

Site Evaluation Report

for the
116th Avenue Bridge Crossing
of the Gila River
T1N,R1W
MARICOPA COUNTY, ARIZONA

Prepared for

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Introduction

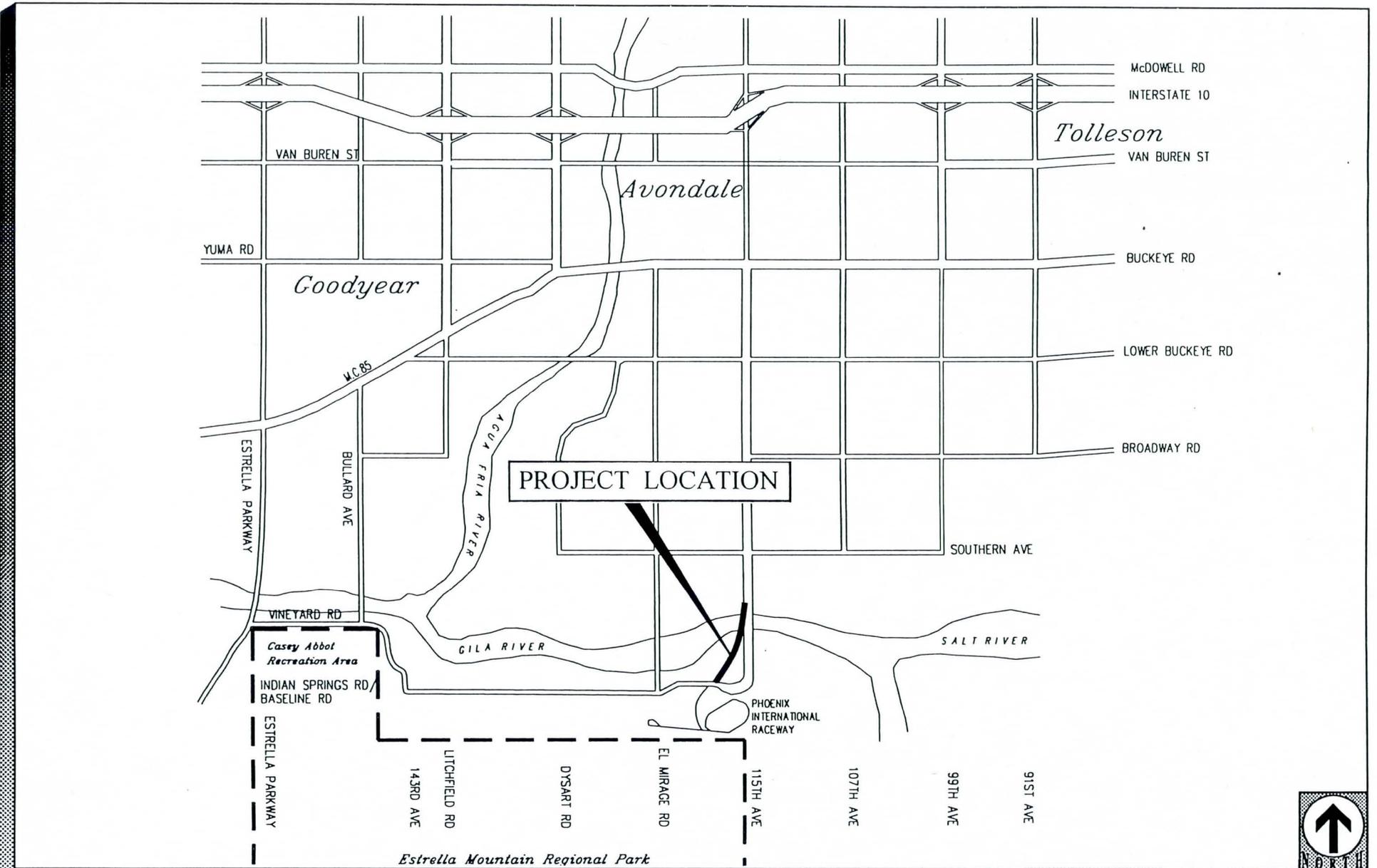
The Maricopa County Department of Transportation (MCDOT) is designing a bridge crossing of the Gila River at 116th Avenue, near the existing 115th Avenue low-flow crossing. Construction of this new bridge would impact riparian habitat along the Gila River below its confluence with the Salt River. The purpose of this study is to qualitatively assess the vegetation and habitat values of existing study area resources. The habitat values of existing resources within the proposed bridge corridor and six adjacent parcels were assessed in terms of vegetative types and cover, degree of disturbance, and overall wildlife values.

Project Description

The proposed Gila River Bridge project is a programmed transportation improvement to be located near the Phoenix International Raceway (PIR). A new bridge spanning the Gila River at 116th Avenue will replace the unbridged crossing at 115th Avenue (Figure 1). This new bridge will improve mobility and daily access, and will provide enhanced safety for local residents and facilities located along the Gila River between 115th Avenue west to Bullard Avenue (147th Avenue). Development of the project is proceeding through the cooperative efforts of concerned individuals, local government jurisdictions, and state and federal agencies. MCDOT, the City of Avondale, and PIR are in partnership to fund construction of the bridge. Funding from the Federal Highway Administration is also being sought. The programmed bridge will cost approximately \$12 million and construction of the bridge is pending final acquisition of project funds.

Based on environmental, engineering, and public input, MCDOT selected the 116th Avenue bridge alignment, located immediately west (downstream) of the existing crossing at 115th Avenue (MCDOT 1994). The alignment would begin about 300 feet north of the existing north bank levees and would join Indian Springs Road at the south bank. Spur dikes at the north and south bridge abutments would be constructed as well as minor river channelization. The bridge, approach roads, and spur dikes are being designed to not increase flood hazards to adjacent properties.

The bridge will be comprised of 18 spans with an overall bridge length of 2,548 feet. The bridge and approach roadway will have four traffic lanes (two in each direction). A concrete traffic barrier, a sidewalk, and a chain link fence on each side of the structure will be included as part of the bridge. A spur dike will be constructed on the upstream side of the south side of the river to protect the bridge.



Map Source: Maricopa County Dept. Of Transportation,
 Transportation Planning Div. 1994

FIGURE 1
Project Location



Existing 115th Avenue will be used as a traffic detour during bridge construction. Following completion of the new bridge and roadway section, access to the Gila River will be made available only for pedestrian, equestrian, and maintenance vehicle use.

Methods

The proposed 116th Avenue bridge alignment and adjacent parcels of land (study area) were visited on December 12 and 13, 1994, to conduct a qualitative assessment of the biological values of the existing habitats. The entire alignment and the majority of the area encompassed by the adjacent parcels were walked, and plant species composition, overall vegetation cover, level of disturbance, and wildlife habitat values were noted. Casual observations of wildlife use of the riparian habitat, in general, were made during the two survey days. A vegetation map was prepared using aerial photographs of the area.

Plant species composition was based on the identification of plant specimens in the field. Plant identifications were based on the nomenclature of Kearney and Peebles (1960) and cross referenced to the updated nomenclature of Lehr (1978). A list of plant species observed is provided in Table 1. Plant community names follow that used by Brown (1982) and were mapped accordingly. Vegetation cover was estimated from the aerial photograph and ground observations.

The level of disturbance of an area was estimated by assessing the portion of the site that has been disturbed (lacks vegetation and contains evidence of man-caused perturbation) in relation to the undisturbed portion (largely vegetated with little perturbation from man-caused activities). Evidence of man-caused perturbation included vegetation clearing, trash dumping, off-road-vehicle tracks, trampling, and other light trash associated with casual visits to the area (e.g., beer cans, food wrappers, fishing tackle).

Wildlife habitat values for an area were based on a combination of factors that include plant species composition, vegetation cover, level of disturbance, and observed wildlife use. The dominance of an area by largely native or non-native plant species affects the level of use of the habitat by certain wildlife species (i.e., the more native plant species present, the higher the diversity of native wildlife use). This ratio of native vs. non-native species is interrelated with vegetation cover, the more native cover the higher the diversity of wildlife use of the habitat. The less disturbed an area is, the greater the potential for the habitat to support wildlife, depending on the species composition and vegetation cover.

TABLE 1
PLANT SPECIES OBSERVED

Scientific Name	Common Name
<i>Abronia villosa</i> S. Watson	Sand verbena
<i>Ambrosia ambrosioides</i> (Cav.) Payne	Ambrosia-leaved bur-sage
<i>Aster subulatus</i> Michx. var. <i>ligulatus</i> Shinnery	Slim aster
<i>Atriplex canescens</i> (Pursh) Nutt. ssp. <i>linearis</i> Hall & Clements	Narrow-leaved wingscale
<i>Atriplex lentiformis</i> (Torrey) S. Watson	Quail
<i>Baccharis salicifolia</i> (Ruiz Lopez & Pavón) Pers.	Seep willow
<i>Baccharis sarothroides</i> A. Gray	Broom baccharis
<i>Bassia hyssopifolia</i> (Pall.) Kuntze	Five hook bassia
<i>Bromus rubens</i> L.	Foxtail chess
<i>Chenopodium ambrosioides</i> L. var. <i>typicum</i> (Speg.) Aellen.	Mexican tea
<i>Chenopodium berlandieri</i> Moq. var. <i>zschackei</i> (Murr) Murr.	Pitseed goosefoot
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass
<i>Cyperus rotundus</i> L.	Purple nut-grass
<i>Dicoria canescens</i> A. Gray	Desert dicoria
<i>Encelia farinosa</i> Torrey & A. Gray	Brittlebush, incienso
<i>Eriogonum deflexum</i> Torrey	Skeleton weed
<i>Erodium cicutarium</i> (L.) L. Her.	Filaree
<i>Euphorbia polycarpa</i> Benth.	Small-seeded sand mat
<i>Heliotropium curassavicum</i> L. var. <i>osculatum</i> (Heller.) Johnston	Chinese pusley
<i>Heterotheca psammophila</i> B. Wagenkn.	Camphor weed
<i>Hymenoclea salsola</i> T. & G. var. <i>pentalepis</i> (Rydb.) Benson	Burro brush
<i>Lemna</i> sp.	Duckweed
<i>Leptochloa uninervia</i> (C. Presl) A. Hitchc. & Chase	Mexican sprangletop
<i>Ludwigia peploides</i> (Kunth) Raven	Yellow water weed
<i>Malva parviflora</i> L.	Little mallow
<i>Nicotiana trigonophylla</i> Dunal.	Desert tobacco
<i>Nicotiana glauca</i> Grah.	Tree tobacco
<i>Parkinsonia aculeata</i> L.	Mexican palo verde
<i>Phragmites australis</i> (Cav.) Trin.	Common reed
<i>Plantago</i> sp.	Plantain
<i>Pluchea purpurascens</i> (Sw.) DC.	Marsh fleabane
<i>Polygonum lapathifolium</i> L.	Willow smartweed
<i>Polygonum hydropiperoides</i> Michx.	Knotweed, smartweed
<i>Polypogon monspeliensis</i> (L.) Desf.	Rabbitfoot grass
<i>Populus fremontii</i> Wats.	Fremont cottonwood
<i>Prosopis glandulosa</i> Torr.	Honey mesquite
<i>Ricinus communis</i> L.	Castor bean
<i>Rumex dentatus</i> L.	Dock
<i>Rumex violascens</i> Rech. f.	Dock
<i>Salix gooddingii</i> C. Ball.	Goodding's willow
<i>Salsola iberica</i> Sennen and Pau.	Russian thistle
<i>Schismus barbatus</i> (L.) Thell.	Mediterranean grass
<i>Scirpus paludosus</i> A. Nels.	Salt-marsh bulrush
<i>Sisymbrium irio</i> L.	London rocket
<i>Solanum</i> sp.	Nightshade
<i>Stephanomeria pauciflora</i> (Torr.) A. Nels.	Desert straw
<i>Tamarix pentandra</i> Pall.	Salt cedar
<i>Tessaria sericea</i> (Nutt.) Shinnery	Arrow weed
<i>Tiquilia plicata</i> (Torr.) A. Richardson	Plicate coldenia
<i>Typha domingensis</i> Pers.	Southern cattail

General Description of Habitats

The riparian habitats present in the study area form a gradient of plant communities ranging from the upland areas adjacent the Gila River floodplain, the woodlands of the outer flood terraces, the scrublands and strand vegetation of the river banks, and the aquatic and freshwater marsh habitats of the low-flow channel and isolated ponds. This report focuses on the woodland, scrubland, strand, and aquatic/marsh areas of the study area that would be affected by the proposed bridge project and provides a more comprehensive assessment of habitat types within the study area than the previous Final Environmental Assessment (MCDOT 1994).. The adjacent upland areas to the north and south of the river that would be affected by the project are largely disturbed due to agriculture (north of the river) and the PIR complex (south of the river).

The habitats described below occur at the confluence of the Gila and Salt Rivers and lie within the Lower Colorado River valley subdivision of the Sonoran desert scrub region (Brown 1982). Here, several subsections of the Tropical-Subtropical Wetlands occur along the floodplains of the two rivers. These plant communities were once supported by perennial flows in the rivers, however, with the advent of agriculture, cattle grazing, and urban growth in the surrounding valleys those year-round flows were eliminated. One historical account of the habitats present at the confluence of the Gila and Salt Rivers reported by a Jesuit named Father Jacobo Sedelmayr in 1744 stated the following (Rea 1983):

Passing on down river another five or six leagues and keeping it [Gila River] always in view with its willows and cottonwoods, we came to its confluence with the Rio de la Asuncion [Salt], which in its turn is formed by the Salado and the Verde. A very pleasant country surrounds this fork in the rivers. Here the eye is regaled with creeks, marshes, fields of reed grass, and an abundant growth of willows and cottonwood.

The lush habitat described by Sedelmayr at the confluence was completely eradicated by the 1950s, only to slowly begin to redevelop on a small, localized scale in the 1960s and 1970s due to effluent releases into the Salt River channel from the Phoenix 91st Avenue Wastewater Treatment Plant starting in November of 1958 (Rea 1983). This portion of the Gila River still receives year-round wastewater effluent, in addition to water added to the river by natural runoff during the wet season and overflow runoff from irrigation tailwater. The perennial effluent flows in the Salt River help support the riparian habitats below the confluence with the Gila River described below.

1. Sonoran Riparian Deciduous Woodlands

The predominant plant community in the study area is a deciduous riparian woodland composed of cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), and salt cedar (*Tamarix pentandra*). These species rely on seasonal flooding of the floodplain or a high groundwater table for their persistence. Cottonwood/willow riparian forests and woodlands were once common along the Salt, Gila, and Colorado Rivers but now occur as small remnant stands in areas that have not been significantly disturbed. These remaining stands of forest and woodland are threatened by the same factors that have eliminated the community type throughout the southwest, namely clearing for agriculture and pasture, water diversion, flood control and water storage projects, cutting of trees for fuel, and the lowering of groundwater tables.

The overwhelming presence of the non-native salt cedar in the riparian woodlands of the site are a testament to past disturbance of the area and the persistence of the plant. Tamarisk colonizes rapidly after scouring by floods and fire, often displacing the native cottonwoods and willows. Vast stands of salt cedar upstream along both the Gila and Salt Rivers likely guarantees the species will remain a problem in this portion of the river for a long time.

Vegetation clearing previously conducted by the Flood Control District within a 1,000-foot corridor centered on the river prevents backwaters from building upstream that would worsen flooding of adjacent farmlands. The cleared areas provide an opportunity for young willows and cottonwoods to establish, especially after flood scouring of the areas. However, salt cedar also invades these areas and competes with the native tree saplings for resources. Recruitment of cottonwood and willow trees in the mature stands of trees remaining is poor due to salt cedar invasion and human disturbance.

2. Sonoran Riparian Scrubland

Open areas between the woodlands of the outer floodplain terraces and the low-flow channel support a very sparse and open stand of riparian scrubland. Plants observed in this area include quail brush (*Atriplex lentiformis*), narrow-leaved wingscale (*Atriplex canescens*), desert dicoria (*Dicoria canescens*), arrow weed (*Tessaria sericea*), tree tobacco (*Nicotiana glauca*), and camphor weed (*Heterotheca psammophila*). Within these open areas, stands of young cottonwood and willow saplings occur. The scrubland habitat at this site is found on the sandy soils of the inner floodplain where the woodland and forest habitats are open or disturbed.

3. Sonoran Interior Strand

The interior strand habitats form along the banks of major rivers and streams where occasional flood scouring occurs. In the study area, the banks of the river, where not adjacent to riparian woodland, are vegetated with a variety of shrubs and herbaceous plants tolerant of perennial wet conditions. Shrubs of the strand habitat in the project area include arrow weed and seep willow (*Baccharis salicifolia*), while herbaceous species observed included willow smart weed (*Polygonum lapathifolium*), knotweed (*Polygonum hydropiperoides*), dock (*Rumex dentatus*, *R. violascens*), Mexican sprangletop (*Leptochloa uninervia*), Bermuda grass (*Cynodon dactylon*), and slim aster (*Aster subulatus*). Some portions of the strand areas are being colonized by young cottonwood, willow, and salt cedar saplings.

4. Sonoran Interior Marshland

The low-flow channel of the Gila River supports aquatic and freshwater marsh habitats characterized as interior marshlands. Portions of the lower banks of the river at the water's edge have dense stands of cattail (*Typha domingensis*), especially downstream of the proposed bridge crossing. Other species along the water's edge include yellow water weed (*Ludwigia peploides*), knotweed, and marsh fleabane (*Pluchea purpurascens*). Shallow water aquatic habitat is the open water areas contained within the low-flow channel.

Several small ponds, either the result of flood scour of the floodplain or due to human activities, occur within the study area. These freshwater marsh/aquatic habitat areas form isolated marshlands within the woodlands and on the floodplain of the river. Some of the deeper, apparently man-made, ponds have little vegetation except for the surrounding shrubs or trees of the scrubland or woodland. One pond within the woodland habitat in the proposed bridge corridor and north of the low-flow channel supports a small stand of cattail and seep willow. Duckweed (*Lemna* sp.) was also observed in the stagnant waters of this pond. Other ponds, especially on the south side of the river, support water-tolerant plants such as salt marsh bulrush (*Scirpus paludosus*), purple nut grass (*Cyperus rotundus*), smartweed, dock, and Mexican sprangletop.

5. Disturbed Areas

Highly disturbed areas occur to the south of the Gila River and are associated with off-site parking areas created to handle cars for PIR events. These areas have been continuously cleared of vegetation and now support a sparse cover of native herbaceous and non-native weed species. Plants found in the disturbed areas south of the river include skeleton weed (*Eriogonum deflexum*), Russian thistle (*Salsola iberica*),

Mediterranean grass (*Schismus barbatus*), filaree (*Erodium cicutarium*), and five hook bassia (*Bassia hyssopifolia*).

Distribution of Habitat Types in the Study Area

The habitat types within the proposed 116th Avenue bridge corridor and six adjacent parcels of land are discussed separately below. For information on the species composition of the particular habitat types refer to the previous discussion on general habitat types above. The discussions below describe specific areas within the study site. Information is provided on the vegetation cover, level of disturbance, and overall wildlife values of the habitats present. (See Table 2 for a summary of the acreage of habitat types within the bridge corridor, by land ownership. See Table 3 for a summary of habitat acreages and values within the bridge corridor and the six adjacent parcels of land.)

1. 116th Avenue Bridge Corridor

The 200-foot-wide bridge corridor begins on the north side of the Gila River, just north of the existing spur dike and west of 115th Avenue, and travels in a southwesterly direction across the river ending in the floodplain on the south side (Map 1; map pocket). Ownership within the bridge corridor includes private, Arizona Flood Control, and Arizona Game and Fish (AG&F) Commission lands. The bridge corridor crosses agricultural land north of the north spur dike. South of the north spur dike and north of the low-flow channel, the bridge corridor crosses through stands of riparian deciduous woodland (cottonwood/willow/salt cedar), a small interior marsh (an isolated pond with some cattail), disturbed riparian scrubland, and disturbed areas. Aquatic habitat is crossed where the bridge corridor traverses the Gila River low-flow channels. South of the river channels, the bridge corridor crosses through disturbed areas of the floodplain. The south spur dike will be built to the east and encroach into riparian woodland, isolated interior marshland, and disturbed areas of the floodplain.

Of the approximate 11.6-acre bridge corridor, about 64 percent (7.5 acres) currently supports vegetation. Within this area of vegetation, cover is greatest in the thickets of riparian deciduous woodland and least in the open disturbed riparian scrubland areas. Average canopy cover in the woodland thickets is estimated to range from at least 90 percent in the dense woodland stands to at least 75 percent in the smaller, isolated stands. The riparian scrubland and interior marshland areas have an average canopy cover ranging from less than 5 percent to approximately 30 percent in less disturbed patches.

The bridge corridor north of the river is disturbed over approximately 43 percent of the area. The disturbed area is comprised primarily of successional riparian scrubland with

TABLE 2
ACREAGE OF HABITAT TYPES WITHIN THE 116TH AVENUE BRIDGE
CORRIDOR, BY LAND OWNERSHIP

Habitat Type	Harper Sand & Gravel	Flood Control District	Amator Property	AG&F Commission	Total Acreage
Riparian deciduous woodland	0.17	0.27	1.19	2.47	4.1
Riparian scrubland	0	0	1.2	0.8	2.0
Interior marsh/ aquatic	0.04	0.06	0	1.3	1.4
Disturbed	0.08	1.81	0.19	2.02	4.1
Total Acreage with Bridge Corridor	0.29	2.14	2.58	6.59	11.6

TABLE 3
SUMMARY OF HABITAT ACREAGES AND VALUES
WITHIN THE 116TH AVENUE BRIDGE CORRIDOR AND SIX ADJACENT PARCELS OF LAND

Habitat Type	Bridge Corridor		Parcels Outside of the Bridge Corridor						
	Total Acreage of ROW Study Area	Portion of ROW on AG&F Lands	Total Acreage of Six Adjacent Parcels	Harper Sand and Gravel Property	Amator Property	Carnahan Property	Moorhead Property	Swindle Property	Samaniego Property
Riparian deciduous woodland	4.1	2.47	23.12	10.31	4.67	5.6	1.37	0.64	0.53
Riparian scrubland	2.0	0.8	18.44	5.34	4.41	2.36	1.54	2.29	2.5
Interior strand	0	0	1.08	1.08	0	0	0	0	0
Interior marsh/aquatic	1.4	1.3	7.47	7.03	0.06	0.38	0	0	0
Disturbed	4.1	2.02	4.24	1.62	1.94	0.23	0.24	0.22	0
TOTAL	11.6	6.59	54.35	25.45	11.08	8.57	3.15	3.15	3.03
Vegetation cover	Moderate	High (north of river) Low (south of river)	High	High	High	High	Moderate	Low	Low
Degree of disturbance	Moderate	Low (north of river) High (south of river)	Low	Low	Low	Low	Moderate	Moderate	Moderate

TABLE 3
SUMMARY OF HABITAT ACREAGES AND VALUES
WITHIN THE 116TH AVENUE BRIDGE CORRIDOR AND SIX ADJACENT PARCELS OF LAND
(continued)

Habitat Type	Bridge Corridor		Parcels Outside of the Bridge Corridor						
	Total Acreage of ROW Study Area	Portion of ROW on AG&F Lands	Total Acreage of Six Adjacent Parcels	Harper Sand and Gravel Property	Amator Property	Carnahan Property	Moorhead Property	Swindle Property	Samaniego Property
Wildlife values	Moderate	High (north of river) Low (south of river)	High	High	High	High	Moderate	Low	Low

NOTE: Acreages presented are estimates based on the property boundaries as depicted on the base maps received.

areas of largely unvegetated or weed-dominated patches where off-road-vehicle use, trash dumping, and clearing (notably along the south side of the spur dike) has taken place. South of the river, the bridge corridor is disturbed over approximately 72 percent of the area. These disturbed areas are comprised mostly of open floodplain with patches of weeds or disturbed riparian scrubland. This disturbed area is within the 1,000-foot corridor previously maintained (cleared) for flood control.

Wildlife values of existing habitat within the bridge corridor are greatest in the riparian deciduous woodland, interior marshland, and aquatic habitats, less in the riparian scrubland, and lowest in the disturbed (cleared or weed-dominated) areas. The riparian woodland is an important nesting area for many bird species such as white-winged dove, mourning dove, black-crowned night heron, and great blue heron (all observed in the area). Other bird species characteristic of riparian woodlands include:

Arizona Bell's vireo	Lucy's warbler
vermillion flycatcher	Abert's towhee
northern cardinal	Crissal thrasher
phainopepla	

Mammal species characteristic of riparian woodlands are:

mule deer	javelina
desert cottontail	raccoon
silver-haired bat	big brown bat
desert pocket mouse	

The interior marshland, including the ponds and river edge marsh vegetation, in conjunction with the aquatic areas of the Gila River provide habitat for amphibians and reptiles such as toads, frogs, garter snakes, and sometimes turtles; various fishes; mammals such as muskrat; and birds such as:

red-winged blackbird	snowy egret
American coot	common yellowthroat
least bittern	black-crowned night heron
least grebe	Yuma clapper rail

The riparian scrubland areas within the bridge corridor are disturbed and provide less vegetative cover than undisturbed riparian scrublands. Disturbed areas of the floodplain, particularly on the south side of the river, are similar in that they lack well developed vegetation cover and provide little wildlife habitat. Without repeated perturbation, the disturbed riparian scrubland and other disturbed areas could develop slowly into more representative scrubland habitat, improving the wildlife values.

2. Lands Outside of the Bridge Corridor

Six parcels were examined to determine the biological values of the areas surrounding the bridge corridor. The distribution of habitats and a description of habitat values are discussed below for each parcel.

a. Harper Sand and Gravel Property

The approximately 25.45 acres of land deeded by AG&F to the Harper Sand and Gravel Company is a dipper-shaped parcel that lies predominantly to the west of the bridge corridor (see Map 1; map pocket). Based on conditions contained in the deed, the Harper Sand and Gravel property will revert to AG&F Commission ownership no later than the year 2008. A narrow portion of the property bisects the bridge corridor where it crosses the Gila River. The large portion of the parcel to the west of the bridge corridor is mostly on the north side of the river. Habitats on the north side of the river include dense stands of riparian deciduous woodland (cottonwood/ willow/salt cedar), relatively large areas of interior strand, and interior marsh habitat. Aquatic habitat is present where the parcel includes the Gila River low-flow channel. The eastern spur of the parcel to the north of the river includes a disturbed area adjacent to 115th Avenue. South of the river the southern portion of the larger section of the parcel contains interior strand habitat, interior marsh habitat, and small patches of riparian deciduous woodland.

Of the approximate 25.45 acres, an estimated 61.5 percent (15.6 acres) currently supports dense vegetation. This total does not include the approximately 7.03 acres of aquatic (open water) and interior marshland habitat of the Gila River. Within the vegetated areas, cover is greatest in the thickets of riparian deciduous woodland on the north side of the river and least in the open interior strand areas. Average cover in the woodlands is estimated to be at least 90 percent in the larger, denser woodland areas on the north side of the river, and at least 60 percent in the smaller, isolated stands. The interior strand and marshland areas have an average canopy cover ranging from less than 5 percent in the scoured or cleared areas away from the river banks to approximately 100 percent in areas of dense cattail and yellow water weed at the edge of the low-flow channel.

Large portions of the Harper Sand and Gravel property have been disturbed by river flood scour, past clearing for flood control, or previous sand and gravel mining activities. These areas contain little trash and off-road-vehicle access appears limited due to the sandy substrate. The scour areas on the western portion of the parcel are being colonized by shrubs characteristic of the interior strand habitat and saplings of woodland species (i.e., cottonwood, willow). The area adjacent to 115th Avenue currently supports a shallow freshwater marsh with willow and cottonwood saplings.

Wildlife values of habitat within the Harper Sand and Gravel parcel are greatest in the riparian deciduous woodland, interior marshland, and aquatic habitats, less in the very

open interior strand habitat, and lowest in the highly disturbed areas. The riparian woodland habitat values on this parcel are similar to those discussed under the bridge corridor. The interior marshland, including the small pond on the north side of the river and river edge marsh vegetation, in conjunction with the aquatic areas of the Gila River provide ideal habitat for the same diversity of birds, amphibians, reptiles, fish, and mammals in similar habitats discussed under the bridge corridor section. The 7.03 acres of interior marsh/aquatic habitat provide ideal areas for the Yuma clapper rail and other water fowl and riparian birds to forage, roost, and perhaps, breed.

b. Amator Property

This approximately 11.08-acre parcel (not including 2.58 acres within the bridge corridor) is located to the west of 115th Avenue, just south of the north spur dike on the north side of the Gila River (see Map 1; map pocket). The vegetation is comprised of stands of riparian deciduous woodland, riparian scrubland, and freshwater marsh (a small pond). The remaining area is largely disturbed by human activities or scour of the floodplain by the river. The disturbed areas support some stands of cottonwood/willow saplings, herbaceous components of riparian scrubland (mainly camphor weed), or are cobbly, sandy areas devoid of vegetation.

Of the 11.08 acres on the Amator property, approximately 42.1 percent (4.67 acres) currently supports dense vegetation. Within the vegetated areas, the cover is greatest in the thickets of riparian deciduous woodland and least in the open disturbed areas. Average canopy cover is estimated to be at least 90 percent in the denser woodland areas. The riparian scrubland areas have an average canopy cover ranging from less than 5 percent to approximately 30 percent in less disturbed patches.

The Amator property is disturbed over approximately 57.3 percent of the parcel area. The disturbed areas are comprised primarily of successional riparian scrubland with areas of largely unvegetated or weed-dominated patches where off-road-vehicle property, trash dumping, and clearing (notably along the south side of the spur dike) has taken place.

Wildlife values of existing habitat within the Amator property are greatest in the riparian deciduous woodland, less in the riparian scrubland areas, and lowest in the disturbed (cleared or weed-dominated) areas. The riparian woodland habitat values on this parcel are similar to those discussed under the bridge corridor. The riparian scrubland areas on this parcel are disturbed and provide less vegetative cover than undisturbed riparian scrublands.

c. Moorhead Property

The approximately 3.15-acre Moorhead property is located to the east of 115th Avenue, north of the Salt River and 350 feet south of the spur dike (see Map 1; map pocket). The

vegetation on this parcel is comprised of small stands of riparian deciduous woodland dominated by salt cedar. The remaining area of the parcel is predominantly cobbly sand with small patches of weeds or disturbed riparian scrubland.

Vegetation cover on this parcel is approximately 37 percent and mostly salt cedar. The open areas are largely disturbed by either flood scour or human disturbances such as trash dumping. Disturbed areas adjacent to 115th Avenue are highly compacted due to road maintenance and parking. Some riparian scrub is colonizing the open sandy areas, but cover is generally less than 10 percent in any particular patch.

Wildlife values of existing habitat on this parcel are highest in the woodland patches and lowest in the open sandy areas. Although this site is small, potential wildlife use is similar to other woodland areas described above since the habitat is connected to similar woodlands on the lands to the south of the parcel.

d. Swindle Property

The approximately 3.15-acre Swindle property is located to the east of 115th Avenue, north of the Salt River and 200 feet south of the spur dike (see Map 1; map pocket). The vegetation on this parcel is comprised of small isolated stands of riparian deciduous woodland dominated by salt cedar. A few saplings of cottonwood and willow were observed. The remaining area of the parcel is predominantly cobbly sand with small patches of weeds or disturbed riparian scrubland.

Vegetation cover on this parcel is 1.9 percent and mostly salt cedar. The open areas are largely disturbed by either flood scour or human disturbances such as trash dumping and limited off-road-vehicle activity. Disturbed areas adjacent to 115th Avenue are highly compacted due to road maintenance and parking. Some riparian scrub is colonizing the open sandy areas, but cover in any particular patch is generally less than 10 percent overall.

Wildlife values of existing habitat on this parcel are highest in the woodland patches and lowest in the open sandy areas. Although one patch of woodland on this parcel connects to a larger habitat patch of woodland to the north, most of the woodland habitat is isolated, making overall potential wildlife use on this site less than other woodland areas described above.

e. Samaniego Property

This parcel of land is located to the east of 115th Avenue and to the east of the Moorhead and Swindler properties (see Map 1; map pocket). The approximately 3.03 acres is comprised of small isolated stands of riparian deciduous woodland dominated by salt cedar and areas of riparian scrubland containing a few saplings of Goodding's willow.

The remaining area of the parcel is predominantly cobbly sand with small patches of disturbed riparian scrubland.

Vegetation cover on this parcel is approximately 20 percent; salt cedar being the biggest contributor to the cover. The open areas are largely disturbed by periodic flood scour and some trash dumping. Some riparian scrub is colonizing the open sandy areas, but cover in any particular patch is generally less than 10 percent.

Wildlife values of existing habitat on this parcel are generally low due to the small acreage of habitat and the isolated vegetation patches. Most of the woodland habitat on this parcel is the edge of a larger habitat patch of woodland to the south.

f. Carnahan Property

This approximately 8.57 acres of land is located east of 115th Avenue just south of the spur dike on the north side of the Gila River floodplain (see Map 1; map pocket). Riparian deciduous woodland dominated by willow, cottonwood, and salt cedar occurs on the site. Small patches of cottonwood and willow saplings occur along the edge of the woodland on the south side of the parcel. The north side of the parcel just south of the spur dike has been cleared, but remains wet enough to support mesic vegetation such as slim aster, Bermuda grass, dock, Mexican sprangletop, and small areas of cattail.

Overall vegetation canopy cover is 65.8 percent and comprised predominantly of woodland habitat. The open area is disturbed due to trash dumping, limited off-road-vehicle activity, and perhaps some periodic flood scour. Remnants of riparian scrubland vegetation appear to be colonizing the open areas.

Wildlife values of the existing woodland habitat is high and similar to dense woodland habitats of the bridge corridor, Harper Sand and Gravel parcel and Amator parcel. The larger acreage of woodland habitat and presence of more cottonwood and willow trees increases the potential for wildlife use over the salt cedar-dominated Moorhead, Swindler, and Samaniego land parcels to the south.

Conclusion

The confluence of the Salt and Gila Rivers supports a variety of riparian habitats, including deciduous woodland, scrubland, and interior strand and marsh that provide habitat for native wildlife. In general, the area of the proposed bridge corridor has moderate to high vegetation cover, localized areas of disturbance, and moderate to high wildlife values (except for the localized disturbed areas which have relatively low wildlife values). Lands adjacent to the bridge corridor (both upstream and downstream) that were examined have predominantly high vegetation cover outside of the few

localized disturbed areas which have low cover. The degree of disturbance in the surrounding areas is again localized, but is most prevalent on the smaller parcels (i.e., Swindle and Samaniego properties). Overall wildlife habitat values of the adjacent lands are similar to those within the bridge corridor and generally high with the exception of the localized disturbed areas.

Personnel

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