Tamarisk Feeding Invertebrates of the Las Vegas Wash

January 24, 2012
Background

- Las Vegas Wash
  - Historically an ephemeral stream, now base flows exceed Muddy and Virgin River combined
  - Primarily treated wastewater
  - Prior to restoration activities beginning in 1999, had over 1500 acres of salt cedar
    - Now less than 200
Invertebrates of LV Wash

- Very few studies
  - Benthic macroinvertebrates sampled annually since 2000
  - Wiesenborn 2005
    - First survey of terrestrial invertebrates
  - Nelson 2009
    - Compared restored areas to non-native
  - Eckberg and Foster 2011
- Annual inventory report
  - Available at www.lvwash.org
Known Tamarisk Feeders

- Armored scale (*Chionaspis* sp.)
- Tamarisk leafhopper (*Opsius stactogalus*)
- Splendid tamarisk weevil (*Coniatus splendidulus*)
- Tamarisk leaf beetle (*Diorhabda carinulata*)
  - Expected soon
Armored Scale
(*Chionaspis* sp.)

Copyright © 2009 Jon Hart (from www.bugguide.net)
Tamarisk Leafhopper
(*Opsius stactogalus*)

Copyright © 2007 Claude Pilon (from www.bugguide.net)
Splendid Tamarisk Weevil
(Coniatus splendidulus)
Tamarisk Leaf Beetle

*Diorhabda carinulata*

Copyright © 2009 Carol Davis (from www.bugguide.net)
Tamarisk Leaf Beetle
(*Diorhabda carinulata*)
Research Questions

- What is the current distribution of known tamarisk feeders along the Wash?
- Is their population increasing or decreasing?
- What impact will the arrival of the tamarisk leaf beetle have on existing species?
Methods

- Follow current Tamarisk Coalition procedures for sampling
  - Allows for data sharing
  - Seven locations along the Wash including Las Vegas Bay at Lake Mead
  - 25 sweeps per location – 5 sweeps spaced 5 m apart with 38 cm sweep net
- Sampled in May, July, and September
Sampling Locations
Sampling Locations – Las Vegas Bay
Sampling Locations – Bostick Weir
Sampling Locations – Pabco Road Weir
Results – start counting!
Results

- No tamarisk leaf beetle
  - As expected
- Tamarisk leafhopper and splendid tamarisk weevil found in all sampling locations
  - Potential seasonal and geographical patterns
- Minimal defoliation
  - Less than 10% at any given sampling
Tamarisk Leafhopper Results

![Graph showing the number of individuals collected at different locations over the months of May, July, and September.]
Splendid Tamarisk Weevil
Results

![Graph showing the number of individuals collected at different sampling locations (Duck Creek, S108, Pabco North, Pabco South, Bostick, Powerline Crossing, LV Bay) across May, July, and September.](image-url)
Preliminary Conclusions

- Tamarisk leafhopper population increased as temperatures increased
  - Highest in areas that had high tamarisk density
- Splendid tamarisk weevil decreased as temperatures increased
  - Equally distributed across tamarisk areas
Upcoming…

- Tamarisk leaf beetle expected in 2012
- Follow-up surveys should indicate how species interact
  - What will the impact on tamarisk be
Questions?

www.lvwash.org