

Lower Colorado River Multi-Species Conservation Program



Balancing Resource Use and Conservation

Three Years of Intensive Mist-Netting at Riparian Restoration Sites along the Lower Colorado River



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Background

- The LCR MSCP is a 50 year Federal-State-Tribal-County-Private endeavor to manage the natural resources of the lower Colorado River
- The Bureau of Reclamation is the lead implementing agency
- One of the major components of the program is to create native habitat types for 26 covered and 5 evaluation species

4 Types of habitat being created

- 5,940 Acres of Cottonwood-Willow habitat
- 1,320 Acres of Honey Mesquite habitat
- 512 Acres of Marsh habitat
- 360 acres of Backwater habitat

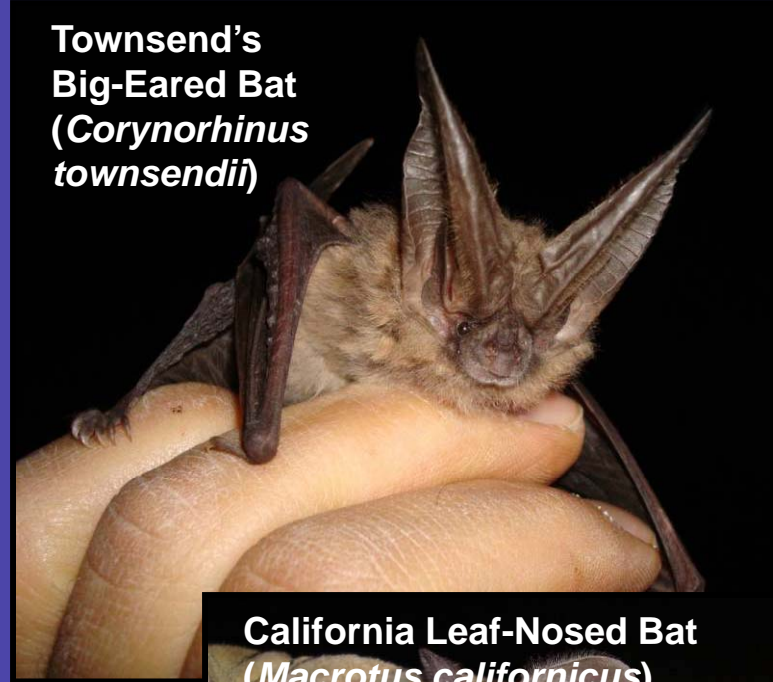


Covered and Evaluation Bat Species

Western Red Bat
(*Lasiurus blossevillii*)



Townsend's
Big-Eared Bat
(*Corynorhinus townsendii*)



California Leaf-Nosed Bat
(*Macrotus californicus*)

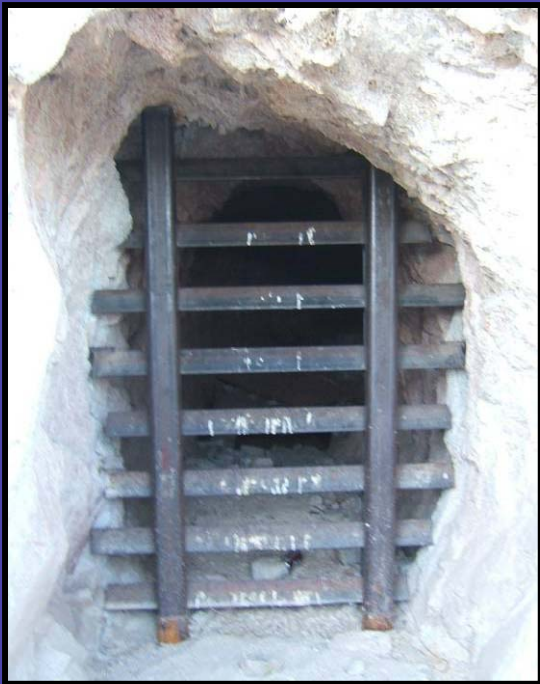


Western Yellow Bat
(*Lasiurus xanthinus*)



Monitoring of Covered Bat Species

- Roost outflight counts
- Anabat surveys (short term and long term)
- Capture surveys are focused on the riparian restoration areas



From Pilot to Protocol

- Initial surveys in 2007 were conducted between July and October in 3 areas
- The use of a triple high net set proved successful in capturing most species of interest
- Sampling effort was increased in 2008 to include 5 areas between April - September
- In 2009, 2 sites were removed and a new site was added for a total of 4 sites surveyed once per month from May - September

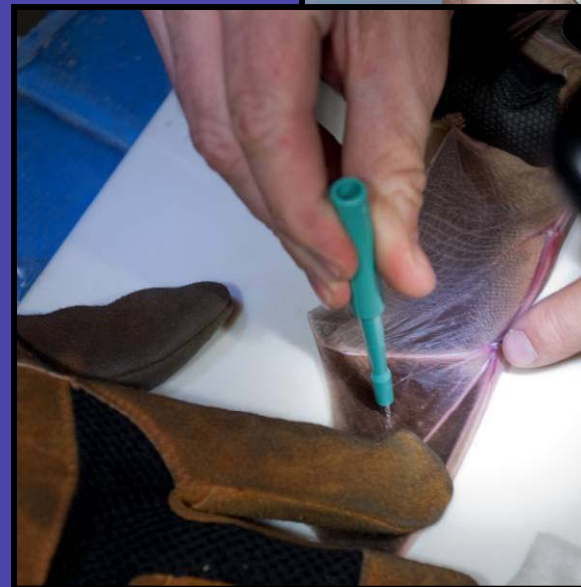
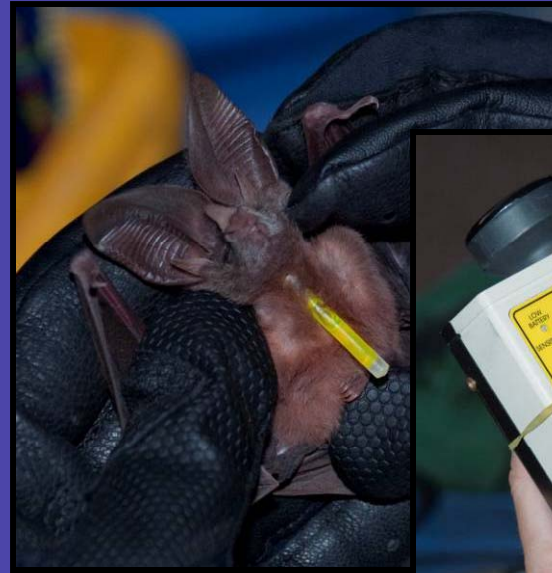
Methods



- Triple high nets were set across roads or other corridors within the site
- Harp traps and single net sets were used opportunistically

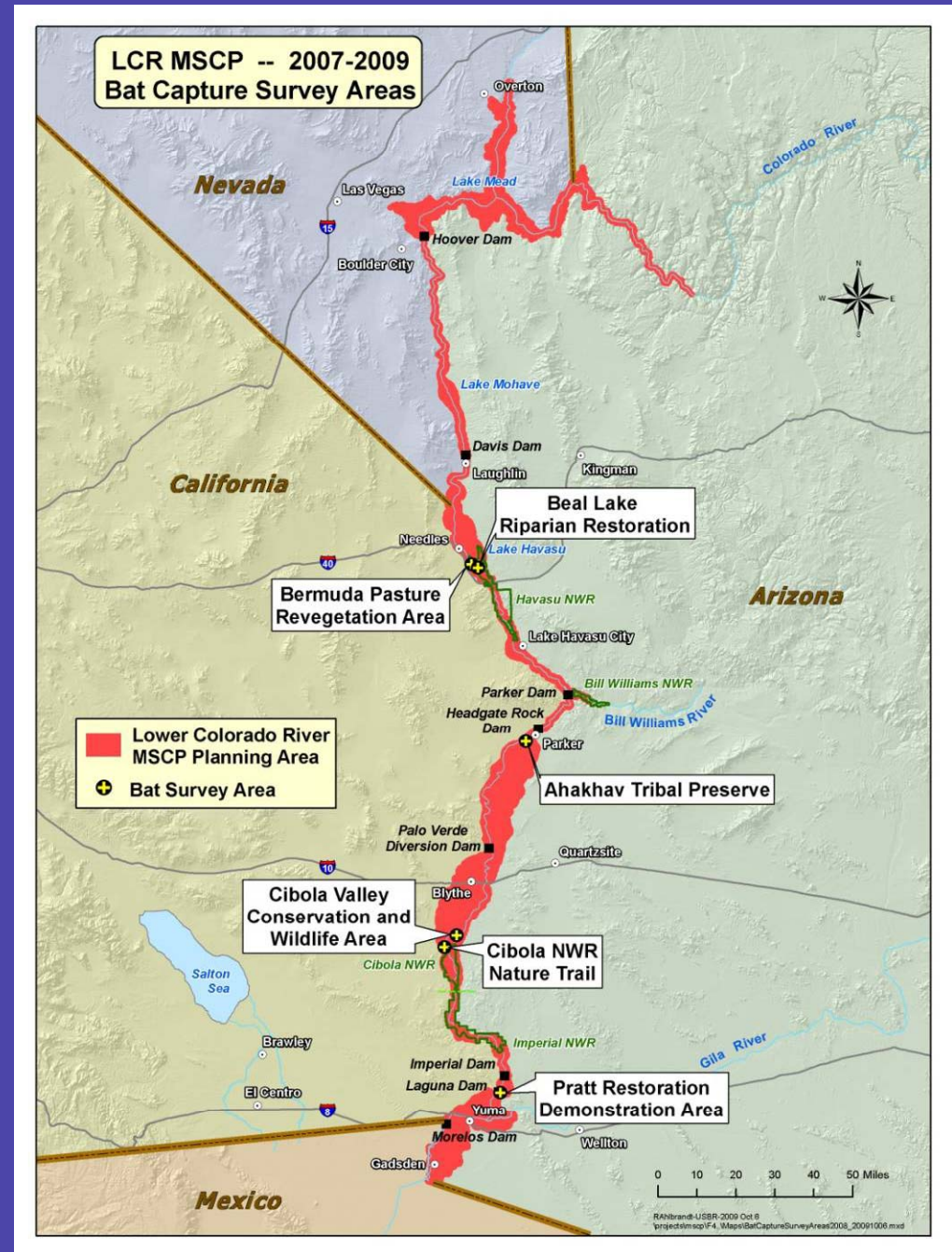
Methods

- Anabat with PDA
- Light tags
- Species, age, sex and reproductive status
- Wing punches



Study Areas

- All 6 survey areas were along a 196 mile stretch of the river



Results!

- These two sites did not have ideal netting locations
- Both were discontinued after 2008

Bermuda Pasture Re-vegetation Area 2008

Species	April	July	Aug.	Sept.	Total
Pallid Bat	0	12	1	0	13
Yuma Myotis	0	0	2	1	3
Cave Myotis	0	2	0	0	2
Big Brown Bat	0	1	0	0	1
Total	0	15	3	1	19

Each month = 1 survey night



Beal Restoration Area

Species	2007 N=2	2008 N=3
Yuma Myotis	4	8
Cave Myotis	0	1
Pallid Bat	1	2
<i>Myotis</i> spp.	0	1
Total	5	12

N = number of survey nights

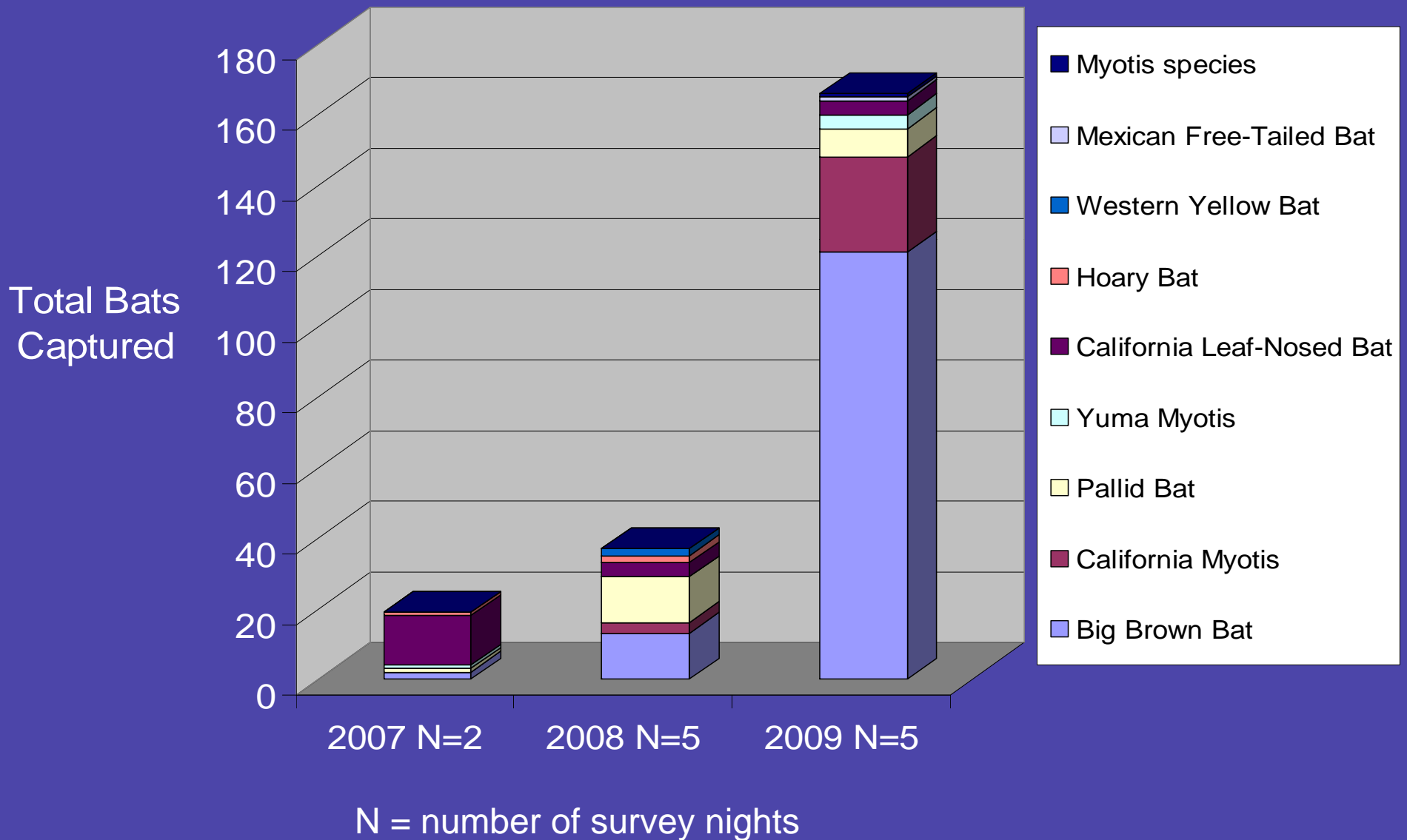
Cibola NWR Nature Trail

- 222 bats of 8 species were captured from 12 survey nights (2007-2009)
- 22 California leaf-nosed bats captured
- 2 western yellow bats were captured



Cibola NWR Nature Trail

Species Composition 2007-2009



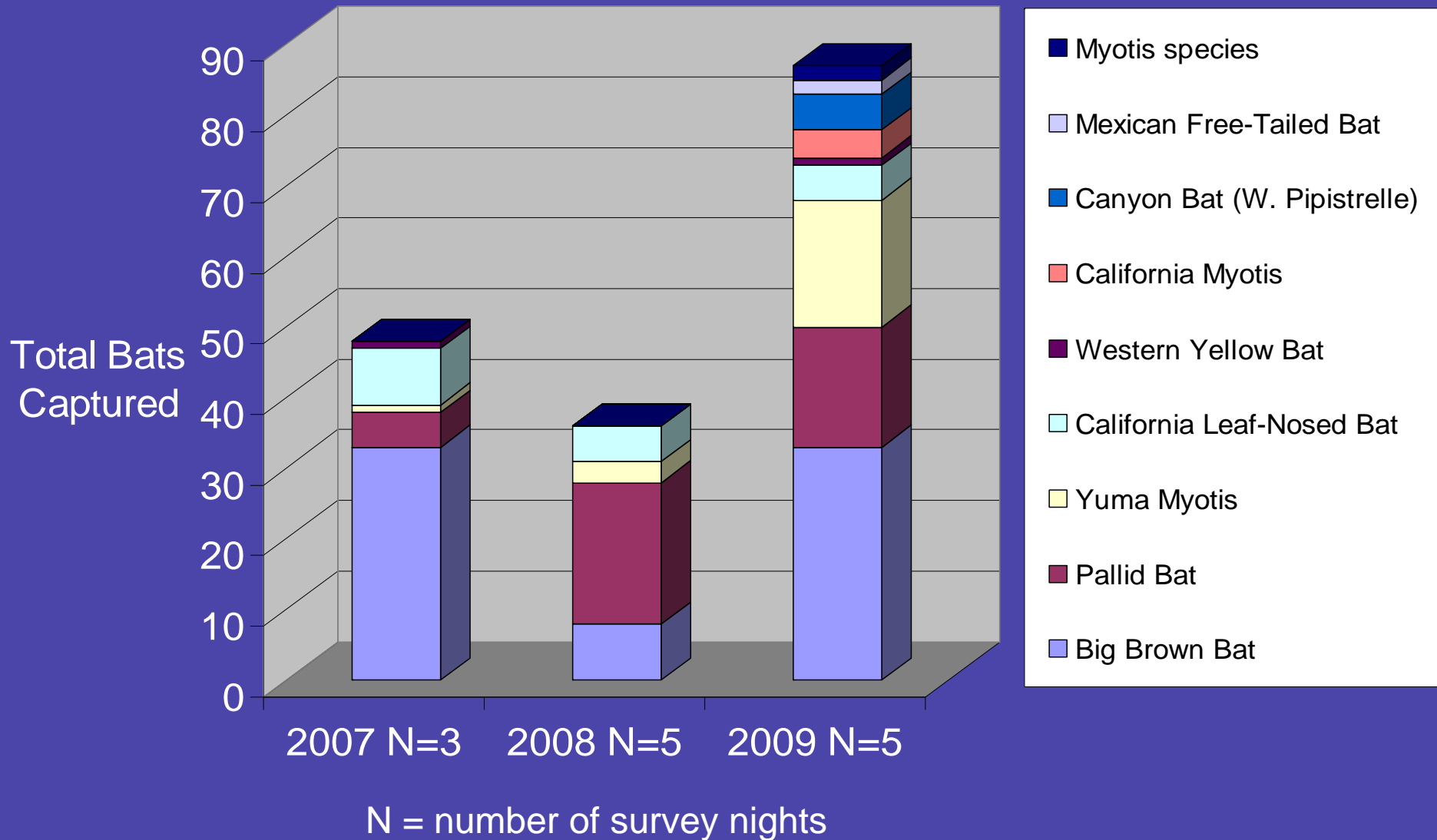
Pratt Restoration Demonstration Area

- 171 bats of 8 species were captured from 13 survey nights (2007-2009)
- 18 California leaf-nosed bats captured
- 2 western yellow bats captured



Pratt Restoration Demonstration Area

Species Composition 2007-2009



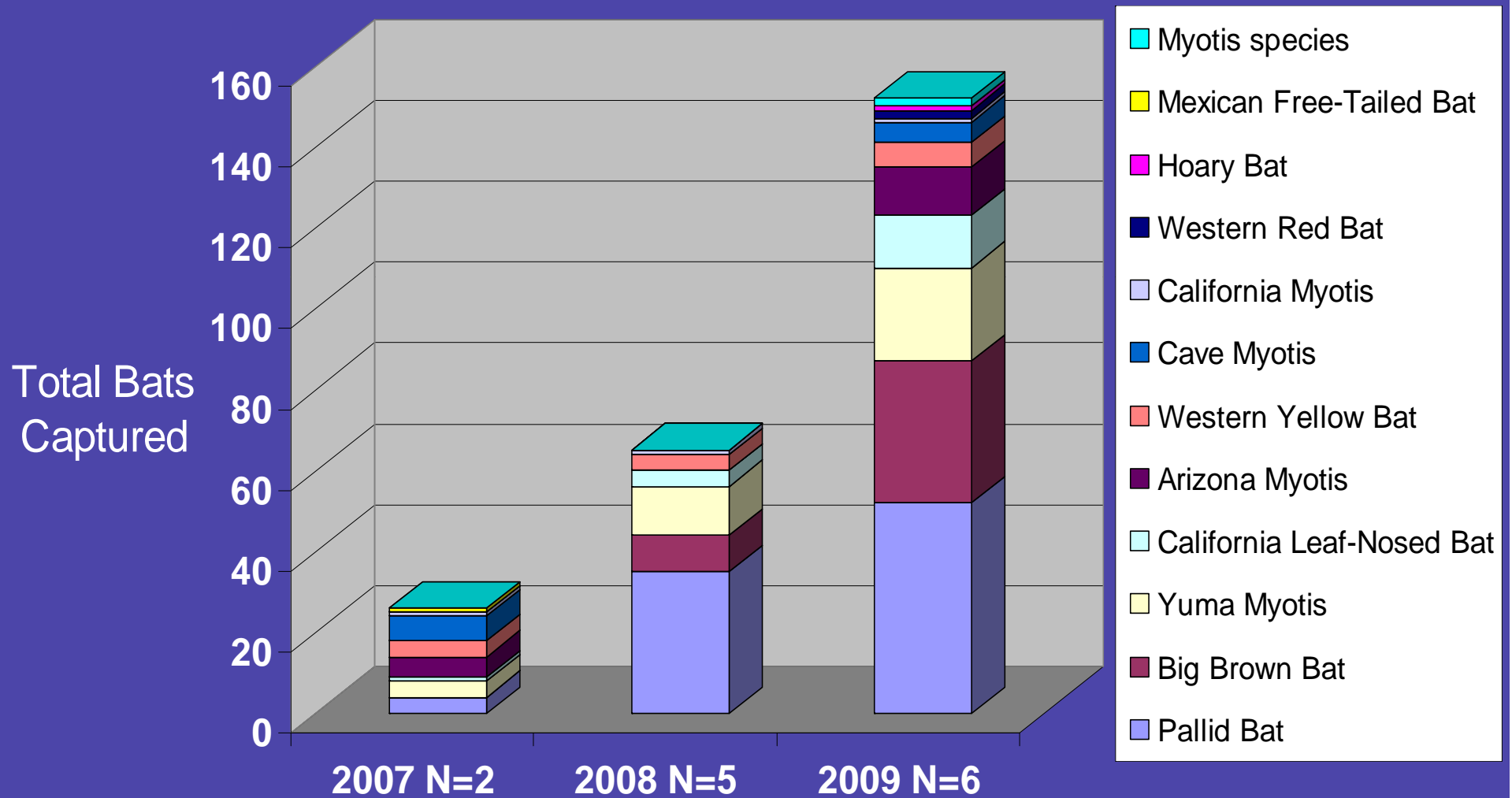
Ahakhav Tribal Preserve

- 243 bats of 11 species were captured from 13 survey nights (2007-2009)
- 18 California leaf-nosed bats captured
- 14 western yellow bats captured
- 2 western red bats captured



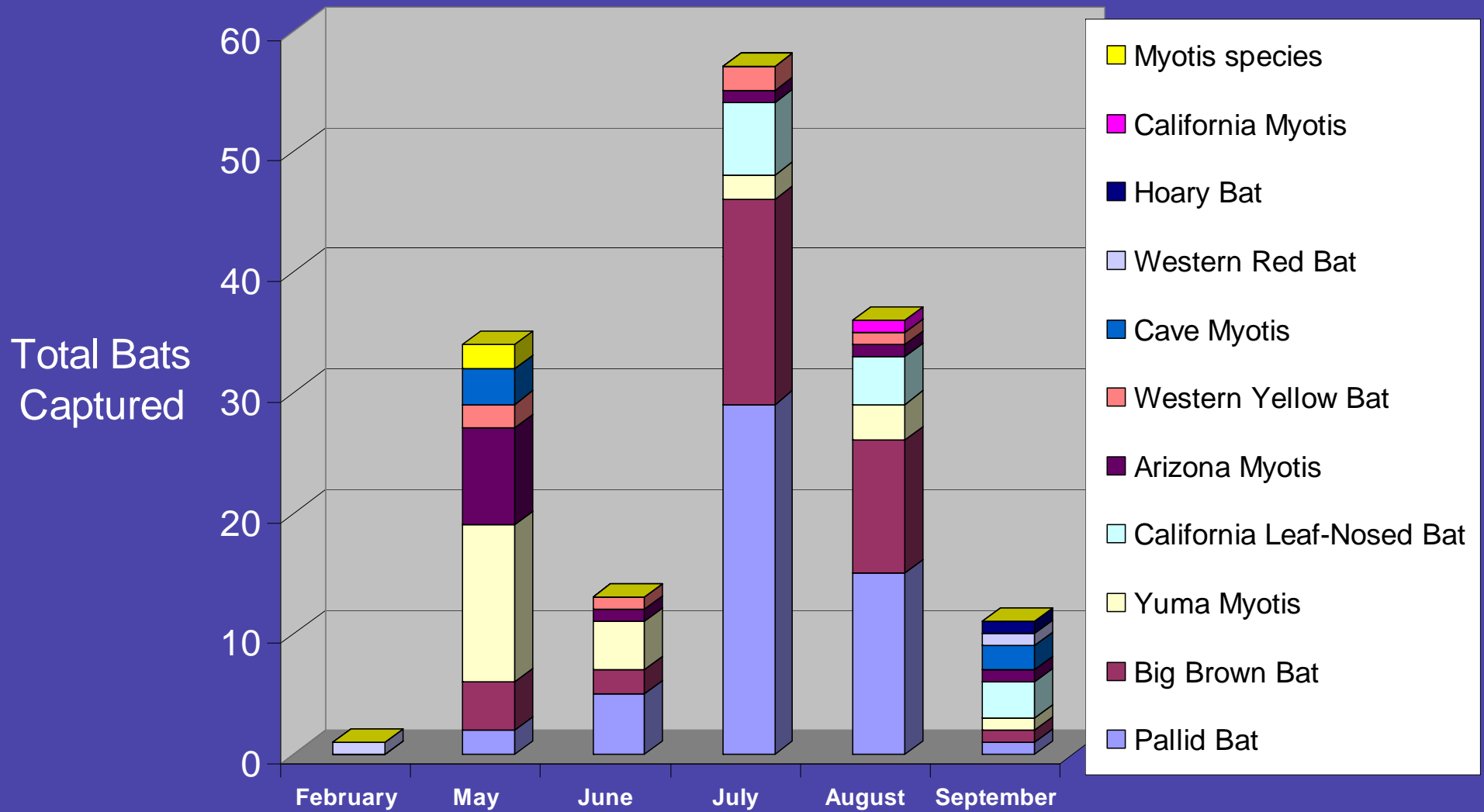
Ahakhav Tribal Preserve

Species Composition 2007-2009



Ahakhav Tribal Preserve

Monthly Species Composition 2009



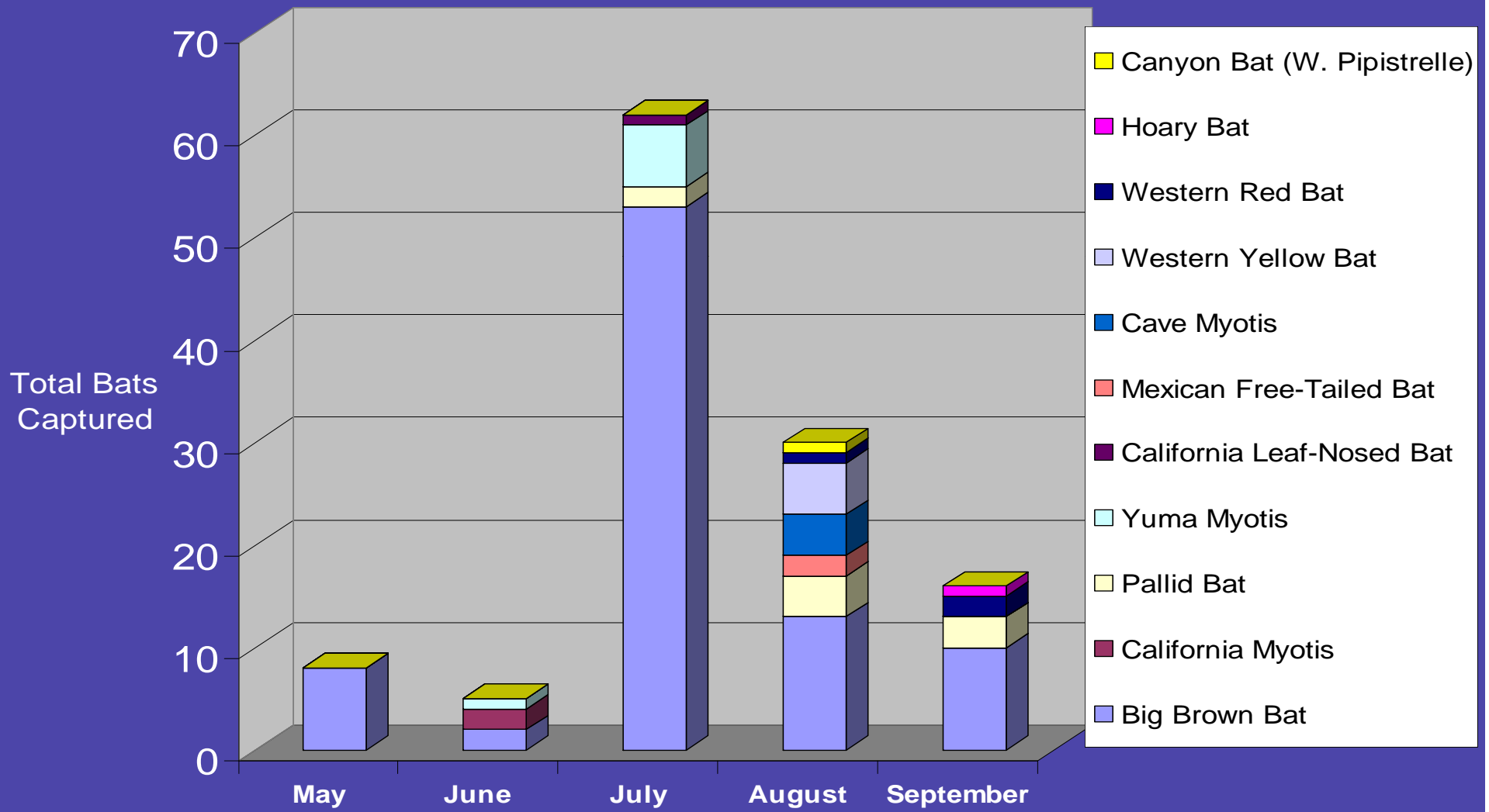
Cibola Valley Conservation Area

- 121 bats of 11 species were captured from 5 survey nights (2009)
- 1 California leaf-nosed bat captured
- 5 western yellow bats captured
- 3 western red bats captured



Cibola Valley Conservation Area

Monthly Species Composition 2009

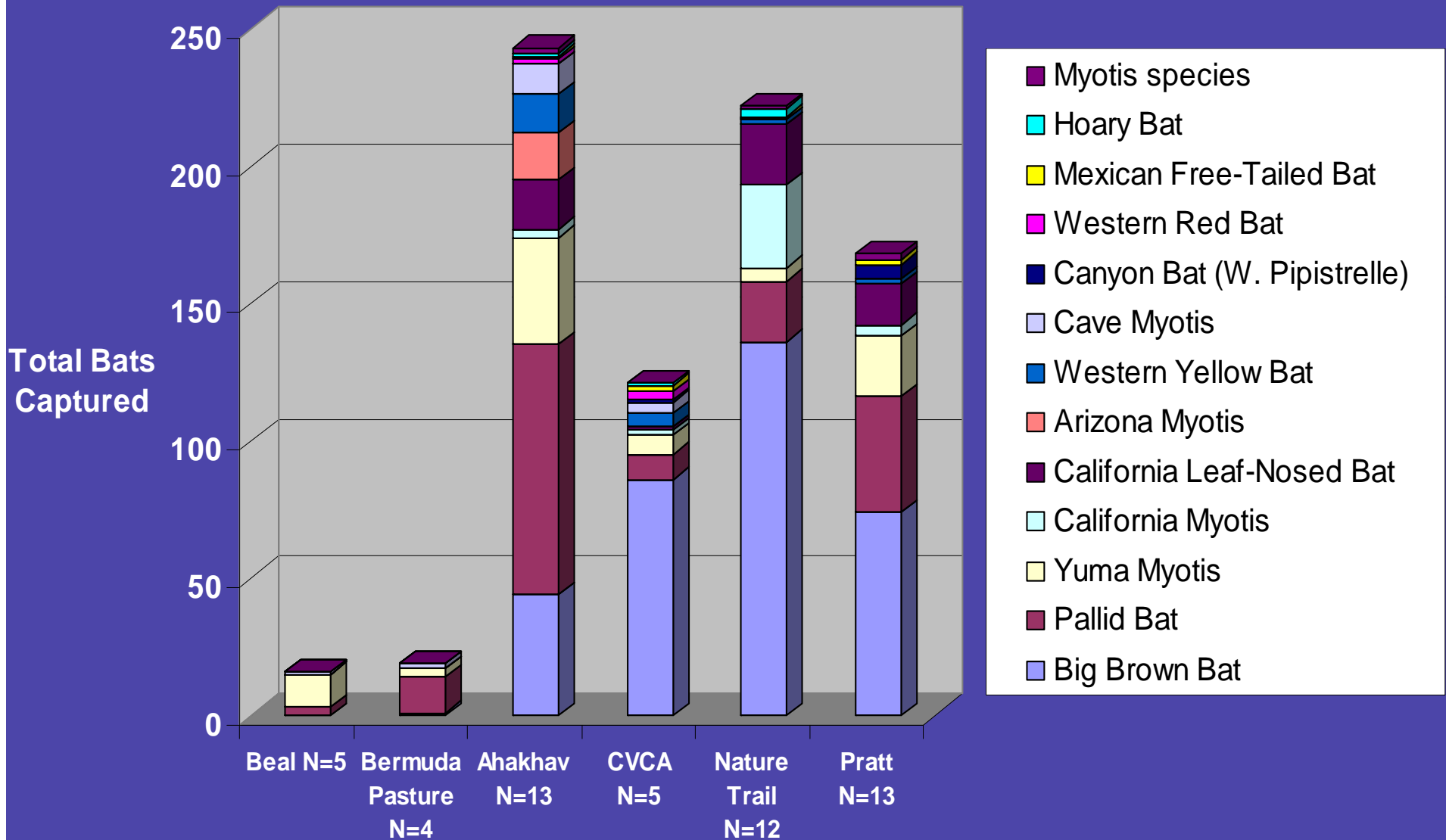


Summary of all sites 2007-2009

- A total of 789 bats of 12 species have been captured from 52 survey nights
- 56 California leaf-nosed bats captured
- 23 western yellow bats captured
- 5 western red bats captured



Species Composition for all sites 2007-2009



Notes of Significance

- The first capture ever recorded of a western red bat along the mainstem lower Colorado River was in February 2009
- Four additional red bats were captured in August and September



Notes of Significance

- Potential rediscovery of the Arizona Myotis (*Myotis occultus*) on the lower Colorado River
- Genetic samples have been taken for 10 individuals, including one voucher specimen



Where do we go from here?

- Capture surveys will continue at all but the Pratt site in 2010 using the same protocol as 2009
- Due to the success at CVCA, the similar Palo Verde Ecological Reserve north of Blythe, CA will replace Pratt



Upcoming Research

- Two different acoustic studies are currently underway (NASBR 2010)
- Additional genetic studies on Arizona Myotis
- Telemetry study to determine roosting characteristics of red and yellow bats



Acknowledgements

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- Havasu NWR
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- Arizona Game and Fish

Individuals

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Questions?



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