

Carr Run BDA - High Significance

Carr Run is a fairly sizeable tributary to Cussewago Creek, draining a large portion of Spring Township before flowing into Cussewago Township and the main stem of the creek. Cussewago Creek is a main drainage of the French Creek watershed. Due to the size and appropriate habitat conditions of Carr Run, the lower section supports a mussel species of concern. The core for this BDA focuses on Carr Run from the confluence with Cussewago Creek, upstream to include where Rundelltown Creek enters and an additional 500 meters upstream from that point. A 100-meter buffer is included on both sides of the stream. The mussel of interest here, **creek heelsplitter** (*Lasmigona compressa*), rely on the in-stream habitat that consists of appropriate substrate and good water quality.

The immediate watershed of Carr Run and portions of Cussewago Creek support this core stretch of stream. Due to the locality of this BDA and the quality of the larger watershed, the supporting landscape is absorbed into the supporting watershed of the Cussewago Creek. The land surrounding Carr Run contains mostly forest riparian corridors that meander through agricultural lands. The floodplain terrace is a mixed hardwood forest containing bitternut hickory (*Carya cordiformis*), sugar maple (*Acer saccharum*), green ash (*Fraxinus pennsylvanicum*), black cherry (*Prunus serotina*), and American hornbeam (*Carpinus americana*). Numerous shrublands and wetlands are present along Cussewago Creek as it cuts through a forested and agricultural landscape.

Carr Run is a small, slow moving stream with a sandy to muddy stream bottom. Such habitat characteristics are important in supporting the mussel species of concern. The forested riparian corridor helps to regulate the temperature of the stream and creates streamside conditions that contribute to good water quality and mussel habitat.

Threats and Stresses

This core habitat contains a high amount of natural cover, including wetlands, within the riparian zone. Where Route 98 crosses Carr Run represents the most extensive break in riparian vegetation and significant possible disruptions to in-stream habitat. Roads and bridges, storm water drainage, and chemical runoff associated with the road and right-of-way maintenance pose the greatest potential impact to the stream quality.

A large portion of the supporting landscape is in agricultural use with much of that land in row crops. Potential influx of nutrients, sediments, and agricultural chemicals is a concern for Carr Run throughout the watershed, specifically in the lower part of the stream. Forested stream corridors contribute positively to stream conditions, such as cover and lower temperatures. Thus, logging or clearing streamside vegetation significantly degrades habitat conditions within the stream.

Recommendations

Maintenance of the natural cover within this core is important in providing a buffer against nutrient and sediment loading. Vegetation corridors can intercept unwanted inputs before they enter the stream. Additionally, preserving forested stream banks is vital to maintain water quality and mussel habitat. For many places within the Cussewago Creek Valley, timber management and production may be compatible with maintaining high-quality conditions for the numerous important species living here. However, sustainable forest management plans that consider these important areas are essential for the long-term health of these forest communities. Road development and other construction should be kept away from the stream if at all possible. Work

with farmers and landowners of adjacent parcels to maintain as much of the area in forest as possible to help to buffer the core areas from edge effects.

Within the entire watershed, maintain vegetated riparian buffers for any small perennial or ephemeral drainages that flow through this predominately agricultural landscape will be beneficial to water quality within Carr Run and Cussewago Creek. Limit stream crossing by domesticated animals and generally limit contact of animals with streams as part of the best management practices recommended for the areas within the immediate watershed of the stream. Best management practices should be applied to adjacent farmland to minimize nutrient and chemical inputs. Further evaluation of the instream habitat and surveys for animals of special concern is also desirable.