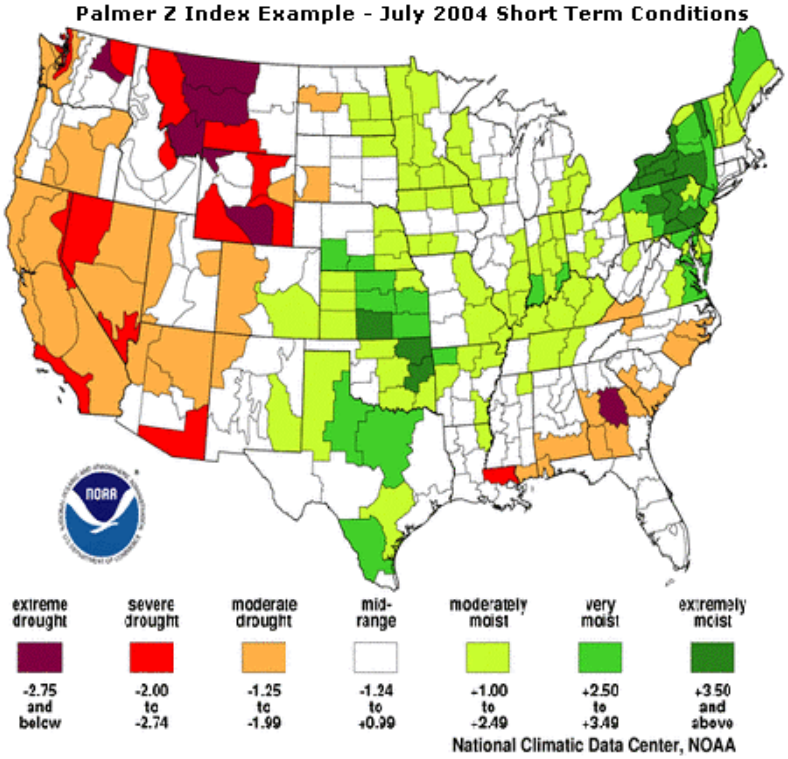
Drought

General

There are three different types of droughts that can be broadly defined as a time period of prolonged dryness that contributes to the depletion of ground and surface water. A meteorological drought is a deficiency in moisture in the atmosphere. This will have very little effect on the crops and water supply, depending on the conditions before hand. An agricultural drought inhibits the growth of crops because of a moisture deficiency in the soil. This type of drought, if persistent, can lead to the third type of drought, which is a hydrologic drought. This drought is a prolonged time period without rainfall. A hydrologic drought can have adverse effects on agriculture, streams, lakes, and groundwater levels. Droughts are often one of the leading causes of wildfires. To find the moisture conditions in an area, consult the Palmer Z Index issued by the National Climatic Data Center (NOAA). This index shows the short-term moisture conditions. An example of the short-term Palmer Z Index is shown above. This map is a snapshot of July 2004.



History

Snyder County has experienced many droughts and one recorded period of unseasonably dry weather. Snyder County's recent drought history is shown in the table to the right. None of these events, however, have caused significant damage to the County or its residents. As mentioned previously, one of the secondary effects of droughts are wildfires.

Snyder County Drought History

Region	Date	Type
Snyder County Region	03/01/95	Drought
Snyder County Region	05/01/95	Unseasonably Dry
Snyder County Region	05/01/95	Unseasonably Dry
Snyder County Region	09/01/95	Drought
Snyder County Region	10/31/97	Drought
Snyder County Region	12/15/98	Drought
Snyder County Region	07/01/99	Drought
Snyder County Region	08/01/99	Drought

Source: National Climatic Data Center, NOAA

As detailed in the chart below, the following historic low water levels were reported by the National Weather Service at Penns Creek.

Penns Creek – Historic Low Water Levels	
Water Level	**Date**
1.0 ft	11/22/1984
1.0 ft.	09/03/1966
1.0 ft	08/08/1965
1.2 ft	10/29/1985
1.3 ft	10/15/1988

Source: National Weather Service

Vulnerability

Drought vulnerability depends on the duration and area of impact. However, other factors contribute to the drought severity. Unseasonably high temperatures, prolonged winds, and low humidity can heighten the impact of a drought. Droughts are not uncommon in Snyder County.

The effects of a drought are:

- depletion of consumable water supply
- depletion of agricultural water supply
- depletion of forest water and water used to fight forest fires
- depletion of water for navigational and recreational purposes
- depletion of water for natural irrigation (besides crops and forests)
- poor water quality

Droughts can have adverse effects on farms and other water-dependent industries. This can result in a local economic loss. Public safety is an issue in terms of unavailable consumable water, as well as water availability for fire protection and emergency services. Drought preparation includes three phases: watch, warning, and emergency.

Probability

Since 1995, Snyder County has experienced six periods of low-impact drought and two periods of unseasonably dry conditions. Based on the frequency of historical occurrences, the County can expect drought conditions or unseasonably dry weather are likely to occur approximately once every five years or less.

Drought Preparation Phases				
	General Activity	**Actions**	**Request**	**Goal**
Drought Watch	Early stages of planning and alert for drought possibility	Increased water monitoring, awareness, and preparation for response among government agencies, public water suppliers, water users, and the public	Voluntary water conservation	Reduce water use by 5%
Drought Warning	Coordinate a response to imminent drought conditions and potential water shortages	Reduce shortages, relieve stressed sources, develop new sources if needed	Continue voluntary water conservation, impose mandatory water use restrictions if needed	Reduce water use by 10-15%
Drought Emergency	Management of operations to regulate all available resources and respond to emergency	Support essential and high priority water uses and avoid unnecessary uses	Possible restrictions on all nonessential water users	Reduce water use by 15%

Source: PA Department of Environmental Protection

Maximum Threat

The primarily agrarian western municipalities of the County, as well as other water-dependent production services, are at greatest threat because of their reliance on the availability of water and water production services for farm operations. These municipalities are also most susceptible and at greatest risk to the secondary effects of drought conditions.

Secondary Effect

The most severe secondary effect resulting from a drought is the likelihood of forest fires. Large forest fires could devastate Bald Eagle State Forest, Bald Eagle State Park, State Game Lands in both Beaver Township and Perry Township, and recreational areas in heavily forested portions of the County. Forest fires can threaten agricultural and natural resource production facilities in western municipalities. Prolonged drought conditions can have a lasting impact on the economy, population settlement, and could cause major ecological changes, such as increases in scrub growth, flash flooding, and wind erosion of the soil.

Long-term water shortages during severe drought conditions could have a high impact on agribusiness, public utilities, and other industries reliant on water for production services. This may require water rationing and distribution, which will place a strain on the availability of consumable water to the community and has the potential to cause a public health emergency. Loss of water pressure, reduction in hydroelectric power generation, and/or the suspension of services in affected areas could have limited affect on local government operations, the delivery of key services, and on property and infrastructure. The reduction of ground water supply can exacerbate environmental factors by setting the conditions for sinkholes and other natural hazards. Reduced groundwater supply for non-domesticated animals and other organisms strain the ecosystem.