APPENDIX 7E

SUPPLEMENTAL CORRELATIONS FOR THE SOUTHERN STUDY AREA

Table 1. Description of variables used in correlation analyses
Southern Study Area

Variable code	Varible description	Transformation
SITE	Station name	na
HABITAT	Habiatat type	na
CTS10TR	Survival *C. tentans*, 10-day, percent	arsince squareroot transformation of proportion
HAS10TR	Survival *H. azteca*, 10-day, percent	arsince squareroot transformation of proportion
CTGR10	Growth *C. tentans*, 10-day, mg	untransformed
HAGR10	Growth *H. azteca*, 10-day, mg	untransformed
CTS20TR	Survival *C. tentans*, 20-day, mg	arsince squareroot transformation of proportion
HAS42TR	Survival *H. azteca*, 42-day, mg	arsince squareroot transformation of proportion
CTGR20	Growth *C. tentans*, 20-day, mg	untransformed
HAGR28	Growth *H. azteca*, 28-day, mg	untransformed
PEMERGT	Percent emergence, *C. tentans*	arsince squareroot transformation of proportion
AS	Sediment Arsenic, mg/kg	untransformed
LOGAS	Sediment Arsenic, mg/kg	log transformed
ASFE	Ratio of sediment arsenic to iron, unitless	untransformed
LOGASFE	Ratio of sediment arsenic to iron, unitless	log transformed
PEC	Probable effects concentration quotient[1]	untransformed

na not applicable

[1] PEC quotients are the mean values for (sediment concentration)/(PEC), where PEC is the Probable Effects Concentration (MacDonald et al., 2000). The PEC quotient represents the mean quotient for the seven metals identified in the BERA (M&E, 2004) as contributing to toxicity and include: arsenic, cadmium, chromium, copper, lead, mercury, and zinc.

TABLE 2. DATA UTILIZED IN CORRELATION ANALYSIS[1]

SITE	HABITAT	CTS10TR	HAS10TR	CTGr10	HAGr10	CTS20TR	HAS42TR	CTG20	HAGR28	PEMERGT	AS	LOGAS	ASFE	LOGASFE	PEC
WH	wetland	1.233	1.345	1.06	0.114	1.047	1.233	2.04	0.37	1.146	25.6	3.243	1.954	0.670	2.8
22	wetland	1.159	1.159	1.01	0.12	1.146	1.146	1.8	0.58	1.047	12.6	2.534	3.807	1.337	4.5
12	stream	1.303	1.323	0.67	0.097	0.886	1.233	1.43	0.3	0.775	958.0	6.865	10.127	2.315	8.3
TT29	stream	1.249	1.345	0.95	0.102	1.369	1.159	1.2	0.3	0.886	747.0	6.616	10.154	2.318	11.2
19	wetland	1.107	1.571	0.97	0.103	0.917	1.249	2	0.4	0.959	4250.0	8.355	16.473	2.802	20.8
TT33	wetland	1.217	1.369	0.99	0.106	1.095	1.173	1.4	0.39	1.024	221.0	5.398	6.387	1.854	2.3
TT32	wetland	1.323	1.429	0.89	0.096	1.047	1.059	1.3	0.36	1.013	313.0	5.746	9.399	2.241	3.6
WW	wetland	1.323	1.571	1.16	0.113	1.369	1.249	1.7	0.43	1.120	4.4	1.482	0.522	-0.650	9.4
18	stream	1.303	1.571	0.9	0.108	0.938	1.146	1.9	0.28	0.917	1490.0	7.307	12.417	2.519	11.7
10	stream	0.876	1.471	0.81	0.12	0.705	1.249	2.5	0.27	0.685	2180.0	7.687	46.681	3.843	15.5
13	wetland	1.266	1.233	0.55	0.098	0.846	0.991	1.7	0.29	0.991	353.0	5.866	6.935	1.937	4.2
TT30	stream	1.107	1.571	0.85	0.119	1.173	1.323	1.7	0.25	0.886	541.0	6.293	10.505	2.352	7.7
03IP	pond	1.323	1.083	1.37	0.13	0.846	1.159	3	0.43	0.664	34.4	3.538	1.242	0.217	1
SA	wetland	1.059	1.571	1.4	0.157	0.846	1.323	2.4	0.39	0.917	27.2	3.303	1.124	0.117	0.9
01IP	stream	1.323	1.345	1.35	0.14	0.866	1.107	2.4	0.3	0.825	27.8	3.325	1.433	0.360	0.7
04IP	stream	1.369	1.429	1.14	0.122	0.886	1.187	2.7	0.37	0.815	44.5	3.795	0.862	-0.148	2
HB	wetland	0.524	1.429	1.73	0.138	0.247	1.217	3	0.47	0.398	16.2	2.785	0.695	-0.363	0.5
6	pond	1.345	1.429	1.04	0.106	0.398	1.159	2.6	0.35	0.305	67.3	4.209	3.220	1.169	1.7
UF	pond	1.187	1.471	1.24	0.133	1.024	1.217	2.1	0.32	0.745	177.5	5.179	3.769	1.327	5.2
4	pond	1.345	1.323	0.91	0.129	0.825	1.187	2.7	0.33	0.535	128.0	4.852	2.949	1.082	2.9

[1] See Table 1 for variable codes and units

TABLE 3. STATISTICAL ANALYSIS OF BENTHIC INVERTEBRATE TOXICITYAND CHEMISTRY DATA: CORRELATIONS
SOUTHERN STUDY AREA

	AS	LOGAS	ASFE	LOGASFE	PEC
CTS10TR	-0.187	-0.003	-0.306	-0.028	-0.106
HAS10TR	0.376	0.252	0.231	0.127	0.430
CTGR10	-0.337	-0.645	-0.461	-0.738	-0.451
HAGR10	-0.344	-0.520	-0.261	-0.565	-0.441
CTS20TR	-0.009	0.050	-0.052	0.138	0.282
HAS42TR	0.198	-0.023	0.139	-0.080	0.251
CTG20	-0.135	-0.369	-0.111	-0.480	-0.346
HAGR28	-0.204	-0.629	-0.407	-0.504	-0.257
PEMERGT	0.094	0.009	-0.023	0.109	0.235

Matrix of Probabilities (UNCORRECTED)

	AS	LOGAS	ASFE	LOGASFE	PEC
CTS10TR	0.430	0.989	0.190	0.908	0.658
HAS10TR	0.102	0.284	0.327	0.595	0.059
CTGR10	0.147	**0.002**	**0.041**	**0.000**	**0.046**
HAGR10	0.138	**0.019**	0.267	**0.009**	0.051
CTS20TR	0.971	0.835	0.829	0.562	0.228
HAS42TR	0.403	0.925	0.560	0.738	0.286
CTG20	0.570	0.110	0.641	**0.032**	0.135
HAGR28	0.387	**0.003**	0.075	**0.023**	0.274
PEMERGT	0.694	0.970	0.924	0.646	0.318

Number of observations: 20
Bold values are probabilities < 0.05

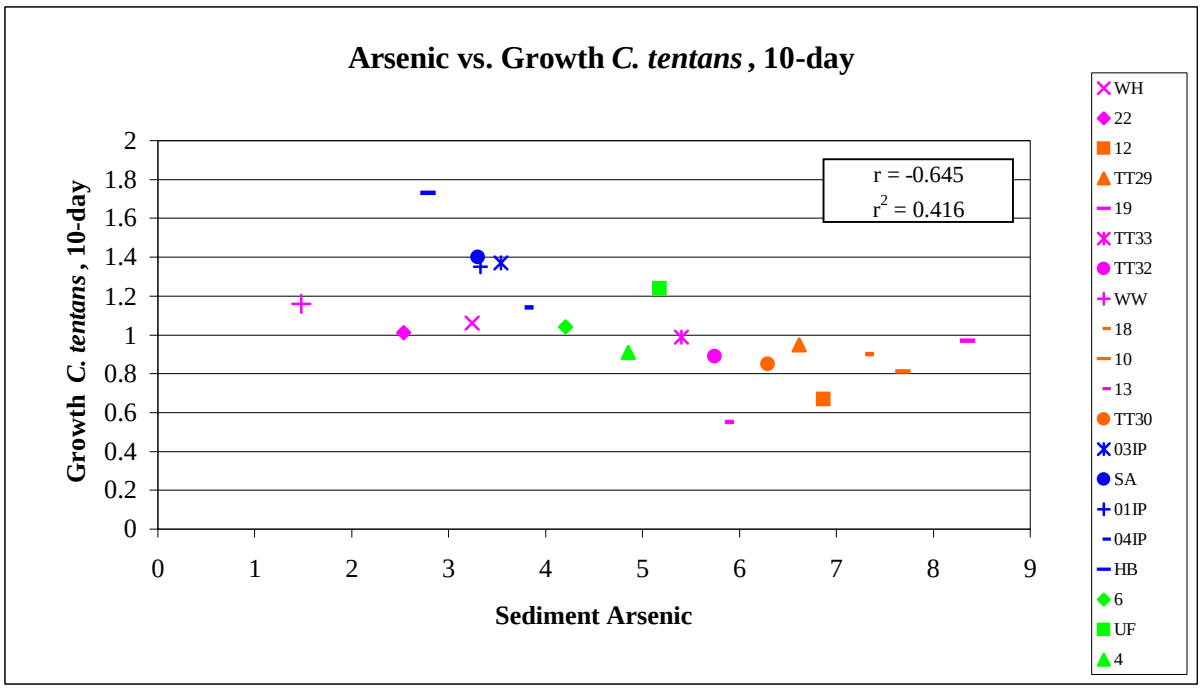

Figure 1. Comparison of growth of *C. tentans* (mean weight, mg) in 10-day toxicity tests to sediment arsenic concentration (log transformed).

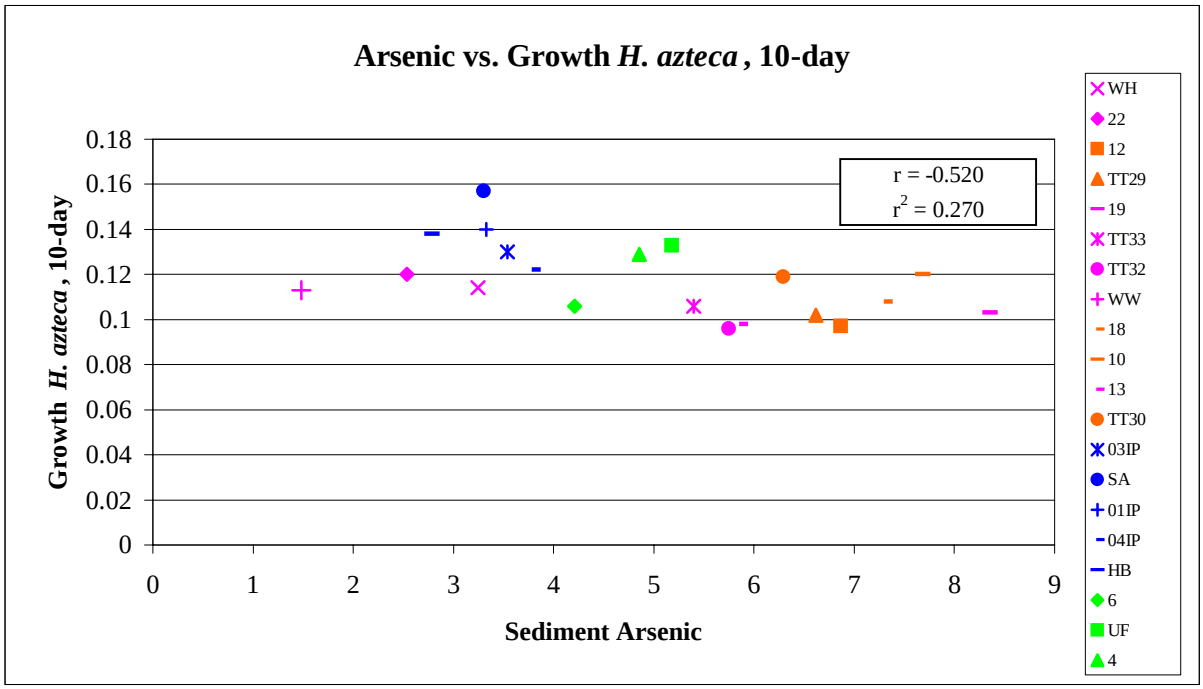

Figure 2. Comparison of growth of *H. azteca* (mean weight, mg) in 10-day toxicity tests to sediment arsenic concentration (log transformed).

Symbol colors:
pink = wetlands, orange = stream, green = pond, blue = reference

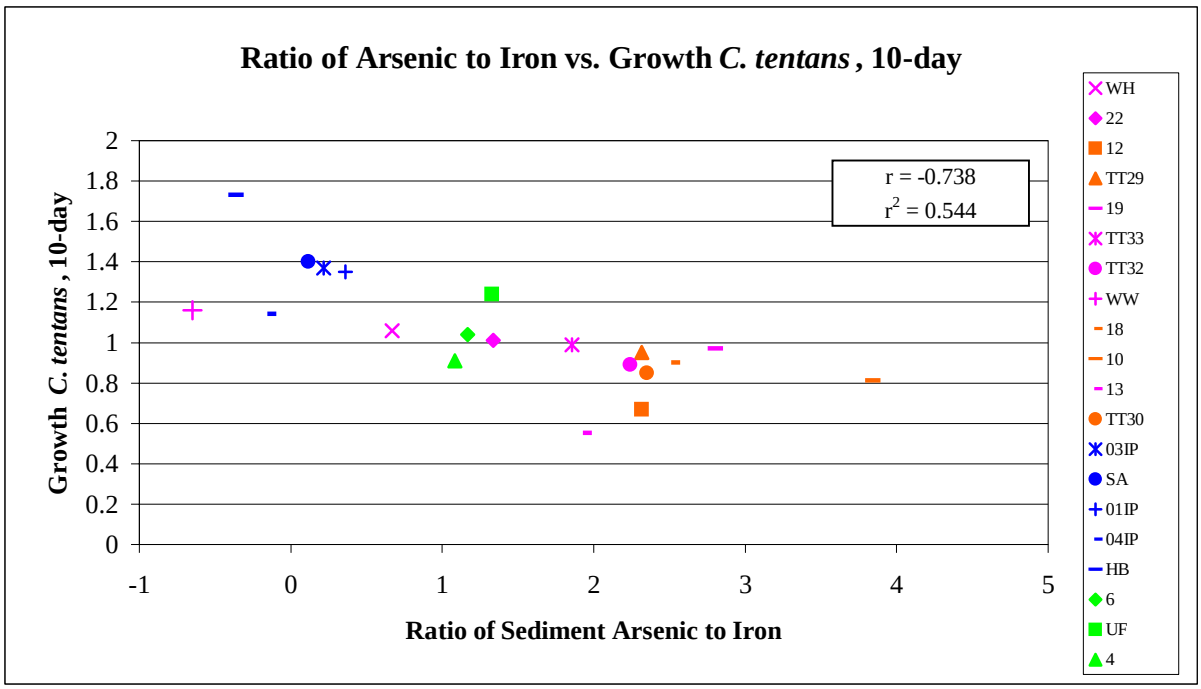

Figure 3. Comparison of growth of *C. tentans* (mean weight, mg) in 10-day toxicity tests to the ratio of sediment arsenic concentration to sediment iron concentration (log transformed).

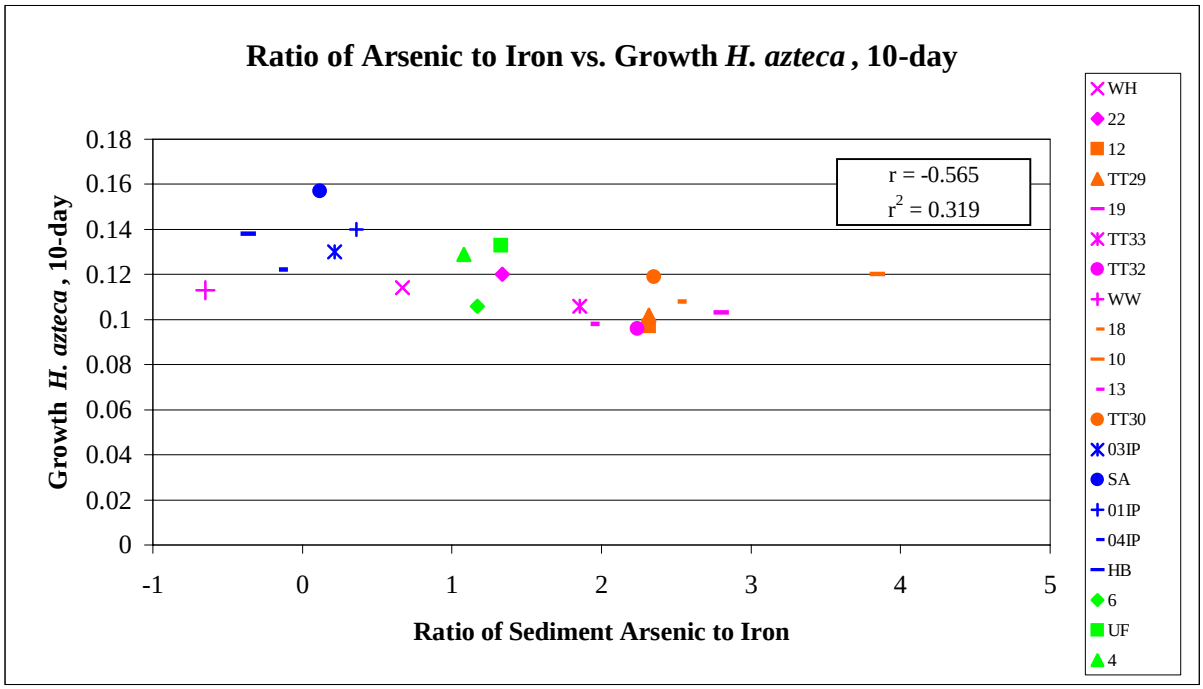

Figure 4. Comparison of growth of *H. azteca* (mean weight, mg) in 10-day toxicity tests to the ratio of sediment arsenic concentration to sediment iron concentration (log transformed).

Symbol colors:
pink = wetlands, orange = stream, green = pond, blue = reference

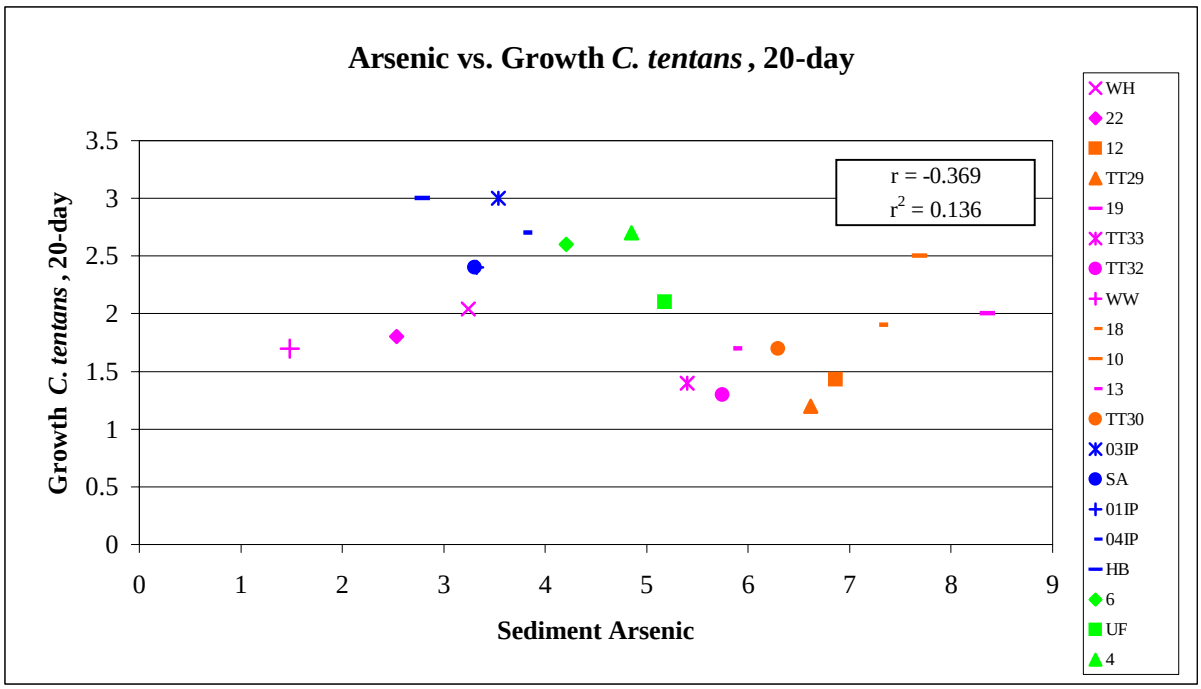

Figure 5. Comparison of growth of *C. tentans* (mean weight, mg) in 20-day toxicity tests to sediment arsenic concentration (log transformed).

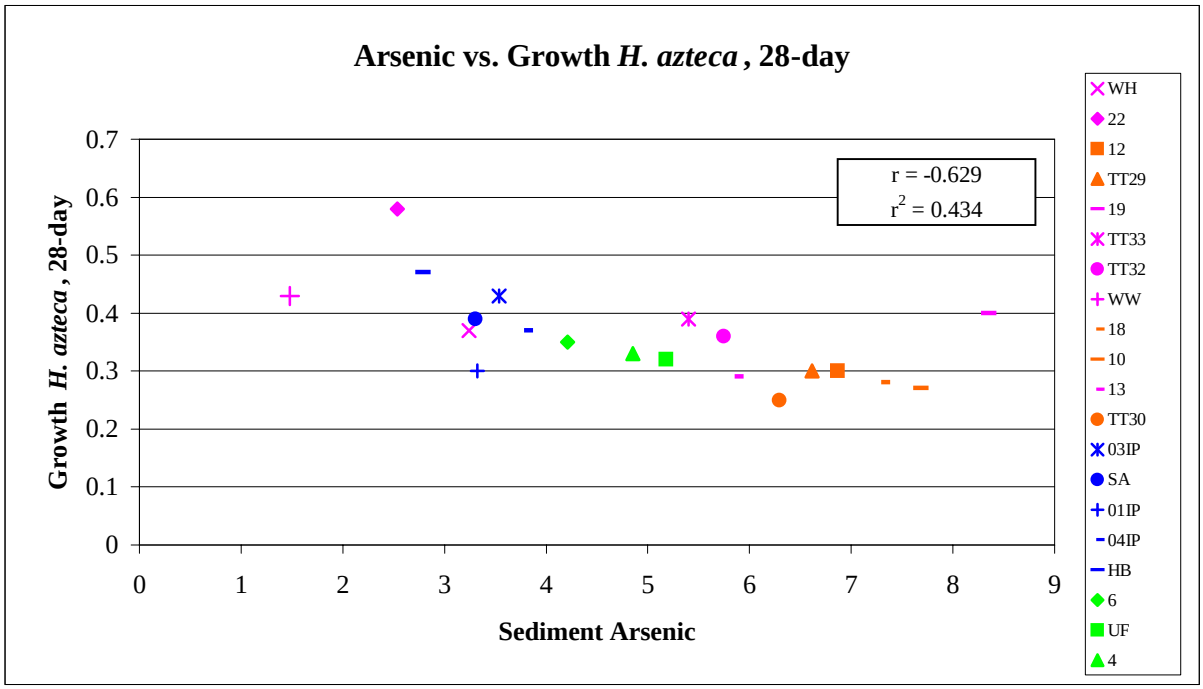

Figure 6. Comparison of growth of *H. azteca* (mean weight, mg) in 28-day toxicity tests to sediment arsenic concentration (log transformed).

Symbol colors:
pink = wetlands, orange = stream, green = pond, blue = reference

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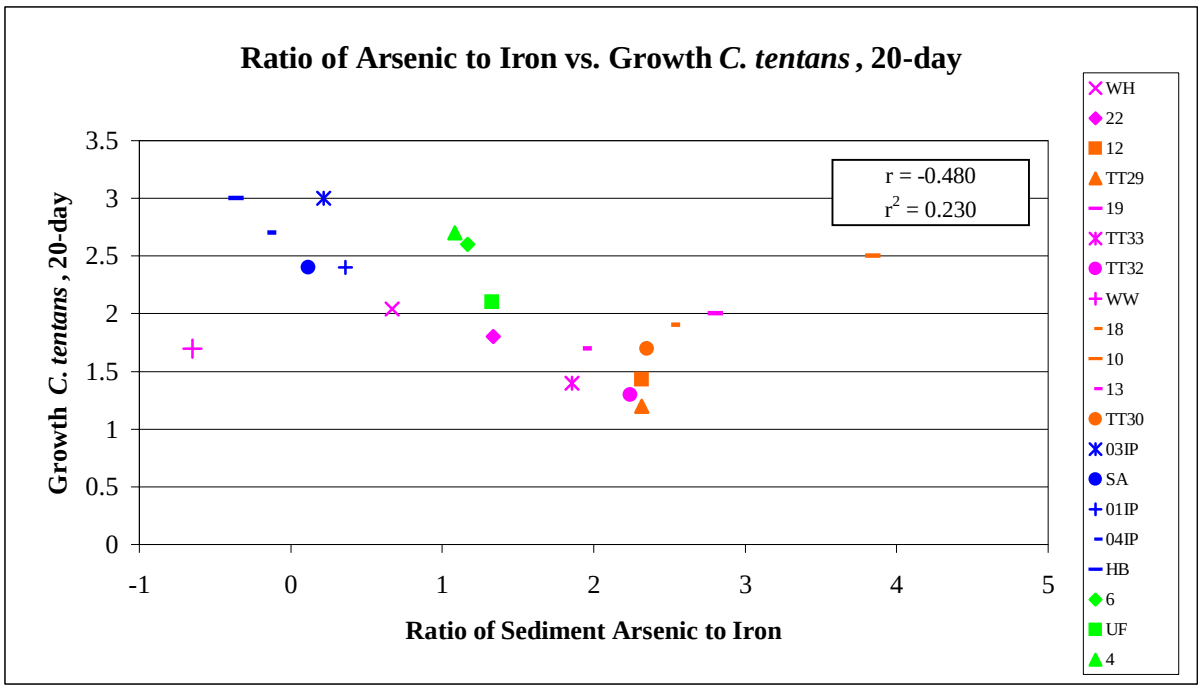

Figure 7. Comparison of growth of *C. tentans* (mean weight, mg) in 20-day toxicity tests to the ratio of sediment arsenic concentration to sediment iron concentration (log transformed).

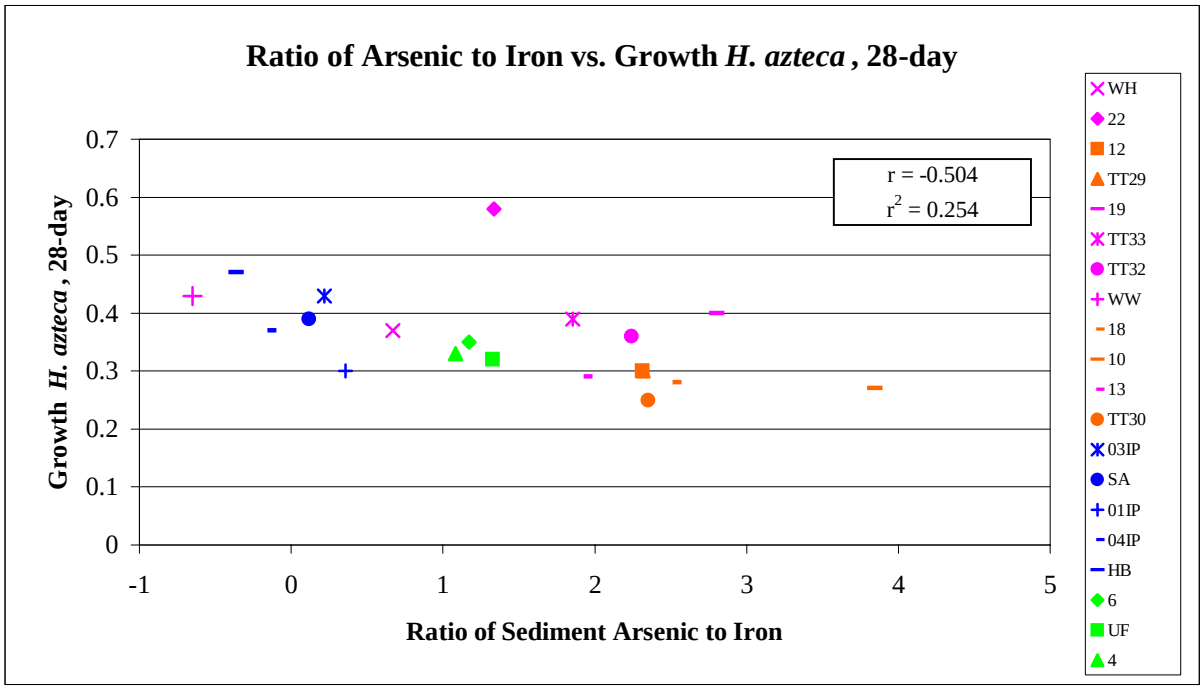

Figure 8. Comparison of growth of *H. azteca* (mean weight, mg) in 28-day toxicity tests to the ratio of sediment arsenic concentration to sediment iron concentration (log transformed).

Symbol colors:
pink = wetlands, orange = stream, green = pond, blue = reference