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To: "[Blasius, Heidi B](#)"; "[brogers@tnc.org](#)"; "[brookem@email.arizona.edu](#)"; [Clayton Crowder](#); [David Boyarski](#); [Don Mitchell](#); "[Doug_Duncan@fws.gov](#)"; [Duane Aubuchon](#); "[fish.dr@asu.edu](#)"; "[Heidi_Blasius@blm.gov](#)"; [Jason Kline](#); [Jeff Sorensen](#); "[Jeff_Simms@blm.gov](#)"; "[Conn, Jeffery A](#)"; [John Bacorn](#); "[kwiley@tnc.org](#)"; "[Mary_Richardson@fws.gov](#)"; "[mhaberstich@TNC.ORG](#)"; "[pnr@email.arizona.edu](#)"; "[rclarkson@lc.usbr.gov](#)"; [Ross Timmons](#); "[Gordon, Ryan](#)"; [Sharon Lashway](#); "[swilliams@land.az.gov](#)"
Subject: Additional Summary Information of Muleshoe CMA 2011 Fish Monitoring -- Spikedace and Loach Minnow Lengths
Date: Thursday, September 22, 2011 8:51:43 AM
Attachments: [TICOMEFU_Lengths.xls](#)

All,

Attached is a file that shows the lengths and length frequencies of the spikedace and loach minnow we captured at Hot Springs Canyon. The smallest loach minnow captured was 42 mm TL, and we caught another that was 43 mm TL. So, we don't really have any clear evidence of reproduction, but these two fish are pretty borderline, as our cutoff value is 40 mm (estimate that those less than or equal to 40 mm are YOY and those greater are older fish); so it is possible that the two smaller fish were YOY. Problem is, last year a few of the fish from the hatchery that were stocked were pretty darn small (around 15 mm). Another unrelated piece of information is that loach minnow were captured in Reach 1 and 2 but not Reach 3.

We only captured 4 spikedace, all of which were likely older than YOY (56, 58, 61, and 63 mm TL). One of the spikedace was captured in Reach 3 (transect upstream of the narrows) and the others were captured in Reach 1.

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'Nothing in biology makes sense except in the light of evolution.' Theodosius Dobzhansky

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From: Blasius, Heidi B [<mailto:hblasius@blm.gov>]
Sent: Thursday, September 22, 2011 6:10 AM
To: Tony Robinson; [brogers@tnc.org](#); [brookem@email.arizona.edu](#); Clayton Crowder; David Boyarski; Don Mitchell; [Doug_Duncan@fws.gov](#); [Duane Aubuchon](#); [fish.dr@asu.edu](#); [Heidi_Blasius@blm.gov](#); [Jason Kline](#); [Jeff Sorensen](#); [Jeff_Simms@blm.gov](#); [Conn, Jeffery A](#); [John Bacorn](#); [kwiley@tnc.org](#); [Mary_Richardson@fws.gov](#); [mhaberstich@TNC.ORG](#); [pnr@email.arizona.edu](#); [rclarkson@lc.usbr.gov](#); [Ross Timmons](#); [Gordon, Ryan](#); [Sharon Lashway](#); [swilliams@land.az.gov](#)
Subject: RE: Summary of Muleshoe CMA 2011 Fish Monitoring and Recommendations for Fish Stockings

Hi Tony and all,

I agree with your recommendations regarding the stockings. I don't believe that any of the loach minnow and spikedace we collected from our three sites in Hot Springs Canyon were juveniles. Did any of the other crews collect loach minnow or spikedace that were juveniles?

Thanks, Heidi

From: Tony Robinson [<mailto:TRobinson@azgfd.gov>]
Sent: Wednesday, September 21, 2011 12:16 PM
To: [brogers@tnc.org](#); [brookem@email.arizona.edu](#); Clayton Crowder; David Boyarski; Don Mitchell; [Doug_Duncan@fws.gov](#); [Duane Aubuchon](#); [fish.dr@asu.edu](#); [Heidi_Blasius@blm.gov](#); [Jason Kline](#); [Jeff Sorensen](#); [Jeff_Simms@blm.gov](#); [Conn, Jeffery A](#); [jeprice@coastal.edu](#); [John Bacorn](#); [kwiley@tnc.org](#); [Mary_Richardson@fws.gov](#); [mhaberstich@TNC.ORG](#); [pnr@email.arizona.edu](#); [rclarkson@lc.usbr.gov](#); [Ross Timmons](#); [Gordon, Ryan](#); [Sharon Lashway](#); [swilliams@land.az.gov](#)
Subject: Summary of Muleshoe CMA 2011 Fish Monitoring and Recommendations for Fish Stockings

All,

Here is short narrative of the T&E species and a tabular summary of all of the fishes we captured during the Muleshoe

CMA fish monitoring Sept 14-17, 2011. Think about the results and my suggestions for stocking this year (Oct 17 or 18) and reply with your thoughts.

Secret Spring: Gila topminnow continue to be abundant and relatively few desert pupfish were captured. Catch was pretty typical of past monitoring efforts. Suggest that topminnow or pupfish do not need to be stocked this year, as our goals have been achieved.

Headquarter Spring: No topminnow or pupfish were captured. Several rain events in the week prior to the monitoring resulted in at least one small flood event down most of the streams. Bob Rogers indicated that topminnow were visible in Headquarters Spring earlier this summer, but none were captured or observed during our monitoring (after the flood). Because this site is prone to being flooded through during modestly high flood events, I suggest we do not stock it again. We can focus on trying to establish topminnow and pupfish in more secure locations.

Larry&Charlie Spring: Desert pupfish were fairly abundant. Probably do not need to stock again this year, as our goals seem likely to have been achieved.

Cherry Spring: No desert pupfish were captured. Few Gila topminnow were captured. However, Gila topminnow were also observed about a third of a mile downstream in a large tinaja pool (at about NAD83 565445, 3586938) below a waterfall. They probably got washed down during a flood event earlier in the week or summer. Topminnow continue to persist, so suggest that they do not need to be stocked again this year. Also suggest that desert pupfish not be stocked again.

Swamp Springs Canyon: No pupfish were captured; similar to 2009 and 2010. Topminnow were fairly abundant in the upper reach and lower reach. Suggest that topminnow do not need to be stocked this year. Also suggest that pupfish not be stocked again.

Redfield Canyon: One spikedace and one loach minnow were captured. Given the low catch rates this year and in the past, it seems like neither species is taking, so maybe they should not be stocked this year.

Hot Springs Canyon: Four spikedace and 26 loach minnow were captured. Catch was a bit down from last year, but that was likely because we only single-pass electrofished, and a flood had recently occurred. We can probably complete one more year of stocking of the two species as was originally planned.

Water	Gila topminnow	Desert pupfish	Spikedace	Loach minnow	Longfin dace	Speckled dace	Gila chub	Sonora sucker	Desert sucker	Green sunfish
Secret Spring	3702	9								
Headquarters Spring	0	0								
Larry&Charlie Spring		54								
Cherry Spring Canyon	15	0								
Swamp Springs (upper)	533	0			881					
Swamp Springs (lower)	716	0			584					
Redfield Canyon	1		1	1		90	134	57		1
Hot Springs Canyon			4	26	101	211	44	9	34	

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