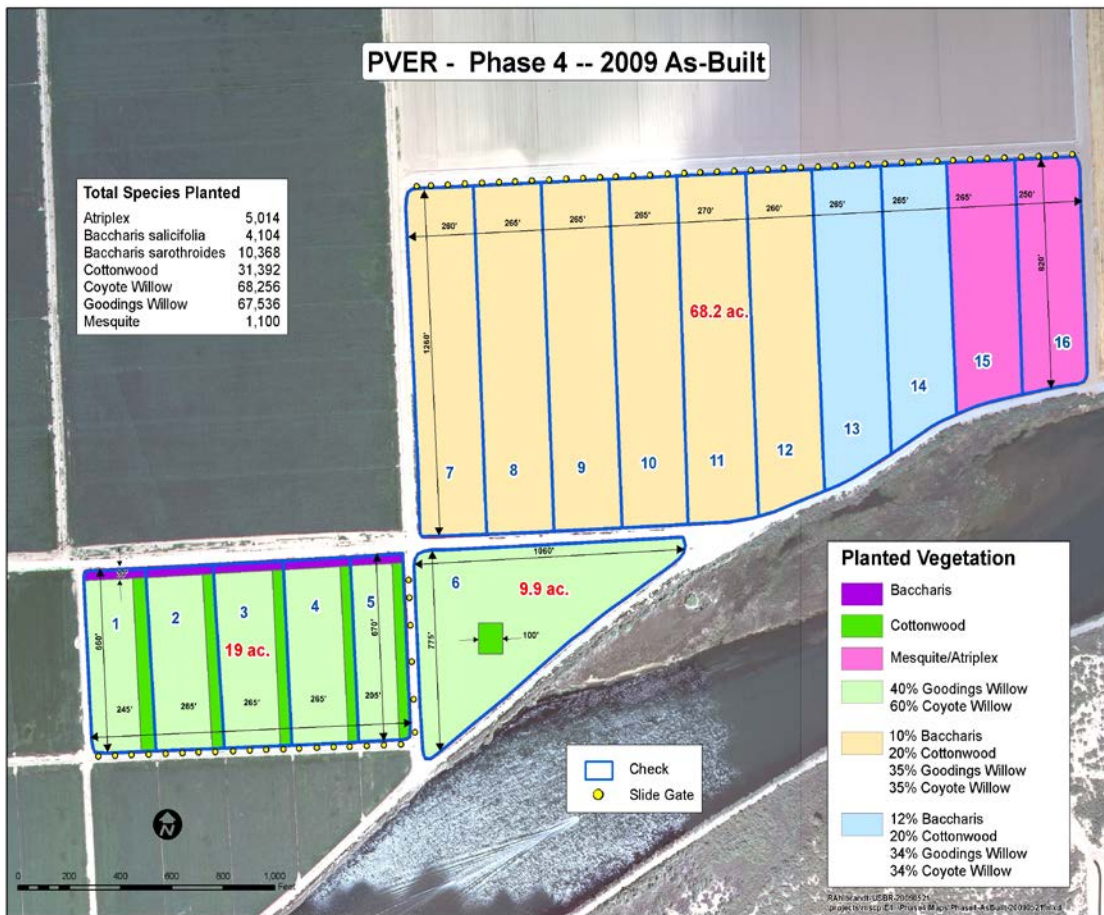


Figure 3. Phase 4 As-Built.

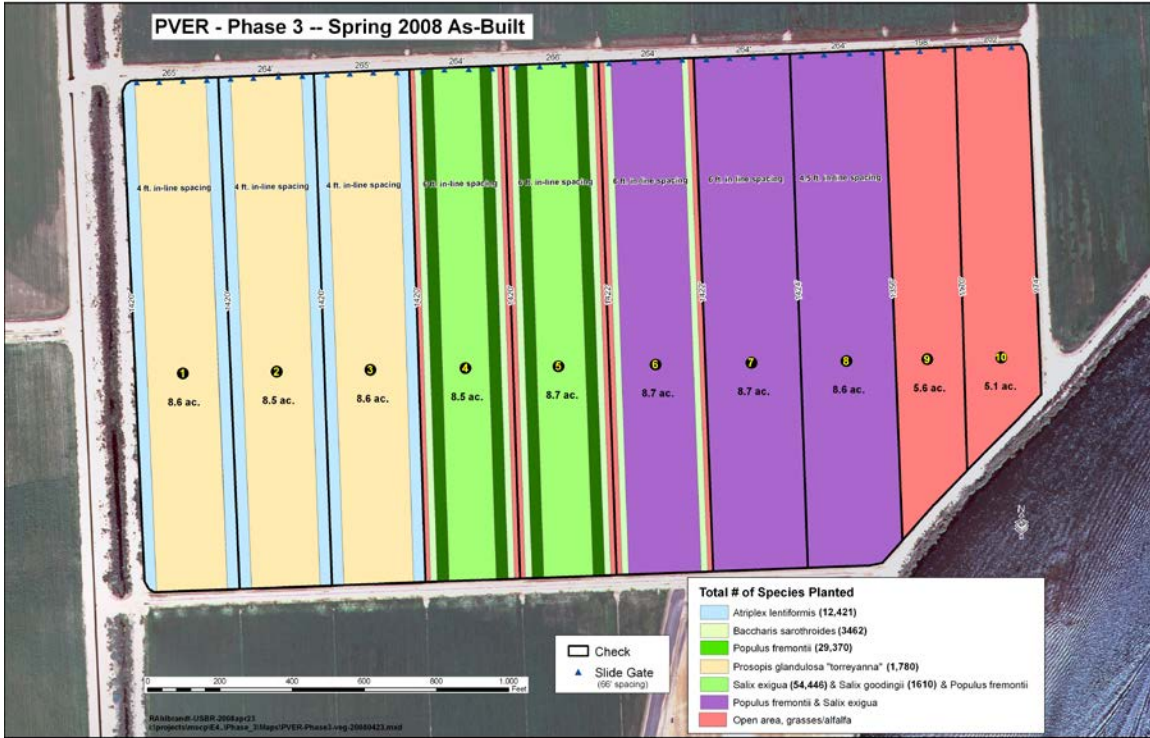


Figure 4. Phase 3 As-Built.



Figure 5. Mass Transplanting of Cottonwood Trees, March 2007.

In Phase 1, during Fiscal Year 2006 (FY06) 30 acres of riparian nursery were planted. In Phase 2, (FY07) 80 acres were planted, and in Phase 3 (FY08), 45 acres of cottonwood-willow land cover type (CW) were planted (Figure 5). In Phase 4 (FY09) 100 acres and 34 acres in Phase 3 of CW were planted in 2009 (Table 3), and 216 acres will be planted in Phase 5 (FY10). Additional information on the design, planting, and monitoring of Phases 1-5 can be found in the reports, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 1*, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 2*, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 3*, *Palo Verde Ecological Reserve Restoration Development Plan: Phase 4*, and *Palo Verde Ecological Reserve Restoration Development Plan: Phase 5*, available on the LCR MSCP website at www.lcrmscp.gov.

Table 3. Phase 1-5 Planted Acres.

Phase	Fiscal year	Acres planted	Land cover type	Cumulative Total
1	2006	61	CW	61
2	2007	78	CW	139
3	2008	45	CW	184
3	2009	39	CW	223
4	2009	100	CW	323
5*	2010	216	CW	539

*Phase 5 to be planted in spring of 2010

Irrigation

The fields at PVER are flood irrigated; Table 4 indicates the amount of irrigation water applied through September 2009. Irrigation water applied (af) is calculated on the assumption that the irrigation delivery ditch is running at full capacity (25 cubic feet per second or 0.707 cubic meter per second) (Pair et al. 1975). Average irrigation water applied in 2009 is 11.51 af.

Table 4. Irrigation Water Applied Through September 2009

Phase	Total hours of Irrigation water applied	*Amount of Irrigation water applied in af
Phase 1- Cottonwood-Willow Nursery -20 acres	120 hours	12.43 af
Phase 1- Mesquite Nursery - 10acres	8 hours	4.78 af
Phase 2-Cottonwood-Willow Habitat – 72 acres	511 hours	14.78 af
Phase 3 – Cottonwood-Willow Habitat – 80 acres	617 hours	17.60 af
Phase 4 – Cottonwood-Willow Habitat – 100 acres	289 hours	10.33 af

*Amount of water applied does not reflect consumptive use or unmeasured return.

Soil moisture units were placed in the fields (approximately 1 unit per 20 acres) in each phase to monitor soil moisture levels (Figure 6).



Figure 6. Soil Moisture Unit.

Site Maintenance

No major site maintenance, such as irrigation ditch replacement or road maintenance was performed in 2009.

Management of Existing Habitat

Weed Management

Invasive weeds and plant material were removed adjacent to the irrigation ditches to protect the integrity of the ditch.

Pest Management

No pest management was needed this year.

Nursery Management

Plant material will be collected from the nursery in December 2009. The plant material will be used as poles at other restoration sites (Figure 7).



Figure 7. Collection of Plant Material.

2009 Monitoring

Vegetation

Using several components of common forestry and vegetation monitoring protocols, data were collected to capture vegetation composition and structure within each habitat creation site. Data gathered across multiple years will be used to guide the adaptive management process for each habitat creation site.

Vegetation monitoring data were collected within several parameters to capture vegetation composition and structure from the ground layer to the canopy layer. The following data were summarized across each site. Table 5 lists the percent of total vegetation per meter layer. The high percentage of vegetation at meter 1 and 2 is reflective of the ground cover at the foliage height diversity sampling points. Table 6 shows ranges and means of height and DBH for plants within the overstory tree and intermediate tree and shrub categories. Table 7 lists percent of ground cover by species. Ground cover data were gathered on herbaceous plants and small shrubs only. Table 8 shows average total abundance of target tree species per plot and per acre at each site/phase. Abundance was calculated from plots containing trees within each respective category (overstory, intermediate and shrub, DBH classes 1-4) and then added together to get the values shown in Table 8. Table 9 shows mean percent crown closure at each site/phase. The number of observations for each site refers to the number of readings at all plots across each site/phase.

Table 5. Foliage height diversity at Palo Verde Ecological Reserve. Percent total vegetation and standard deviation per meter layer are shown.

Foliage Ht Diversity								
Site/Phase	Meter	% (SD)	Site/Phase	Meter	% (SD)	Site/Phase	Meter	% (SD)
PVER 2	1	15.39 (0.01)	PVER 3	1	65.82 (0.05)	PVER 4	1	85.42 (0.07)
PVER 2	2	8.03 (0.00)	PVER 3	2	9.11 (0.01)	PVER 4	2	12.87 (0.05)
PVER 2	3	13.15 (0.01)	PVER 3	3	7.41 (0.04)	PVER 4	3	2.56 (0.01)
PVER 2	4	13.75 (0.01)	PVER 3	4	8.26 (0.01)			
PVER 2	5	10.40 (0.02)	PVER 3	5	7.62 (0.03)			
PVER 2	6	10.91 (0.01)	PVER 3	6	1.39 (0.01)			
PVER 2	7	9.64 (0.02)	PVER 3	7	0.59 (0.00)			
PVER 2	8	8.87 (0.01)						
PVER 2	9	5.83 (0.01)						
PVER 2	10	2.73 (0.01)						
PVER 2	11	1.96 (0.02)						

Table 6. Palo Verde Ecological Reserve overstory tree, intermediate tree and shrub height, and diameter breast height; means plus standard deviations are shown.

Site/Phase	Overstory ^a				Intermediate ^b			
	Ht (Range-m)	Mean (SD)	DBH (Range-cm)	Mean (SD)	Ht (Range-m)	Mean (SD)	DBH (Range-cm)	Mean (SD)
PVER 2	a	a	a	a	6.20 - 16.00	10.94 (2.18)	8.00 - 12.25	9.92 (1.30)
PVER 3	a	a	a	a	6.90 - 7.30	7.10 (0.18)	8.00 - 9.50	8.69 (0.63)
PVER 4	a	a	a	a	b	b	b	b

^aDenotes phases with no trees meeting the overstory size requirement (≥ 12.7 cm DBH).

^bDenotes phases with no shrubs meeting the ≥ 7.9 cm DBH requirement.

Table 7. Mean percent ground cover by species at Palo Verde Ecological Reserve.

Site/Phase	Species	% (SD)
PVER 2	<i>Conyza canadensis</i>	18.91 (2.24)
PVER 2	<i>Cuscuta</i> sp.	7.70 (0.72)
PVER 2	<i>Cynodon dactylon</i>	77.17 (3.60)
PVER 2	<i>Cyperus esculentus</i>	5.00 (0.71)
PVER 2	<i>Medicago sativa</i>	28.23 (3.30)
PVER 3	<i>Amaranthus palmeri</i>	6.00 (0.78)
PVER 3	<i>Conyza canadensis</i>	12.84 (1.77)
PVER 3	<i>Cynodon dactylon</i>	90.62 (3.16)
PVER 3	<i>Cyperus rotundus</i>	10.80 (1.44)
PVER 3	<i>Echinochloa colona</i>	8.50 (0.57)
PVER 3	<i>Leptochloa uninervia</i>	1.00 (n/a)
PVER 3	<i>Medicago sativa</i>	70.21 (4.10)
PVER 4	<i>Amaranthus palmeri</i>	18.97 (1.88)
PVER 4	<i>Cynodon dactylon</i>	70.69 (3.84)
PVER 4	<i>Cyperus esculentus</i>	17.86 (2.09)
PVER 4	<i>Cyperus rotundus</i>	9.93 (0.93)
PVER 4	<i>Echinochloa colona</i>	35.67 (3.93)
PVER 4	<i>Leptochloa uninervia</i>	24.00 (3.36)
PVER 4	Unk. mallow	9.00 (n/a)
PVER 4	<i>Medicago sativa</i>	30.96 (3.36)
PVER 4	<i>Panicum</i> sp.	20.00 (1.41)
PVER 4	<i>Sorghum halepense</i>	10.00 (n/a)
PVER 4	<i>Thinopyrum intermedium</i>	25.50 (1.57)

Table 8. Mean abundance of target tree species per plot and per acre at each site/phase.

Abundance-number of trees										
Site	<i>Populus fremontii</i>		<i>Salix gooddingii</i>		<i>Salix exigua</i>		<i>Prosopis glandulosa</i>		<i>Prosopis pubescens</i>	
	Plot	Acre	Plot	Acre	Plot	Acre	Plot	Acre	Plot	Acre
Beal	46.50	2200.50	8.00	424.00	69.50	3683.50	13.00	623.00	20.48	961.69
CRIT	39.80	1984.00	4.50	73.00	-	-	20.00	994.00	8.50	236.00
CVCA1	25.17	1169.01	29.00	1405.00	106.30	5633.90	-	-	-	-
CVCA2	13.93	738.29	17.65	935.45	37.79	2002.87	-	-	-	-
CVCA3	38.75	1938.25	36.83	662.50	133.75	7088.75	4.00	212.00	-	-
CVCA4	-	-	-	-	-	-	6.52	345.56	-	-
CNWR	36.03	1750.20	13.50	715.50	12.00	636.00	4.00	179.00	1.00	53.00
PVER2	34.47	1793.91	19.92	1055.76	75.00	3975.00	5.00	265.00	-	-
PVER3	23.74	1258.22	16.07	851.71	23.79	1260.87	-	-	1.00	53.00
PVER4	10.23	542.19	7.27	385.31	9.25	490.25	5.67	300.51	-	-

Table 9. Mean Percent Crown Closure by Site.

Site	Number of observations*	Mean % crown closure (SD)
Beal Lake	135	51.75 (40.30)
CRIT	108	77.28 (26.67)
CVCA1	72	88.87 (27.12)
CVCA2	180	80.67 (31.60)
CVCA3	126	70.81 (38.83)
CVCA4	252	0.00
CNWR	126	78.74 (34.69)
PVER2	126	68.71 (40.61)
PVER3	180	33.62 (37.89)
PVER4	198	8.57 (17.74)

*Number of observations for each site refers to the number of readings at each plot across the site.

Sootywing Skipper

The *Atriplex lentiformis* and alfalfa plots at Phase 3 at PVER were surveyed for MacNeill's sootywings every 2-3 weeks during April-September 2009. Only one sootywing was observed, flying among *A. lentiformis* during September.

Small Mammals

PVER Phase 3 was trapped in spring 2009 and Phase 4 was trapped in fall 2009. Line transects were run for a total of 360 trap nights. No *Sigmodon* have been captured within PVER to date, although the species continues to maintain a population on an accretion bench in the Colorado River just across from Phase 4 of PVER.

Bats

Acoustic survey methods were used to monitor bats. Capture surveys will be added in 2010. Anabat bat detectors were deployed across the site quarterly to determine bat activity across habitat types. Sixty-nine detector nights were completed on nine monitoring sites and one exploratory site in 2009. Bat activity is expressed in call minutes which indicates that a given species is present if it is recorded at least once within a 1-minute period. Table 10 lists the total number of call minutes of MSCP species for each year sampled combined across 3 years of sampling. Acoustic surveys will continue in 2010. For more details of how this data is collected and analyzed see the report *Post-Development Bat Monitoring of Habitat Creation Areas along the Lower Colorado River—2009 Acoustic Surveys*.

Table 10. Total Number of Call Minutes Recorded for FY07 Through FY09.

Species	FY07	FY08	FY09	All Years
Western Red Bat	6	1	11	18
Western Yellow Bat	0	0	1	1
California Leaf-Nosed Bat	22	3	23	48
Townsend's Big-Eared Bat	0	0	1	1
All other species	1352	1349	1942	4643
Total call minutes	1380	1353	1978	4711

Avian Species

Cuckoo surveys were conducted following Halterman et al. (2008). Four or five complete surveys of each site were performed during the field season (mid-June to early September). Sequential surveys were spaced 12 to 20 days apart and took place between sunrise and 12:00, or until temperatures reached 40° C (104° F). Call-playback, described by Johnson et al. (1981) and Gaines and Laymon (1984), was used to increase the probability of detection. Data was also collected on nesting, microhabitat, vegetation, and arthropods (McNeil et al. 2009).

Table 11. LCR MSCP Avian Species Detected at PVER, 2009.

LCR MSCP-covered Species Detected	Number of Confirmed Breeding Pairs
Willow Flycatcher	0
Yellow-billed Cuckoo	2
Yellow Warbler	0

Two nests were found, both in Goodding's willows (Table 11). One nest failed due to probable predation, the other fledged an unknown number of young. One cuckoo captured at the site had been banded at CVCA as a fledgling in 2008. This is the first recapture of a yellow-billed cuckoo on the LCR in the 20+ years of cuckoo research. This recaptured bird was fitted with a radio tracking receiver and followed until August 26, when the signal was no longer detected.

All flycatcher surveys were conducted according to methods described in Sogge et al. (1997), following a 5-survey protocol, as recommended by the U.S. Fish and Wildlife Service (USFWS 2000). At least one survey was conducted between 15 and 31 May, at least one survey between 1 and 15 June, and three additional surveys between 16 June and 25 July. To elicit responses from nearby willow flycatchers, conspecific vocalizations previously recorded throughout the Southwest from 1996 to 1998 were broadcast within appropriate habitat. Detailed methods are described in McLeod and T.J. Koronkiewicz (2010).

Two willow flycatchers were detected, one on 27 May and one on 3 June (Table 11). Both birds were considered migrants.

Surveys of restoration sites with more than 2 years growth to determine their use for breeding by other LCR MSCP species were conducted using an intensive area search method. In 2009, two plots were surveyed. Details of this method are described in GBBO (2009). No covered species were confirmed as breeders (using this method, but see cuckoo results above) at PVER in 2009. One yellow warbler and one willow flycatcher were detected and classified as non-breeders (Table 11).

Established Land Cover and Habitat Credit

The process for Habitat Credit has not been finalized. Once the process is finalized, information in this section will be used to establish credit.

Adaptive Management

Operation and Maintenance

There are no major irrigation canal repairs scheduled for 2010. Minor irrigation repairs and maintenance are done on an as needed basis. No major road work is scheduled for 2010, maintenance and minor repairs will be done as needed.

Soil Management

A crop consultant will be contracted to perform soil samples which will be analyzed to determine fertilizer needs. Fertilizer will be applied as suggested by the crop consultant's report.

Water Management

Irrigation water will continue to be applied as determined by Reclamation or contracted crop consultants. Site conditions and observation will provide the data necessary to determine an appropriate irrigation schedule.

Vegetation Management

The nursery will be used in the fall/winter of 2010/2011 as a source for plant material for propagation cuttings. These trees are intended to be used at the Yuma restoration site and the Laguna burn site. Trees and shrubs will continue to be planted densely to provide habitat for covered species and to limit invasive species infestations. Manual and aerial weed control will be implemented, when necessary, until the planted vegetation has shaded out the invasive species. No other vegetation management is scheduled for 2010.

Wildfire Management

As guided by commitments in the HCP, wildfire management practices on PVER would:

- Reduce the risk of the loss of created habitats to wildfires by contributing to and integrating with local, State and Federal agency fire management plans.
- Develop a fire management plan to contain wildfire and facilitate rapid response to suppress fire.
- Implement land management and habitat creation measures to support the reestablishment of native vegetation that is lost to wildfire.

Public Use

CDFG has the authority to regulate hunting and recreation uses pursuant to CDFG statutes, regulations and policies. In cooperation with Reclamation, CDFG will coordinate its public use and related activities so they are consistent with and do not adversely affect restoration activities at PVER.

Law Enforcement

CDFG is responsible for law enforcement at PVER. Reclamation will work with CDFG to ensure these activities do not conflict with the LCR MSCP HCP.

Future Habitat Development

Phase 5 at PVER will be developed for cottonwood-willow land cover type in 2010. Approximately 21,000 acres will be developed at that time.

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