Background

• 5,940 acres of cottonwood-willow, and 1,320 acres of honey mesquite
• Banding began during the winter of 2002-03 at two sites.
• Protocol was changed based on early results
• 2005-06 was the last year of banding at the Pratt site and the first year at the Havasu site.
Methodology

• 2003 to spring 2004 band for a week each month, 3 months.
• 2004 to present band 2 days each month for 6 months.
• 12 nets, each 12 meters in length are operated at each site.
• Banding begins half hour after sunrise and is conducted for 6 hours.
• Area searches conducted.
Banding Locations

- Havasu NWR Site
- Cibola NWR Site
- Pratt Agricultural Site
Main Species Captured

• 3 species were commonly captured at all sites
• Several other species were commonly captured at the Cibola site, mainly in areas dominated by mesquite and dense Johnson grass.
Orange-crowned Warbler
Yellow-rumped Warbler
Ruby-crowned Kinglet
Relative captures at the Pratt Agricultural Site Fall 2002- Spring 2006

- Audubon’s Warbler 39%
- Orange-crowned Warbler 12%
- Ruby-crowned Kinglet 34%
- Others 5%
- Hermit Thrush 1%
- Blue-grey Gnatcatcher 2%
- Black Phoebe 1%
- House Wren 1%
- Lincoln’s Sparrow 2%
- White-crowned Sparrow 1%
- Savannah Sparrow 1%
- Swainson’s Thrush 1%
- Swainson’s Thrush 1%
Winter Site Persistence at the Pratt Site

Orange-crowned Warbler

Ruby-crowned Kinglet

- 2002-03
- 2003-04
- 2004-05
- 2005-06
Annual Return Pratt Site

[Graph showing annual return percentages for Orange-crowned Warbler and Ruby-crowned Kinglet from 2003-04 to 2005-06]
Pratt site fact sheet

• Total N1 value (4 years) = 5.30
• Total of 33 different species captured
• Per year, the species richness was between 13-17
Cibola Nature Trail Banding Site
Relative captures percentages for the Cibola site 2002-07

- Yellow-rumped Warbler: 21%
- Marsh Wren: 1%
- Orange-crowned Warbler: 11%
- Ruby-crowned Kinglet: 11%
- Savannah Sparrow: 8%
- White-crowned Sparrow: 5%
- Vesper Sparrow: 1%
- Song Sparrow: 1%
- Slate-colored Junco: 1%
- Common Ground-dove: 1%
- Common Yellowthroat: 1%
- Savannah Sparrow: 8%
- Vesper Sparrow: 1%
- Marsh Wren: 1%
- Orange-crowned Warbler: 11%
- Ruby-crowned Kinglet: 11%
- Savannah Sparrow: 8%
- White-crowned Sparrow: 5%
- Vesper Sparrow: 1%
- Song Sparrow: 1%
- Slate-colored Junco: 1%
- Common Ground-dove: 1%
- Common Yellowthroat: 1%
- Savannah Sparrow: 8%
- Vesper Sparrow: 1%
- Marsh Wren: 1%
- Orange-crowned Warbler: 11%
- Ruby-crowned Kinglet: 11%
- Savannah Sparrow: 8%
- White-crowned Sparrow: 5%
- Vesper Sparrow: 1%
- Song Sparrow: 1%
- Slate-colored Junco: 1%
- Common Ground-dove: 1%
- Common Yellowthroat: 1%
- Savannah Sparrow: 8%
- Vesper Sparrow: 1%
- Marsh Wren: 1%
- Orange-crowned Warbler: 11%
- Ruby-crowned Kinglet: 11%
- Savannah Sparrow: 8%
- White-crowned Sparrow: 5%
- Vesper Sparrow: 1%
- Song Sparrow: 1%
- Slate-colored Junco: 1%
- Common Ground-dove: 1%
- Common Yellowthroat: 1%
- Savannah Sparrow: 8%
- Vesper Sparrow: 1%
- Marsh Wren: 1%
Lincoln’s Sparrow
Chipping Sparrow
Savannah Sparrow
Yearly, per net hour capture rates at the Cibola Banding site

- **Audubon's Warbler**
- **Chipping Sparrow**
- **Lincoln's Sparrow**
- **Orange-crowned Warbler**
- **Ruby-crowned Kinglet**
- **Savannah Sparrow**
- **White-crowned Sparrow**
Annual Return at the Cibola Site

- Audubon's Warbler
- Lincoln's Sparrow
- Orange-crowned Warbler
- Ruby-crowned Kinglet

Yearly Returns:
- 2004-05: 0.00%
- 2005-06: 2.00%
- 2006-07: 4.00%

Legend:
- 2004-05
- 2005-06
- 2006-07
Cibola Site Fact Sheet

- For all five years $N1 = 13.92$
- 48 different species captured
- Per year, the species richness was between 21-28
Havasu NWR Site
### Relative captures for the Havasu NWR site  
**fall 2005- spring 2007**

<table>
<thead>
<tr>
<th>Bird</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abert's Towhee</td>
<td>4%</td>
</tr>
<tr>
<td>Audubon's Warbler</td>
<td>8%</td>
</tr>
<tr>
<td>Black-tailed Gnatcatcher</td>
<td>4%</td>
</tr>
<tr>
<td>Blue-gray Gnatcatcher</td>
<td>2%</td>
</tr>
<tr>
<td>Bushtit</td>
<td>3%</td>
</tr>
<tr>
<td>Gila Woodpecker</td>
<td>1%</td>
</tr>
<tr>
<td>Hermit Thrush</td>
<td>4%</td>
</tr>
<tr>
<td>House Finch</td>
<td>1%</td>
</tr>
<tr>
<td>Lincoln's Sparrow</td>
<td>3%</td>
</tr>
<tr>
<td>Loggerhead Shrike</td>
<td>2%</td>
</tr>
<tr>
<td>MacGillivray's Warbler</td>
<td>1%</td>
</tr>
<tr>
<td>Marsh Wren</td>
<td>2%</td>
</tr>
<tr>
<td>Orange-crowned Warbler</td>
<td>10%</td>
</tr>
<tr>
<td>Ruby-crowned Kinglet</td>
<td>36%</td>
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<tr>
<td>Song Sparrow</td>
<td>2%</td>
</tr>
<tr>
<td>Verdin</td>
<td>2%</td>
</tr>
<tr>
<td>White-crowned Sparrow</td>
<td>2%</td>
</tr>
<tr>
<td>Western Flycatcher</td>
<td>2%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
</tr>
</tbody>
</table>
Capture rate for the Havasu NWR site
Fall 2005- Spring 2007

Captures/net hour

- Others
- White-crowned Sparrow
- Western Flycatcher
- Verdin
- Song Sparrow
- Ruby-crowned Kinglet
- Orange-crowned Warbler
- Marsh Wren
- MacGillivray's Warbler
- Loggerhead Shrike
- Lincoln's Sparrow
- House Finch
- Hermit Thrush
- Gila Woodpecker
- Bushtit
- Blue-gray Gnatcatcher
- Black-tailed Gnatcatcher
- Bewick's Wren
- Audubon's Warbler
- Abert's Towhee

05-06
06-07
Conclusions

• No significant difference in species diversity between years at one site or between sites in the same year.
• Species diversity (N1) was significantly higher at Cibola than at Pratt (P = .001) over the four years that banding was conducted at both sites.
• Diversity always highest at the Cibola site.
• The Mesquite habitat with the grassy understory provided habitat for sparrows.
• For some species winter use varied greatly.
• For RCKI and OCWA use was consistent at the sites.
• AUWA utilized sites but almost no recaptures.