Water resource problems include sedimentation of pools and riffles, lack of instream cover for adult trout, organic leading, severe flooding and elevated stream temperatures. A maximum stream temperature of 83 degrees F. was recorded during summer 1990, which is lethal to trout. Bank erosion is extensive and consequently, much of the stream is wide and shallow. The stream corridor has been severely damaged by excessive grazing of streambanks and woodlands; and destruction of spring seepage areas. Land use in the stream corridor is primarily cattle pasture, barnyards and woodlands. Instream cover is very scarce, consisting of logs, fallen trees and undercut banks. Severe flooding and excessive streambank grazing have destroyed much of the stream trout habitat.

Upper Brush Creek is a 2.6 mile tributary of Brush Creek. The stream is managed as a Class III brown trout fishery. The 1990 fish survey found 4 rainbow trout (escapees from a fish farm) and 6 minnows and other forage species. Sand and fine gravel are the predominant substrate types. The stream HBI (Hilsenhoff Biotic Index) was 4.96, indicating some organic loading, and the Habitat Rating was "fair".

Water resource problems include moderate streambank erosion, lack of instream cover for adult trout, sedimentation of riffles and elevated stream temperatures. Land use in the stream corridor is primarily open pasture and woodland.

Lower Brush Creek flows northerly 1.5 miles to Brush Creek in Monroe County. Minnows and other forage species dominate the fish community. Sand is the dominant stream substrate, with some gravel and rubble present.

Creek 4-2 (township of Jefferson, Monroe Co.) flows northeasterly 1.6 miles to Brush Creek. Minnows and other forage species comprise the fish community. Sand is the dominant substrate, with some rubble, gravel and silt.

Creek 36-2 (township of Jefferson, Monroe Co.) flows southeasterly 2.4 miles to Brush Creek. Minnows and other forage species comprise the fish community. Sand is the dominant substrate, with some rubble, gravel and silt present.

Water Resource Objectives

The following water resource management objectives are recommended for the Brush Creek subwatershed:

1. Improve fish habitat conditions to increase carryover of adult trout in Brush Creek and Upper Brush Creek.

2. Improve water resource conditions in the subwatershed streams by reducing sediment and organic loading.

Pollutants from Nonpoint Sources

Eroding Uplands (sediment and nutrients)

An estimated 6,429 tons of sediment per year are being delivered to Brush Creek as a result of upland erosion. This accounts for approximately 42% of the subwatershed's sedimentation. Eroding crop fields are the major source of sediment being delivered to Brush Creek and its tributaries.

Eroding and Trampled Streambanks (sediment and direct habitat impairment)

Streambank erosion is a very visible problem in the Brush Creek subwatershed. Hundreds of eroding banks contribute an estimated 6,220 tons (or 41% of the subwatershed's sedimentation) of sediment per year to Brush Creek and its tributaries.

Eroding Gullies (sediment and nutrients)

Approximately 2,556 tons of sediment per year are delivered to Brush Creek as a result of active gully erosion. Gully erosion accounts for roughly 17% of the subwatershed's sedimentation.

Animal Lots (oxygen demand and nutrients)

The Brush Creek subwatershed has a very heavy concentration of barnyards. An estimated 4,628 pounds of phosphorus runs off into the streams from 103 animal lots. This subwatershed has nearly 1/3 of all the barnyards that were inventoried in the entire Middle Kickapoo River watershed.

Winter Spread Manure (oxygen demand and nutrients)

Manure spread on "critical" acres is a probable source of oxygen demanding substances having an impact on water quality in the Brush Creek subwatershed. Because of the large number of livestock operations, winter spreading on unsuitable land poses a significant water quality problem. Currently, winter spread manure is being applied on approximately 1191 critical acres.

Camp Creek Subwatershed (CA)

Subwatershed Description

The Camp Creek subwatershed drains an area of 16.3 square miles, all of which is located in the northwest part of Richland County. Tributaries include Bufton Hollow Creek and Unnamed Creek 22-14 which flows along County Highway G. Camp Creek flows in a westerly direction before it empties in to the Kickapoo River just east of the village of Viola.

The subwatershed is rural with land use divided as follows:

agricultural	54%
woodland	36%
other*	10%

* grassland and quarries