Riparian Vegetation Establishment in the 1992 Engineered Channel

Relationships to SWFL Pairs in the Isleta and San Acacia Reaches



Vegetation in the Active Floodplain Isleta and San Acacia Reaches

- What proportion of the 1992 engineered channel are currently occupied by riparian vegetation?
- How has this changed over time?
- Is the vegetation dominated by native or non-native spp?
- How have avian species responded?
 - Focus on SWFL breeding pairs



GIS Analysis

- Digitized 1992 channel banklines, calculated channel area.
- Quantified acreage of vegetation vs. channel
 2006 and 2016
- USBR 2016 H&O veg mapping

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- General vegetation types
- Analyzed data by sub-reach (Isleta and SA Reaches)





2016 Veg Mapping - Isleta Reach General Vegetation Types by Sub-Reach

	Los Lunas		Belen		Sevilleta	
	Acres	Percent	Acres	Percent	Acres	Percent
Channel	379	41%	376	37%	277	32%
Native Riparian	258	28%	482	47%	226	26%
Mixed Native and Exotic Riparian	156	17%	144	14%	258	30%
Exotic Riparian	15	2%	13	1%	35	4%
Xeric Woodland	9	1%	1	0%	25	3%
Marsh	16	2%	0	0%	0	0%
Other	92	10%	0	0%	53	6%
Total	924	100%	1016	100%	874	100%

1992 Channel Area



Isleta Reach



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Composition & Structure

- Native vegetation
 - Coyote willow
 - Gooding's willow
 - Cottonwood
- Dense stands
- Tiered canopy heights









Detections in Active vs. Historic Floodplain



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Historic floodplain = outside of 1992 banklines Active floodplain = between 1992 banklines

San Acacia Reach

- Sub-Reaches
 - Escondida
 - SADD to Escondida bridge
 - San Antonio
 - Escondida bridge to nb of BdANWR
 - Refuge

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 nb BdANWR to San Marcial RR bridge



2016 Veg Mapping – San Acacia Reach General Vegetation Types by Sub-Reach

	Escondida		San Antonio		Refuge	
	Acres	Percent	Acres	Percent	Acres	Percent
Channel	199	34%	482	45%	278	30%
Native Riparian	12	2%	59	6%	96	10%
Mixed Native and Exotic Riparian	353	61%	426	40%	471	50%
Exotic Riparian	3	0%	72	7%	62	7%
Marsh	0	0%	0	0%	0	0%
Other	12	2%	24	2%	29	3%
Total	579	100%	1062	100%	936	100%

1992 Channel Area



San Acacia Reach

VEGETATED ISLANDS IN SAN ACACIA REACH

1992 TO 2016 700.0 1992 618.6 575.7 600.0 2006 563.7 2016 500.0 446.7 ACRES 379.7 400.0 308.5 300.0 200.0 100.0 22.6 19.8 0.0 0.0 -Econdida Subreach San Antonio Subreach **Refuge Subreach** 579 ac. 936 ac. 1062 ac. GeoSystems Analysis. Inc.

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Google Earth

2987 ft

2020

Composition & Structure

- Mixed native-exotic vegetation
 - coyote willow
 - saltcedar
 - cottonwood
 - Russian olive
 - baccharis
- Dense stands

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Tiered canopy heights



*photo credit: Audubon SW



Detections in Active vs. Historic Floodplain



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Historic floodplain = outside of 1992 banklines Active floodplain = between 1992 banklines

"Historic vs. Active"

Less applicable at BdANWR

- Channel realignment project meanders outside of 1992 engineered channel
- Channel narrowing and bed aggradation promotes extensive inundation of "historic" floodplain at approx.
 3,000 cfs





Key Takeaways

- The 1992 engineered channel is the contemporary "active floodplain"
- Riparian vegetation colonized sand bars in the early 2000's, especially in the San Acacia Reach
 - Dominated by mixed native-exotic spp.
- Riparian vegetation has expanded in the Isleta Reach over the past 15 years
 - Dominated by native spp., especially in the Los Lunas & Belen subreaches
- SWFL pairs have increased substantially in response to native riparian establishment in the active floodplain of the Isleta Reach
- Any thoughts of managing vegetated islands in the active floodplain should carefully weigh impacts on SWFL and ecological functions associated with river-floodplain connectivity



Ecosystem Functions?

- Primary production
 Food web
- Life-cycle requirements diverse species
- Export organics to river system
- Aquifer recharge
- Etc.

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Questions for Workshop Participants

- What are the specific concerns?
- Where specifically along the MRG are these concerns apparent?
- What data exists to support supposition that managing islands would alleviate these problems?
- What are the potential unintended ecological consequences?
- Are there other alternative for addressing these issues that don't have detrimental ecological effects?

