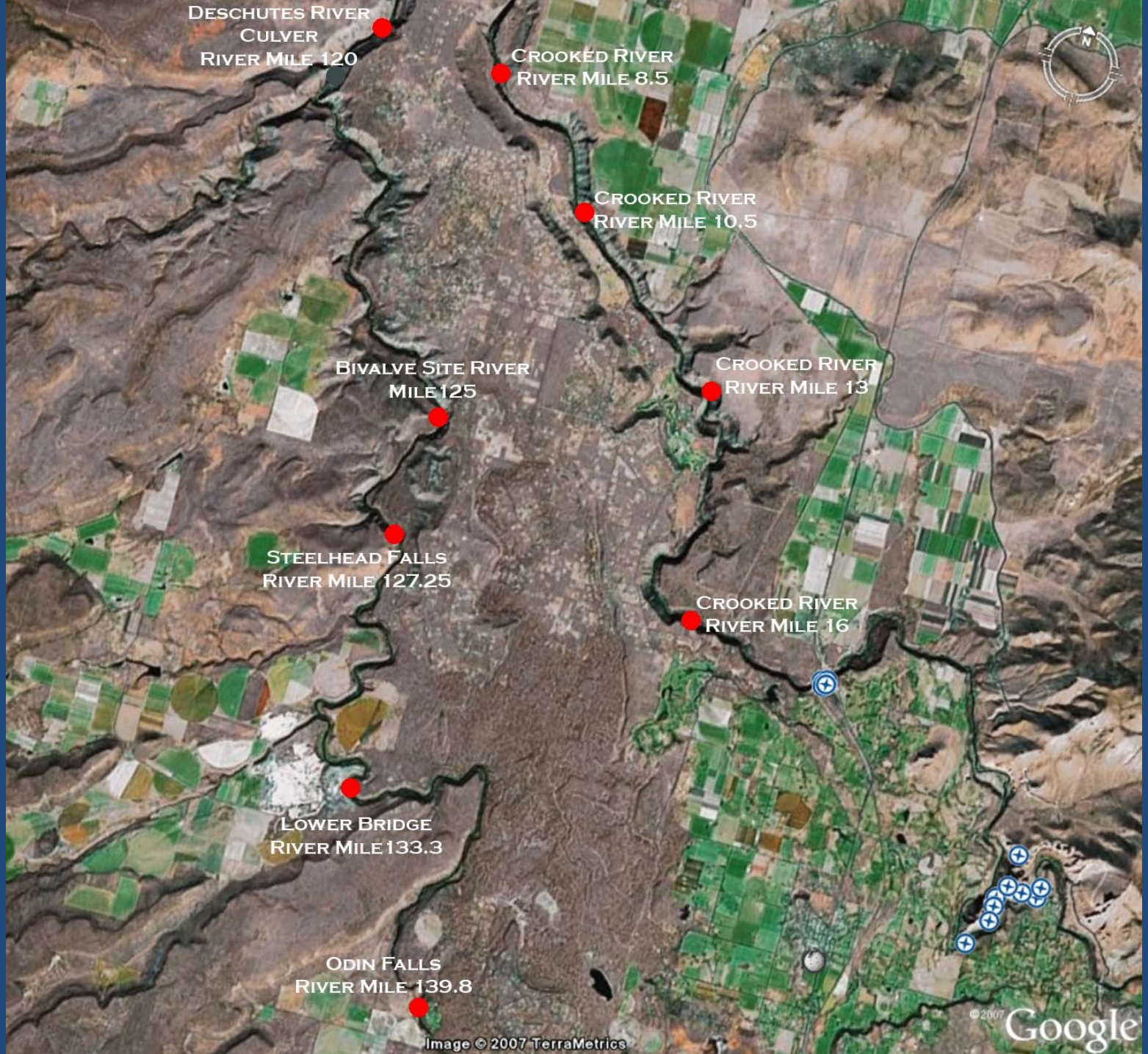
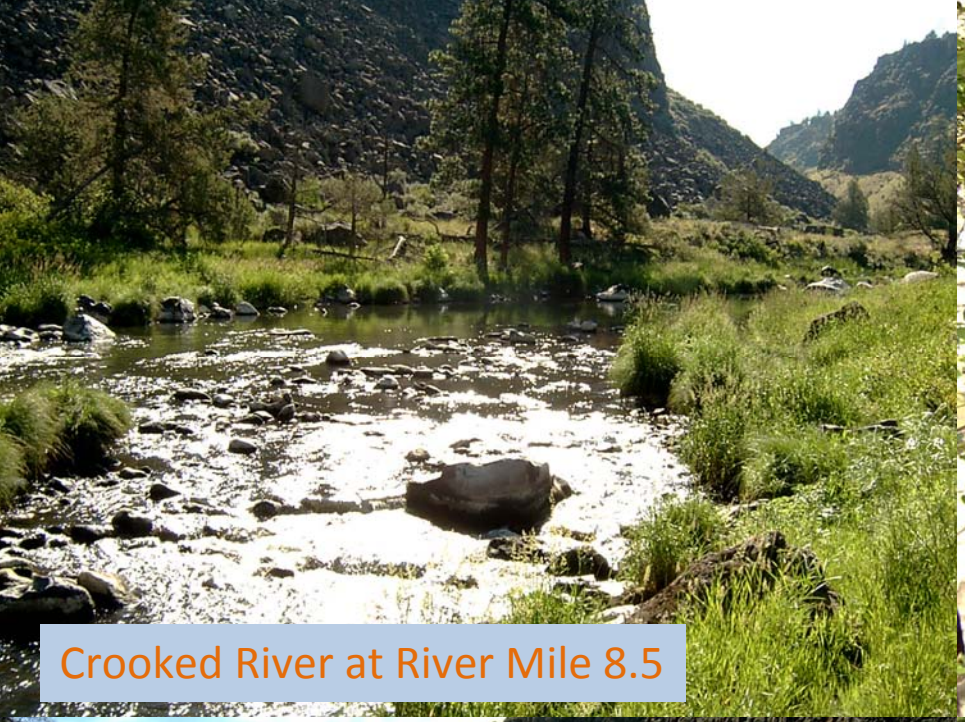
Aquatic invertebrate assemblages of the Crooked and Deschutes Rivers

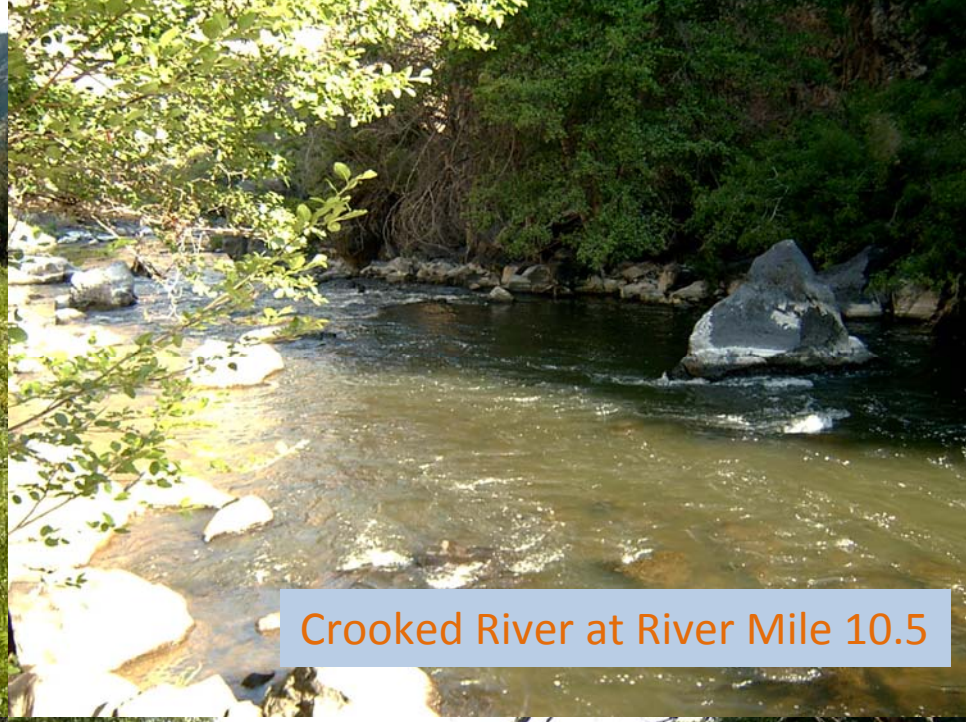
Aquatic invertebrate studies

- 4 sites in each river
- Seasonal samples – spring, summer, fall
- Qualitative & quantitative sampling
  - Quantitative – collect & estimate abundances of common taxa
  - Qualitative – collect additional fauna
- Objective to provide basic data on fauna
  - Differences among rivers
  - Differences among sites

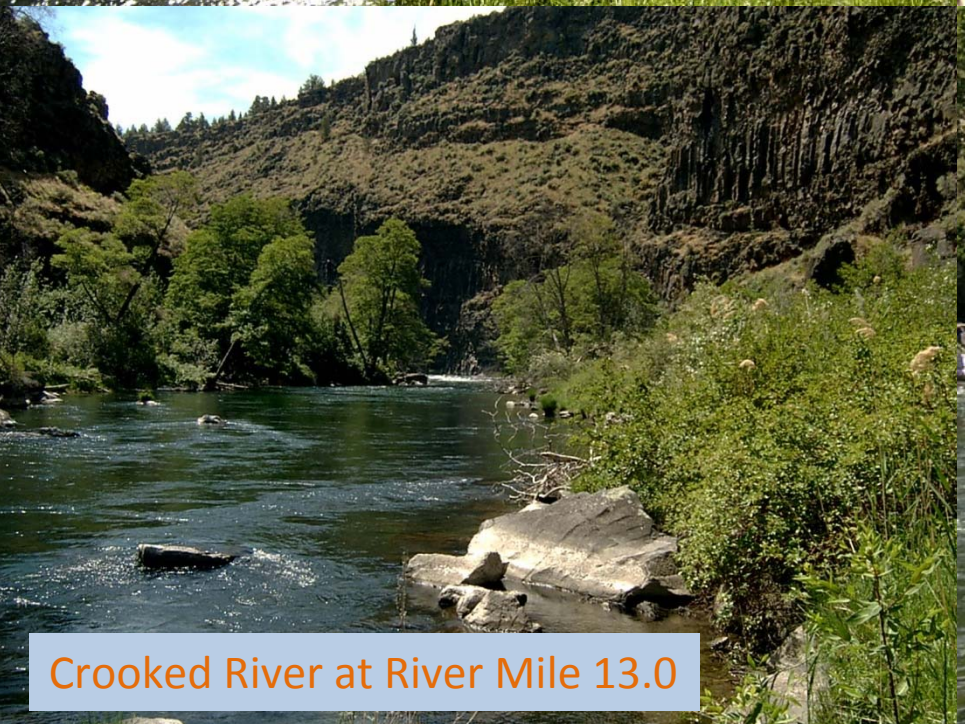

Deschutes River
Culver
River Mile 120
Crooked River
River Mile 8.5
Crooked River
River Mile 10.5
Bivalve Site River
Mile125
Crooked River
River Mile 13
Steelhead Falls
River Mile 127.25
Crooked River
River Mile 16
Lower Bridge
River Mile133.3
Odin Falls
River Mile 139.8
Image © 2007 TerraMetrics
Google



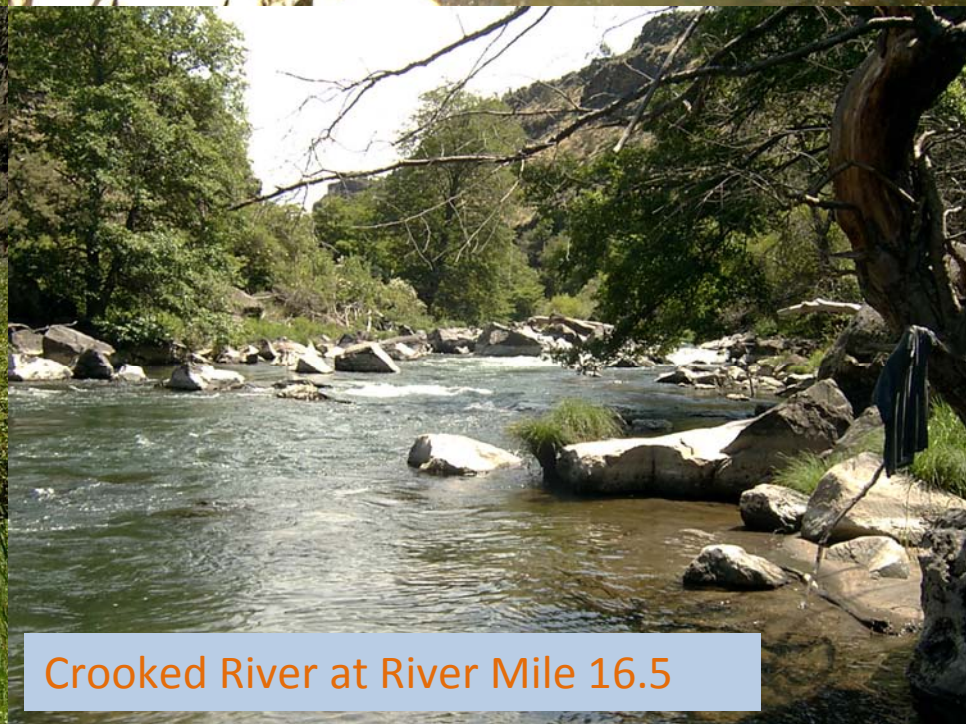
Crooked River at River Mile 8.5



Crooked River at River Mile 10.5



Crooked River at River Mile 13.0



Crooked River at River Mile 16.5

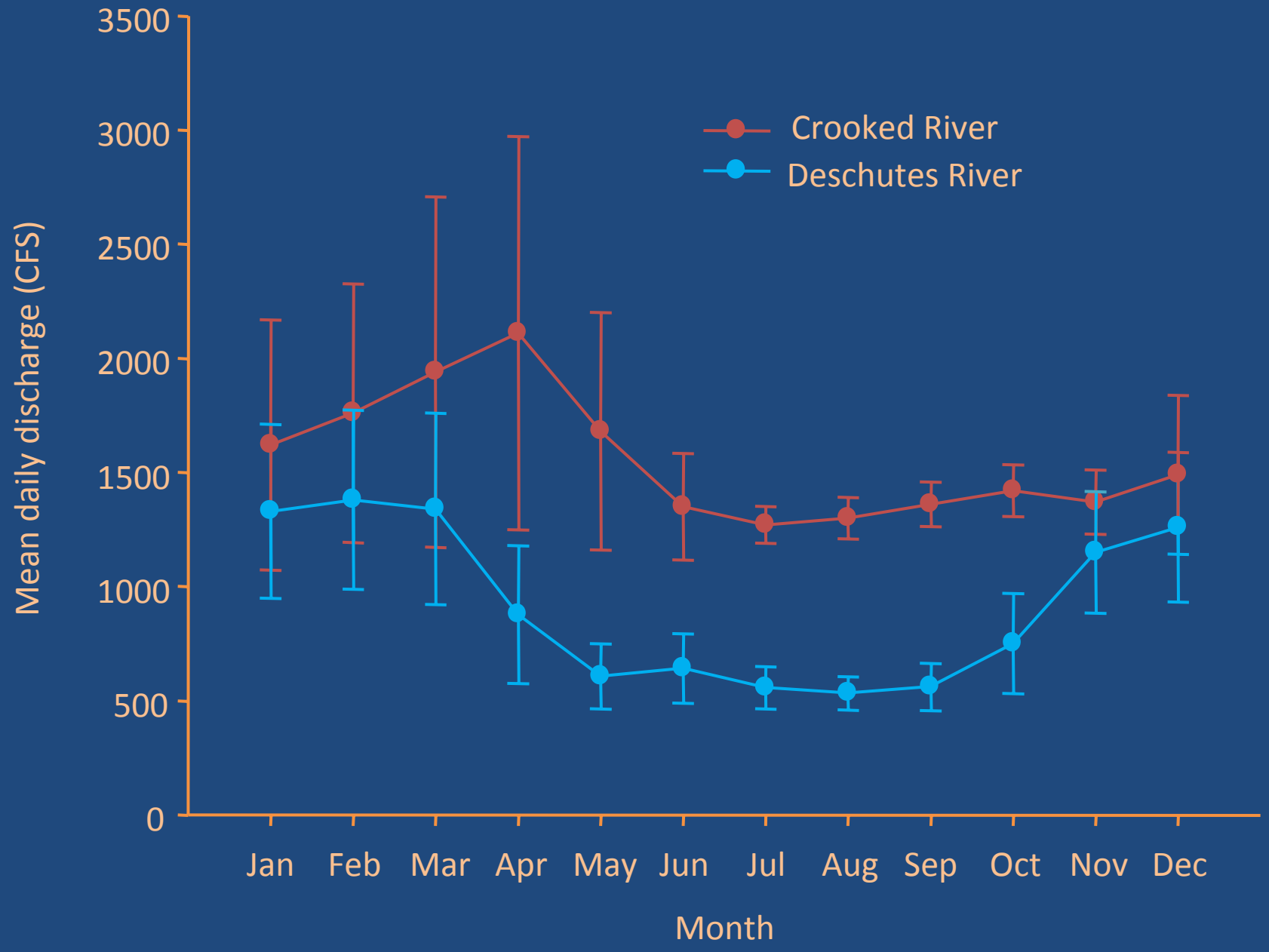
Deschutes at Odin Falls

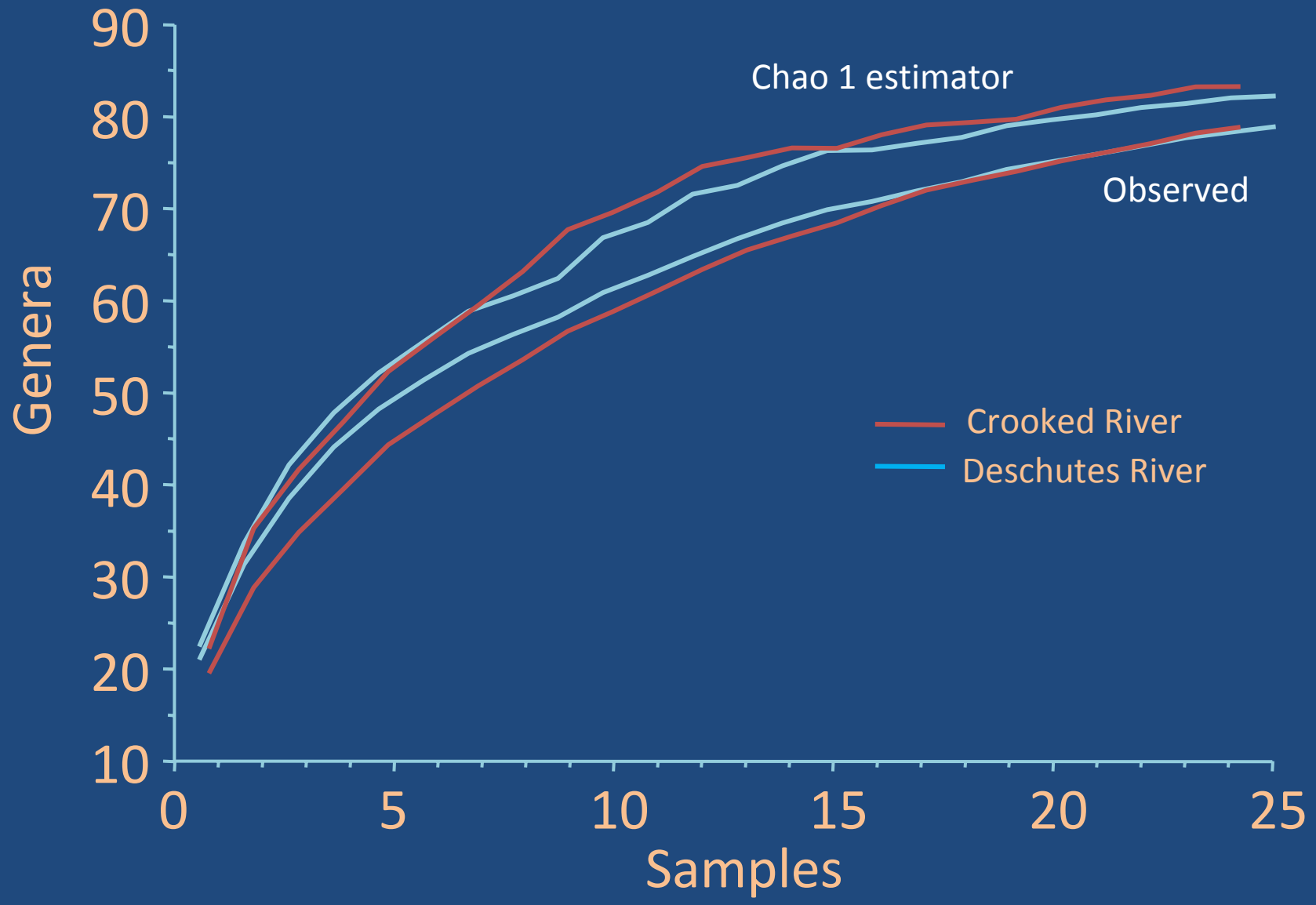
Deschutes at Lower Bridge

Deschutes at Steelhead Falls

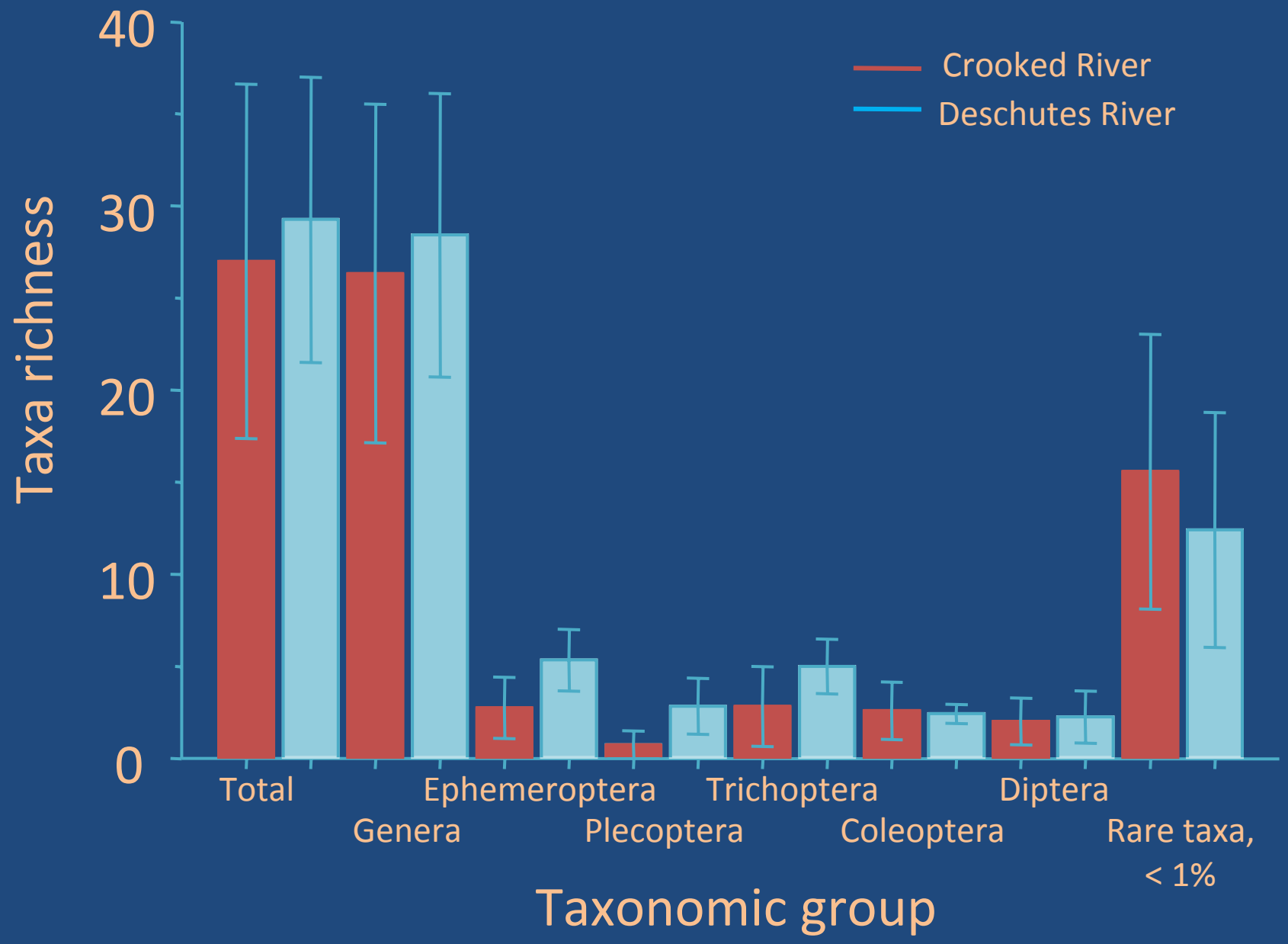
Deschutes at Culver Gage

Deschutes at River Mile 124.4

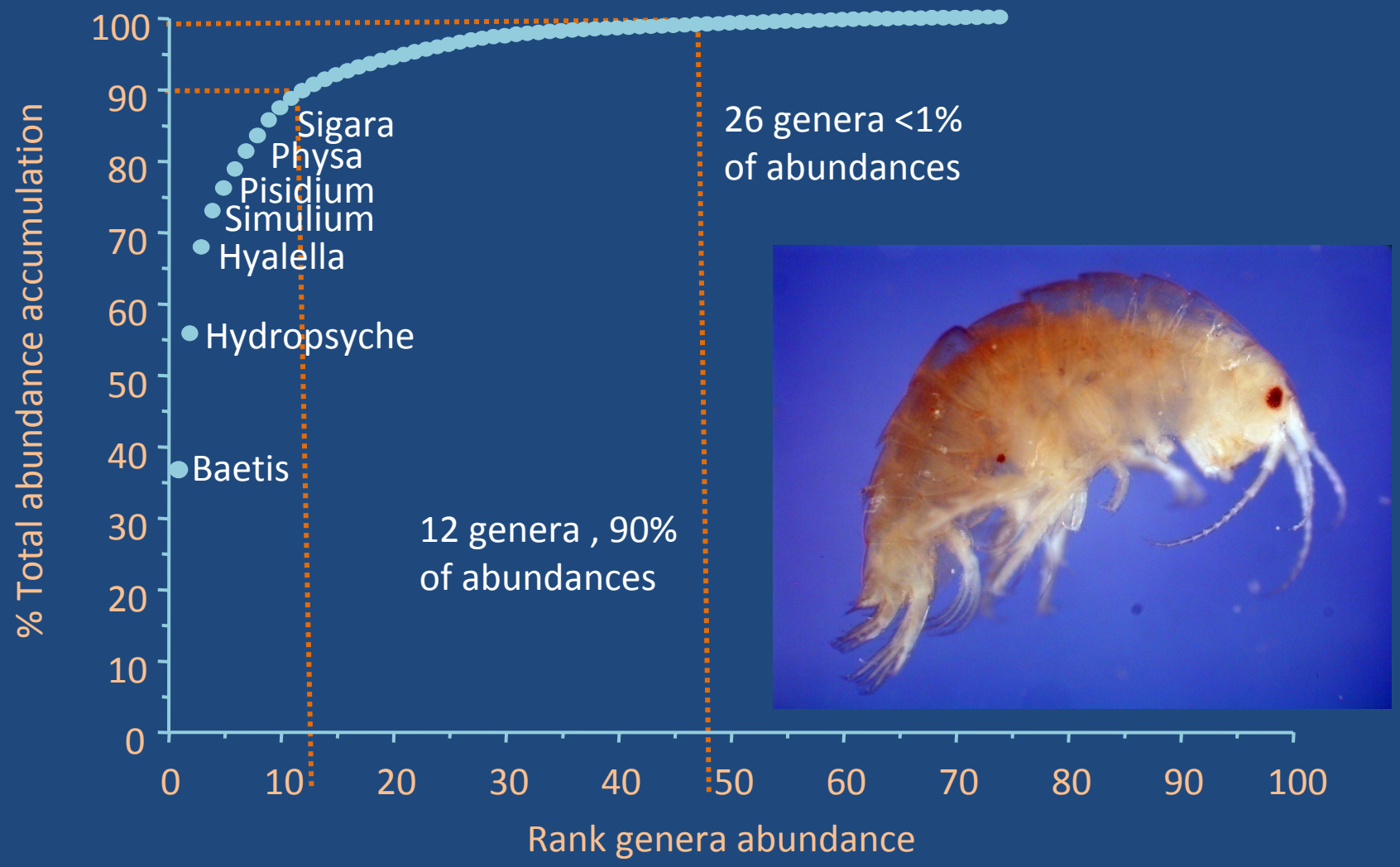

Crooked River
Deschutes River
Mean daily discharge (CFS)
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Chao 1 estimator
Observed
Crooked River
Deschutes River
Genera
Samples
90
80
70
60
50
40
30
20
10
0
5
10
15
20
25

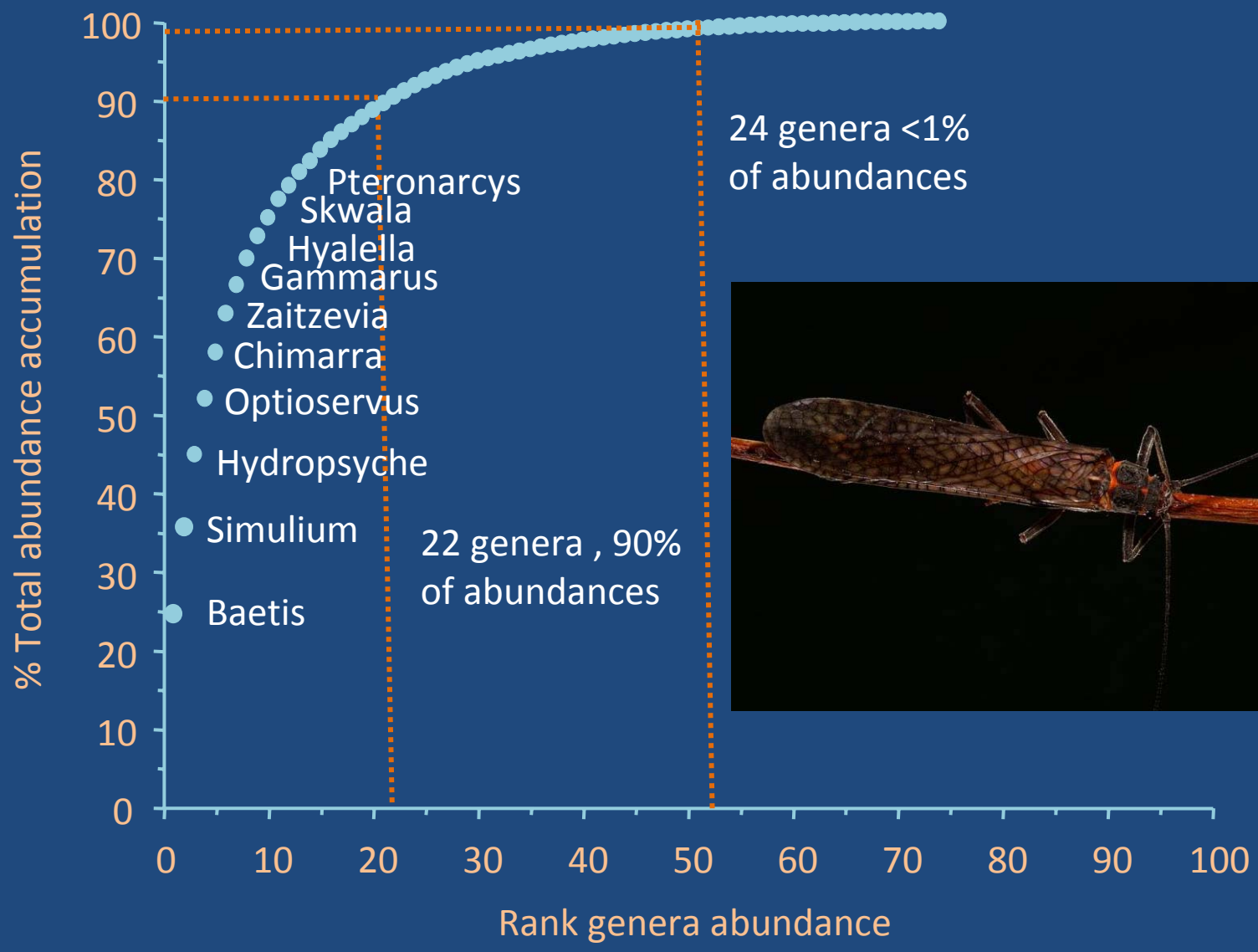
Measure	Crooked	Deschutes	Total
Total individuals collected	4372	5723	10095
Genera present, count >0	74	75	99
Genera absent, count =0	25	24	0
Genera with count >0 and <10	46	35	49
Genera with count >=10	28	42	54
Genera with count >=100	7	11	18
Genera with count >=500	3	3	5
Genera with count >=1000	1	1	2


Crooked River
Deschutes River
Taxa richness
40
30
20
10
0
Total
Genera
Ephemeroptera
Plecoptera
Trichoptera
Coleoptera
Diptera
Rare taxa, < 1%
Taxonomic group

Crooked River

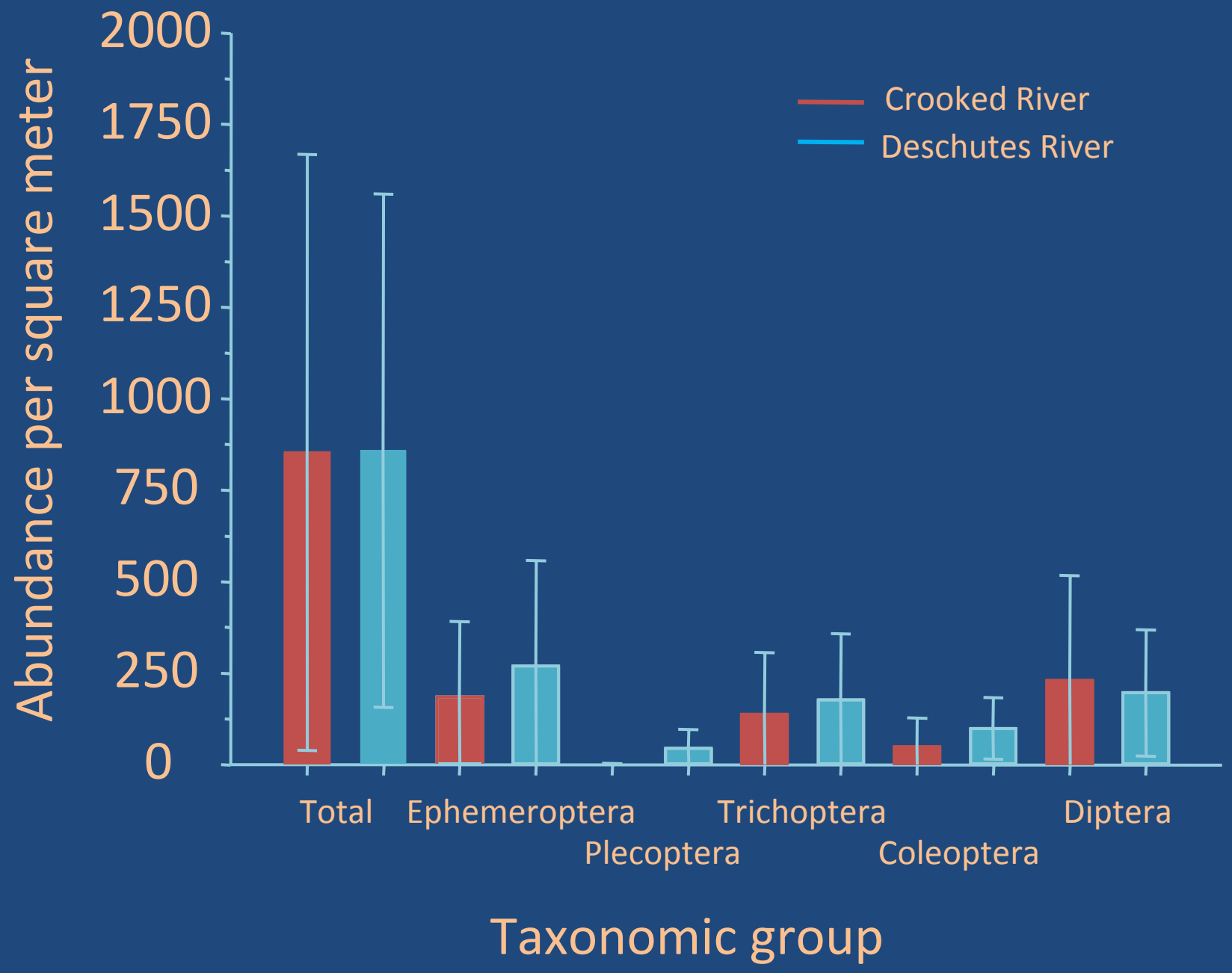


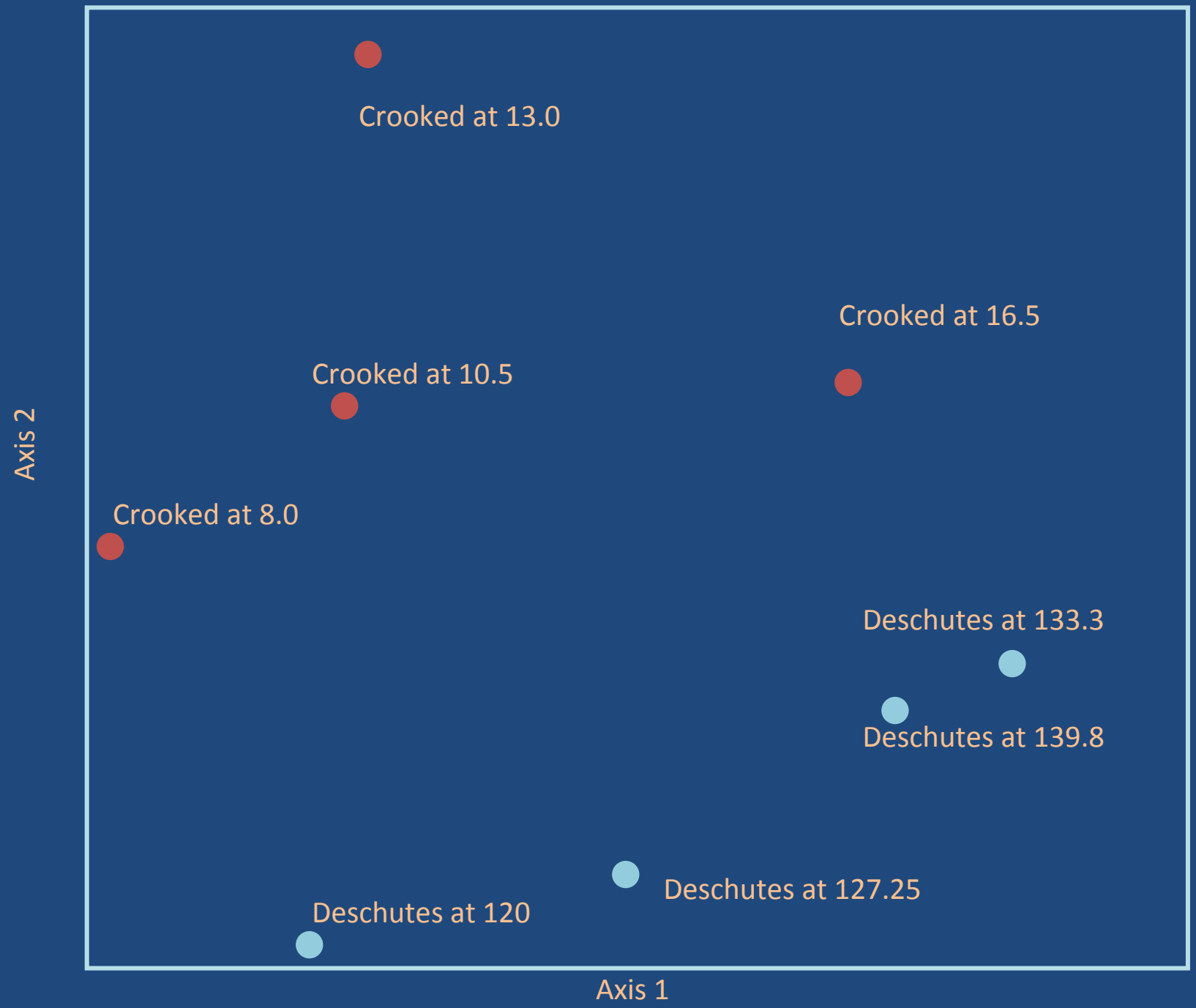
Deschutes River

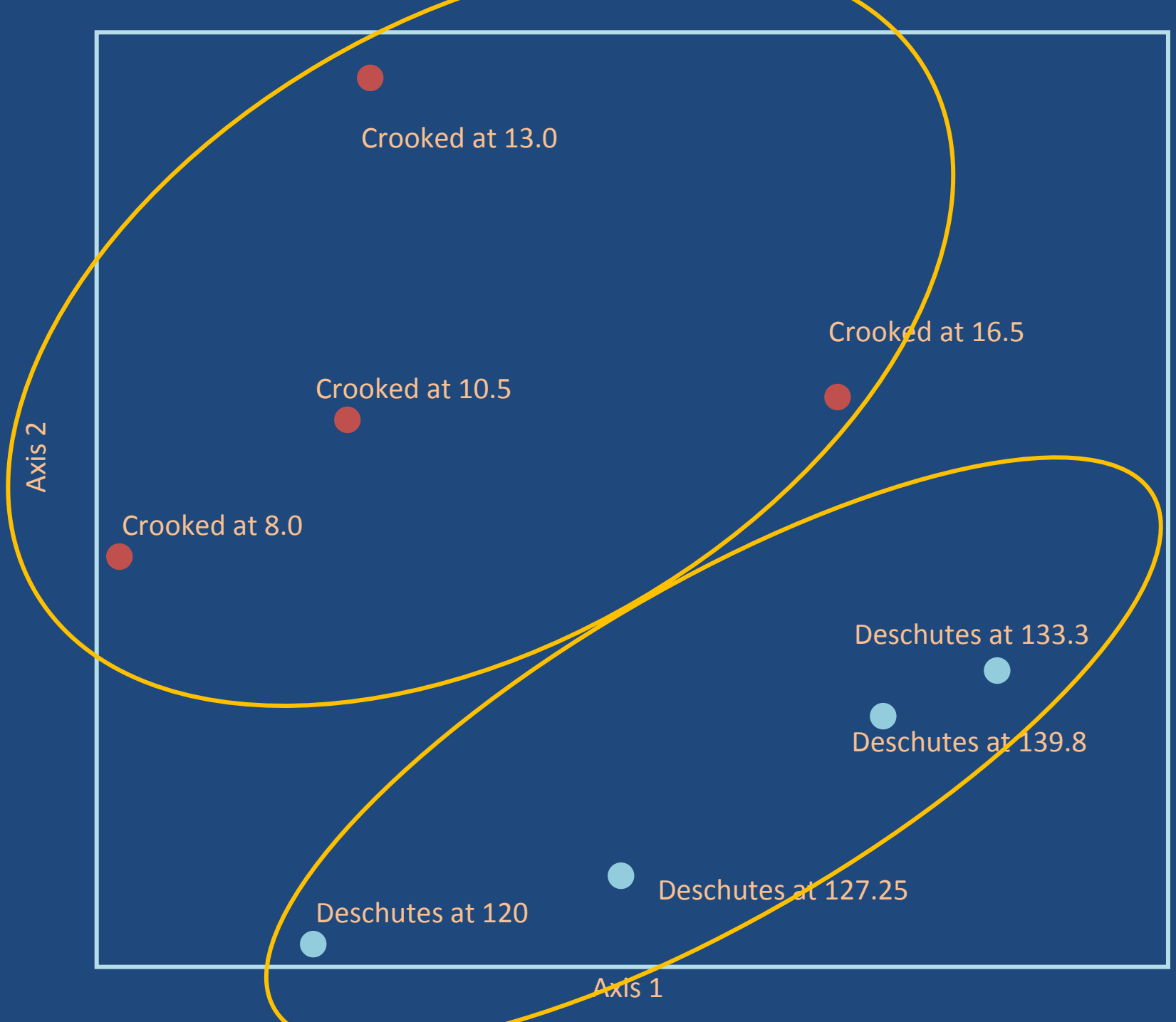


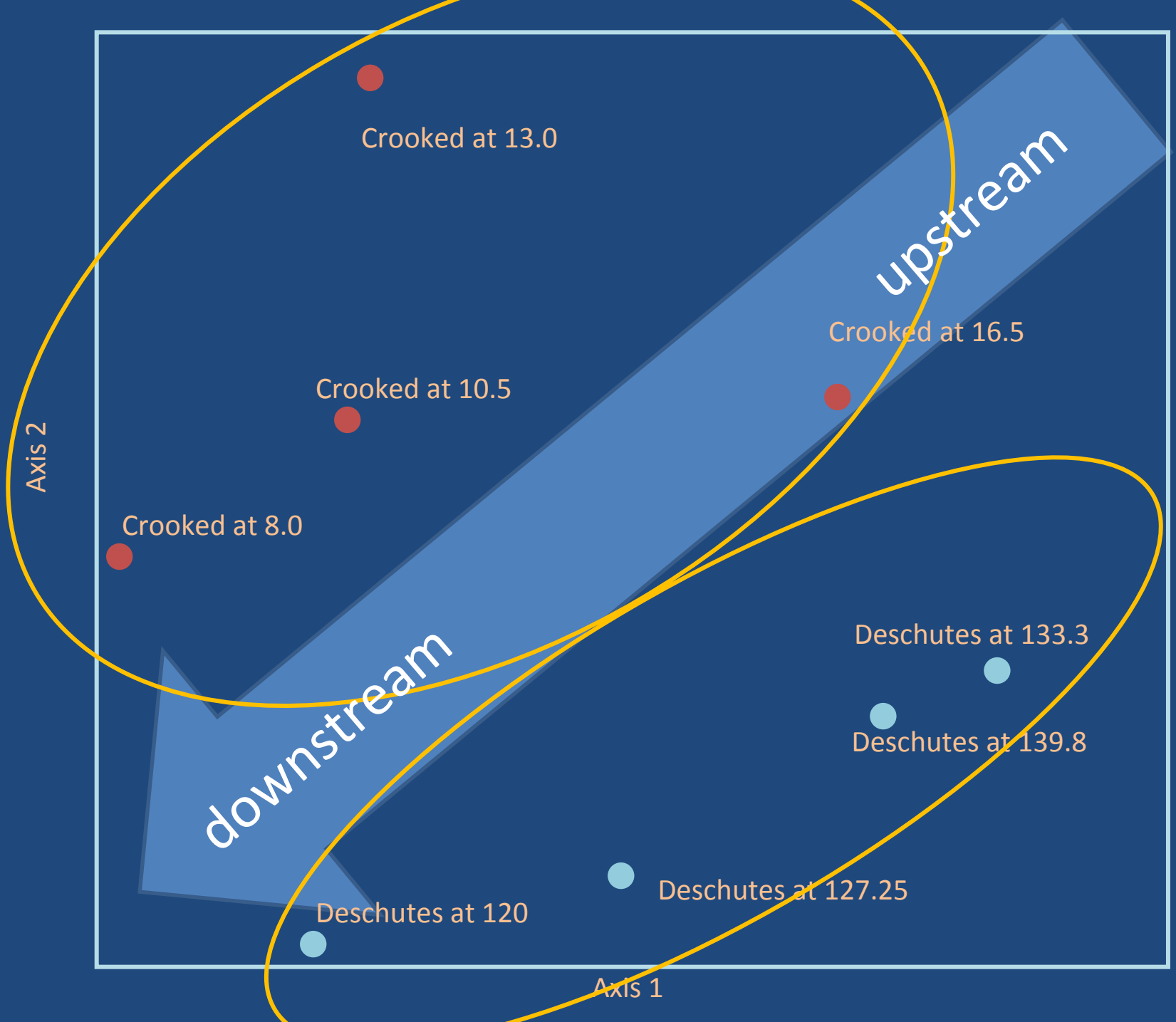
	Crooked River	Deschutes River
Annelida		
Erpobdella	X	
Helobdella	X	
Coleoptera		
Dubiraphia*	X	
Gyrinus	X	
Haliplus	X	
Helophorus	X	
Lara	X	
Microcylloepus	X	
Narpus	X	
Oreodytes	X	
Diptera		
Atherix		X
Hexatoma		X
Maruina		X
Pericoma	X	
Probezzia	X	
Tipula	X	
Ephemeroptera		
Acentrella		X
Centroptilum	X	
Drunella		X
Ephemerella		X
Maccaffertium		X
Neochoroterpes		X
Rhithrogena*		X
Stenonema	X	

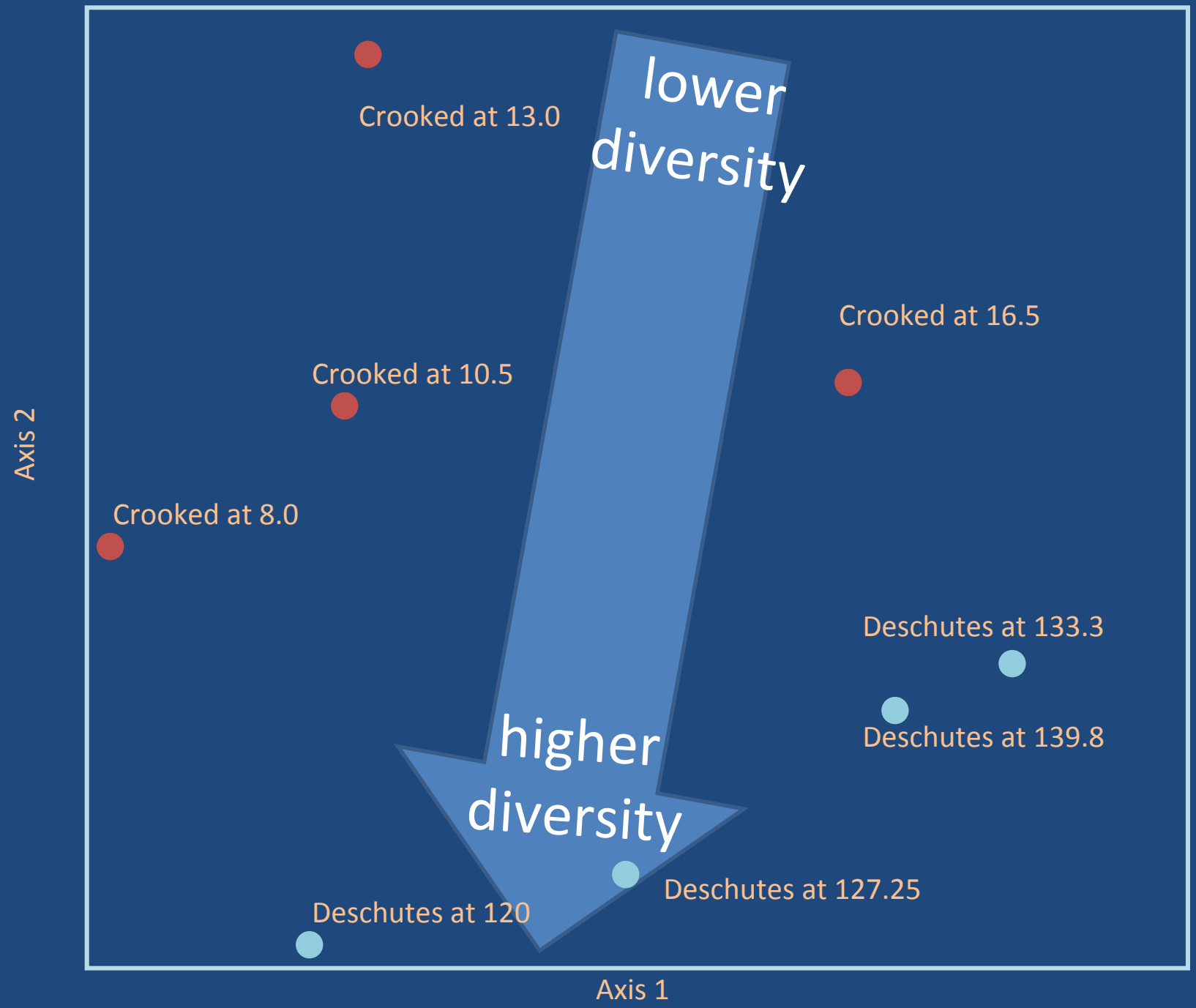
	Crooked River	Deschutes River
Heteroptera		
Sigara	X	
Megaloptera		
Sialis	X	
Lepidotpera		
Petrophila	X	
Odonata		
Calopteryx	X	
Plecoptera		
Hesperoperla		X
Isoperla		X
Malenka	X	
Skwala*		X
Sweltsa		X
Trichoptera		
Brachycentrus		X
Cheumatopsyche	X	
Dicosmoecus		X
Lepidostoma	X	
Micrasema		X
Mystacides		X
Wormaldia		X
Gastropoda		
Ferrissia	X	
Gyraulus	X	
Physa	X	
Bivalvia		
Gonidea	X	
Margaritifera		X


Abundance per square meter
2000
1750
1500
1250
1000
750
500
250
0
Crooked River
Deschutes River
Total
Ephemeroptera
Plecoptera
Trichoptera
Coleoptera
Diptera
Taxonomic group


Crooked at 13.0
Crooked at 16.5
Crooked at 10.5
Crooked at 8.0
Deschutes at 133.3
Deschutes at 139.8
Deschutes at 127.25
Deschutes at 120
Axis 2
Axis 1


Crooked at 13.0
Crooked at 16.5
Crooked at 10.5
Axis 2
Crooked at 8.0
Deschutes at 133.3
Deschutes at 139.8
Deschutes at 127.25
Deschutes at 120
Axis 1


Crooked at 13.0
upstream
Crooked at 16.5
Crooked at 10.5
Axis 2
Crooked at 8.0
Deschutes at 133.3
downstream
Deschutes at 139.8
Deschutes at 127.25
Deschutes at 120
Axis 1


lower diversity
higher diversity
Crooked at 13.0
Crooked at 16.5
Crooked at 10.5
Crooked at 8.0
Deschutes at 133.3
Deschutes at 139.8
Deschutes at 127.25
Deschutes at 120
Axis 2
Axis 1

Deschutes at River Mile 124.4

Margaritifera falcata

INCHES
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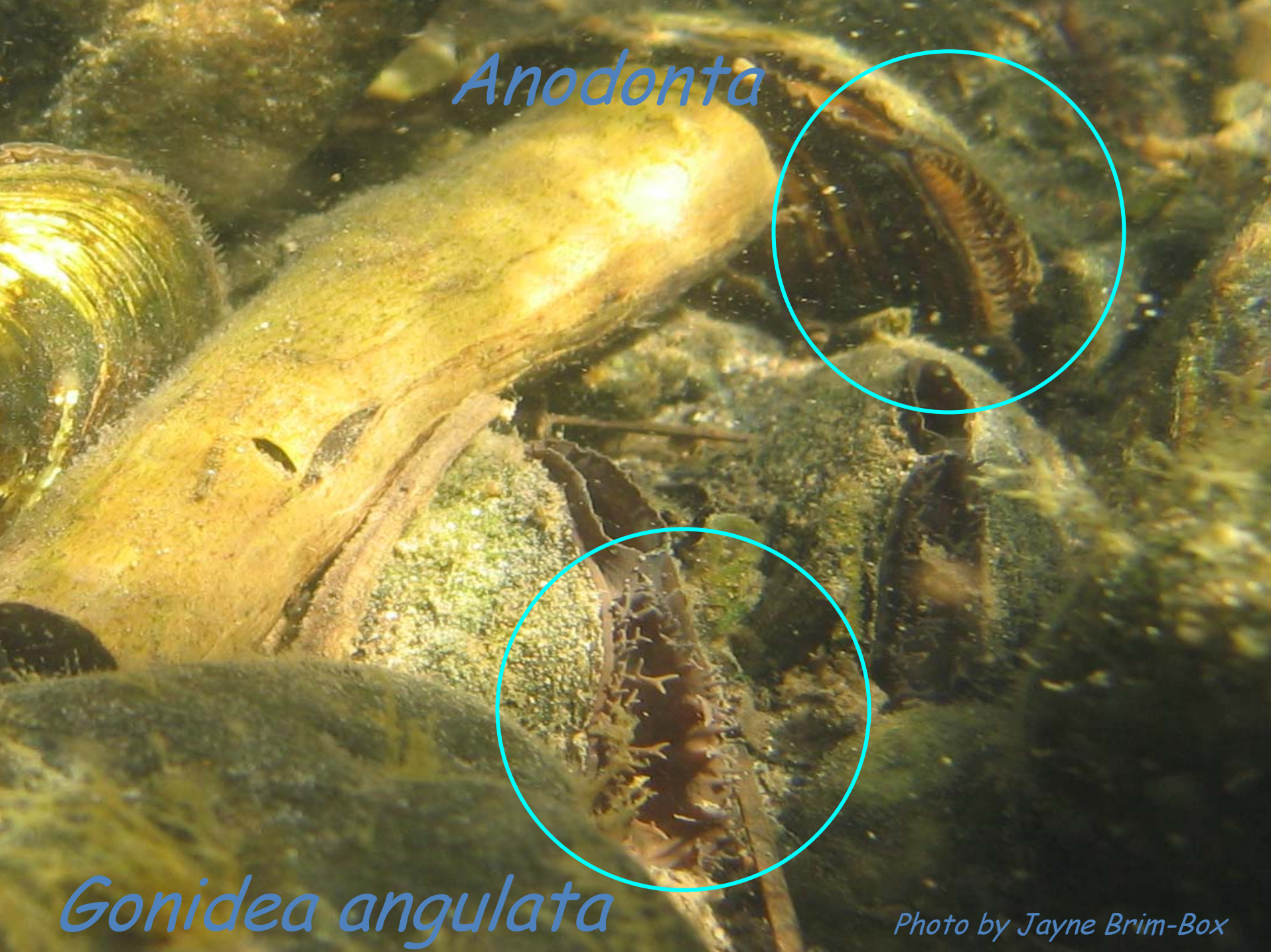
METRIC

Gonidea angulata

well
defined
ridge
Gonidea angulata

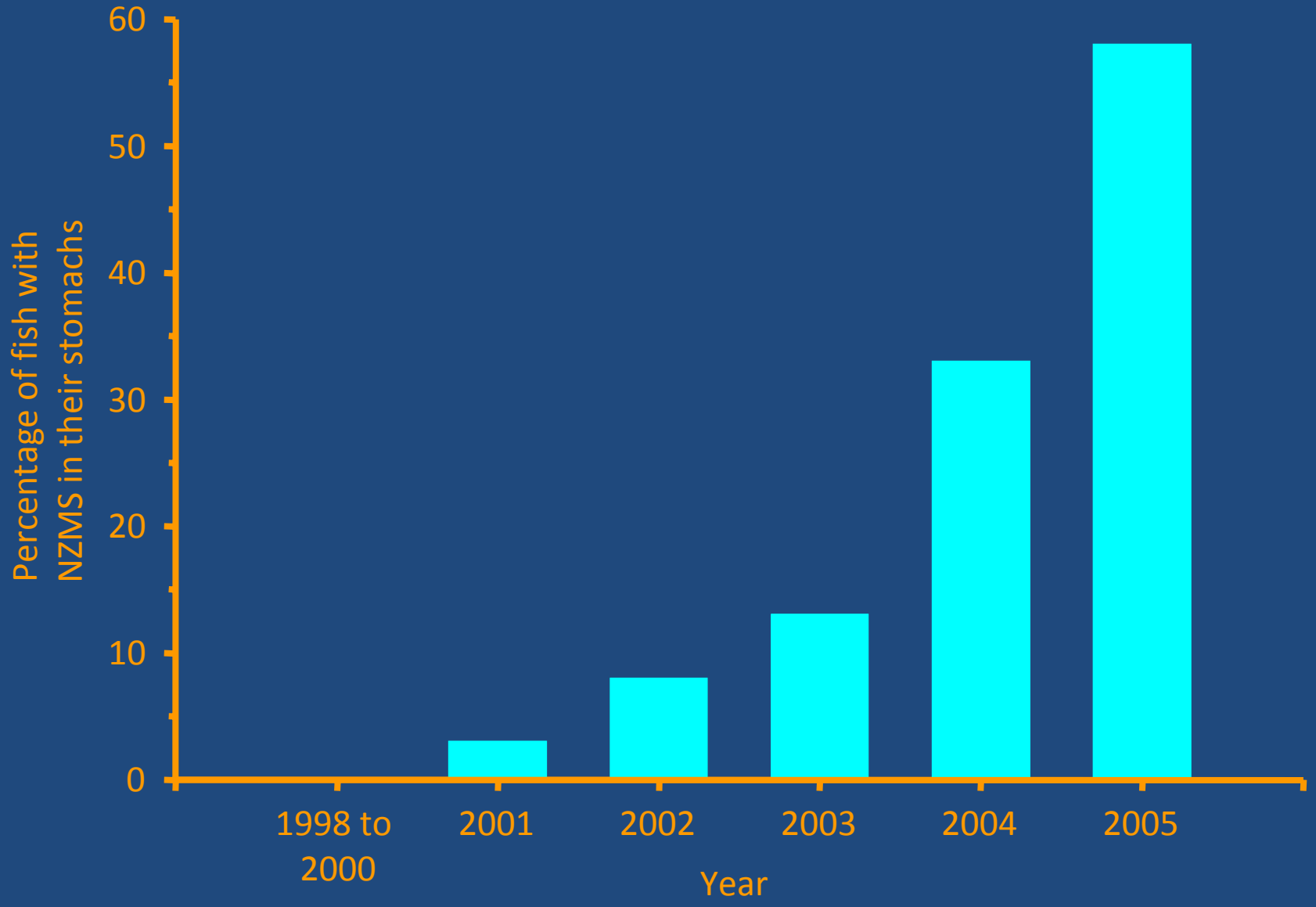

Anodonta
Gonidea angulata
Photo by Jayne Brim-Box

New Zealand Mud Snail Now Has Foothold in Deschutes River

U.S. Fish & Wildlife Service News Release

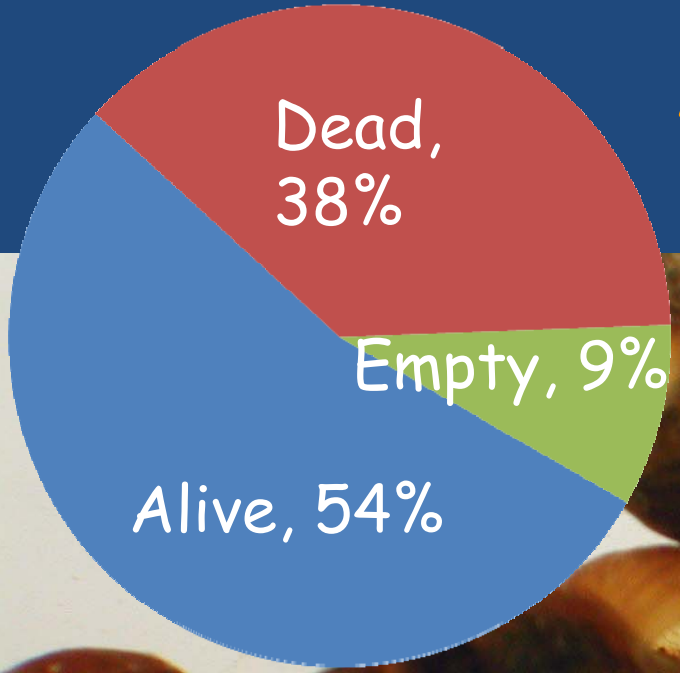
October 24, 2005

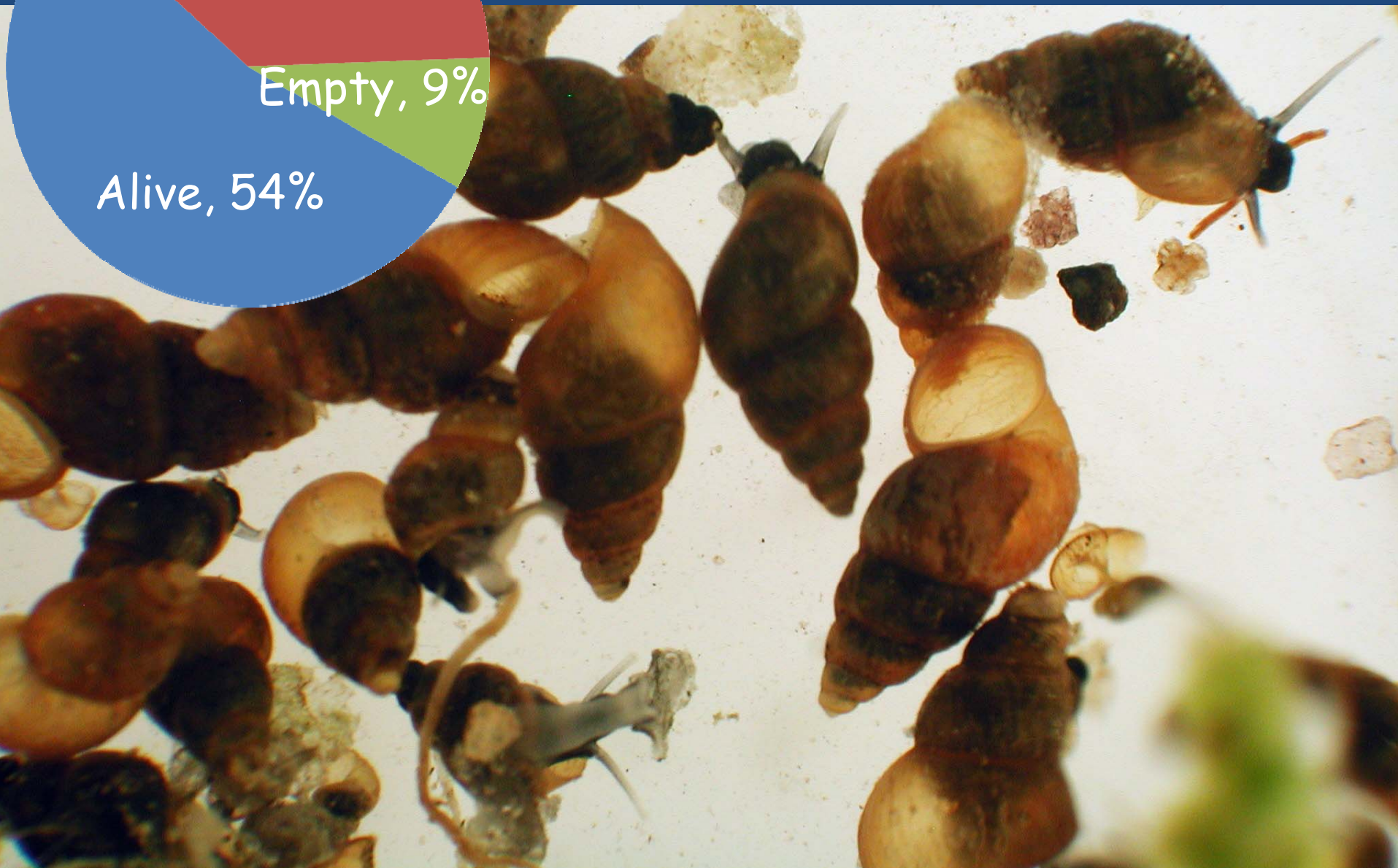
Will wild fish eat them?



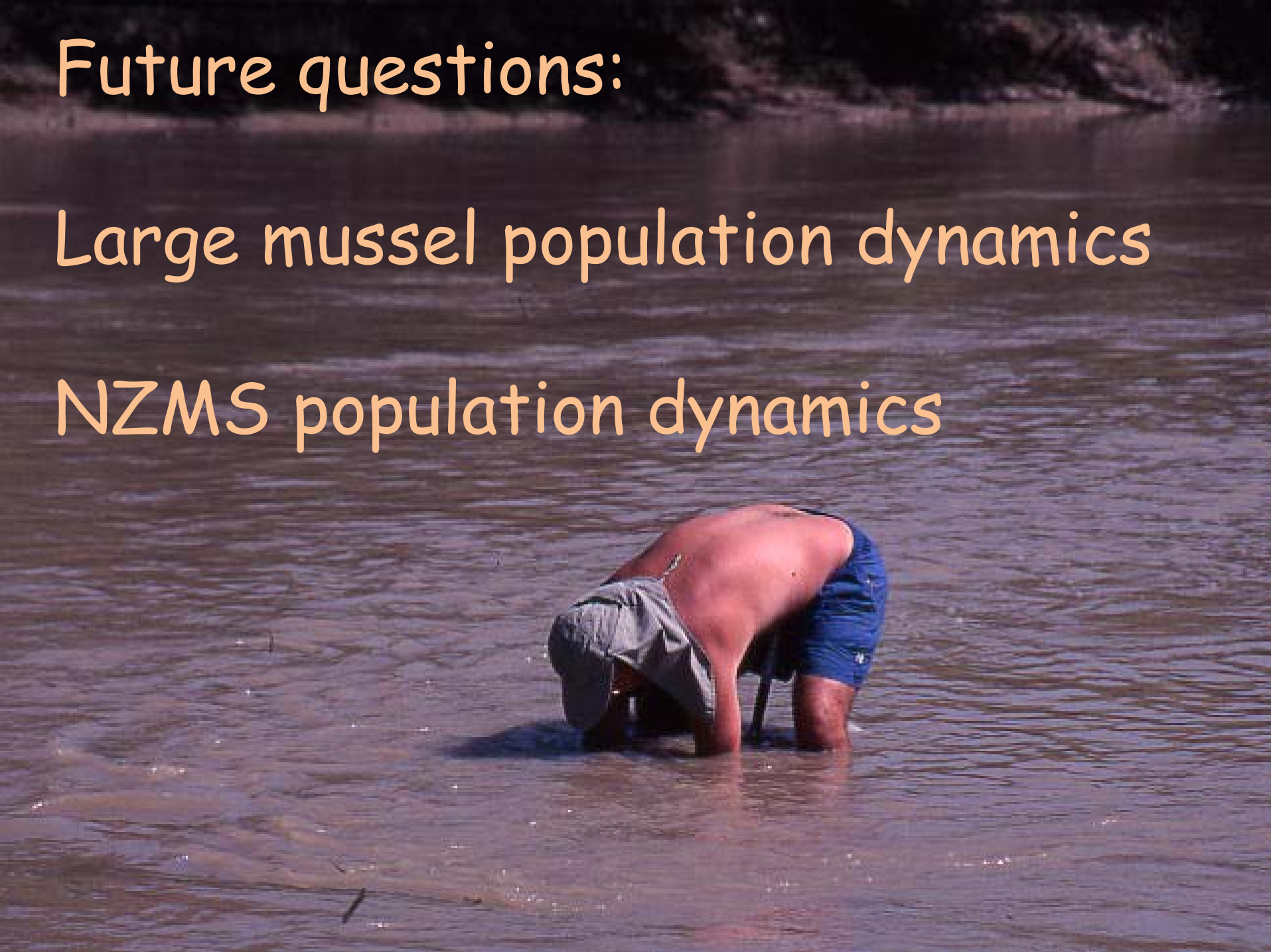
Sample size = 100 fish per year from the Green River downstream from Flaming Gorge Dam

Fate of 468 snails passing through trout's digestive tract





Future questions:

Large mussel population dynamics

NZMS population dynamics