

Table S1. Habitat assessment field data sheet used in each sampling site of *Tlaloc hildebrandi* obtained from Barbour et al. (1991).

Site name:				
Date:			Time:	
Form completed by:				
Weather conditions:				
Habitat parameter	Condition category			
	Optimal	Suboptimal	Marginal	Poor
Epifaunal substrate / available cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient.)	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient.)	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient.)	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient.)
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Embeddedness	Gravel, cobble, and boulder particles are surrounded by 0-25% of fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are surrounded by 25-50% of fine sediment.	Gravel, cobble, and boulder particles are surrounded by 50-75% of fine sediment.	Gravel, cobble, and boulder particles are surrounded by more than 75% of fine sediment

Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Velocity / Depth Regime	All four velocity / depth regimes present (slow-deep, slow shallow, fast deep, fast shallow). (Slow is < 0.3m/s, deep is>0.5m.)	Only 3 of the 4 regimes present (if fast shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast shallow or slow shallow are missing, score low).	Dominated by 1 Velocity /depth regime (Usually slow-deep)
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and /or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between	Occurrence of riffles infrequent; distance between riffle divided	Occasional riffle or bend; bottom contours provide some habitat;	Generally all flat water or shallow riffles; poor habitat; distance

	riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	by the width of the stream is between 7 to 15.	distance between riffles divided by the width of the stream is between 15 to 25.	between riffles divided by the width of the stream is a ratio of >25.
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Bank Stability	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. < 5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0
Vegetative Production	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs or non woody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants	70-90% of the streambank surfaces covered by native vegetation, but one class of plants are not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential	50-70-% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.

	allowed to grow naturally.	plant stubble height remaining.						
Score Left Bank	10 9	8 7 6	5 4 3	2	1	0		
Score Right Bank	10 9	8 7 6	5 4 3	2	1	0		
Riparian Vegetative Zone Width	Width of riparian zone > 18meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.					
Score Left Bank	10 9	8 7 6	5 4 3	2	1	0		
Score Right Bank	10 9	8 7 6	5 4 3	2	1	0		
TOTAL SCORE =								

Barbour MT, Gerritsen J, Snyder BD, Stribling JB (1991) *Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates, and fish* (Second Edn). EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water. <https://www3.epa.gov/region1/npdes/merrimackstation/pdfs/ar/AR-1164.pdf>

Table S2. Variable loadings for the two first principal components of PCA of environmental variables in sampling sites of *Tlaloc hildebrandi*. Variables with loadings higher are depicted with an asterisk.

	PC1	PC2
Temperature	-0.328	-0.136
pH	-1.058*	0.572
Conductivity	1.321*	0.166
Total solid dissolved (TDS)	1.161*	0.298
Dissolved oxygen (DO)	-0.935*	-0.643*
Depth	-0.465	-0.926*
Current velocity	-0.524	0.842*
Transparency	-0.092	-1.134*
Habitat quality	-1.014*	0.689*
Eigenvalue	3.621	2.263
Variance explained (%)	40.23	25.15

Table S3. Jolly-Seber (POPAN) models selected for *Tlaloc hildebrandi* populations. Parameters marked as a dot were constant.

Site	Model	AIC _c	Delta AIC _c	No. Parameters	Deviance	Model selected
Fogótico River	p (t) * phi (.) * pent (t) * N (t)	205.15	0.00	14	-183.60	
	p (.) * phi (.) * pent (t) * N (t)	206.53	1.38	7	-164.20	*
	p (.) * phi (t) * pent (t) * N (t)	212.91	7.76	14	-179.84	
	p (t) * phi (t) * pent (t) * N (t)	218.04	12.89	20	-188.89	
Amarillo River	p (.) * phi (.) * pent (t) * N (t)	229.55	0.00	6	-174.25	*
	p (t) * phi (.) * pent (t) * N (t)	233.21	3.67	14	-190.62	
	p (.) * phi (t) * pent (t) * N (t)	236.98	7.44	12	-181.50	
	p (t) * phi (t) * pent (t) * N (t)	246.04	16.49	20	-195.49	
Ojo de Agua Stream	p (.) * phi (.) * pent (t) * N (t)	480.85	0.00	3	-289.41	*
	p (.) * phi (t) * pent (t) * N (t)	489.80	8.95	9	-293.33	
	p (t) * phi (.) * pent (t) * N (t)	493.39	12.54	12	-296.50	
	p (t) * phi (t) * pent (t) * N (t)	501.78	20.93	17	-299.89	
Navajuelos Stream	p (.) * phi (.) * pent (t) * N (t)	96.14	0.00	5	-45.67	*
	p (t) * phi (.) * pent (t) * N (t)	102.96	6.83	9	-51.58	
	p (.) * phi (t) * pent (t) * N (t)	109.29	13.16	10	-49.04	
	p (t) * phi (t) * pent (t) * N (t)	119.82	23.68	13	-51.88	

Table S4. Values of probability of apparent survival (ϕ), probability of capture (p) and probability of entry ($pent$) obtained from selected models to *T. hildebrandi*.

Site	Parameter	Value estimated	Upper limit	Lower limit
Fogótico River	Phi	0.91	0.94	0.86
	p	0.21	0.32	0.13
	pent2	0.21	0.52	0.06
	pent3	0.00	0.00	0.00
	pent4	0.00	0.00	0.00
	pent5	0.00	1.00	0.00
	pent6	0.04	0.32	0.00
	pent7	0.12	0.34	0.04
	pent8	0.08	0.39	0.01
Amarillo River	Phi	0.94	0.96	0.89
	p	0.17	0.27	0.10
	pent2	0.00	0.00	0.00
	pent3	0.09	0.56	0.01
	pent4	0.00	0.00	0.00
	pent5	0.00	0.00	0.00
	pent6	0.25	0.43	0.13
	pent7	0.00	0.00	0.00
	pent8	0.06	0.56	0.00
Ojo de Agua Stream	Phi	0.96	0.97	0.95
	p	0.18	0.22	0.15
	pent2	0.00	0.00	0.00
	pent3	0.00	0.00	0.00
	pent4	0.00	1	0.00
	pent5	0.00	1	0.00
	pent6	0.00	0.00	0.00
	pent7	0.00	0.00	0.00
	pent8	0.00	0.00	0.00
Navajuelos Stream	Phi	0.93	0.98	0.82
	p	0.12	0.28	0.05
	pent2	0.00	0.00	0.00
	pent3	0.14	0.86	0.00
	pent4	0.16	0.80	0.01
	pent5	0.00	0.00	0.00
	pent6	0.00	0.00	0.00
	pent7	0.00	1	0.00