System-wide monitoring of MSCP rodent populations 2012

Target Species

- Colorado River Cotton Rat

(Sigmodon arizonae plenus)

- Yuma Hispid Cotton Rat

(*Sigmodon hispidus eremicus)*

- Desert Pocket Mouse

(*Chaetodipus pencillatus sobrinus)*

Study area

- 6 restoration sites
- Multiple non-restoration areas

Havasu NWR

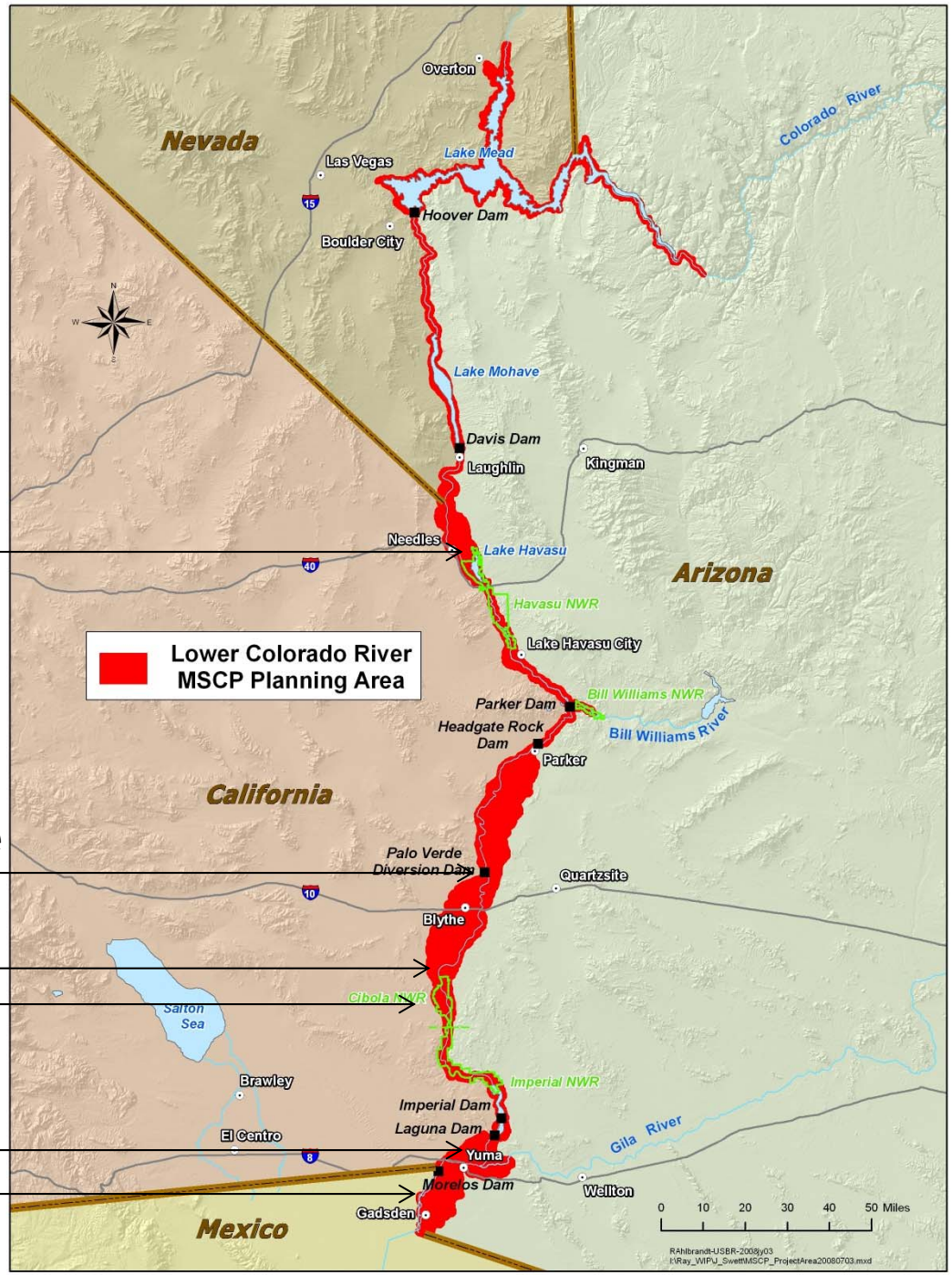
Palo Verde Ecological Reserve

Cibola Valley Conservation Area

Cibola NWR

Yuma East Wetlands

Hunters Hole



Methods

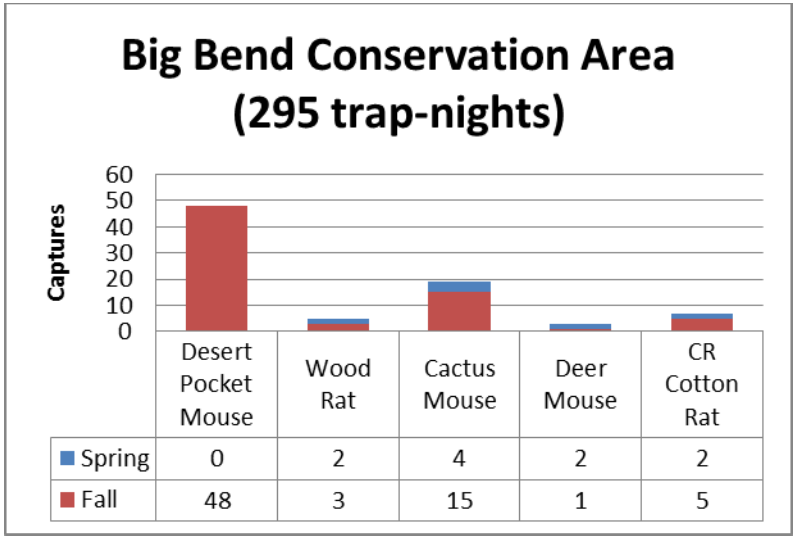
- Mixed trapping methods, i
  grids + exploratory trappin
- Includes restoration and n
- Sherman live traps baited
- Traps left overnight
- Sigmodon PIT tagged

Big Bend Conservation Area

- Purchased by SNWA for sucker habitat
- Trapping area is secondary marsh transition zone
- Mixed with both native and non-native grasses with *Baccharis* and arrowweed.
- Exploratory trapping in 2010, did not catch any Sigmodon
- Field trip this week

Big Bend Results

- First Sigmodon found in Nevada since 1963
- Found in grass-shrub transition
- Voucher specimen taken



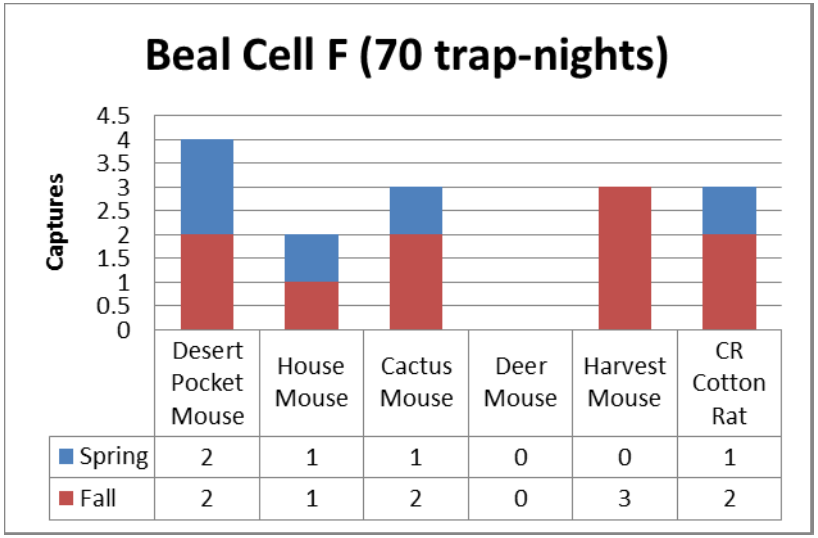
	Desert Pocket Mouse	Wood Rat	Cactus Mouse	Deer Mouse	CR Cotton Rat
Spring	0	2	4	2	2
Fall	48	3	15	1	5

Beal Field F

- Part of 100 acre site
- Joint effort between Reclamation and Havasu NWR
- Discovered grassy area in Field F, trapped in 2010, caught 3 Sigmodon

Beal Trapping Results

- Sigmodon found in small grassy area with some *Baccharis*



	Desert Pocket Mouse	House Mouse	Cactus Mouse	Deer Mouse	Harvest Mouse	CR Cotton Rat
Spring	2	1	1	0	0	1
Fall	2	1	2	0	3	2

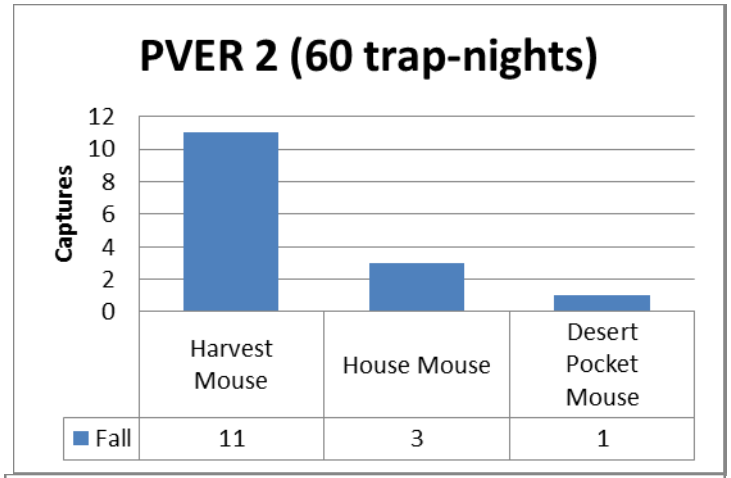
Havasu NWR - Pintail Slough

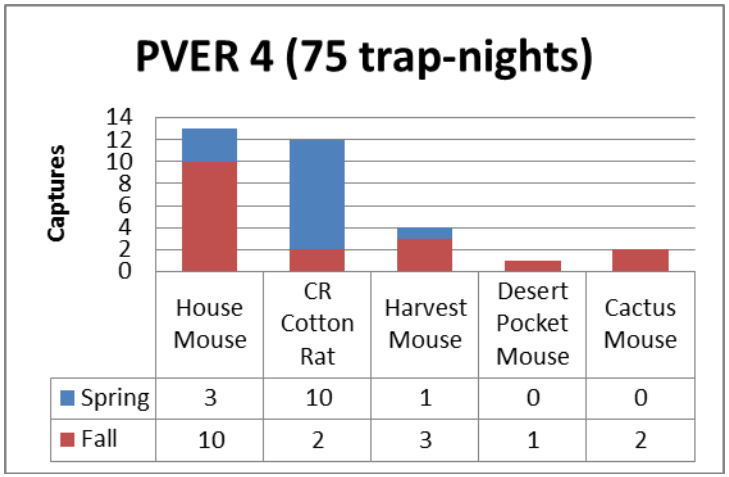
- Dominated by Mexican devil-weed (*Chlorocantha*), interspersed johnson/bermuda grasses
- 1 Sigmodon over 60 trap-nights in Fall
- Not managed

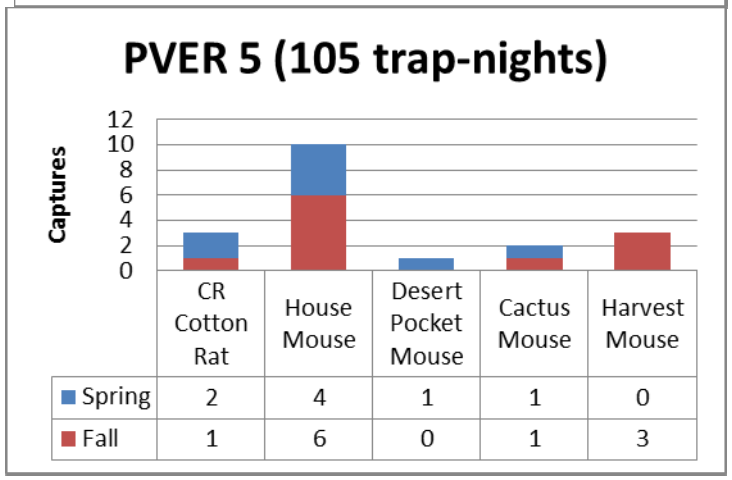
Palo Verde Ecological Reserve

- 8 km north of Blythe on California side of LCR
- Phase 2 (2007), 80 acres cottonwood-willow
- Phase 4 (2009), mostly cottonwood-willow, one plot mesquite + native grasses
- Phase 5 (2010), cottonwood-willow
- PVER Bench important to Sigmodon

PVER Results







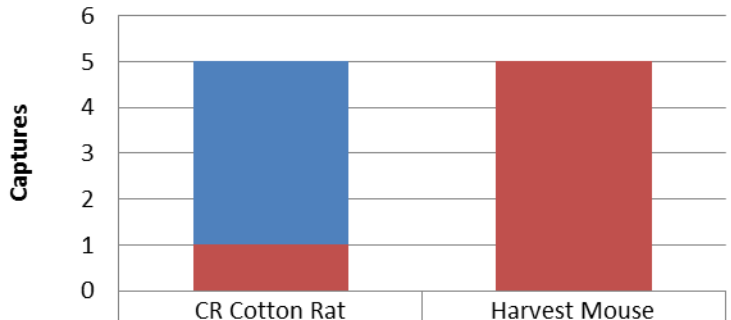
PVER Bench

- Low bench of land partially inundated by the river
- Not managed habitat
- Dominated by Spanish false fleabane, interspersed bermuda grass, dallis grass
- Population of Sigmodon arizonae still present
- 3 Sigmodon over 30 trap-nights in Fall

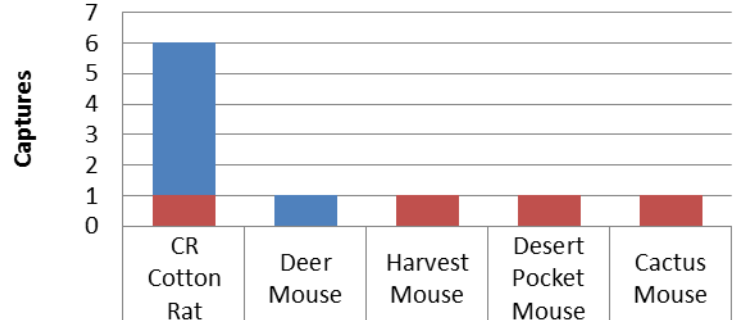
Cibola Valley Conservation Area

- Multi-phase planting
- Phase 1 planted Spring 2006 w/ cottonwood-willow, sigmodon caught on edge (mix of Conyza, bermuda grass)
- Phase 2 (spring 2008), cottonwood-willow habitat, small area of mesquite + quailbush
- Phase 3 (spring 2007), 11 acres Baccharis mixed w/ cottonwood-willow
- Phase 4 mesquite, atriplex planted in deep furrows

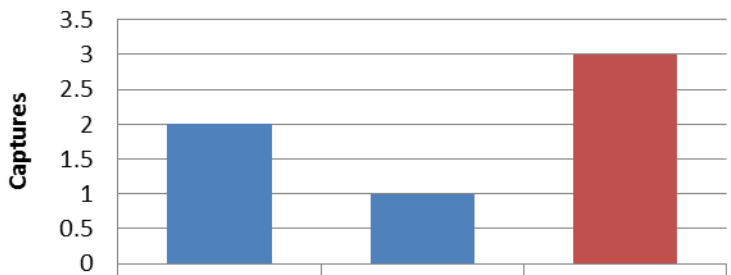
CVCA Results



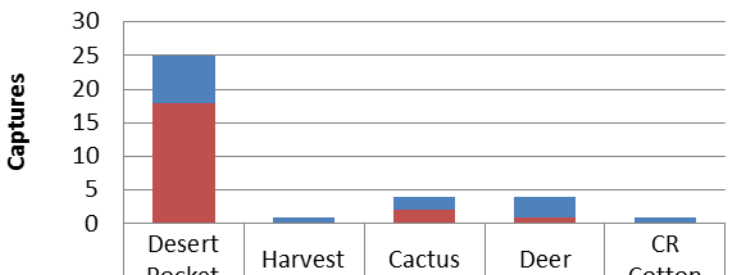
	CR Cotton Rat	Harvest Mouse
Spring	4	0
Fall	1	5



	CR Cotton Rat	Deer Mouse	Harvest Mouse	Desert Pocket Mouse	Cactus Mouse
Spring	5	1	0	0	0
Fall	1	0	1	1	1



	Cactus Mouse	Harvest Mouse	House Mouse
Spring	2	1	0
Fall	0	0	3



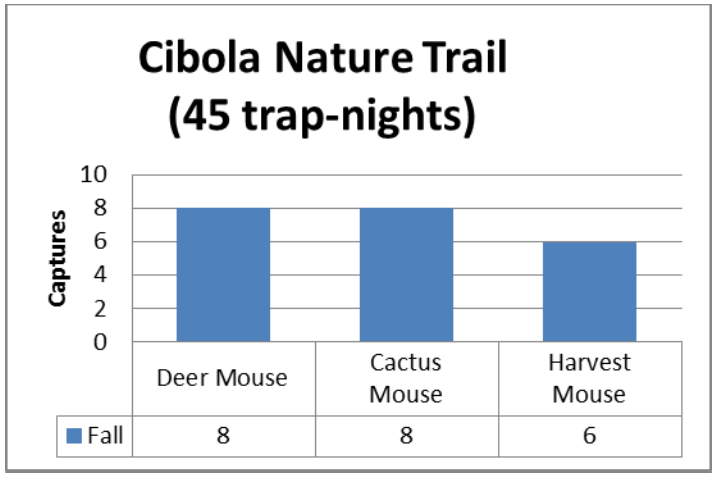
	Desert Pocket Mouse	Harvest Mouse	Cactus Mouse	Deer Mouse	CR Cotton Rat
Spring	7	1	2	3	1
Fall	18	0	2	1	0

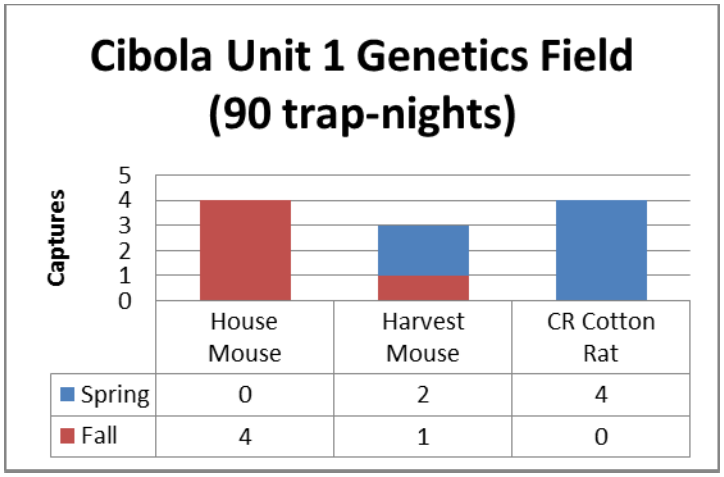
Cibola NWR Unit 1

- 1 of 6 management units, Northernmost area of refuge
- Includes undeveloped fields, agricultural areas, research fields
- Nature Trail: 34 acre section w/ cottonwood, willow, mesquite
- Dense understory of Johnsongrass and Baccharis in mesquite/willow areas

Cibola Trapping Results

- Sigmodon found in small patch of Johnsongrass in CW Genetics Field
- None found in Nature Trail



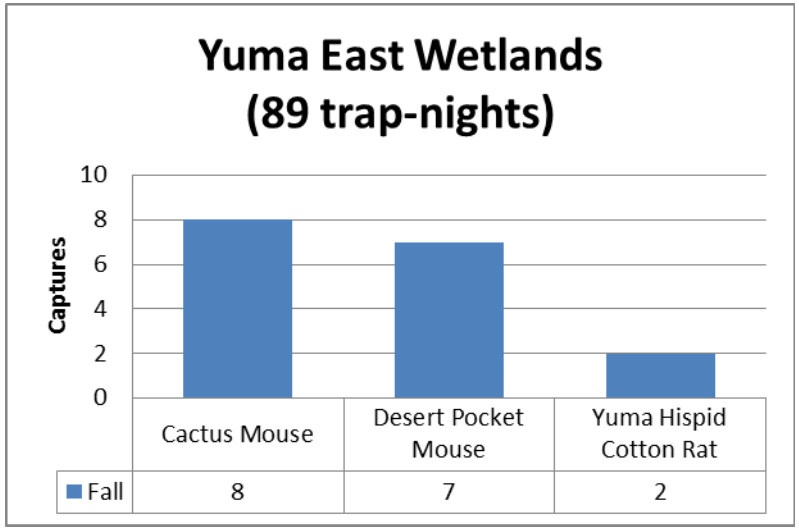


Yuma East Wetlands

- Dominated by Alkali-Sacaton, interspersed *Baccharis*, Mesquite, Palo Verde
- Trapped multiple times by MSCP, Fred Phillips Consulting. No captures until Fall 2012
- Yuma Hispid Cotton Rat captured in Sacaton – *Baccharis* transition zone

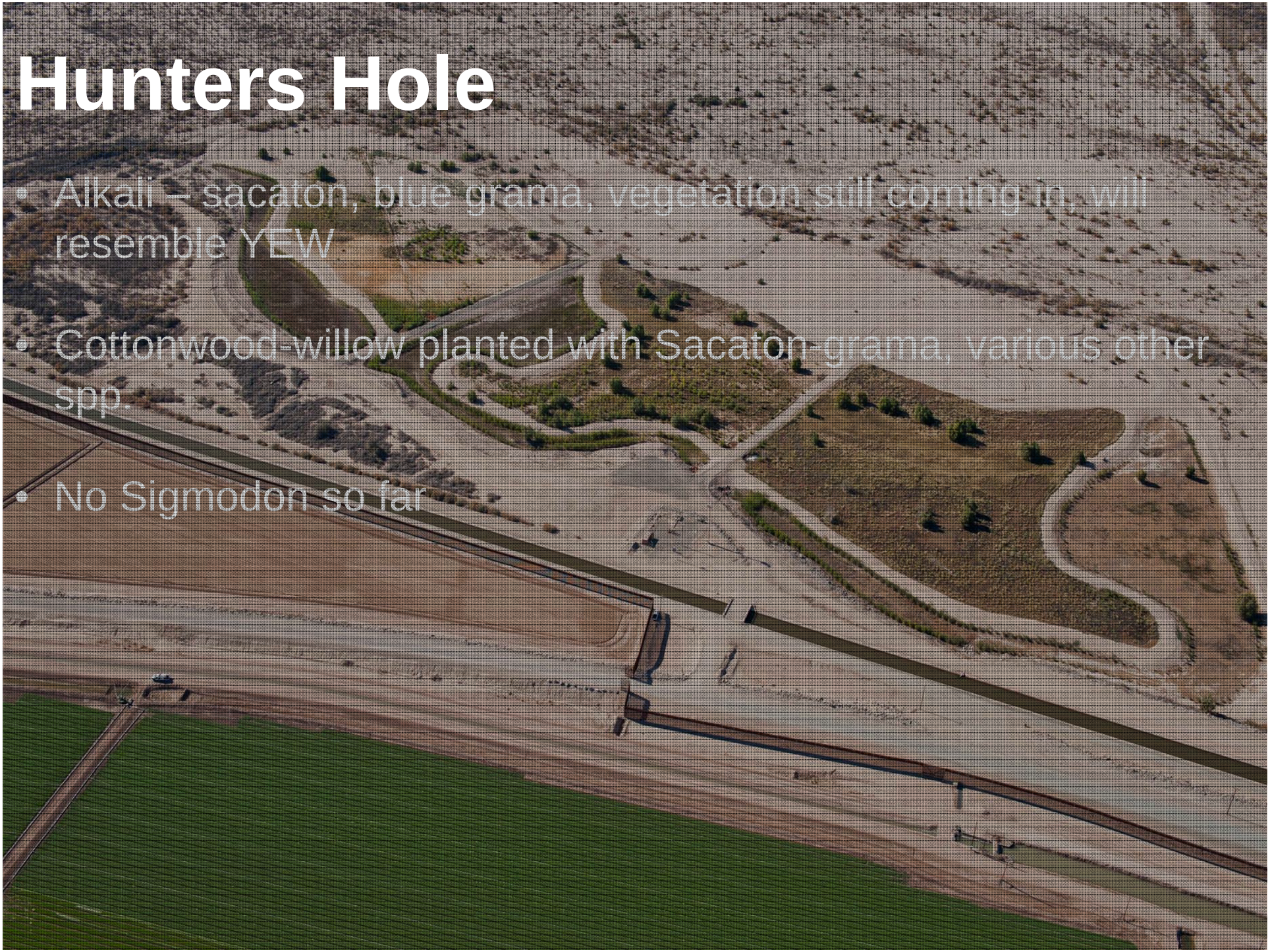
Yuma East Wetlands Results

- Despite habitat conditions, no captures last year
- Colonized by several species this year



Hunters Hole

- Alkali – sacaton, blue grama, vegetation still coming in, will resemble YEW
- Cottonwood-willow planted with Sacaton-grama, various other spp.
- No Sigmodon so far



Gila River / Laguna Area

Gila

- Tiny patch near river just east of HWY 95, dominated by thin bulrush, some arrowweed
- 3 Yuma Hispid in Spring

Laguna

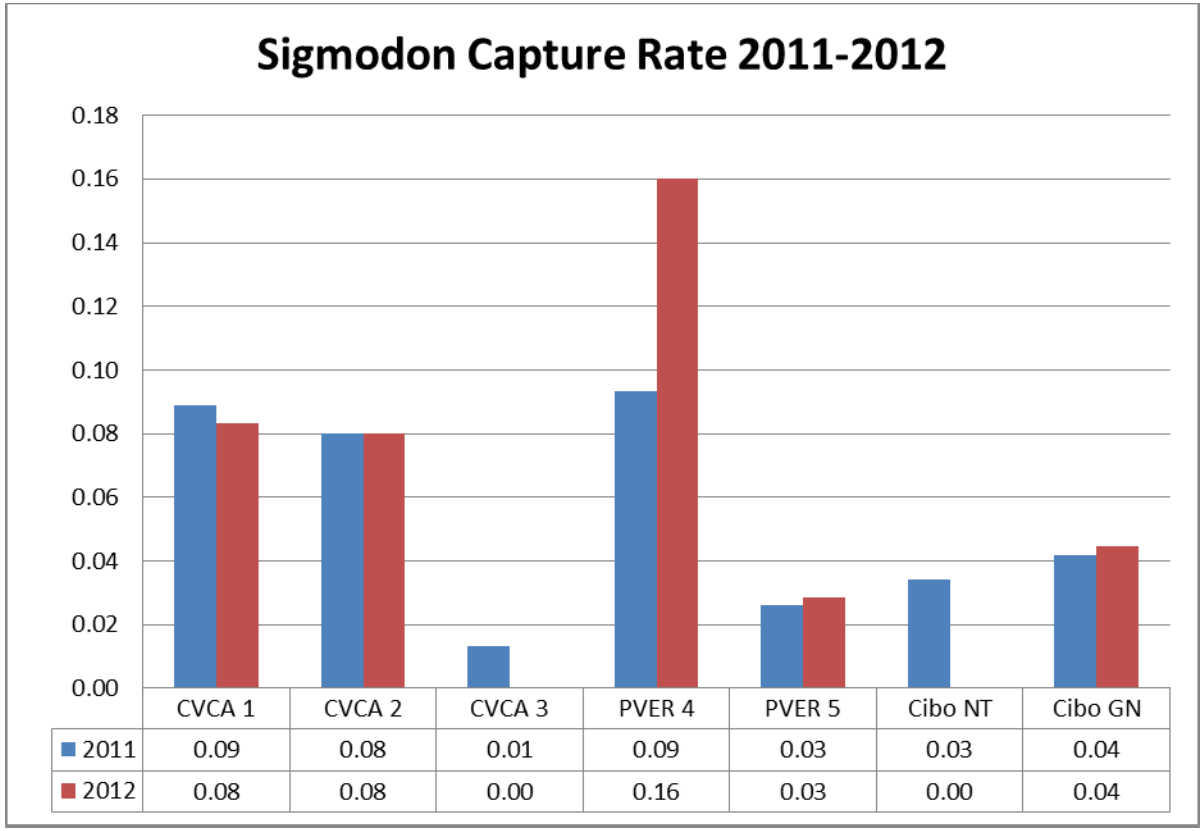
- Trapped just downstream of dam in dense *Phragmites*
- 1 Yuma Hispid in Spring

BLM Reveg area near Pratt

- Planted C/W mixture of grasses, shrubs. Some *Chlorocantha* coming in

Results overview

- First Sigmodon in Big Bend
- Sigmodon captured in YEW, Laguna Dam
- Big drop in Nature Trail captures, still in genetics field



	CVCA 1	CVCA 2	CVCA 3	PVER 4	PVER 5	Cibo NT	Cibo GN
2011	0.09	0.08	0.01	0.09	0.03	0.03	0.04
2012	0.08	0.08	0.00	0.16	0.03	0.00	0.04

Discussion

- Continued trapping + genetic analysis to determine *Arizonae/Hispidus* species boundaries

- Use habitat characterization study to develop long-term monitoring protocol, guide future restoration

Acknowledgements

- Stefan Awender CDFW
- Victoria Chau, CDFW
- Steven Rimer, USFWS
- Stephanie Walden, USFWS
- Charlie Morgan, Fred Phillips Consulting
- Nichole Olsker, USBR
- Sean Neiswenter, UNLV
- MSCP Wildlife Group

Questions?

- jhill@usbr.gov

"Trapped like rodentia!"