Bird Monitoring along the Las Vegas Wash

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Southern Nevada Water Authority
Las Vegas Wash

- Primary drainage channel for ~1600 sq. mile Las Vegas Valley watershed:
  - Discharges urban flows (primarily treated wastewater) to Lake Mead that exceed the inflows of the Muddy & Virgin rivers
  - Once ephemeral; perennial since the 1950s
  - Increasing flows created wetlands, but then incised the channel and eroded them away
Las Vegas Wash Coordination Committee

- Stakeholder group formed in 1998 to stabilize and enhance the Las Vegas Wash; SNWA is lead agency

- Developed the Comprehensive Adaptive Management Plan, with 44 action items, to achieve goals:
  - Erosion control structures (14 out of 22 complete)
  - Revegetation
  - Biological resource surveys
Changing Hydrology & Habitat

- Calico Weir Impoundment site, 2000, 2005 & 2009

Pre-erosion control

Stabilized, newly planted

Mature habitat
Point Count Surveys

- 6-year study (2005-2011)
- ~30 points
  - Various habitats/treatments
- 5-minute counts
  - 100-m radius

- Data collected by:
  - SBCM – years 1-4
  - GBBO – years 5-6
PC Results (GBBO 2011)

- 185 species
- Avg. abundance – 125 - 160 birds/40 ha.
PC Results (GBBO 2011)

- Species-specific abundances
  - 15 increased – E.g., GAQU, MAWR
  - 9 decreased – E.g., ABTO, LUWA
- Breeding season differences from other Mojave riparian sites:
  - Lower YWAR (0.7x), BEVI (0.03x), GAQU (0.4x)
    - Also lower MODO, HOFI
  - Higher ABTO (3x), SOSP (2x), COYE (4x)
    - Also higher BHCO
## PC Results (GBBO 2011)

### Treatment impacts

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>Treatment</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Treatm.</td>
<td>Cleared</td>
</tr>
<tr>
<td><strong>Bird Species Richness</strong></td>
<td>34.0</td>
<td>26.0</td>
</tr>
<tr>
<td><strong>Total Abundance</strong></td>
<td>121.5</td>
<td>104.3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>No Treatm.</th>
<th>Cleared</th>
<th>New Reveg.</th>
<th>Old Reveg.</th>
<th>R²-Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say's Phoebe</td>
<td>1.05</td>
<td>0.73</td>
<td>2.94</td>
<td>0.60</td>
<td>0.71</td>
<td>&lt;0.01</td>
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<tr>
<td>Yellow Warbler</td>
<td>0.59</td>
<td>0.50</td>
<td>0.97</td>
<td>4.03</td>
<td>0.39</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Ruby-crowned Kinglet</td>
<td>1.44</td>
<td>0.85</td>
<td>1.18</td>
<td>4.07</td>
<td>0.38</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
PC Discussion

- The Wash stabilization and enhancement program appears to be benefiting birds:
  - Richness & abundance stable to increasing despite widespread clearing at points
  - More species increased in abundance than decreased
    - Differences between sites raise some questions
  - Older reveg sites have higher richness and abundance overall and higher YWAR than other treatments
Yuma Clapper Rail Monitoring

- Yuma clapper rail detections on the Wash prior to 2000
  - 1959 (8)
  - 1998 (1)
- In 2000, FWS recommended annual surveys
  - SBCM – 2000, 2001
  - SWCA – 2002-2007

- YCRA detections on the Wash post 2000
  - 2005 (1)
  - 2006 (1)
Marsh Bird Monitoring

- Surveys initiated in 2007 (YCRA in 2008)
  - Breeding season – April/May – 4 replicates
  - 3 routes, ~25 total points, direction reverses
  - Start 30 minutes before sunrise & last ~3 hrs
  - 5 minutes passive; then 1 min./species broadcast
    - BLRA, LEBI, SORA, VIRA, YCRA, AMBI
MBM Results

- 3 target species and 3 non-target species – all years
  - LEBI, VIRA, SORA
  - PBGR, AMCO, COGA
- No YCRA or BLRA
- 1 AMBI - 2010
MBM Discussion

- LEBI & VIRA annual abundances fluctuate; mitigation pond habitat benefiting VIRA
- SORA abundances stable, no brdg conf.
- Lack of YCRA & BLRA not surprising
  - Only a few detections of YCRA since 1998; all in late May/mid June
  - BLRA considered hypothetical for study area
- AMBI – primarily winter resident/migrant
Southwestern Willow Flycatcher

- Annual surveys since 1998
  - SWCA – 1998-2009
  - SNWA – 2010+
- Conducted using federal protocol (Sogge et al. 2010)
SWFL Results

<table>
<thead>
<tr>
<th>Year</th>
<th>Migrants</th>
<th>Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1999</td>
<td>0</td>
<td>0</td>
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<td>2000</td>
<td>7</td>
<td>0</td>
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<td>2003</td>
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<td>2004</td>
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<td>2005</td>
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<td>3</td>
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<td>2010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>15</td>
<td>1</td>
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</tbody>
</table>

Table: Detections

- **2011- A big year**
  - 25% resighted, no bands
- **All Years**
  - Mostly migrants
  - Some “waves”
- **Residents**
  - 2007, 2011 – singles >June 24
  - 2008 - on territory
SWFL Resident Discussion

- **2008**
  - 34 days
  - Mature reveg site
  - Banded by SWCA
    - Post-hatch year male
    - Resighted at Overton in 2009

- **2011**
  - Single detection; but…
SWFL Habitat Discussion

- Resident detections – all >2006
  - First revegetation sites planted in 2001; maturing reveg sites = improving habitat?

- Potentially suitable habitat
  - 1998 – unstabilized, dominated by tamarisk
  - 2011 – stabilized, dominated by natives

- Tamarisk beetle implications
  - Will the Las Vegas Wash become more appealing to willow flycatchers?
Acknowledgments

- Bureau of Reclamation
- Great Basin Bird Observatory
- San Bernardino County Museum
- SWCA
  - Salt Lake City
  - Flagstaff
Questions?

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