PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
April 27, 1993

WATER: UNT to Cooks Ck. (Coon Hollow Run) Bucks County

EXAMINED: July 2 and 6, 1992

BY: Kaufmann, Soldo, Wnuk, Chikotas, and Moldenhauer

Bureau Director Action: Approved. Delores R. Trostle Date: 5-19-93

Division Chief Action: Richard A. Snyder Date: 5-14-93

WW Unit Leader Action: _____ Date: _____

CW Unit Leader Action: R. Thomas Greene Date: 4/27/93

AREA COMMENTS:

Coon Hollow Run is a 4.0 km long tributary to Cooks Ck. located in sub-subbasin 2D, Durham Township, Bucks Co., Coon Hollow Run is a dolomitic limestone spring run that boasts excellent water quality. The presence of some pollution sensitive aquatic macroinvertebrate taxa and fish species reflect its excellent water quality. Excessive siltation is currently the only major source of pollution in the basin. The fish community is dominated by a Class A wild brook trout population and an abundant mottled sculpin population. Because of its excellent water quality and rare (for southeastern Pennsylvania) wild brook trout and mottled sculpin populations, Coon Hollow Run merits its EV-CWF designation.

AREA RECOMMENDATIONS:

1. The Bucks County Conservation District should investigate the sources of heavy siltation in Coon Hollow Run and take corrective action. Probable sources are agricultural activities in the headwaters and a dirt road which parallels a portion of the stream.

2. Local land use planning agencies should recognize the unique and sensitive nature of Coon Hollow Run in Bucks Co. If they have not already done so, Township officials should enact zoning laws and other restrictions that will protect the stream from the degradation that unrestricted land use activities in the drainage basin could bring in the future. Potentially damaging modifications to the aquatic environment that typically occur to similar streams include sedimentation, substantial removal of the shade provided by stream-side vegetation, increases in stormwater runoff, dam construction, and substantial diversion of stream flow through ponds.

3. The PFBC should continue to manage Coon Hollow Run under conventional, statewide angling regulations.

CW UNIT COMMENTS

Coon Hollow Run (602D), Section 01, was examined during July 1992 to document the status of the coldwater resource.

Section 01 can be characterized as a small, high gradient, limestone spring run. This segment qualified for Class A wild trout management as the total brook trout biomass was estimated in excess of 37 kg/ha. Unfortunately, a large portion of this stream is closed to angler access.

CW UNIT RECOMMENDATIONS

1. Coon Hollow Run (602D), Section 01, should be managed as a Class A wild trout fishery under conventional statewide regulations and no stocking.

PENNSYLVANIA FISH AND BOAT COMMISSION
BUREAU OF FISHERIES
FISHERIES MANAGEMENT DIVISION

Unnamed Tributary to Cooks Creek (602D) (Coon Hollow Run) Fisheries Management Report

Prepared by
R. Wnuk and M. Kaufmann

Date Sampled: July 1992 Date Prepared: December 1992

INTRODUCTION

The Unnamed Tributary to Cooks Creek (Ck.) is a 4.0 km (2.5 mi.) long stream located in sub-subbasin 2D, Durham Township, Bucks County (Co.). The Unnamed Tributary is locally known as Coon Hollow Run, and will be referred to as Coon Hollow Run for the remainder of this report. Coon Hollow Run can be accessed from SR 212, which junctions with SR 611 approximately 11.0 km (6.8 mi) south of the City of Easton. Coon Hollow Run begins on Buckwampum Hill and flows generally north to its confluence with Cooks Ck. in Durham at river mile 2.22, 40°34'31" latitude and 75°13'30" longitude. Map coverage for Coon Hollow Run is provided on the Riegelsville, PA, USGS 7.5 minute Quadrangle (Fig. 1).

Coon Hollow Run has a 4.0 km^2 (1.5 mi^2) drainage basin. This small drainage basin is generally forested, with an overstory that consists primarily of oak *Quercus* spp., hickory *Carya* spp., and ash *Fraxinus* spp., and an understory that consists primarily of spice bush *Lindera benzoin* and other shrubs. Some agriculture, mostly corn fields, and some open meadows are present in the headwaters, while limited rural/residential development is occurring farther downstream in the basin. Nevertheless, the riparian area is generally vegetated for the entire length of the stream. In its descent from Buckwampum Hill to Cooks Ck., Coon Hollow Run is joined by two small unnamed tributaries, and there are also several minor private ponds in the basin.

The underlying geology of the drainage basin is a mixture of the Leithsville and Allentown Formations. The Leithsville Formation consists of dolomite and impure limestone, with some siltstone at its base. The Allentown Formation consists of crystalline dolomite with thin shale and dolomitic shale interbeds.

Coon Hollow Run is not listed separately in the Pennsylvania Department of Environmental Resources (DER) Chapter 93 Water Quality Standards. Coon Hollow Run is considered part of the Cooks

Ck. basin, which is designated as an exceptional value coldwater fishery (EV-CWF). The EV-CWF designation is the highest water quality designation that the DER offers, and this classification provides for maximum protection of the stream. Permitted discharges to EV-CWF waters are not allowed to change existing water quality. Currently, there are no known permitted discharges to Coon Hollow Run, and the Pennsylvania Fish and Boat Commission (PFBC) has no pollution reports on file for the stream.

The PFBC surveyed Coon Hollow Run in 1973 (Marshall et al., 1973). An "excellent" wild brook trout *Salvelinus fontinalis* population was found in association with blacknose dace *Rhinichthys atratulus*, creek chubs *Semotilus atromaculatus*, tessellated darters *Etheostoma olmstedi*, and sculpins *Cottus* spp. The aquatic macroinvertebrate community consisted of stoneflies, mayflies, caddisflies, cranefly larvae, and freshwater shrimp. The examiners recognized the uniqueness of Coon Hollow Run, and recommended that local planning agencies apply protective measures in the drainage basin.

The objective of the current investigation was to gather baseline data on the physical, social, chemical, and biological characteristics of Coon Hollow Run, and to formulate a fisheries management plan based on the survey results.

METHODS

The stream survey of Coon Hollow Run was conducted on July 2 and 6, 1992. All procedures of the survey were carried out according to those outlined by Marcinko et al. (1986).

Coon Hollow Run was considered to be a single section extending from the headwaters to the mouth. Physical and social data were collected for this section, but parking counts were not made. The section gradient was calculated from USGS 7.5 minute topographic maps.

One representative sampling station was chosen in Section 01. Station 0101 was located 410 m upstream from the SR 212 bridge and was 372 m long. Physical-chemical values were measured in the field. Aquatic macroinvertebrates were collected and identified (to the familial level in most cases), and were assigned pollution tolerance index values according to RMC Environmental Services, Inc. (1991), Klemm et al. (1990), EA Mid-Atlantic Regional Operations Engineering, Science, and Technology, Inc. (1990), Illinois EPA (1989), and PFBC field experience. Backpack electrofishing using 75 volts of alternating current was conducted to describe the fish community present. A Chapman modified Petersen population estimate (Ricker, 1975) was used to quantify the brook trout population.

RESULTS

Physical and social characteristics of Coon Hollow Run are described below and presented in Table 1. Section 01 was 4.0 km long, averaged 2.6 m in width, and had a relatively steep gradient of 32.3 m/km. Road access was good, as 63% of the section was within 100 m of a road, 88% of the section was within 300 m of a road, and 100% of the section was within 500 m of a road. While the exact percentage of stream bank open to public fishing was not calculated, all of the private land bordering the stream was considered closed to public access based on the high amount of "no trespassing" posters present. The only part of the stream considered open to public fishing was a small parcel of land near the mouth. This parcel, owned by Durham Township, encompassed 8% of the total stream length, resulting in 92% of the stream length being closed to public fishing. The human population density for Durham Township, the only township through which Coon Hollow Run flows, was suburban with 49 people/km^2 based on the 1990 Census.

Station 0101 was located in a mostly forested area, with some single family homes and a small private pond bordering the stream. Shading was dense and bank erosion was light. The bottom substrate consisted of silt, gravel, and rubble, with *Elodea* spp. and watercress *Nasturtium officinale* present in the streambed. Silt was deep in the pools and slower moving areas. The station was primarily composed of short riffles and small pools, with log jams, undercut banks, overhanging shrubs, and the deeper pools serving to provide instream fish habitat.

Physical-chemical parameters measured at Station 0101 on July 2, 1992, were as follows: air temperature 30.0°C, water temperature 16.5°C, pH 7.6, specific conductance 182 umhos, total alkalinity 82 mg/l, and total hardness 128 mg/l (Table 2).

Aquatic macroinvertebrate diversity was fair, as 17 taxa were collected (Table 3). The collection included Rhyacophilidae, a caddisfly family that is an indicator of excellent water quality. Rhyacophilidae has a pollution tolerance index value of 0, the most pollution sensitive rating on the scale. Gammaridae (freshwater shrimp) was the only taxon rated abundant.

The fish community consisted of 8 species (Table 4), and was dominated by pollution sensitive coldwater fishes such as brook trout and mottled sculpins *Cottus bairdi*, which were the only species rated abundant. Migratory fishes were represented by a single American eel *Anguilla rostrata*. Warmwater species and species common in streams that are transitional between a coldwater and a warmwater environment were also present. The warmwater community was represented by largemouth bass *Micropterus salmoides* and bluegills *Lepomis macrochirus*, which probably originated from

the several small ponds in the drainage. None of the largemouth bass captured during the survey exceeded 100 mm in total length.

Brook trout were the dominant gamefish captured during the survey. Brook trout captured at Station 0101 ranged from 25 to 274 mm in total length (Fig. 2), with 6.8% of the fish ≥150 mm. Brook trout biomass and brook trout number/hectare were 37.36 kg/ha (Class A) and 3389 fish/hectare, respectively. All of the brook trout captured were wild fish.

DISCUSSION

Water quality in Coon Hollow Run was excellent, with excessive siltation the only major source of pollution noted during the survey. The limestone nature of the stream was a product of the underlying geology of the watershed, and provided excellent buffering capacity and good fertility. Aquatic macroinvertebrate community composition was reflective of the excellent water quality, as some pollution intolerant forms were present in the stream. While aquatic macroinvertebrate diversity was only rated as fair, this is typical of limestone spring runs.

Fish community composition also reflected Coon Hollow Run's excellent water quality. Coon Hollow Run supported the only documented Class A wild brook trout population in Bucks Co., and one of the few documented Class A wild brook trout populations in southeastern Pennsylvania. In addition to brook trout, Coon Hollow Run supported an abundant mottled sculpin population, which is also rare in southeastern Pennsylvania. Because of its excellent water quality and rare limestone brook trout and mottled sculpin populations, Coon Hollow Run merits its EV-CWF designation.

Statewide angling regulations are adequate to protect this Class A wild brook trout population. The stream is narrow, making fishing difficult, and access is limited. Thus, angling pressure is presumably low.

MANAGEMENT RECOMMENDATIONS

1. The Bucks Co. Conservation District should investigate the sources of heavy siltation in Coon Hollow Run and take corrective action. Probable sources are agricultural activities in the headwaters and a dirt road that parallels a portion of the stream.

2. Local land use planning agencies should recognize the unique and sensitive nature of Coon Hollow Run in Bucks Co. If they have not already done so, Township officials should enact zoning laws and other restrictions that will protect the stream from the degradation that unrestricted land use activities in the drainage basin could bring in the future. Potentially damaging modifications to the aquatic environment that typically occur to similar streams include sedimentation, substantial removal of the shade provided by stream-side vegetation, increases in stormwater runoff, dam construction, and substantial diversion of stream flow through ponds.

3. The PFBC should continue to manage Coon Hollow Run under conventional, statewide angling regulations.

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RMC Environmental Services, Inc. 1991. Post-diversion aquatic biology assessment for 1990. Prepared for the Philadelphia Electric Company, Philadelphia, PA.

Table 1. Physical and social characteristics of Coon Hollow Run (602D), Bucks County.

Characteristic	Description
USGS Quadrangle	**Riegelsville**
Physical	
Length (km)	4.0
Mean Width (m)	2.6
Area (ha)	1.0
Gradient (m/km)[1]	32.3
Social	
Ownership	
% Public	8.0
% Private (Open)	0.0
% Private (Closed)	92.0
Road Accessibility	
% Within 100 m	63.0
% Within 300 m	88.0
% Within 500 m	100.0
Human Population Density (#/km^2)[2]	49

[1]Calculated from USGS topographic maps.
[2]Based on the 1990 Census.

Table 2. Physical-chemical characteristics measured at Station 0101 of Coon Hollow Run (602D), Bucks County, on July 2, 1992.

Characteristic	
Air Temperature (°C)	30.0
Water Temperature (°C)	16.5
pH (standard units)	7.6
Specific Conductance (umhos)	182
Total Alkalinity (mg/l)	82
Total Hardness (mg/l)	128

Table 3. Aquatic macroinvertebrate taxa collected at Station 0101 of Coon Hollow Run (602D), Bucks County, in July 1992.

Taxon	Abundance Rating	Pollution Tolerance Index
Ephemeroptera		
Baetidae	X	7
Heptageniidae	X	4
Siphlonuridae	X	7
Plecoptera		
Perlidae	X	3
Coleoptera		
Dytiscidae	X	5
Elmidae	X	8
Trichoptera		
Hydropsychidae	X	4-8
Limnephilidae	X	4
Philopotamidae	X	6
Rhyacophilidae	X	0
Diptera		
Chironomidae	X	0-10
Tipulidae	X	4
Megaloptera		
Sialidae	X	8
Hemiptera		
Gerridae	X	NA
Amphipoda		
Gammaridae	*	2-8
Class Plesiopora	X	10
Class Gastropoda	X	1-9
Total Taxa		17

X = Present
* = Abundant

Pollution Tolerance Index ranges from 0 (very intolerant) to 10 (very tolerant).

Table 4. Fish species captured by backpack electrofishing at Station 0101 of Coon Hollow Run (602D), Bucks County, in July 1992.

Scientific Name	Common Name	Subjective Abundance Index[1]
Salvelinus fontinalis	Brook trout	A
Anguilla rostrata	American eel	R
Rhinichthys atratulus	Blacknose dace	C
Semotilus atromaculatus	Creek chub	C
Micropterus salmoides	Largemouth bass	C
Lepomis macrochirus	Bluegill	P
Etheostoma olmstedi	Tessellated darter	P
Cottus bairdi	Mottled sculpin	A
Total Species		8

[1]Subjective Abundance Index:
A = Abundant (>100)
C = Common (26-100)
P = Present (3- 25)
R = Rare (<3)

Table 5. Brook trout biomass estimate for Station 0101 of Coon Hollow Run (602D), Bucks County, determined in July 1992.

Length Group (mm)	N	kg/ha	#/ha	#/km
25 - 49	4	0.04	41	11
50 - 74	225	6.98	2,326	605
75 - 99	25	1.29	258	67
100 - 124	10	1.76	103	27
125 - 149	44	13.19	433	118
150 - 174	12	5.58	124	32
175 - 199	6	5.15	62	16
225 - 249	1	1.47	10	3
250 - 274	1	1.90	10	3
Totals	328	37.36	3,389	882

N = Chapman modified Petersen estimate.
kg/ha = Kilograms/hectare
#/ha = Number of fish/hectare
#/km = Number of fish/kilometer

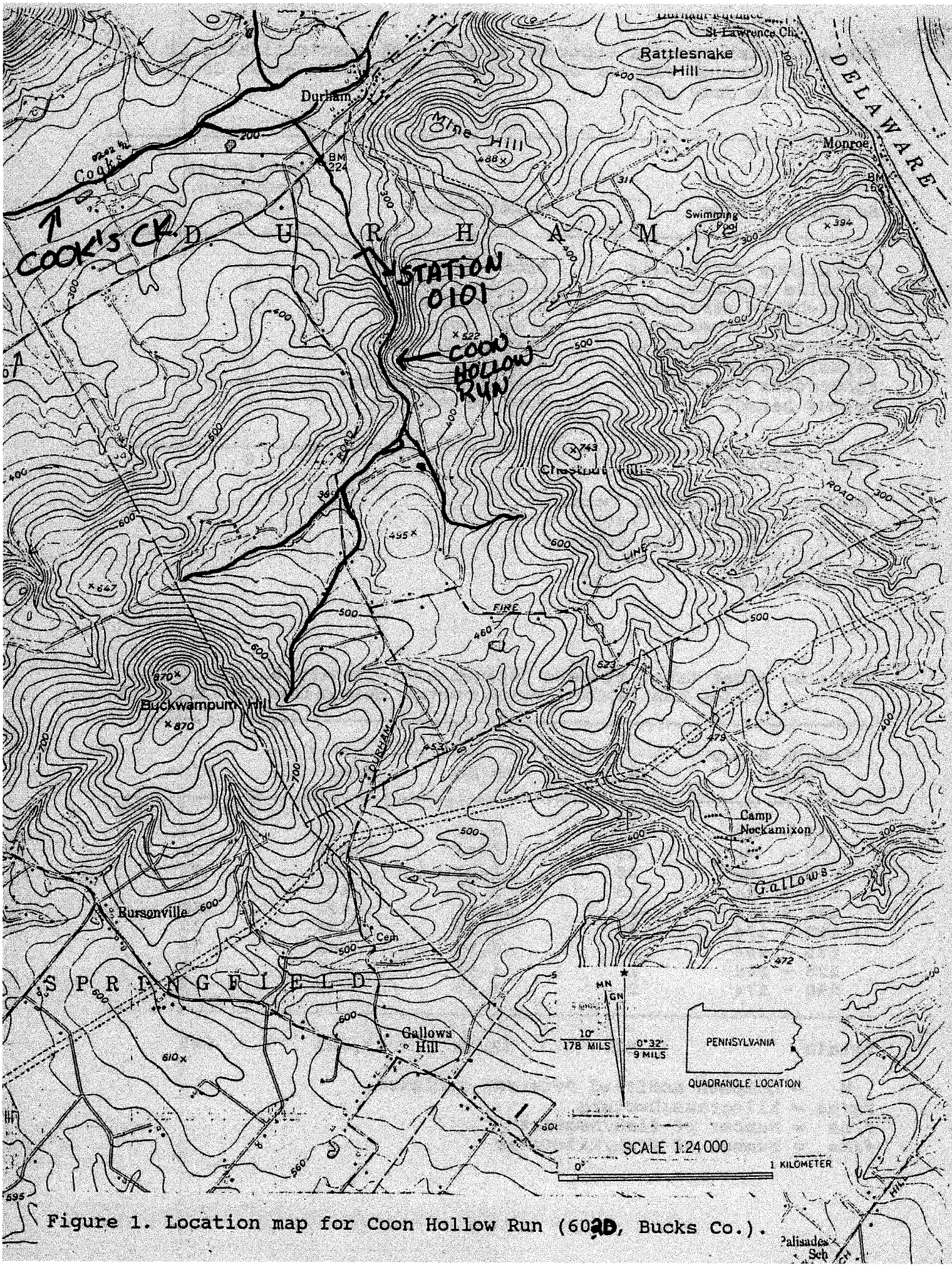

Figure 1. Location map for Coon Hollow Run (60[illegible], Bucks Co.).

Figure 2. Length–frequency distribution for brook trout captured at Station 0101 of Coon Hollow Run (602D, Bucks Co.) in July, 1992.