

Jeff Sorensen

From: Heidi_Blasius@blm.gov
Sent: Thursday, April 27, 2006 1:14 PM
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Subject: Re: South Rim Gila topminnow and Desert pupfish Update
Attachments: South Rim survey 4 26 2006.doc



South Rim
 survey 4 26 2006.doc

Hi Jeff,

Roughly 50 of each species was stocked. Parson's Grove is full of Sycamore leaves that likely provide really great habitat for the inverts. Mark and I seined out six seines full of leaves and inverts. If the majority of leaves are removed along with the inverts and then managed by removal at least annually the fish would definitely have a greater chance of survival.

Heidi

Jeff

Simms/TFO/AZ/BLM/
 DOI

To

Heidi Blasius/SFO/AZ/BLM/DOI@BLM

04/27/2006 12:19

cc

PM

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Subject

Re: South Rim Gila topminnow and
Desert pupfish Update(Document
link: Heidi Blasius)

This is a very interesting field observation.

I am having the same problem at Empire Gulch which was stocked initially in 2001 and augmented multiple times since. This site is even more problematic in that it has low DO (<2ppm) as a result of a complete cover of duck weed and sluggish flow (little opportunity for gas exchange).

The data indicate that the cause of fish loss is predacious aquatic insects on the South Rim. This does not rule out handling stress, however.

In the 1980s about 200 sites were stocked and follow up indicated a high initial failure rate. No close order monitoring was performed due to the existing assumption by fishery managers that topminnow can live under just about any conditions. Clearly, predacious aquatic insects can easily capture small bodied fishes which may be capable of eliminating any new founder population before it can begin building population size. In lotic systems, these insects are largely regulated by productivity of the site, predacious fishes and abiotic disturbances (drying/flooding). These systems have not likely flooded much or dried completely during the drought (last 6 years) and there are no large bodied fishes to prey on the early instars to keep the population size in check. As a result, we have large standing biomasses of predacious aquatic insects at many of our springs that will likely consider topminnow and pupfish y-o-y and adults easy pickins'.

Before we stock topminnow and pupfish into new habitats that have a large biomass of predacious aquatic insects, we may want to consider renovating the habitat to eliminate the bulk of these insects using seines and dipnets. They are easily collected to the point where they have to start over with a population dominated by small bodied individuals (early instars) that even topminnow and pupfish can readily eat.

If we are to make the best use of the limited aquatic habitats we have, monitoring the results of transplanted populations and suspected limiting factors seems like the sensible thing to do. Perhaps this is a good topic for the next NFCT meeting.

?Question? - Heidi, how many fish did you start with at each site? What is the surface area of the available habitat that the fish spread out in?.....

Your stocking density may have been very low to begin with which accentuates the effect of limiting factors such as losses to predation or other mortality factors.

Cheers

Heidi
Blasius/SFO/AZ/BL
M/DOI

To

04/26/2006 05:33 PM
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Subject

South Rim Gila topminnow and Desert
pupfish Update

Hello,

The following attachment contains Gila topminnow and Desert pupfish results from Parson's Grove, Cement Tank, and Bleak Springs.

Thanks, Heidi

(See attached file: South Rim survey 4 26 2006.doc)

South Rim Gila topminnow and Desert pupfish surveys, April 26, 2006.

Site	Temperature (Celsius)	Conductivity (uS)	DO (mg/L)	pH	Turbidity (NTU)	Gila topminnow	Desert pupfish
Parson's Grove	12.16	444	2.69	7.01	33.3	One Female	None seined or dip-netted
Bleak Spring	15.48	469	4.05	7.03	12.9	10-both males and females	One female
Cement Tank	16.32	305	3.11	7.09	12.4	Five: 3 females / 2 males	One juvenile

Participants: Mark Haberstich, TNC, Aravaipa Creek Preserve, Mike Holloran, Retired AGFD, Heidi Blasius, BLM.

The predaceous invertebrate abundance at Parson's Grove outnumbered the one Gila topminnow we captured by at least 1000 to one. Primary predators included Lethocerus, Belastomatid, and odonates. I am cautiously optimistic that there might be other topminnows present, but believe they are being seriously suppressed by the invertebrates. I recommend that we at least restock Gila topminnow at Parson's Grove if their numbers are as low as this survey indicates. In addition, longfin dace should also be included in the next stocking to help reduce invertebrate numbers. Longfin dace would be able to prey upon small invertebrates and likely keep the numbers down. I will also try and talk to an entomologist and try and figure out why the predaceous invertebrates are so abundant at Parson's Grove and low at the other two sites. If anyone has any ideas please let me know.

At Bleak Spring and Cement Tank fish other than what we captured were observable in the water and both Gila topminnow and desert pupfish were captured at each site. Cement Tank is difficult to sample due to water depth

At Parson's Grove we seined and dip-netted, at Bleak Spring we only dip-netted, and at Cement Tank we used both methods.

If you have any questions please contact Mark or me.

Thanks, Heidi Blasius