

**Review of a  
Petition to Redesignate  
Grinnage Run  
From HQ-WWF to WWF**

**South Fork Tenmile Creek Basin  
Gray Township and Richhill Township  
Greene County, Pennsylvania**

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**9 September 2008**

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## **I EXECUTIVE SUMMARY**

Grinnage Run was designated HQ-WWF in 1979. The proposed redesignation of Grinnage Run to WWF is unnecessary, inappropriate, and unwarranted. Specific in-stream biological data collected and evaluated by DEP during October 1983 demonstrated that the upper reaches of South Fork Tenmile Creek (including Grinnage Run) were meeting HQ criteria according to the methods and standards in place at that time. Recent sampling by the DEP and the petitioner suggest that the water quality in Grinnage Run may have declined slightly since 1983. In part, longwall mining at Consol's Bailey Mine in the late 1980s may have contributed to any such decline. The implementation of BMPs and other practical institutional and legal controls could provide the necessary water quality improvements so that Grinnage Run could once again achieve HQ conditions. Headwater streams such as Grinnage Run play a crucial role in maintaining and protecting the quality of downstream waterways. Redesignation to WWF would facilitate new mining activities and allow additional discharges which likely would preclude any water quality improvements in Grinnage Run in the future and could endanger the quality of HQ waters downstream. For all of these reasons, the HQ-WWF designation of Grinnage Run must be retained.

## **II INTRODUCTION**

Consol Pennsylvania Coal Company (Consol) has submitted a petition to the Pennsylvania Environmental Quality Board (EQB) requesting redesignation of Grinnage Run from its headwaters to its confluence with Grays Fork in Gray and Richhill Townships, Greene County, from High Quality - Warm Water Fishes (HQ-WWF) to Warm Water Fishes (WWF). The Center for Coalfield Justice, the Mountain Watershed Association, and Citizens for Pennsylvania's Future have retained Schmid & Company to evaluate whether the petition should be granted and any basis for redesignating Grinnage Run to WWF. For the reasons set forth in this report, we conclude that the petition should be denied, and that Grinnage Run should retain its existing HQ-WWF designation, which was properly made by the Pennsylvania Department of Environmental Protection (DEP) in 1979.

## **III WATERSHED LOCATION AND DESCRIPTION**

The Grinnage Run watershed is in the northwestern section of Greene County in the southwestern corner of Pennsylvania (Figure 1). Grinnage Run is in the upper headwaters of the South Fork Tenmile Creek watershed (Figure 2). South Fork Tenmile Creek begins in northwestern Greene County at approximately elevation 1,300 feet NGVD (National Geodetic Vertical Datum). It flows generally eastward to Waynesburg and then northeastward to its mouth at Clarksville, where it joins Tenmile Creek at approximately elevation 790 feet. The Tenmile Creek watershed (PA Subbasin Number 19B) occupies 380 square miles within the Monongahela



River basin, which has a drainage area of 2,735 square miles in Pennsylvania. The Monongahela River, a tributary of the Ohio River, drains 7,340 square miles within Maryland, Pennsylvania, and West Virginia. Its flow eventually reaches the Gulf of Mexico via the Mississippi River.

South Fork Tenmile Creek extends approximately 35 miles in total length, and has a drainage area of about 199 square miles. Grinnage Run is in the 72 square-mile section of the South Fork Tenmile Creek basin that has been designated HQ-WWF since 1979. From Waynesburg downstream, the South Fork Tenmile Creek watershed is designated WWF.

The Grinnage Run watershed encompasses 397 acres and is identified as HUC 5020005. Grinnage Run, which is about 1.4 miles in length, begins in Richhill Township just north of Graysville (Figure 3) and flows south into Gray Township, where it joins Grays Fork after passing through a culvert beneath State Route 21 (Furman Highway). Grays Fork then flows 4.4 miles to its confluence with South Fork Tenmile Creek. From that point, South Fork Tenmile Creek flows 13 miles to its confluence with Browns Creek just upstream from Waynesburg.

The Grinnage Run watershed is within the unglaciated Pittsburgh Low Plateau Section of the Appalachian Plateaus physiographic province. The Pittsburgh Low Plateau Section consists of a rolling upland surface cut by numerous, narrow, relatively shallow valleys. It is underlain by layers of rock (mainly sandstones and shales) that originated from sediment deposition and compression. The Greene Formation of the Dunkard Group is the near-surface bedrock unit that covers the western half of Greene County. The Dunkard Group is of Permian age, the youngest of the five coal-bearing rock groups of southwestern Pennsylvania (the others - Pottsville, Allegheny, Conemaugh, and Monongahela - are all of Pennsylvanian age). The surface topography of this area is largely defined by stream valleys eroded and downcut over geologic time (Western Pennsylvania Conservancy 2005). Soils mapped throughout the Grinnage Run watershed are mainly Dormont silt loams and Culleoka silt loams (Seibert et al. 1983). Grinnage Run is considered a "freestone" stream, *i.e.*, it is not limestone or limestone-influenced, nor is it tidal.

According to the redesignation petition, the predominant land uses in the Grinnage Run watershed are deciduous forest (55%), row crops (18%), hay pasture (12%), transitional between forest and agricultural land (9%), coniferous forest (4%), and low-density residential (1%).

#### **IV HQ-WWF DESIGNATION OF GRINNAGE RUN**

The section of the South Fork Tenmile Creek basin that includes Grinnage Run was designated HQ-WWF by the Pennsylvania Department of Environmental Protection (DEP) during the late 1970s. DEP did not publish a technical support document detailing the basis for its designation. The only indication regarding the basis for the



designation is in the listings provided in the Pennsylvania Bulletin (PaB). On 4 March 1978, per "Proposed Rulemaking" published in the PaB, the stream use of the "South Fork Tenmile Creek basin from source to and including Browns Run" [sic] was proposed to be revised from "WWF to HQ-WWF". The "remarks" accompanying the proposal stated: "*Protect the Waynesburg water supply and the excellent smallmouth bass fishery*".

On 8 September 1979, per "Rules and Regulations" published in the PaB, the "South Fork Tenmile Creek, Basin from source to Browns Creek", had the following final listing for Water Uses Protected: "HQ-WWF". The designated use of Grinnage Run and the balance of the South Fork Tenmile Creek Basin to its confluence with Browns Creek, and the Browns Creek watershed itself (Figures 4 and 5), have remained classified as HQ-WWF ever since.

## **V PETITION TO REDESIGNATE GRINNAGE RUN**

During August 2006, Civil & Environmental Consultants, Inc. (CEC), on behalf of Consol, submitted a petition to the EQB to redesignate the entire Grinnage Run basin (from its source to its confluence with Grays Fork) from HQ-WWF to WWF. On 17 October 2006, on DEP's recommendation, the EQB accepted the petition for further study under 25 PA Code Chapter 23.

The Consol petition states that the reasons for the requested redesignation are that Grinnage Run was not classified as HQ-WWF in the 1970s based on actual in-stream data; that Grinnage Run does not meet the current (2006) standards for HQ aquatic life use based on CEC's recent sampling of the stream's water chemistry, aquatic community, and in-stream habitat; and that the current HQ designation may limit future underground mining activities in this area. CEC collected basic water chemistry measurements at two stations on Grinnage Run (SW-08 and SW-09, Figure 6) on an approximately monthly basis from January 2005 through December 2005. CEC also sampled benthic macroinvertebrates and fish at its two stations on Grinnage Run during November 2005. All of the CEC data collected for Grinnage Run were compared with data collected by CEC at approximately the same times on two, relatively-nearby "reference" streams selected by CEC.

The DEP rejected the reference stream data collected by CEC for use in evaluating the Consol petition. According to current DEP technical guidance for designating Special Protection (EV and HQ) waters (PADEP 2003), a reference stream typically should be "EV", should have attained that status based on biological measures, and should be among the best of all EV streams in the Commonwealth. The streams chosen by CEC as reference streams for the redesignation petition were Brashears Run and UNT to Sugarcamp Run (Figure 7). These streams are located in the Buffalo Creek watershed in Independence Township (Washington County), about 19 miles to the northwest of Grinnage Run. These streams are not EV streams; rather, they are designated HQ-WWF. As such, they are not suitable reference streams for evaluating Grinnage Run under current DEP methodology.



During March 2007, DEP did its own sampling of water chemistry, benthic macroinvertebrates, and in-stream habitat at two stations on Grinnage Run. One of DEP's stations was in the same location as the upstream station previously sampled by CEC (Figure 6). The other DEP station was about 1,700 feet upstream from CEC's downstream station. (DEP determined that the second CEC station did not adequately represent the most productive habitat in the lower reach of the stream, as its guidance requires.)

DEP selected Rock Run (French Creek watershed) in Chester County (southeastern PA) as its reference stream for comparison with its Grinnage Run sampling results. Rock Run is approximately 240 miles east of Grinnage Run (Figure 8). Rock Run is a tributary to French Creek, and both of these cold water trout streams currently are designated Exceptional Value (EV). The unglaciated Rock Run watershed overlies Triassic diabase and shale, and like Grinnage Run, Rock Run is a freestone stream. Where sampled by DEP, its drainage area is slightly larger than that of Grinnage Run (530 acres vs 397 acres, respectively). Rock Run has served as a reference stream in several other Departmental surveys. Scored against Rock Run, both of DEP's sampling locations on Grinnage Run failed to meet the minimum 83% total required at present for HQ waters: DEP's upstream sampling station (01GR) scored 69.2%; the downstream station (02GR) scored 63.9%.

## **VI FEDERAL AND STATE WATER QUALITY GOALS AND STANDARDS**

The stated objective of the Clean Water Act (CWA) is "*to restore and maintain the chemical, physical, and biological integrity of the Nation's waters*" (33 U.S.C. 1251 *et seq.*). Water quality standards are the foundation of the program mandated by the CWA. States and Indian Tribes have been authorized to establish standards and thereby define the goals for each waterbody by assigning designated uses, setting criteria to protect those uses, and establishing provisions to protect water quality from pollutants. Like the CWA, the intent of the Pennsylvania Clean Streams Law is to preserve and improve the purity of the waters of the Commonwealth for the protection of public health, animal life, aquatic life, and other beneficial uses. Pennsylvania water quality standards define the degree of degradation that a waterbody may incur without causing a loss of a use.

The standards set forth in 25 PA Code 93.4(b) and (c) establish a high burden for petitioners seeking to downgrade the designated use of a stream. A key concept in assigning designated uses is "attainability," or the ability to achieve water quality goals under a given set of natural, human-caused, and economic conditions. Federal regulations create a rebuttable presumption in favor of established designated uses. Before a designated use can be lowered, a structured scientific assessment, known as a *use attainability analysis* (UAA), must be prepared [40 CFR 131.3(g), 131.10(j)].

No Use Attainability Analysis has yet been prepared for Grinnage Run by either the DEP or the petitioner.

In order to adopt a less restrictive designated use of a stream, DEP must demonstrate (or the petitioner must demonstrate and DEP must concur) that:

(A) The designated use is more restrictive than the existing use, and

(B) The designated use cannot be attained by implementing effluent limits required under sections 301(b) and 306 of the Federal Clean Water Act, or by implementing cost-effective and reasonable BMPs for non-point source control, and

(C) One or more of the following six conditions exist:

- (1) Naturally occurring pollutant concentrations (natural quality) prevent the attainment of the use.
- (2) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated by the discharge of sufficient volume of effluent discharges (without violating State water conservation requirements) to enable uses to be met.
- (3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.
- (4) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate the modification in a way that would result in the attainment of the use.
- (5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life uses.
- (6) Controls more stringent than those required by sections 301(b) and 306 of the Federal Clean Water Act would result in substantial and widespread economic and social impact.

Neither the petitioner nor DEP has affirmatively made all of the necessary demonstrations listed above.

## **VII GRINNAGE RUN SHOULD RETAIN ITS *HQ-WWF* DESIGNATION**

There are several valid reasons why the existing designated use of Grinnage Run should not be changed. These are discussed in detail in the following paragraphs.

(a) The designated use of Grinnage Run is not more restrictive than the existing use.



The most compelling reason to retain the existing designation of HQ-WWF for Grinnage Run is that it has already been documented to have attained that standard. Existing uses are defined in 25 PA Code §93.1 as "*those uses actually attained in the waterbody on or after November 28, 1975, whether or not those uses have been included in the water quality standards*".

DEP conducts stream assessments throughout the Commonwealth on an ongoing basis. Data collected by DEP just downstream from Grinnage Run during 1983 demonstrated that the nearby downstream receiving waters, and by extension sections upstream from it, were actually attaining HQ-level uses at that time.

DEP performed stream assessment sampling at two stations along the South Fork Tenmile Creek on 20 October 1983. The stations were selected to be representative of conditions throughout the South Fork Tenmile Creek basin where it had been designated HQ-WWF above its confluence with Browns Creek. DEP's Station 1 was "*just below the headwater area at the crossing of Routes 18 and 21*" (downstream from Grinnage Run); Station 2 was below the village of Rogersville and the tributaries McCourtney Run, Hargus Creek, and Pursley Run (further downstream).

According to the summary report prepared by DEP on its October 1983 sampling:

*These (two stations) were felt sufficient to document this high quality warm water stream.*

*At Station 1, a healthy invertebrate community was found. Twenty-seven taxa were collected, most represented by good density. Fishes were also abundant. Chemically, there was nothing of concern found.*

*Station 2 was quite similar to the first station. There is really little to point out which would differentiate them.*

*The SFTMC has excellent water quality and supports an abundant and diverse invertebrate [sic] community and fishery. It deserves its special protection status. [emphasis added]*

As noted in the DEP report, the two stations selected by the field biologists were judged adequately to represent conditions throughout the South Fork Tenmile Creek basin. They presumably had no knowledge or expectation of any aberrations in upstream tributaries. Had there been some cause for concern with a particular segment of the basin (e.g., Grinnage Run), the DEP biologists presumably would have either made note of such concerns or adjusted their sampling stations to take such concerns into account. They did neither. Likewise, there were no requests from the public that DEP overlooked streams of lesser quality in the South Fork Tenmile Creek watershed.

Lists of invertebrates and fishes collected at both stations were provided with the DEP summary. These lists document the high quality of the waters existing as of that date. The conclusion above, based on a specific in-stream biological assessment by DEP, simply and clearly states that this waterway in 1983 continued to qualify as "HQ" on the basis of its observed biological conditions.



The petitioner states that the original designation of HQ-WWF for Grinnage Run in the 1970s was not based on actual in-stream data. That may or may not be true; DEP files are fragmentary and incomplete with respect to the basis for its original stream designations. Whether or not it is true, however, is of no consequence because the actual in-stream data collected subsequently by DEP demonstrate that the HQ designation was appropriate based on existing stream conditions in October 1983. Notably, DEP has never listed Grinnage Run or the downstream HQ-WWF waterways into which it flows as non-attaining, impaired, or otherwise not supporting their designated uses.

The data collected by DEP in 1983 might not be adequate for applying *current* protocols/metrics for an HQ-WWF redesignation today. That does not, however diminish the validity of the 1983 analysis and assessment at the time it was made 25 years ago. The watershed clearly met the HQ standard when sampled during 1983 using best available assessment methods. The DEP conclusion above (*The SFTMC has excellent water quality and supports an abundant and diverse invertebrate [sic] community and fishery. It deserves its special protection status.*) demonstrates that the data collected adequately convinced DEP field personnel that South Fork Tenmile Creek met HQ standards during 1983. Protocols change over time (as few as 5 years ago the protocols/metrics were not the same as they are today). It would not be appropriate to apply newer protocols to historical data in order to reinterpret historical findings and conclusions so as to reduce the water quality classification of any stream.

Because documentation shows that the watershed including Grinnage Run attained the use of HQ-WWF on 20 October 1983 (on or after 28 November 1975), the existing use of Grinnage Run properly is and remains HQ-WWF. Therefore, the designated use of Grinnage Run is not more restrictive than the existing use (HQ-WWF), and it would be wrong to adopt the less restrictive use of WWF for Grinnage Run.

**(b) The designated use of Grinnage Run can be attained by implementing cost-effective and reasonable BMPs (best management practices) for non-point source control.**

The DEP sampling of Grinnage Run during March 2007 found macroinvertebrate community scores that were 69.2% (Station 01GR, upstream) and 63.9% (Station 02GR, downstream) of its chosen EV reference stream (Rock Run). Given that DEP stream investigations found that the upper reaches of South Fork Tenmile Creek were attaining HQ uses 25 years ago, the recent assessment by DEP appears to document a subsequent decline in water quality. It would be contrary to the Clean Streams Law to respond to this situation by allowing further degradation of water quality through the redesignation of Grinnage Run to WWF.

The reduced scores recently attained in Grinnage Run could be attributable to several factors. During the late 1980s, underground longwall mining associated with Consol's Bailey Mine extended into the western section of the Grinnage Run watershed (Figure 9). Bailey Mine Panels 1A through 10A were mined during the



period from 1986 through 1991. According to information obtained from DEP's website<sup>1</sup>, the easternmost sections of Panels 4A through 10A extended into the Grinnage Run watershed (PADEP 2008a). This mining activity began at least three years after DEP in-stream assessments documented HQ conditions in the upper South Fork Tenmile Creek basin.

Other factors also may be contributing to a decline in water quality in Grinnage Run. The septic system for the nearby farmhouse possibly is malfunctioning and could benefit from an upgrade. Also, considerable truck traffic on the gravel roads along the upper section of the Grinnage Run watershed may be depositing dust and sediment from runoff to the waterway (personal communication, B. Stout, 28 August 2008). Finally, unlike the upper sections, the area along the lowest section of Grinnage Run currently is not forested and is used as pasture. Most of these conditions could be improved if adequately addressed.

Although the recent scores for Grinnage Run may not quite meet the 83% minimum needed to qualify as HQ currently, they are close enough that the implementation of BMPs and other institutional and legal controls could effectively improve conditions to elevate the score in Grinnage Run back above the 83% level. There are several specific BMPs in the current DEP Manual (PADEP 2006) which would be appropriate for Grinnage Run, either individually or in combination:

BMP 5.4.2 "Protect/Conserve/Enhance Riparian Areas" This non-structural BMP is rated "very high" for its water quality functions. It could be applied to the existing forest buffer along the upper sections of Grinnage Run.

BMP 6.7.1 "Riparian Buffer Restoration" This structural BMP is rated "medium/high" for its water quality functions. It could be applied along the lower section of Grinnage Run where the forest buffer had been removed to allow agricultural activity.

BMP 6.7.2 "Landscape Restoration" This structural BMP is rated "very high" for its water quality functions. It could be applied along the lower section of Grinnage Run in areas currently used for agricultural purposes.

BMP 6.7.4 "Floodplain Restoration" This structural BMP is rated "medium/high" for its water quality functions. It could be applied throughout the length of Grinnage Run.

Existing local and regional plans and programs promote the use of such measures to protect and preserve sensitive water resources such as Grinnage Run. The Greene County Comprehensive Plan (Greene County Planning Commission 2008) specifically identifies a Riparian Buffer along Grinnage Run and the balance of the South Fork Tenmile Creek waterways that are designated HQ-WWF in recognition of their significant water quality status. Similarly, the Greene County Greenways

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<sup>1</sup> As of September 2008, maps of longwall mine panels and related mining information are no longer available as "features" displayed for "mining" on the referenced DEP website.



Plan (Mackin Engineering Company 2006) notes that "the restoration or development of riparian forest buffers along these waterways will serve to improve water quality, restore important habitat, and reduce negative impacts from high water events". The 2008 Comprehensive Plan identifies specific "implementation strategies" to protect and improve water quality that are relevant to Grinnage Run, including the following:

- Adopt a County Riparian Buffer policy that aligns with the Commonwealth's criteria for streamside buffer restoration,
- Develop a model Riparian (Stream) Buffer Ordinance for use by Greene County municipalities.
- Support efforts to identify critical waterways and designate them as unsuitable for mining under the Department of Environmental Protection.
- Continue the regional partnership with Washington County to prepare a Rivers Conservation Plan for the Ten Mile Creek watershed, involving the Ten Mile Creek Watershed Conservancy.
- Update the Greene County Subdivision and Land Development Ordinance (SALDO) to provide better protection for waterways and natural resource areas from the impact of future development.

The Foundation for Pennsylvania Watersheds (formerly the Western Pennsylvania Watershed Program), the Western Pennsylvania Conservancy, and similar organizations periodically provide funding to local groups for such things as stream bank restoration and riparian corridor improvements. Even slight improvements to water quality as a result of such measures could boost the Grinnage Run scores back to HQ levels, provided no additional sources of pollution are introduced.

**(c) Downgrading the designation of Grinnage Run to WWF would preclude the possibility of improving in-stream and downstream conditions, and could lead to declines in water quality.**

As explained on the DEP's website (PADEP 2008b), changes to either an existing use or a designated use may affect existing and future dischargers of wastewater and other pollutants that may impact these streams. The petitioner (Consol) has expressed the intent to expand coal mining into the Grinnage Run watershed, where discharges from mining and other activities currently are restricted by its HQ designation. DEP itself acknowledges the damage that mining causes:

Disturbed lands that have been strip or surface mined, or are underlain by deep mine excavations, are one of the most difficult areas on which to apply stormwater BMPs. [Acid drainage from coal mines] is considered by most experts to be the single greatest pollution issue in the state, simply because it has no obvious or easy solution. (PADEP 2006, Section 7.5).

To date, most mining activity has stayed outside of the HQ watersheds of South Fork Tenmile Creek and Browns Creek (Figure 9). The streams where mining has occurred are designated either TSF (trout stocking fishes) or WWF (warm water fishes). If the HQ designation for Grinnage Run is removed, additional direct or indirect discharges from coal mining or other activities may be permitted, thus greatly reducing the possibility that Grinnage Run or its downstream waterways

ever again will attain their present or former HQ uses. According to the minutes of the 17 October 2006 EQB meeting at which the Grinnage Run petition was considered: "David Strong asked if it was likely that a WWF designation would allow the stream to improve. The Department response was no."

**(d) As a headwater stream in the South Fork Tenmile Creek basin, Grinnage Run occupies a crucial position, and it provides important ecological benefits to downstream waters.**

Stout (2004) describes headwater streams as functionally critical landscape elements:

Headwater streams can be expected to comprise greater than 80% of the total length of the stream network draining a given watershed (Hynes 1970). Headwater streams furnish the majority of habitat available to benthic macroinvertebrates, the base of the aquatic food web. Forest litter sustains the energy and nutrient budgets of Appalachian headwater streams (Fisher & Likens 1973; Likens *et al.* 1970). Headwater streams are considered exceptional sites for energy cycling and nutrient retention within the complex network of forest and stream interrelations (Wallace *et al.* 1997). Leaf shredding is a key activity in headwaters (Cummins *et al.* 1989), and the resulting downstream transport of energy and nutrients helps sustain larger river ecosystems including their fisheries (Vannote *et al.* 1980). The bulk of the energy assimilated by fine particle collectors in large rivers appears to originate from upstream terrestrial ecosystems (Winterbourne *et al.* 1984).

Hence, the loss or degradation of headwater streams such as Grinnage Run inevitably entails significant ecosystem-level consequences for downstream waterways.

Downgrading the protected uses of Grinnage Run could adversely affect the attainment and maintenance of the HQ use of Grays Fork and the balance of the South Fork Tenmile Creek basin to Browns Creek. According to 40 CFR 131.10(b), the water quality standards of downstream waters must be taken into consideration by the State when designating uses. Notably, during July 2008, members of the Waynesburg Borough Council expressed concern with the potential adverse effect that redesignation of upstream waterways would have on its plans for active recreational use of South Fork Tenmile Creek, specifically a 23-mile long water trail for canoes and other recreational watercraft (Washington PA *Observer-Reporter*, 16 July 2008).

**(e) The reference stream used by DEP in evaluating Grinnage Run is inappropriate.**

According to the antidegradation guidance (PADEP 2003) "*the single, most critical issue [regarding the antidegradation biological sampling] is the selection of reference sites*". Reference and candidate sites must have the same, or very similar, natural conditions; should be of the same "type" (freestone, limestone, tidal, etc.); must



possess similar gradient and alkalinity; and must be of equal or similar stream orders or drainage areas.

In other recent redesignation proposals where a reference stream was used, the reference stream reportedly was selected in part due to its "close proximity" to the candidate stream [see for example: "Stream Redesignations (Big Brook, et al. - IRRRC 2611)]. Rock Run (lower Delaware River basin, Chester County) was used as the reference stream in the DEP's evaluation of Grinnage Run (Ohio River basin, Greene County; see Figure 8). These two streams are approximately 240 miles apart, almost at opposite ends of the Commonwealth. This distance clearly does not qualify as close proximity.

There currently exist several EV streams significantly closer to Grinnage Run than Rock Run that might appropriately be used as reference streams for evaluation purposes. Early in 2008, DEP for the first time documented EV conditions existing in two small headwater streams in Greene County (Figure 10): UNT to Owens Run (about 2.5 miles west of Grinnage Run), and UNT to North Fork Dunkard Fork (within Ryerson Station State Park, about 4.5 miles to the southwest of Grinnage Run). In addition, there are several streams to the east in nearby Fayette County and Somerset County that are EV and may qualify as more appropriate reference streams than Rock Run in Chester County.

**(f) There is no evidence that a "water supply" use was ever a key factor in the designated HQ use of Grinnage Run.**

The "remarks" attached to the 4 March 1978 PaB listing of the upper South Fork Tenmile Creek basin (see Section III, above) suggest that the public water supply intake at Waynesburg may have been a factor in its HQ-WWF designation. Recent discussions with DEP personnel confirm that the water supply may have been an important consideration, and the fact that Waynesburg has abandoned the water intake and no longer takes water from South Fork Tenmile Creek may be relevant to the proposed redesignation. PWS (potable water supply) is one of the specific uses for which a waterbody may be designated under Chapter 93. PWS has never been a designated use listed for Grinnage Run (or South Fork Tenmile Creek) in Chapter 93 and was not the sole basis for its initial designation as HQ-WWF in 1979. Grinnage Run has only ever had the aquatic life use "WWF" and the special protection use "HQ" in its Chapter 93 listings over the years. Based on its own, in-stream assessment in 1983, the DEP concluded that South Fork Tenmile Creek was attaining HQ status due to biological considerations, without regard to the Waynesburg or any other Potable Water Supply "use". Thus, the fact that Waynesburg no longer takes its water supply from South Fork Tenmile Creek is not a sufficient basis for downgrading its historic designated use as HQ-WWF.

Furthermore, according to the Water Quality Antidegradation Implementation Guidance (PADEP 2003), "*all Pennsylvania waters are designated for use as public water supplies although that use may not be actually attained in all waters*". Just because one water



supply plant at Waynesburg was removed from operation subsequent to the HQ designation, does not preclude another water supply from being activated someday within the South Fork Tenmile Creek watershed. Consequently, the discontinuance of a specific public water supply use on a waterway should have no bearing on the special protection it is afforded based on aquatic life.

Although there has never been a water supply purveyor taking water directly from Grinnage Run, its location in the headwaters of the South Fork Tenmile Creek basin (see item "d", above) places it in a strategically important position for maintaining the quantity and quality of the water in the downstream HQ-WWF sections of the South Fork Tenmile Creek basin.

Even if "potable water supply" was *one* of the uses historically associated with South Fork Tenmile Creek (and by extension, with Grinnage Run), it was not the *only* use upon which the HQ designation was based. The designated uses of streams within the South Fork Tenmile Creek basin, as with all surface waters, "are continuously evaluated and updated as part of the State's federally mandated water quality standards review" (PADEP 2003). An existing use determination is made on a surface water whenever the Department takes a permit or approval action on a request to conduct an activity that may impact the surface water (PADEP 2003). In its review and approval of permit applications during the past three decades, the DEP consistently has used existing and readily available data on South Fork Tenmile Creek and its upstream waterways to maintain and protect the HQ use of those waters. For example, according to a public notice published in the PaB on 16 October 1999 (for an NPDES permit renewal application to allow the West Greene School District to discharge treated sewage to Grays Fork), effluent limitations were imposed on the discharges because the receiving waters (Grays Fork) had "*existing and/or potential uses for aquatic life, water supply, and recreation.*" Clearly, these same uses applied to all of the streams in the South Fork Tenmile Creek basin upstream from its confluence with Browns Creek (including Grinnage Run). Just because *one* of those uses (water supply) may not currently be active does not mean the other uses are not applicable.

## VII RECOMMENDATIONS

- 1) The current designated use of HQ-WWF for Grinnage Run and all downstream waters within the South Fork Tenmile Creek basin upstream from its confluence with Browns Creek should be retained and protected.
- 2) If DEP believes that the Waynesburg water supply was a key factor in the original designation of the upper South Fork Tenmile Creek basin as HQ-WWF, it could specifically "delete" PWS as a use for Grinnage Run while maintaining its HQ designation for other uses, thereby clarifying the current situation. This has been done in many other instances, including for other streams designated as HQ-WWF. For example, Squaw Run and Guyasuta Run, both third-order tributaries of the Allegheny River in Allegheny County (Chapter 93 Drainage List



U) have the following designated use ("Water Uses Protected"): *HQ-WWF*; *Delete PWS*. This is exactly the situation for Grinnage Run and South Fork Tenmile Creek.

## IX CONCLUSION

Grinnage Run was designated HQ-WWF in 1979. The proposed redesignation of Grinnage Run to WWF is unnecessary, inappropriate, and unwarranted. Specific in-stream biological data collected and evaluated by DEP during October 1983 demonstrated that the upper reaches of South Fork Tenmile Creek (including Grinnage Run) were meeting HQ criteria according to the methods and standards in place at that time. Recent sampling by the DEP and the petitioner suggest that the water quality in Grinnage Run may have declined slightly since 1983. In part, longwall mining at Consol's Bailey Mine in the late 1980s may have contributed to any such decline. The implementation of BMPs and other practical institutional and legal controls could provide the necessary water quality improvements so that Grinnage Run could once again achieve HQ conditions. Headwater streams such as Grinnage Run play a crucial role in maintaining and protecting the quality of downstream waterways. Redesignation to WWF would facilitate new mining activities and allow additional discharges which likely would preclude any water quality improvements in Grinnage Run in the future and could endanger the quality of HQ waters downstream. For all of these reasons, the HQ-WWF designation of Grinnage Run must be retained.

## X AUTHORSHIP

This report was compiled by Stephen P. Kunz and James A. Schmid, ecologists with Schmid & Company, Inc. Mr. Kunz has been an environmental consultant since receiving a degree in human ecology from Rutgers University in 1977. Dr. Schmid is a biogeographer with 40 years of experience in ecological consulting. Both Mr. Kunz and Dr. Schmid have been certified as *Wetland Delineators* by the Army Corps of Engineers. Both are certified as *Senior Ecologists* by the Ecological Society of America and as *Professional Wetland Scientists* by the Society of Wetland Scientists.

Dr. Schmid and Mr. Kunz offer outstanding credentials as experts in ecology, wetlands, environmental regulation, and impact assessment. They have analyzed the environmental impacts of many kinds of proposed development activities in 10 states, including coal mining facilities, industrial facilities, transportation facilities, commercial developments, and residential developments. They have written Environmental Impact Statements under contract to the US Environmental Protection Agency, Army Corps of Engineers, Interstate Commerce Commission, various agencies of state and local governments, and a diverse array of private sector entities. They have prepared comprehensive analyses of environmental regulations of nationwide scope.

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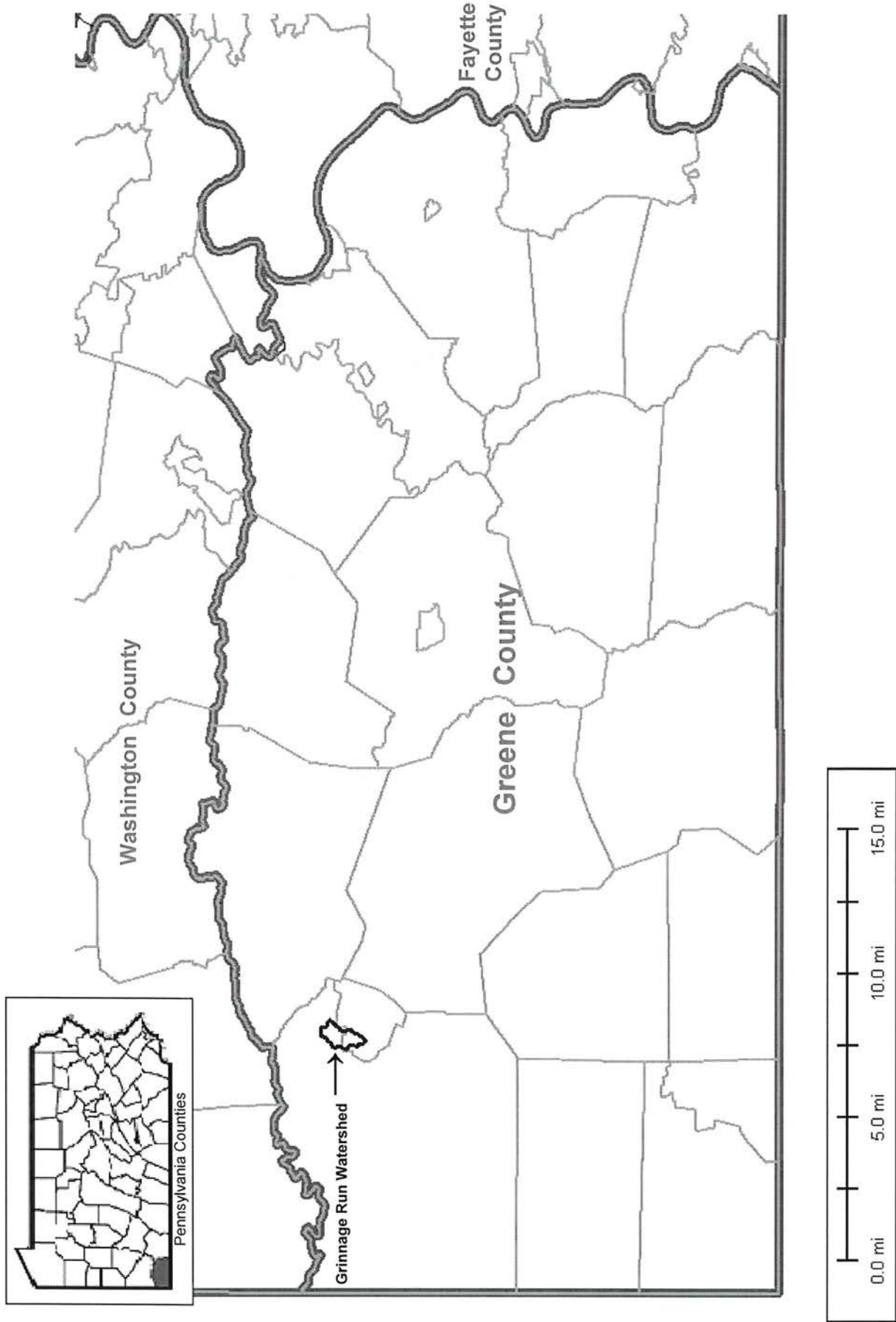
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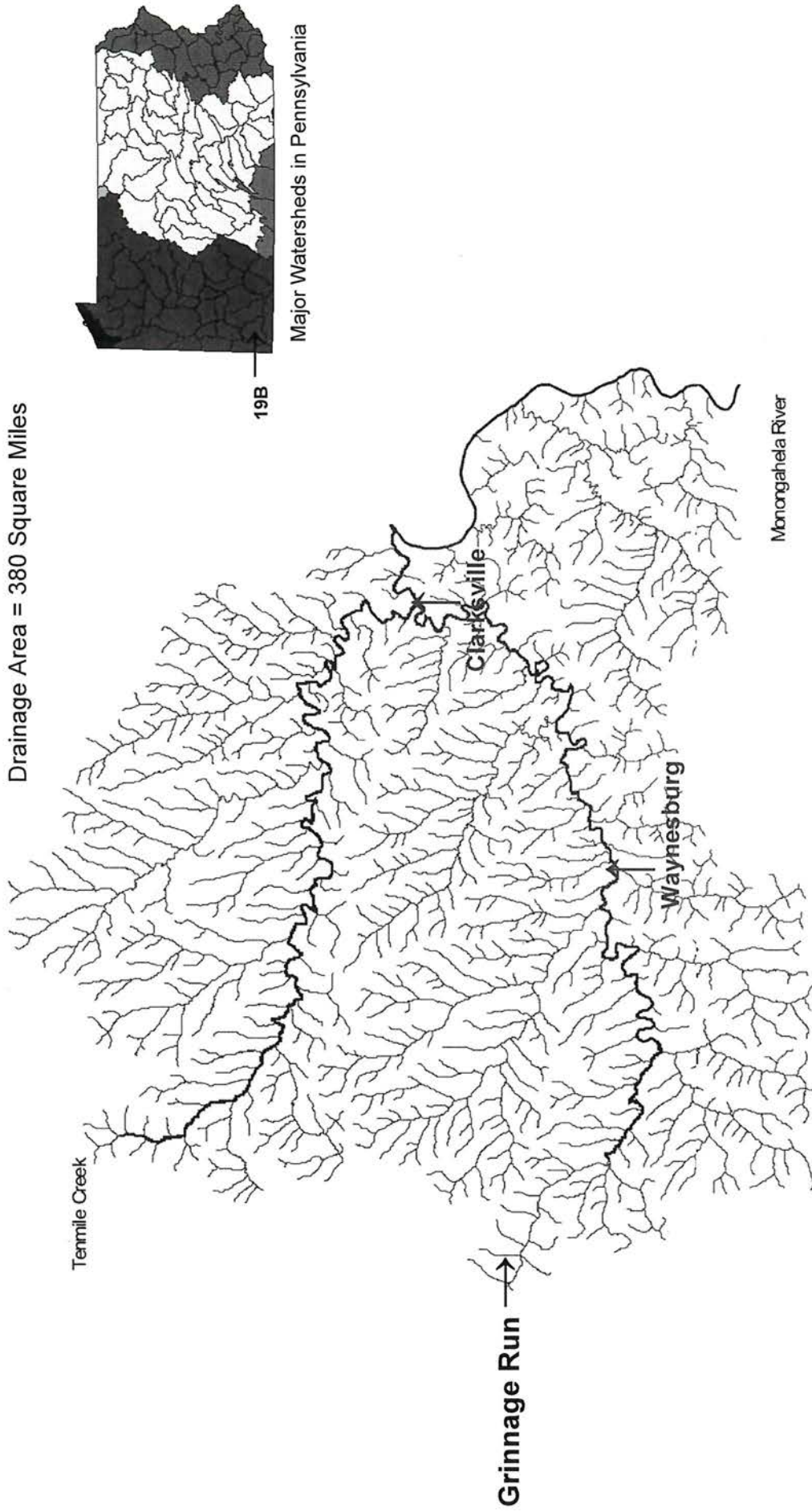




**FIGURE 1.** Location of the Grinnage Run watershed (blue outline) in northwestern Greene County, Pennsylvania. Greene County is in the southwestern corner of Pennsylvania (inset). Municipal boundaries are in brown.

# Tennmile Creek Watershed - SWP 19B

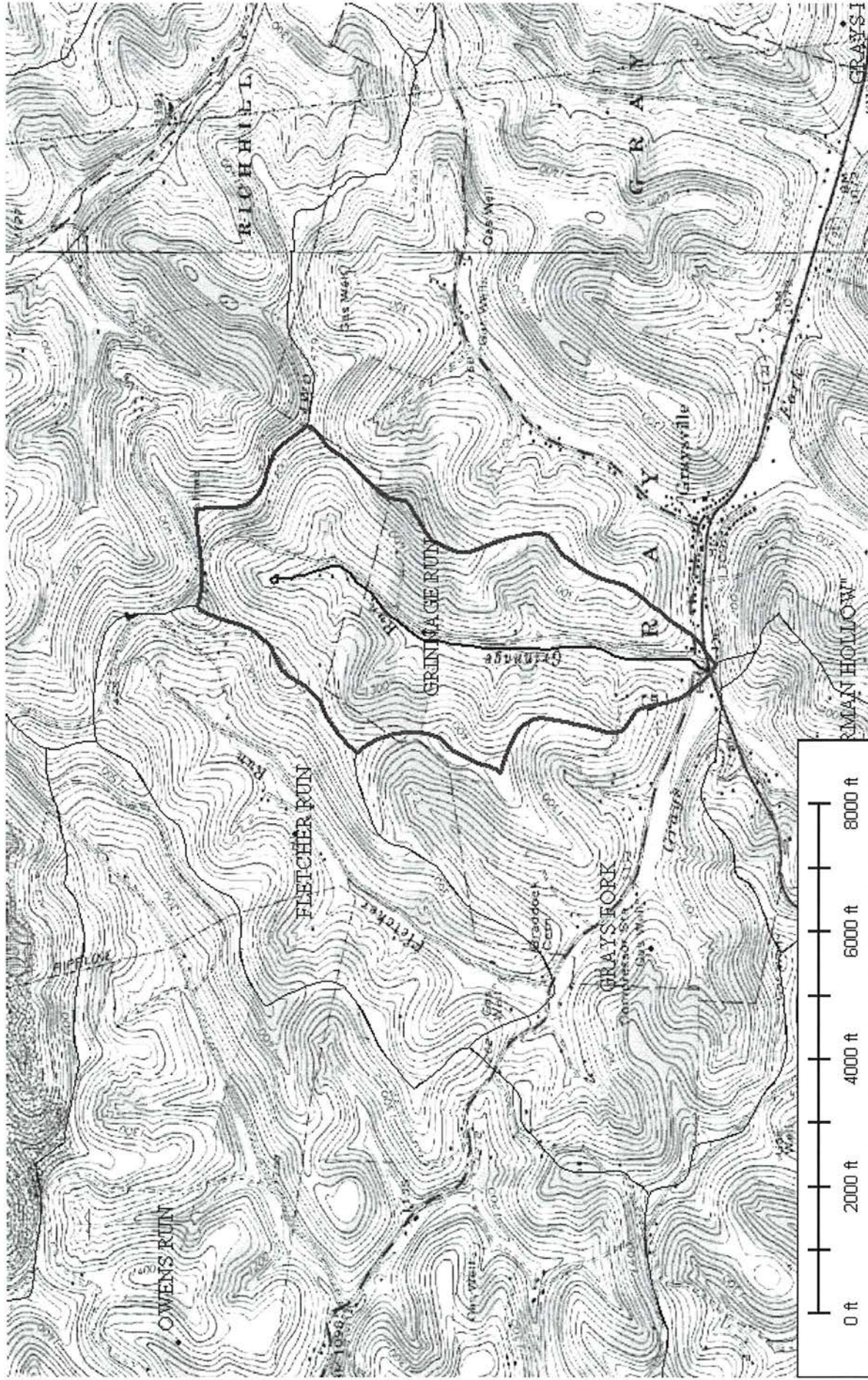
Drainage Area = 380 Square Miles



South Fork Tennmile Creek

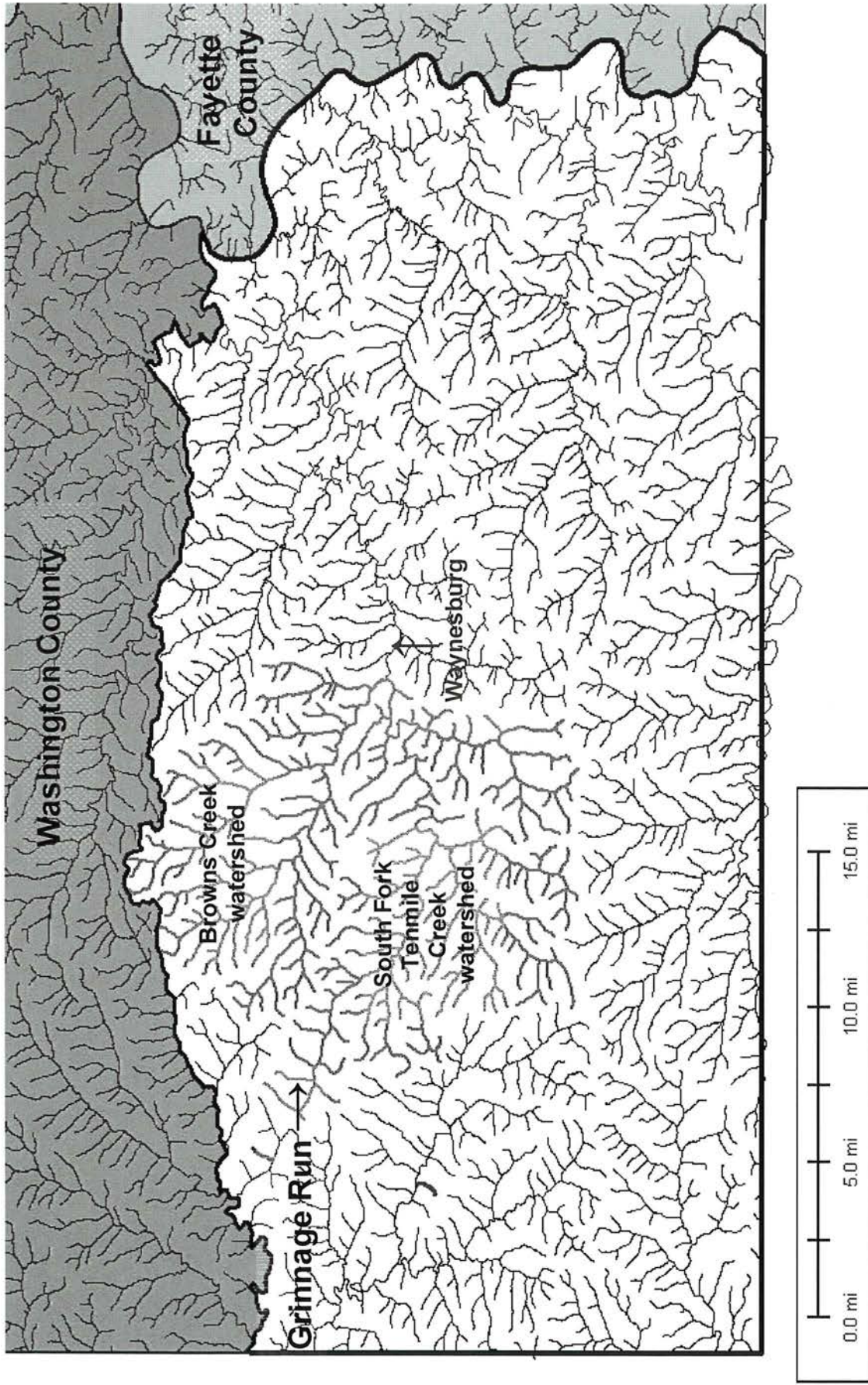
**FIGURE 2.** Location of the Tennmile Creek watershed, including the South Fork Tennmile Creek basin in which is located Grinnage Run (at arrow). Tennmile Creek flows into the Monongahela River (Ohio River Basin, red in inset) in southwestern Pennsylvania.





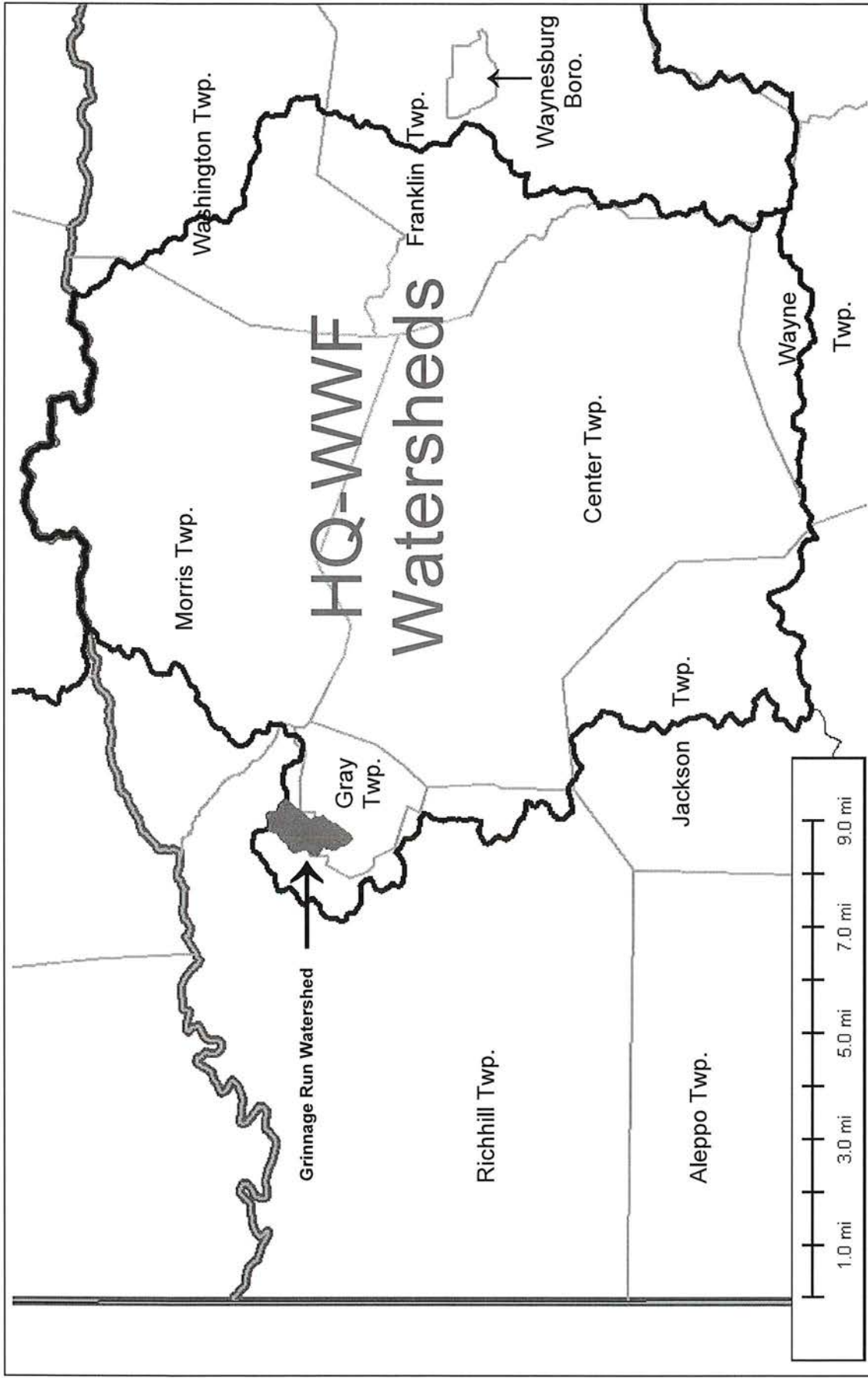
**FIGURE 3.** Location of Grinnage Run (blue line) and its 397-acre watershed (red outline) near Graysville, Pennsylvania, as depicted on the Wind Ridge and Rogersville USGS topographic quadrangles.



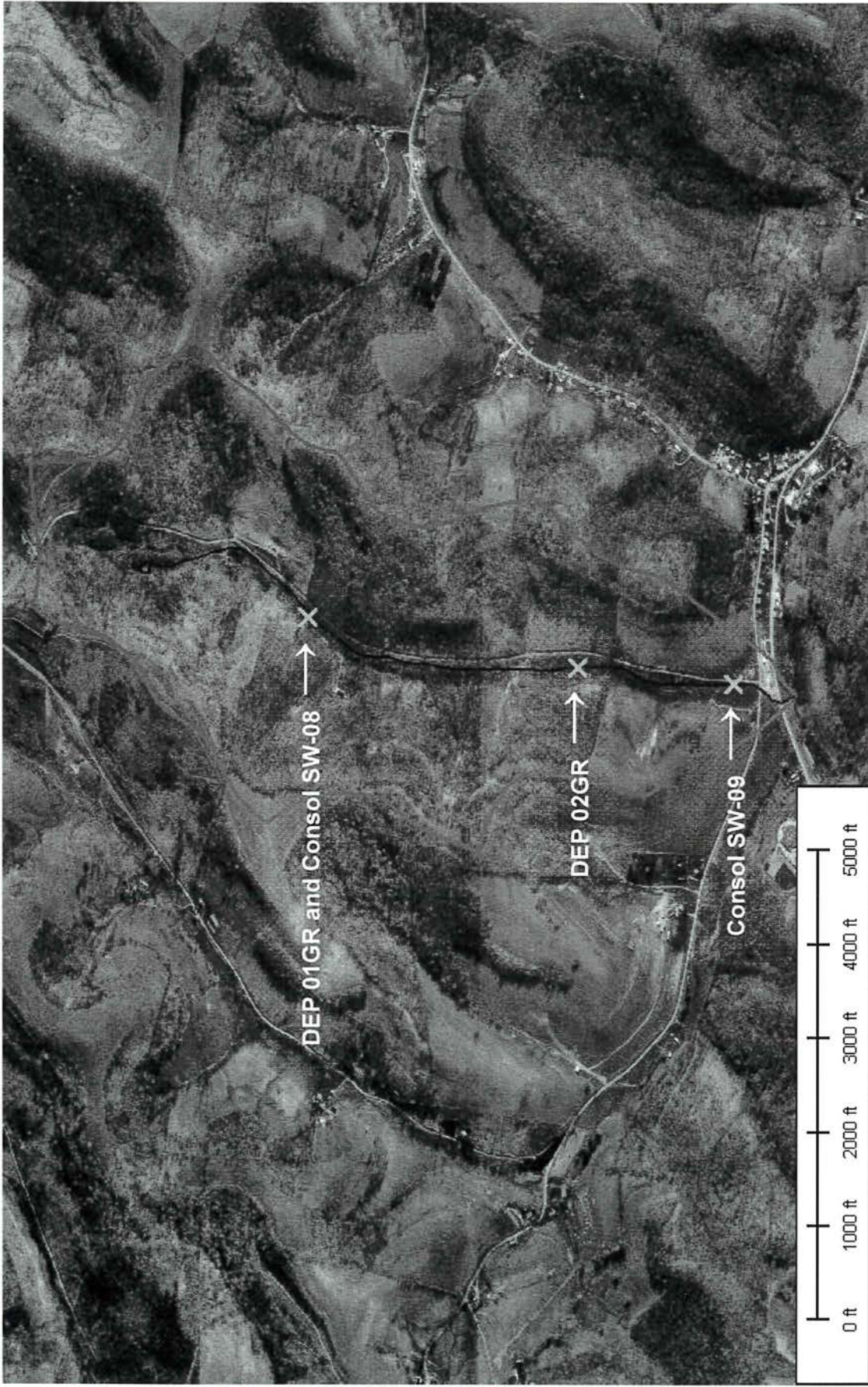


**FIGURE 4.** Identification of stream networks in Greene County and nearby vicinity. The streams of the South Fork Tenmile Creek basin and the adjacent Browns Creek basin, which are the only ones in the County that are designated HQ-WWF, are shown in purple. Grinnage Run location is noted at arrow. The two, newly-recognized EV streams in northwestern Greene County are shown in red (see also Figure 10).



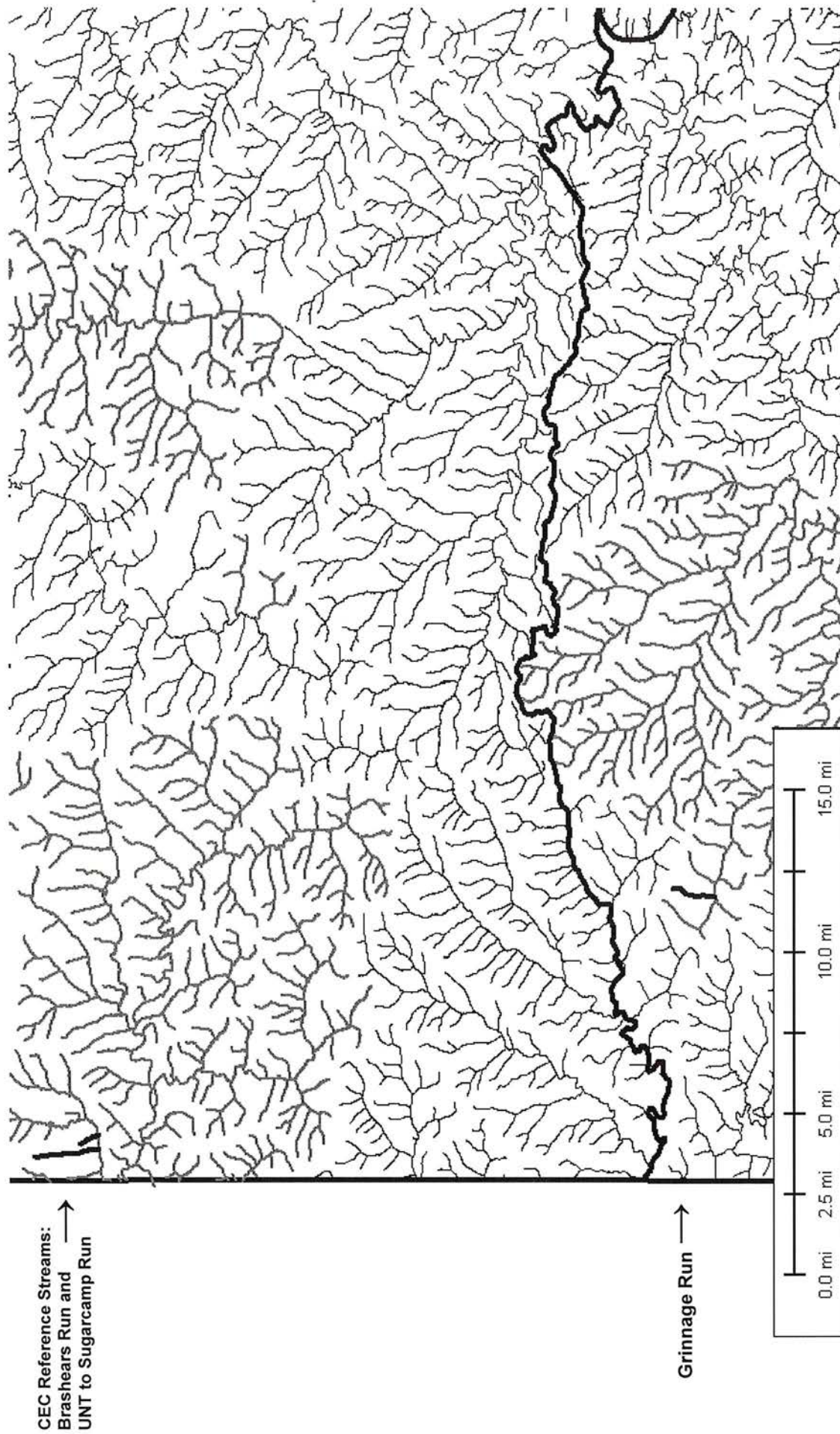


**FIGURE 5.** Location of the Grinnage Run watershed (purple shading at arrow) in relation to nearby municipalities in central Greene County within the South Fork Tenmile Creek and Browns Creek watersheds designated "HQ-WWF".

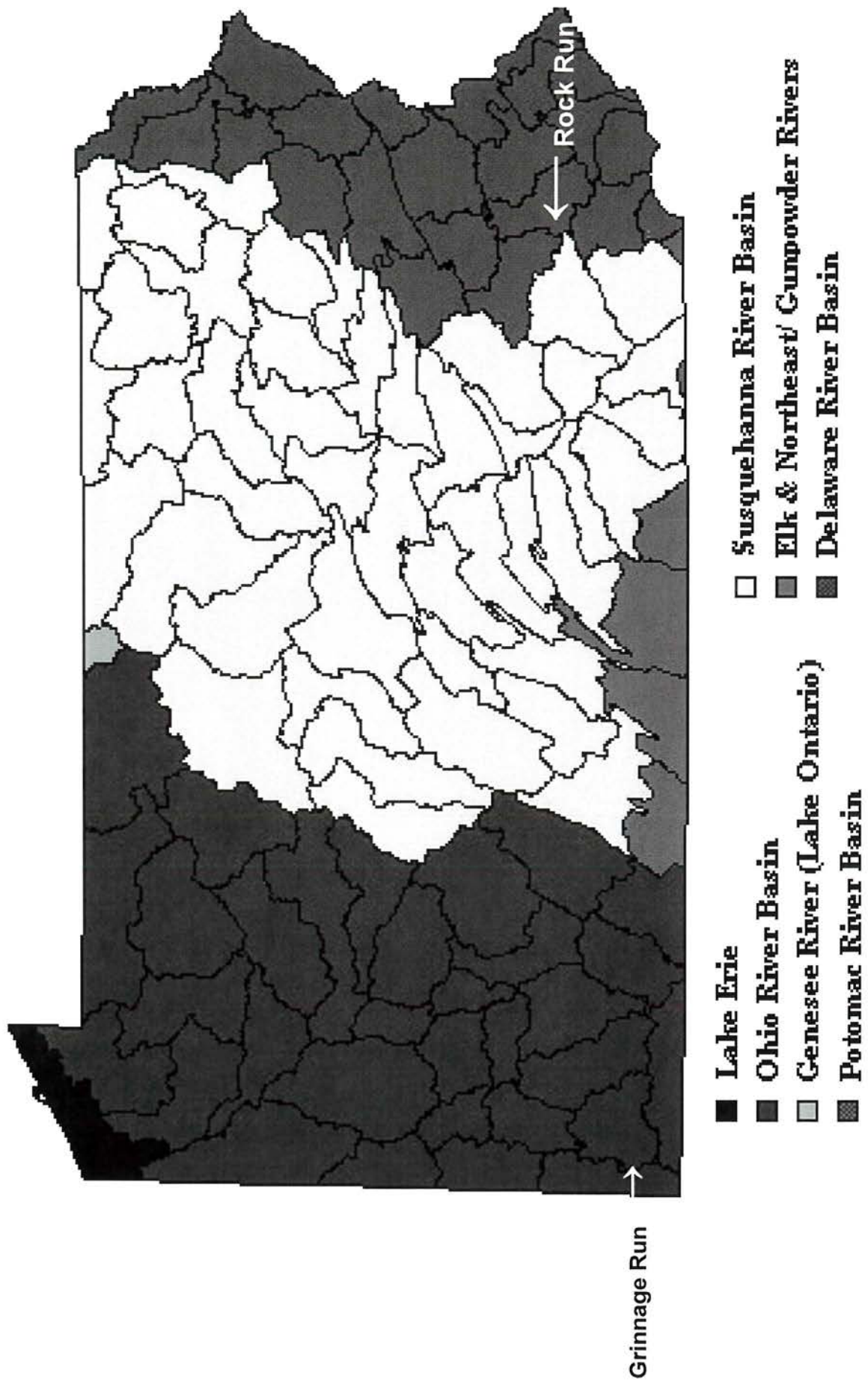


**FIGURE 6.** Location of petitioner's and DEP's sampling stations along Grinnage Run (blue line) as depicted on an aerial photograph taken during 1995. The 397-acre watershed of Grinnage Run is outlined in purple.



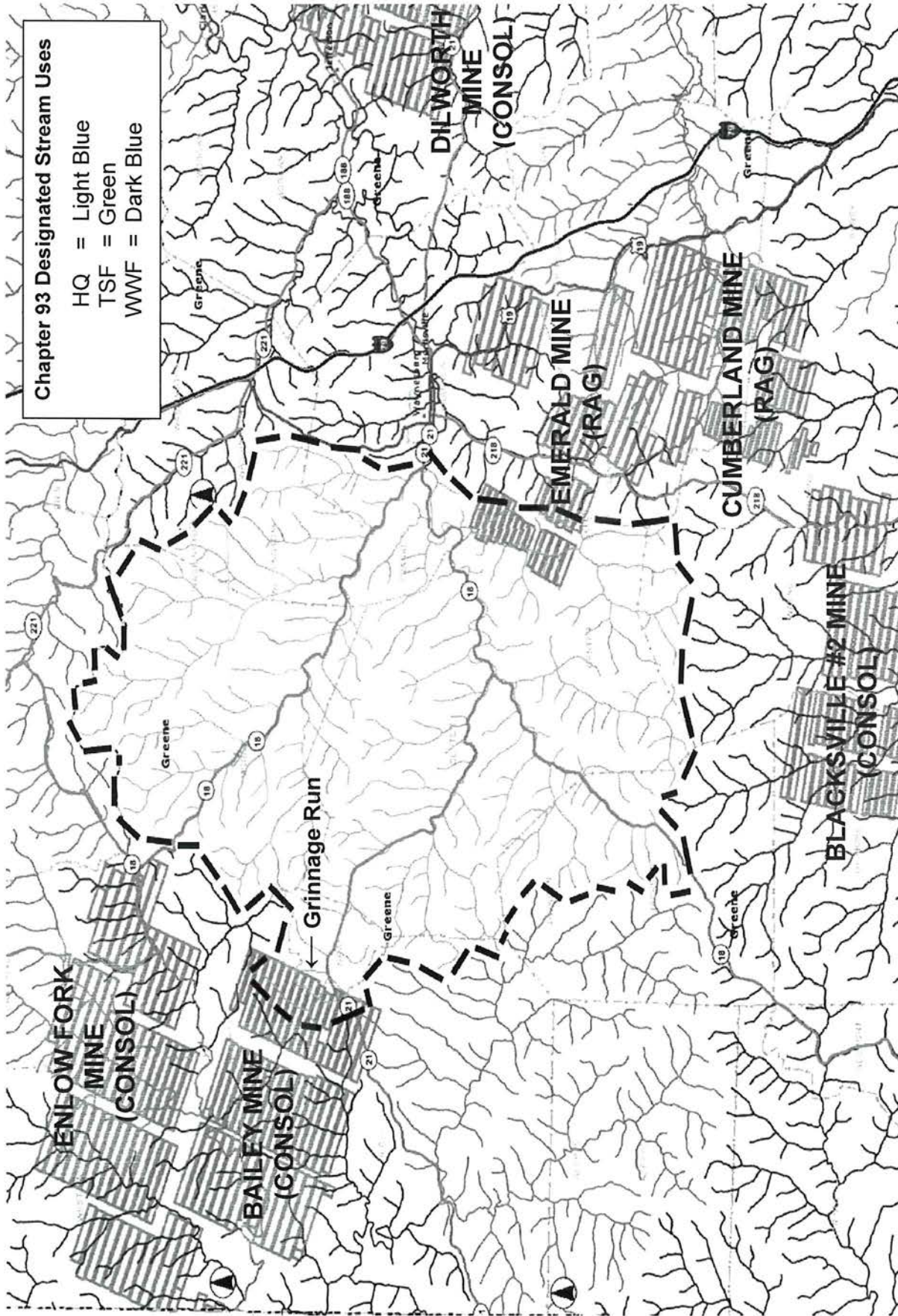


**FIGURE 7.** Location of Grinnage Run (blue, lower left) in South Fork Tenmile Creek watershed in Greene County relative to the CEC-selected (and DEP-rejected) reference streams (blue, upper left) in the Buffalo Creek watershed in Independence Township, Washington County, approximately 19 miles to the northwest. County boundaries are dark black. HQ-WWF streams are shown in purple; other streams are shown in black.

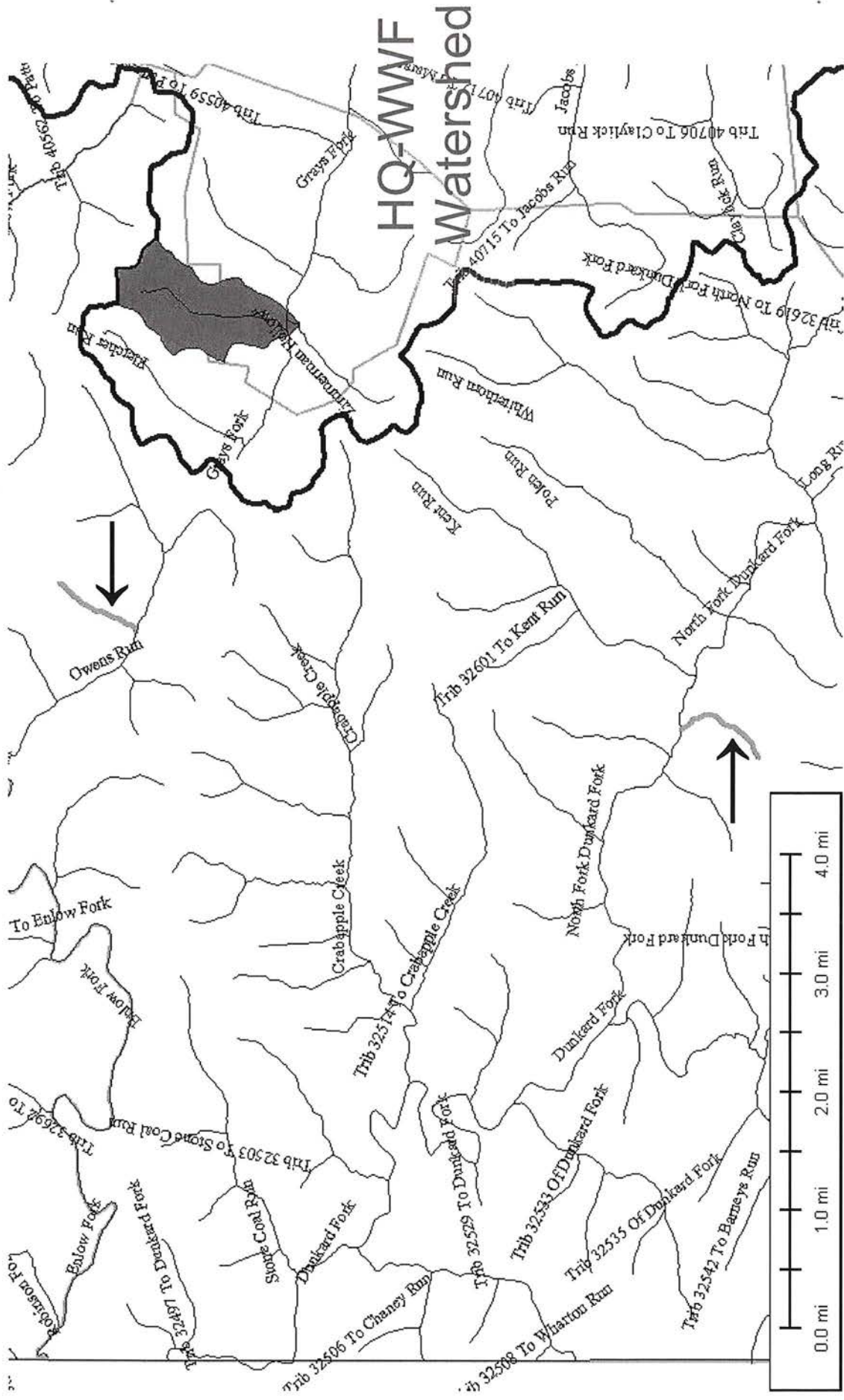


**FIGURE 8.** Approximate location of Grinnage Run (white arrow, left) relative to Rock Run (white arrow, right), the reference stream used by DEP in evaluating the petition to redesignate Grinnage Run. Major watersheds are color-coded; principal sub-basins also are depicted.





**FIGURE 9.** Location of Grinnage Run (at arrow) and the balance of the HQ-WWF watersheds in Greene County (light blue streams within black dashed outline) in relation to underground longwall mine panels (rectangular green). Basemap is from DEP's eMapPA website (PADEP 2008a). The several longwall panels of Consol's Bailey Mine that partially extend beneath the Grinnage Run watershed were mined in the late 1980s, subsequent to both its HQ-WWF designation in 1979 and the confirmation by DEP of HQ conditions in 1983.



**FIGURE 10.** Locations of two newly-recognized EV streams (green lines at arrows) near the Grinnage Run watershed (purple shading). Northern EV stream is UNT to Owens Run. Southern EV stream is UNT to North Fork Dunkard Fork.