Habitat Assessment of the 365-acre Phase 1 Managed Marsh at the Imperial Irrigation District

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Requirement for Managed Marsh

As part of the mitigation requirements for the Water Transfer Project, Imperial Irrigation District (IID) is required to create a Managed Marsh complex to mitigate for impacts to drain vegetation from operation and maintenance activities. The Managed Marsh is developed in compliance with a Draft HCP/NCCP.
Relationship of IID and Lower Colorado (LC) HCP Habitat Requirements

- LC habitat needs are for cottonwood-willow, honey mesquite, marsh, and backwater habitat.

- IID habitat needs are for a Managed Marsh complex of approximately 959 acres, 1/3 of non-emergent vegetation (riparian and bosque) and 2/3 of open water/emergent vegetation.
Target Species

Marsh Habitat
- Yuma Clapper Rail (*Rallus longirostris yumanensis*)
- California Black Rail (*Laterallus jamaicensis coturniculus*)

Riparian Habitat
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
Location of Imperial Irrigation District and Lower Colorado River Marsh Projects
Managed Marsh November 14 2012

Farm Bureau Design: P2-3 cells
- Cells vary in size
- Berms on topographic contour;
  variable water depths.

Engineer’s Design: P1 Cells
- Approximately 15 acres each
- Water depths vary across cell
  with deepest in SW corner
Emergent Wetlands

- Designed as emergent habitat
- Cells are normally flooded
- Varied water depth from saturated soils to 2 to 4 ft
Riparian Woodland Habitat

- Meandering channels (post-construction modification) with willow and cottonwood
- Channels normally wet with low-velocity flows
- Adjacent areas are normally dry
Floodplain/Bosque

- Mesic bosque and flood plain habitat
- Periodically flooded
- Contain various shrub/tree species
Buffer areas (post-construction design)

- Approximately 20 acres to east and west
- Buffer between agricultural operations and habitat
- Furrow irrigated
- Bermuda grass and mesquite
Habitat Assessment

- Conducted December 11-12, 2012
- Habitat units mapped from recent air photos, then ground evaluations from roads and inside marsh cells
- Each habitat unit evaluated and scored for:
  - Water depth
  - Vegetation type and species diversity
  - Wetland Cover Class/Patch Size
  - Vegetation Structure
  - Prey potential
- Criteria scores were weighted based on importance to each species
- Criteria used were those developed by the design team in 2008
Habitat Types in Managed Marsh
Habitat Quality Criteria: California Black Rail

- **First order: Water depth**
  - High: saturated to 4 inches deep
  - Medium: surface dry or moist
  - Low: > 4 inches deep

- **Second order: Vegetation type and species diversity**
  - High: SCCA dominant with other diverse species present
  - Medium: other emergent wetland; not dominated by a single species
  - Low: single species dominant, or no emergent wetland vegetation

- **Third order: Wetland cover class and patch size**
  - High: Class 2 or 3
  - Medium: Class 1
  - Low: Class 4

- Also considered are species diversity, vegetation structure, and prey potential
California Black Rail: Habitat Preference

- Moist to very shallow surfaces (up to 4 inches of water) subject to minimal water level fluctuations, with gently sloping shorelines in dense marsh vegetation
- Transitional area from denser marsh (cattail or cattail/California bulrush) vegetation to saltgrass meadows, and uplands surrounding the riparian treatments
California Black Rail: Habitat Availability in Managed Marsh

- Suitable habitat present, but mostly medium to low quality
- Forage opportunities for black rail present
  - observed invertebrates included ants and beetles
  - high density of cattail and California bulrush
- Dense wetland transitioning into drier uplands
California Black Rail Habitat
Habitat Quality Criteria: Yuma Clapper Rail

- First order: Water depth
  - High: 4 – 24 inches deep
  - Medium: saturated to 4 inches deep
  - Low: no standing water; or greater than 24 inches deep
- Second order: Vegetation type and species diversity
  - High: TYDO and TYDO/SCCA
  - Medium: TYDO with species other than SCCA; or SCCA dominant
  - Low: all other types
- Third order: Wetland cover class and patch size
  - High: Class 1 and 2
  - Medium: Class 3
  - Low: Class 4
- Also considered are vegetation structure (especially thatch thickness), prey potential, and patch size
Yuma Clapper Rail: Habitat Preference

- Mosaic of uneven-aged, moderately dense to dense, tall marsh vegetation
- Shallow water depth
- Open water of varying depths, such as narrow channels of flowing water and mudflats or open ground
- Food source: crayfish and other invertebrates, small fish, and seeds
Yuma Clapper Rail: Habitat Availability in Managed Marsh

- high density of southern cattail or mix of California or hardstem bulrush and cattail are present throughout much of Managed Marsh
- much of this extensive marsh considered high quality habitat
Yuma Clapper Rail Habitat
Habitat Quality Criteria: Southwestern Willow Flycatcher

- First order: Canopy Structure, Species Diversity, and Vegetation Structure
  - Upper canopy required
  - Species can be Salix, POFR, or TARA
- Second order: Proximity to Open Water
  - Required for foraging
- Third order: Patch Size, Prey Base, and other observations.
Southwestern Willow Flycatcher: Habitat Availability in Managed Marsh

- Immature riparian habitats currently marginal, but developing
- Riparian shrub or tree species not present in high density
  - canopy/understory structure developing: black willows and cottonwood overtop narrowleaf willow, mulefat and the occasional mesquite
  - tallest trees ~ 25 feet tall
- Salt cedar present: small, open trees
- Understory variable
  - some more open, grassy or bald areas
  - occasional open water

- Highly productive wetland system provides abundant food supply of insects during the growing season
Southwestern Willow Flycatcher Habitat
General Habitat Features Present: Emergent Marsh

- southern cattail well developed, with bulrushes in some cells
- appropriate water depth and habitat heterogeneity for good clapper rail habitat; less for California black rail
- principal food source for clapper rails (crayfish) present
General Habitat Features Present: Riparian Corridors

- Willow or riparian shrub habitat low to medium density
- Open water rare underneath, but present adjacent
- Moist soils common
- Some upper canopy structure developing as habitat for southwest willow flycatcher
Problems or Limitations

- Saltcedar invading
- Modest populations of saltcedar may be useful to black rails and other marsh species and some riparian bird species
- Dense growth of cattails in channels open water may limit development of habitat suitable for riparian birds
- Excessive water depths
- Lack of cover in meadow areas
Opportunities for Other Species

- Dense cattail stands with shallow open water for foraging
  - Least bittern
  - white-faced ibis
  - fulvous whistling ducks

- Canopy structure in riparian areas
  - Canopy structure could support Arizona and least Bell’s vireos.
  - Summer tanager (would be occasional migrant until more riparian development)

- Tall trees associated with marsh for perching and nesting
  - white-tailed kite,
  - great blue herons
  - red-tailed hawks
The Target Bird Species Have a Bright Future in the Managed Marsh

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Questions?