

2017

Bushkill Creek Trout Redd Survey



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2017 Bushkill Creek Trout Redd Survey

Goals: The Forks of the Delaware chapter of Trout Unlimited conducted our eighth trout redd survey on three “control sections” of the Bushkill Creek (Northampton County) to:

- Establish baseline data.
- Identify productive spawning sites.
- Enhance awareness of wild brown trout spawning within the Bushkill Creek and protection of spawning sites.

The third section was added to the survey in 2014 primarily to collect baseline data. This section is in the design phase for habitat improvements.

Note: We did not survey in 2011 due to unfavorable stream conditions.

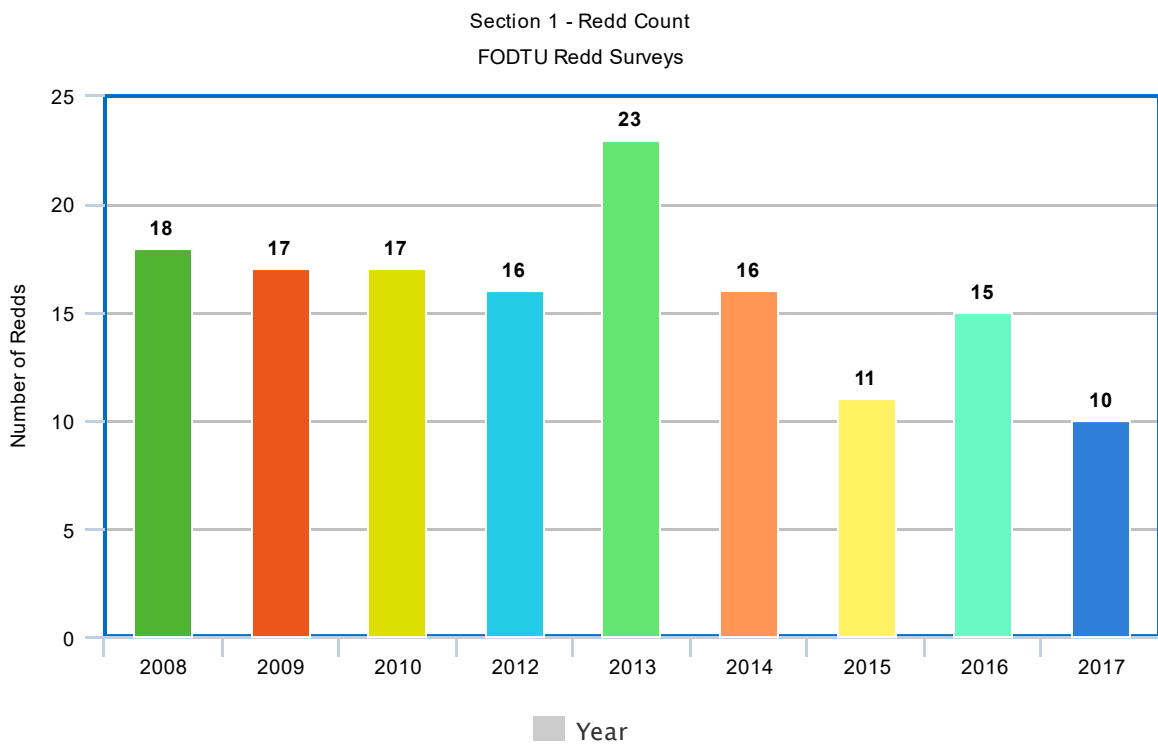
Overview: A trout redd can be generally described as an oval-shaped area of cleaned gravel with a depression from which gravel was dislodged at the upstream end and a slightly humped portion of loosely packed gravel termed the tailspill area at the downstream end. The tailspill covers eggs deposited in a single pit or series of pits as trout spawn in a downstream to upstream progression through the redd area. Brown trout generally choose shallow, gravelly areas, often near the tailout of pools. The female, using her body creates a shallow depression (redd) in the gravel, in which the spawning fish deposit the eggs and sperm. When the process is completed, the female covers the redd with gravel. The eggs develop slowly over the winter. A good flow of clean, well-oxygenated water is necessary for successful egg development. After hatching, the young fish (called alevins) remain buried in the gravel and take nourishment from their large yolk-sacs. By the time the yolk-sacs are absorbed, water temperatures have warmed to 44 degrees to 53 degrees. The fish (now known as fry) emerge from the gravel and begin taking natural food. They mature in their third to fifth year and many become repeat spawners.

Logistics: The survey (Section 1) was conducted on November 24, 2017 between 9:00 a.m. and 11:30 a.m. Section 1 extends approximately 0.9 miles from the bridge at Stocker Mill Rd. (lower limit) to the bridge at Newlins Mill Rd. (upper limit). Water clarity was good. Section 2 was conducted on November 24, 2017 between 12:00 p.m. and 1:30 p.m. Section 2 extends approximately 0.5 miles from the bridge at GJ Mills (lower limit) to the bridge at Edgewood Ave. (upper limit). Water clarity was good. The survey (Section 3) was conducted on November 24, 2017 between 2:30 p.m. and 4:00 p.m. Section 3 extends approximately 0.75 miles from the bridge at Newlins Mill Rd. (lower limit) to the bridge at Bushkill St. in Tatamy (upper limit). Water clarity was good.

The PFBC protocol for conducting trout redd surveys was followed.

Results: A total of 10 redds were counted in Section 1. A total of 13 redds were counted in Section 2. A total of 5 redds were counted in Section 3. The actual number of redds is generally estimated at +/- 20 % of the field count.

2017 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.743' W 075° 14.854'	1	Newlins Bridge
N 40° 43.702' W 075° 14.941'	1	Side channel
N 40° 43.689' W 075° 14.940'	1	
N 40° 43.662' W 075° 14.984'	1	Bushkill Creek Estates
N 40° 43.365' W 075° 14.788'	3	Above Penns Grant bridge
N 40° 43.332' W 075° 14.777'	1	Below Penns Grant bridge
N 40° 43.180' W 075° 14.701'	1	Gas line
N 40° 43.146' W 075° 14.700'	1	Zucksville Road
Total redds (field count)	10	

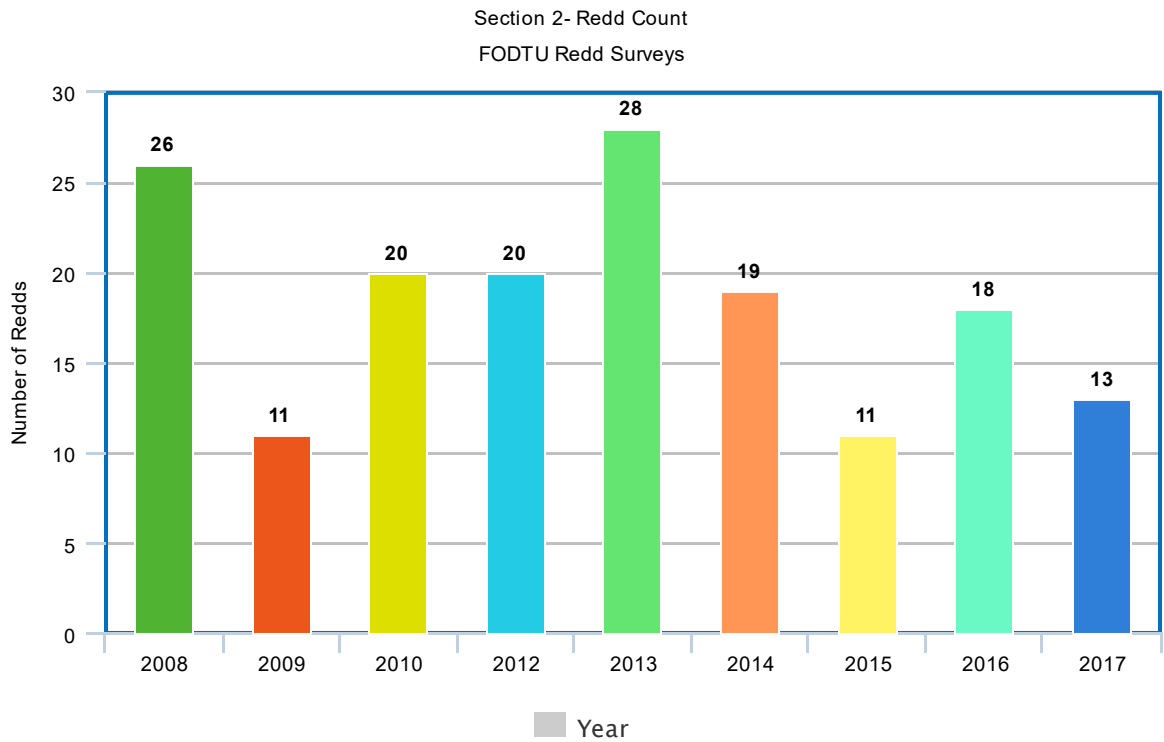


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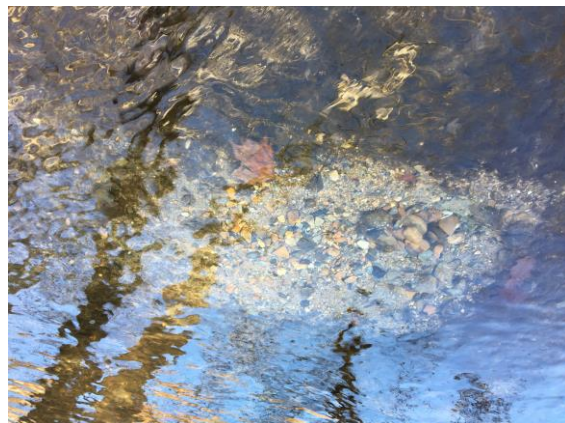


Redds in Section 2 above Penn's Grant Bridge

2017 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 43.037' W 075° 14.754'	2	Below Edgewood Avenue bridge
N 40° 43.037' W 075° 14.754'	1	Tail of Edgewood Avenue bridge pool
N 40° 42.001' W 075° 14.350'	1	End of Crayola building
N 40° 42.064' W 075° 14.304'	6	Tail of meadow pool, mid-stream
N 40° 42.072' W 075° 14.306'	2	Extreme tail out of meadow pool
N 40° 42.091' W 075° 14.211'	1	
Total redds (field count)	13	



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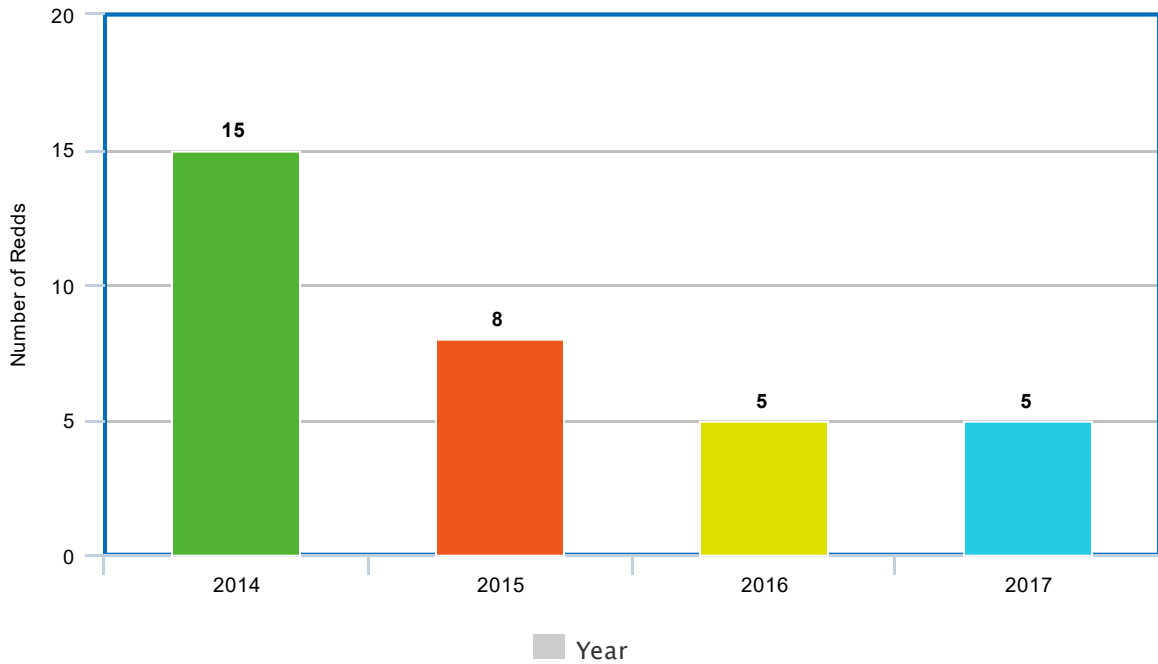


Redd located in Section 2 even with end of Crayola Buildi

Redd located in Section 2 at end of Crayola Building

2017 Bushkill Creek Trout Redd Survey-Section 3 (Newlins Mill Rd. to Bushkill St., Tatamy)		
GPS Coordinates	# of redds	Location description
N 40° 44.129' W 075° 14.784'	1	Braids below Spring House pool
N 40° 43.881' W 075° 14.627'	1	
N 40° 43.857' W 075° 14.637'	1	
N 40° 43.790' W 075° 14.632'	1	
N 40° 43.735' W 075° 14.787'	1	
Total redds (field count)	5	

Section 3 - Redd Count
FODTU Redd Surveys



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Pre Survey Observations (5 control sites are checked periodically prior to actual survey to monitor progression of the spawning season to ensure the majority of spawning has occurred prior to the count):

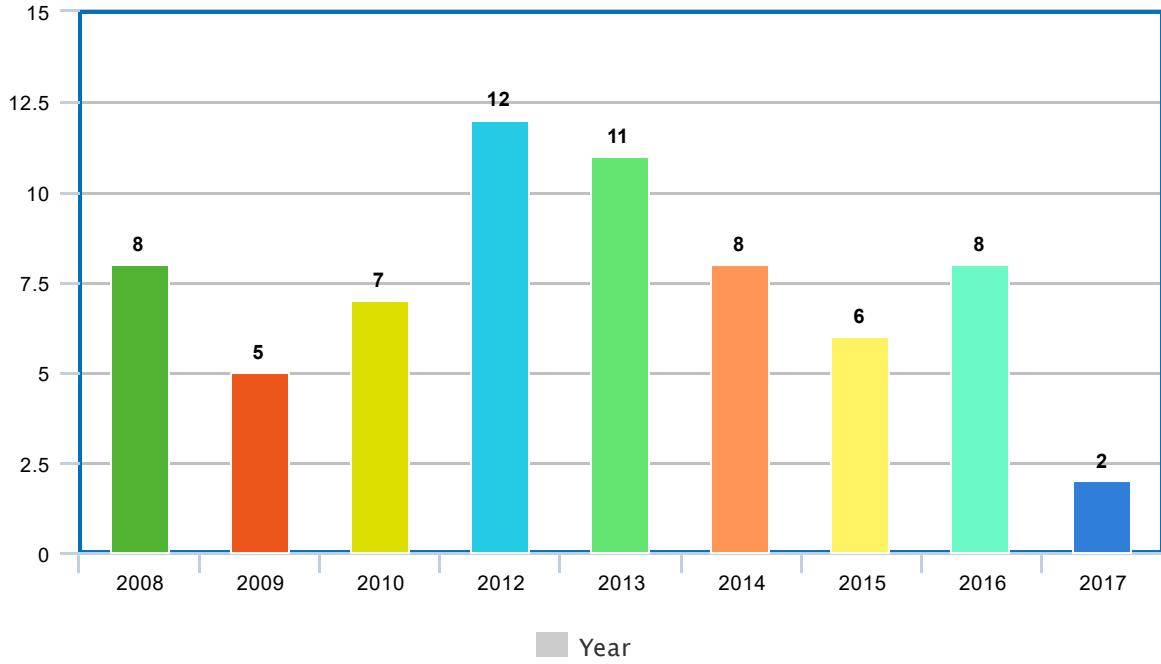
- November 1st. No activity was observed at any of the 5 control sites.
- November 8th. A large trout was observed at Pearl Street with possible gravel disturbance.
- November 12th. No new observations recorded at any of the 5 control sites.
- November 15th. Three large trout and a smaller trout were observed at Pearl Street. One possible redd at Edgewood Avenue.

- November 19th. Pearl Street had no change. One possible redd. Edgewood Avenue had no change. I decided to check the meadow pool (significant spawning site). Multiple redds were observed with two trout on a redd. Stocker Mill Bridge had no activity. Two redds were observed above the Penn's Grant Bridge. Possible redd at Newlin's Mill Bridge.
- November 21st. No additional redds or gravel disturbance at Pearl Street although one large trout was observed. There was an additional redd above Penn's Grant Bridge with a large trout causing a disturbance (either creating a depression or covering eggs with its tail). Observed an additional redd below Edgewood Avenue Bridge. No additional activity observed in meadow pool. Decided to walk through Penn Pump Park and observed one large redd area. No activity at Stocker Mill Bridge. Decided to check the area around the gas line/Zucksville Road (significant spawning site). Observed limited activity (one redd). One redd observed at Newlin's Mill Bridge.

Observations during Actual Counts and Post Count conclusions:

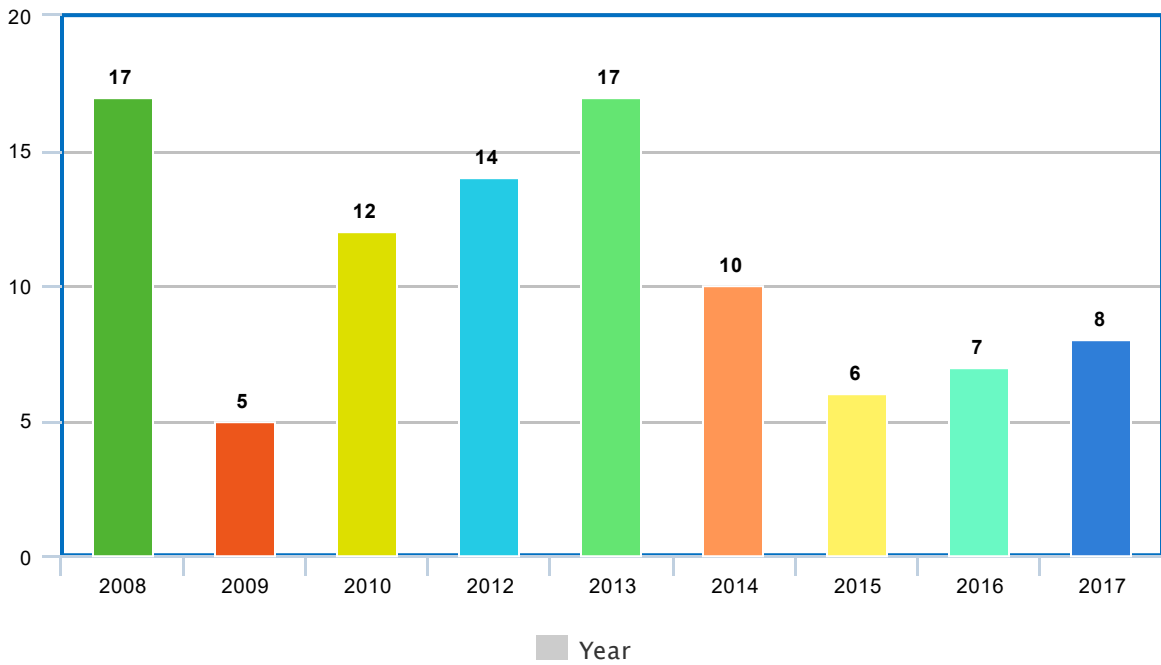
- No trout were present on any redds during the survey. Post count observations on December 3rd at the five control sites plus Binney Meadow and gas line/Zucksville Road indicated some additional spawning activity at two of the sites (Edgewood Avenue bridge and Penn's Grant bridge). Timing of the survey is always a concern due to the need to capture most of the spawn while also taking into consideration other environmental factors such as flow, water clarity, and visibility (freshness) of the redds during the count. Timing for the actual count in 2017 was near optimal, but postponing actual counts to later in November or early December is a consideration. While this has the potential to capture near 100 percent of the spawn, there is the possibility that early redds may be missed as redds become increasingly difficult to identify as they blend in with the surrounding stream bottom due to colonization of periphyton.
- Section 1 had nominal redd production in the past significant spawning site from the gas line to Zucksville Road. Also, no redds were observed at Stocker Mill Bridge. The following chart depicts redd production over time for the subsection (Stocker dam to Stocker Mill Bridge). Total number of redds for Section 1 was the lowest since doing the survey. Is this indicative of a downward trend in redd production in Section 1 or just a cyclical variation? The area above and below Penn's Grant Bridge (upstream from the dam) was utilized again this year and would be considered the significant spawning site (40% of the redds) for Section 1 in 2017.

Section 1 - Subsection (Stocker dam to Stocker Mill Bridge) Redd count
FODTU Redd Surveys



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Section 2 - Significant Spawning Site Binney Meadow Redd Count
FODTU Redd surveys



meta-chart.com

- Section 3 has the most potential to be impacted by low flows. Low flow conditions like on November 25th due to PPL maintenance resulting in Buzzi Unicem extended pump shutdown expose the trout to increased predation from herons and other fish eaters and jeopardizes the redds. I observed a bald eagle flying upstream of the Tatamy spring house during the low flow conditions on November 25th. The lack of productivity for the third straight year may just be due to a dwindling number of trout utilizing this reach due to environmental factors.
- In analyzing the various charts, there is some concern that the amount of redds is trending down, but it will take more data to fully understand if this is truly a trend or just cyclical in nature.



Low flow conditions like on November 25th strand and suffocate fish, expose them to predation and endanger the trout redds that require flowing oxygenated water. Photo taken from Main Street in Tatamy, upstream from Survey Section 3.

Recommendations:

- Continue annual trout redd surveys for these control sections, adding additional sections if possible to identify additional significant spawning sites. Identify correlations between spawning activity (number of redds) and recruitment of juveniles (electro-fishing).
- Implement educational signage at significant spawning sites.
- Monitor identified spawning sites (within and outside the control section) for actual spawning (actual trout on redds) during subsequent years' spawning season (from mid October on).
- Educate anglers not to disturb redds and to be careful wading during and after spawning season (mid-fall to late-winter). Redds become increasingly difficult to identify as they blend in with the surrounding stream bottom due to colonization of periphyton.
- Educate the public about the importance of naturally reproducing wild trout and their role in a functioning ecosystem.
- Identify solutions to the dewatering of the Bushkill Creek in Tatamy.
- Implement habitat restoration plan in section 3.
- Removal of dams would provide more spawning habitat and access to existing productive spawning sites. Habitat improvement projects including random boulder placement would provide additional cover for adult and juvenile fish.
- Identify sources and causes of siltation from urban and agricultural practices and develop remediation and restoration measures.
- Encourage PFBC to continue to monitoring the stream through electro-fishing surveys.

Appendix A: Bushkill Creek trout redd photos:
2016





2013







2012





Appendix B: Past Data

2016 Data

2016 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.743' W 075° 14.864'	2	Riff below tail of Newlins Bridge pool
N 40° 43.651' W 075° 14.966'	3	Bushkill Creek Estates
N 40° 43.431' W 075° 14.851'	1	Kessler'sville, Road
N 40° 43.348' W 075° 14.787'	1	Beneath Penns Grant bridge
N 40° 43.198' W 075° 14.664'	3	Gas line
N 40° 43.137' W 075° 14.701'	1	Below gas line
N 40° 43.121' W 075° 14.725'	3	Zucksville Road
N 40° 43.015' W 075° 14.686'	1	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	15	

2016 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42,027' W 075° 14.490'	6	Below Edgewood Avenue bridge
N 40° 42.044' W 075° 14.469'	1	Tail of meadow pool, Palmer side
N 40° 42.049' W 075° 14.288'	3	Tail of meadow pool, mid stream
N 40° 42.064' W 075° 14.263'	3	Extreme tailout of meadow pool

N 40° 42.044' W 075° 14.247'	2	Next pool below riff
N 40° 42.079' W 075° 14.189'	1	Cut bank
N 40° 42.123' W 075° 14.045'	2	Tail of long pool above GJ Mills
Total redds (field count)	18	

2016 Bushkill Creek Trout Redd Survey-Section 3 (Newlins Mill Rd. to Bushkill St., Tatamy)		
GPS Coordinates	# of redds	Location description
N 40° 44.141' W 075° 14.767'	2	Braids below Spring House pool
N 40° 43.096' W 075° 14.648'	1	
N 40° 43.874' W 075° 14.626'	1	
N 40° 43.846' W 075° 14.639'	1	
Total redds (field count)	5	

2015 Data

2015 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.749' W 075° 14.886'	1	Riff below tail of Newlins Bridge pool
N 40° 43.689' W 075° 14.940'	1	Bushkill Creek Estates
N 40° 43.404' W 075° 14.819'	1	
N 40° 43.360' W 075° 14.790'	2	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.194' W 075° 14.699'	3	Gas line
N 40° 43.149' W 075° 14.700'	2	Zucksville Road
N 40° 43.022' W 075° 14.717'	1	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	11	

2015 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.026' W 075° 14.492'	1	Below Edgewood Avenue bridge
N 40° 42.026' W 075° 14.365'	1	Behind Research Building
N 40° 42.039' W 075° 14.281'	2	Tail of meadow pool, Palmer side
N 40° 42.081' W 075° 14.281'	1	
N 40° 42.047' W 075° 14.263'	3	Extreme tailout of meadow pool
N 40° 42.075' W 075° 14.186'	1	
N 40° 42.142' W 075° 14.047'	1	Tail of long pool above GJ Mills
N 40° 42.147' W 075° 14.022'	1	Riff above bridge, Palmer side
Total redds (field count)	11	

2015 Bushkill Creek Trout Redd Survey-Section 3 (Newlins Mill Rd. to Bushkill St., Tatamy)		
GPS Coordinates	# of redds	Location description
N 40° 44.148' W 075° 14.818'	1	Tail of Spring House pool
N 40° 44.011' W 075° 14.703'	1	Below gas line

N 40° 43.866' W 075° 14.630'	2	
N 40° 43.735' W 075° 14.783'	1	About 75 yards above Newlins Mill Bridge
N 40° 43.736' W 075° 14.797'	2	About 50 yards above Newlins Mill Bridge
N 40° 43.738' W 075° 14.824'	1	About 40 yards above Newlins Mill Bridge
Total redds (field count)	8	

2014 Data

2014 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.741' W 075° 14.852'	1	Pool below Newlins bridge
N 40° 43.751' W 075° 14.892'	2	Riff below tail of pool
N 40° 43.662' W 075° 14.975'	5	Bushkill Creek Estates
N 40° 43.172' W 075° 14.697'	5	Gas line
N 40° 43.026' W 075° 14.733'	3	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	16	

2014 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.028' W 075° 14.495'	4	Below Edgewood Avenue bridge
N 40° 42.017' W 075° 14.488'	2	Tail of bridge pool
N 40° 42.040' W 075° 14.299'	3	Tail of meadow pool, Palmer side
N 40° 42.050' W 075° 14.290'	2	Tail of meadow pool, mid pool
N 40° 42.058' W 075° 14.270'	5	Extreme tailout of meadow pool
N 40° 42.090' W 075° 14.214'	1	Below cut bank
N 40° 42.142' W 075° 14.051'	2	Tail of long pool above GJ Mills
Total redds (field count)	19	

2014 Bushkill Creek Trout Redd Survey-Section 3 (Newlins Mill Rd. to Bushkill St., Tatamy)		
GPS Coordinates	# of redds	Location description
N 40° 44.139' W 075° 14.868'	1	Tail of Spring House pool
N 40° 44.126' W 075° 14.777'	3	Braid below Spring House pool
N 40° 44.018' W 075° 14.718'	2	Gas line below boulders
N 40° 44.011' W 075° 14.713'	1	
N 40° 43.936' W 075° 14.656'	1	
N 40° 43.835' W 075° 14.626'	2	
N 40° 43.792' W 075° 14.642'	3	

N 40° 43.732' W 075° 14.821'	2	Above bridge at Newlins Mill Rd.
Total redds (field count)	15	

2013 Data

2013 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.742' W 075° 14.648'	2	Pool below Newlins bridge
N 40° 43.746' W 075° 14.888'	2	Tail of pool below Newlins bridge
N 40° 43.736' W 075° 14.883'	3	Riff below tail of pool
N 40° 43.647' W 075° 14.963'	2	Upstream from Bushkill Estates
N 40° 43.628' W 075° 14.977'	1	Bushkill Creek Estates
N 40° 43.391' W 075° 14.805'	1	
N 40° 43.352' W 075° 14.779'	1	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.233' W 075° 14.693'	1	Below Stocker Mill dam
N 40° 43.180' W 075° 14.691'	1	Upstream of gas line
N 40° 43.162' W 075° 14.697'	3	Gas line
N 40° 43.145' W 075° 14.702'	1	Downstream of gas line
N 40° 43.037' W 075° 14.733'	5	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	23	

2013 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.044' W 075° 14.497'	4	Below Edgewood Avenue bridge
N 40° 42.055' W 075° 14.268'	9	Tail of meadow pool, Forks side
N 40° 42.055' W 075° 14.268'	3	Tail of meadow pool, Palmer side
N 40° 42.065' W 075° 14.268'	5	Extreme tailout of meadow pool
N 40° 42.057' W 075° 14.250'	1	Riff below tailout
N 40° 42.091' W 075° 14.190'	2	Below cut bank
N 40° 42.147' W 075° 14.043'	3	Tail of long pool above GJ Mills
N 40° 42.160' W 075° 13.991'	1	Upstream GJ Mills bridge
Total redds (field count)	28	

2012 Data

2012 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.726' W 075° 14.972'	1	Tail of pool below Newlins bridge
N 40° 43.667' W 075° 14.967'	2	Bushkill Creek Estates
N 40° 43.353' W 075° 14.789'	1	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.162' W 075° 14.697'	3	Upstream of gas line
N 40° 43.175' W 075° 14.717'	1	Gas line
N 40° 43.157' W 075° 14.697'	5	Downstream of gas line
N 40° 43.037' W 075° 14.734'	3	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	16	

2012 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.031' W 075° 14.499'	2	Below Edgewood Avenue bridge
N 40° 42.362' W 075° 14.417'	1	Upper end of Binney Research building, Forks side
N 40° 42.208' W 075° 14.236'	2	Lower end of Binney research building in long pool, Forks side
N 40° 42.056' W 075° 14.306'	2	End of meadow, Forks side
N 40° 42.025' W 075° 14.277'	3	End of meadow, Palmer side
N 40° 42.040' W 075° 14.264'	4	Tailout, Palmer side
N 40° 42.036' W 075° 14.267'	5	Extreme tailout of long pool below meadow
N 40° 42.055' W 075° 14.524'	1	Power line above GJ Mills
Total redds (field count)	20	

2010 Data

2010 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.746' W 075° 14.853'	3	Below Newlins bridge
N 40° 43.749' W 075° 14.897'	2	
N 40° 43.597' W 075° 14.994'	1	Bushkill Creek Estates
N 40° 43.349' W 075° 14.783'	4	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.171' W 075° 14.689'	2	Gas line
N 40° 43.152' W 075° 14.688'	1	Zucksville Rd.
N 40° 43.030' W 075° 14.729'	4	Downstream Stocker Mill bridge, Palmer side.
Total redds (field count)	17	

2010 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.036' W 075° 14.502'	4	Below Edgewood Avenue bridge
N 40° 42.029' W 075° 14.354'	1	Long pool behind Binney Research building meadow, mid pool

N 40° 42.041' W 075° 14.290'	3	Tail of long pool behind Binney Research building meadow, Palmer side
N 40° 42.051' W 075° 14.279'	1	Tail of long pool behind Binney Research building meadow, mid stream
N 40° 42.055' W 075° 14.271'	4	Tailout of long pool behind Binney Research building meadow, Palmer side
N 40° 42.059' W 075° 14.269'	3	Extreme tailout of long pool below meadow, mid stream
N 40° 42.099' W 075° 14.177'	1	Power line above GJ Mills
N 40° 42.143' W 075° 14.055'	1	Tail of long pool above GJ Mills
N 40° 42.146' W 075° 13.994'	2	Upstream GJ Mills bridge
Total redds (field count)	20	

2009 Data

2009 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.743' W 075° 14.855'	2	Below Newlins bridge/1 Forks side tailout, 1 Palmer side
N 40° 43.742' W 075° 14.888'	3	
N 40° 43.740' W 075° 14.904'	1	
N 40° 43.692' W 075° 14.941'	2	Upstream Bushkill Creek Estates
N 40° 43.671' W 075° 14.966'	3	Bushkill Creek Estates
N 40° 43.357' W 075° 14.778'	1	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.168' W 075° 14.688'	1	Gas line
N 40° 43.029' W 075° 14.725'	4	Downstream Stocker Mill bridge, Palmer side, large area
Total redds (field count)	17	

2009 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.038' W 075° 14.501'	4	Below Edgewood Avenue bridge
N 40° 42.014' W 075° 14.370'	1	
N 40° 42.041' W 075° 14.294'	5	Tail of long pool behind Binney meadow
N 40° 42.090' W 075° 14.172'	1	
Total redds (field count)	11	

2008 Data

2008 Bushkill Creek Trout Redd Survey-Section 1 (Stocker Mill Rd to Newlins Mill Rd)		
GPS Coordinates	# of redds	Location description
N 40° 43.028' W 075° 14.712'	2	Downstream Stocker Mill bridge, Palmer side, large area
N 40° 43.144' W 075° 14.692'	2	Zucksville Road, Forks side, extreme tailout of pool
N 40° 43.159' W 075° 14.686'	1	Gas line, midstream, tail of pool
N 40° 43.180' W 075° 14.689'	2	Upstream gas line, Forks side near bank
N 40° 43.212' W 075° 14.675'	1	Powerline/second pool below dam

N 40° 43.357' W 075° 14.788'	2	Upstream Penns Grant bridge, Palmer side, near tree branch
N 40° 43.593' W 075° 14.989'	1	Downstream Bushkill Creek Estates, Palmer side near bank
N 40° 43.665' W 075° 14.974'	1	Across from Bushkill Creek Estates, Palmer side near bank
N 40° 43.689' W 075° 14.949'	3	Upstream Bushkill Creek Estates, Forks side near bank
N 40° 43.733' W 075° 14.852'	3	Below Newlins bridge/2 Forks side, 1 Palmer side
Total redds (field count)	18	

2008 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)		
GPS Coordinates	# of redds	Location description
N 40° 42.158' W 075° 14.004'	2	Upstream GJ Mills bridge, large area midstream
N 40° 42.055' W 075° 14.265'	4	Extreme tailout of long pool behind Binney Research building
N 40° 42.051' W 075° 14.269'	2	Tail of long pool behind Binney Research building, Palmer side
N 40° 42.052' W 075° 14.271'	1	Tail of long pool behind Binney Research building, Palmer side
N 40° 42.052' W 075° 14.298'	4	Tail of long pool behind Binney Research building, Forks side
N 40° 42.051' W 075° 14.309'	2	Long pool behind Binney Research building
N 40° 42.033' W 075° 14.352'	2	Long pool, large area Forks side near bank
N 40° 42.019' W 075° 14.365'	2	Head of long pool, Forks side near bank
N 40° 43.004' W 075° 14.400'	1	
N 40° 41.999' W 075° 14.458'	1	Tail of second pool below bridge
N 40° 42.018' W 075° 14.496'	3	Tail of Edgewood Avenue bridge pool
N 40° 42.037' W 075° 14.506'	1	In front of second sawtooth below bridge
N 40° 42.045' W 075° 14.498'	1	Below Edgewood Avenue bridge, forks side
Total redds (field count)	26	