Managing invasive plants and bringing back wildlife: The evolution of riparian restoration over 15 years with River Partners

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River Partners
Sacramento River
Public Safety and Flood Management
Importance of Riparian Corridor to Wildlife Migration

Sacramento River Wildlife Corridor
Riparian Wildlife
Bank Swallow

Constructs nest burrows in recent cut-banks
Breeding habitat for important species
Riparian Brush Rabbit
Valley Elderberry
Longhorn Beetle
Phragmites
Tree-of-Heaven
Arundo donax
FLOODS HAPPEN!
Irrigation Installation
Wildlife and Vegetation Restoration Design

Closed and Open Canopies
Wildlife and Vegetation Restoration Design

- Bankfull
- Baseflow
- Shaded Riverine Aquatic Habitat (SRA)
- Flooded Floodplain Habitat
Wildlife and Vegetation Restoration Design
Wildlife and Vegetation Restoration Design

Dense Willow Thicket with Widely Spaced Trees

Yellow-breasted Chat
Singing perch

Yellow-breasted Chat
Nesting habitat
Cross-Section through Planting Design

SRA  Mixed  Shrub
Riparian  Clusters
Planting tile detail of the Valley Oak Woodland association on the Low Terrace at McConnell Arboretum
Field L-3, 41 acres, San Joaquin River NWR
Planting
10-year old Restoration Planting
1) Can we get them to germinate and grow?
2) Will they tolerate our maintenance activities?
Parting the
*Mugwort Sea*...
Creeping Rye Grass
Endangered least Bell’s vireo
First nesting in Central Valley in 60 years
Absolute Cover of Herbaceous Understory – Year 1

Mugwort

Gumplant

Leymus

Percent Cover

Monitoring
• Establishment / Long-term / Post-disturbance / WHY?
Creating Wildlife Habitat for the Benefit of People and the Environment

7-year old Herbaceous Understory Response to fire

- Weed
- Native not seeded
- Non-native
- Planted adjacent
- Direct seeded

Comparison between burned and unburned areas.
7-year old Herbaceous Understory
Response to flood hydrology

- weed
- native not seeded
- non-native
- planted adjacent
- direct seeded

Creating Wildlife Habitat for the Benefit of People and the Environment
Number of mammal species captured in oak woodlands, riparian habitat, fallow fields, and non-native grasslands at Triad sites on San Joaquin River National Wildlife Refuge and acquisition properties, 1998.

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<th>Species</th>
<th>Oak Woodlands</th>
<th>Riparian</th>
<th>Fallow Fields</th>
<th>Non-native Grasslands</th>
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(from: San Joaquin River National Wildlife Refuge Riparian Habitat Protection and Flood Plain Restoration Project Biological Inventory and Monitoring, 1998)
Stem girdled
By Microtus
CONCLUSIONS

Native plants can successfully replace Invasives – with properly-timed Land Management!
CONCLUSIONS

Populations of targeted wildlife species can be restored if careful attention is given to restoring vegetation structure.
FUTURE NEEDS:

Development of a riparian restoration model to accurately assess site potential for horticultural success and refinement of designs for wildlife use.
California Riparian Habitat Restoration Handbook.
Published By Riparian Habitat Joint Venture.

Riparian Restoration on Flood-Prone Land