



Pennsylvania Fish & Boat Commission

Bureau of Fisheries
Division of Environmental Services
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DATE: January 31, 2017

SUBJECT: PA Fish & Boat Commission 2011-2016 Unassessed Waters surveys within the Blacklick Watershed

TO: Blacklick Creek Watershed Association, Cambria County Conservation District, Indiana County Conservation District

FROM: Gary Smith and Kurt Gildea, Division of Environmental Services

As part of the Unassessed Waters Program, Pennsylvania Fish and Boat Commission (PFBC) Division of Environmental Services and Division of Fisheries Management staff surveyed 94 sites on 89 streams within the Blacklick Creek Watershed during the 2011 to 2016 field seasons. The Blacklick Creek Watershed is located in western Pennsylvania, situated predominately in Indiana County and part of Cambria County. Blacklick Creek is a 32.9 mile long tributary to the Conemaugh River, encompassing a drainage area of 419 square miles. The watershed is comprised of 866 total miles of streams within five main streams: Two Lick Creek, Yellow Creek, Mainstem Blacklick Creek, North Branch Blacklick Creek and South Branch Blacklick Creek.

For simplicity of representing a large amount of data in this report, the Blacklick Creek Watershed was divided into five sub-watersheds, Two Lick Creek sub-watershed, Yellow Creek sub-watershed, Mainstem Blacklick Creek sub-watershed, South Branch Blacklick sub-watershed and North Branch Blacklick Creek sub-watershed. A total of 14 streams were sampled in the Two Lick Creek sub-watershed, 14 streams within the Yellow Creek sub-watershed, 25 streams in the Mainstem Blacklick Creek sub-watershed, 14 streams in the South Branch Blacklick sub-watershed and 22 streams in North Branch Blacklick sub-watershed (Figure 1). Our sample procedures followed those of Weber et al. (2011).

In the the Two Lick Creek sub-watershed, 15 sites were surveyed on 14 streams (Tables 1 - 3, Figures 2 - 8). A total of 26 fish species were observed in the 14 streams. Blacknose Dace and Creek Chub were the most commonly observed species. Two streams in this sub-watershed, Tearing Run and UNT to Tearing Run (RM 0.72), did not have any fish. This was most likely due to low pH levels as a result of mine drainage impacts. Four streams in the Two Lick Creek sub-watershed (Penn Run, Rock Run, South Branch Two Lick Creek – Section 3, and UNT to South Branch Two Lick Creek (RM 1.27)) had wild Brown Trout. No wild Brook Trout were observed in any of the streams sampled in this sub-watershed. Penn Run, Rock Run, and South Branch Two Lick Creek are on PFBC's list of Stream Sections That Support Natural Reproduction of Trout.

Fourteen streams were sampled in the Yellow Creek sub-watershed by the PFBC as part of the Unassessed Waters Program from 2011 – 2016 (Tables 4 – 6, Figures 9 - 14). A total of 16 fish species were observed in the 14 streams surveyed in the Yellow Creek sub-watershed. Blacknose Dace, Creek Chub, and Mottled Sculpin were the three most prevalent fish species collected in the streams in this sub-watershed. The Least Brook Lamprey, a PA Candidate Species, was observed in UNT to Little Yellow Creek (RM 0.85) and UNT to Yellow Creek Lake (RM 10.84). Wild Brown Trout were found in five streams in this sub-watershed: Leonard Run, UNT to Yellow Creek (RM 13.96), UNT to Yellow Creek (RM 15.76), UNT to Yellow Creek (RM 17.82), and UNT to Yellow Creek (RM 18.07). UNT to Little Yellow Creek (RM 5.84) was the only stream sampled in this sub-watershed that had a population of wild Brook Trout. Leonard Run, UNT to Yellow Creek (RM 17.82), UNT to Yellow Creek (RM 18.07), and UNT to Little Yellow Creek (RM 5.84) are on PFBC's list of Stream Sections That Support Natural Reproduction of Trout.

As part of the Unassessed Waters Program, the PFBC sampled 27 sites on 25 streams in the Mainstem Blacklick Creek sub-watershed from 2011 – 2016 (Tables 7 – 9, Figures 15 - 24). Mainstem Blacklick Creek sub-watershed had the highest diversity of fish species with a total of 30 species observed at the 27 sites surveyed. Of the 27 sites surveyed, seven streams did not have any populations of fish. Aulds Run, UNT to Aulds Run (RM 0.11), UNT to Blacklick Creek (RM 11.75), UNT to Blacklick Creek (RM 13.87), UNT to Blacklick Creek (RM 21.19), UNT to Blacklick Creek (RM 21.44) and UNT to Blacklick Creek (RM 24.89) all did not have water quality favorable to support fish populations. The pH readings in these aforementioned sampled streams were ≤ 5.0 , most likely due to mine drainage (Table 8). The Least Brook Lamprey, a PA Candidate Species, was found in Muddy Run, a tributary to Blacklick Creek. Blacknose Dace and Creek Chub were the most prevalent species in this sub-watershed. Fallfish, a fish species native to the Susquehanna, Delaware, and Potomac River watersheds but not the Ohio River watershed, was collected in Stewart Run. Wild Brook Trout were collected in three streams. Two individuals in the 50-74 mm size class were observed in South Branch Brush Creek, eight individuals from 50 - 174 mm were observed in Spruce Hollow Run, and one individual between 150 – 174 mm was found in UNT to Blacklick Creek (RM 31.89). Wild Brown Trout were collected at both sites surveyed on Mardis Run. South Branch Brush Creek, Spruce Hollow Run, and Mardis Run are on PFBC's list of Stream Sections That Support Natural Reproduction of Trout.

In the South Branch Blacklick Creek sub-watershed, 15 sites were surveyed on 14 streams (Tables 10 - 12, Figures 25 - 30). A total of 12 fish species were observed in the 14 streams surveyed in the sub-watershed, which is the lowest number of fish species recorded out of the five sub-watersheds sampled by the PFBC as part of the Unassessed Waters Program from 2011 – 2016. Blacknose Dace, Creek Chub and Mottled Sculpin were three predominant fish species from the 14 streams. Three of the streams: Bracken Run, Coalpit Run and UNT to South Branch Blacklick Creek (RM 2.22) did not have any populations of fish due to unfavorable water conditions with pH values < 4.6 . Wild trout were present in six out of the fourteen sampled streams within this sub-watershed. Stewart Run, UNT to South Branch Blacklick Creek (RM 9.39), and UNT to South Branch Blacklick Creek (RM 10.50) had populations of both Brook Trout and Brown Trout. UNT to Williams Run (RM 0.53) had the highest number of wild trout collected in this sub-watershed with 32 Brook Trout

from 50 - 174 mm. Stewart Run, UNT to South Branch Blacklick Creek (RM 9.39), UNT to South Branch Blacklick Creek (RM 10.50), Williams Run – Section 2, and UNT to Williams Run (RM 0.53) are on PFBC's list of Stream Sections That Support Natural Reproduction of Trout.

As part of the Unassessed Waters Program, the PFBC sampled 23 sites on 22 streams in the North Branch Blacklick Creek sub-watershed from 2011 – 2016 (Tables 13 – 15, Figures 31 - 39). Of the 22 streams sampled in the North Branch Blacklick sub-watershed, 20 species were observed. Blacknose Dace and Creek Chub were prevalent throughout streams sampled in the North Branch Blacklick Creek sub-watershed, as well as Mottled Sculpin, Redside Dace, and White Sucker which were observed in noticeable numbers. UNT to Elk Creek (RM 0.90), UNT to Elk Creek (RM 6.36) and UNT (RM 0.58) to UNT to Elk Creek (RM 6.36) did not have any fish, although water quality seemed adequate at these streams to support fish. These streams may go dry during drought years. Eight streams had populations of wild Brook Trout. Hill Creek had the highest number of wild trout collected out of the 89 unassessed streams surveyed with 42 Brook Trout ranging from 25 – 274 mm long. Downey Run, Hill Creek, Little Elk Creek, Simmons Run, UNT to Carney Run (RM 1.01), Walker Run, and Wolf Run are on PFBC's list of Stream Sections That Support Natural Reproduction of Trout. UNT to North Branch Blacklick Creek (RM 5.24) is on PFBC's list of Streams Being Considered for Wild Trout Designation.

A total of 38 fish species were observed in the 89 streams surveyed. Wild Brook Trout were collected at 19 sites in 18 waters with the majority of those streams in the South Branch Blacklick Creek and North Branch Blacklick Creek sub-watersheds. Wild Brown Trout were observed at 15 sites in 14 streams with the majority of those waters in the Two Lick Creek and Yellow Creek sub-watersheds.

Literature Cited

Weber, R., R.T. Greene, and D. Miko. 2011. Procedures for conducting biological assessments of unassessed trout waters. Pages 62 – 68 in D. Miko, editor. Sampling protocols for Pennsylvania's wadeable streams. Pennsylvania Fish and Boat Commission, Harrisburg.

Blacklick Creek Watershed

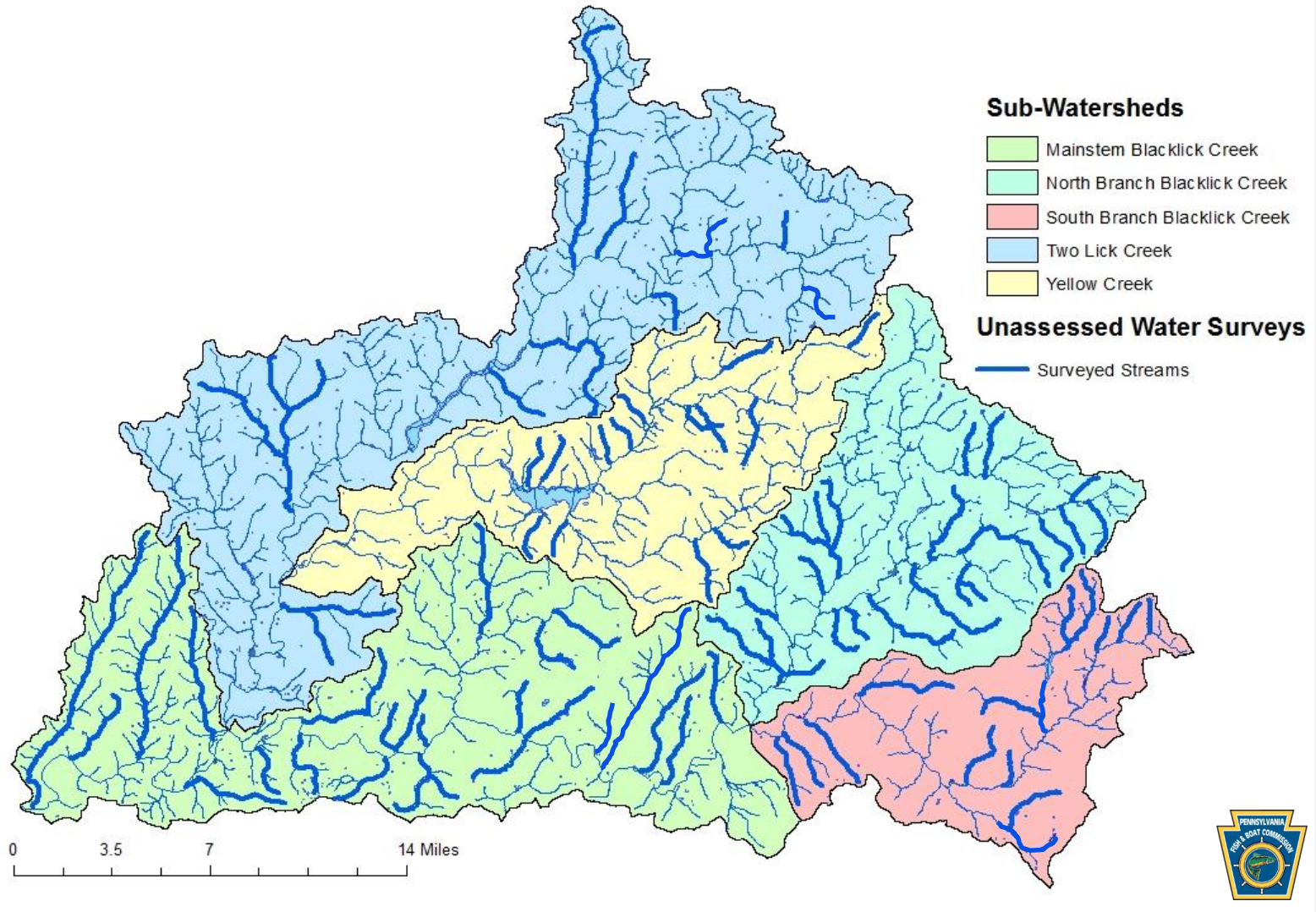


Figure 1. Unassessed streams surveyed within the Blacklick Creek Watershed by PA Fish & Boat Commission during 2011-2016.

Table 1. Unassessed waters sample site locations within the Two Lick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	RM of Entry	Mouth Latitude	Mouth Longitude	Site RM	Site Latitude	Site Longitude
Allen Run	Two Lick Reservoir	0.00	40.626945	-79.058502	0.13	40.626043	-79.056563
Browns Run	Two Lick Creek	25.99	40.657585	-78.975212	0.05	40.657429	-78.974415
Buck Run	Two Lick Creek	23.64	40.672485	-79.003052	0.00	40.672485	-79.003052
Dixon Run	Two Lick Creek	22.87	40.667847	-79.014961	0.17	40.670162	-79.015220
Marsh Run	Stoney Run	3.22	40.609859	-79.162285	0.00	40.609859	-79.162285
McCarthy Run	Stoney Run	1.86	40.592384	-79.165009	0.46	40.594930	-79.170210
Penn Run	Two Lick Creek	20.20	40.638374	-79.038033	0.05	40.638079	-79.037317
Rock Run	South Branch Two Lick Creek	3.72	40.675999	-78.907387	0.01	40.676072	-78.907297
South Branch Two Lick Creek - Section 3	Two Lick Creek	28.06	40.673611	-78.963890	0.05	40.673789	-78.962888
Stoney Run @ RM 0.52	Two Lick Creek	9.20	40.570259	-79.160179	0.52	40.575470	-79.161670
Stoney Run @ RM 3.22	Two Lick Creek	9.20	40.570259	-79.160179	3.22	40.609863	-79.162293
Tearing Run	Two Lick Creek	5.91	40.531929	-79.166127	0.35	40.530126	-79.160443
UNT to Sides Run (RM 1.04)	Sides Run	1.04	40.660690	-78.897441	0.00	40.660690	-78.897441
UNT to South Branch Two Lick Creek (RM 1.27)	South Branch Two Lick Creek	1.27	40.674339	-78.945388	0.23	40.677204	-78.946269
UNT to Tearing Run (RM 0.72)	Tearing Run	0.72	40.530206	-79.153547	0.14	40.530191	-79.153444

Table 2. Chemistries collected from streams within the Two Lick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
Allen Run	Two Lick Reservoir	0.13	7/25/2013	1400	18.8	5.04	1	242	550
Browns Run	Two Lick Creek	0.05	8/26/2013	1445	19.3	7.45	98	108	276
Buck Run	Two Lick Creek	0.00	8/26/2013	1411	17.9	6.78	6	230	502
Dixon Run	Two Lick Creek	0.17	8/26/2013	1130	18.1	7.06	54	300	581
Marsh Run	Stoney Run	0.00	8/27/2013	830	20.6	7.31	160	294	1271
McCarthy Run	Stoney Run	0.46	8/27/2013	1000	21.0	8.10	102	180	827
Penn Run	Two Lick Creek	0.05	8/27/2013	1415	18.8	6.49	12	500	545
Rock Run	South Branch Two Lick Creek	0.01	8/27/2013	1620	17.4	7.32	88	104	219
South Branch Two Lick Creek - Section 3	Two Lick Creek	0.05	8/31/2015	1130	18.0	8.20	270	90	612
Stoney Run @ RM 0.52	Two Lick Creek	0.52	8/27/2013	1125	21.2	8.12	112	190	767
Stoney Run @ RM 3.22	Two Lick Creek	3.22	8/27/2013	830	20.4	7.73	110	220	941
Tearing Run	Two Lick Creek	0.35	8/14/2014	915	14.1	5.00	2	>800	752
UNT to Sides Run (RM 1.04)	Sides Run	0.00	8/31/2015	1330	18.0	6.90	21	36	117
UNT to South Branch Two Lick Creek (RM 1.27)	South Branch Two Lick Creek	0.23	8/31/2015	1230	18.0	7.20	38	60	191
UNT to Tearing Run (RM 0.72)	Tearing Run	0.14	8/14/2014	1000	14.7	4.30	0	368	661

Table 3. Abundance ratings for fish species observed in selected streams within the Two Lick Creek sub-watershed in 2011-2016.

Water	Sampling Date	Wild Brook Trout	Wild Brown Trout	Blacknose Dace	Blackside Darter	Bluegill	Bluntnose Minnow	Central Stoneroller	Chain Pickerel	Common Carp	Creek Chub	Fantail Darter	Greenside Darter	Johnny Darter	Largemouth Bass	Mottled Sculpin	Northern Hog Sucker	Pumpkinseed	Rainbow Darter	Rainbow Trout Hatchery	Redside Dace	River Chub	Rock Bass	Striped Shiner	White Sucker	Yellow Bullhead	Yellow Perch
Allen Run	7/25/2013	-	-	-	-	P	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Browns Run	8/26/2013	-	-	A	-	-	-	-	-	-	C	P	-	-	-	C	-	-	-	-	P	-	-	-	-	-	-
Buck Run	8/26/2013	-	-	-	-	-	-	-	-	-	R	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dixon Run	8/26/2013	-	-	-	R	P	R	-	-	-	P	-	-	-	-	-	R	R	-	R	-	-	R	-	P	-	-
Marsh Run	8/27/2013	-	-	A	-	-	P	-	-	-	A	-	-	-	-	-	-	R	-	-	-	-	-	-	C	-	-
McCarthy Run	8/27/2013	-	-	C	-	A	A	-	-	-	A	-	-	-	-	-	-	P	-	-	-	-	-	-	A	C	-
Penn Run	8/27/2013	-	4 (150-299mm)	-	R	P	P	-	-	-	P	-	-	-	-	-	-	-	P	-	-	-	-	-	C	P	-
Rock Run	8/27/2013	-	1 (75-99mm)	A	-	-	-	-	-	-	C	-	-	-	-	A	-	-	-	-	C	-	-	-	P	-	-
South Branch Two Lick Creek - Section 3	8/31/2015	-	17 (75-424mm)	C	P	P	P	-	-	-	C	R	R	R	-	A	R	P	C	-	-	C	-	-	A	-	C
Stoney Run @ RM 0.52	8/27/2013	-	-	A	-	R	A	A	-	R	A	-	-	-	-	-	A	P	-	-	-	-	-	P	A	-	-
Stoney Run @ RM 3.22	8/27/2013	-	-	A	-	P	P	-	-	-	A	-	-	-	R	-	-	R	-	-	-	-	-	-	C	-	-
Tearing Run	8/14/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Sides Run (RM 1.04)	8/31/2015	-	-	P	-	-	-	-	-	-	P	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
UNT to South Branch Two Lick Creek (RM 1.27)	8/31/2015	-	1 (75-99mm)	A	-	-	-	-	-	-	A	-	-	-	-	A	-	-	-	-	-	-	-	-	-	-	-
UNT to Tearing Run (RM 0.72)	8/14/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The relative abundance rating criteria per 100 m of stream sampled are as follows: 1 = Rare (R), 2-8 = Present (P), 9-33 = Common (C), >33 = Abundant (A).



Figure 2. Allen Run, Penn Run and Browns Run station locations within the Two Lick Creek sub-watershed 2011-2016.

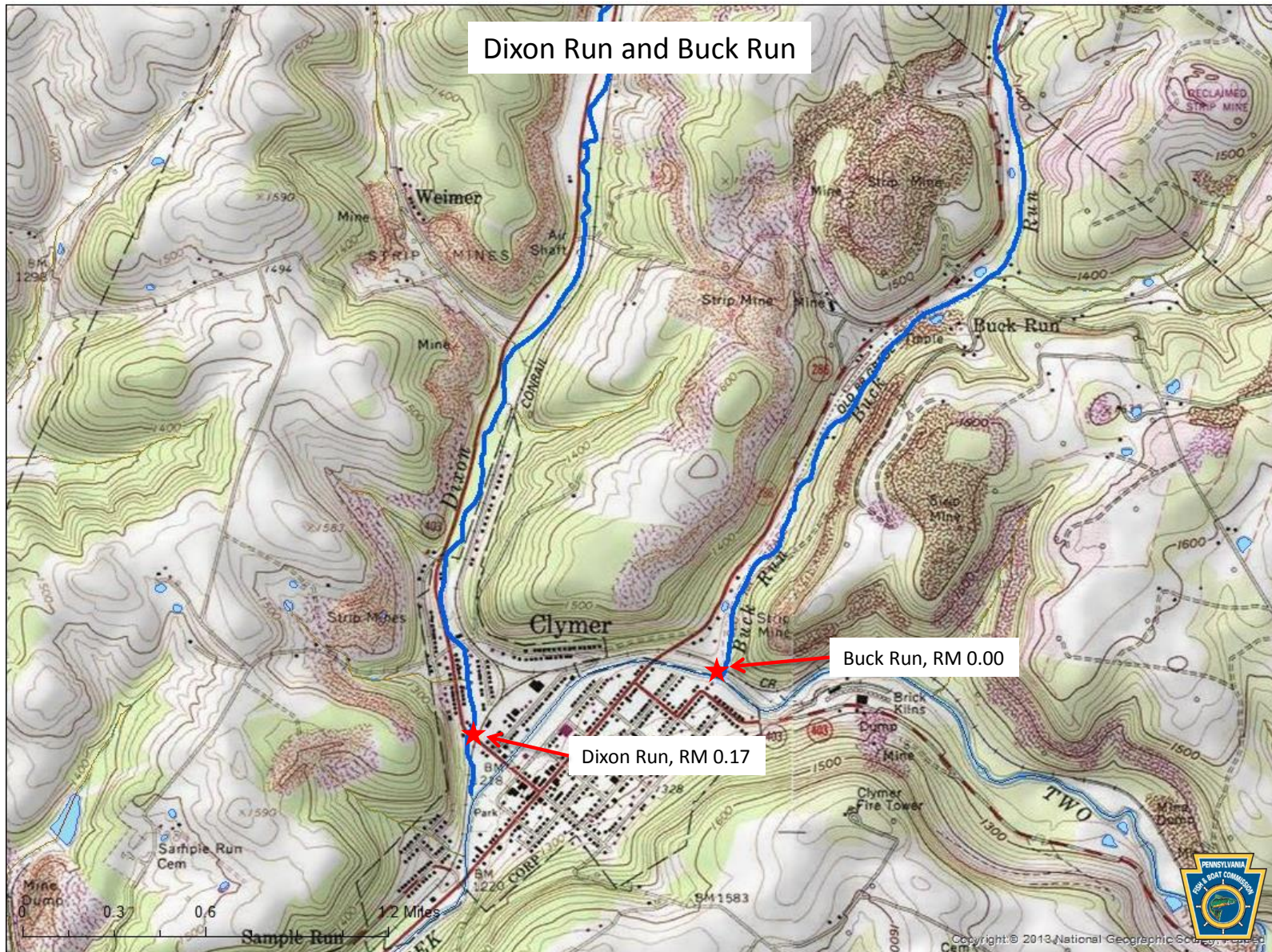


Figure 3. Dixon Run and Buck Run station locations within the Two Lick Creek sub-watershed 2011-2016.

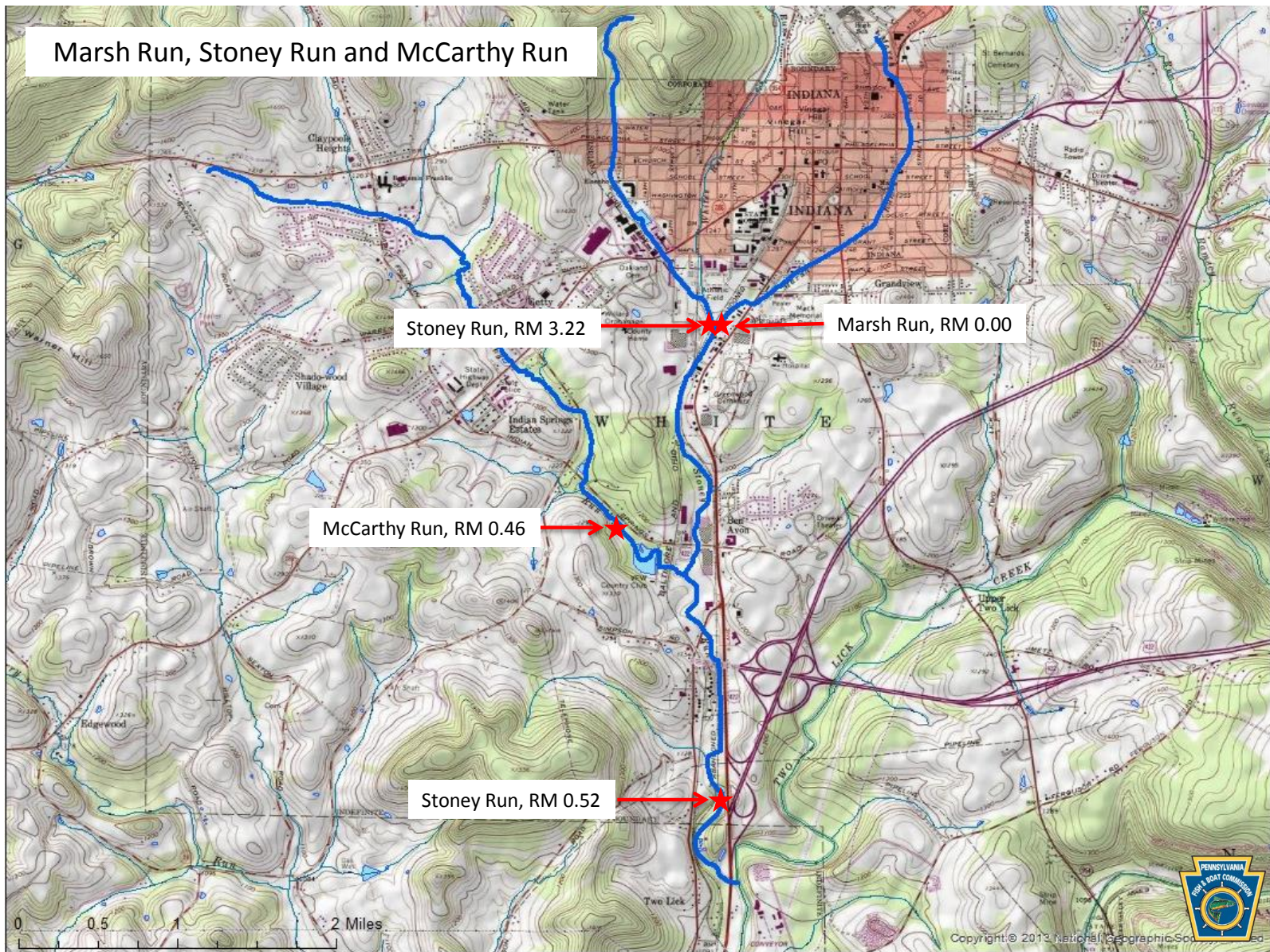


Figure 4. Marsh Run, Stoney Run at RM 0.52 and RM 3.22 and McCarthy Run station locations within the Two Lick Creek sub-watershed 2011-2016.

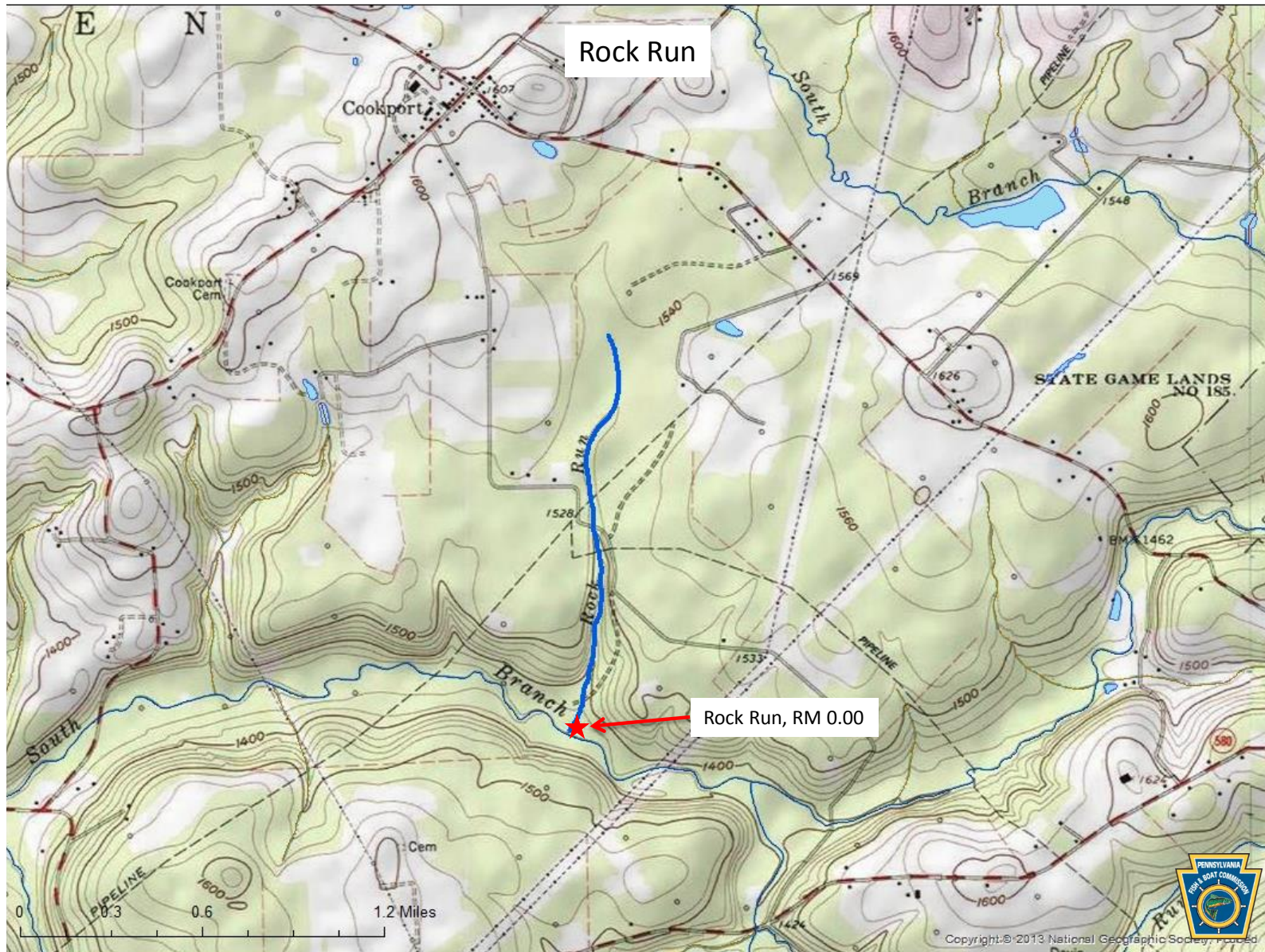


Figure 5. Rock Run station location within the Two Lick Creek sub-watershed 2011-2016.

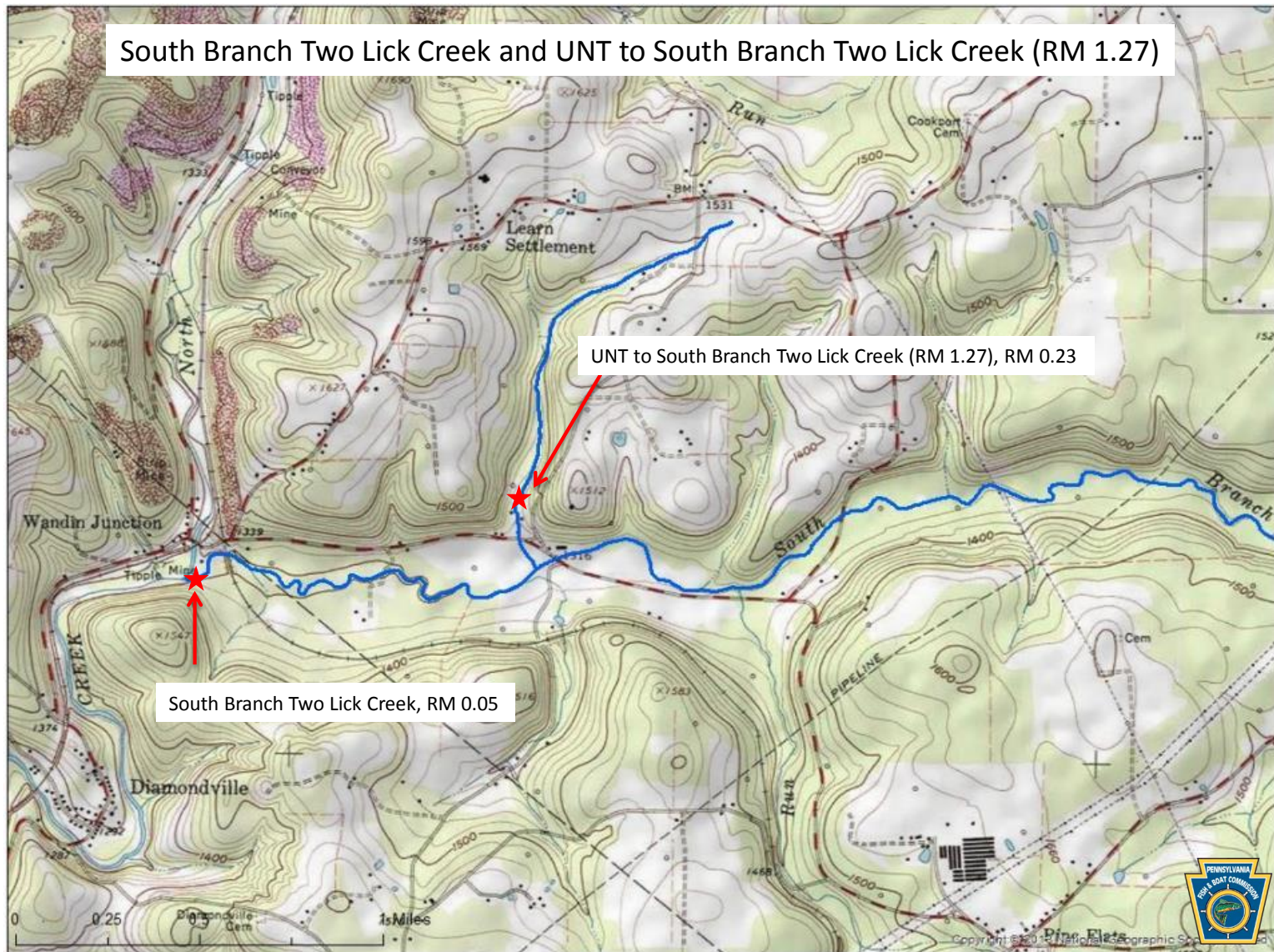


Figure 6. South Branch Two Lick Creek and UNT to South Branch Two Lick Creek (RM 1.27) station locations within the Two Lick Creek sub-watershed 2011-2016.

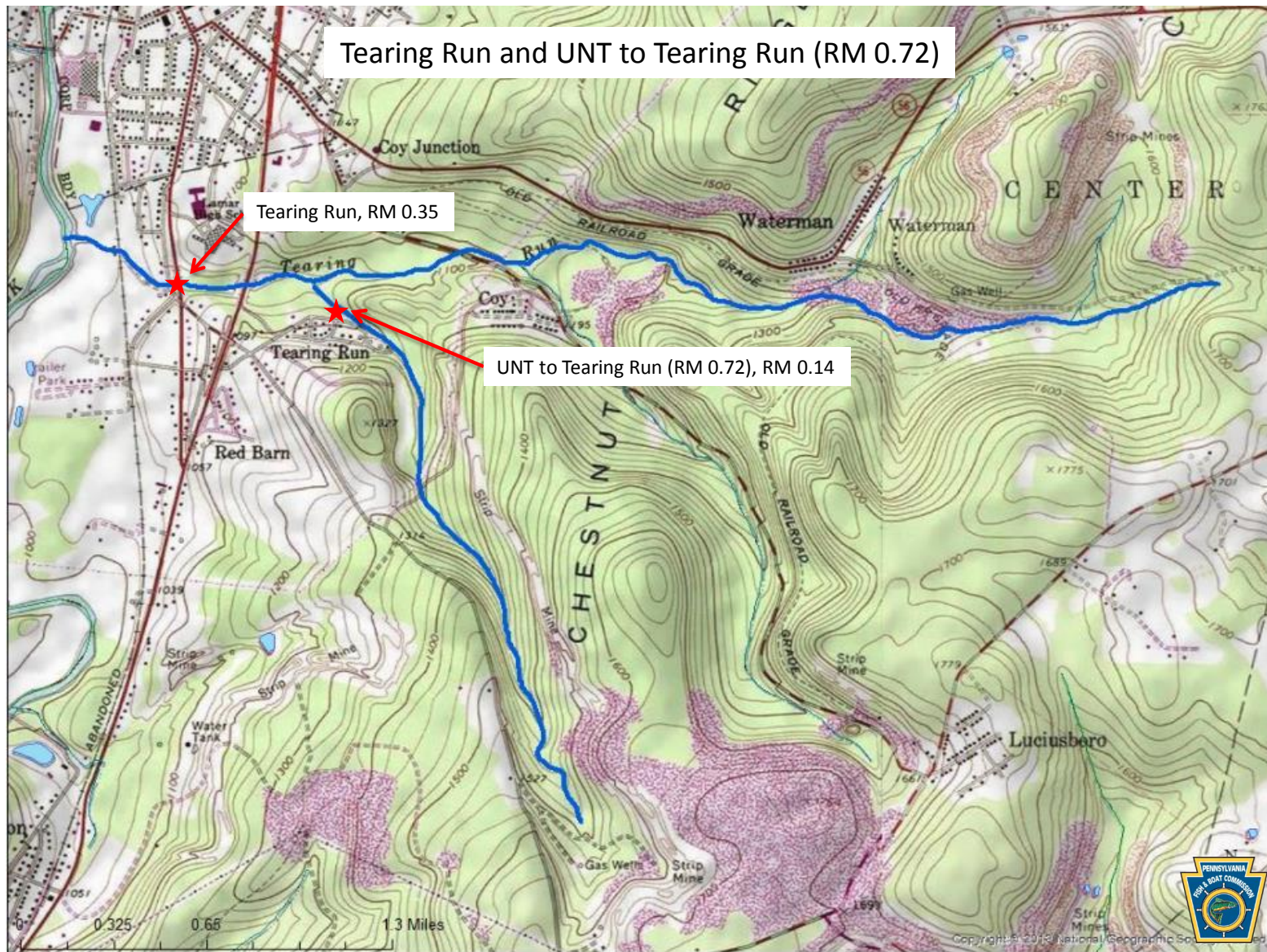


Figure 7. Tearing Run and UNT to Tearing Run (RM 0.72) station locations within the Two Lick Creek sub-watershed 2011-2016.

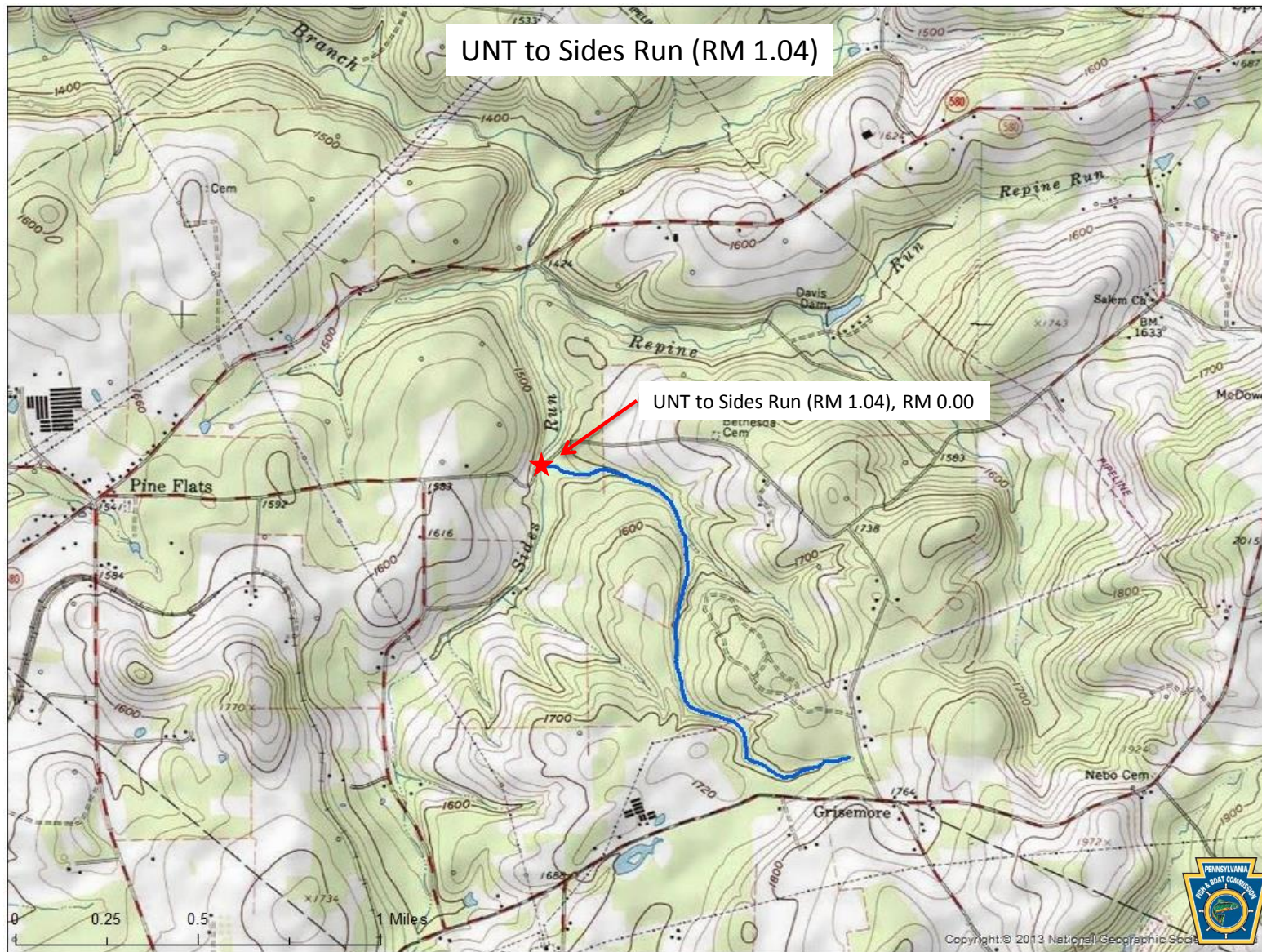


Figure 8. UNT to Sides Run (RM 1.04) station location within the Two Lick Creek sub-watershed 2011-2016.

Table 4. Unassessed waters sample site locations within the Yellow Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	RM of Entry	Mouth Latitude	Mouth Longitude	Site RM	Site Latitude	Site Longitude
Laurel Run	Yellow Creek	17.00	40.615120	-78.968008	2.33	40.628215	-78.934795
Leonard Run	Yellow Creek	20.28	40.615871	-78.920547	0.03	40.615584	-78.920932
UNT to Little Yellow Creek (RM 0.85)	Little Yellow Creek	0.85	40.566521	-79.018738	0.01	40.566372	-79.018866
UNT to Little Yellow Creek (RM 5.84)	Little Yellow Creek	5.84	40.558739	-78.952362	0.18	40.556236	-78.952013
UNT to Little Yellow Creek (RM 6.54)	Little Yellow Creek	6.54	40.563000	-78.942101	0.00	40.562998	-78.942098
UNT to Yellow Creek (RM 13.96)	Yellow Creek	13.96	40.589334	-78.996683	0.00	40.589334	-78.996683
UNT to Yellow Creek (RM 14.72)	Yellow Creek	14.72	40.595344	-78.985334	0.00	40.595344	-78.985334
UNT to Yellow Creek (RM 15.76)	Yellow Creek	15.76	40.606301	-78.978752	0.01	40.606556	-78.978906
UNT to Yellow Creek (RM 17.82)	Yellow Creek	17.82	40.612488	-78.955849	0.00	40.612486	-78.955849
UNT to Yellow Creek (RM 18.07)	Yellow Creek	18.07	40.613251	-78.951728	0.00	40.613251	-78.951728
UNT to Yellow Creek (RM 25.05)	Yellow Creek	25.05	40.636181	-78.873281	0.24	40.638559	-78.870158
UNT to Yellow Creek Lake (RM 10.72)	Yellow Creek Lake	10.72	40.580662	-79.038681	0.01	40.580996	-79.038739
UNT to Yellow Creek Lake (RM 10.84)	Yellow Creek Lake	10.84	40.567703	-79.032059	0.07	40.566969	-79.032889
UNT to Yellow Creek Lake (RM 10.93)	Yellow Creek Lake	10.93	40.582775	-79.031647	0.11	40.583931	-79.030030

Table 5. Chemistries collected from streams within the Yellow Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
Laurel Run	Yellow Creek	2.33	6/29/2016	1315	15.6	7.63	14	27	83
Leonard Run	Yellow Creek	0.03	7/24/2013	1400	17.1	6.86	18	188	417
UNT to Little Yellow Creek (RM 0.85)	Little Yellow Creek	0.01	7/25/2013	1030	15.6	6.81	35	50	119
UNT to Little Yellow Creek (RM 5.84)	Little Yellow Creek	0.18	7/24/2013	930	16.4	6.88	14	24	79
UNT to Little Yellow Creek (RM 6.54)	Little Yellow Creek	0.00	7/24/2013	1145	16.7	7.01	40	54	179
UNT to Yellow Creek (RM 13.96)	Yellow Creek	0.00	6/29/2016	830	14.8	7.47	36	58	135
UNT to Yellow Creek (RM 14.72)	Yellow Creek	0.00	6/29/2016	1000	15.2	7.32	24	44	109
UNT to Yellow Creek (RM 15.76)	Yellow Creek	0.01	6/29/2016	1045	15.1	7.40	10	27	86
UNT to Yellow Creek (RM 17.82)	Yellow Creek	0.00	7/24/2013	1245	17.6	6.80	16	24	86
UNT to Yellow Creek (RM 18.07)	Yellow Creek	0.00	8/13/2014	1200	16.6	7.03	12	18	75
UNT to Yellow Creek (RM 25.05)	Yellow Creek	0.24	8/13/2014	1345	17.2	7.20	38	59	161
UNT to Yellow Creek Lake (RM 10.72)	Yellow Creek Lake	0.01	7/25/2013	1300	17.4	6.88	9	9	63
UNT to Yellow Creek Lake (RM 10.84)	Yellow Creek Lake	0.07	7/25/2013	915	14.1	7.08	36	50	122
UNT to Yellow Creek Lake (RM 10.93)	Yellow Creek Lake	0.11	7/25/2013	1115	15.4	6.79	14	38	124

Table 6. Abundance ratings for fish species observed in selected streams within the Yellow Creek sub-watershed in 2011-2016.

Water	Sampling Date	Wild Brook Trout	Wild Brown Trout	Blacknose Dace	Bluegill	Central Stoneroller	Creek Chub	Fantail Darter	Fathead Minnow	Golden Shiner	Johnny Darter	Largemouth Bass	Least Brook Lamprey	Mottled Sculpin	Pumpkinseed	Redside Dace	White Sucker
Laurel Run	6/29/2016	-	-	P	P	-	A	-	-	P	P	R	-	C	C	-	-
Leonard Run	7/24/2015	-	3 (75-99mm)	C	-	-	C	-	-	-	-	-	-	P	-	P	-
UNT to Little Yellow Creek (rm 0.85)	7/25/2013	-	-	C	-	-	A	P	-	-	C	P	R	P	-	-	P
UNT to Little Yellow Creek (rm 5.84)	7/24/2013	3 (75-99mm)	-	C	-	-	P	R	-	-	-	-	-	A	-	A	-
UNT to Little Yellow Creek (rm 6.54)	7/24/2013	-	-	A	-	-	P	-	-	-	-	-	-	C	-	P	R
UNT to Yellow Creek (rm 13.96)	6/29/2016	-	1 (50-74mm)	-	P	-	P	R	R	R	-	-	-	P	R	-	P
UNT to Yellow Creek (rm 14.72)	6/29/2016	-	-	-	-	-	C	R	R	-	-	-	-	P	-	-	R
UNT to Yellow Creek (rm 15.76)	6/29/2016	-	2 (75-99mm)	P	P	-	C	P	-	-	-	-	-	C	-	-	-
UNT to Yellow Creek (rm 17.82)	7/24/2013	-	21 (50-324mm)	-	-	-	-	-	-	-	-	-	-	C	-	-	-
UNT to Yellow Creek (rm 18.07)	8/13/2014	-	3 (75-99mm)	-	-	-	-	-	-	-	-	-	-	P	-	-	-
UNT to Yellow Creek (rm 25.05)	8/13/2014	-	-	A	-	R	A	-	-	-	-	-	-	A	-	C	-
UNT to Yellow Creek Lake (rm 10.72)	7/25/2013	-	-	-	-	-	C	-	-	-	-	-	-	-	-	-	-
UNT to Yellow Creek Lake (rm 10.84)	7/25/2013	-	-	C	-	-	A	-	-	-	A	P	P	R	-	C	P
UNT to Yellow Creek Lake (rm 10.93)	7/25/2013	-	-	C	-	-	A	-	-	-	-	-	-	A	-	R	-

The relative abundance rating criteria per 100 m of stream sampled are as follows: 1 = Rare (R), 2-8 = Present (P), 9-33 = Common (C), >33 = Abundant (A).

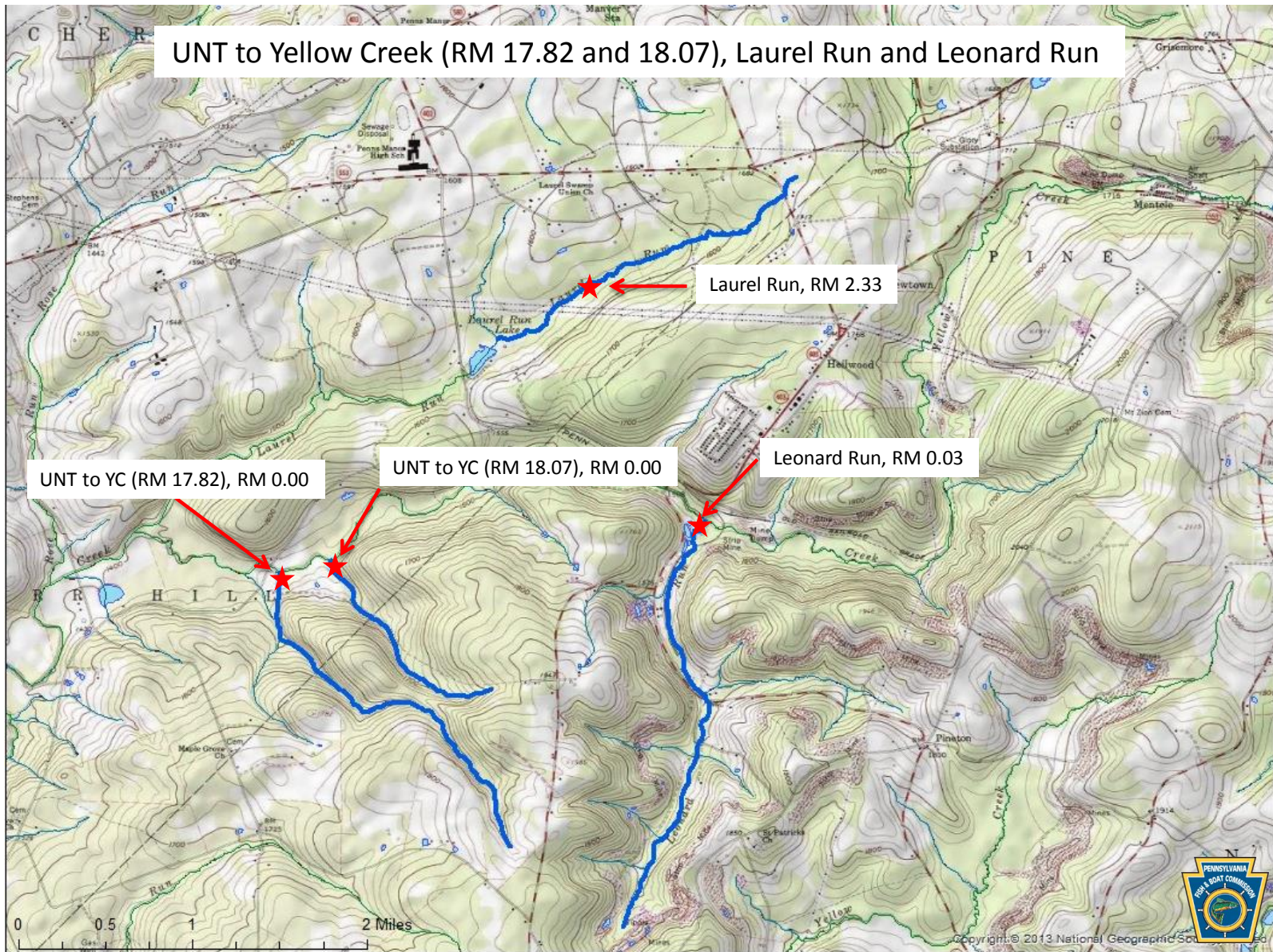


Figure 9. UNT to Yellow Creek (RM 17.82), UNT to Yellow Creek (RM 18.07), Laurel Run and Leonard Run station locations within the Yellow Creek sub-watershed 2011-2016.

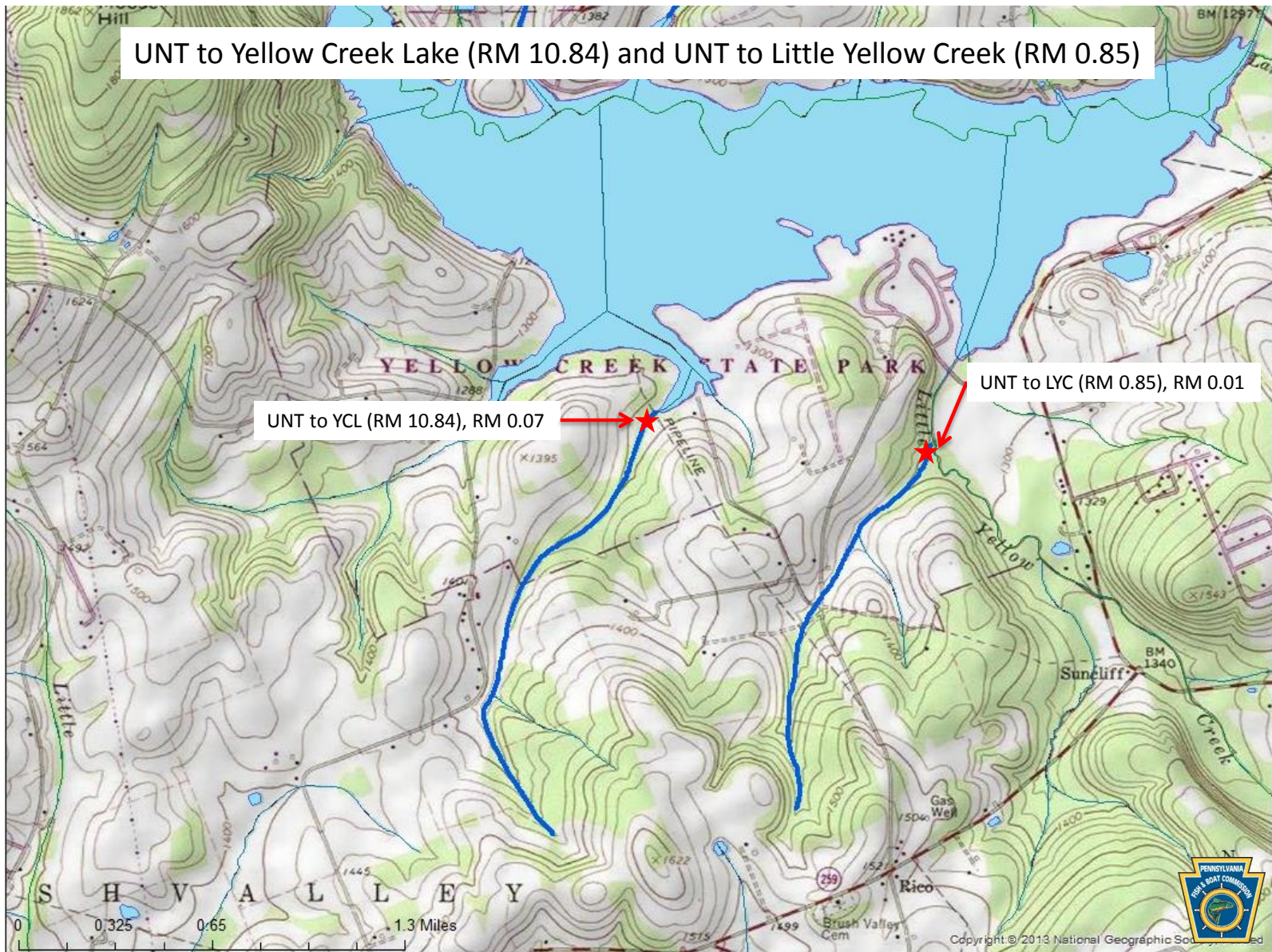


Figure 10. UNT to Yellow Creek Lake (RM 10.84) and UNT to Little Yellow Creek (RM 0.85) station locations within the Yellow Creek sub-watershed 2011-2016.

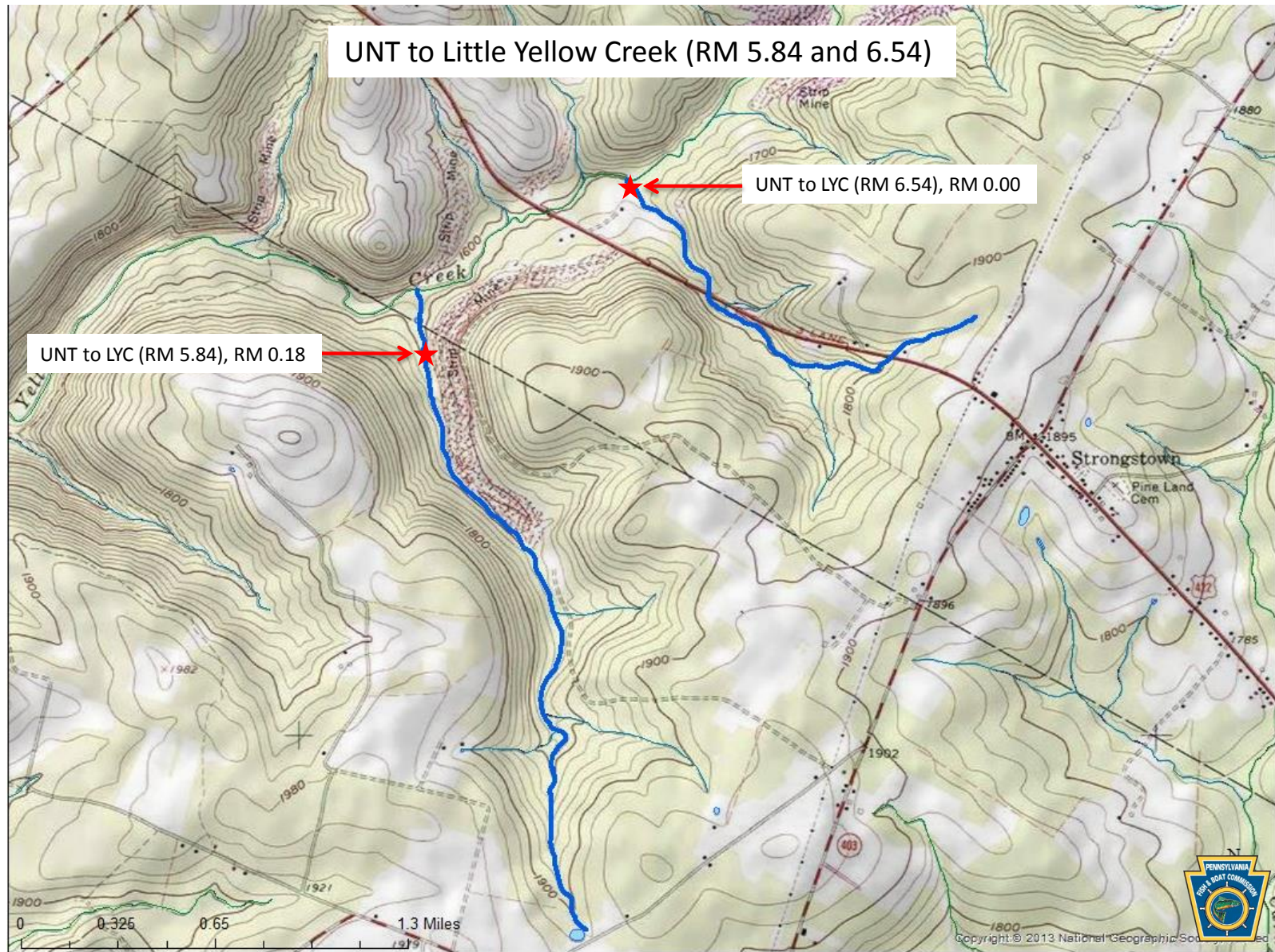


Figure 11. UNT to Little Yellow Creek (RM 5.84), UNT to Little Yellow Creek (RM 6.54) station locations within the Yellow Creek sub-watershed 2011-2016.

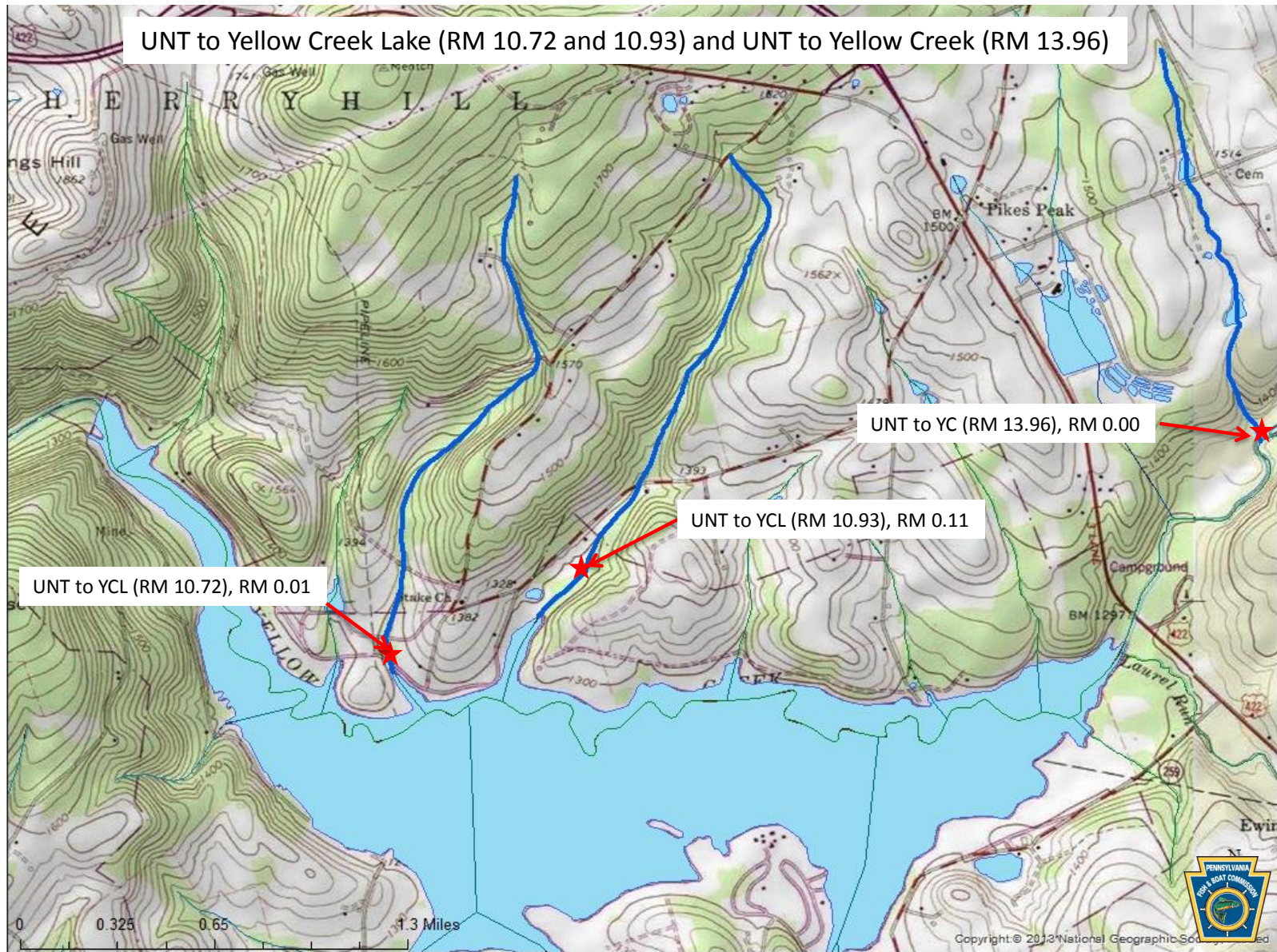


Figure 12. UNT to Yellow Creek Lake (RM 10.72), UNT to Yellow Creek Lake (RM 10.93) and UNT to Yellow Creek (13.96) station locations within the Yellow Creek sub-watershed 2011-2016.

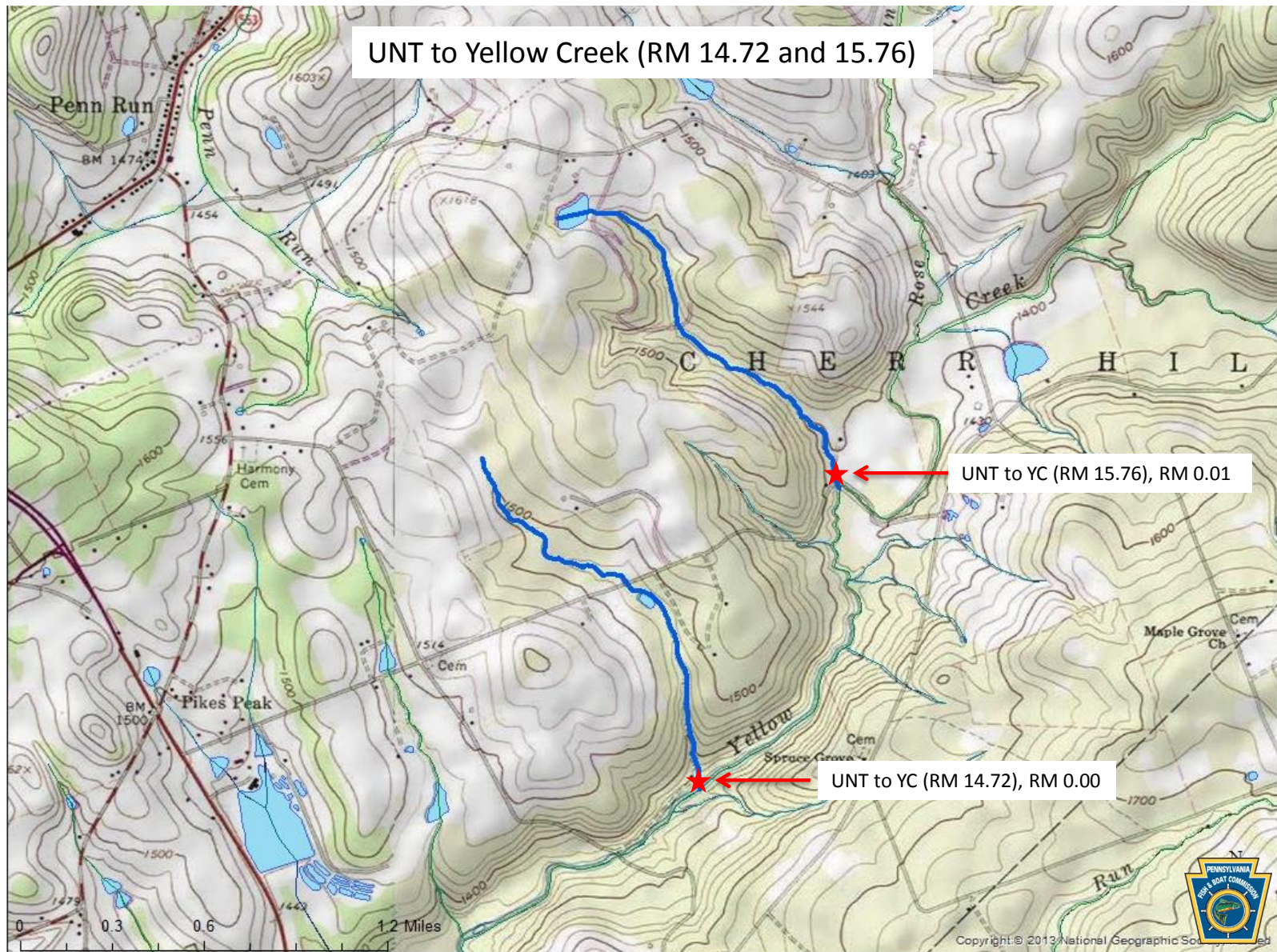


Figure 13. UNT to Yellow Creek (RM 14.72), UNT to Yellow Creek (RM 15.76) station locations within the Yellow Creek sub-watershed 2011-2016.

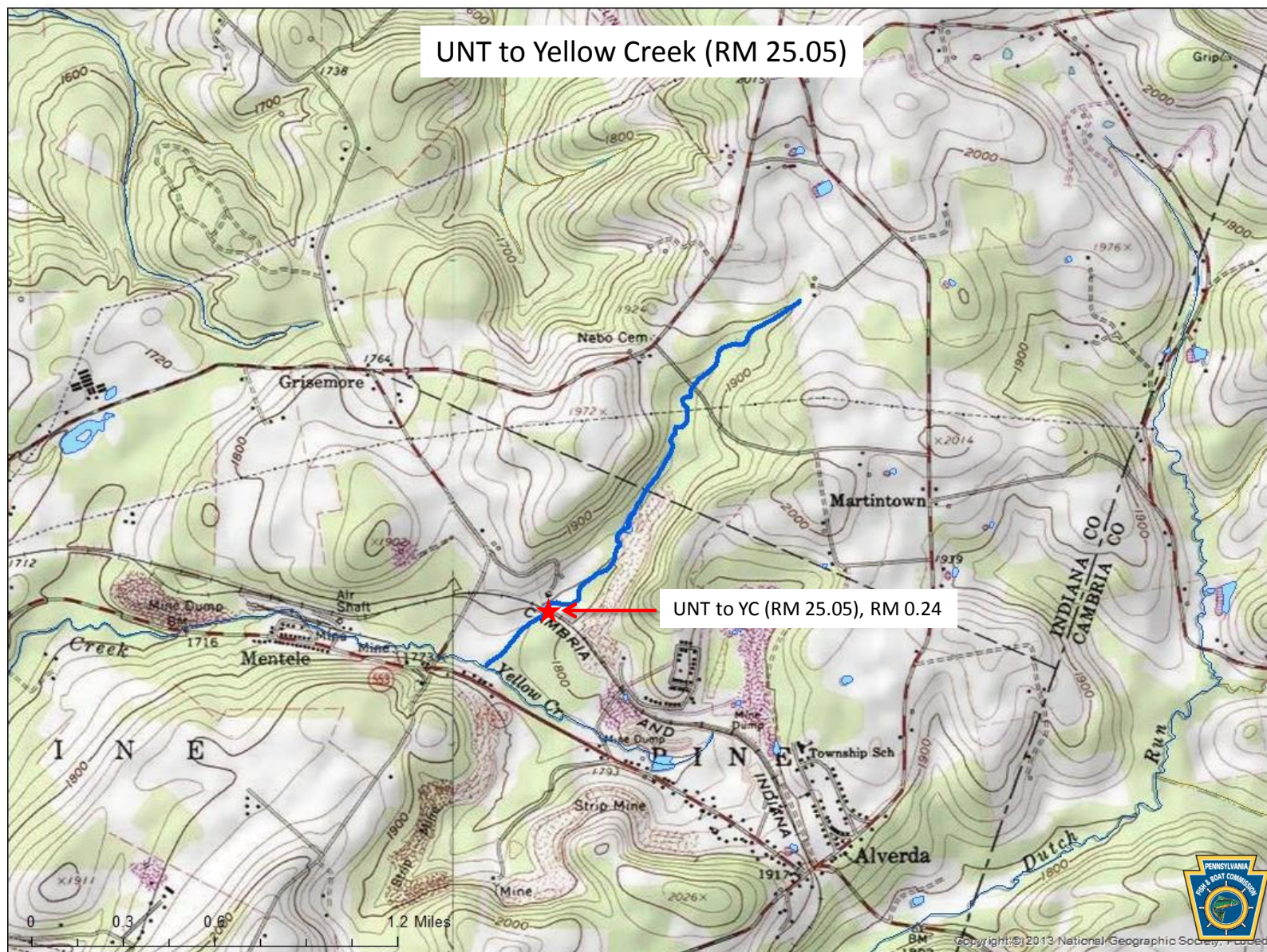


Figure 14. UNT to Yellow Creek (RM 25.05) station location within the Yellow Creek sub-watershed 2011-2016.

Table 7. Unassessed waters sample site locations within the Mainstem Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	RM of Entry	Mouth Latitude	Mouth Longitude	Site RM	Site Latitude	Site Longitude
Aulds Run	Blacklick Creek	17.20	40.472837	-79.106613	0.06	40.473670	-79.106961
Clarke Run	Blacklick Creek	27.12	40.465038	-78.981448	0.34	40.465918	-78.976127
Greys Run	Blacklick Creek	3.19	40.470300	-79.274996	0.30	40.471665	-79.270325
Laurel Run	Blacklick Creek	13.52	40.485143	-79.155123	0.00	40.485143	-79.155123
Little Brush Creek	Brush Creek	3.07	40.520653	-79.063339	0.27	40.524390	-79.062520
Mardis Run @ RM 0.22	Blacklick Creek	25.45	40.466602	-79.000763	0.22	40.468803	-78.998781
Mardis Run @ RM 1.99	Blacklick Creek	25.45	40.466602	-79.000763	1.99	40.489818	-78.983636
Muddy Run	Blacklick Creek	5.57	40.470367	-79.239941	0.00	40.470367	-79.239941
Ramsey Run	Blacklick Creek	17.86	40.472249	-79.094422	0.25	40.468843	-79.093710
South Branch Brush Creek	Brush Creek	5.18	40.525667	-79.030841	0.00	40.525667	-79.030841
Spruce Hollow Run	Brush Creek	5.61	40.529789	-79.025375	0.01	40.529810	-79.025080
Stewart Run	Blacklick Creek	0.40	40.450206	-79.294375	0.13	40.452084	-79.294265
UNT to Aulds Run (RM 0.11)	Aulds Run	0.11	40.474101	-79.107161	0.00	40.474101	-79.107161
UNT to Blacklick Creek (RM 10.15)	Blacklick Creek	10.15	40.478507	-79.202027	0.23	40.481386	-79.201652
UNT to Blacklick Creek (RM 11.75)	Blacklick Creek	11.75	40.474520	-79.179537	0.30	40.472357	-79.175559
UNT to Blacklick Creek (RM 13.87)	Blacklick Creek	13.87	40.480452	-79.156337	0.00	40.480452	-79.156337
UNT to Blacklick Creek (RM 16.84)	Blacklick Creek	16.84	40.470661	-79.112590	0.14	40.469044	-79.112111
UNT to Blacklick Creek (RM 18.13)	Blacklick Creek	18.13	40.474941	-79.090747	0.00	40.474941	-79.090747
UNT to Blacklick Creek (RM 21.19)	Blacklick Creek	21.19	40.480994	-79.044196	0.32	40.485132	-79.042803
UNT to Blacklick Creek (RM 21.44)	Blacklick Creek	21.44	40.479180	-79.039940	0.00	40.479180	-79.039940
UNT to Blacklick Creek (RM 21.47)	Blacklick Creek	21.47	40.478664	-79.039914	0.05	40.478338	-79.040286
UNT to Blacklick Creek (RM 24.89)	Blacklick Creek	24.89	40.473464	-79.004243	0.14	40.474051	-79.001974
UNT to Blacklick Creek (RM 28.12)	Blacklick Creek	28.12	40.460919	-78.969911	0.10	40.460824	-78.968481
UNT to Blacklick Creek (RM 31.89) @ RM 0.04	Blacklick Creek	31.89	40.484854	-78.939236	0.04	40.485357	-78.939315
UNT to Blacklick Creek (RM 31.89) @ RM 1.24	Blacklick Creek	31.89	40.484854	-78.939236	1.24	40.501410	-78.941591
UNT to Ramsey Run (RM 0.72)	Ramsey Run	0.72	40.463667	-79.089744	0.04	40.463501	-79.089001
Weirs Run	Blacklick Creek	8.32	40.458970	-79.215746	0.39	40.461728	-79.209756

Table 8. Chemistries collected from streams within the Mainstem Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
Aulds Run	Blacklick Creek	0.06	8/14/2014	1330	14.8	3.98	0	INT	903
Clarke Run	Blacklick Creek	0.34	7/16/2014	1115	16.6	6.75	18	39	115
Greys Run	Blacklick Creek	0.30	7/1/2016	945	16.9	7.47	130	120	349
Laurel Run	Blacklick Creek	0.00	6/30/2016	1000	14.6	7.41	26	304	582
Little Brush Creek	Brush Creek	0.27	8/28/2013	1000	19.7	7.06	72	86	244
Mardis Run @ RM 0.22	Blacklick Creek	0.22	7/26/2013	1000	14.0	8.20	96	162	366
Mardis Run @ RM 1.99	Blacklick Creek	1.99	8/23/2011	1245	15.0	7.50	103	NA	183
Muddy Run	Blacklick Creek	0.00	6/30/2016	1445	21.1	7.70	85	140	318
Ramsey Run	Blacklick Creek	0.25	8/14/2014	1145	15.8	7.80	128	184	409
South Branch Brush Creek	Brush Creek	0.00	8/13/2014	1630	17.5	7.12	16	30	78
Spruce Hollow Run	Brush Creek	0.01	8/28/2013	1230	18.6	6.64	8	22	84
Stewart Run	Blacklick Creek	0.13	7/1/2016	1100	19.0	7.68	95	100	268
UNT to Aulds Run (RM 0.11)	Aulds Run	0.00	8/14/2014	1345	16.0	2.99	0	INT	1452
UNT to Blacklick Creek (RM 10.15)	Blacklick Creek	0.23	6/30/2016	1330	19.2	7.86	97	170	425
UNT to Blacklick Creek (RM 11.75)	Blacklick Creek	0.30	6/30/2016	1145	15.5	4.28	0	338	637
UNT to Blacklick Creek (RM 13.87)	Blacklick Creek	0.00	6/30/2016	900	14.3	4.78	0	224	449
UNT to Blacklick Creek (RM 16.84)	Blacklick Creek	0.14	6/29/2016	1445	15.8	7.27	32	158	366
UNT to Blacklick Creek (RM 18.13)	Blacklick Creek	0.00	8/14/2014	1445	16.2	8.00	138	304	611
UNT to Blacklick Creek (RM 21.19)	Blacklick Creek	0.32	8/27/2014	1415	18.4	3.54	0	INT	1298
UNT to Blacklick Creek (RM 21.44)	Blacklick Creek	0.00	8/27/2014	1400	19.8	4.45	0	INT	915
UNT to Blacklick Creek (RM 21.47)	Blacklick Creek	0.05	8/27/2014	1245	17.2	7.24	52	112	307
UNT to Blacklick Creek (RM 24.89)	Blacklick Creek	0.14	8/27/2014	1500	19.0	5.00	2	126	309
UNT to Blacklick Creek (RM 28.12)	Blacklick Creek	0.10	7/16/2014	1000	15.6	6.83	16	36	115
UNT to Blacklick Creek (RM 31.89) @ RM 0.04	Blacklick Creek	0.04	7/16/2014	1215	15.2	7.01	39	54	155
UNT to Blacklick Creek (RM 31.89) @ RM 1.24	Blacklick Creek	1.24	7/16/2014	1330	15.6	6.70	25	43	165
UNT to Ramsey Run (RM 0.72)	Ramsey Run	0.04	8/14/2014	1230	15.0	7.30	32	112	246
Weirs Run	Blacklick Creek	0.39	7/1/2016	830	19.0	7.77	124	572	1276

Water	Sampling Date	Wild Brook Trout	Wild Brown Trout	Banded Darter	Blacknose Dace	Bluegill	Bluntnose Minnow	Brook Trout- Hatchery	Brown Bullhead	Brown Trout- Hatchery	Central Stoneroller	Common Shiner	Creek Chub	Fallfish	Fantail Darter	Golden Shiner	Green Sunfish	Greenside Darter	Johnny Darter	Largemouth Bass	Least Brook Lamprey	Logperch	Longnose Dace	Mottled Sculpin	Northern Hog Sucker	Rainbow Darter	Redside Dace	Rock Bass	Rosyface Shiner	Silverjaw Minnow	Striped Shiner	White Sucker	Yellow Bullhead		
UNT to Blacklick Creek (RM 16.84)	6/29/2016	-	-	-	-	-	-	C	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UNT to Blacklick Creek (RM 18.13)	8/14/2014	-	-	-	R	-	-	-	-	-	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	
UNT to Blacklick Creek (RM 21.19)	8/27/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Blacklick Creek (RM 21.44)	8/27/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Blacklick Creek (RM 21.47)	8/27/2014	-	-	-	P	-	-	-	-	-	-	C	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Blacklick Creek (RM 24.89)	8/27/2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Blacklick Creek (RM 28.12)	7/16/2014	-	-	-	C	R	-	-	-	-	-	C	-	-	-	-	-	-	C	-	-	-	-	R	-	-	P	-	-	P	-	C	-	-	
UNT to Blacklick Creek (RM 31.89) @ RM 0.04	7/16/2014	1 (150-174mm)	-	-	C	-	-	-	-	-	-	P	-	P	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-	-	-	-	-	-	-
UNT to Blacklick Creek (RM 31.89) @ RM 1.24	7/16/2014	-	-	-	R	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-	-	-	-	-	-	-	-
UNT to Ramsey Run (RM 0.72)	8/14/2014	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weirs Run	7/1/2016	-	-	-	A	-	-	-	-	-	P	-	A	-	A	-	R	-	-	-	-	-	-	-	-	C	R	-	-	-	-	-	P	-	

The relative abundance rating criteria per 100 m of stream sampled are as follows: 1 = Rare (R), 2-8 = Present (P), 9-33 = Common (C), >33 = Abundant (A).

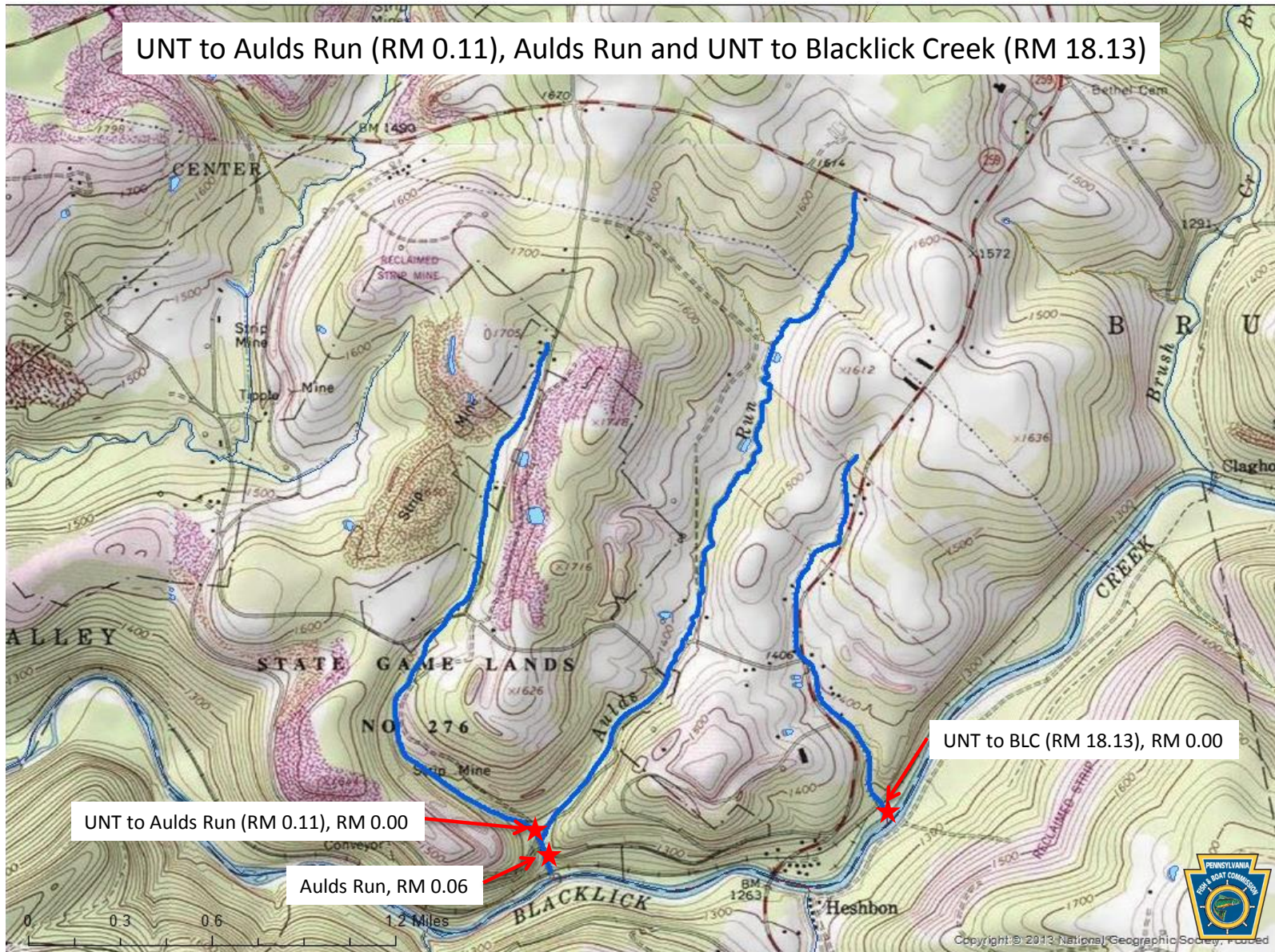


Figure 15. UNT to Aulds Run (RM 0.11), Aulds Run and UNT to Blacklick Creek (RM 18.13) station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

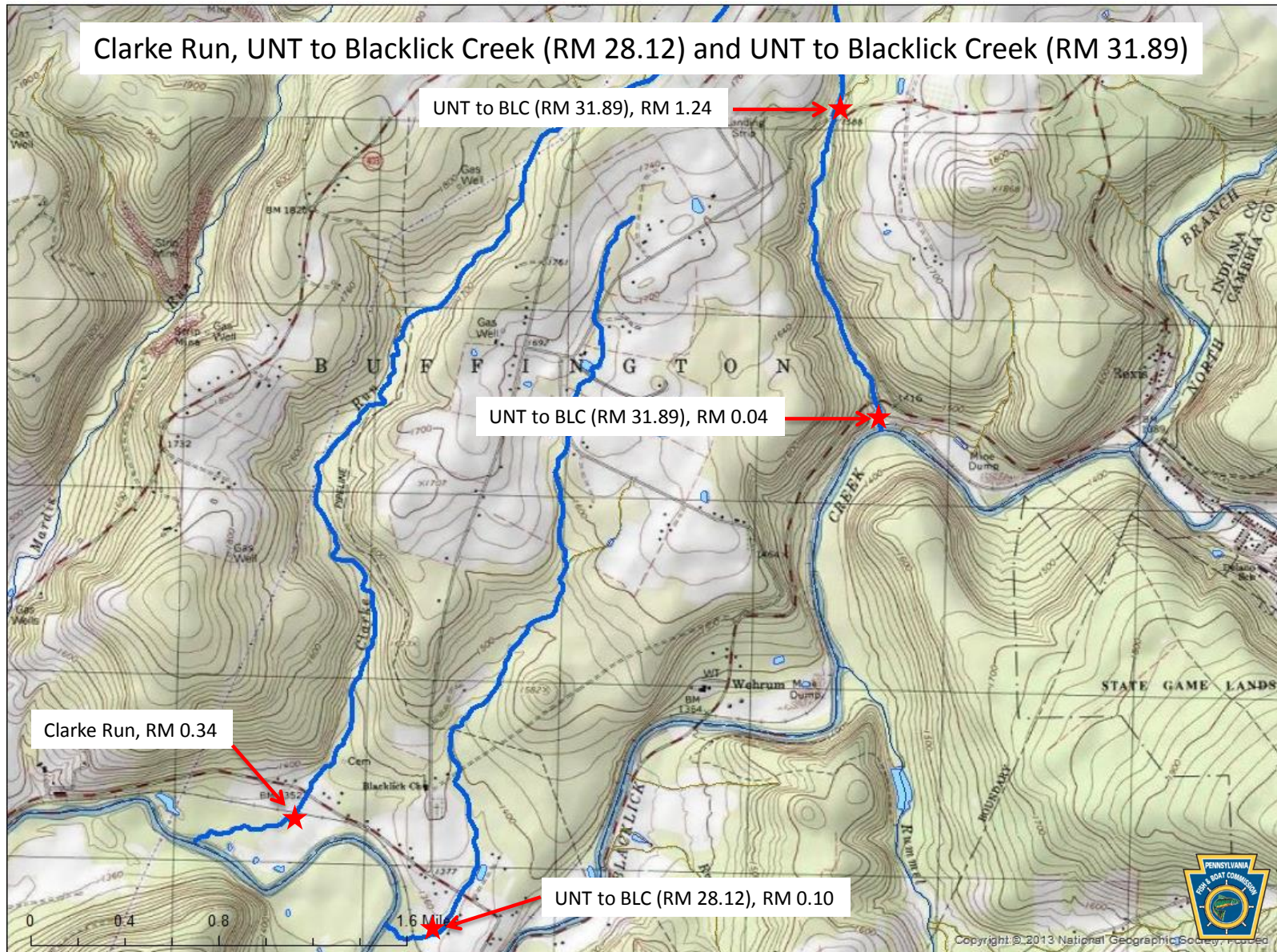


Figure 16. Clarke Run, UNT to Blacklick Creek (RM 28.12) and UNT to Blacklick Creek (RM 31.89) RM 0.10 and RM 1.24 station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

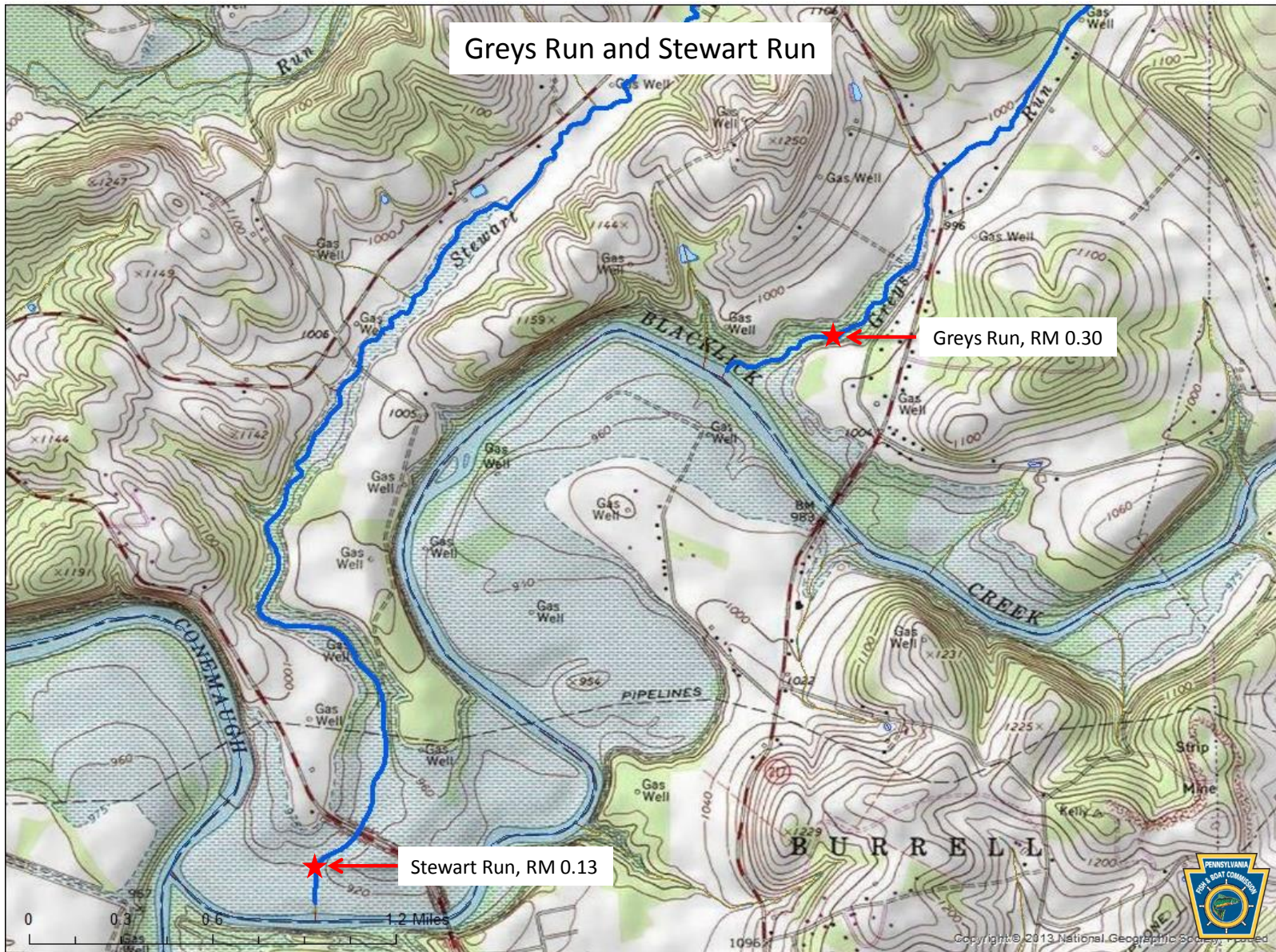


Figure 17. Greys Run and Stewart Run station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

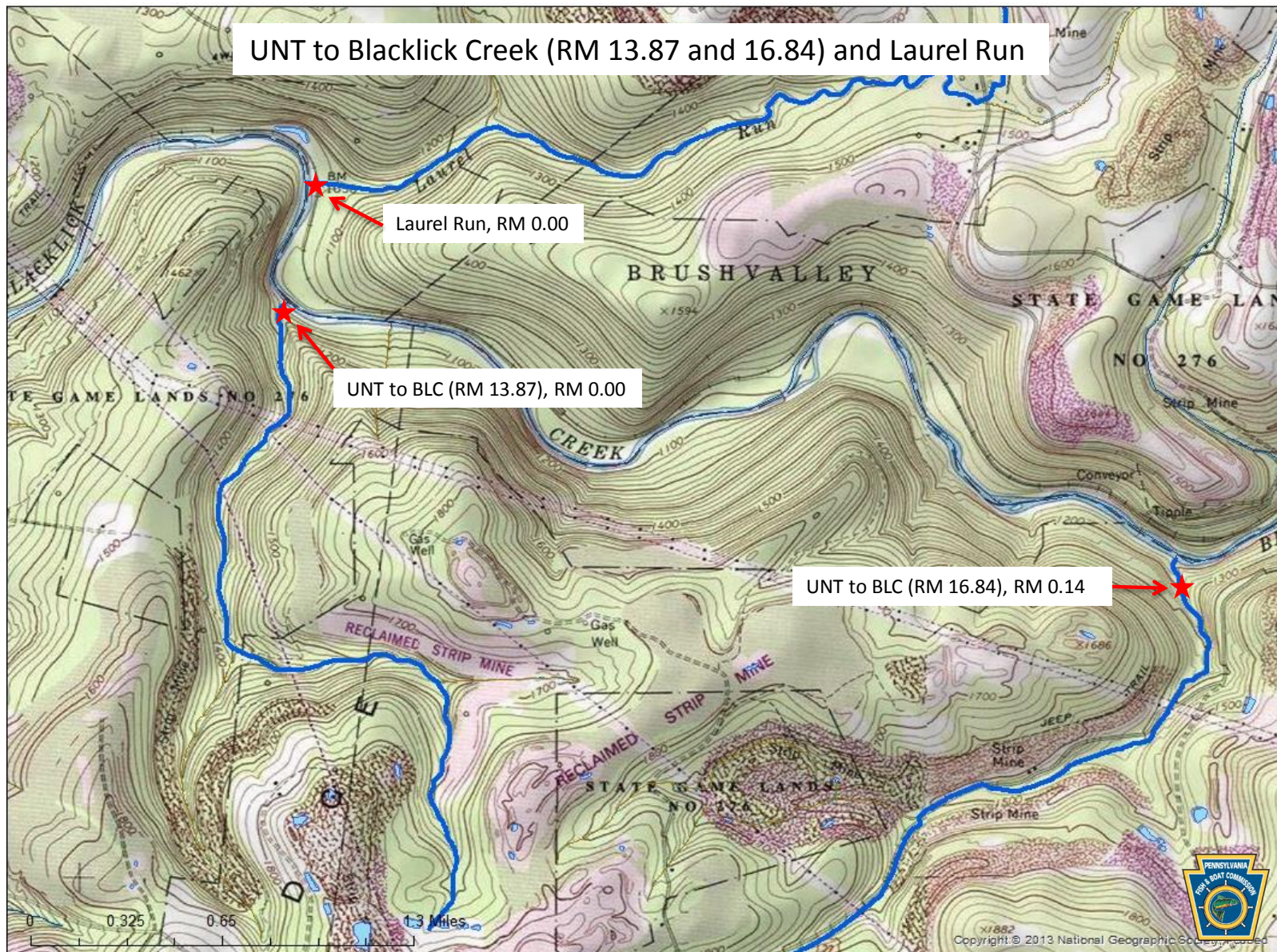


Figure 18. UNT to Blacklick Creek (RM 13.87), UNT to Blacklick Creek (RM 16.84) and Laurel Run station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

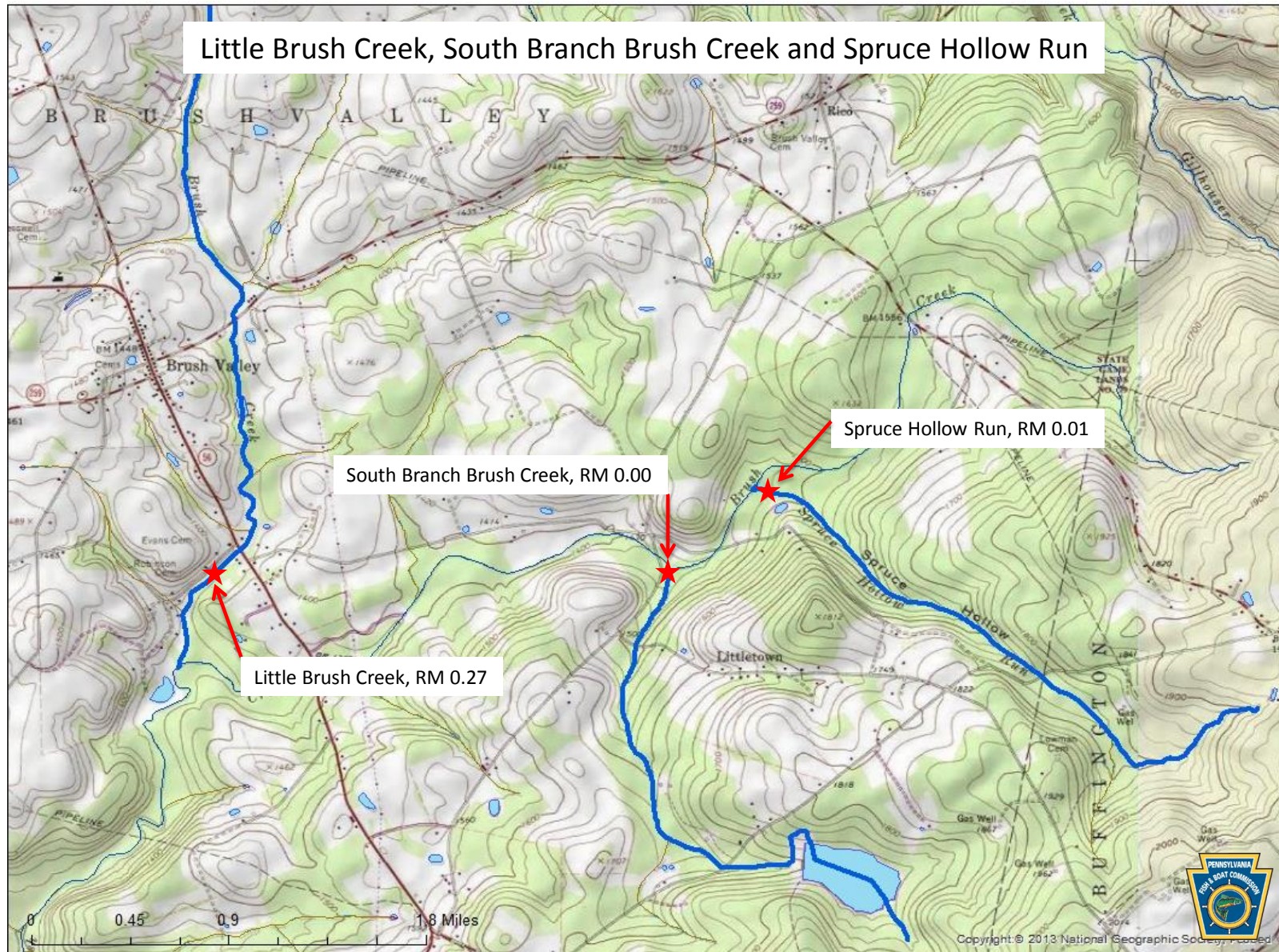


Figure 19. Little Brush Creek, South Branch Brush Creek and Spruce Hollow Run station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

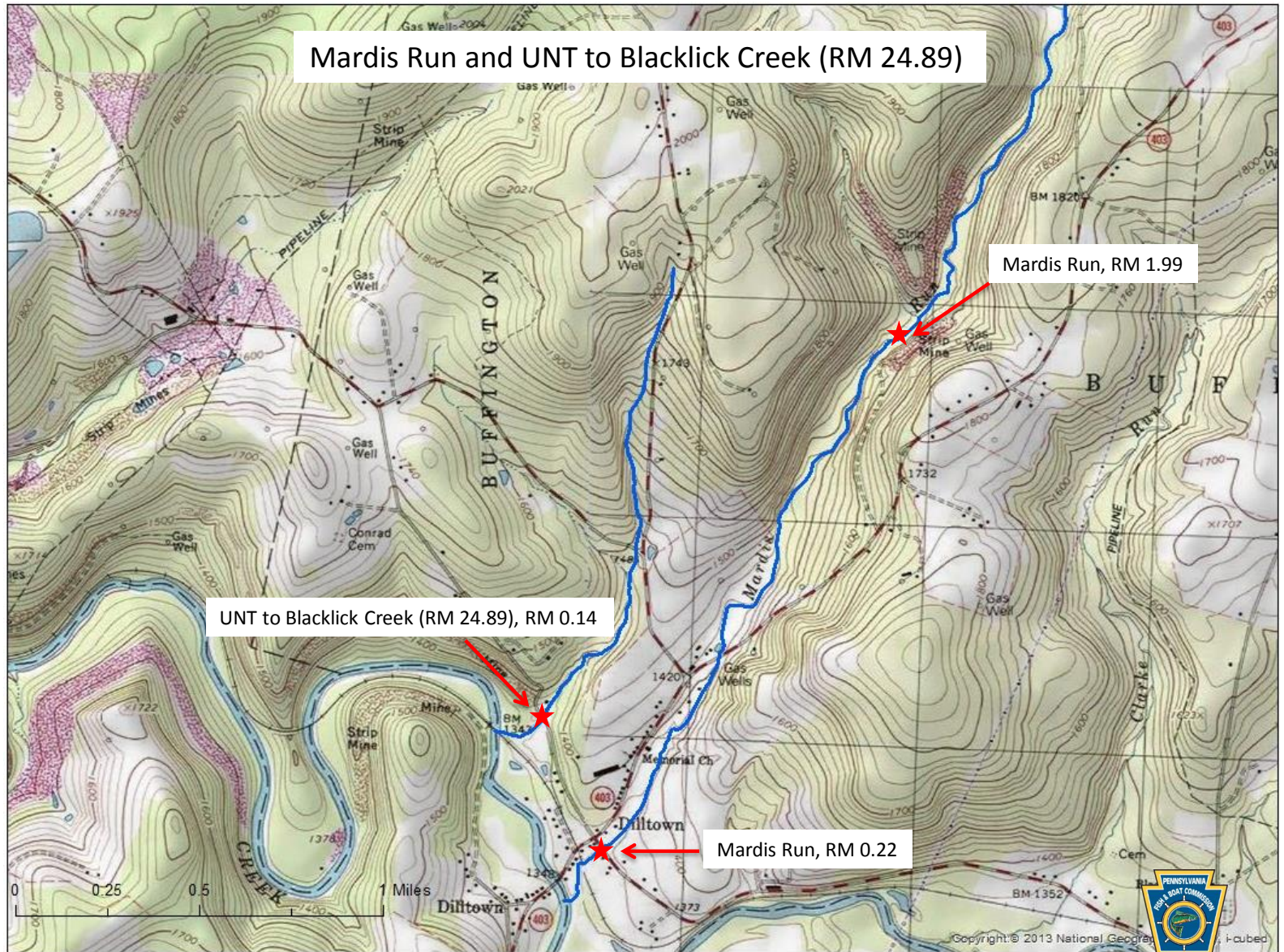


Figure 20. Mardis Run and UNT to Blacklick Creek (RM 24.89) station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

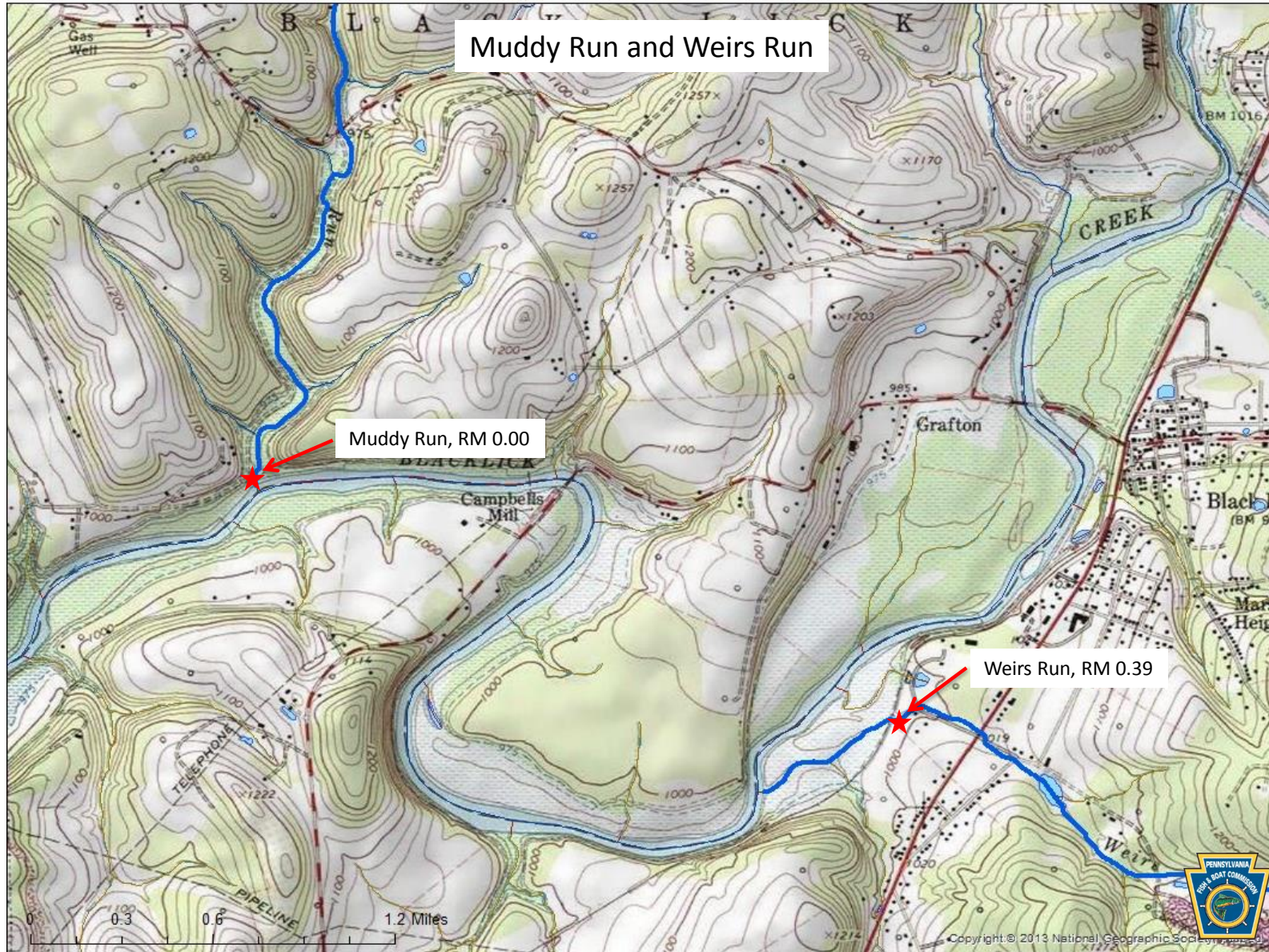


Figure 21. Muddy Run and Weirs Run station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

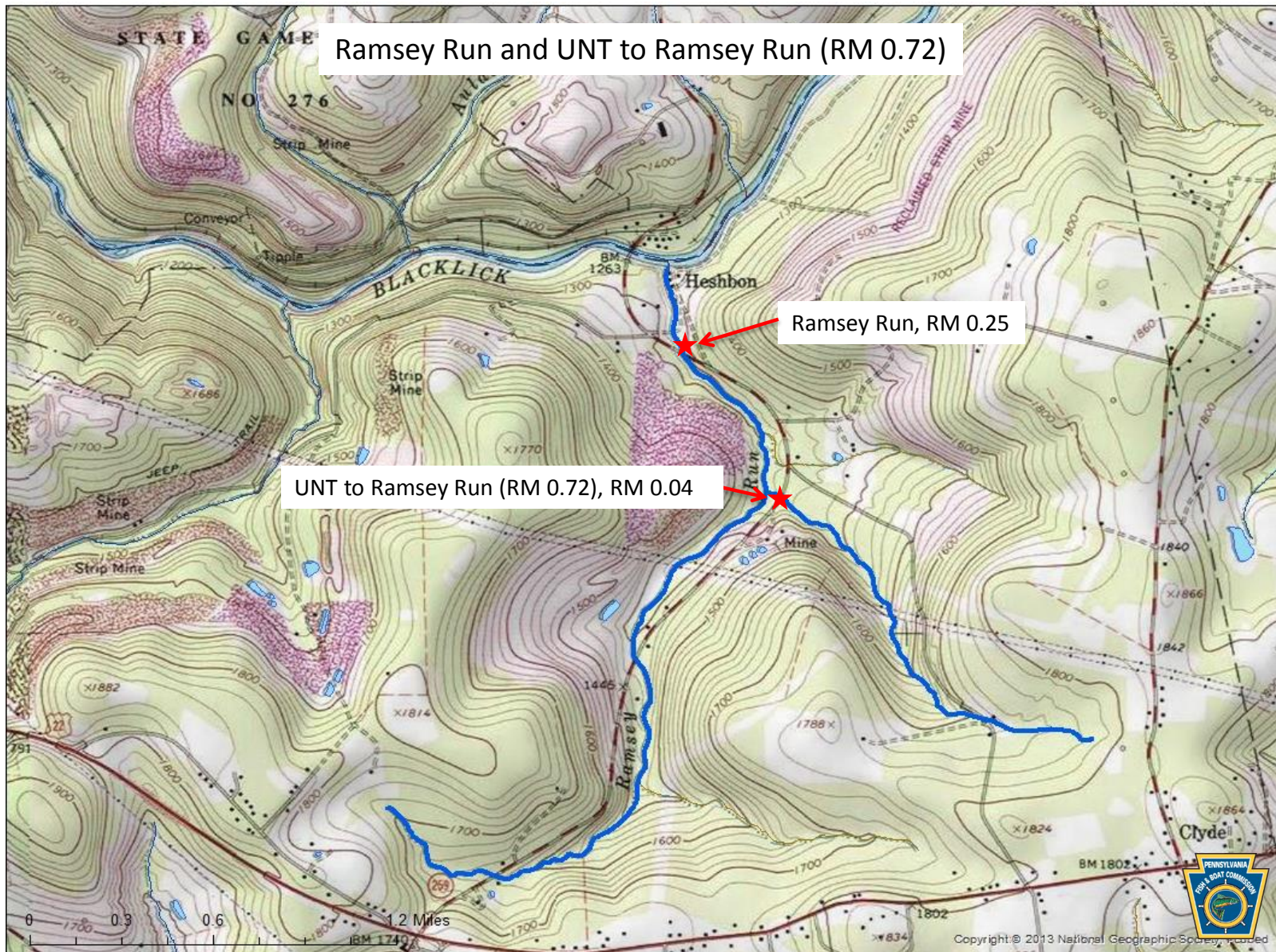


Figure 22. Ramsey Run and UNT to Ramsey Run (RM 0.72) station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

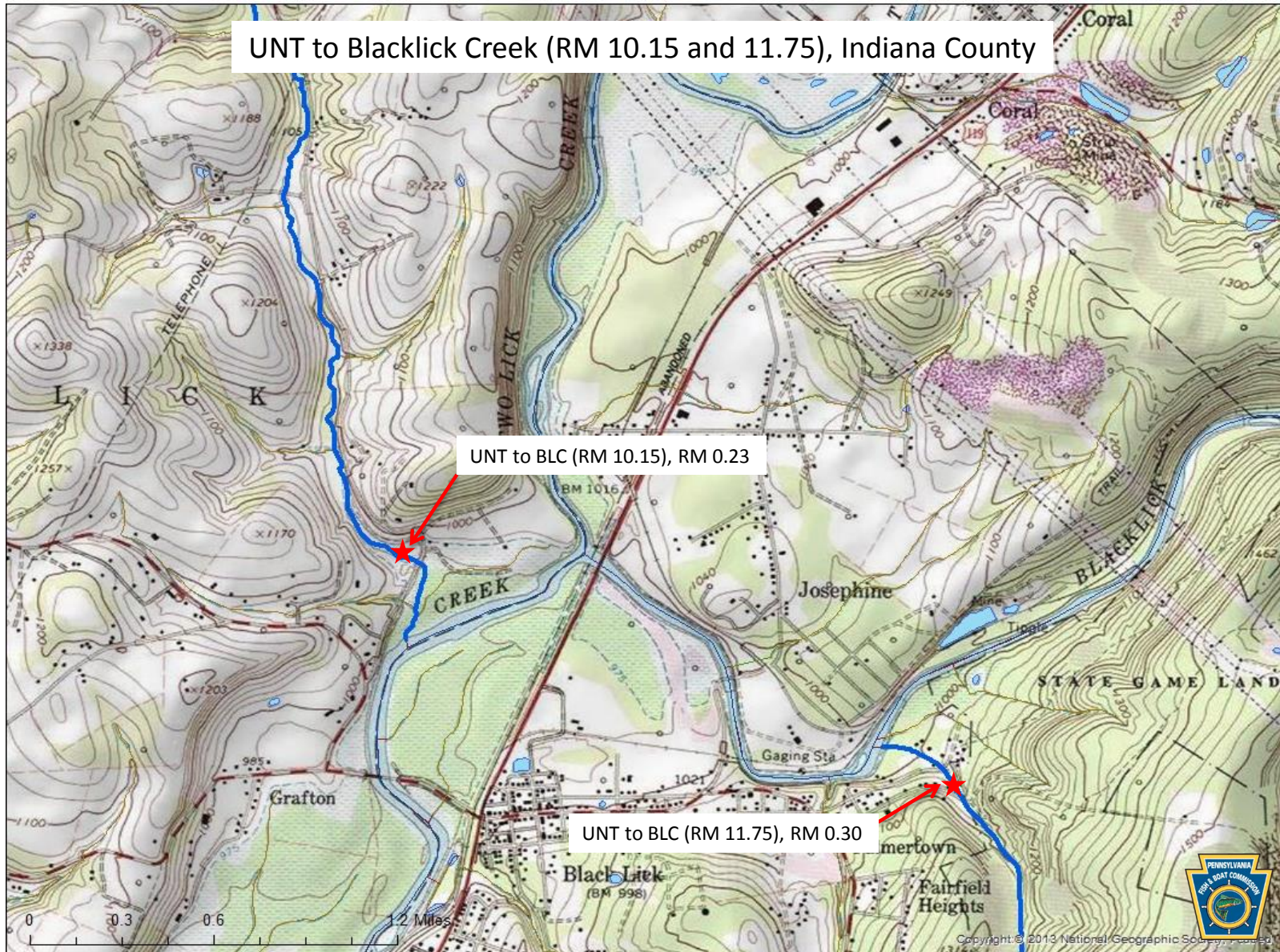


Figure 23. UNT to Blacklick Creek (RM 10.15) and UNT to Blacklick Creek (RM 11.75) station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

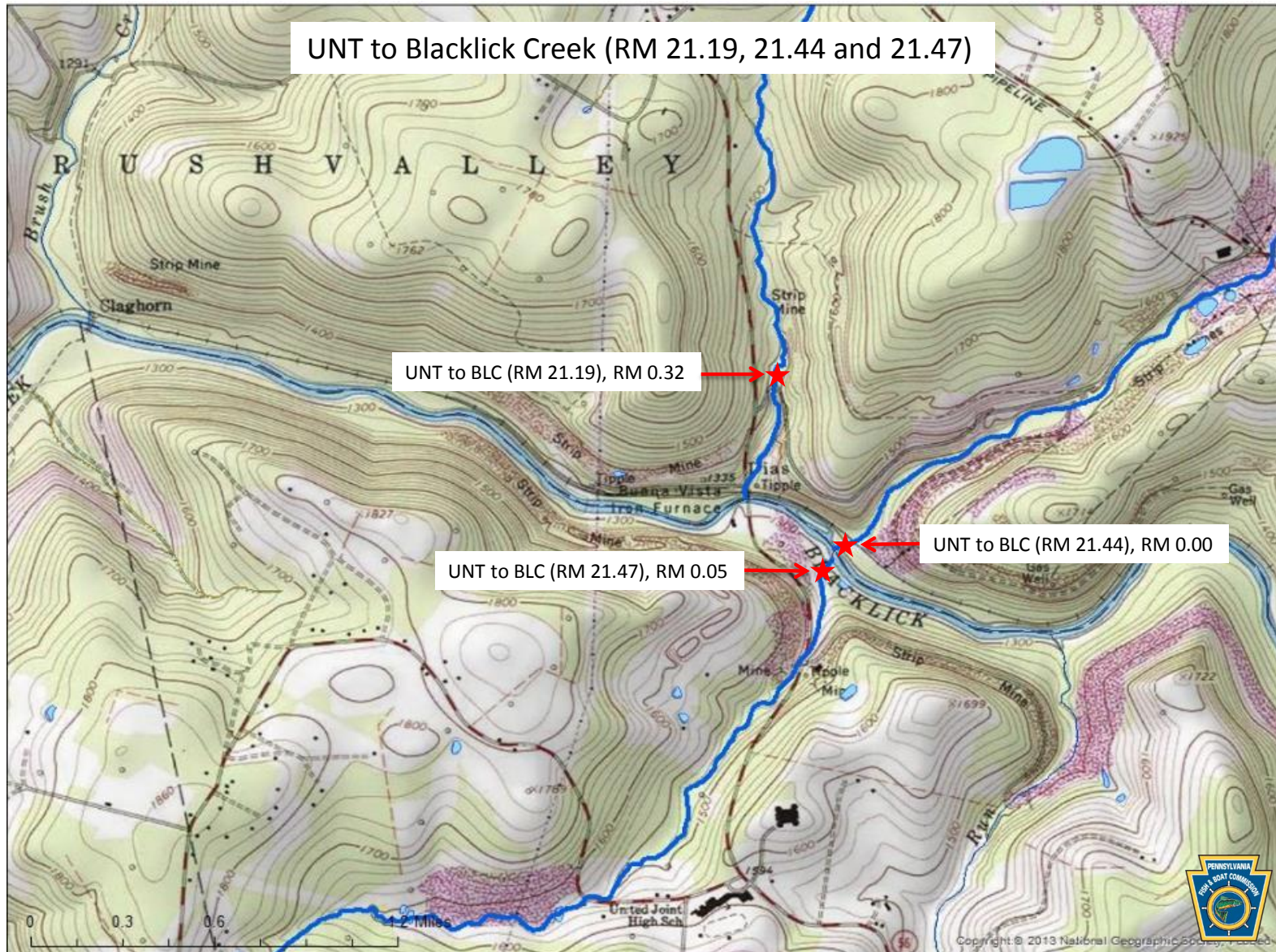


Figure 24. UNT to Blacklick Creek (RM 21.19), UNT to Blacklick Creek (RM 21.44) and UNT to Blacklick Creek (RM 21.47) station locations within the Mainstem Blacklick Creek sub-watershed 2011-2016.

Table 10. Unassessed waters sample site locations within the South Branch Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	RM of Entry	Mouth Latitude	Mouth Longitude	Site RM	Site Latitude	Site Longitude
Bracken Run	South Branch Blacklick Creek	1.11	40.480635	-78.907190	0.23	40.478320	-78.904340
Coalpit Run	South Branch Blacklick Creek	4.69	40.496006	-78.867659	0.10	40.496525	-78.865913
Shuman Run	South Branch Blacklick Creek	0.90	40.479149	-78.910253	0.43	40.473858	-78.908225
Stewart Run	South Branch Blacklick Creek	8.48	40.458332	-78.823059	2.38	40.441855	-78.791922
UNT to South Branch Blacklick Creek (RM 2.22)	South Branch Blacklick Creek	2.22	40.485659	-78.895656	0.34	40.483586	-78.890636
UNT to South Branch Blacklick Creek (RM 9.39)	South Branch Blacklick Creek	9.39	40.460346	-78.811905	0.11	40.461646	-78.812241
UNT to South Branch Blacklick Creek (RM 10.50)	South Branch Blacklick Creek	10.50	40.459294	-78.793614	0.49	40.463759	-78.788519
UNT to South Branch Blacklick Creek (RM 16.48)	South Branch Blacklick Creek	16.48	40.513825	-78.744812	0.12	40.515375	-78.744831
UNT to South Branch Blacklick Creek (RM 17.18)	South Branch Blacklick Creek	17.18	40.517481	-78.733780	0.00	40.517481	-78.733780
UNT to South Branch Blacklick Creek (RM 18.30)	South Branch Blacklick Creek	18.30	40.521217	-78.717944	0.00	40.521217	-78.717944
UNT to Stewart Run (RM 2.43)	Stewart Run	2.43	40.441661	-78.791028	0.00	40.441661	-78.791028
UNT to Williams Run (RM 0.53)	Williams Run	0.53	40.487214	-78.773909	0.45	40.490191	-78.781025
UNT to Williams Run (RM 3.08)	Williams Run	3.08	40.516445	-78.759606	0.01	40.516507	-78.759839
Williams Run - Section 1	South Branch Blacklick Creek	12.94	40.480953	-78.771072	3.08	40.516477	-78.759353
Williams Run - Section 2	South Branch Blacklick Creek	12.94	40.480953	-78.771072	0.00	40.480953	-78.771072

Table 11. Chemistries collected from streams within the South Branch Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
Bracken Run	South Branch Blacklick Creek	0.23	8/27/2014	945	15.0	4.50	0	88	277
Coalpit Run	South Branch Blacklick Creek	0.10	7/29/2015	1415	18.9	4.59	0	200	459
Shuman Run	South Branch Blacklick Creek	0.43	8/13/2014	945	16.3	7.06	16	34	157
Stewart Run	South Branch Blacklick Creek	2.38	7/29/2015	1000	16.1	7.15	26	38	121
UNT to South Branch Blacklick Creek (RM 2.22)	South Branch Blacklick Creek	0.34	7/30/2015	1130	17.4	4.56	0	60	170
UNT to South Branch Blacklick Creek (RM 9.39)	South Branch Blacklick Creek	0.11	7/28/2015	1230	17.0	6.19	4	10	50
UNT to South Branch Blacklick Creek (RM 10.50)	South Branch Blacklick Creek	0.49	7/28/2015	1345	17.4	7.34	40	55	99
UNT to South Branch Blacklick Creek (RM 16.48)	South Branch Blacklick Creek	0.12	6/28/2016	1430	20.3	7.00	22	46	178
UNT to South Branch Blacklick Creek (RM 17.18)	South Branch Blacklick Creek	0.00	6/28/2016	1145	18.1	7.19	32	70	141
UNT to South Branch Blacklick Creek (RM 18.30)	South Branch Blacklick Creek	0.00	6/28/2016	1330	17.3	7.30	63	80	233
UNT to Stewart Run (RM 2.43)	Stewart Run	0.00	7/29/2015	1000	17.6	6.92	21	43	156
UNT to Williams Run (RM 0.53)	Williams Run	0.45	7/28/2015	1100	15.1	6.91	6	18	103
UNT to Williams Run (RM 3.08)	Williams Run	0.01	7/29/2015	1245	17.7	7.04	16	36	96
Williams Run - Section 1	South Branch Blacklick Creek	3.08	7/26/2013	1130	15.0	7.10	26	50	188
Williams Run - Section 2	South Branch Blacklick Creek	0.00	7/28/2015	945	18.0	7.10	16	28	107

Table 12. Abundance ratings for fish species observed in selected streams within the South Branch Blacklick Creek sub-watershed in 2011-2016.

Water	Sampling Date	Wild Brook Trout	Wild Brown Trout	Blacknose Dace	Bluegill	Creek Chub	Golden Shiner	Johnny Darter	Largemouth Bass	Mottled Sculpin	Pumpkinseed	Redside Dace	White Sucker
Bracken Run	8/27/2014	-	-	-	-	-	-	-	-	-	-	-	-
Coalpit Run	7/29/2015	-	-	-	-	-	-	-	-	-	-	-	-
Shuman Run	8/13/2014	-	-	-	-	P	-	-	-	-	-	-	-
Stewart Run	7/29/2015	3 (125-199mm)	1 (250-274mm)	C	-	P	-	-	P	A	-	-	P
UNT to South Branch Blacklick Creek (RM 2.22)	7/30/2015	-	-	-	-	-	-	-	-	-	-	-	-
UNT to South Branch Blacklick Creek (RM 9.39)	7/28/2015	7 (50-249mm)	2 (50-174mm)	-	-	-	-	-	-	-	-	-	-
UNT to South Branch Blacklick Creek (RM 10.50)	7/28/2015	6 (50-149mm)	1 (50-99mm)	R	-	C	-	-	-	C	-	-	-
UNT to South Branch Blacklick Creek (RM 16.48)	6/28/2016	-	-	P	-	P	-	P	-	-	-	-	-
UNT to South Branch Blacklick Creek (RM 17.18)	6/28/2016	-	-	C	-	P	-	C	-	R	-	-	-
UNT to South Branch Blacklick Creek (RM 18.30)	6/28/2016	-	-	C	-	C	C	-	-	P	P	C	-
UNT to Stewart Run (RM 2.43)	7/29/2015	1 (175-199mm)	-	C	-	C	-	-	R	A	-	-	P
UNT to Williams Run (RM 0.53)	7/28/2015	32 (50-174mm)	-	-	-	P	-	-	-	C	-	-	-
UNT to Williams Run (RM 3.08)	7/29/2015	-	-	A	-	C	-	-	-	A	-	-	-
Williams Run - Section 1	7/26/2013	-	-	A	R	A	-	-	-	R	-	-	P
Williams Run - Section 2	7/28/2015	13 (50-199mm)	-	C	-	P	-	-	-	A	-	-	P

The relative abundance rating criteria per 100 m of stream sampled are as follows: 1 = Rare (R), 2-8 = Present (P), 9-33 = Common (C), >33 = Abundant (A).

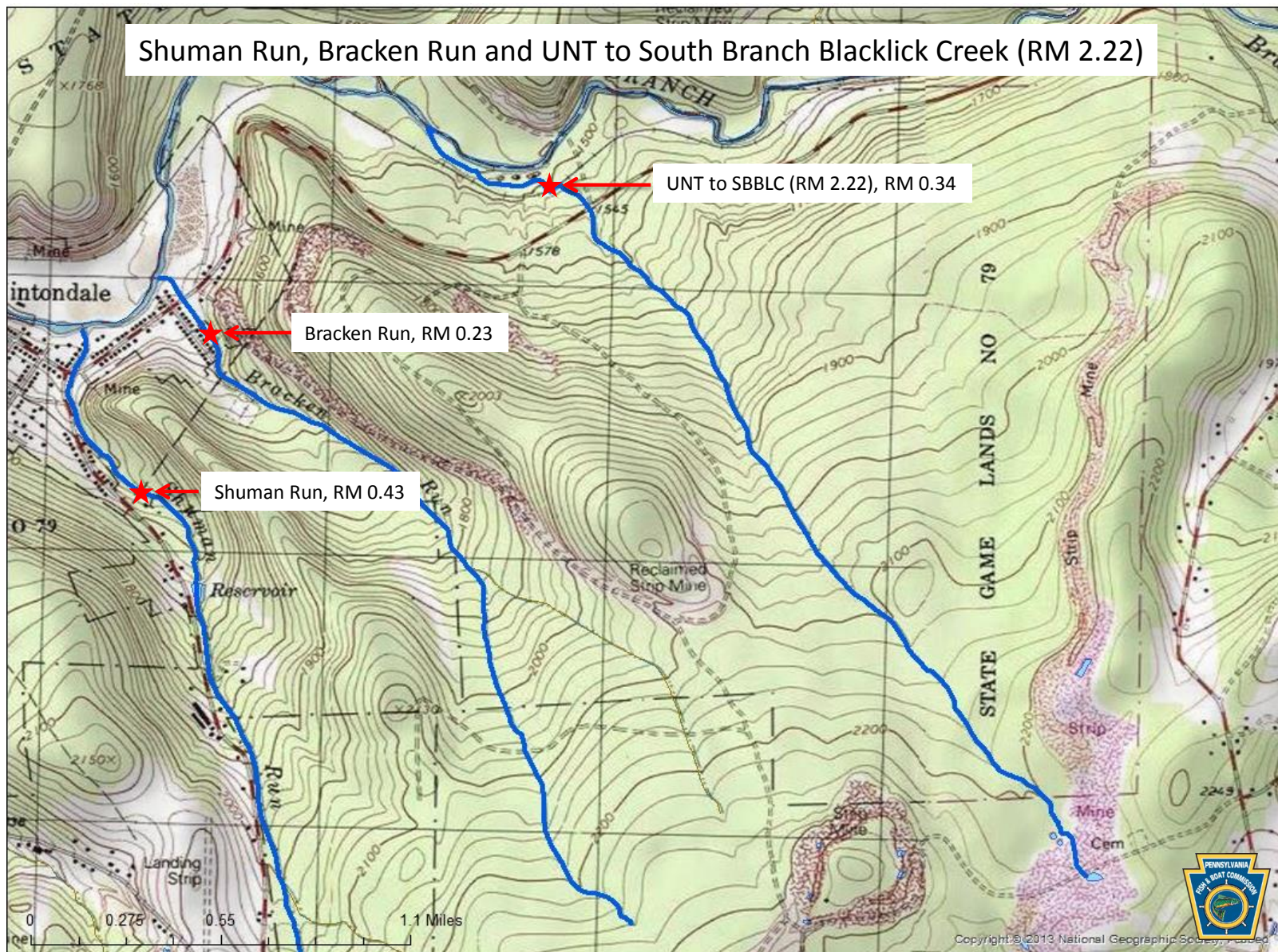


Figure 25. Shuman Run, Bracken Run and UNT to South Branch Blacklick Creek (RM 2.22) station locations within the South Branch Blacklick Creek sub-watershed 2011-2016.

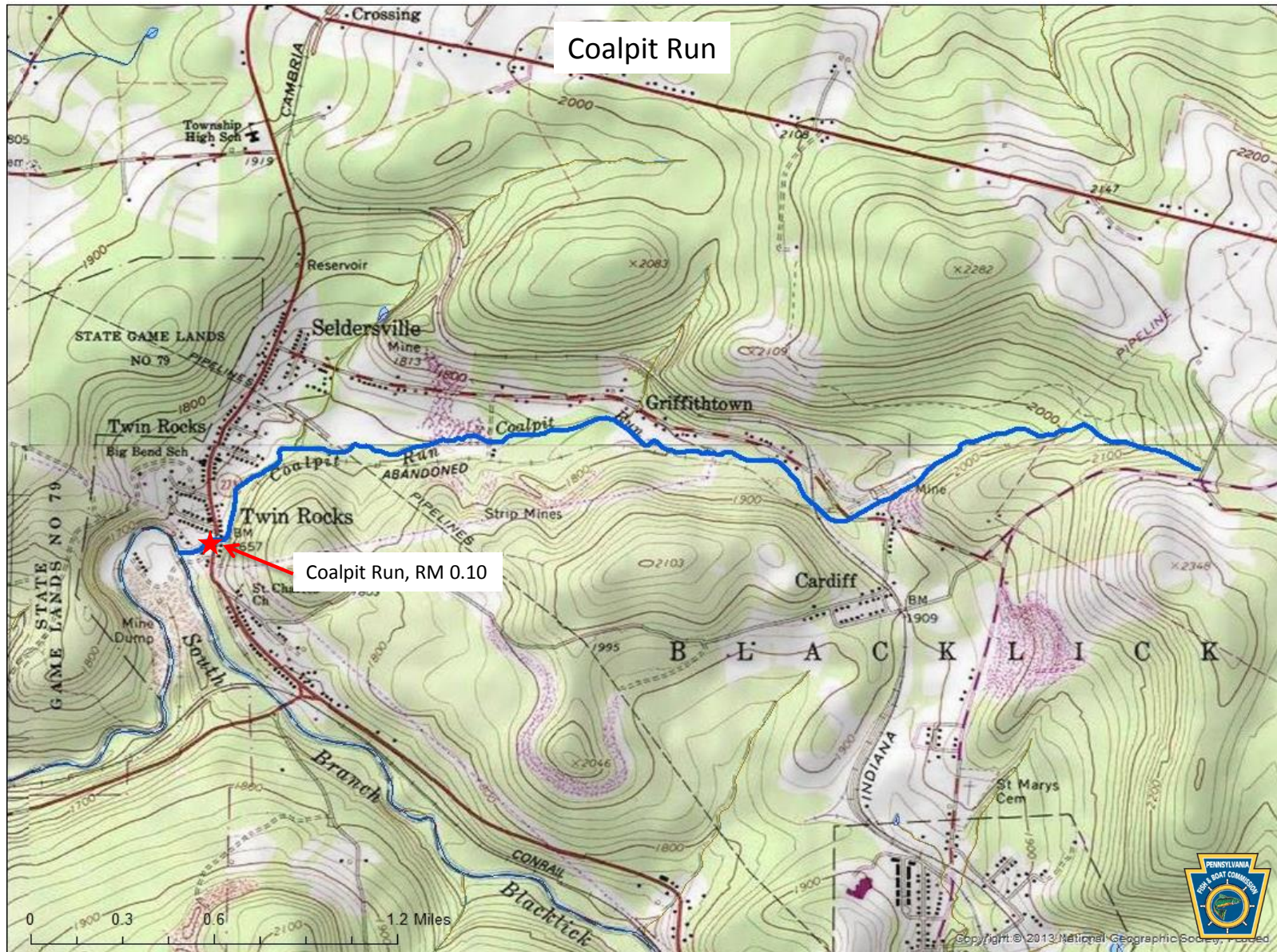


Figure 26. Coalpit Run station location within the South Branch Blacklick Creek sub-watershed 2011-2016.

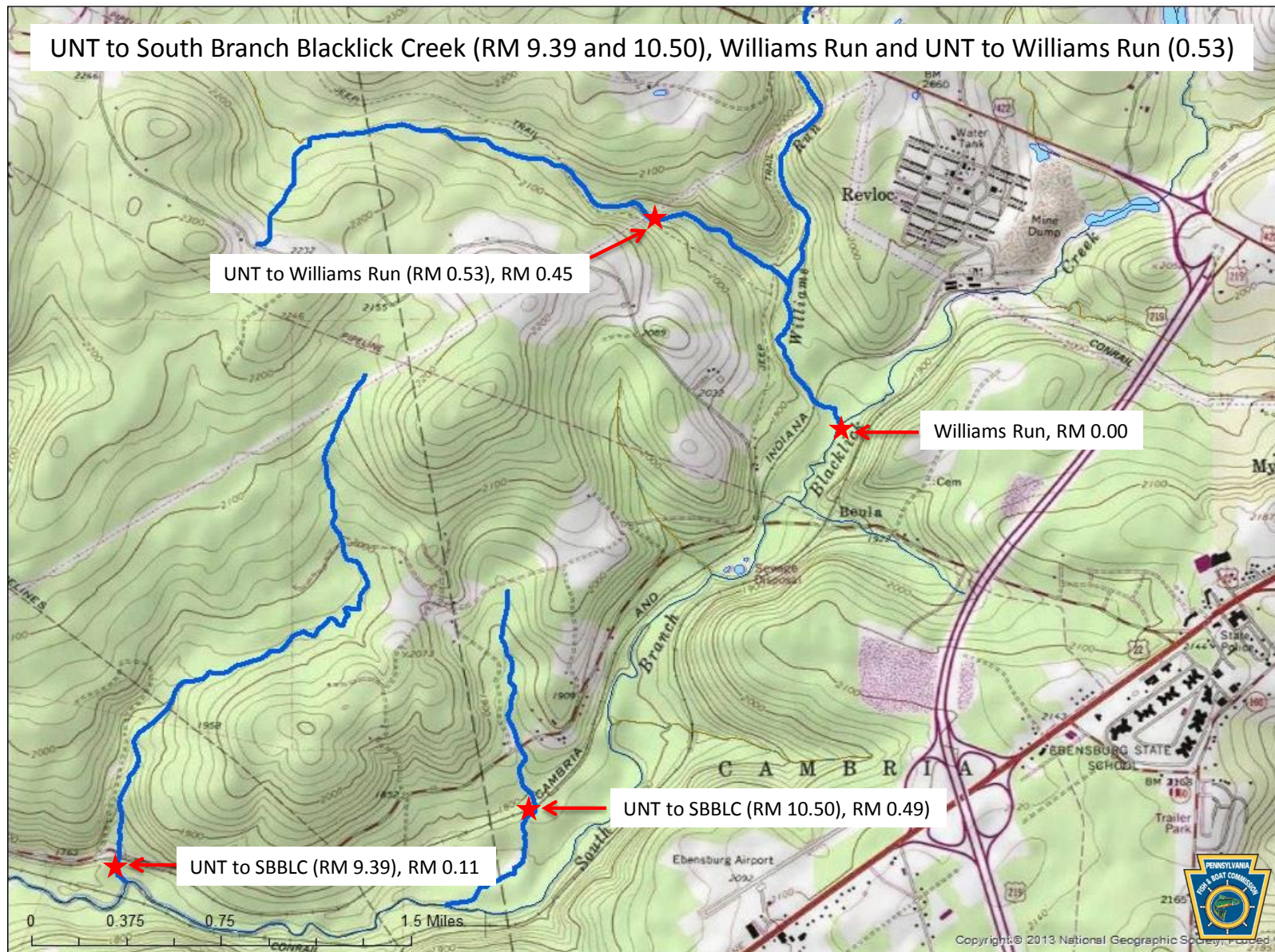


Figure 27. UNT to South Branch Blacklick Creek (RM 9.39), UNT to South Branch Blacklick Creek (RM 10.50) Williams Run and UNT to Williams Run (RM 0.53) station locations within the South Branch Blacklick Creek sub-watershed 2011-2016.

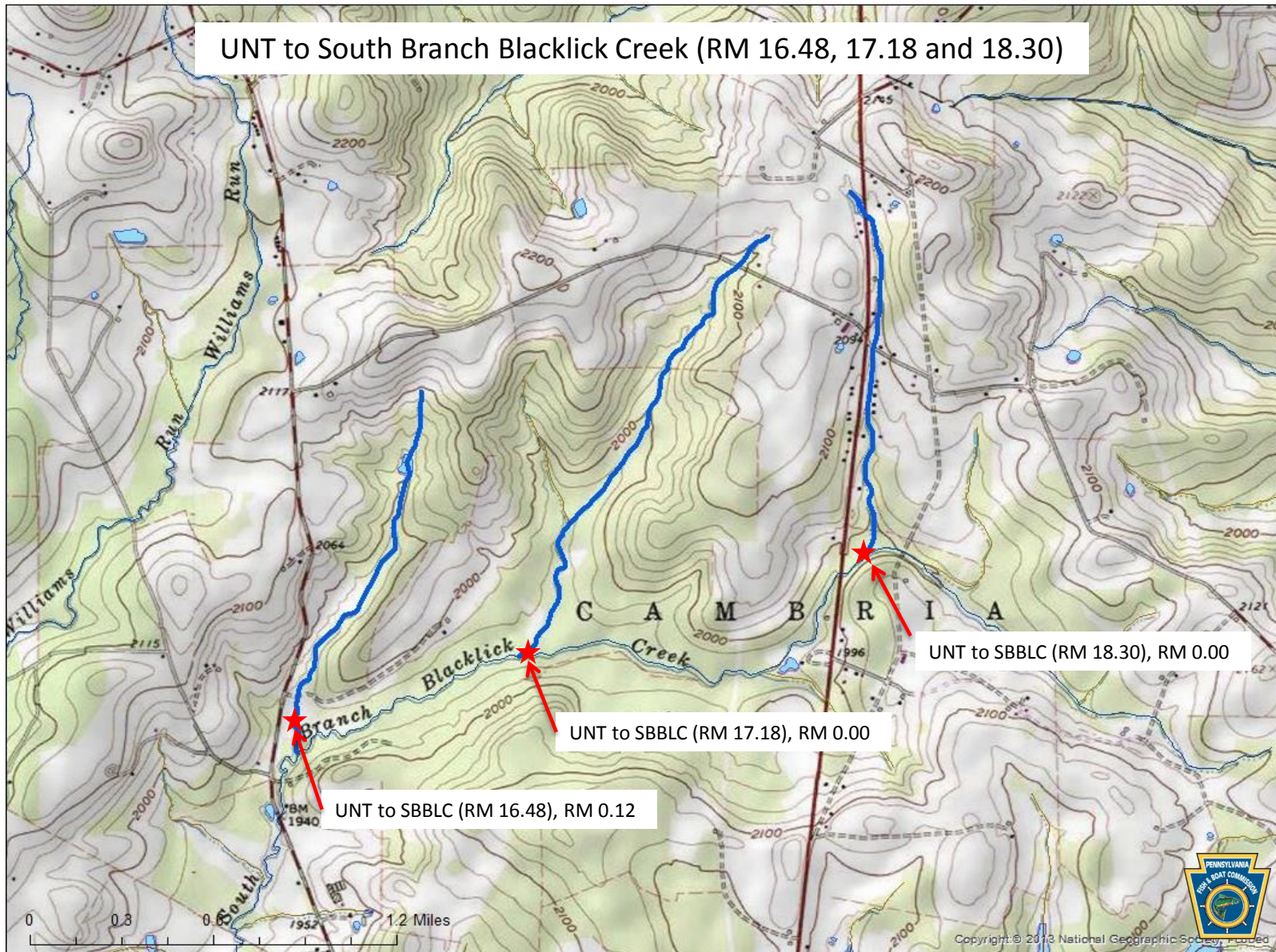


Figure 28. UNT to South Branch Blacklick Creek (RM 16.48), UNT to South Branch Blacklick Creek (RM 17.18) and UNT to South Branch Blacklick Creek (RM 18.30) station locations within the South Branch Blacklick Creek sub-watershed 2011-2016.

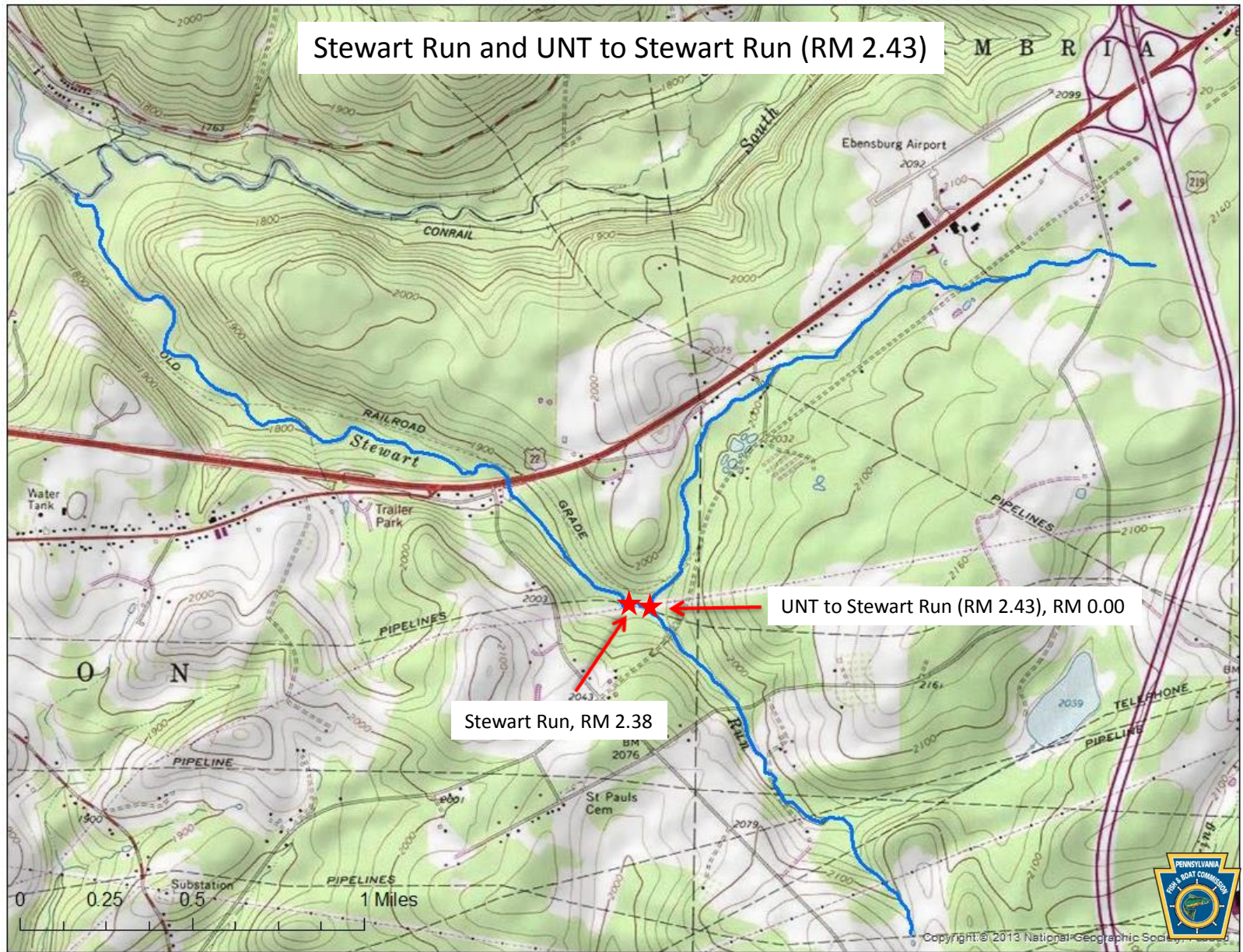


Figure 29. Stewart Run and UNT to Stewart Run (RM 2.43) station location within the South Branch Blacklick Creek sub-watershed 2011-2016.

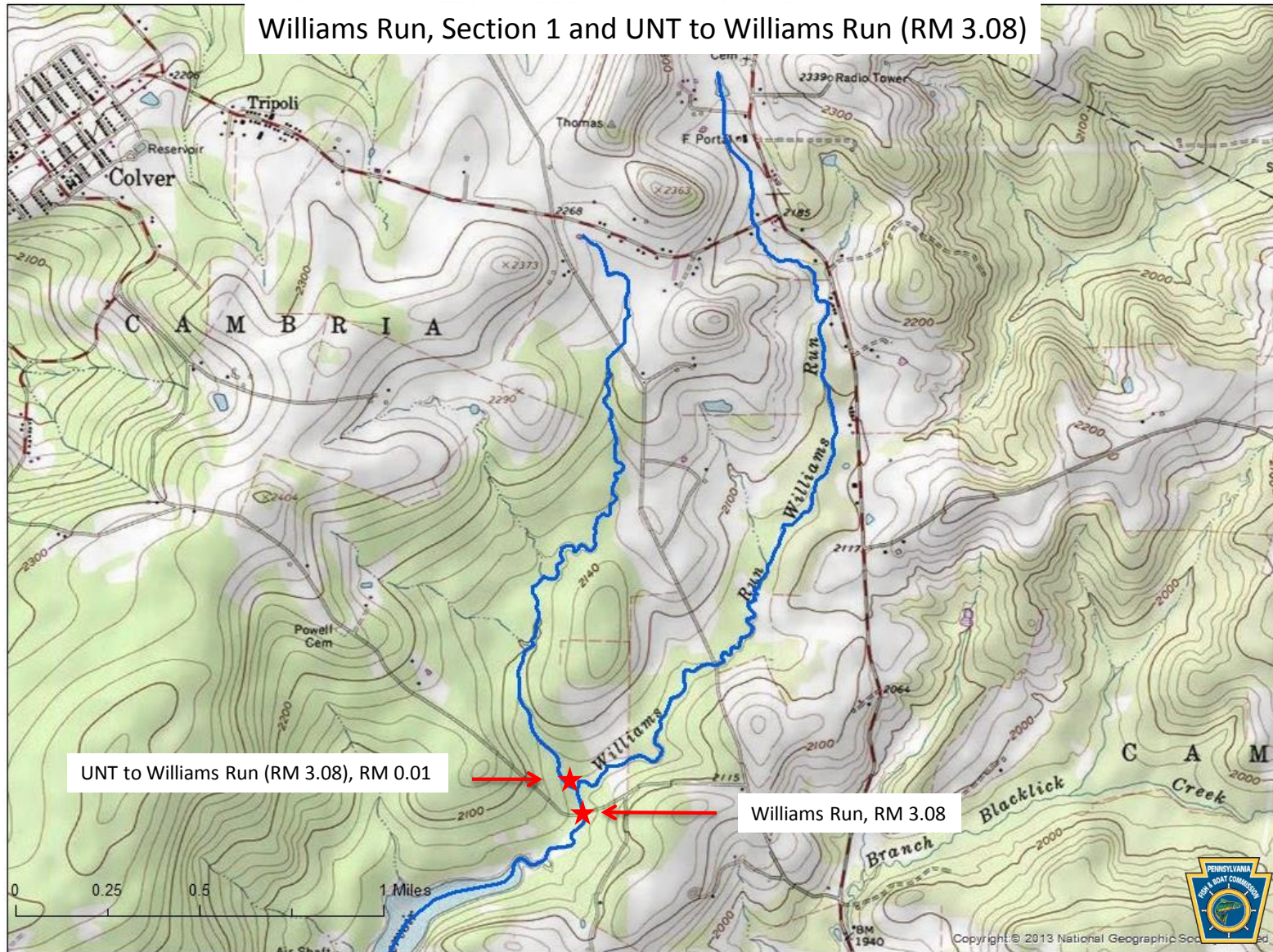


Figure 30. Williams Run, Section 1 and UNT to Williams Run (RM 3.08) station locations within the South Branch Blacklick Creek sub-watershed 2011-2016.

Table 13. Unassessed waters sample site locations within the North Branch Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	RM of Entry	Mouth Latitude	Mouth Longitude	Site RM	Site Latitude	Site Longitude
California Run	Elk Creek	5.87	40.553820	-78.816007	0.00	40.553820	-78.816007
Downey Run	North Branch Blacklick Creek	1.81	40.501760	-78.908749	0.21	40.504055	-78.907331
Hill Creek	Elk Creek	4.09	40.548381	-78.839844	0.48	40.543420	-78.840101
Little Elk Creek	Elk Creek	1.72	40.536422	-78.862720	0.00	40.536422	-78.862720
Simmons Run	Elk Creek	0.54	40.530501	-78.880851	0.11	40.529636	-78.879270
Stevens Run	North Branch Blacklick Creek	5.85	40.543151	-78.878996	0.00	40.543151	-78.878996
UNT to Carney Run (RM 1.01)	Carney Run	1.01	40.526822	-78.910395	0.00	40.526822	-78.910395
UNT to Colver Reservoir	Colver Reservoir	16.60	40.566790	-78.774152	0.04	40.566470	-78.773631
UNT to Downey Run (RM 0.76)	Downey Run	0.76	40.509020	-78.913177	0.26	40.512497	-78.912691
UNT to Elk Creek (RM 0.90)	Elk Creek	0.90	40.531619	-78.874454	0.22	40.529771	-78.871502
UNT to Elk Creek (RM 4.99)	Elk Creek	4.99	40.551036	-78.828786	0.30	40.552863	-78.831380
UNT to Elk Creek (RM 6.36)	Elk Creek	6.36	40.548784	-78.811222	0.24	40.546290	-78.813851
UNT (RM 0.58) to UNT to Elk Creek (RM 6.36)	UNT to Elk Creek (RM 6.36)	0.58	40.542348	-78.816177	0.24	40.541360	-78.813221
UNT to North Branch Blacklick Creek (RM 5.24)	North Branch Blacklick Creek	5.24	40.537153	-78.886195	0.14	40.539013	-78.886654
UNT to North Branch Blacklick Creek (RM 5.24)	North Branch Blacklick Creek	5.24	40.537153	-78.886195	0.11	40.538429	-78.886510
UNT to North Branch Blacklick Creek (RM 13.51)	North Branch Blacklick Creek	13.51	40.585342	-78.812435	0.01	40.585660	-78.812460
UNT to North Branch Blacklick Creek (RM 17.43)	North Branch Blacklick Creek	17.43	40.572122	-78.764178	0.08	40.572010	-78.763279
UNT to North Branch Blacklick Creek (RM 17.82)	North Branch Blacklick Creek	17.82	40.574178	-78.758542	0.00	40.574178	-78.758542
UNT to North Branch Blacklick Creek (RM 18.50)	North Branch Blacklick Creek	18.50	40.574339	-78.749108	0.00	40.574339	-78.749108
UNT to Stevens Run (RM 1.07)	Stevens Run	1.07	40.554944	-78.881774	0.03	40.555260	-78.882108
UNT (RM 0.19) to UNT to Stevens Run (RM 1.07)	UNT to Stevens Run (RM 1.07)	0.19	40.556805	-78.884175	0.00	40.556805	-78.884175
Walker Run	North Branch Blacklick Creek	2.14	40.503989	-78.905262	0.00	40.503989	-78.905262
Wolf Run	North Branch Blacklick Creek	14.23	40.583860	-78.802988	0.30	40.587956	-78.801794

Table 14. Chemistries collected from streams within the North Branch Blacklick Creek sub-watershed by PA Fish & Boat Commission during 2011-2016.

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
California Run	Elk Creek	0.00	7/11/2014	1145	17.8	6.60	34	480	326
Downey Run	North Branch Blacklick Creek	0.21	7/20/2015	1415	18.2	6.93	14	29	82
Hill Creek	Elk Creek	0.48	7/15/2014	1315	17.9	6.90	22	36	100
Little Elk Creek	Elk Creek	0.00	7/11/2014	1345	17.6	6.90	12	28	106
Simmons Run	Elk Creek	0.11	7/22/2015	900	14.8	7.15	20	32	122
Stevens Run	North Branch Blacklick Creek	0.00	7/11/2014	1500	20.9	6.70	14	26	87
UNT to Carney Run (RM 1.01)	Carney Run	0.00	7/22/2015	1130	14.7	6.80	4	14	75
UNT to Colver Reservoir	Colver Reservoir	0.04	7/15/2014	1000	18.6	6.89	28	50	122
UNT to Downey Run (RM 0.76)	Downey Run	0.26	7/22/2015	1215	16.1	7.00	14	INT	64
UNT to Elk Creek (RM 0.90)	Elk Creek	0.22	7/30/2015	1000	17.4	6.96	24	46	173
UNT to Elk Creek (RM 4.99)	Elk Creek	0.30	7/20/2015	1230	22.0	6.88	25	42	108
UNT to Elk Creek (RM 6.36)	Elk Creek	0.24	7/11/2014	1230	16.5	6.60	6	16	68
UNT (RM 0.58) to UNT to Elk Creek (RM 6.36)	UNT to Elk Creek (RM 6.36)	0.24	7/11/2014	1300	17.8	6.80	10	18	56
UNT to North Branch Blacklick Creek (RM 5.24)	North Branch Blacklick Creek	0.14	7/11/2014	1415	17.3	6.60	3	16	54
UNT to North Branch Blacklick Creek (RM 5.24)	North Branch Blacklick Creek	0.11	7/22/2015	1000	14.8	6.13	4	16	56
UNT to North Branch Blacklick Creek (RM 13.51)	North Branch Blacklick Creek	0.01	7/21/2015	1400	20.7	7.12	45	64	161
UNT to North Branch Blacklick Creek (RM 17.43)	North Branch Blacklick Creek	0.08	7/11/2014	1000	16.0	6.70	30	54	122
UNT to North Branch Blacklick Creek (RM 17.82)	North Branch Blacklick Creek	0.00	7/21/2015	1015	17.5	7.25	62	109	212
UNT to North Branch Blacklick Creek (RM 18.50)	North Branch Blacklick Creek	0.00	7/21/2015	915	17.4	7.07	22	62	160

Water	Tributary to	Site RM	Sampling Date	Sampling Time	Water Temperature (C)	pH (SU)	Total Alkalinity (mg/l)	Total Hardness (mg/l)	Conductivity (umhos)
UNT to Stevens Run (RM 1.07)	Stevens Run	0.03	7/15/2014	1400	17.9	6.34	8	14	74
UNT (RM 0.19) to UNT to Stevens Run (RM 1.07)	UNT to Stevens Run (RM 1.07)	0.00	7/15/2014	1500	17.7	6.20	2	10	42
Walker Run	North Branch Blacklick Creek	0.00	7/20/2015	1515	16.7	7.03	8	17	52
Wolf Run	North Branch Blacklick Creek	0.30	7/21/2015	1200	16.8	7.11	28	52	167

Water	Sampling Date	Wild Brook Trout	Wild Brown Trout	Blacknose Dace	Blackside Darter	Bluegill	Bluntnose Minnow	Brook Trout- Hatchery	Brown Bullhead	Common Shiner	Creek Chub	Fantail Darter	Fathead Minnow	Golden Shiner	Green Sunfish	Greenside Darter	Johnny Darter	Longnose Dace	Mottled Sculpin	Pumpkinseed	Redside Dace	White Sucker
UNT to North Branch Blacklick Creek (RM 17.82)	7/21/2015	-	-	A	-	-	-	-	-	-	A	-	-	-	-	-	-	-	P	-	-	-
UNT to North Branch Blacklick Creek (RM 18.50)	7/21/2015	-	-	A	-	-	-	-	-	-	A	-	-	-	-	-	-	-	P	-	-	P
UNT to Stevens Run (RM 1.07)	7/15/2014	-	-	C	-	-	-	-	-	-	C	P	-	-	-	-	P	-	R	-	P	-
UNT (RM 0.19) to UNT to Stevens Run (RM 1.07)	7/15/2014	-	-	P	-	-	-	-	-	-	C	P	-	-	R	-	-	-	-	-	-	-
Walker Run	7/20/2015	21 (50-149mm)	-	P	-	-	-	-	-	-	P	-	-	-	-	-	R	-	C	-	-	-
Wolf Run	7/21/2015	6 (50-224mm)	-	A	-	-	-	-	-	-	C	R	-	-	-	-	-	-	A	-	P	P

The relative abundance rating criteria per 100 m of stream sampled are as follows: 1 = Rare (R), 2-8 = Present (P), 9-33 = Common (C), >33 = Abundant (A).

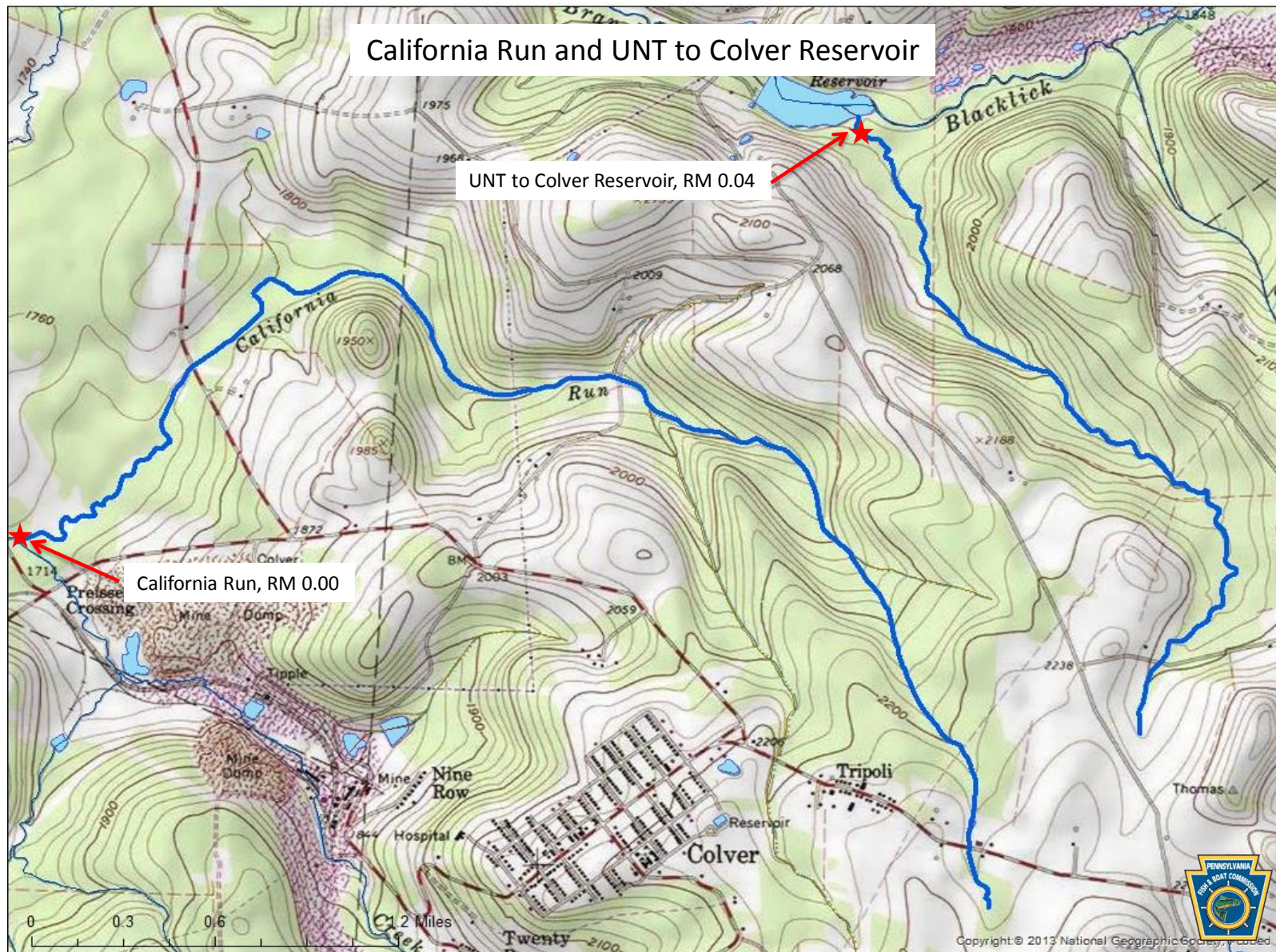


Figure 31. California Run and UNT to Colver Reservoir station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.

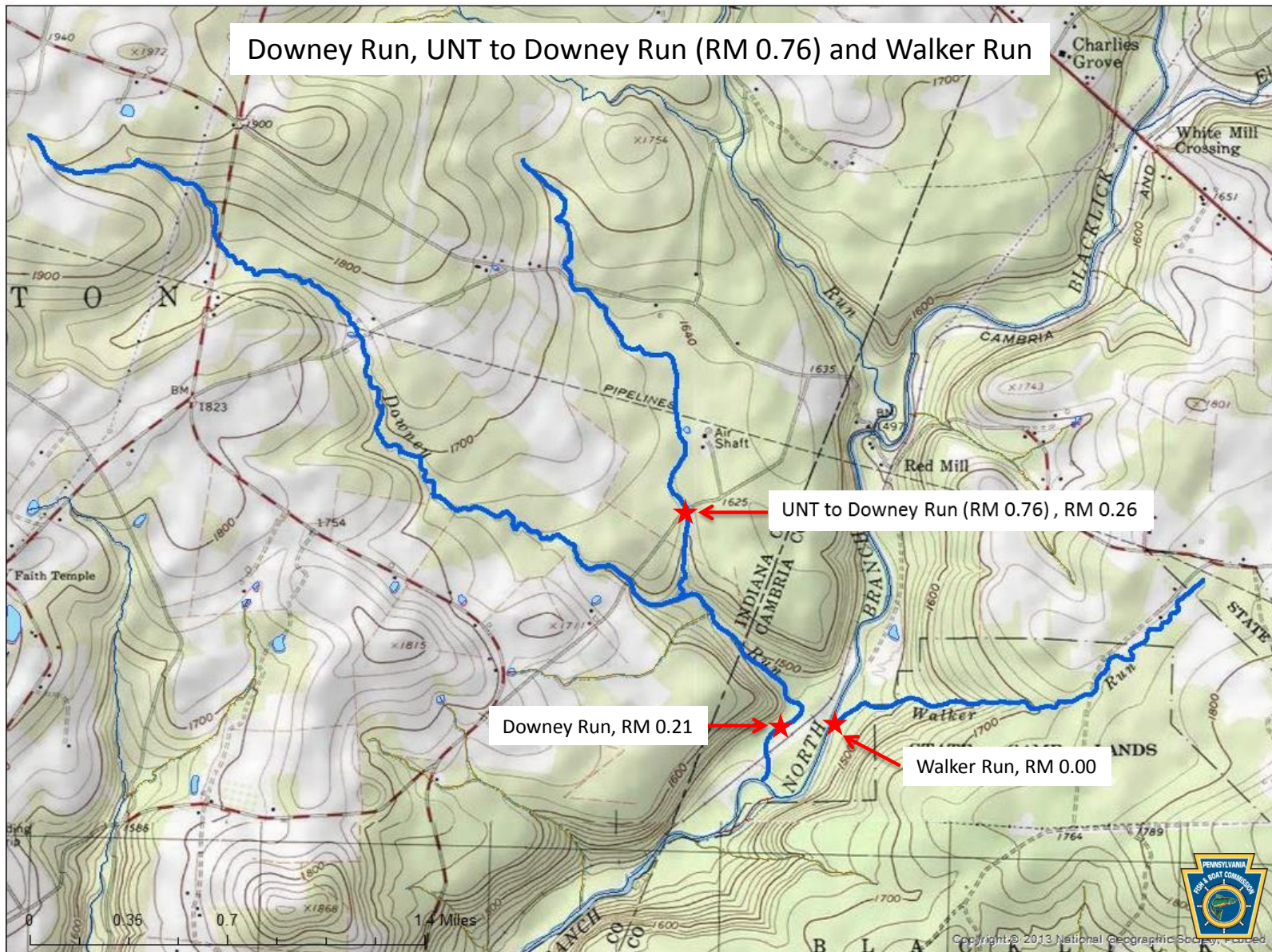


Figure 32. Downey Run, UNT to Downey Run (RM 0.76) and Walker Run station locations in the North Branch Blacklick Creek sub-watershed 2011-2016.

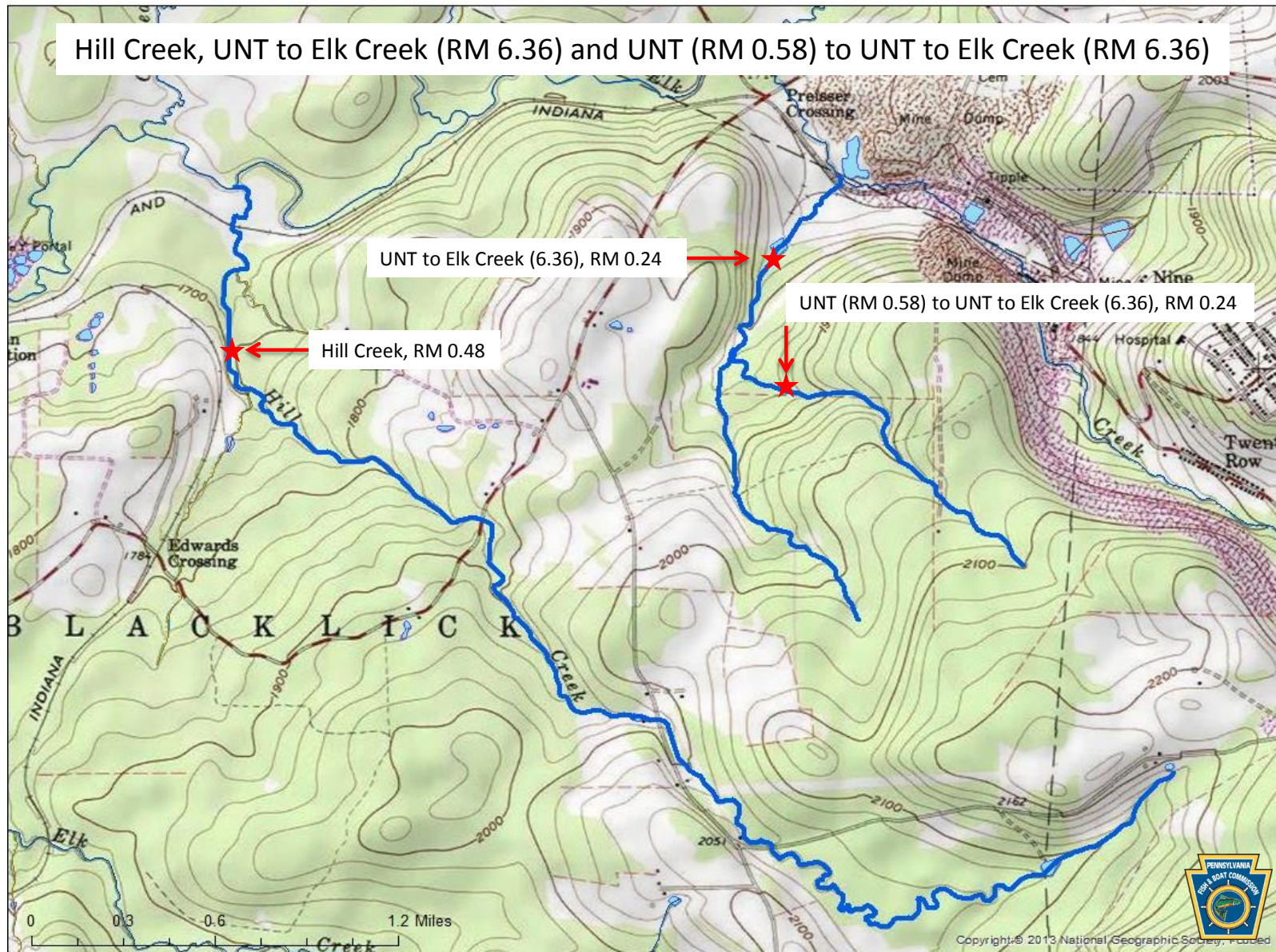


Figure 33. Hill Creek, UNT to Elk Creek (RM 6.36) and UNT (RM 0.58) to UNT to Elk Creek (RM 6.36) station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.



Figure 34. Simmons Run, UNT to Elk Creek (RM 0.90) and Little Elk Creek station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.

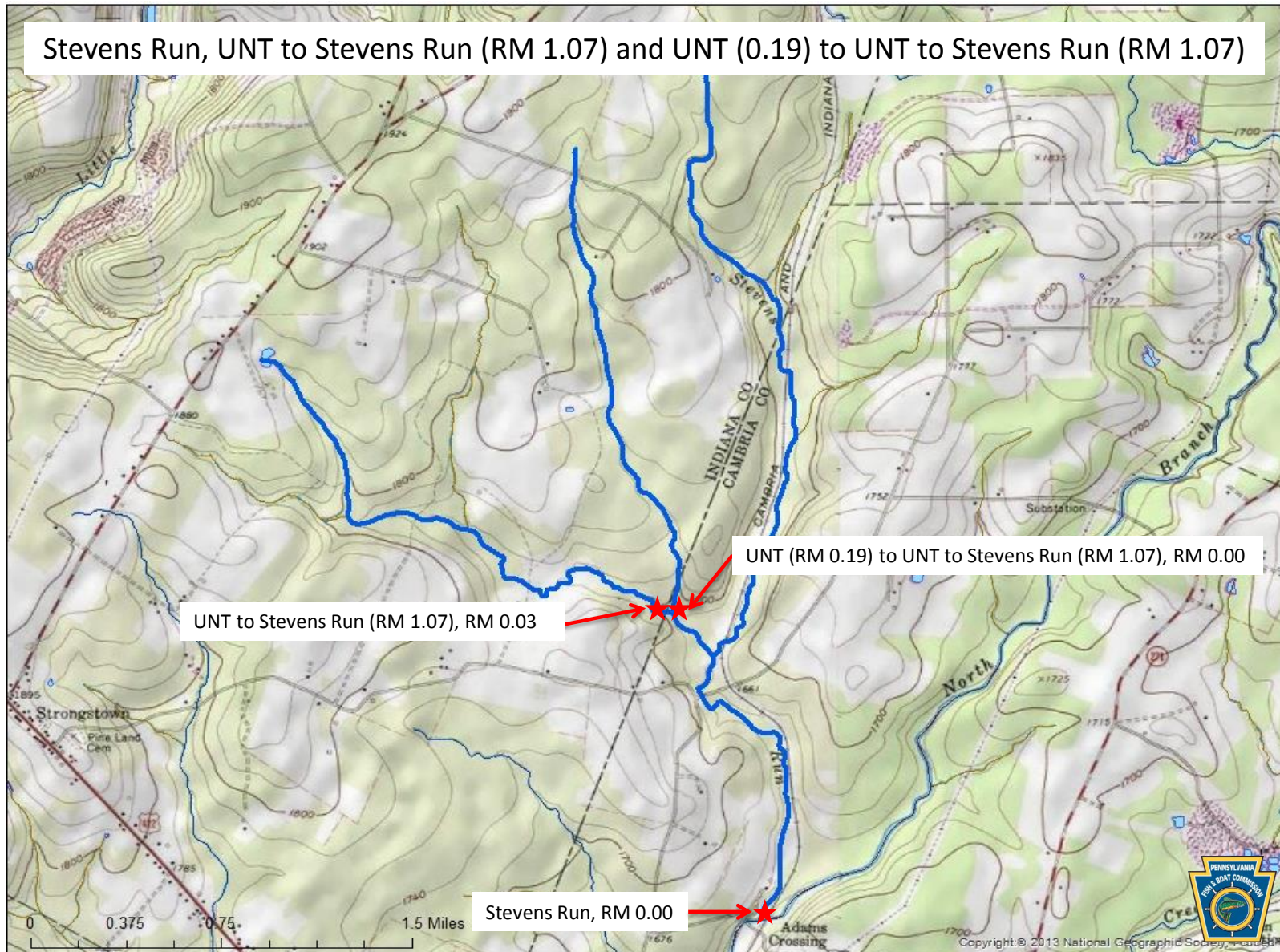


Figure 35. Stevens Run, UNT to Stevens Run (1.07) and UNT (RM 0.19) to UNT to Stevens Run (RM 1.07) station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.

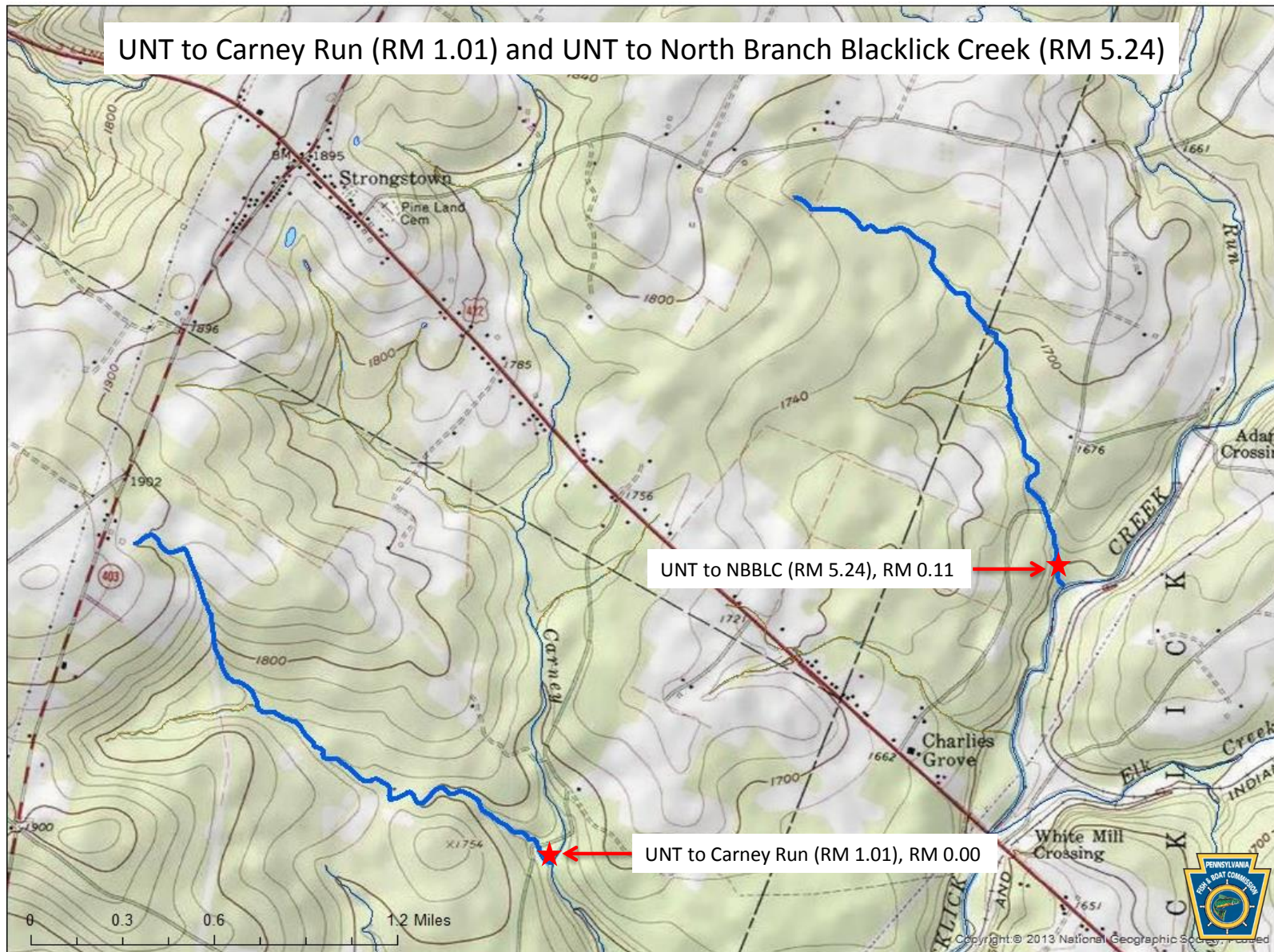


Figure 36. UNT to Carney Run (RM 1.01) and UNT to North Branch Blacklick Creek (RM 5.24) station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.

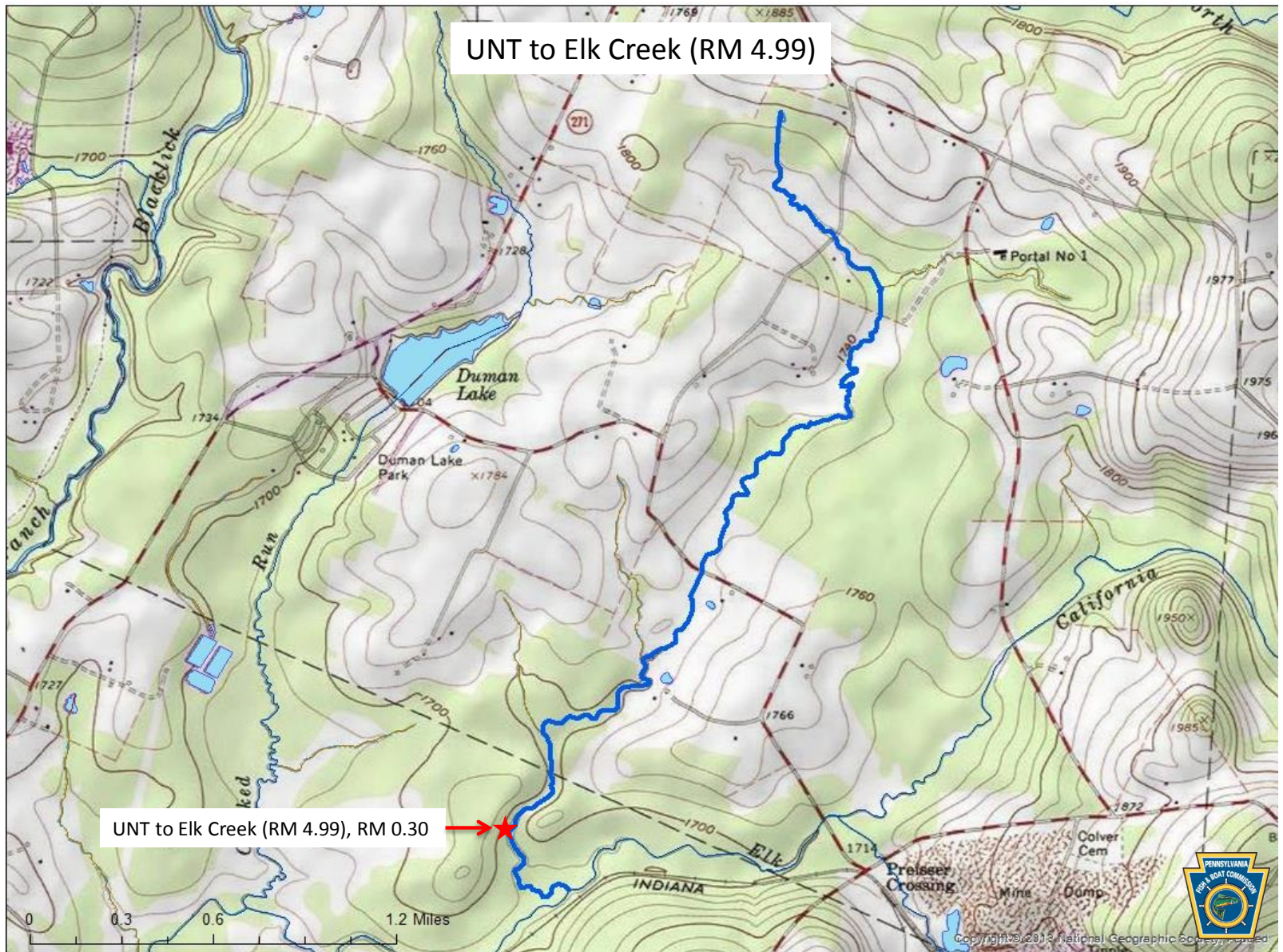


Figure 37. UNT to Elk Creek (RM 4.99) station location within the North Branch Blacklick Creek sub-watershed 2011-2016.

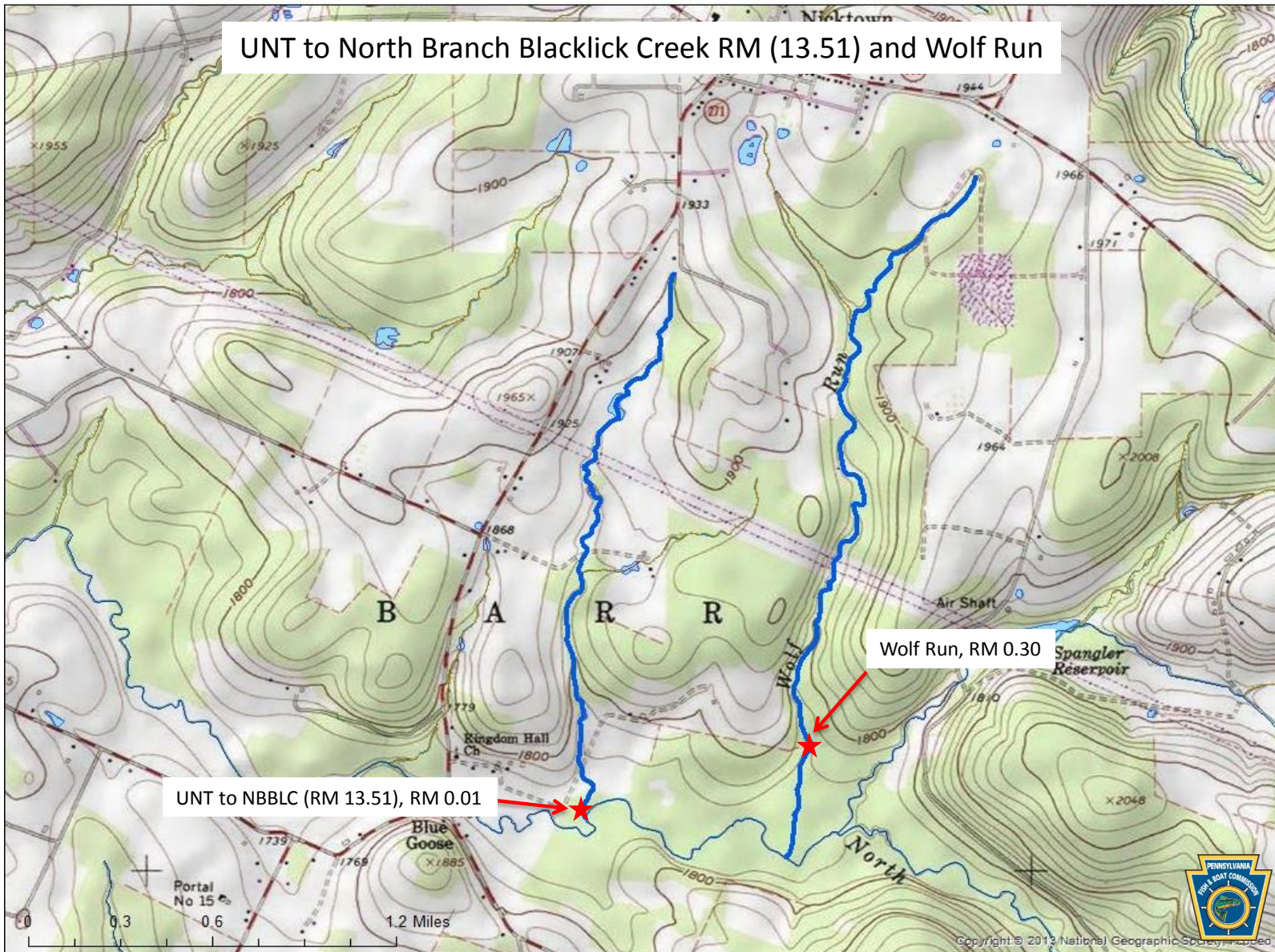


Figure 38. UNT to North Branch Blacklick Creek (RM 13.51) and Wolf Run station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.

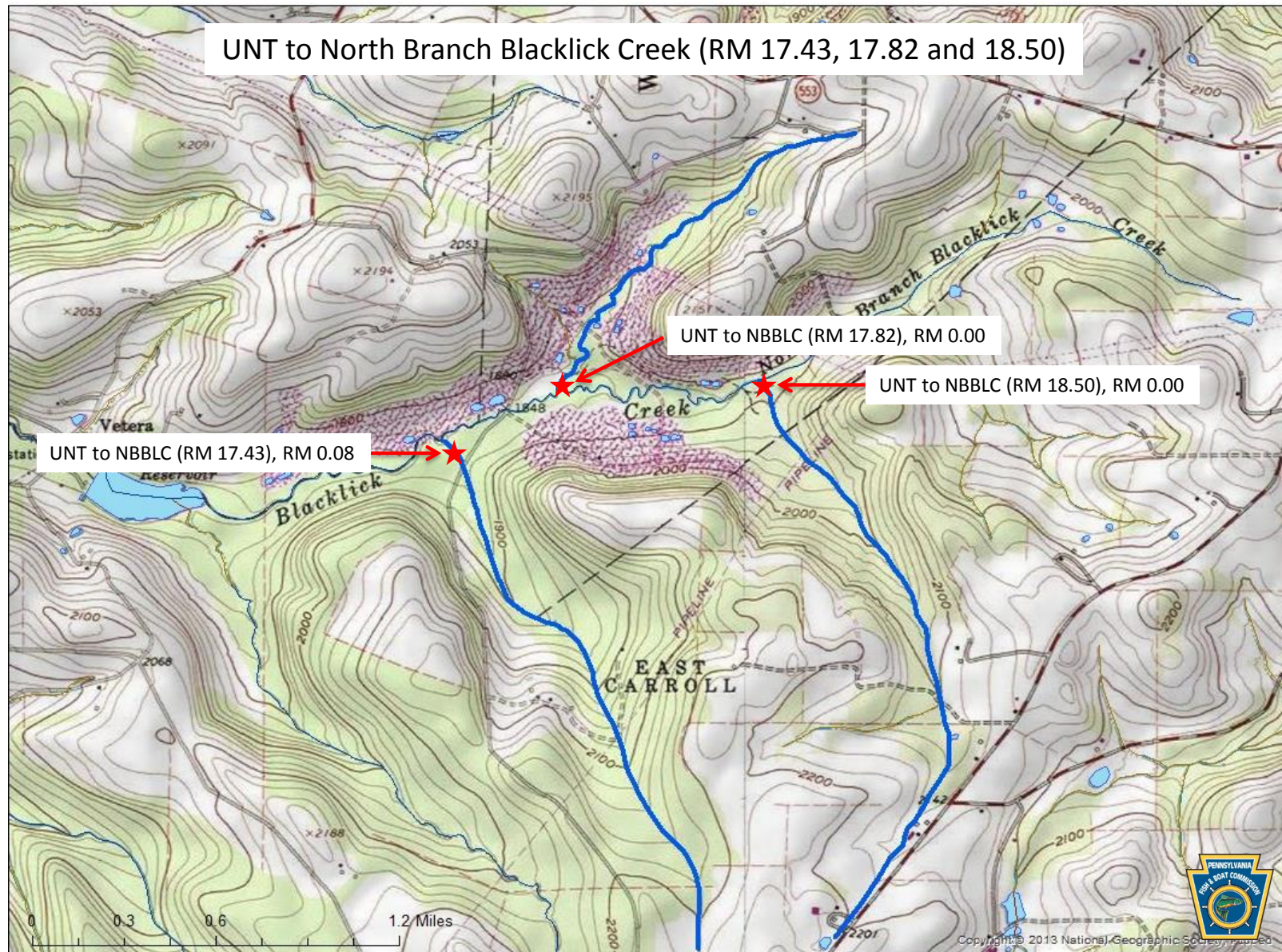


Figure 39. UNT to North Branch Blacklick Creek (RM 17.43) UNT to North Branch Blacklick Creek (RM 17.82) and UNT to North Branch Blacklick Creek (RM 18.50) station locations within the North Branch Blacklick Creek sub-watershed 2011-2016.