

Tolerant & Intolerant taxa attribute lists

Some notes jotted down by Jo from conversation with Wease at 10/10/12 meeting

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With comments added by Leska Fore, November 7, 2012

Wease Bollman, Rhithron Associates, Inc., has some concerns with some of the species on the tolerant list. In particular Parapsyche and Arctopsyche, but also Drunella to some extent.

Parapsyche

- Can sequester metals
- *P. elsis* is *definitely* sensitive
- *P. almota* Wease considers a positive signal (so generally sensitive). It is a good indicator for determining whether a d/s stretch that is impaired has a chance of being restored.

Leska's comments:

- Most of taxa found were *P. almota* found at 184 sites. *P. elsis* found at only 16 sites. Parapsyche found at 58 sites and we can safely assume those were mostly *P. almota*.
- In my updates and edits to the file from James called (Edits to null values_04202012.xls) I had marked *P. elsis* as NOT TOLERANT. For tolerant we selected taxa with the greatest distance between the cdf lines for the null case of all sites and the site with the taxon present. For Parapsyche, the difference was one of the smaller observed values, not the smallest (cut off was 22 and ranged up to 69, Parapsyche was 26). I stand by the results of the analysis that designated Parapsyche and *P. almota* as tolerant. And agree *P. elsis* should not be listed as tolerant.
- There is always the possibility of significant results due to chance alone. Removing Parapsyche from the list of tolerant would not have a large impact on the metric results. If the designation doesn't make sense to the taxonomists/biologists, we should remove it.

Arctopsyche

- Shows up on sensitive list, but Wease thinks of Parapsyche as more sensitive than Arctopsyche.
- Sept 7, 2012 e-mail message to Deb Lester from Wease Bollman: "There is one thing that stands out for me, though.....I don't know how Parapsyche *almota* could possibly be classified as a tolerant animal. And placing the genus Parapsyche on this list would suggest the inclusion of *P. elsis*, which makes even less sense to me."

Leska's comments:

Cut off for intolerant taxa was 95th %tile $\leq 45\%$. Arctopsyche was at 42% urbanization for T95. Near the cut off but other species after it. Arctopsyche is monotypic for the genus it looks like with only Arctopsyche and Arctopsyche *grandis* listed in the data file. The total number of sites was 25 for both combined. The results of statistical testing identified this taxon as intolerant. If the taxonomists/biologists disagree with this assessment, we should remove it from the list.

Drunella

- Sept 7, 2012 e-mail message to Deb Lester from Wease Bollman: "I note that at least one other taxon typically identified to species groups, Drunella, also occurs on the sensitive list, implying that all species of Drunella share the trait of sensitivity."

Leska's comments:

Drunella was tested at the level of genus. Most of the species were *D. doddsii*. The number of sites where each taxon was found and the total number of individuals collected are shown in the table. Based on Bob Wisseman's comments we excluded *D. flavilinea/coloradensis* and *D. coloradensis* from the tolerant list. They were found in only 3 and 11 site-visits respectively.

	Num_sites_occur	Total_bugs	Intolerant
Drunella (<i>Drunella flavilinea/coloradensis</i>)	3	7	0
<i>Drunella coloradensis</i>	11	59	0
<i>Drunella spinifera</i>	12	63	1
<i>Drunella grandis</i>	16	68	1
<i>Drunella doddsii</i>	131	1614	1
Drunella	64	1791	1