Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

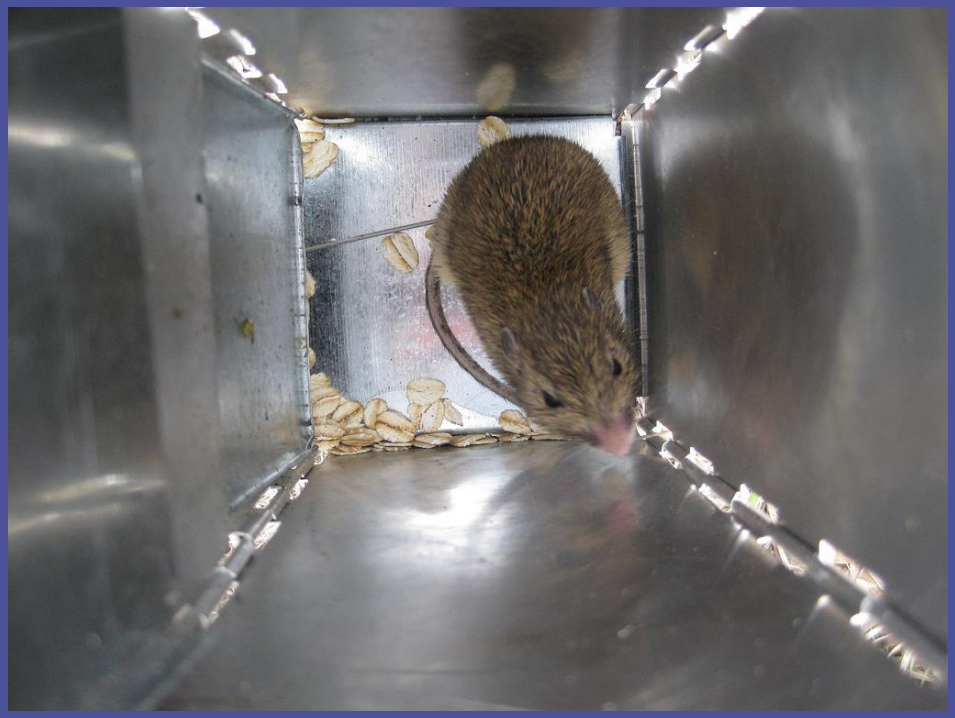
Small Mammal Captures on the LCR

Jeff Hill

Goals of small mammal trapping

- Determine presence of MSCP listed and evaluation species both within the MSCP planning area and within restoration sites
- Determine abundance and population trends of Sigmodon within select restoration areas
- Characterize the habitat preferences of MSCP species

Trapping methods

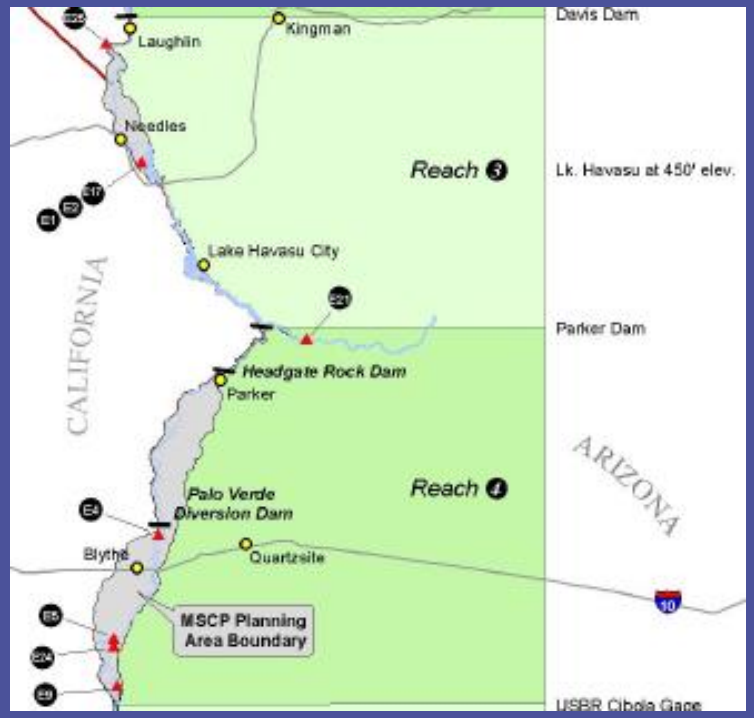


Sigmodon arizonae plenus (SIAR)

- Subspecies of the Arizona cotton rat
- Occurs in southeastern California, Arizona, and western Mexico
  - Resident population confirmed in Nevada 2012
  - Southern extent of the range still unknown
- Associated with riparian thickets with moderate to dense grass cover

Conservation Measures

- **CRCR1** – Conduct research to better define Colorado River cotton rat habitat requirements
- **CRCR2** – Create 125 acres of Colorado River cotton rat habitat



Sigmodon hispidus eremicus (SIHI)

- Morphologically similar to SIAR
- Restricted distribution from Imperial NWR south to Mexico, Imperial Valley CA

Conservation Measures

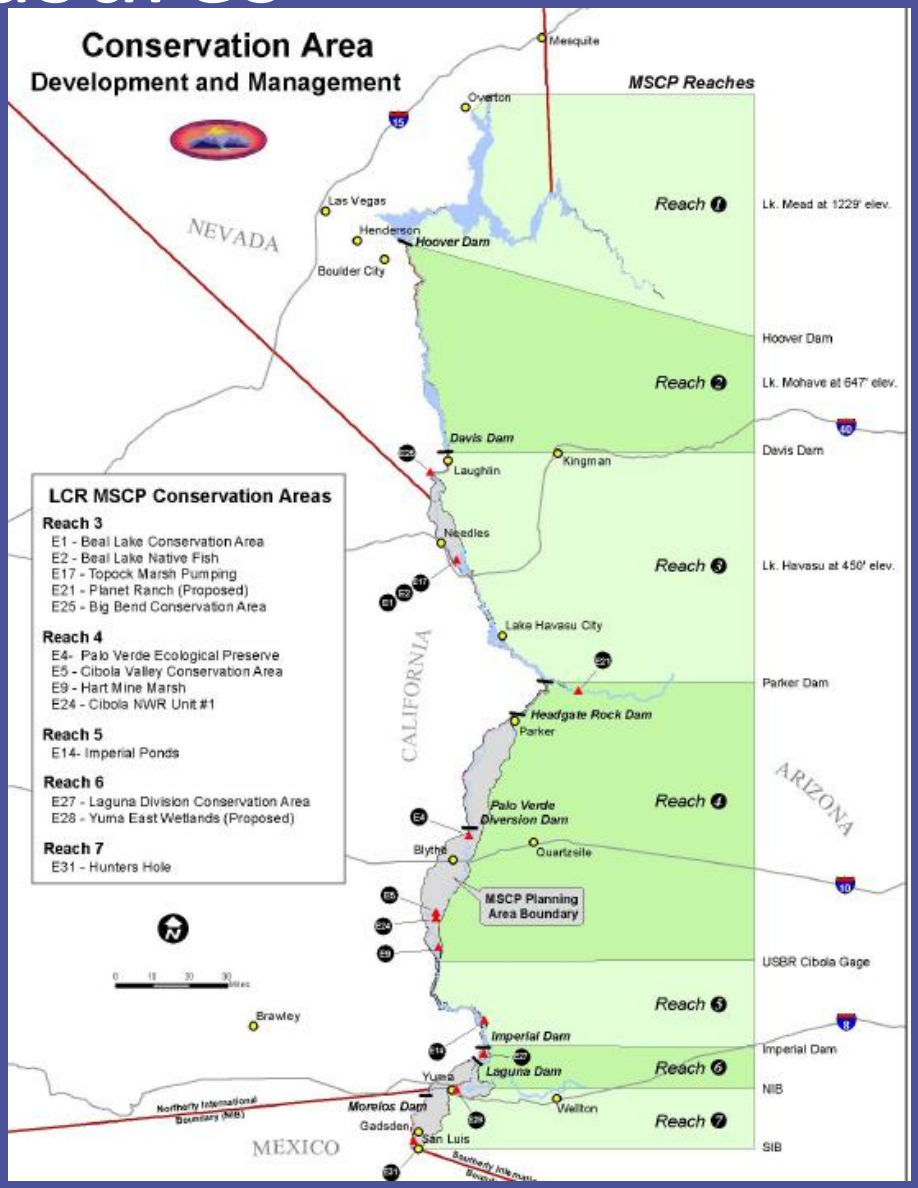
- YHCR1-Conduct research to better define Yuma hispid cotton rat habitat requirements
- YHCR2-Create 76 acres of Yuma hispid cotton rat habitat.

Chaetodipus penicillatus sobrinus (CHPE)

- Evaluation species
- Occurs in xeric communities in southeastern Nevada and northwestern Arizona
- While C. penicillatus is captured, C. p. sobrinus needs to be validated with genetics.

Conservation Measures

- DPMO1-Conduct surveys to locate desert pocket mouse habitat

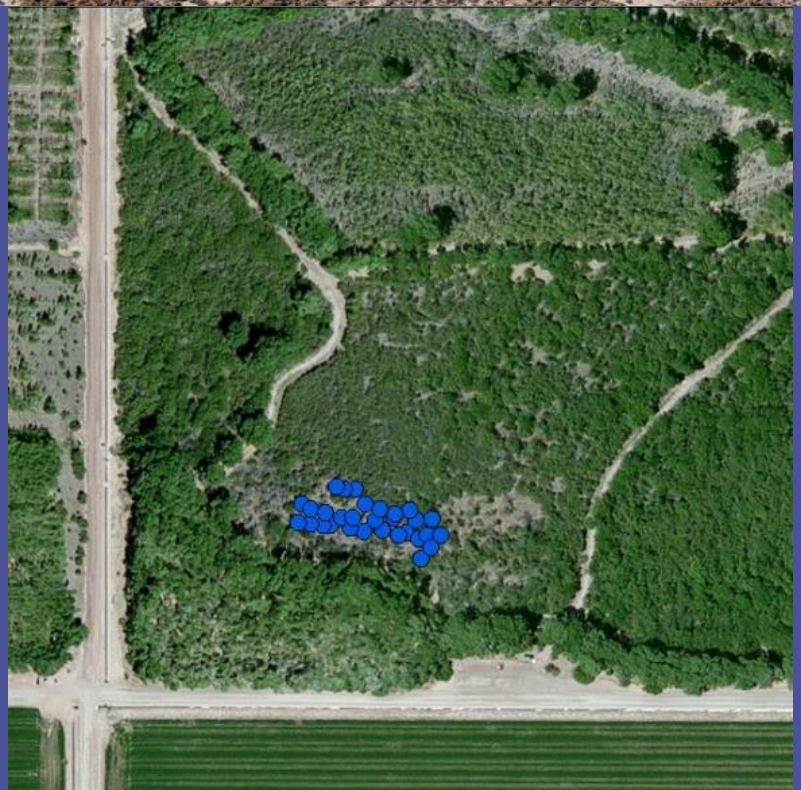


Beal Lake

- Fall 2011
  - 3 SIAR, 1 CHPE (30 traps)
- Spring 2012
  - 1 SIAR, 2 CHPE (60 traps)
- Fall 2012
  - 1 SIAR, 1 CHPE (40 traps)
- Spring 2013
  - 1 CHPE (60 traps)
- Fall 2014
  - 1 CHPE (60 traps)

Cibola Nature Trail

- Spring 2011
  - 14 SIAR (120 traps, 4 nights)
- Fall 2011
  - 10 SIAR (120 traps, 4 nights)
- Spring 2013
  - 4 SIAR (80 traps)
- Fall 2013
  - 7 SIAR (120 traps, 4 nights)
- Fall 2014
  - 6 SIAR (120 traps)



Cottonwood Genetics

- Spring 2011
  - 3 SIAR (60 traps)
- Fall 2011
  - 2 SIAR (60 traps)
- Spring 2013
  - 15 SIAR (60 traps)
- Fall 2013
  - 1 SIAR, 1 CHPE (60 traps)
- Spring 2014
  - 7 SIAR, 2 CHPE (60 traps)

Cibola Valley Conservation Area

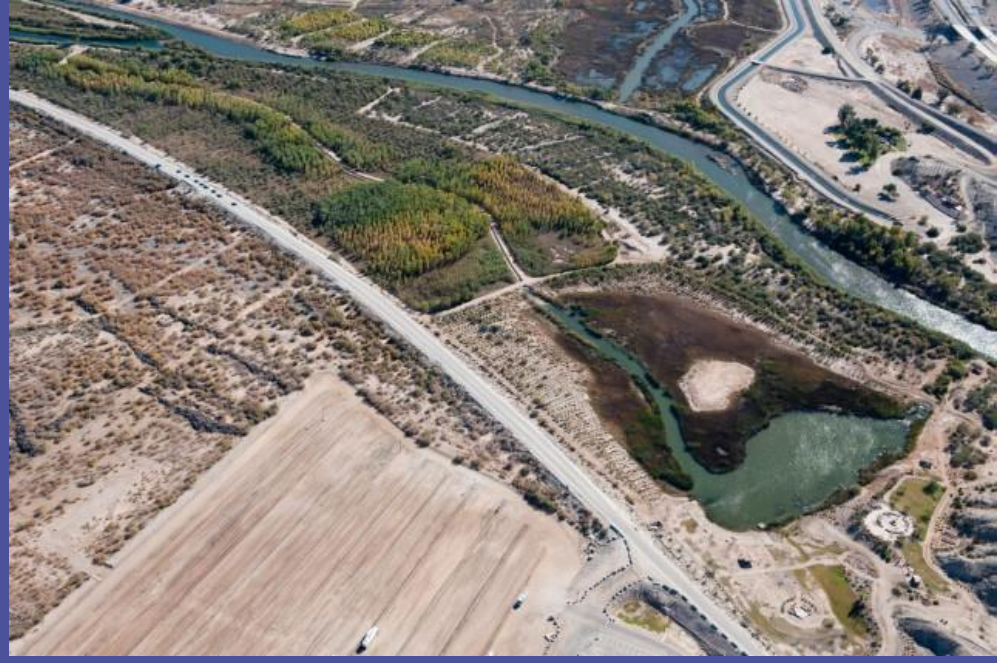
- Spring 2011
  - 4 SIAR (120 trap-nights)
- Fall 2011
  - 7 SIAR, 2 CHPE (135 trap-nights)
- Spring 2012
  - 10 SIAR (150 trap-nights)
- Fall 2012
  - 2 SIAR, 19 CHPE (180 trap-nights)
- Spring 2013
  - 7 SIAR (160 trap-nights)
- Fall 2013
  - 2 SIAR, 5 CHPE (140 trap-nights)
- Spring 2014
  - 8 SIAR, 9 CHPE (60 traps)
- Fall 2014
  - 4 SIAR, 6 CHPE (140 trap-nights)

Palo Verde Ecological Reserve

- Spring 2012
  - 12 SIAR, 1 CHPE (90 trap-nights)
- Fall 2012
  - 6 SIAR, 2 CHPE (150 trap-nights)
- Spring 2013
  - 4 SIAR, 1 CHPE (60 trap-nights)
- Fall 2013
  - 2 SIAR, 1 CHPE (120 trap-nights)
- Spring 2014
  - 7 SIAR (60 traps)
- Fall 2014
  - 3 SIAR, 3 CHPE (160 trap-nights)

Yuma East Wetlands

- Fall 2012
  - 2 SIHI, 6 CHPE (90 traps)
- Spring 2013
  - 2 SIHI (120 traps)
- Fall 2013
  - 13 SIHI (120 traps)
- Spring 2014
  - 3 SIHI (80 traps)
- Fall 2014
  - 23 SIHI (120 traps, 2 nights)



Hunter's Hole

- Fall 2012
  - 3 CHPE (90 traps)
- Spring 2013
  - 1 CHPE (60 traps)
- Fall 2013
  - 3 CHPE (120 traps)

Systemwide Monitoring

- Laguna Dam
  - Spring 2012: 1 SIHI (30 traps)
- Gila River @ highway 95
  - Spring 2012: 3 SIHI (30 traps)
- Highline Canal
  - Fall 2012: 2 SIHI (30 traps)
- Yuma Valley Limitrophe
  - Fall 2013: 1 SIHI, 1 CHPE (20 traps)

Pintail Slough

- Spring 2013
  - 1 SIAR, 2 CHPE (60 traps)
- Fall 2013
  - 17 CHPE (120 traps, 4 nights)
- Spring 2014
  - 5 CHPE (60 traps, 2 nights)

Big Bend

- Spring 2012
  - 2 SIAR (30 traps)
- Fall 2012
  - 3 SIAR, 48 CHPE (105 traps, 2 nights)
- Spring 2013
  - 2 SIAR, 3 CHPE (30 traps, 2 nights)
- Fall 2013
  - 1 SIAR, 53 CHPE (120 traps, 2 nights)
- Spring 2014
  - 1 SIAR, 5 CHPE (80 traps)
- Fall 2014
  - 1 SIAR, 14 CHPE (120 traps)

Takeaways

- Sigmodon present in all but 1 restoration site
  - Dense grass with shrub overstory
- Unstable populations at most sites
- Yuma East Wetlands is promising for SIHI
- Habitat study will give a better idea of how to manage for SIAR

Thanks!

Cibola Valley Conservation Area

- Spring 2011
  - Phase 2: 3 SIAR (60 traps)
  - Phase 3: 1 SIAR (60 traps)
- Fall 2011
  - Phase 1: 4 SIAR (45 traps)
  - Phase 2: 3 SIAR, 2 CHPE (90 traps)
- Spring 2012
  - Phase 1: 4 SIAR (60 traps)
  - Phase 2: 5 SIAR (45 traps)
  - Phase 4: 1 SIAR (45 traps)
- Fall 2012
  - Phase 1: 1 SIAR (60 traps)
  - Phase 2: 1 SIAR, 1 CHPE (60 traps)
  - Phase 4: 18 CHPE (60 traps)
- Spring 2013
  - Phase 1: 6 SIAR (80 traps)
  - Phase 2: 1 SIAR (80 traps)
- Fall 2013
  - Phase 1: 2 SIAR (60 traps)
  - Phase 2: 4 CHPE (60 traps)
  - Phase 3: 1 CHPE (20 traps)
- Spring 2014
  - 8 SIAR, 9 CHPE (60 traps)
- Fall 2014
  - Phase 1: 4 SIAR (60 traps)
  - Phase 2: 6 CHPE (80 traps)

Palo Verde Ecological Reserve

- Spring 2012
  - Phase 4: 10 SIAR (45 traps)
  - Phase 5: 2 SIAR, 1CHPE (45 traps)
- Fall 2012
  - Phase 5: 1 SIAR (30 traps)
  - Phase 2: 1 CHPE (60 traps)
  - Bench: 3 SIAR (30 traps)
  - Phase 4: 2 SIAR, 1 CHPE (30 traps)
- Spring 2013
  - Phase 4: 2 SIAR, 1 CHPE (30 traps)
  - Phase 5: 2 SIAR (30 traps)
- Fall 2013
  - Phase 4: 1 CHPE (60 traps)
  - Phase 6: 2 SIAR (60 traps)
  - Bench: ???????
- Spring 2014
  - Phase 4: 7 SIAR (60 traps)
- Fall 2014
  - Phase 2: 2 SIAR (40 traps)
  - Phase 4: 2 CHPE (60 traps)
  - Phase 5: 1 SIAR, 1 CHPE (60 traps)

Conservation Measures

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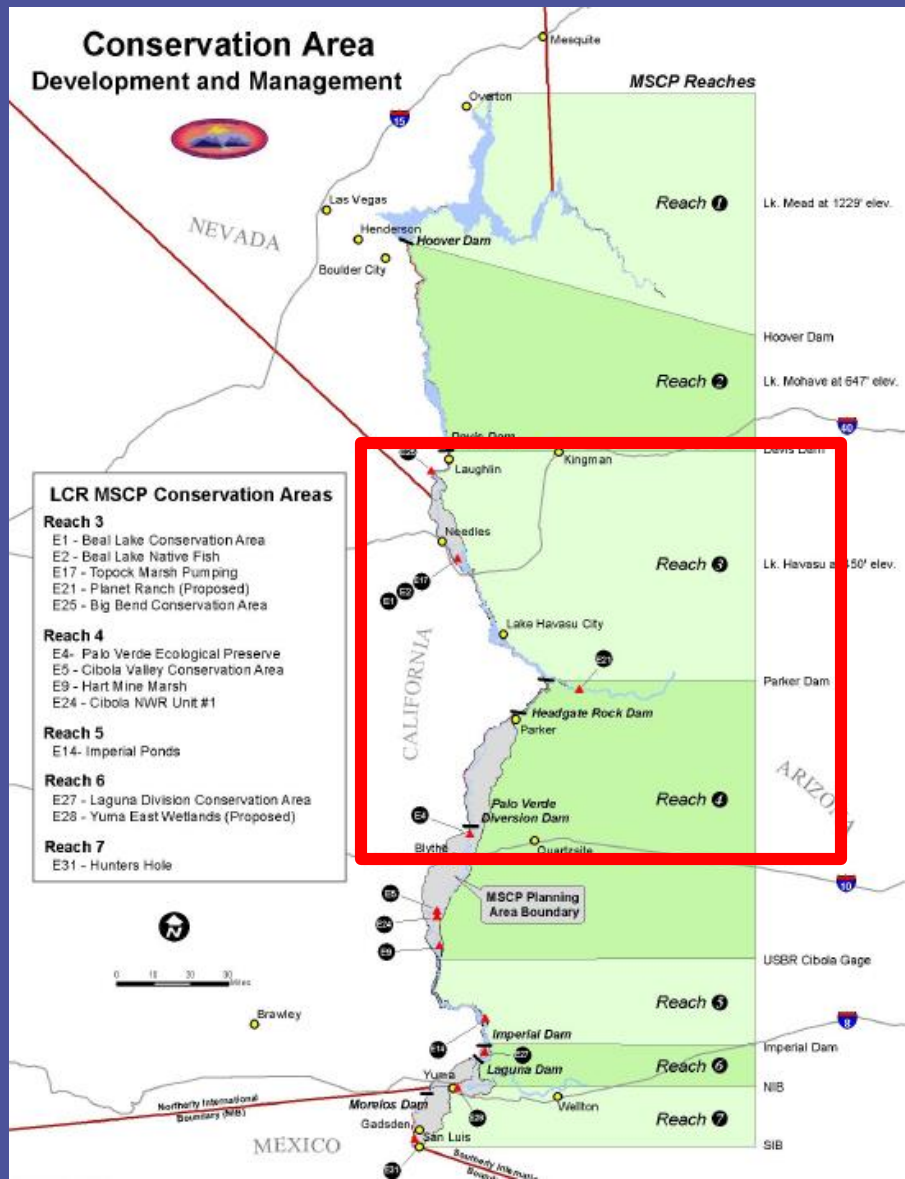
- **CRCR2-**Create 125 acres of Colorado cotton rat habitat



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