TE-833851, Section T., Permit Condition 6: General Annual Reporting Requirements for Jollyville Plateau Salamanders

Personnel

Names of all persons involved in the salamander surveys and their duties.

All personnel are City of Austin employees unless noted otherwise.

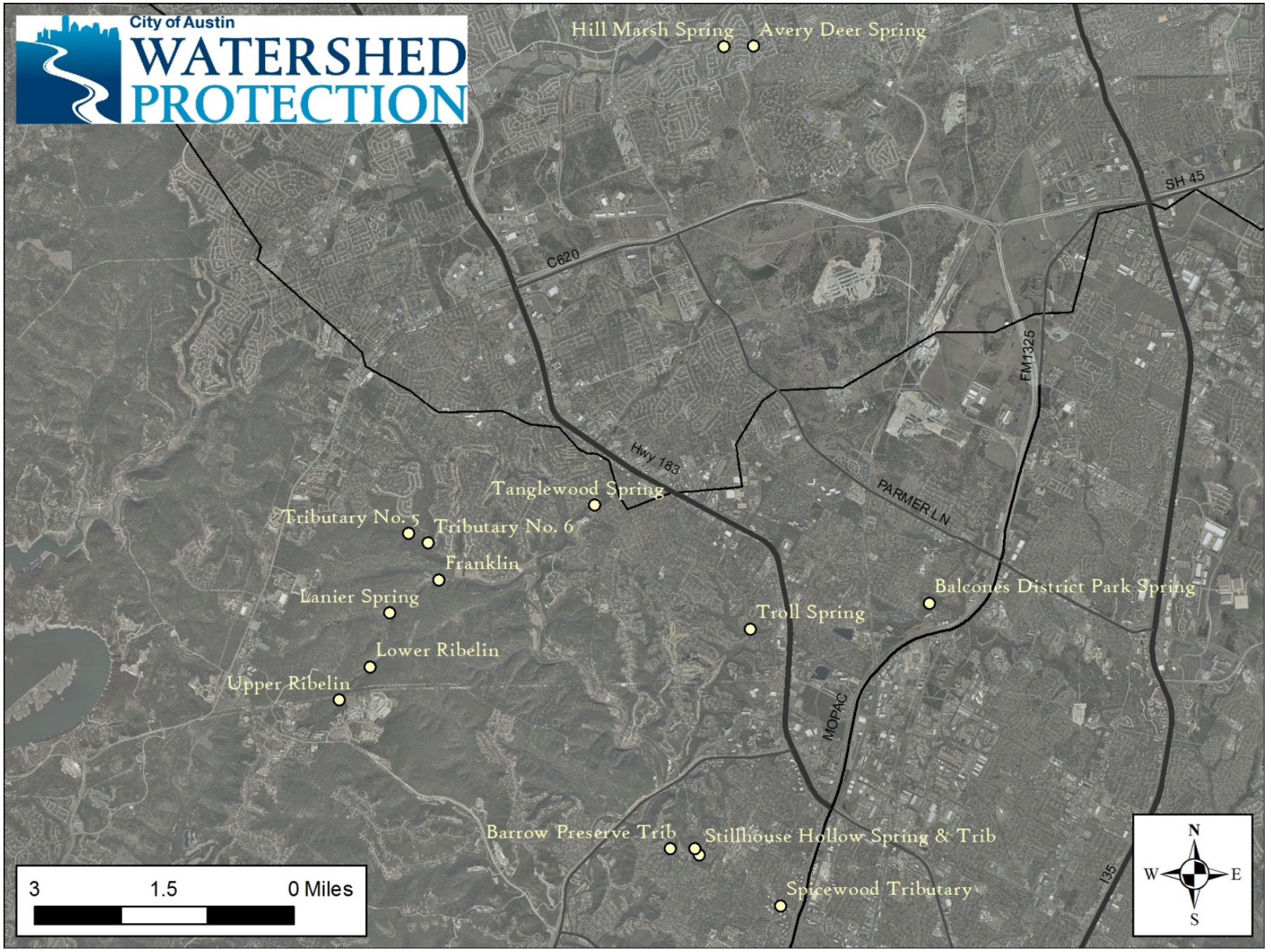
1. Nathan Bendik: study design, analysis, field work supervision
2. Blake Sissel: field assistance, data recording and entry
3. Tom Devitt: field assistance
4. Dee Ann Chamberlain: field assistance
5. Mark Sanders: field assistance
6. Jonny Scalise: field assistance
7. Donelle Robinson: field assistance
8. Jacob Owen: field assistance
9. John Kuhl (Hicks & Company): field assistance
10. Julie LeClair (Hicks & Company): field assistance
11. Elizabeth Hauss (Hicks & Company): field assistance

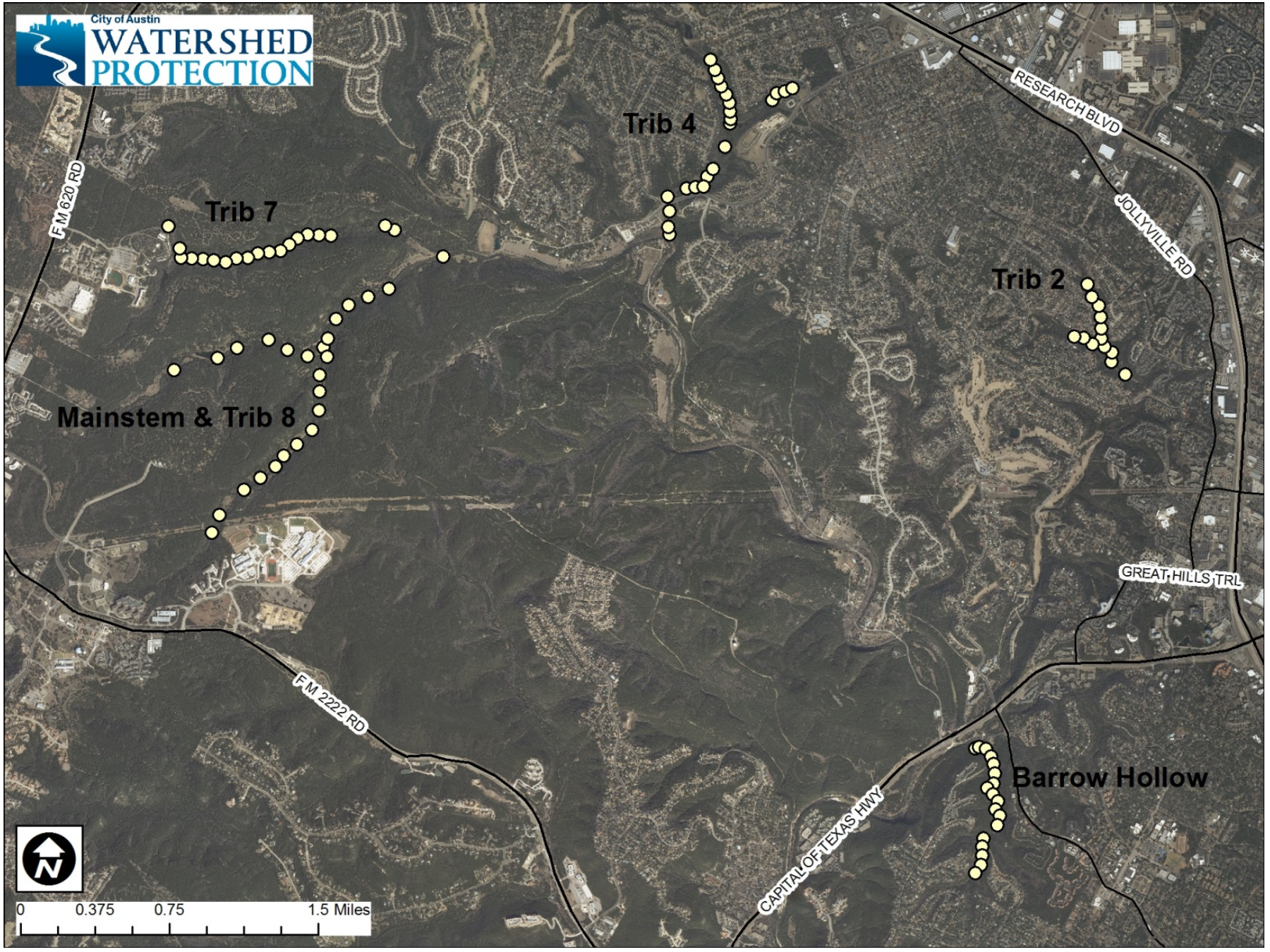
Person(s) directly responsible for writing the report

Nathan Bendik

Location

The first map depicts locations of all CMR study sites while the second map depicts the locations of all occupancy survey sites. Note only a subset of CMR sites were sampled during 2015.


City of Austin
WATERSHED PROTECTION
Hill Marsh Spring
Avery Deer Spring
SH 45
C620
FM1325
Hwy 183
PARMER LN
Tanglewood Spring
Tributary No. 5
Tributary No. 6
Franklin
Lanier Spring
Lower Ribelin
Upper Ribelin
Balcones District Park Spring
Troll Spring
MOPAC
Barrow Preserve Trib
Stillhouse Hollow Spring & Trib
Spicewood Tributary
135
3
1.5
0 Miles
N
W
E
S


City of Austin
WATERSHED PROTECTION
Trib 4
Trib 7
Trib 2
Mainstem & Trib 8
Barrow Hollow
RESEARCH BLVD
JOLLYVILLE RD
F M 620 RD
GREAT HILLS TRL
F M 2222 RD
CAPITAL OF TEXAS HWY
0
0.375
0.75
1.5 Miles

Methods

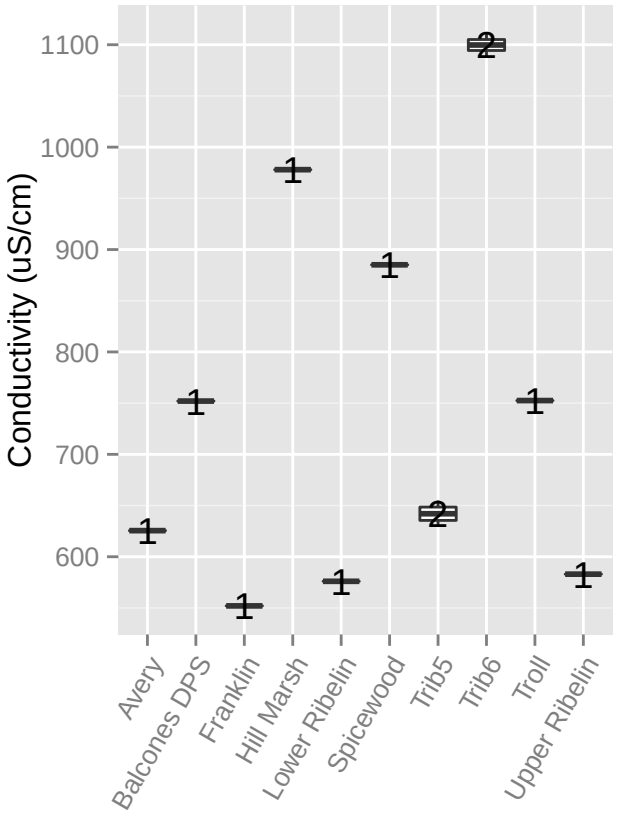
Capture-recapture surveys: Observers surveyed each site by exhaustively searching all cover objects on the surface of the stream (e.g., rock cover, leaf litter, woody debris), counting each salamander observed and visually estimating their size (total length: < 25 mm, 25–50 mm, ≥ 50 mm). This was done as a drive survey, whereby observers would begin downstream removing cover objects to create an open "line" perpendicular to the bank that moved upstream until all cover objects were searched. Salamanders were captured using small hand nets and photographed for later photographic identification. For further detail, please refer to Bendik et al., (2013) and (2014).

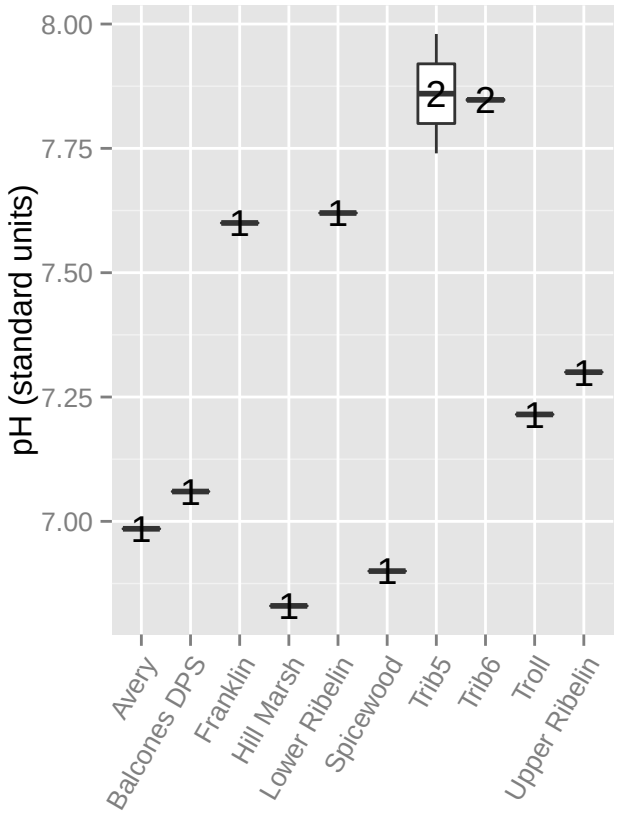
Occupancy surveys: Starting at the downstream confluence below the nearest known *E. tonkawae* locality in six tributaries of Bull Creek (see map above), we surveyed 127 sites, 118 of which were wet. We avoided deep pools (> 0.6 m), such as man-made impoundments, during site selection. Otherwise, sites were selected in a systematic, random fashion. Site selection started at a random point 0–100 m from the confluence and proceeded upstream, while maintaining equal distances among sites. Because we were targeting an even distribution of sites among tributaries and urban/non-urban catchments, sites in Barrow Hollow, Trib. 2, Trib. 4 and Trib. 7 were spaced 70 m apart, while those in Mainstem/Trib. 8 were spaced 140 m apart due to the larger size of that tributary. Each site was 10 m in length and spanned the width of the channel. Sites were surveyed from late March through early May (a "season"), from 2013–2015. Two experienced observers simultaneously performed a time-limited search removing cover objects for 5 min at each site, three times during each season, at a minimum interval of one-week.

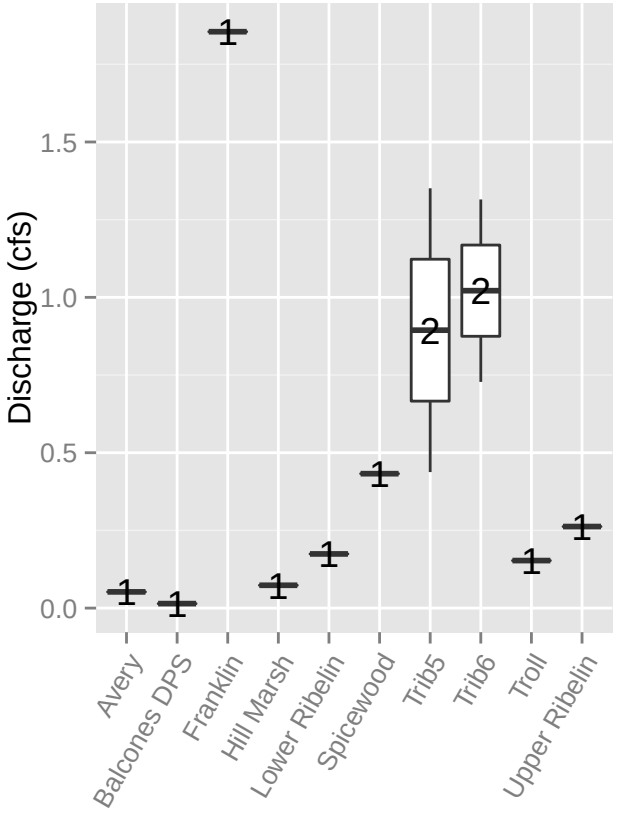
Survey Results

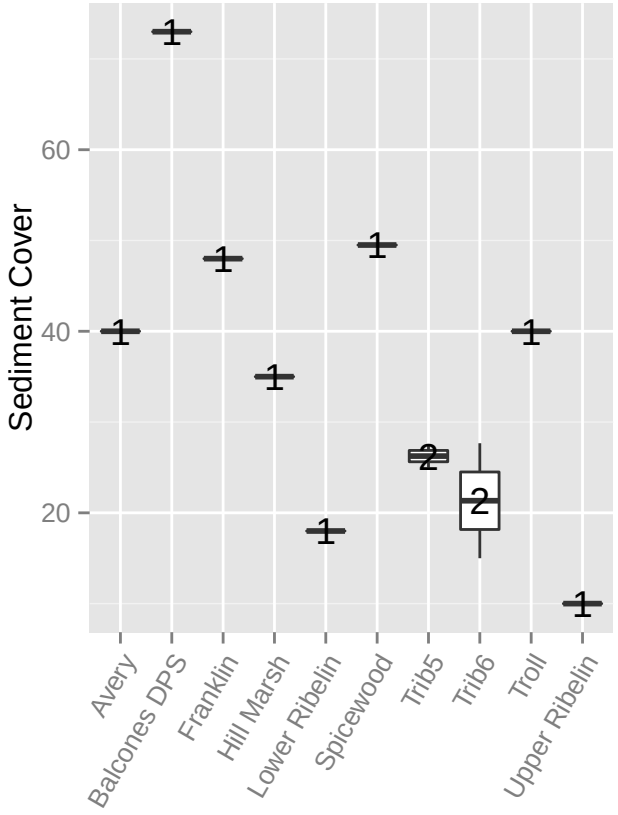
Here we present the total number of salamanders observed for each capture-recapture survey. These include the total number of salamanders captured and photographed as well as any salamanders that missed capture as reported by the observer. Capture-recapture photographed have not been processed for summary or analysis, although a future report is forthcoming.

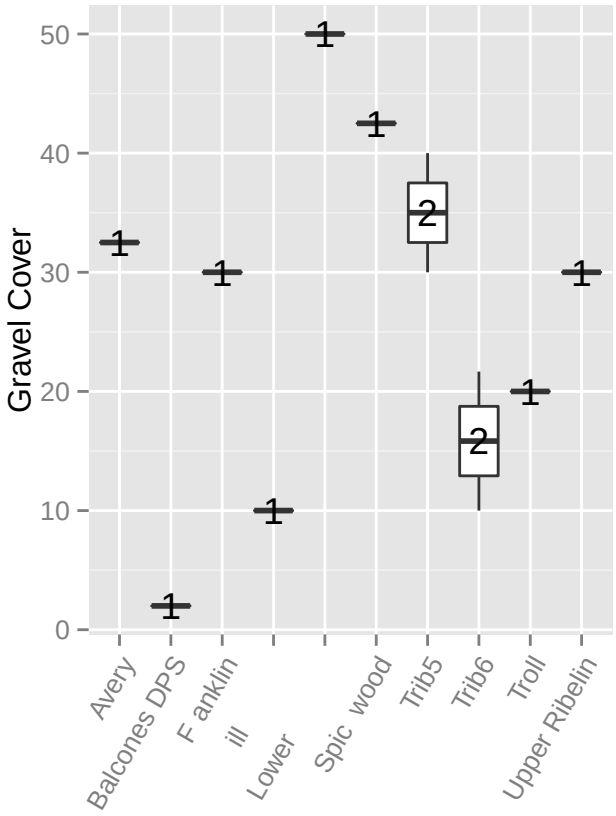
Site	Date	Total
Spicewood Spring	6/16/2015	1
Trib 6	6/12/2015	14
Trib 5	6/12/2015	8
Upper Ribelin	3/17/2015	112
Franklin	2/20/2015	89
Trib 6	2/19/2015	92
Trib 5	2/19/2015	22
Hill Marsh Spring	2/18/2015	89
Lower Ribelin	2/17/2015	128
Balcones Park	2/6/2015	2
Avery Deer Spring	2/6/2015	10
Troll Spring	2/6/2015	36
Spicewood Spring	11/23/2015	1
Troll Spring	11/23/2015	28
Hill Marsh Spring	11/24/2015	33
Trib 5	11/25/2015	0
Avery Deer Spring	5/13/2015	33
Trib 6	11/30/2015	17

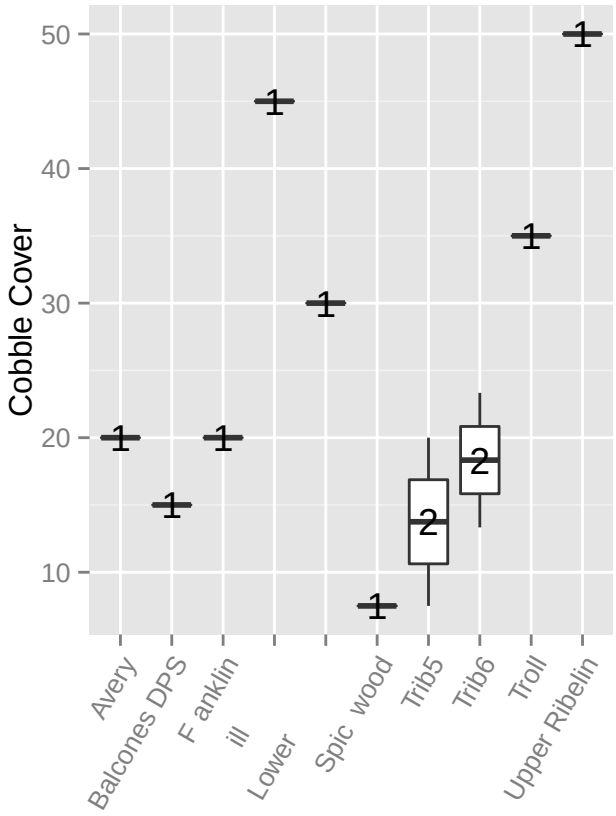

Conductivity (uS/cm)
1100
1000
900
800
700
600
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin

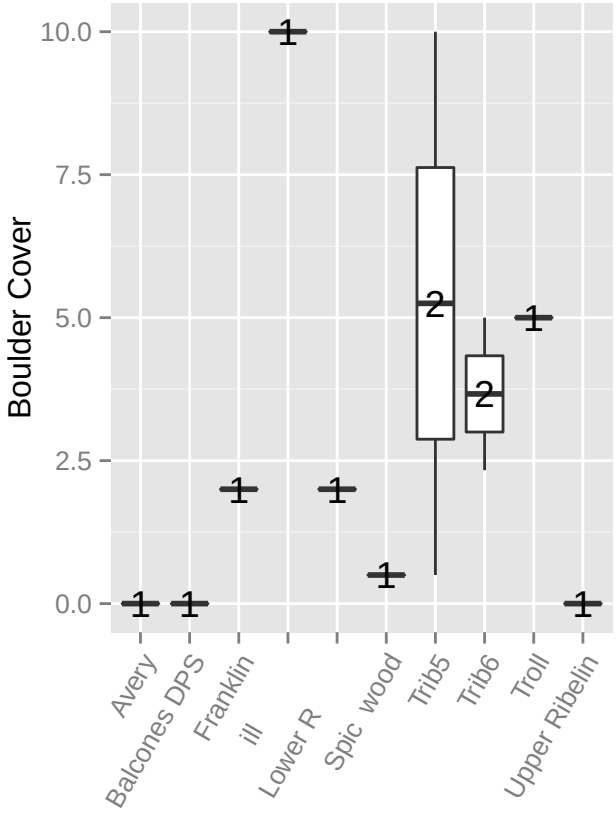

pH (standard units)
8.00
7.75
7.50
7.25
7.00
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin

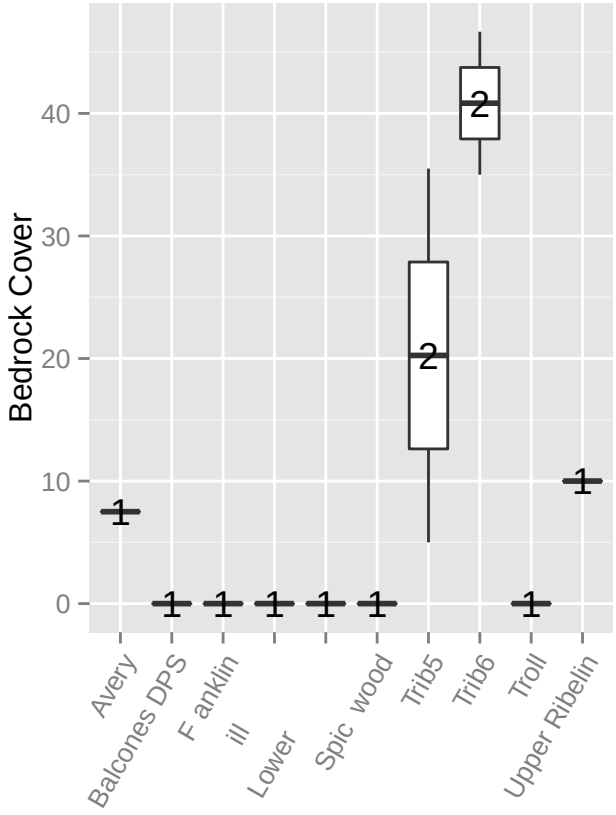

Discharge (cfs)
1.5
1.0
0.5
0.0
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin

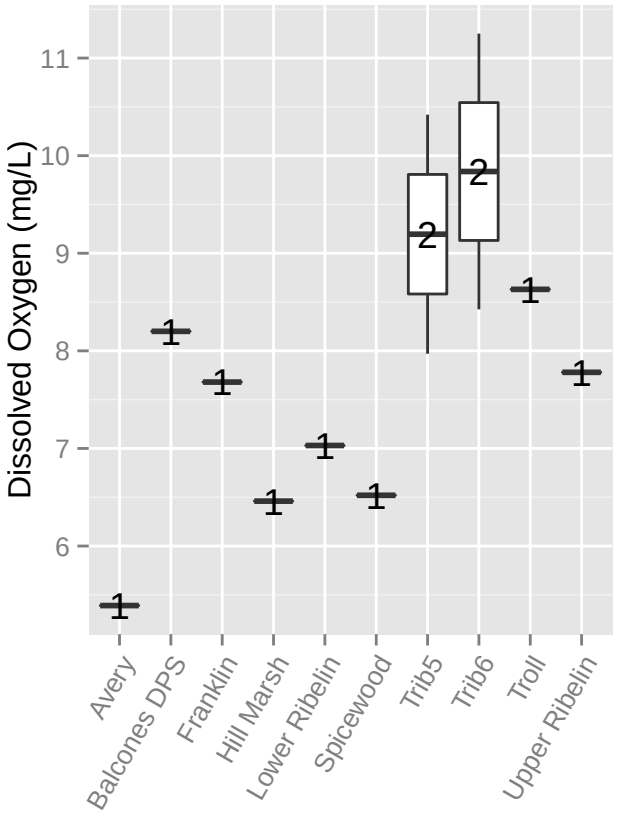

Sediment Cover
60
40
20
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin

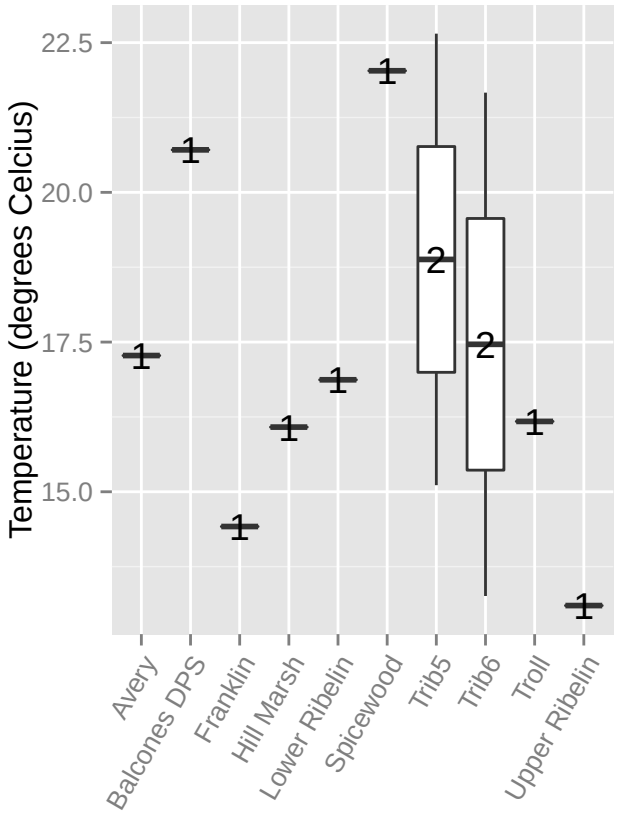

Gravel Cover
50
40
30
20
10
0
Avery
Balcones DPS
F anklin
ill
Lower
Spic wood
Trib5
Trib6
Troll
Upper Ribelin


Cobble Cover
50
40
30
20
10
Avery
Balcones DPS
F anklin
ill
Lower
Spic wood
Trib5
Trib6
Troll
Upper Ribelin


Boulder Cover
10.0
7.5
5.0
2.5
0.0
Avery
Balcones DPS
Franklin
ill
Lower R
Spic wood
Trib5
Trib6
Troll
Upper Ribelin


Bedrock Cover
40
30
20
10
0
Avery
Balcones DPS
F anklin
ill
Lower
Spic wood
Trib5
Trib6
Troll
Upper Ribelin


Dissolved Oxygen (mg/L)
11
10
9
8
7
6
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin


Temperature (degrees Celcius)
22.5
20.0
17.5
15.0
Avery
Balcones DPS
Franklin
Hill Marsh
Lower Ribelin
Spicewood
Trib5
Trib6
Troll
Upper Ribelin

Below are presented results from occupancy surveys conducted in 2015. We report survey dates and times for each site, and include plots of summary data. All data are available at https://data.austintexas.gov/.

Table : Occupancy Survey Dates and Times

Date	Time	Site
2015-04-14	1407	Barrow Trib @ JPS Occupancy Site 029
2015-05-04	1020	Barrow Trib @ JPS Occupancy Site 029
2015-04-01	1021	Barrow Trib @ JPS Occupancy Site 029
2015-04-01	1055	Barrow Trib @ JPS Occupancy Site 030
2015-04-14	1357	Barrow Trib @ JPS Occupancy Site 030
2015-05-04	1031	Barrow Trib @ JPS Occupancy Site 030
2015-04-01	1110	Barrow Trib @ JPS Occupancy Site 031
2015-04-14	1347	Barrow Trib @ JPS Occupancy Site 031
2015-05-04	1042	Barrow Trib @ JPS Occupancy Site 031
2015-04-01	1121	Barrow Trib @ JPS Occupancy Site 032
2015-04-14	1337	Barrow Trib @ JPS Occupancy Site 032
2015-05-04	1056	Barrow Trib @ JPS Occupancy Site 032
2015-05-04	1107	Barrow Trib @ JPS Occupancy Site 033
2015-04-01	1142	Barrow Trib @ JPS Occupancy Site 033
2015-04-14	1329	Barrow Trib @ JPS Occupancy Site 033
2015-04-01	1155	Barrow Trib @ JPS Occupancy Site 034
2015-04-14	1321	Barrow Trib @ JPS Occupancy Site 034
2015-05-04	1115	Barrow Trib @ JPS Occupancy Site 034
2015-04-01	1206	Barrow Trib @ JPS Occupancy Site 035
2015-04-14	1308	Barrow Trib @ JPS Occupancy Site 035
2015-05-04	1122	Barrow Trib @ JPS Occupancy Site 035
2015-04-01	1219	Barrow Trib @ JPS Occupancy Site 036
2015-05-04	1133	Barrow Trib @ JPS Occupancy Site 036
2015-04-14	1257	Barrow Trib @ JPS Occupancy Site 036
2015-04-01	1231	Barrow Trib @ JPS Occupancy Site 037
2015-04-14	1247	Barrow Trib @ JPS Occupancy Site 037
2015-05-04	1143	Barrow Trib @ JPS Occupancy Site 037
2015-04-01	1242	Barrow Trib @ JPS Occupancy Site 038
2015-04-14	1231	Barrow Trib @ JPS Occupancy Site 038
2015-05-04	1152	Barrow Trib @ JPS Occupancy Site 038
2015-04-14	1205	Barrow Trib @ JPS Occupancy Site 039
2015-05-04	1202	Barrow Trib @ JPS Occupancy Site 039
2015-04-01	1253	Barrow Trib @ JPS Occupancy Site 039
2015-04-01	1304	Barrow Trib @ JPS Occupancy Site 040
2015-04-14	1153	Barrow Trib @ JPS Occupancy Site 040
2015-05-04	1213	Barrow Trib @ JPS Occupancy Site 040
2015-04-01	1314	Barrow Trib @ JPS Occupancy Site 041
2015-04-14	1140	Barrow Trib @ JPS Occupancy Site 041
2015-05-04	1231	Barrow Trib @ JPS Occupancy Site 041
2015-04-01	1326	Barrow Trib @ JPS Occupancy Site 042
2015-05-04	1240	Barrow Trib @ JPS Occupancy Site 042
2015-04-14	1130	Barrow Trib @ JPS Occupancy Site 042
2015-04-01	1340	Barrow Trib @ JPS Occupancy Site 043
2015-04-14	1120	Barrow Trib @ JPS Occupancy Site 043

2015-05-04	1258	Barrow Trib @ JPS Occupancy Site 043
2015-04-14	1103	Barrow Trib @ JPS Occupancy Site 044
2015-05-04	1305	Barrow Trib @ JPS Occupancy Site 044
2015-04-01	1356	Barrow Trib @ JPS Occupancy Site 044
2015-04-01	1407	Barrow Trib @ JPS Occupancy Site 045
2015-05-04	1316	Barrow Trib @ JPS Occupancy Site 045
2015-04-14	1052	Barrow Trib @ JPS Occupancy Site 045
2015-04-01	1421	Barrow Trib @ JPS Occupancy Site 046
2015-04-14	1044	Barrow Trib @ JPS Occupancy Site 046
2015-05-04	1325	Barrow Trib @ JPS Occupancy Site 046
2015-05-04	1336	Barrow Trib @ JPS Occupancy Site 048
2015-04-14	1032	Barrow Trib @ JPS Occupancy Site 048
2015-04-01	1437	Barrow Trib @ JPS Occupancy Site 048
2015-04-01	1451	Barrow Trib @ JPS Occupancy Site 049
2015-04-07	1200	Bull Creek @ JPS Occupancy Site 057
2015-04-16	1030	Bull Creek @ JPS Occupancy Site 057
2015-04-29	1547	Bull Creek @ JPS Occupancy Site 057
2015-04-07	1227	Bull Creek @ JPS Occupancy Site 058
2015-04-16	1041	Bull Creek @ JPS Occupancy Site 058
2015-04-29	1537	Bull Creek @ JPS Occupancy Site 058
2015-04-29	1522	Bull Creek @ JPS Occupancy Site 059
2015-04-07	1244	Bull Creek @ JPS Occupancy Site 059
2015-04-16	1051	Bull Creek @ JPS Occupancy Site 059
2015-04-07	1324	Bull Creek @ JPS Occupancy Site 060
2015-04-16	1108	Bull Creek @ JPS Occupancy Site 060
2015-04-29	1538	Bull Creek @ JPS Occupancy Site 060
2015-04-07	1343	Bull Creek @ JPS Occupancy Site 061
2015-04-16	1122	Bull Creek @ JPS Occupancy Site 061
2015-04-29	1529	Bull Creek @ JPS Occupancy Site 061
2015-04-07	1403	Bull Creek @ JPS Occupancy Site 062
2015-04-16	1133	Bull Creek @ JPS Occupancy Site 062
2015-04-29	1520	Bull Creek @ JPS Occupancy Site 062
2015-04-07	1425	Bull Creek @ JPS Occupancy Site 063
2015-04-16	1148	Bull Creek @ JPS Occupancy Site 063
2015-04-29	1504	Bull Creek @ JPS Occupancy Site 063
2015-04-07	1455	Bull Creek @ JPS Occupancy Site 064
2015-04-16	1202	Bull Creek @ JPS Occupancy Site 064
2015-04-29	1450	Bull Creek @ JPS Occupancy Site 064
2015-04-07	1608	Bull Creek @ JPS Occupancy Site 065
2015-04-16	1508	Bull Creek @ JPS Occupancy Site 065
2015-04-29	1051	Bull Creek @ JPS Occupancy Site 065
2015-04-07	1547	Bull Creek @ JPS Occupancy Site 066
2015-04-16	1455	Bull Creek @ JPS Occupancy Site 066
2015-04-29	1106	Bull Creek @ JPS Occupancy Site 066
2015-04-07	1530	Bull Creek @ JPS Occupancy Site 067
2015-04-16	1435	Bull Creek @ JPS Occupancy Site 067
2015-04-29	1115	Bull Creek @ JPS Occupancy Site 067
2015-04-07	1509	Bull Creek @ JPS Occupancy Site 068
2015-04-16	1420	Bull Creek @ JPS Occupancy Site 068

2015-04-29	1129	Bull Creek @ JPS Occupancy Site 068
2015-04-07	1448	Bull Creek @ JPS Occupancy Site 069
2015-04-29	1139	Bull Creek @ JPS Occupancy Site 069
2015-04-16	1403	Bull Creek @ JPS Occupancy Site 069
2015-04-29	1151	Bull Creek @ JPS Occupancy Site 070
2015-04-16	1345	Bull Creek @ JPS Occupancy Site 070
2015-04-07	1428	Bull Creek @ JPS Occupancy Site 070
2015-04-07	1416	Bull Creek @ JPS Occupancy Site 071
2015-04-16	1333	Bull Creek @ JPS Occupancy Site 071
2015-04-29	1202	Bull Creek @ JPS Occupancy Site 071
2015-04-29	1228	Bull Creek @ JPS Occupancy Site 072
2015-04-07	1401	Bull Creek @ JPS Occupancy Site 072
2015-04-16	1317	Bull Creek @ JPS Occupancy Site 072
2015-04-07	1347	Bull Creek @ JPS Occupancy Site 073
2015-04-16	1304	Bull Creek @ JPS Occupancy Site 073
2015-04-29	1241	Bull Creek @ JPS Occupancy Site 073
2015-04-07	1327	Bull Creek @ JPS Occupancy Site 074
2015-04-16	1253	Bull Creek @ JPS Occupancy Site 074
2015-04-29	1252	Bull Creek @ JPS Occupancy Site 074
2015-04-16	1245	Bull Creek @ JPS Occupancy Site 075
2015-04-07	1312	Bull Creek @ JPS Occupancy Site 075
2015-04-29	1307	Bull Creek @ JPS Occupancy Site 075
2015-04-07	1252	Bull Creek @ JPS Occupancy Site 076
2015-04-16	1232	Bull Creek @ JPS Occupancy Site 076
2015-04-29	1325	Bull Creek @ JPS Occupancy Site 076
2015-04-07	1240	Bull Creek @ JPS Occupancy Site 077
2015-04-16	1221	Bull Creek @ JPS Occupancy Site 077
2015-04-29	1338	Bull Creek @ JPS Occupancy Site 077
2015-04-07	1148	Bull Creek @ JPS Occupancy Site 078
2015-04-16	1226	Bull Creek @ JPS Occupancy Site 078
2015-04-29	1354	Bull Creek @ JPS Occupancy Site 078
2015-04-07	1154	Bull Creek @ JPS Occupancy Site 079
2015-04-16	1226	Bull Creek @ JPS Occupancy Site 079
2015-04-16	1150	Bull Creek @ JPS Occupancy Site 080
2015-04-29	1355	Bull Creek @ JPS Occupancy Site 080
2015-04-07	1207	Bull Creek @ JPS Occupancy Site 080
2015-04-07	1622	Bull Creek @ JPS Occupancy Site 126
2015-04-16	1235	Bull Creek @ JPS Occupancy Site 126
2015-04-29	1435	Bull Creek @ JPS Occupancy Site 126
2015-04-07	1640	Bull Creek @ JPS Occupancy Site 127
2015-04-16	1255	Bull Creek @ JPS Occupancy Site 127
2015-04-29	1414	Bull Creek @ JPS Occupancy Site 127
2015-04-07	1700	Bull Creek @ JPS Occupancy Site 128
2015-04-16	1318	Bull Creek @ JPS Occupancy Site 128
2015-04-29	1349	Bull Creek @ JPS Occupancy Site 128
2015-04-07	1715	Bull Creek @ JPS Occupancy Site 129
2015-04-16	1337	Bull Creek @ JPS Occupancy Site 129
2015-04-29	1310	Bull Creek @ JPS Occupancy Site 129
2015-04-07	1739	Bull Creek @ JPS Occupancy Site 130

2015-04-16	1402	Bull Creek @ JPS Occupancy Site 130
2015-04-29	1241	Bull Creek @ JPS Occupancy Site 130
2015-04-07	1802	Bull Creek @ JPS Occupancy Site 131
2015-04-16	1416	Bull Creek @ JPS Occupancy Site 131
2015-04-29	1210	Bull Creek @ JPS Occupancy Site 131
2015-04-07	1740	Bull Creek @ JPS Occupancy Site 132
2015-04-16	1433	Bull Creek @ JPS Occupancy Site 132
2015-04-29	1143	Bull Creek @ JPS Occupancy Site 132
2015-04-07	1712	Bull Creek @ JPS Occupancy Site 133
2015-04-16	1453	Bull Creek @ JPS Occupancy Site 133
2015-04-29	1120	Bull Creek @ JPS Occupancy Site 133
2015-04-29	1101	Bull Creek @ JPS Occupancy Site 134
2015-04-07	1630	Bull Creek @ JPS Occupancy Site 134
2015-04-16	1513	Bull Creek @ JPS Occupancy Site 134
2015-04-07	1614	Bull Creek @ JPS Occupancy Site 135
2015-04-16	1530	Bull Creek @ JPS Occupancy Site 135
2015-04-29	1048	Bull Creek @ JPS Occupancy Site 135
2015-04-16	1539	Bull Creek @ JPS Occupancy Site 136
2015-04-29	1034	Bull Creek @ JPS Occupancy Site 136
2015-04-07	1542	Bull Creek @ JPS Occupancy Site 136
2015-04-02	955	Bull Creek Trib 2 @ JPS Occupancy Site 107
2015-04-30	1031	Bull Creek Trib 2 @ JPS Occupancy Site 107
2015-04-21	1411	Bull Creek Trib 2 @ JPS Occupancy Site 107
2015-04-30	1036	Bull Creek Trib 2 @ JPS Occupancy Site 108
2015-04-02	1026	Bull Creek Trib 2 @ JPS Occupancy Site 108
2015-04-21	1405	Bull Creek Trib 2 @ JPS Occupancy Site 108
2015-04-02	1046	Bull Creek Trib 2 @ JPS Occupancy Site 109
2015-04-21	1359	Bull Creek Trib 2 @ JPS Occupancy Site 109
2015-04-30	1050	Bull Creek Trib 2 @ JPS Occupancy Site 109
2015-04-02	1051	Bull Creek Trib 2 @ JPS Occupancy Site 110
2015-04-21	1345	Bull Creek Trib 2 @ JPS Occupancy Site 110
2015-04-30	1054	Bull Creek Trib 2 @ JPS Occupancy Site 110
2015-04-02	1121	Bull Creek Trib 2 @ JPS Occupancy Site 111
2015-04-21	1334	Bull Creek Trib 2 @ JPS Occupancy Site 111
2015-04-30	1242	Bull Creek Trib 2 @ JPS Occupancy Site 111
2015-04-21	1320	Bull Creek Trib 2 @ JPS Occupancy Site 112
2015-04-30	1256	Bull Creek Trib 2 @ JPS Occupancy Site 112
2015-04-02	1128	Bull Creek Trib 2 @ JPS Occupancy Site 112
2015-04-02	1142	Bull Creek Trib 2 @ JPS Occupancy Site 113
2015-04-21	1308	Bull Creek Trib 2 @ JPS Occupancy Site 113
2015-04-30	1307	Bull Creek Trib 2 @ JPS Occupancy Site 113
2015-04-02	1201	Bull Creek Trib 2 @ JPS Occupancy Site 114
2015-04-21	1250	Bull Creek Trib 2 @ JPS Occupancy Site 114
2015-04-30	1331	Bull Creek Trib 2 @ JPS Occupancy Site 114
2015-04-02	1247	Bull Creek Trib 2 @ JPS Occupancy Site 115
2015-04-21	1232	Bull Creek Trib 2 @ JPS Occupancy Site 115
2015-04-30	1346	Bull Creek Trib 2 @ JPS Occupancy Site 115
2015-04-02	1307	Bull Creek Trib 2 @ JPS Occupancy Site 116
2015-04-21	1205	Bull Creek Trib 2 @ JPS Occupancy Site 116

2015-04-30	1400	Bull Creek Trib 2 @ JPS Occupancy Site 116
2015-04-02	1320	Bull Creek Trib 2 @ JPS Occupancy Site 117
2015-04-21	1149	Bull Creek Trib 2 @ JPS Occupancy Site 117
2015-04-30	1418	Bull Creek Trib 2 @ JPS Occupancy Site 117
2015-04-02	1337	Bull Creek Trib 2 @ JPS Occupancy Site 118
2015-04-21	1137	Bull Creek Trib 2 @ JPS Occupancy Site 118
2015-04-30	1433	Bull Creek Trib 2 @ JPS Occupancy Site 118
2015-04-21	1101	Bull Creek Trib 2 @ JPS Occupancy Site 119
2015-04-30	1109	Bull Creek Trib 2 @ JPS Occupancy Site 119
2015-04-02	1359	Bull Creek Trib 2 @ JPS Occupancy Site 119
2015-04-21	1041	Bull Creek Trib 2 @ JPS Occupancy Site 120
2015-04-30	1109	Bull Creek Trib 2 @ JPS Occupancy Site 120
2015-04-02	1409	Bull Creek Trib 2 @ JPS Occupancy Site 120
2015-04-02	1421	Bull Creek Trib 2 @ JPS Occupancy Site 121
2015-04-21	1028	Bull Creek Trib 2 @ JPS Occupancy Site 121
2015-04-30	1119	Bull Creek Trib 2 @ JPS Occupancy Site 121
2015-04-02	1442	Bull Creek Trib 2 @ JPS Occupancy Site 122
2015-04-21	1018	Bull Creek Trib 2 @ JPS Occupancy Site 122
2015-04-30	1138	Bull Creek Trib 2 @ JPS Occupancy Site 122
2015-04-02	1504	Bull Creek Trib 2 @ JPS Occupancy Site 123
2015-04-21	944	Bull Creek Trib 2 @ JPS Occupancy Site 123
2015-04-30	1147	Bull Creek Trib 2 @ JPS Occupancy Site 123
2015-04-21	1002	Bull Creek Trib 2 @ JPS Occupancy Site 124
2015-04-02	1521	Bull Creek Trib 2 @ JPS Occupancy Site 124
2015-04-30	1201	Bull Creek Trib 2 @ JPS Occupancy Site 124
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2015-04-15	1020	Bull Creek Trib 4 @ JPS Occupancy Site 001
2015-04-06	1037	Bull Creek Trib 4 @ JPS Occupancy Site 002
2015-04-15	1037	Bull Creek Trib 4 @ JPS Occupancy Site 002
2015-05-04	1444	Bull Creek Trib 4 @ JPS Occupancy Site 002
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2015-04-15	1100	Bull Creek Trib 4 @ JPS Occupancy Site 003
2015-05-04	1458	Bull Creek Trib 4 @ JPS Occupancy Site 003
2015-04-06	1106	Bull Creek Trib 4 @ JPS Occupancy Site 004
2015-04-15	1116	Bull Creek Trib 4 @ JPS Occupancy Site 004
2015-05-04	1508	Bull Creek Trib 4 @ JPS Occupancy Site 004
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2015-04-06	1151	Bull Creek Trib 4 @ JPS Occupancy Site 006
2015-04-15	1145	Bull Creek Trib 4 @ JPS Occupancy Site 006
2015-04-28	1547	Bull Creek Trib 4 @ JPS Occupancy Site 006
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2015-04-15	1153	Bull Creek Trib 4 @ JPS Occupancy Site 007
2015-04-06	1218	Bull Creek Trib 4 @ JPS Occupancy Site 008
2015-04-15	1205	Bull Creek Trib 4 @ JPS Occupancy Site 008
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2015-04-06	1249	Bull Creek Trib 4 @ JPS Occupancy Site 010
2015-04-15	1237	Bull Creek Trib 4 @ JPS Occupancy Site 010
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2015-04-06	1623	Bull Creek Trib 4 @ JPS Occupancy Site 013
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2015-04-06	1638	Bull Creek Trib 4 @ JPS Occupancy Site 014
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2015-04-06	1648	Bull Creek Trib 4 @ JPS Occupancy Site 015
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2015-04-28	1127	Bull Creek Trib 4 @ JPS Occupancy Site 016
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2015-04-28	1340	Bull Creek Trib 4 @ JPS Occupancy Site 022
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2015-04-13	1057	Bull Creek Trib 7 @ JPS Occupancy Site 083
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2015-05-01	1548	Bull Creek Trib 7 @ JPS Occupancy Site 083
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2015-05-01	1346	Bull Creek Trib 7 @ JPS Occupancy Site 094
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2015-04-24	1309	Bull Creek Trib 7 @ JPS Occupancy Site 095

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2015-04-14	1510	Bull Creek Trib 7 @ JPS Occupancy Site 103
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2015-04-14	1453	Bull Creek Trib 7 @ JPS Occupancy Site 105
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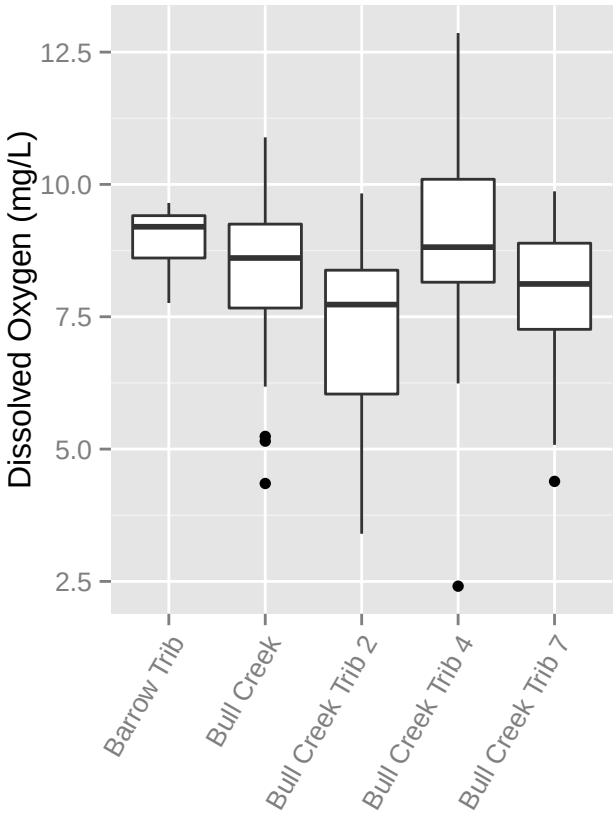
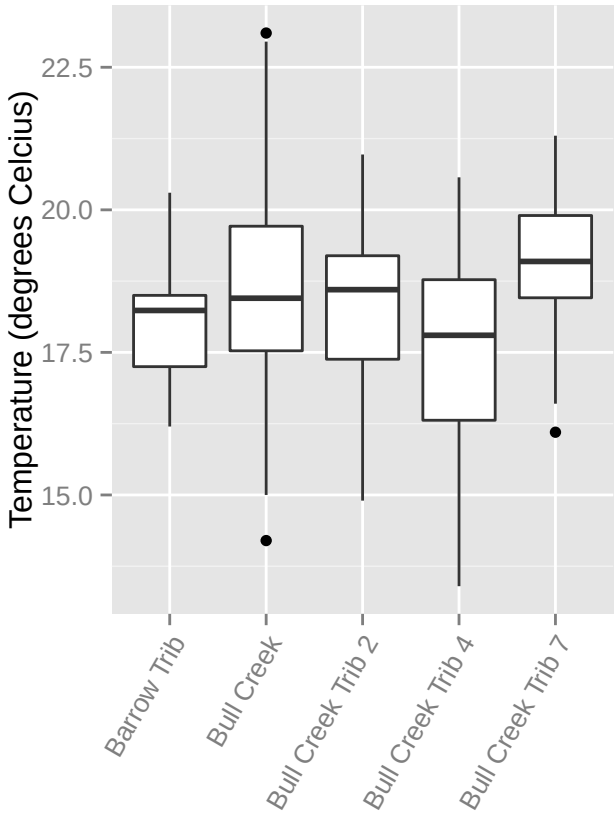
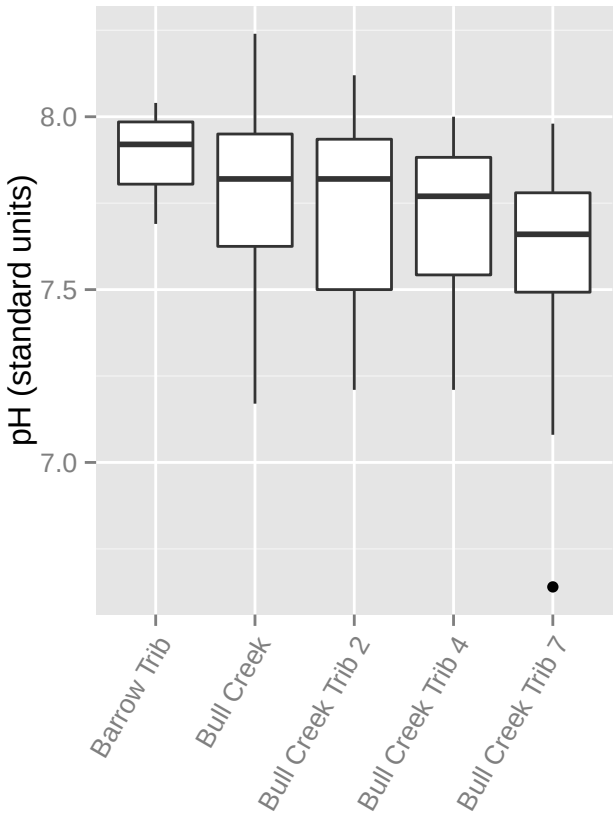
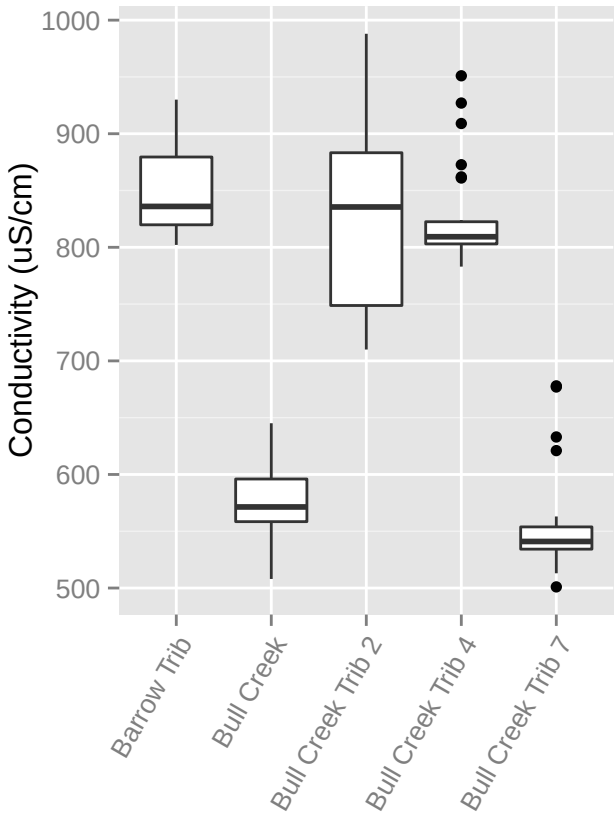
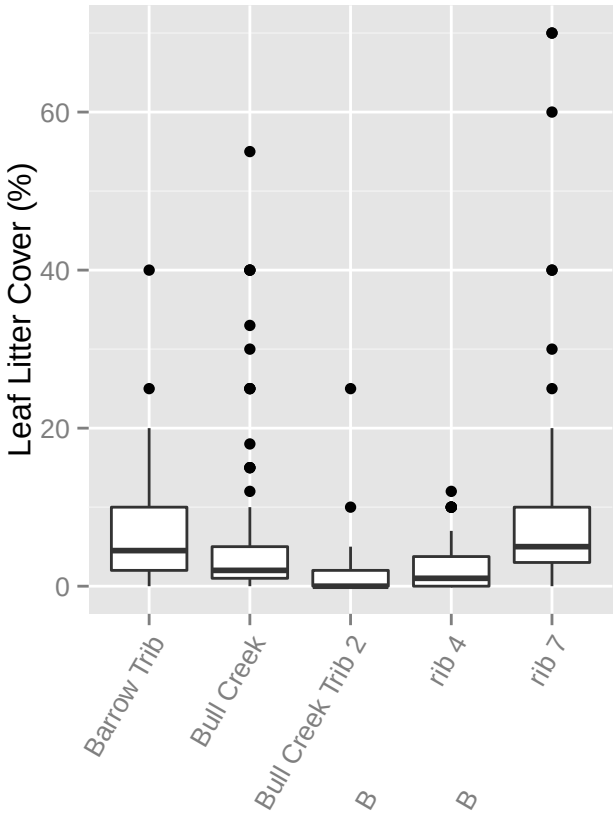
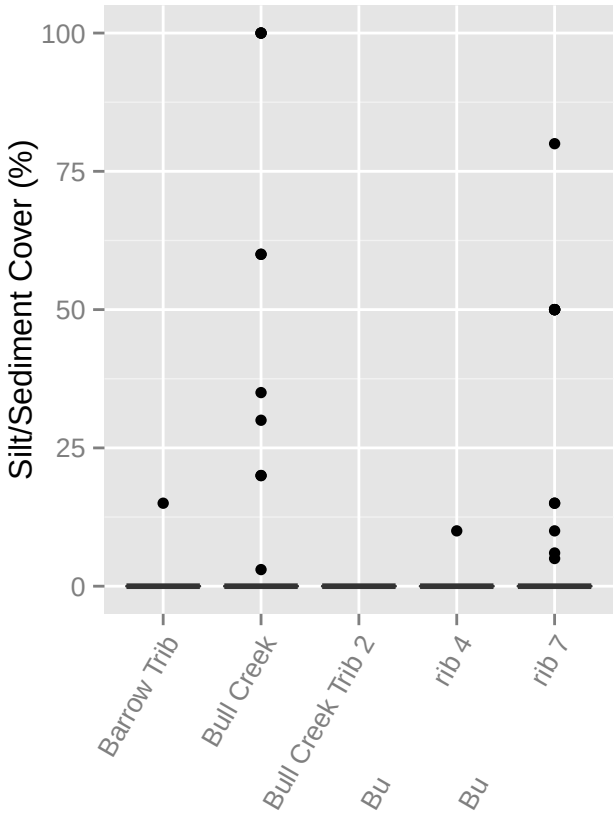

Dissolved Oxygen (mg/L)
12.5
10.0
7.5
5.0
2.5
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7

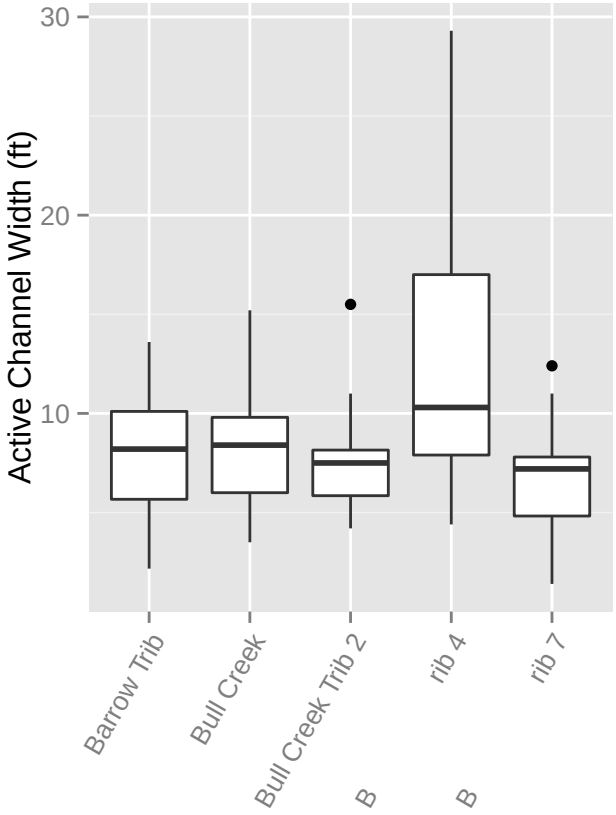

Temperature (degrees Celcius)
22.5
20.0
17.5
15.0
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7

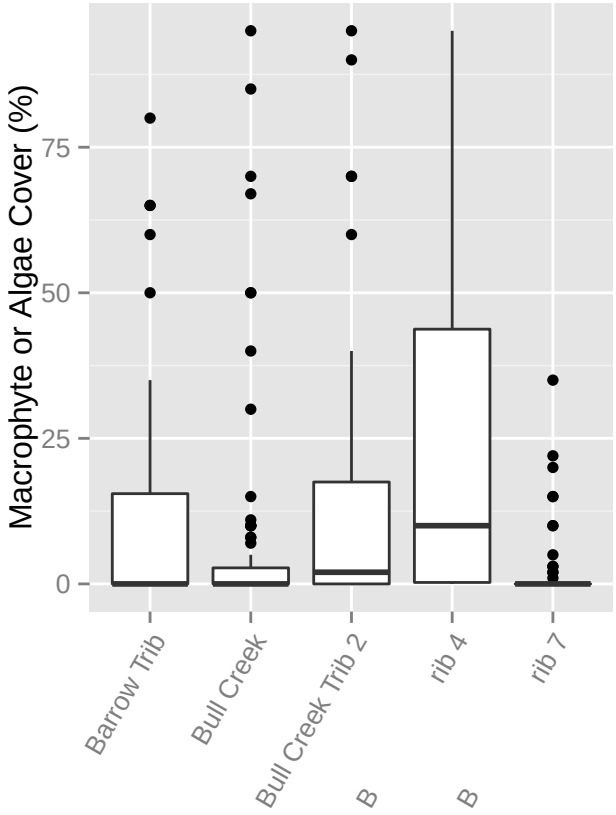

pH (standard units)
8.0
7.5
7.0
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7

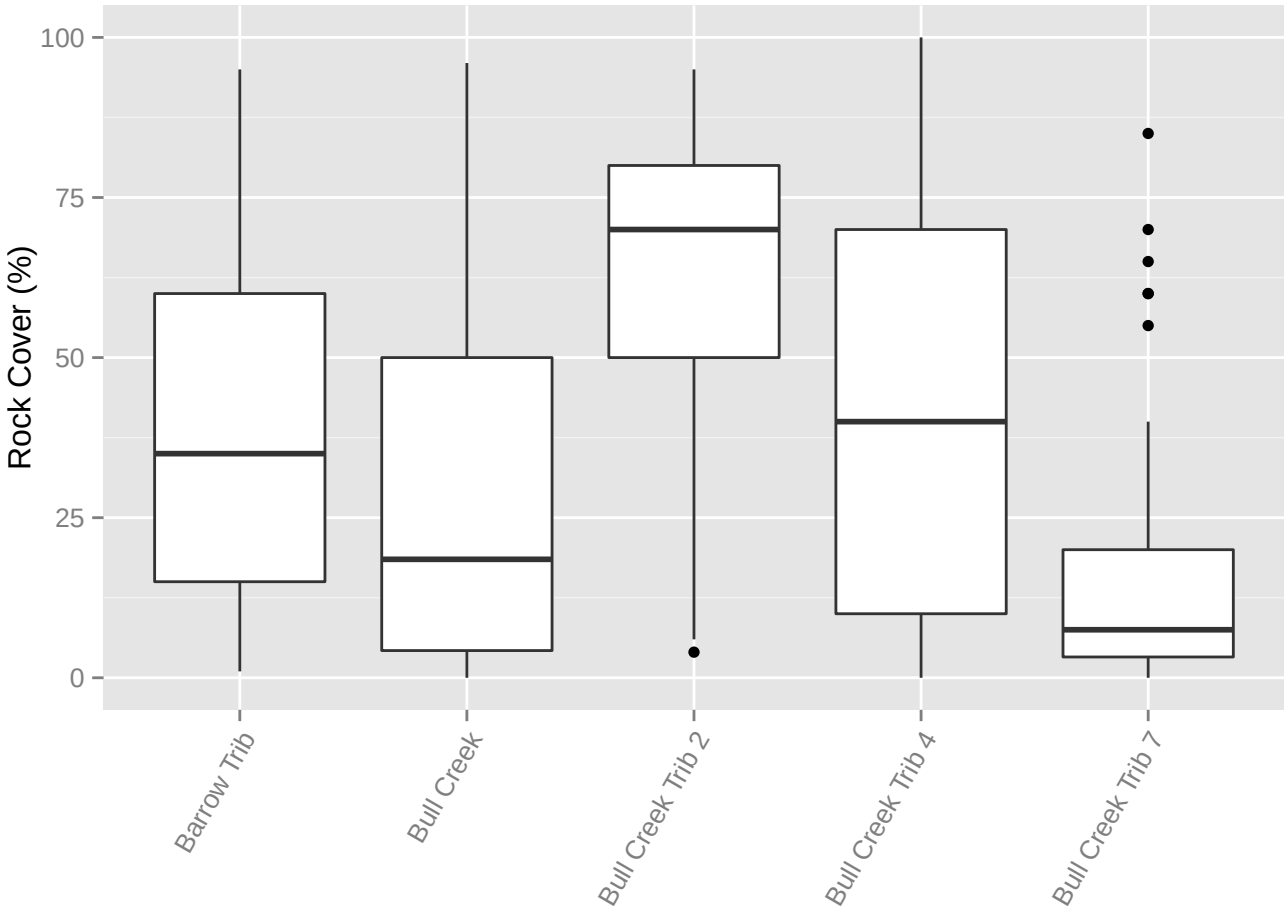

Conductivity (uS/cm)
1000
900
800
700
600
500
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7

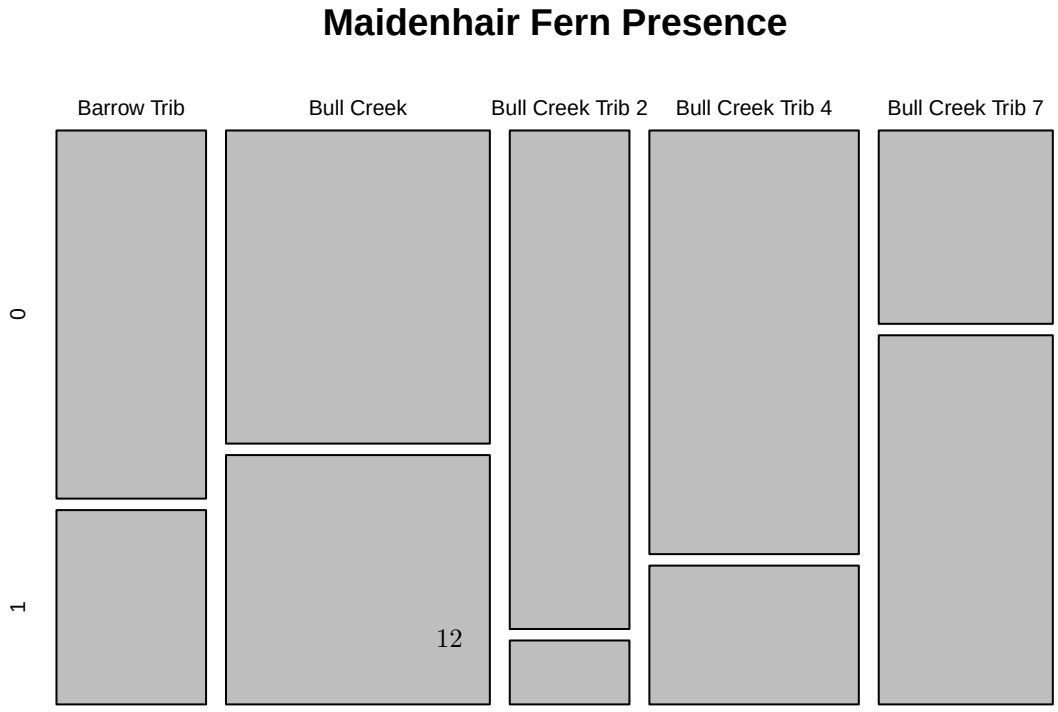

Leaf Litter Cover (%)
60
40
20
0
Barrow Trib
Bull Creek
Bull Creek Trib 2
rib 4
rib 7
B
B


Silt/Sediment Cover (%)
100
75
50
25
0
Barrow Trib
Bull Creek
Bull Creek Trib 2
rib 4
rib 7
Bu
Bu

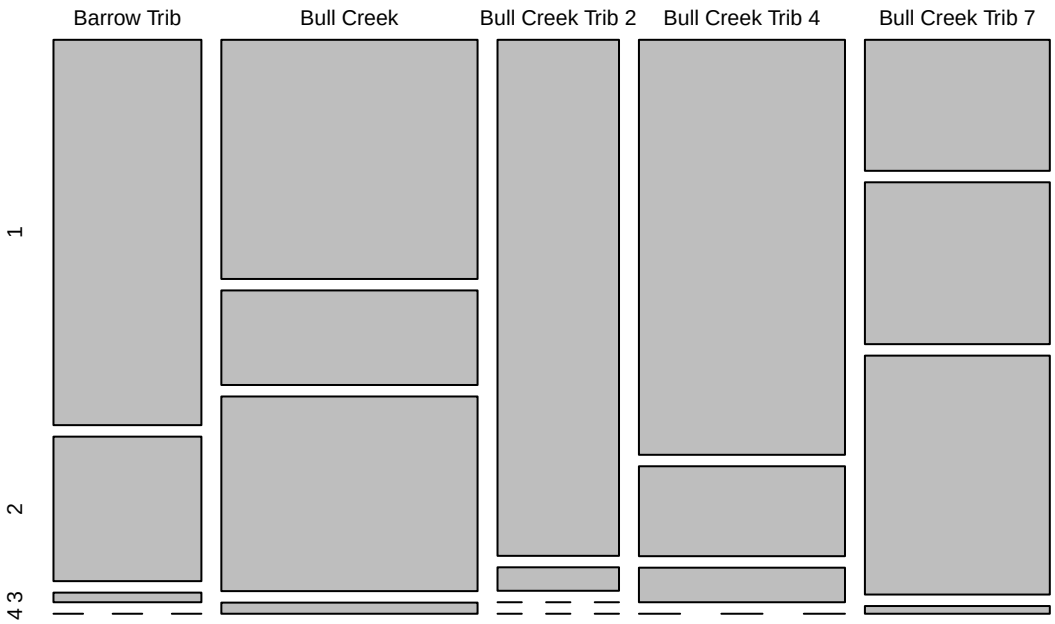

Active Channel Width (ft)
30
20
10
Barrow Trib
Bull Creek
Bull Creek Trib 2
rib 4
rib 7
B
B


Macrophyte or Algae Cover (%)
75
50
25
0
Barrow Trib
Bull Creek
Bull Creek Trib 2
rib 4
rib 7
B
B

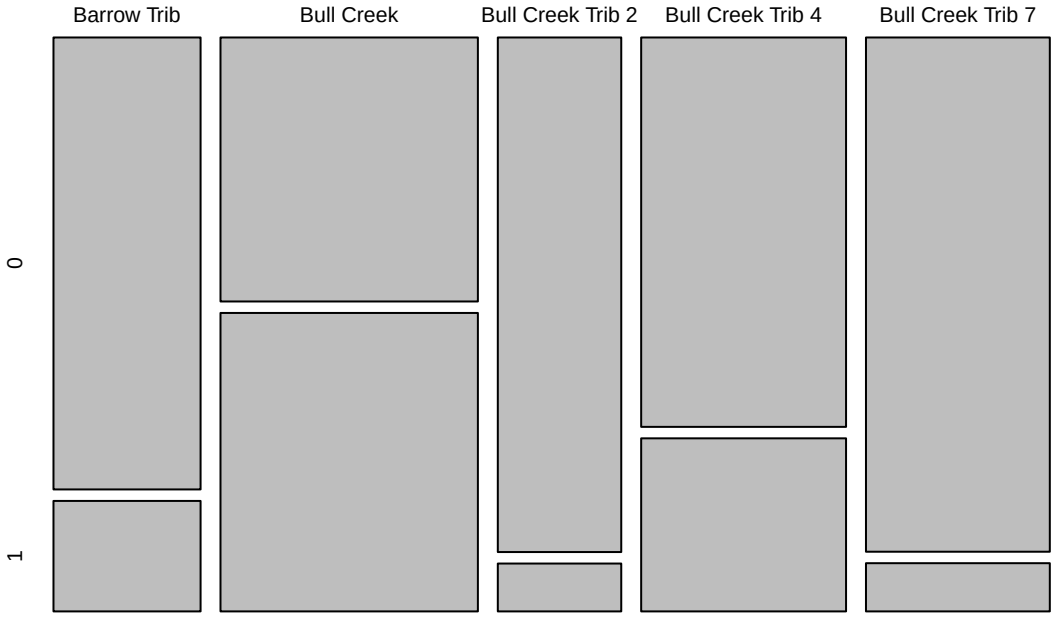

Rock Cover (%)
100
75
50
25
0
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7


Maidenhair Fern Presence
Barrow Trib
Bull Creek
Bull Creek Trib 2
Bull Creek Trib 4
Bull Creek Trib 7
0
1
12

Calcium Carbonate



Salamander Presence



Occupancy Site #	Tributary	X	Y
1	Trib 4	-97.79337928900	30.42030513100
13	Trib 4	-97.78506993200	30.42943611400
25	Trib 4	-97.78926719600	30.43223016500
38	Barrow	-97.76674862600	30.37830573200
43	Barrow	-97.76809722300	30.37562110000
48	Barrow	-97.76877358900	30.37303017800
58	Mainstem	-97.81410562900	30.41871297000
85	Trib 7	-97.81959319900	30.42140088200
118	Trib 2	-97.75824382100	30.41593871200
134	Mainstem	-97.83630973500	30.40991472900
135	Mainstem	-97.83751174300	30.40915380300
136	Mainstem	-97.83884076000	30.40868258500

Table: Occupancy study sites (WGS 84) where Jollyville Plateau salamanders were newly detected in 2015 (salamanders were not detected at these sites in 2013 or 2014).

Species	Site	County	Date	LAT	LONG	Current Disposition
Eurycea tonkawae	box culvert at the junction of 620 and SH 45	Williamson	2015-01-07	30.482	-97.742	TNHC 92952
Eurycea waterlooensis	Eliza Spring	Travis	2015-02-11	30.265	-97.770	TNHC
Eurycea waterlooensis	Old Mill Spring (Sunken Gardens)	Travis	2015-03-26	30.263	-97.768	TNHC
Eurycea sosorum	Upper Barton Spring	Travis	2015-04-09	30.264	-97.774	TNHC

Table : Specimen Collection Log

References

Bendik, N.F., Morrison, T.A., Gluesenkamp, A.G., Sanders, M.S., O'Donnell, L.J., 2013. Computer-assisted photo identification outperforms visible implant elastomers in an endangered salamander, *Eurycea tonkawae*. PLoS One 8, e59424. doi:10.1371/journal.pone.0059424

Bendik, N.F., Sissel, B.N., Fields, J.R., O'Donnell, L.J., Sanders, M.S., 2014. Effect of urbanization on abundance of Jollyville Plateau salamanders (*Eurycea tonkawae*). Herpetol. Conserv. Biol. 9, 206–222. doi:10.1146/annurev.biochem.74.082803.133136

Gabor, C.R., Zabierek, K.C., Kim, D.S., Alberici Da Barbiano, L., Mondelli, M.J., Bendik, N.F. and Davis, D.R. (*in press*). A non-invasive water-borne assay of stress hormones in aquatic salamanders. Copeia.