

## VI. ISSUES, CONCERNS, CONSTRAINTS, AND OPPORTUNITIES

Much of the Upper Crooked Creek watershed provides a scenic, undeveloped area that has the potential to attract a great number of tourists to its natural, cultural, and recreational resources. Numerous issues, concerns, constraints, and opportunities were identified within the watershed in the subject areas of land use, water quality, biological resources, historical interpretation, and new recreational opportunities.

The availability of a wide variety of underutilized, resources was one of the greatest strengths of the watershed. Capitalizing on this strength by encouraging both residents and non-residents to use these resources in greater numbers should be an important outcome of this plan.

The primary issues, concerns, constraints, and opportunities identified during the development of this plan are outlined below and discussed in further detail in Chapters 1 through 5.

### A. *LAND RESOURCES*

- Because of their high quality physical and chemical elements, land areas with prime agricultural soils are leading sites for development. This represents a major issue within the watershed and it is imperative that prime agricultural soils are delineated and acreage is calculated when planning for future development of the region.
- Agricultural Security Areas (ASAs) are active and viable farmlands that have been enrolled in a statewide program to restrict specific types of development on designated agricultural properties. An ASA designation is administered by local municipalities and counties, and although designation does not result in tax relief for landowners, ASAs protect farmland areas from indiscriminant condemnation, allow for future farming of the land, and absolve the areas from legislation that would be detrimental to farming operations. Over 36,000 acres of ASAs existed within the watershed at the time of this report.
- State and county governments can also purchase conservation easements of prime agricultural lands located within ASAs. The goal of easement purchases is to preserve the productivity of prime agricultural production lands, in perpetuity. Although neither of the counties in the watershed have farmland in the easement program, Indiana County has recently developed an Agricultural Lands Preservation Board, and Armstrong County has begun to develop a county program and has appointed a Board to oversee its development.
- Unregulated dumping of refuse at non-permitted sites has been identified as a major issue within the study area. Apart from decreasing the aesthetic character of the watershed, illegally dumped trash along Crooked Creek and its tributaries can wash into the stream during normal rainfall events creating polluted, and sometimes hazardous, water quality conditions.

- Numerous abandoned coal mines occupy the Crooked Creek watershed. Historic resource extraction associated with underground deep mines and surface mines has left a legacy of coal refuse piles, scarred landscapes, and abandoned mine shafts throughout the watershed. Underground mine pools occupying abandoned deep mines threaten both ground and surface water quality.
- Coal refuse piles represent another threat to water quality throughout the watershed. The largest refuse pile identified within the watershed was Air Products Ernest Coal Refuse site. This site has been historically problematic as a result of polluted waters from the refuse pile, and the deep mine beneath it, entering McKee Run.

### ***B. WATER RESOURCES***

- The destruction of riparian habitat ultimately is the most detrimental byproduct of floodplain encroachment from development. Degradation of floodplain and riparian habitat by agricultural and urban land uses within the Crooked Creek watershed has had a significant influence on aquatic fauna. When encroachments from development occur within a floodplain area, other ecological benefits are compromised. For example, the ability of the floodplain to buffer and filter sediments from entering the stream can be greatly abated.
- Encroachments by residential developments are also responsible for impacts to the floodplain. Although all of the municipalities within the watershed have ordinances restricting development within the floodplain, some floodplain encroachments have occurred within the watershed prior to the adoption of these regulations. Most of these encroachments were residential and concentrated in the population centers of Creekside, Ernest, Marion Center, and Shelocta.
- The history of resource extraction, agriculture, and development within the Crooked Creek watershed has created various sites of degraded surface and ground water quality conditions. Although some portions of the Crooked Creek watershed remain in fair to good biological health, the three largest sources of reported impairment within the basin are acid mine drainage, municipal waste, and agriculture pollution, a combination of both point and non-point source pollutants.
- According to Koryak (1980), acid drainage from both active and abandoned mines has been the most implacable water quality issue within the study area.
- The Crooked Creek watershed has been designated as a High Priority Water on the NPS Priority Degraded Watershed List (DWL) under PADEP's Non-point Source Control Program.
- Significant mine drainage pollution occurs at various points within the study area. Areas include a coal refuse pile on McKee Run, the Kintersburg Drift Mine, the Tanoma South Borehole, and Air Products Ernest Coal Refuse Site.

- Unmanaged agricultural practices create frequent disturbances to waterways such as fertilizers, manure, pesticides, and silt from agricultural lands entering streams within the watershed. This situation leads to heavy siltation, nutrient accumulation, and suspended solids within stream systems, disrupting both the chemical and biotic health of the watershed. Nutrients from agriculture runoff also leach into soils and potentially contaminate groundwater supplies. Finally, unrestricted access of livestock into streams also creates numerous problems. Along with increasing peril to the livestock, i.e., creating an increased capacity for bone fractures, herd contamination, etc., livestock can accelerate streambank erosion, sedimentation, and surface water nutrient enrichment through excrement into the streams.
- A 1994 non-point source pollution assessment by the Armstrong County Conservation District, in cooperation with the Indiana County Conservation District, for the Crooked Creek and Cowanshannock Creek watersheds identified three subwatersheds as high priority areas for the implementation of Best Management Practices: Plum Creek, Crooked Creek upstream from Creekside, and Plum Creek – South Branch
- Raw sewage discharges have been observed at various locations within the Upper Crooked Creek watershed. A related issue is the presence of on-lot sewage treatment and disposal. Many residential systems within the watershed are older, malfunctioning, and in need of repair. The greatest threat with malfunctioning sewage systems and raw sewage discharges into surface waters is enteric pathogens associated with fecal coliform bacteria.
- A problem associated with oil and gas extraction in the watershed is the disposal of unwanted brine, which may contain contaminants such as heavy metals. Another significant threat associated with gas wells is the waste pit sludge. Although the pits are required to be lined by PADEP's Bureau of Oil and Gas, many are not, resulting in potential groundwater and surface water contamination.
- Of the 35 community water systems in Indiana County, 17 come from groundwater sources. Groundwater contamination may result from a variety of sources and can often impact public water supplies. This fact conveys the importance of preventing and remediating groundwater pollution.
- Although marked water quality improvements are apparent within the study area, issues such as heavy metal pollution from the AMD and nutrient increases from raw sewage remain.
- PFBC and other public boat and fishing access areas were lacking. Although there were a number of small private household points of access, public access by boaters and fishermen was limited within the watershed. This limited public access is primarily due to land ownership, pollution, railroads, highways, and steep slopes.

### C. *BIOLOGICAL RESOURCES*

- The Pennsylvania Herpetological Atlas project is an important project within the Upper Crooked Creek watershed. The goal is to provide detailed species distribution maps; identify critical reptilian and amphibian habitat; develop comprehensive databases for use by researchers, conservation planners, and government agency personnel; identify and track distributions of threatened and endangered species, and estimate the population status for a variety of species.
- Historic resource extraction, unmanaged timbering, and agricultural activities has destroyed the majority of old-growth forest land in the Upper Crooked Creek watershed. Although the watershed's forests are dominated by even-aged, relatively immature stands, some of the heavily mined areas of the watershed are characterized by dense stands of red pine (*Pinus resinosa*) mixed with pioneer species such as eastern cottonwood (*Populus deltoides*) and bigtooth aspen (*Populus grandidentata*), which provide soil forming functions and dense cover and roosting habitat for species such as the ruffed grouse.
- Exotic and invasive species are a significant problem in the Upper Crooked Creek watershed. These non-native species, which typically interact and out-compete native vegetation, have been declared noxious because they spread very rapidly, are particularly difficult to control once established, and pose a threat to agriculture.
- Results from the Pennsylvania Natural Diversity Index indicated that seven rare, threatened, or endangered species may potentially occur in the Upper Crooked Creek watershed.
- Due to the largely rural nature of the watershed, potential areas for nomination as Important Bird Areas may exist. One in particular is Blue Spruce County Park. According to representatives of the Todd Bird Club, studies of avian populations at the park are ongoing.
- Throughout much of Crooked Creek's basin, negligent logging practices; poor land-use planning leading to excessive urban and residential development; and encroachments from agriculture, livestock grazing, and lawns has lead to the eradication of many riparian areas.
- Hundreds of acres of land within the watershed are enrolled in the Pennsylvania Game Commission's cooperative Farm Game Program and the Forest Game Coop. These programs are attractive mechanisms for improving terrestrial habitat and recreational opportunities.
- Natural Heritage Inventories are lacking for both Armstrong and Indiana Counties. The results of an inventory could provide information on areas of unique and significant flora and fauna communities within the watershed.

***D. CULTURAL RESOURCES***

- Indiana County is one of nine southwestern Pennsylvania counties participating in the America's Industrial Heritage Project. The goal is to foster economic development by building tourism through the county's rich industrial heritage. Part of the plan focuses on Indiana County's growing rail-trail network. This network provides several functions, most notably the recreational and economic benefit to the surrounding communities. Rail-trails also serve to preserve greenways, link cultural and historical resources, provide access between communities; and in some cases, serve as transportation corridors.
- Several projects outlined in the Indiana County Heritage Preservation Plan such as coal town tours, tours of operating Christmas tree farms, and steam train excursions represent future tourist attractions and opportunities for increased economic development.
- In 1998, Pennsylvania supported 363 Class A wild trout stream sections totaling over 1103 miles, 101 Wilderness Trout Streams, and nearly 1600 stream sections with verified trout reproduction. Of these, Indiana and Armstrong Counties accounted for only 13 reproducing trout sections and only one of these, Crooked Creek, was located within the study area. No Class A or Wilderness Trout Streams were located in the study area.
- Of the thousands of Approved Trout Waters in Pennsylvania (waters that meet criteria to be stocked with trout by PFBC) only the North Branch Plum Creek occurs within the study area.
- As discussed above, the Pennsylvania Game Commission's Farm Game Program and Forest Game Coop proved significant hunting and trapping opportunities for sportsmen within the watershed.
- The Upper Crooked Creek watershed is home to four National Register of Historic Places listed covered bridges and a wide variety of National Register of Historic Places eligible or locally significant homes, businesses, and railroads. The diverse history and culture throughout the watershed can foster increased tourism, interpretation, and recreational opportunities.