

2009

# Bushkill Creek Trout Redd Survey



Brian Wagner

Forks of the Delaware Trout Unlimited

PO Box 467

Stockertown, PA 18083

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## 2009 Bushkill Creek Trout Redd Survey

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

- Familiarize ourselves with the PFBC protocol for conducting trout redd surveys.
- Establish baseline data for future surveys.
- Identify productive spawning sites.
- Enhance awareness of wild brown trout spawning within the Bushkill Creek and protection of spawning sites.

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 first survey (Section 1) was conducted on November 27<sup>th</sup>, 2009 between 10:00 a.m. and 12:30 p.m. Section 1 extended 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. Participants included Rich Tartaglia, Thom Beverly, Bill Heffner, Paul Dickerson and Brian Wagner.

The second survey (Section 2) was conducted on November 28<sup>th</sup>, 2009 between 12 p.m. and 2:30 p.m. Section 2 extended 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 PFBC protocol for conducting trout redd surveys was followed.

Results: A total of 17 redds were counted in Section 1. A total of 11 redds were counted in Section 2. The actual number of redds is generally estimated at +/- 20 % of the field count.

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
<b>Total redds (field count)</b>	<b>17</b>	

<b>2009 Bushkill Creek Trout Redd Survey-Section 2 (GJ Mills entrance to Edgewood Avenue)</b>		
<b>GPS Coordinates</b>	<b># of redds</b>	<b>Location description</b>
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	
<b>Total redds (field count)</b>	<b>11</b>	

Observations:

- No trout were visible on any redds, most likely indicating that a significant portion of spawning has occurred. Initial spawning at Edgewood Avenue had begun by October 21<sup>st</sup>.
- Section 1 showed a slight decline in number of redds counted from 2008 (17 versus 18) but was well within the margin of error +/- 20%, therefore statistically no change.
- 65% of the redds (11 of 17) identified in Section 1 were located within 0.15 mile of the bridge at Newlins Mill Rd. indicating a significant spawning site.
- Section 2 showed a significant decline in number of redds counted from 2008 (11 versus 26). More data will need to be collected in subsequent years to determine if either year was an aberration or the norm. The redds identified on October 21<sup>st</sup> were barely visible now.
- The long meadow pool located behind the Crayola research building contained 5 redds, 12 fewer than in 2008, but still 45% of the redds identified in Section 2, making it a significant spawning site.

Recommendations:

- Continue annual trout redd surveys for these control sections, adding additional sections if possible. Identify correlations between spawning activity (number of redds) and recruitment of juveniles (electro-fishing).
- 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).
- Complete redd surveys earlier if spawning is completed to aid in count. Fresh redds are easier to identify.

- 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.
- Removal of dams would provide more spawning habitat and access to existing productive spawning sites.
- Identify sources and causes of siltation from urban and agricultural practices and develop remediation and restoration measures.
- Identify poor spawning habitat. Explore the potential of spawning gravel restoration and/or use of vibert boxes.

Bushkill Creek trout redd photos:



