

The Nature Conservancy (TNC)- Oklahoma Chapter's Freshwater Conservation Program

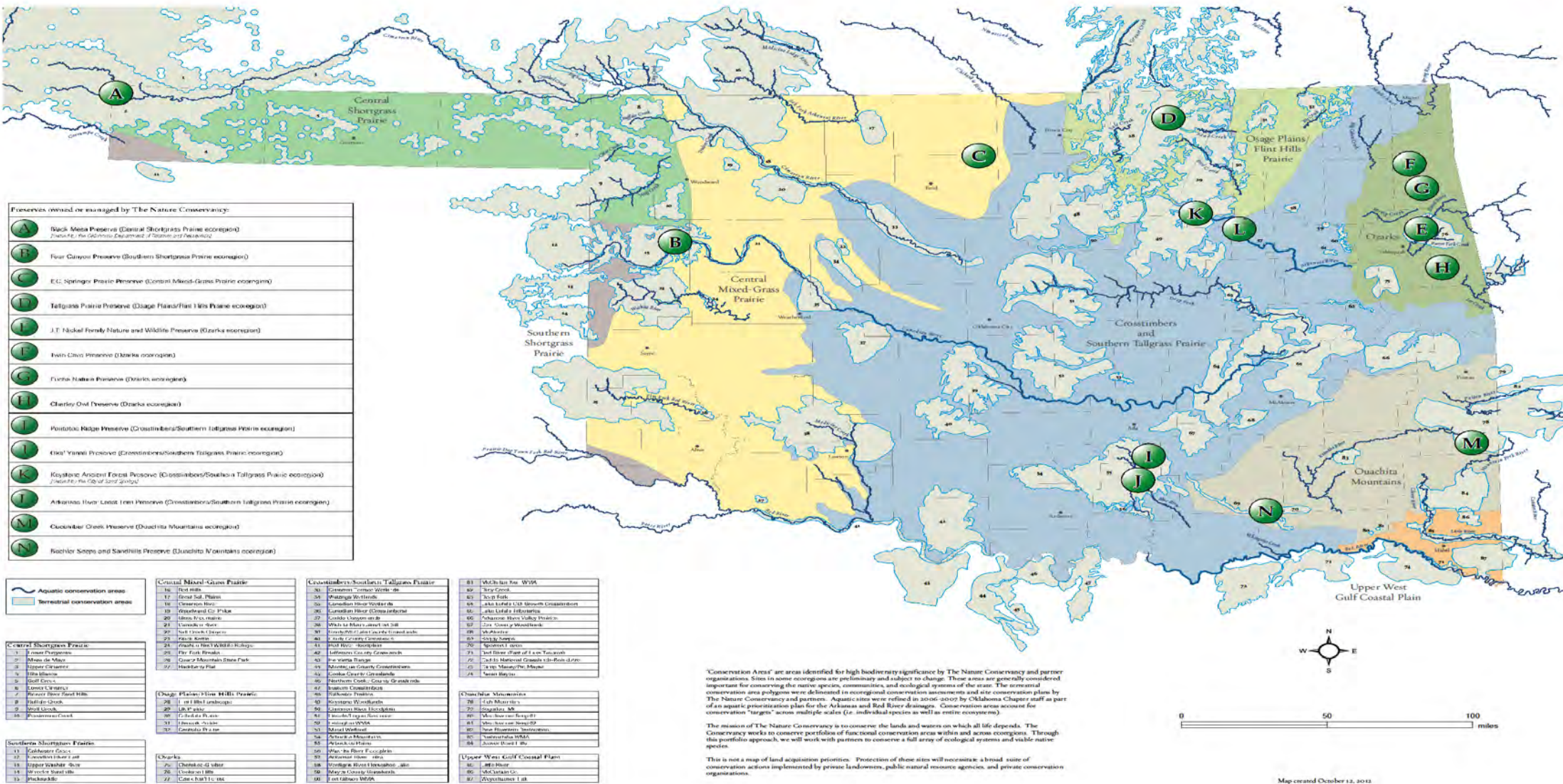


- Overview of Program
- Aquatic Monitoring Plans and Results
- Educational Opportunities
- Future of Program

Overview of Freshwater Conservation Program

- Program started in June 2012
- 1 Full-Time Statewide Staff Person
- Aquatic monitoring at 6 preserves in almost 6 years
- Preserve staff and ODWC provide assistance in data collection
- Baseline data collection for TNC internal purposes
- Focus on instream flow riverine components for aquatic monitoring plans
- Blue River water quantity, water quality and wetland restoration conducted by Preserve Director Jona Tucker

Oklahoma Chapter Portfolio of Conservation Areas



Methods



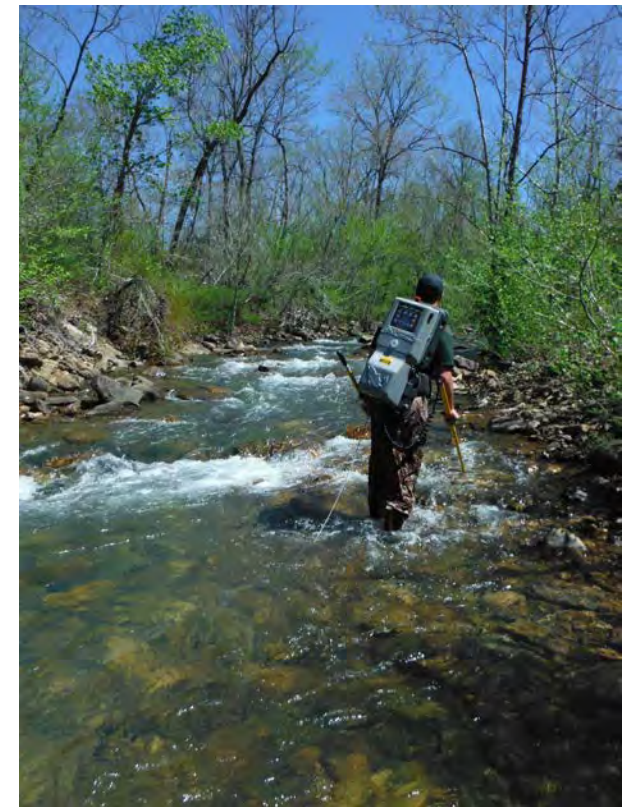
Macroinvertebrate sampling with d-frame dip net



Laser Level



Backpack shocking



Backpack shocking



Flowtracker



DS5 Sonde



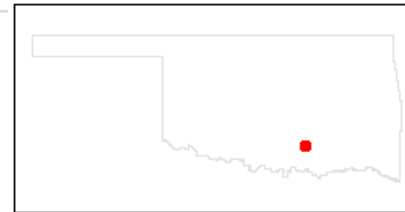
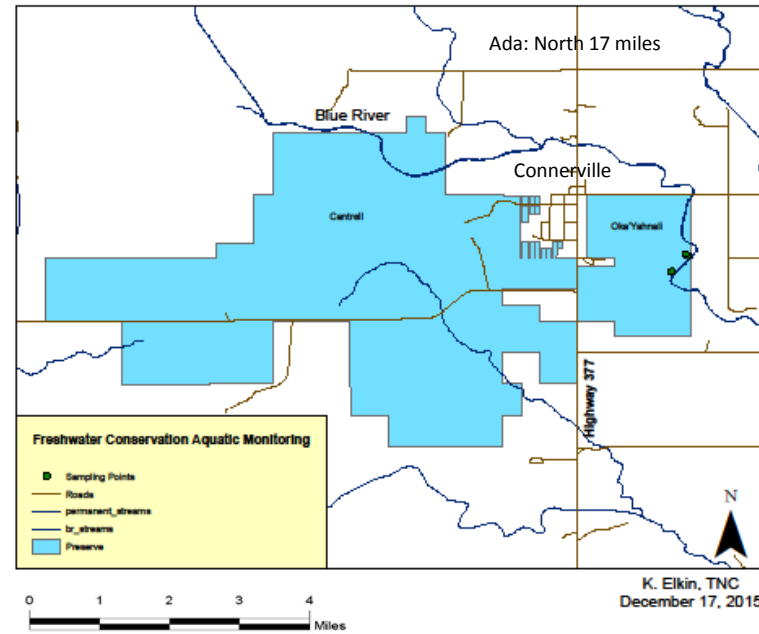
Water-level logger



Measuring discharge

Oka'Yahnali Preserve

Oka'Yahnali Preserve Aquatic Monitoring

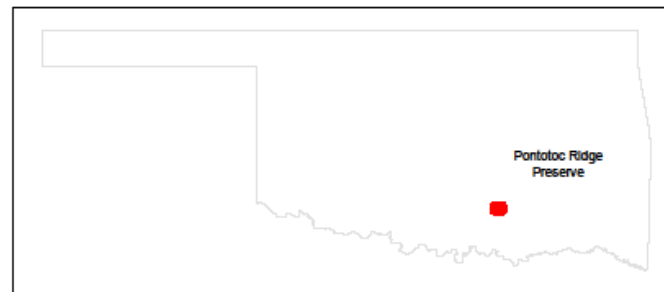
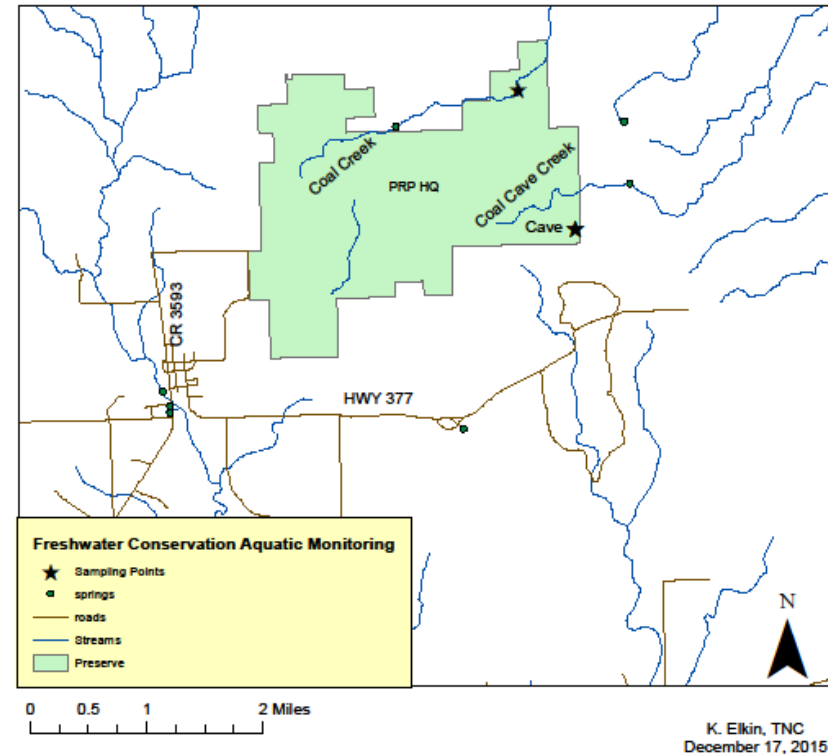


Oka'Yahnali Preserve Aquatic Monitoring Data Summary

Instream Flow Component	Year 1	Year 2	Year 3
Total Fish Species	18	16	16
Total Macroinvertebrate Taxa	8	10	9
Stream Type	B1	B1	B1
Dominant Substrate	Bedrock/Cobble/Gravel	Bedrock/Cobble/Gravel	Bedrock/Cobble/Gravel
Discharge Range (cfs)	3.14-7.83	6.80-11.72	12-14.7
LDO Range (mg/L)	10.1-10.6	10-11.3	10.1-10.6
Conductivity Range (ms/cm)	0.55-0.63	0.58-0.68	0.63-0.68
pH Range	8.01-9.08	7.92-9.94	6.93-9.72
Water Temperature Range ©	12.7-20.7	12.9-18.8	18-19.7
Water Level Range (ft.)	0-1	0-3.1	0-7.0
Fish IBI	31	36	36
Macroinvertebrate IBI	31	31	37

Pontotoc Ridge Preserve

Pontotoc Ridge Preserve Aquatic Monitoring

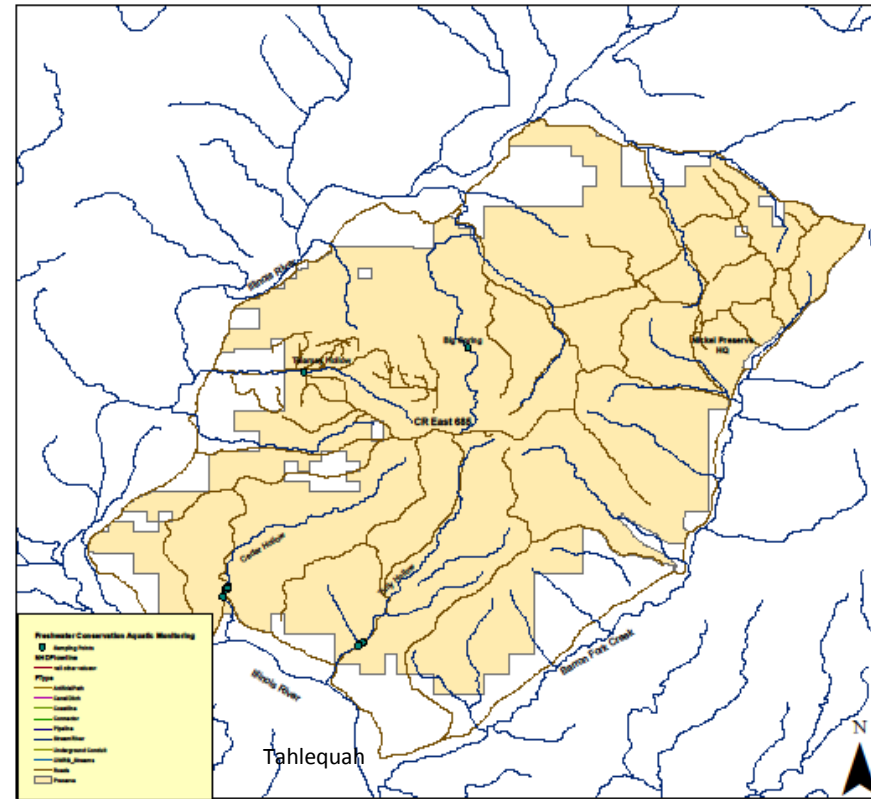


Pontotoc Ridge Preserve Aquatic Monitoring Data Summary

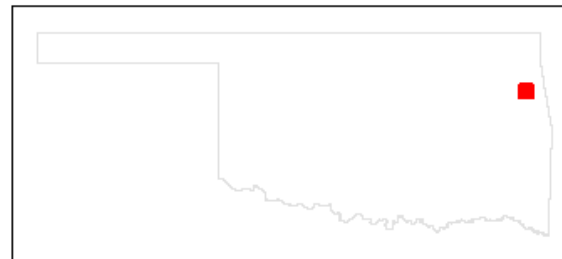
Instream Flow Component	Year 1
Total Fish Species	3
Total Macroinvertebrate Taxa	8
Stream Type	C2
Dominant Substrate	Bedrock/Boulder/Cobble
Discharge Range (cfs)	0.13-0.23
LDO Range (mg/L)	7.32-11.81
Conductivity Range (ms/cm)	0.50-0.60
pH Range	6.47-9.49
Water Temperature Range ©	11.2-23.7
Water Level Range (ft.)	0-1.4
Fish IBI	23
Macroinvertebrate IBI	26

J.T. Nickel Nature Preserve

Nickel Preserve Aquatic Monitoring



Kimberly Elkin, TNC
December 17, 2015

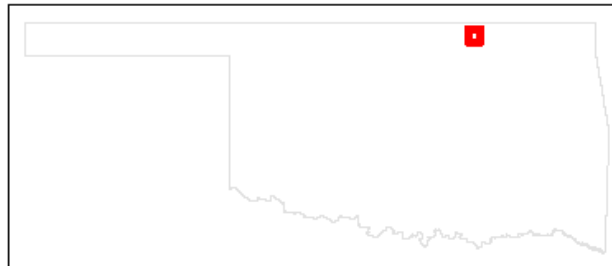
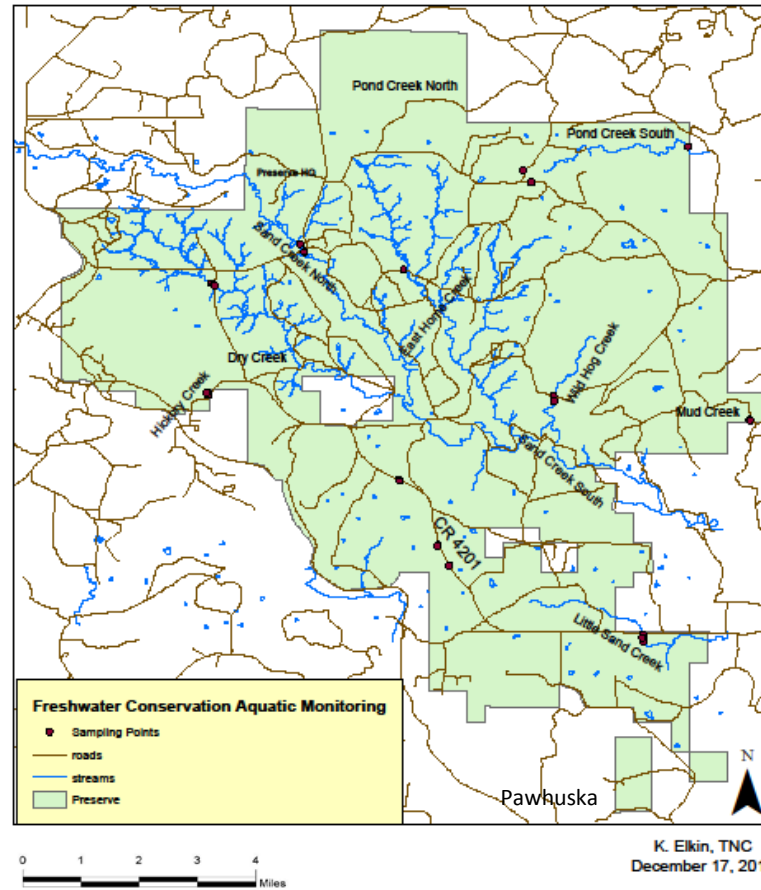


J.T. Nickel Nature Preserve Aquatic Monitoring Data Summary

Instream Flow Component	Year 1	Year 2	Year 3
Total Fish Species	12	9	13
Total Macroinvertebrate Taxa	8	8	6
Stream Type	F1	F1	F1
Dominant Substrate	Bedrock/Cobble/Gravel	Bedrock/Cobble/Gravel	Bedrock/Cobble/Gravel
Discharge Range (cfs)	3.14-7.83	0.004-0.820	0.030-4.897
LDO Range (mg/L)	10.1-10.6	6.89-14.0	7.25-10.5
Conductivity Range (ms/cm)	0.55-0.63	0.13-0.32	0.13-0.30
pH Range	8.01-9.08	6.89-9.74	6.77-7.08
Water Temperature Range ©	12.7-20.7	7.74-13.5	14.1-23.3
Water Level Range (ft.)	0-1	0-2.4	0-5.0
Fish IBI	27-31	25-31	25-33
Macroinvertebrate IBI	27-37	27-37	27-37

Tallgrass Prairie Preserve

Tallgrass Prairie Preserve Biology, Water Quality and Discharge Monitoring

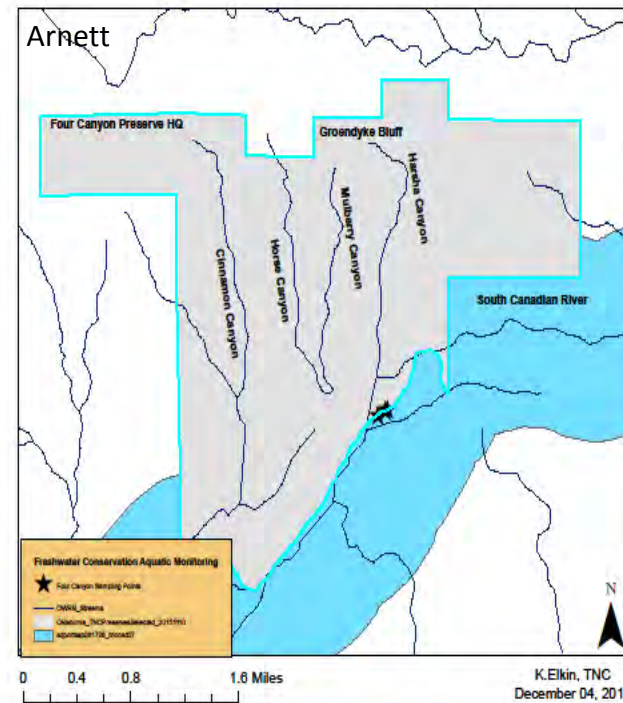


Tallgrass Prairie Preserve Aquatic Monitoring Data Summary

Instream Flow Component	Year 1	Year 2	Year 3
Total Fish Species	18	24	21
Total Macroinvertebrate Taxa	10	11	11
Stream Type	F4	F4	F4
Dominant Substrate	Cobble/Gravel	Cobble/Gravel	Cobble/Gravel
Discharge Range (cfs)	0.191-10.8	0.001-16.421	0.269-2.544
LDO Range (mg/L)	6.49-8.61	8.0-14.0	7.62-11.05
Conductivity Range (ms/cm)	0.314-0.348	0.390-0.729	0.300-0.622
pH Range	6.36-8.64	9.0-10.05	6.72-12.0
Water Temperature Range °C	17.0-19.4	23.4-29.7	14.0-37.4
Water Level Range (ft.)	0-7.0	0-7.5	0-40.0
Fish IBI	17-29	19-31	27-33
Macroinvertebrate IBI	35-41	35-41	35-41

Four Canyon Preserve

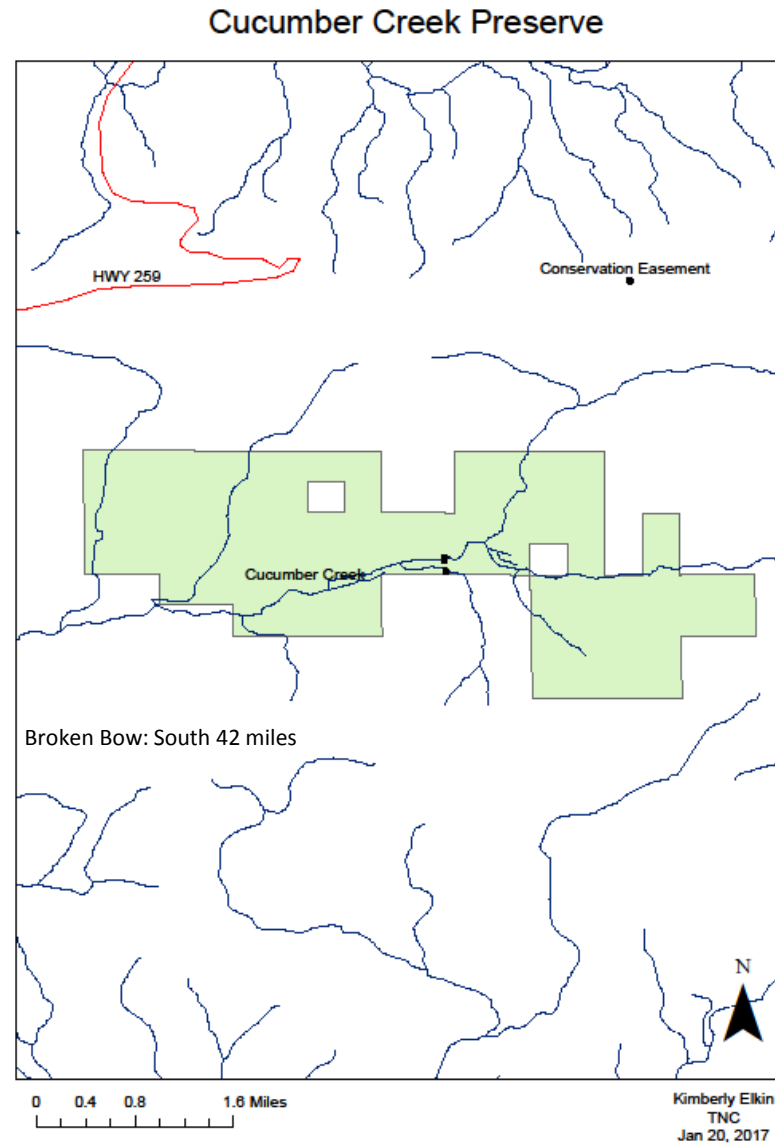
Four Canyon Preserve Aquatic Monitoring on the South Canadian River



Four Canyon Preserve Aquatic Monitoring Summary

Instream Flow Component	Year 1
Total Fish Species	4
Total Macroinvertebrate Taxa	6
Stream Type	F5
Dominant Substrate	Sand
Discharge Range (cfs)	2.0-4.0
LDO Range (mg/L)	8.91-8.92
Conductivity Range (ms/cm)	2.47
pH Range	8.47-8.52
Water Temperature Range ©	17.2-17.3
Water Level Range (ft.)	0-1.2
Fish IBI	17
Macroinvertebrate IBI	29

Cucumber Creek Preserve



Cucumber Creek Preserve Aquatic Monitoring Summary

Instream Flow Component	Year 1	Year 2
Total Fish Species	13	13
Total Macroinvertebrate Taxa	6	6
Stream Type	B2	B2
Dominant Substrate	Boulder/Cobble	Boulder/Cobble
Discharge Range (cfs)	0.119-32.98	0.119-32.98
LDO Range (mg/L)	5.83-11.38	5.83-11.38
Conductivity Range (ms/cm)	0.0122-0.146	0.0122-0.146
pH Range	5.3-7.9	5.3-7.9
Water Temperature Range ©	8.21-27.11	8.21-27.11
Water Level Range (ft.)	0-1.3	0-1.3
Fish IBI	33	33
Macroinvertebrate IBI	41	41

Education and Outreach



Future Direction of Program

- Continue aquatic monitoring on TNC managed lands
- Participate in soil health initiatives
- Continue education and outreach activities
- Participate in Water for 2060 Workgroup
- Work with ACOE- Tulsa district on instream flow management
- Create statewide watershed assessments
- Continue Blue River water quality, water quantity and wetland restoration studies

A close-up photograph of a person's open palm holding a small, dark, oval-shaped shell with prominent yellow and black diagonal stripes. The person is standing in shallow, rippling water. The person's hand is wet and pinkish. They are wearing a blue and white plaid shirt and a brown leather belt. A gold ring is visible on the ring finger. The background shows the water and the lower part of the person's body.

Questions