1.4.1 Brown's Creek Headwaters

The Headwaters Area includes the northern-most portion of the Brown's Creek Watershed District with its many lakes and the peripheral landlocked and semi landlocked areas. The topography in the Headwaters Area is characterized by a mostly level to gently rolling landscape with numerous depressions. Soils are highly variable, ranging from well-drained sand to deep, poorly drained peat within wetlands and drainage swales.

Native Plant Community Description

The Headwaters Area contains numerous, large forested communities with the most prevalent being oak-dominated forests and woodlands. Other wooded communities include conifer plantations, maple-basswood and aspen dominated forests. The natural communities are typically adjacent to lakes and large wetlands. These natural communities and large lakes provide significant habitat and form a wildlife corridor. The natural communities benefit the lakes by providing recharge of groundwater, preventing erosion of steep slopes, and providing water quality treatment. The many depressional lakes and wetlands provide for significant recharge to the water table, which, in turn, supports flows in Brown's Creek.

The broad lowland corridor contains a variety of high-quality wetland communities, including hardwood swamp, emergent marsh, hardwood seepage swamp, and tamarack swamp. Associated with these wetlands are a number of wooded upland communities, especially oak forest and oak woodland. Several of these are in good condition, and do not display the heavy levels of buckthorn that frequently characterize oak communities within the region. In general, these communities tend to be in better condition in the areas adjacent to the wetlands and to show more evidence of disturbance away from the wetlands.

Many communities within this Area are mapped on the Washington County Map of Natural Communities and Rare Features that was produced by the MN MNDNR, and there are records for Blanding's turtle, a state-listed threatened species, within the Area. In addition, because of the quality and size of the wetland communities, the potential for additional rare species is high.

In 2015 three sites in the headwaters area were surveyed. Table A-18 summarizes the findings of these surveys.

Table A-18. Headwaters Natural Communities Surveyed in 2015

Site ID (as identified in the 2001 NRI)	2015 Site Description	Results/ 2001 to 2015 Comparative Analysis*
1H		Site determined to be low quality in 2001 and of similar quality in 2015 due to presence of buckthorn. Ongoing buckthorn management is helping to improve community quality and species diversity.
3B	Near site 3B on an esker west of Brown's Creek	Site was free of buckthorn but did contain two other invasive species; smooth brome and reed canary grass. Since the 2015 plot was not within the boundary of site 3B surveyed in 2001, no comparative analysis can be made.
4I		Site described in 2001 to have buckthorn but also to be exhibiting a significant amount of oak regeneration and a diverse vegetative community. 2015 survey confirms a robust assemblage of native species persist at this site along with continued presence of buckthorn. Garlic mustard, an invasive species was found in the 2015 survey.

* Three MNDNR releve data sheets including natural community descriptions and plant species lists document findings of the 2015 survey. These data sheets can be found in the Unique Species Inventory (2016).

Bird Habitat Description

The mosaic of wetland, forest, and grassland communities within the Headwaters region provides important breeding and foraging habitats for many resident and migratory species of birds. Bird surveys conducted along the Gateway Trail have identified 88 species of birds in 2015, including Red-shouldered hawk (*Buteo lineatus*) which is listed as a species of special concern by the MNDNR. Mature forested areas around lakes provide suitable nesting habitat for Red-shouldered hawks and this species likely nests in the headwaters region of the watershed. A male Hooded warbler (*Setophaga citrina*) was photographed along the Gateway Trail approximately ¼ mile north of Highway 96. Hooded warblers are classified as a "Rare Regular" species by the Minnesota Ornithologists Union (MOU). In 2013, Yellow-headed blackbirds (*Xanthocephalus xanthocephalus*) were observed nesting in one of the wetlands in the Trout Habitat Preservation Project (THPP) located near the town of Withrow. This is the first known breeding record for this species in Washington County.

Macroinvertebrate Habitat Description

Macroinvertebrates were sampled from several habitat types downstream of 110th Street. Of the three sites sampled for the Unique Species Inventory (Headwaters, Central, and Gorge), the Headwaters site contained the highest taxon richness (39 taxa represented). The Headwaters site contained one Lepidostoma caddisfly, Glossosomatid caddisflies, and a large number of Limnephilidae caddisflies. These taxa have a low pollution tolerance and are indicative of good water quality and sufficient dissolved oxygen. The single Lepostomatidae caddisfly was the only specimen collected from all three sites and had the lowest pollution tolerance of all the specimens collected during this study.

Fish and Fresh Water Mussel Habitat Description

Fish surveys conducted by MNDNR for the Headwaters Area of Brown's Creek are limited to a short reach just north of 110th Street. Within this reach, the Brook stickleback (*Culaea inconstans)*, a species associated with clear, cool streams is found.

Another fish species documented in this reach and often found in cool bog streams is the Central mudminnow (*Umbra limi*); two other fish species, Fathead minnow (*Pimephales promelas*) and Creek chub (*Semotius atromaculatus*), are also documented in the upper reach. No trout species have been documented from the upper reach by MNDNR Fisheries. Although water temperature in the upper reach is generally cool enough to support trout, the low gradient, peaty substrate characteristic to most of this reach provides for poor trout habitat.

Amphibian and Reptile Habitat Description

Blanding's turtles have been found in numerous locations within the Brown's Creek watershed with the most sightings in the headwaters area. The large wetlands and shallow lakes provide excellent habitat for Blanding's turtles. These aquatic habitats also support healthy populations of painted and snapping turtles, and several species of frogs and toads.