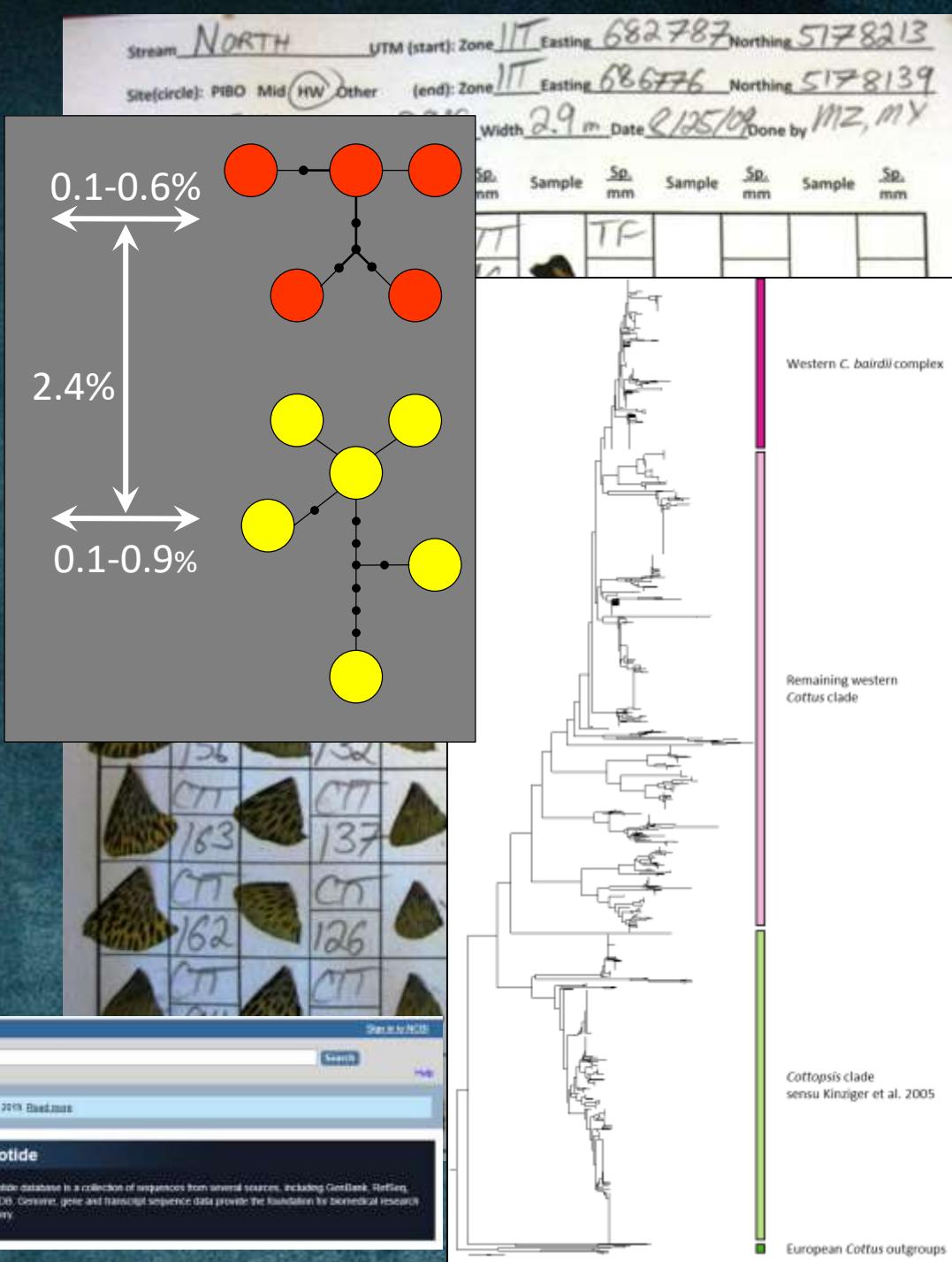


SculpinQwest: the molecular approach

- COI (mtDNA)
 - The ~600 bp “barcode”
- cyt b (mtDNA)
 - The most commonly sequenced gene for fish
- S7 (nuDNA)
 - A non-coding intron with modest evolutionary rates
- Rhodopsin (nuDNA)
 - Highly conserved for detecting ancient divergence

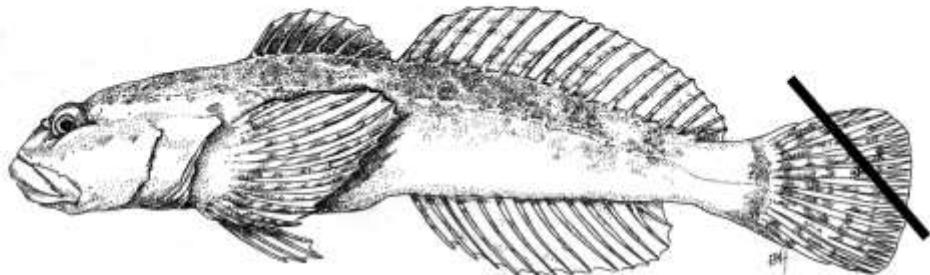


Lineage delineation

- Species concept: evolutionary
- Criteria: standard phylogenetic analyses
 - Distances (%)—barcode gap
 - Diagnosable—monophyletic
 - Allopatry with respect to close relatives
- Null hypothesis: existing taxonomy is correct
 - Ingroup defined by specimen nearest type location
 - Applied to each species complex
- Provisional: ~90% complete
- Four case histories

WANTED:

Upper caudal clips from Cottidae



As part of a one-year evaluation of the use of DNA barcodes for identifying sculpins from the Columbia River basin, I would appreciate receiving a few (2-5) fin clips from all species from as many waters as possible in Idaho, Oregon, Washington, and Wyoming.

Data wanted: fin clips (in ethyl alcohol, on chromatography paper, or in coin envelopes), GPS data, date, your name.

For more information, contact Michael Young at the Rocky Mountain Research Station in Missoula, MT (mkyoung@fs.fed.us; 406 542-3254



Torrent sculpin complex

C. rhotheus

Species of interest

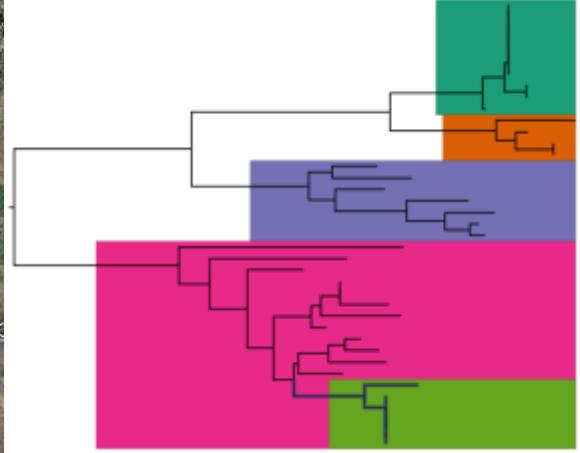
Geographic distribution
of clades

cyt b NJ tree

	Gp_1	Gp_2	Gp_3
Gp_1			
Gp_2	1.04		
Gp_3	2.34	2.22	
Gp_4	3.01	3.12	2.87

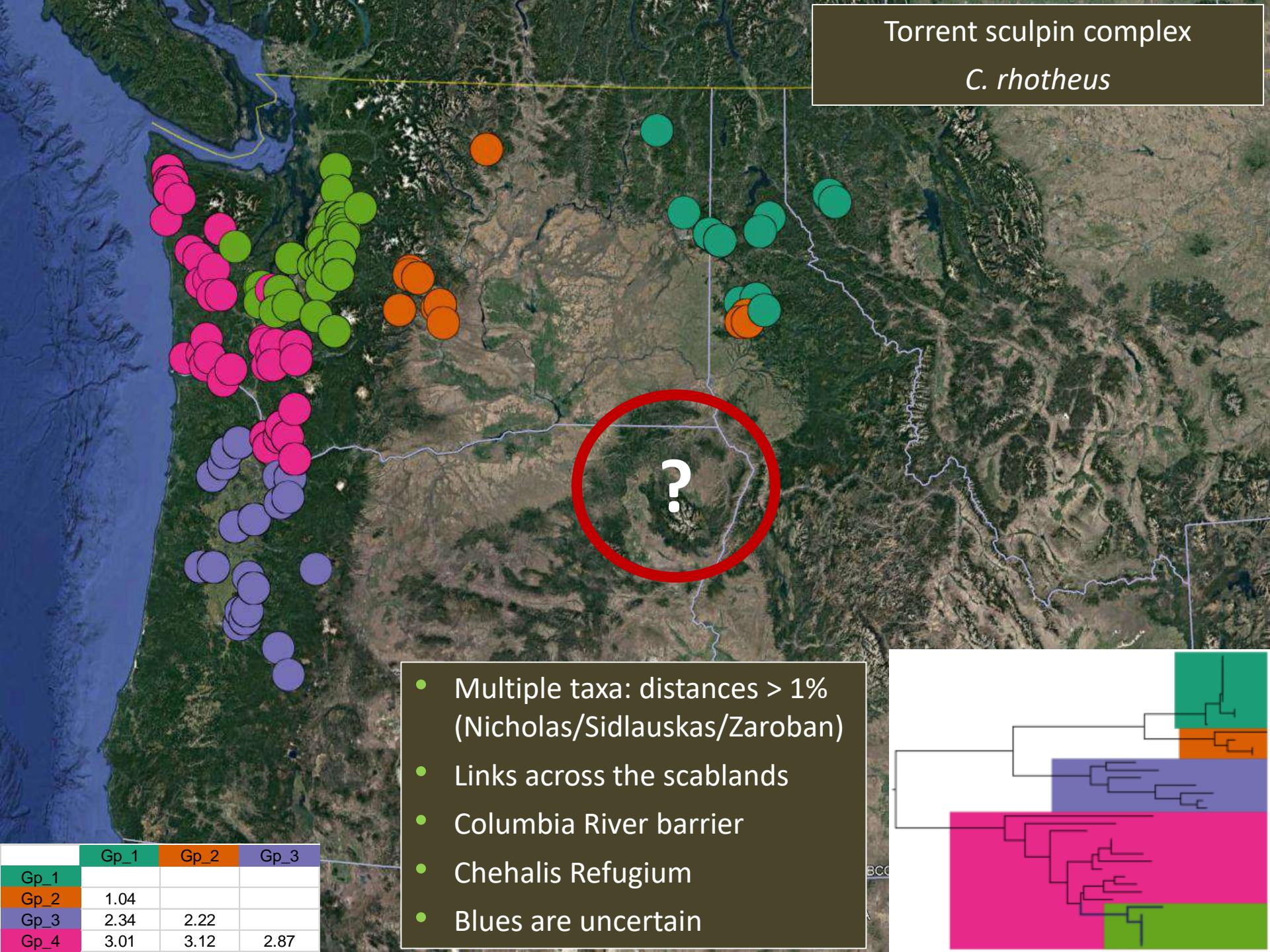
cyt b distance matrix

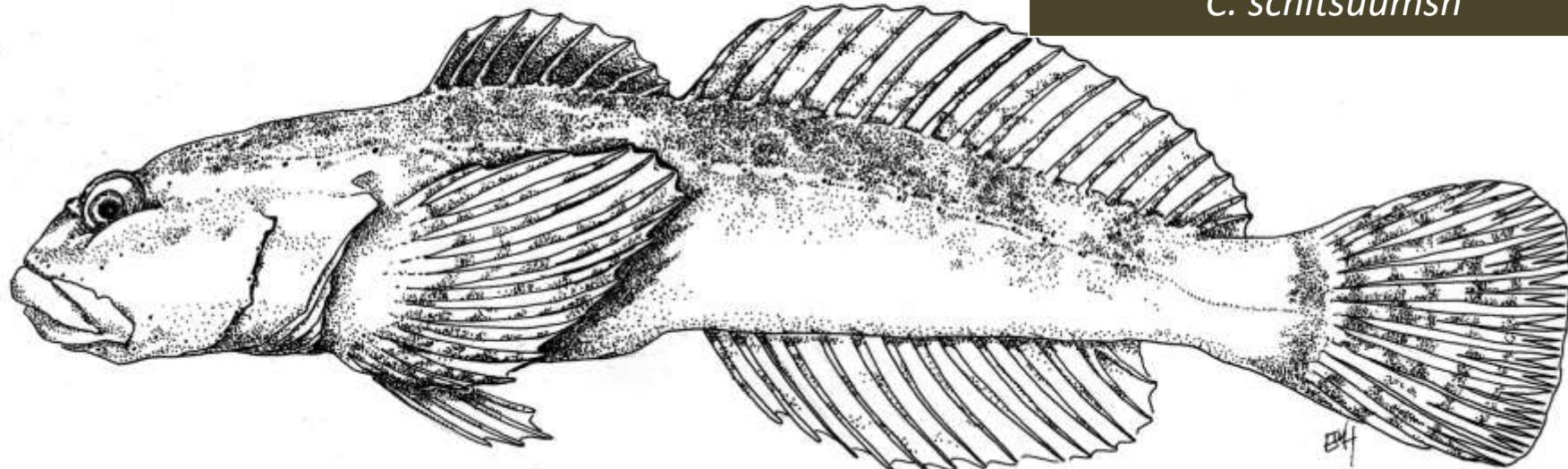
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Data LDEO-Columbia, NSF, NOAA



Torrent sculpin complex

C. rhotheus





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***Cottus schitsuumsh*, a new species of sculpin (Scorpaeniformes: Cottidae) in the Columbia River basin, Idaho-Montana, USA**

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Cedar sculpin
C. schitsuumsh

- Cohesive “taxon”
- Introduced in MT
- Native to central WA
- Links across the scablands

	Gp_1	Gp_2	Gp_3	Gp_4	Gp_5
Gp_1					
Gp_2	0.55				
Gp_3	0.84	0.82			
Gp_4	0.84	0.86	1.06		
Gp_5	0.58	0.60	0.77	0.70	
Gp_6	0.55	0.58	0.67	0.77	0.60

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Data LDEO-Columbia, NSF, NOAA

