Updating Benthic Macroinvertebrate Attributes for B-IBI

Advisory Board Meeting, May 8th, 2012

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Connecting the "How" and the "Why" of what we are doing

How

"Restore and maintain the chemical, physical and biological integrity of the Nation's waters" –CWA

Monitor and report stream health

Measure stream biology

Summarize data – Use Attributes of natural history

Collect bugs

Why

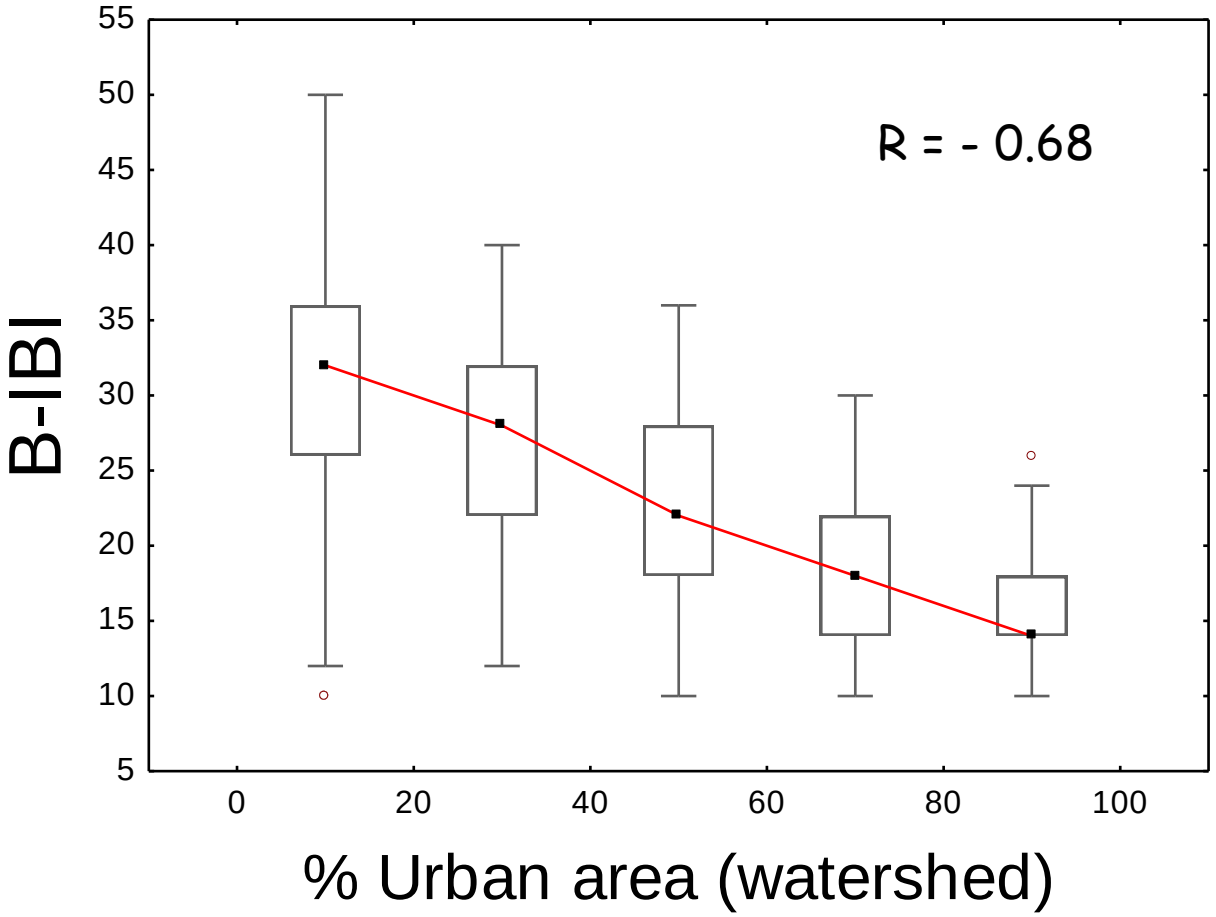
Benthic Index of Biotic Integrity
10 Metrics in the Bug Index

Metric
Total Taxa
Mayfly Taxa
Stonefly Taxa
Caddisfly Taxa
Long-lived Taxa
Intolerant Taxa
% Tolerant individuals
% Predator individuals
Clinger Taxa
% Dominance

Updated from peer-reviewed literature

Update with PSSB data

Primary driver of biological condition is Urbanization

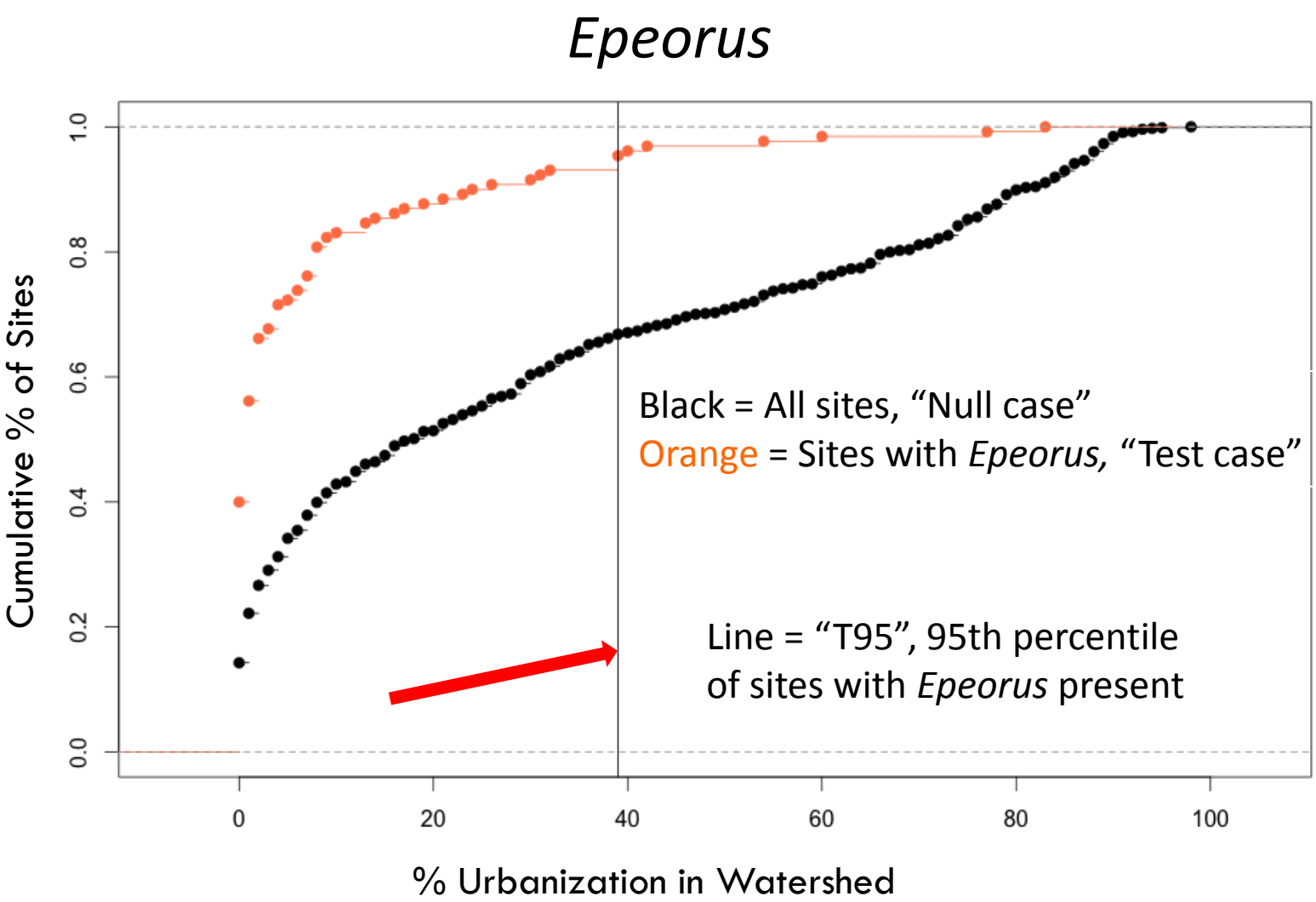


Select Most Tolerant & Intolerant Taxa

- N = 784 sites (most recent)
- Genus level or higher
- >= 25 occurrences
- 155 taxa tested

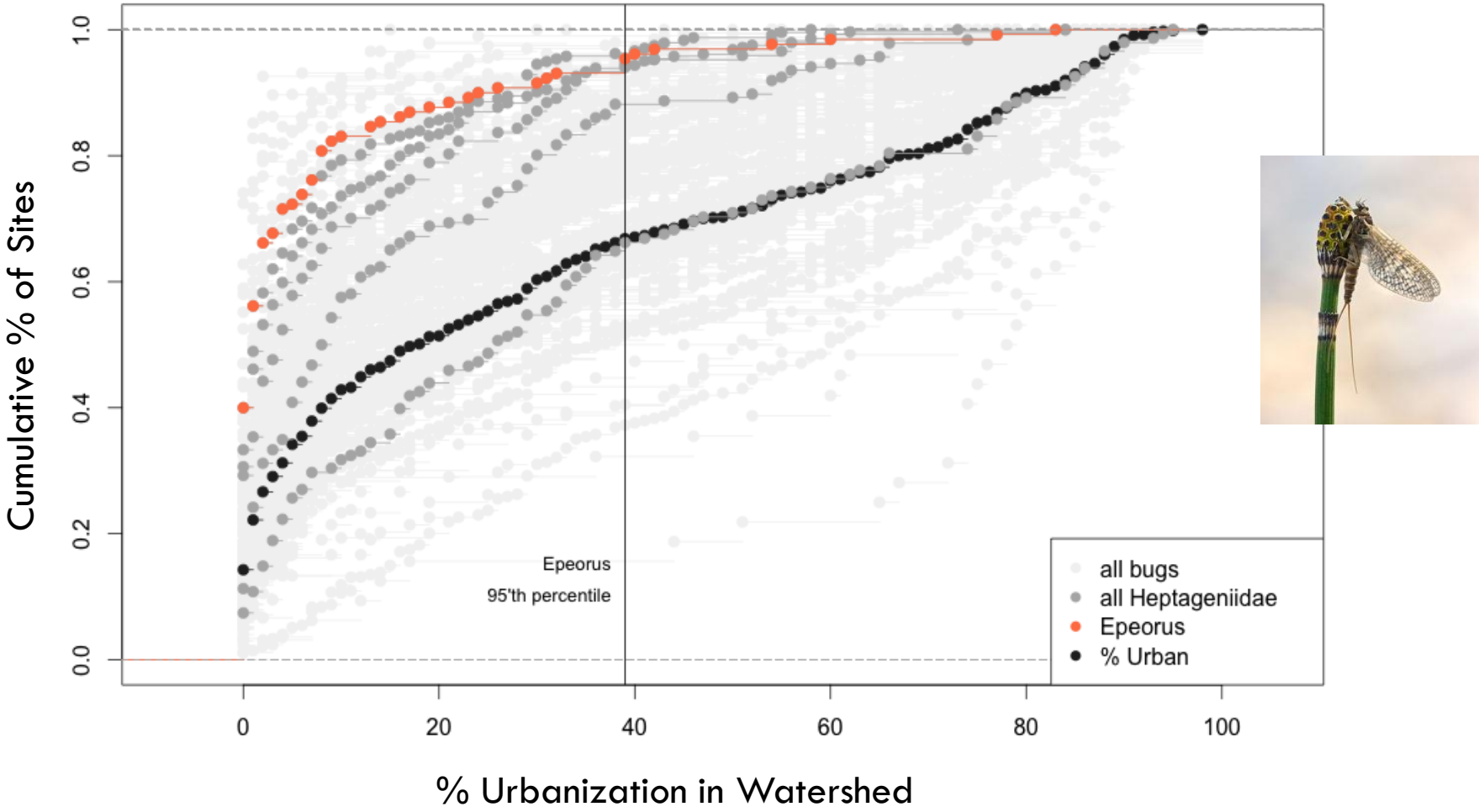
Epeorus

Testing taxa:
Tolerance and intolerance to urbanization



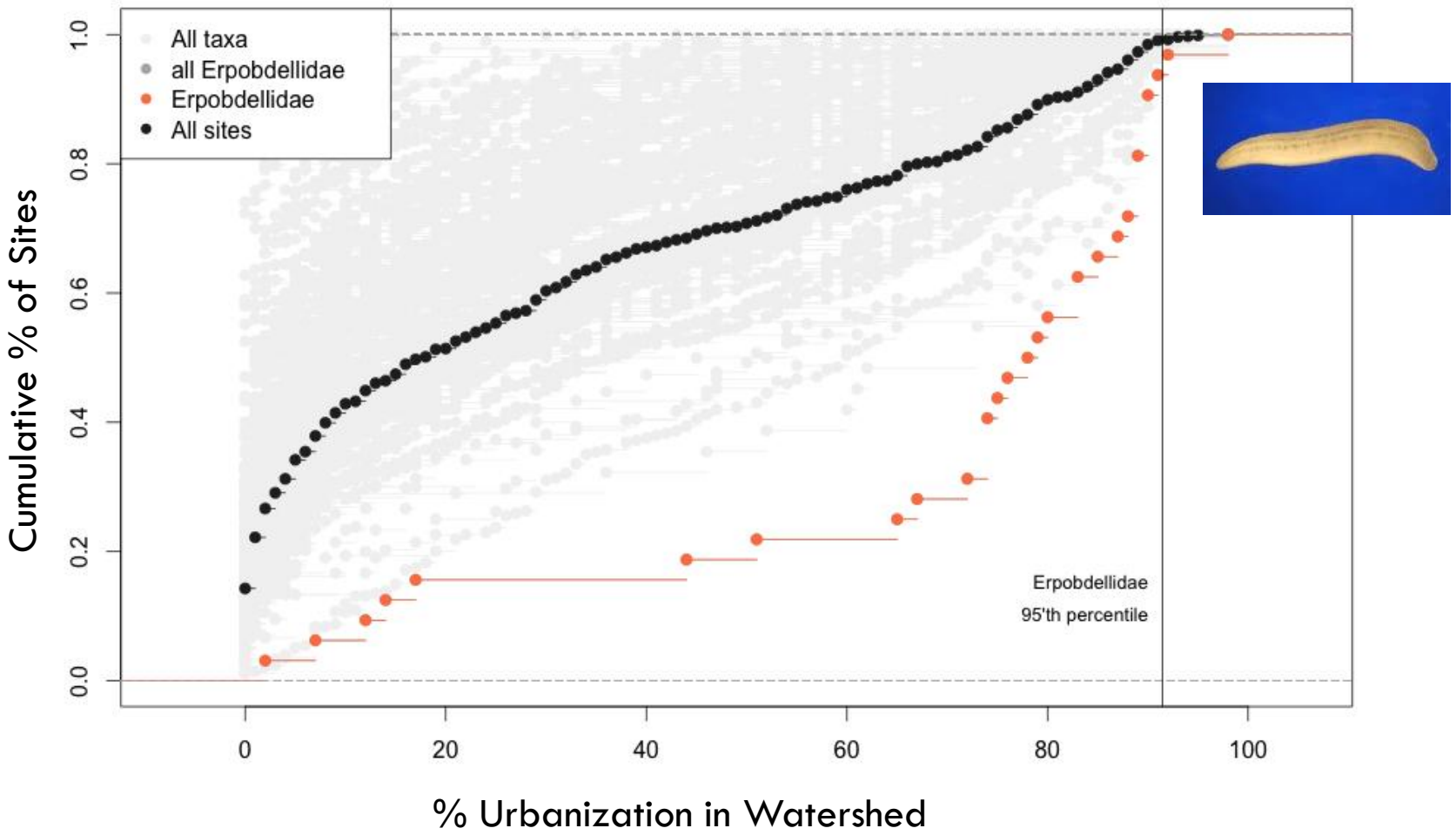
Example of Intolerant Taxon

Epeorus



Example of a Tolerant Family

Erpobdellidae



Conclusions

Urbanization is the primary driver of B-IBI in Puget Sound Lowland streams

No change to structure of B-IBI – all metrics highly correlated with % urban area

Updates to predator, long-lived, and clinger may require some recalibration

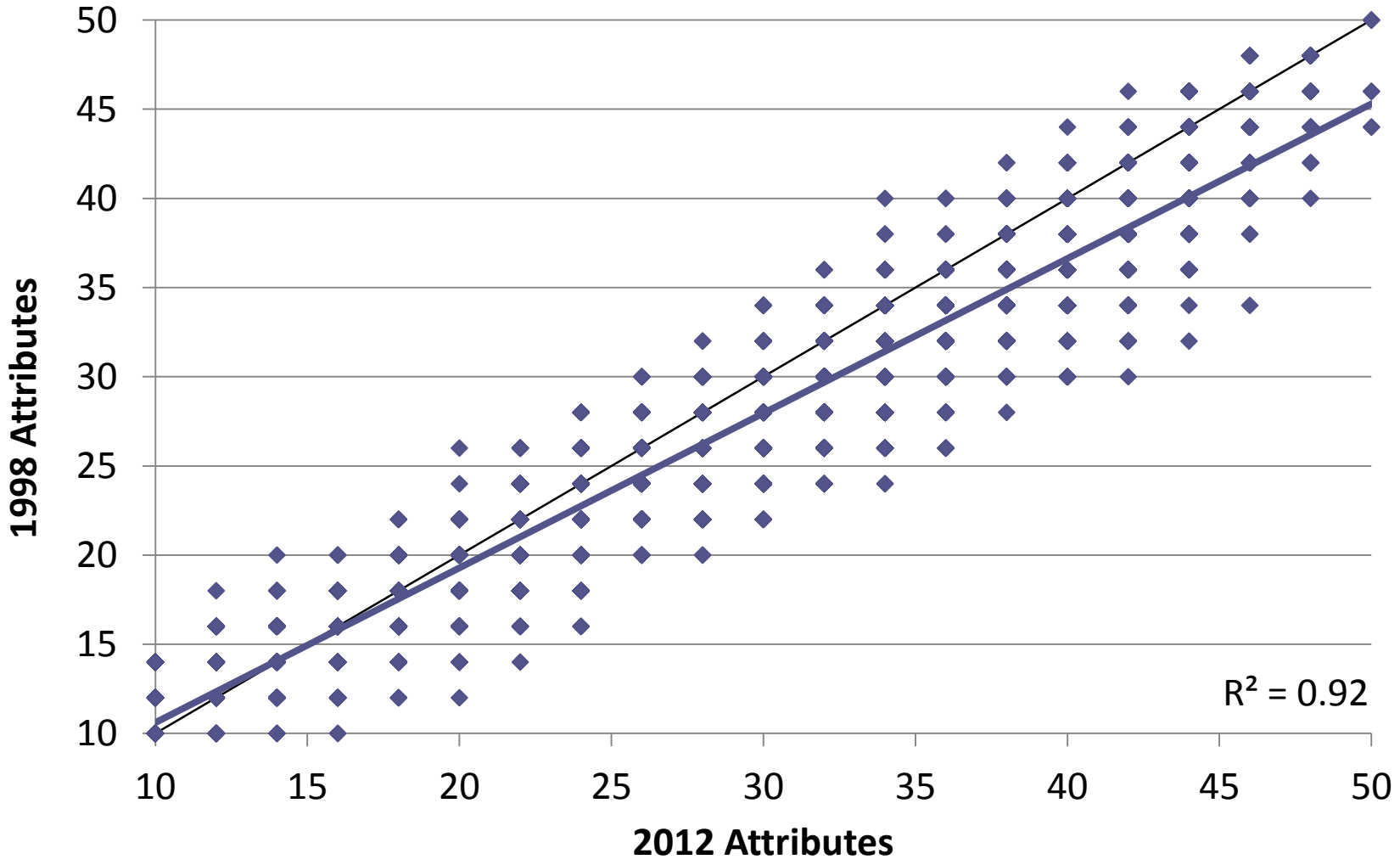
Tolerant and intolerant taxa list changed, many rare taxa dropped

B-IBI Metric scoring will be modified from 1/3/5 to 0-100

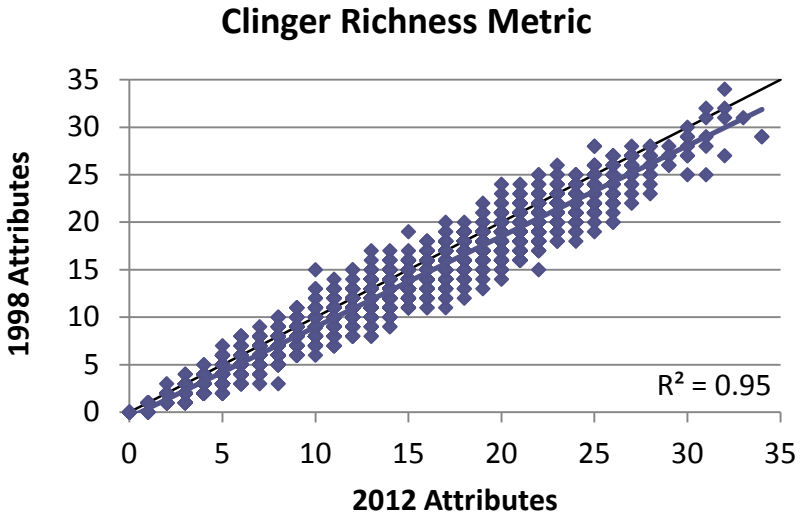
Taxa Attributes

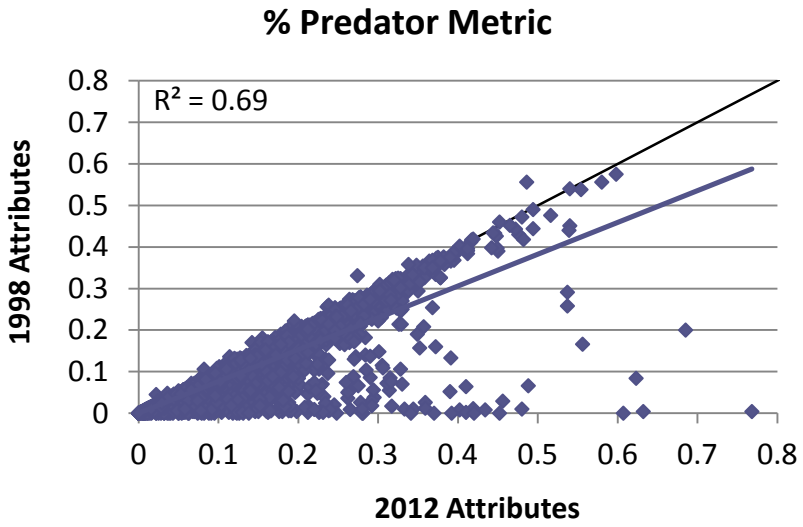
- What did you hear?
- What do you think about this approach?
- How do you want to integrate better science into the BIBI?
  - PSSB default button
  - Maintain historical options

Overall BIBI Scores: 1998 vs. 2012 attributes

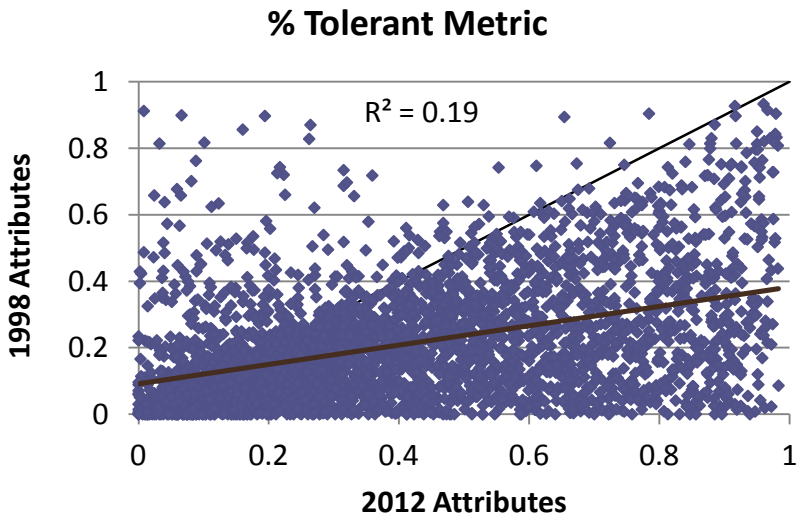


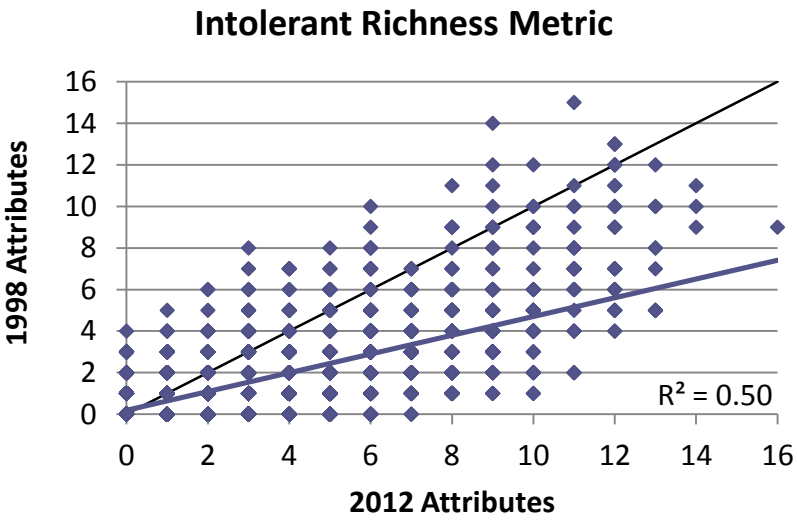
Clinger, Long-Lived, Predator (peer-reviewed literature)



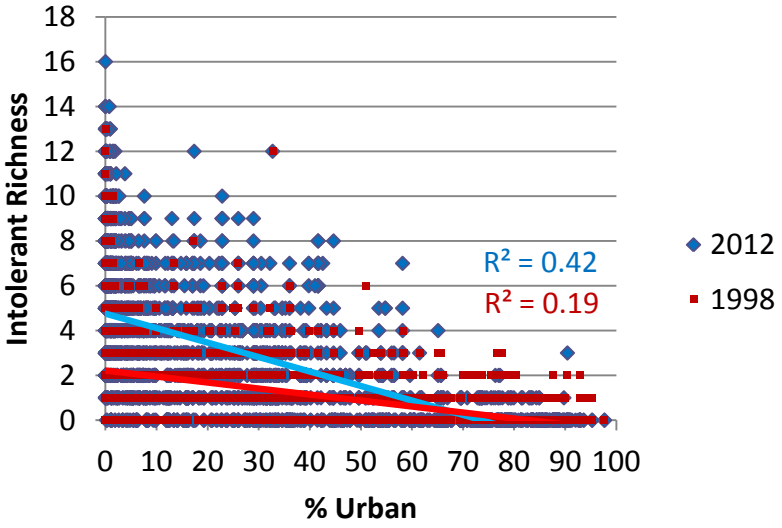


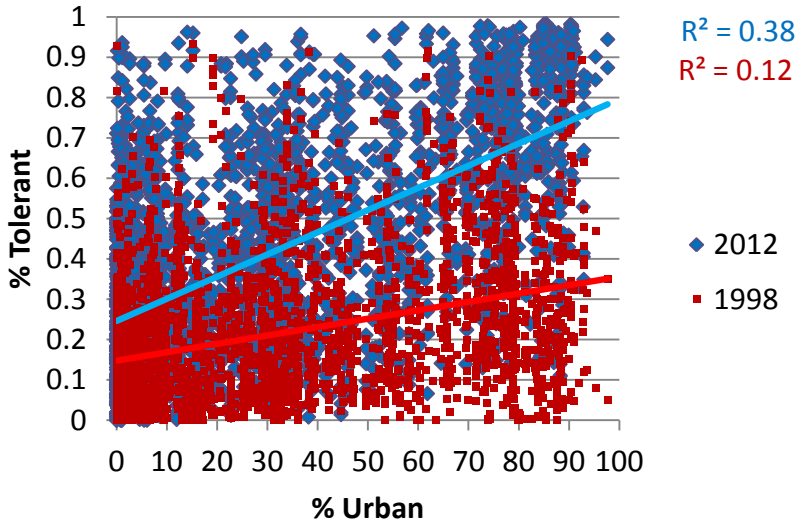
Tolerant & Intolerant (empirically derived)





Tol/Intolerant & % Urban





BIBI & % Urban: 1998 & 2012 attributes