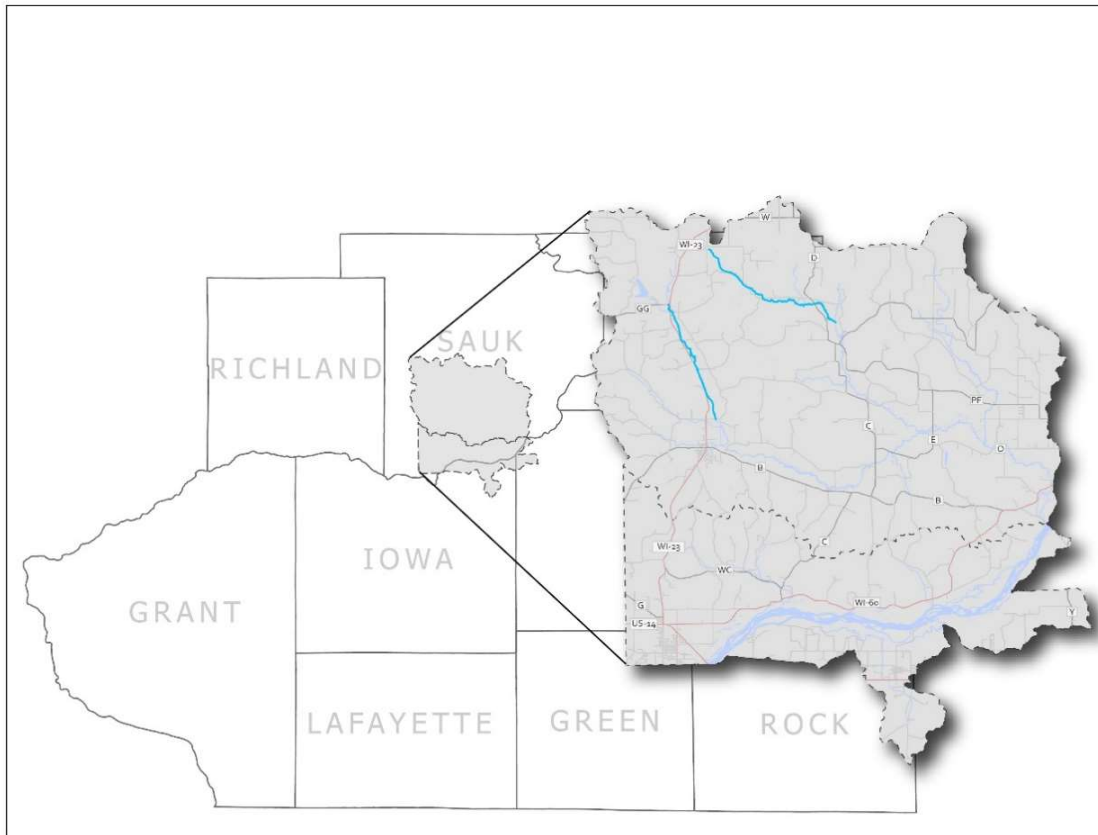


WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Trout Management and Status of Trout Streams
in the Honey Creek and Wilson Creek
Watersheds, Sauk County, 2023



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Executive Summary

Stream electrofishing surveys occurred at 31 locations on 10 streams in the Honey Creek and Wilson Creek drainages within the Honey Creek and Spring Green-Wisconsin River Hydrologic Unit Code (HUC) 10 watersheds. No fingerling trout were stocked in these systems in 2022 or prior to fishery surveys in 2023 to allow for assessment of natural reproduction (age-0; young-of-year) and natural recruitment to age-1 (yearling) in 2023.

At the time of the 2023 surveys, Honey Creek between County Road GG and Willow Road and North Branch Honey Creek upstream of the confluence with unnamed stream 1256600 were Class 2 trout waters. All other streams surveyed during this evaluation were unclassified. Prior to being suspended for this evaluation, the only annual trout stocking quota was small fingerling brown trout for North Branch Honey Creek. There were no active stocking quotas for any of the other streams in the evaluation.

Brown trout was the only trout species found in Honey Creek and its tributaries. Brook trout was the only trout species found in Wilson Creek and its one surveyed tributary. Honey Creek had the highest mean total brown trout catch rate and the highest mean catch rate for all size classes. Wilson Creek had the highest mean total brook trout catch rate and the highest mean catch rate of all size classes. Trout abundance (total and by size classes) was generally low to moderate compared to Class 1 streams in the Driftless Area and statewide, with the exception of Honey Creek, which had moderate brown trout abundance, and Wilson Creek, which had moderate to high brook trout abundance.

MANAGEMENT RECOMMENDATIONS

1. Reclassify Honey Creek from Class 2 to Class 1 from County Road GG downstream to Willow Road.
2. Reclassify Honey Creek from unclassified to Class 1 for approximately 2 miles from its confluence with unnamed stream 5032022 downstream to County Road GG.
3. Reclassify Honey Creek from unclassified to Class 2 for approximately 1.5 miles from Willow Road downstream to Mill Road.
4. Reclassify an unnamed tributary to North Branch Honey Creek (WBIC 1256700) from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 5032114 downstream to its confluence with North Branch Honey Creek.
5. Reclassify North Branch Honey Creek from Class 2 to unclassified for approximately 2.7 miles from its headwater downstream to its lower crossing of Skyview Road.

6. Reclassify North Branch Honey Creek from unclassified to Class 2 for approximately 4.8 miles from the outlet of Leland Millpond downstream to Elm Road.
7. Continue stocking large fingerling brown trout in North Branch Honey Creek in the Class 2 segment upstream of Leland Millpond.
8. Stock large fingerling brown trout in North Branch Honey Creek through the time of the next evaluation in 2029 to determine if a fishable population can be maintained through stocking.
9. Add North Branch Honey Creek to the list of Streambank Easement (SBE) eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.
10. Reclassify unnamed stream 1257100 for approximately 2.7 miles from the outlet of the Sauk County dry dam downstream to State Road 23 from unclassified to Class 2.
11. Add unnamed stream 1257100 to the list of SBE-eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.
12. Reclassify Shannahan Valley Creek from unclassified to Class 2 for approximately 2 miles from its confluence with unnamed stream 5031953 downstream to White Mound Lake and for approximately 1.2 miles from the outlet of White Mound Lake downstream to its confluence with Honey Creek.
13. Reclassify Wilson Creek from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 1247800 downstream to its crossing of State Road 60.
14. Add Wilson Creek to the list of SBE-eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.

Introduction

WATERHSED LOCATIONS AND DESCRIPTIONS

The Honey Creek and Wilson Creek trout stream management and planning group includes four named streams and three unnamed streams in the Honey Creek HUC-10 watershed and one named stream and one unnamed stream in the Bear Creek HUC-10 watershed. Streams in the Honey Creek drainage that were surveyed for this evaluation included Class 2 Honey Creek and a Class 2 tributary (North Branch Honey Creek), as well as unclassified Shannahan Valley Creek and Sugar Grove Valley Creek, and three additional unnamed streams. In the Wilson Creek drainage, Wilson Creek and one unnamed tributary stream (WBIC 5033722) were surveyed. All streams were in Sauk County, and Honey Creek and Wilson Creek both drain directly into the lower Wisconsin River between Sauk City and Spring Green.

The Honey Creek HUC-10 watershed drains an area of 234.0 square miles in Sauk County, which in the year 2000 was divided between agriculture (42.8%), forested

lands (37.9%), grassland (9.8%), wetland (6.6%), open water (1.6%) and development (1.2%) (Table 1, Ripp et al. 2002). The Bear Creek HUC-10 watershed drains an area of 126.5 square miles in Sauk County and Richland County. In the year 2000, land use in the watershed was divided between forested lands (43.4%), agriculture (31.2%), wetland (11.4%), grassland (10.3%), open water (2.2%), barren lands (0.9%) and development (0.5%) (Table 2, Ripp et al. 2002). Of the streams that were part of this evaluation, Honey Creek was listed during the 2014 listing cycle as impaired due to a degraded biological community arising from high total phosphorous levels. Shannahan Valley Creek was listed during the 2002 listing cycle as impaired due to Chronic Aquatic Toxicity (ammonia), low dissolved oxygen (high biological oxygen demand), and organic enrichment due to elevated water temperature in the discharge from the dam at White Mound Lake. None of the streams in this evaluation were listed as Exceptional or Outstanding Resource Waters. Existing quotas for stocked streams in the group can be found in Table 4. Details on individual stream sampling locations can be found in Tables 5 and 6.

INDIVIDUAL STREAMS

Honey Creek (WBIC 1253900), also known as Plain Branch Honey Creek, is approximately 34 miles in length, originating in west central Sauk County and flowing south past the Village of Plain, then southeast before joining the Wisconsin River at the base of Ferry Bluff. Along the way, it is joined by two named coldwater streams (North Branch Honey Creek and Sugar Grove Valley Creek), one named warmwater stream (East Branch Honey Creek) and numerous smaller unnamed tributary streams. Honey Creek is Class 2 trout water from its crossing of County Road GG downstream to Willow Road. The classified portion of Honey Creek is managed for brown trout, with fingerlings stocked in every year but two from 1978-2019. Public access to Honey Creek comes via Wisconsin Department of Natural Resources (DNR) streambank easements (SBE) at Valley View Road, Hickory Road and Leland Road, as well as numerous bridge crossings.

North Branch Honey Creek (WBIC 1255600) is a tributary to Honey Creek that originates in west central Sauk County northwest of the community of Leland and flows southeast for approximately 16 miles before joining Honey Creek near the community of Witwen. The stream is Class 2 trout water from its headwater downstream to its confluence with unnamed stream 1256600. Past management involved stocking fingerling brook trout annually from 1975-2021, except for 2004. However, stocking was discontinued after 2019 based on the results of surveys of the stream in 2016. Those surveys found that the stream did not have a fishable population of brook trout despite several years of stocking. Manure spills from a dairy farm located near the creek caused fish kill events that were documented in 2009 and 2013.

Shannahan Valley Creek (WBIC 1257900), also known as Shannahan Branch Honey Creek, is a tributary to Honey Creek that originates in west central Sauk County. From

its headwater, the stream flows south for about two miles before entering White Mound Lake, a 104-acre impoundment of the creek formed by the construction of a large PL-566 dam in 1969. The dam and reservoir were constructed by Sauk County for protection against flooding in the valley. Water temperature and dissolved oxygen profiles measured in White Mound Lake during a 1993 survey indicated that White Mound Lake stratified both thermally and in terms of dissolved oxygen, with the thermocline at a depth of approximately 7.5 feet over the deepest part of the lake (Larson 1993). The temperature at the surface was 80°F, 71°F at 7.5 feet and 53°F at the lake bottom. Dissolved oxygen was > 10 parts per million (ppm) at the surface, 3.5 ppm at 7.5 feet and 0.4 ppm at the lake bottom. In 1995, the outlet at White Mound Lake was modified to accommodate 100% of the base flow from the bottom of the lake to facilitate the release of cold water to Shannahan Valley Creek for trout management (Marshall et al. 2006).

By 2005, however, White Mound Lake was no longer thermally stratifying, and downstream coldwater benefits for trout management were non-existent. However, the dissolved oxygen profile continued as in a strongly stratified lake with oxygen depletion at depths greater than 2 meters (6.5 feet, Marshall et al. 2006). The loss of thermal stratification was attributed to cold water depletion of the hypolimnion with subsequent replacement by warm water due to the bottom-draw water release structure in the dam (Marshall et al. 2006). Shannahan Valley Creek below White Mound Lake was listed as impaired under section 303d of the Clean Water Act (303d list) in 2002 due to chronic toxicity (ammonia), low dissolved oxygen (high BOD) and organic enrichment caused by elevated water temperatures. These issues stemmed from the hypolimnetic water released from White Mound Lake. Today, the dam operates as 100% top-draw, and the stream is no longer listed as impaired. However, the stream below White Mound Lake remains thermally marginal (almost too warm for trout) because surface water discharge from the lake is often above 70°F during the summer.

After leaving White Mound Lake, Shannahan Valley Creek flows south, then east for another 1.2 miles before joining Honey Creek just downstream of State Road 23. The stream was unclassified prior to the 2023 evaluation. Despite being thermally marginal, the stream has consistently supported low abundances of brown trout downstream of White Mound Lake due to its open connection to Honey Creek. Trout stocking in Shannahan Valley Creek has been limited to a single stocking of small fingerling brown trout above White Mound Lake in 2013, in a segment that seemed suitable for trout but where trout were not found previously.

Sugar Grove Valley Creek (WBIC 1257200) originates in west central Sauk County and flows southeast, then east for approximately 5.3 miles before flowing through the Village of Plain and joining Honey Creek just east of town. The stream was unclassified prior to the 2023 survey, had no stocking history and had not previously been surveyed.

An unnamed tributary to Honey Creek (WBIC 1257600) originates approximately 4 miles north of the Village of Plain and flows southwest for approximately 2 miles, paralleling Leland Road, before joining Honey Creek just upstream of its crossing of Leland Road. In its lower reaches, the stream is intersected by several straight-line ditches that drain the crop fields in the floodplain along Honey Creek. The stream was not classified prior to the 2023 evaluation and had no prior history of stocking or surveys.

An unnamed tributary to Honey Creek (WBIC 1257100) originates approximately 5.4 miles northwest of the Village of Plain and flows southeast, then south for almost 7 miles before joining Honey Creek just east of Plain. Downstream of its final crossing of County Road N, most of the stream has been straightened and channelized and is joined by several straight-line ditches that drain crop fields in the lowlands along Honey Creek. In its upper reaches, there is a large PL-566 dam known as the Highway N Dam, which is owned by Sauk County. It functions as a dry dam (unlike the White Mound Dam), only impounding water during significant rain/runoff events. At all other times, it passes 100% of the base flow. The dam's outlet pipe is perched, making it an impassible barrier to the upstream movement of fish. The stream was unclassified prior to the 2023 evaluation and had no stocking history. One prior survey record was found from 2003 at the upper crossing of Highway N, however the stream name was incorrectly recorded as Sugar Grove Valley Creek. The prior survey did not find trout but did find a high abundance of mottled sculpins, a coldwater indicator species.

An unnamed tributary to North Branch Honey Creek (WBIC 1256700), also known as Borns Hollow Creek, originates approximately 5 miles north of the community of Leland and flows south by southeast for nearly 5 miles before joining North Branch Honey Creek between Alder Drive and County Road PF. The stream flows through Honey Creek State Natural Area (SNA) for about two-thirds of its length. Honey Creek SNA is owned by the Wisconsin Society for Ornithology (WSO) and the Nature Conservancy. The stream was not classified prior to the 2023 evaluation; however, the stream was stocked with small fingerling brown trout annually from 2005-2012. Prior to the 2023 evaluation, DNR Water Quality staff surveyed the stream in 2022 and found a moderate abundance of brown trout upstream of Skyview Road.

An unnamed tributary to North Branch Honey Creek (WBIC 1256600) originates approximately 4 miles northeast of the community of Leland and flows southeast, then south for about 4.5 miles before joining North Branch Honey Creek just upstream of the Leland Millpond. The stream flows through an area known as Hemlock Draw, and in its upper (intermittent) reaches the stream flows through Hemlock Draw SNA owned by the Nature Conservancy. The stream was not classified prior to the 2023 evaluation and had no prior trout stocking history. DNR Water Quality staff surveyed the stream at two locations (Hemlock Road and Reich Road) in 2022 and found only a single brown trout. Mottled sculpins were found at the

upstream sampling location in 2022; however, the lower site yielded 10 species, did not include sculpins and included high numbers of tolerant species.

Wilson Creek (WBIC 1247500) originates approximately 5 miles northeast of the Village of Spring Green and flows south, then southeast before crossing State Road 60 and turning southwest before joining the Wisconsin River near an area known as Blue Hole. Downstream of State Road 60, Wilson Creek flows through several tracts of the Lower Wisconsin State Riverway. Wilson Creek has no named tributaries but does take in several small unnamed creeks that drain the north-south running valleys to the north of the Wilson Creek corridor. All tributary streams are mapped as intermittent. Prior to the 2023 evaluation, Wilson Creek was not classified. Trout stocking was limited to fingerling brook trout from 1977-1979, 2006-2010 and 2015. Surplus broodstock brook trout were also stocked in 2017 and 2020. Previous surveys occurred in 2003, 2008 and 2019-2022. Brook trout were found in every survey except 2003.

An unnamed tributary to Wilson Creek (WBIC 5033722) originates in southcentral Sauk County and flows south for approximately 2.7 miles before joining Wilson Creek between Butternut Road and Raymer Drive. The stream is mapped as intermittent for its entire length but appears to be perennial in its lower reaches based on field observations from 2020-2023. The stream was unclassified prior to the 2023 evaluation, had no trout stocking history and had not been surveyed prior to trout potential surveys at one location annually beginning in 2020.

All classified trout streams in the group evaluated in 2023 followed the base regulation for Sauk County, which was an 8-inch minimum length limit and three fish daily bag limit for brook, brown and rainbow trout. Current trout stream classifications and 2023 sampling locations can be found in Figure 1, while current regulations and public lands and fishing access opportunities are displayed in Figures 2 and 3.

Methods

SURVEY EFFORT

Summer stream electrofishing sampling at 6-year rotational sites and trout potential sites in 2023 spanned from June 12 through Aug. 2, and the sampling locations, site metrics and gear used are described in Tables 5-8. Surveys were completed to assess current trout populations and inform trout classifications (if it's correct or if reclassification is needed) and future management (stocking, regulations, habitat, land acquisition) of the streams. Three sites on Honey Creek and one site on Shannahan Valley Creek are surveyed every year (trend), and an additional three sites on Honey Creek, one site on Shannahan Valley Creek, and four sites on North Branch Honey Creek are surveyed every six years (rotational). Three sites on Wilson Creek and one site, an unnamed tributary to Wilson Creek, have been surveyed

annually since 2019 or 2020 (site dependent) to assess trout potential. An additional 12 sites on seven streams in the Honey Creek drainage were surveyed in 2023 to determine if the streams should be reclassified as trout water (trout potential). The timing of sampling attempted to match the dates of surveys in previous years as closely as possible. Of the 31 stream sites sampled, 18 were surveyed with a backpack electrofishing unit, 12 were sampled with a tow-barge utilizing two anodes, and one site was sampled with a tow barge utilizing a single anode.

Electrofishing surveys followed standard DNR protocols for cold water wadable streams (FM Handbook Chapter 510; Simonson 2015). All fish were collected at trend sites where gamefish, exotic species and threatened/endangered species were measured to total length. Only the first 200 fish of a given species were measured if large numbers of gamefish were encountered. Young-of-year (YOY) were counted, and a subsample of 50 fish were measured. Individuals of other fish species were counted to calculate the index of biotic integrity (IBI) score.

Water quality and habitat metrics were also collected at each survey site. Streamflow was calculated at one transect at each site using a Hach FH950.1 handheld flow meter and is reported in cubic feet per second (cfs). Dissolved oxygen was measured using a handheld YSI Pro 2030 meter. Stream temperature, specific conductivity, pH, total dissolved solids and salinity were measured during surveys using an Oakton PCS Testr 35 handheld multi-parameter meter. Stream habitat metrics were collected using a qualitative habitat rating form. For streams less than 10 m wide, ratings included riparian buffer width, bank erosion, pool area, width: depth ratio, riffle: riffle or bend: bend ratio, fine sediments and cover for fish. All stream sites sampled in 2023 were <10 m in width. Continuous temperature monitoring occurred during the summer of 2023 at four locations on North Branch Honey Creek, one location on Shannahan Valley Creek and four locations on Honey Creek. Stream temperature was recorded every 30 minutes throughout the summer (and year-round at trend sites) using a HOBO Water Temp Pro v2 temperature logger, and data were downloaded from the loggers on Dec. 7, 2023. The mean July stream temperature was then calculated for each location, and data are presented in Table 9.

POPULATION ASSESSMENT

Per Chapter 1 of the Wisconsin Administrative Code, specifically NR 1.02(7)(b), Wisconsin trout streams can be classified into one of three groups. A Class 1 stream (or portion thereof) contains trout spawning habitat and naturally produced fry, fingerling and yearlings in sufficient numbers to utilize the habitat, or the stream contains trout with two or more age groups, above the age of one year, and natural reproduction and survival of wild fish in sufficient numbers to utilize the available trout habitat and to sustain the fishery without stocking. A Class 2 stream (or portion thereof) contains a population of trout made up of one or more age groups, above the age of one year, in sufficient numbers to indicate substantial survival from one year to the next and may or may not have natural reproduction of trout occurring;

however, stocking is necessary to fully utilize the available trout habitat or to sustain the fishery. A Class 3 stream (or portion thereof) requires annual stocking of trout to provide significant harvest and does not provide habitat suitable for the survival of trout throughout the year or for natural reproduction of trout.

To appropriately classify a trout stream or a portion of one into one of these three classes, managers must conduct field surveys to assess the overall population age structure to determine which classification criteria are being met and to identify impediments to meeting these criteria. Survey results may also indicate that a change in classification is warranted. The two most vital components to assess are natural reproduction and natural recruitment, and these must occur in the absence of stocking to clearly account for naturally produced fish. Natural reproduction is indicated by the presence of age-0 fish, also called YOY, in a non-stocked year. Natural recruitment is indicated by the presence of yearling fish in the year following a non-stocked year; these are fish that were naturally produced and survived for one year. No stocking of fingerling trout occurred in the Honey Creek and Wilson Creek management group in 2022 or prior to fishery surveys in 2023 to allow for evaluation of natural reproduction and recruitment in 2023.

The YOY trout catch rates in 2023 were thus indices of natural reproduction, while the age-1 catch rates in 2023 served as indices of natural recruitment to the fisheries of the respective streams. For streams with regular fingerling stocking quotas, adult fish sampled in 2023 were fish ≥ 2 years of age that were the product of either natural reproduction or stocking that occurred in 2021 or earlier.

Trout catch-per-unit effort (CPUE, fish/mile) was calculated for each trout species based on the number of fish collected and the length of the stream station sampled. The CPUE will be referred to in the narrative as the catch rate and in tables and figures as CPUE. This allowed for comparisons of catch rates both within and among streams. Total catch rate, as well as size-specific catch rates, were calculated for YOY (< 4.0 inches), yearlings (4.0-7.9 inches for brown trout and 4.0-6.9 inches for brook trout) and adults (age $\geq$ two years; ≥ 7 inches for brook trout and ≥ 8 inches for brown trout). Preferred-length trout were brook trout ≥ 10 inches and brown trout ≥ 12 inches. North Branch Honey Creek data were reported from two different distinct segments, above and below Leland Millpond. This was done to illustrate differences between the upper classified reach of North Branch Honey Creek and the lower reach, which did not previously support trout. The lower reach was fully connected to the upper reach while the Leland Pond was fully drawn down, and the stream was free-flowing from fall 2018 through December 2021 when dam repairs were completed, giving brown trout from further upstream the opportunity to colonize areas below the dam they did not previously have free and open passage to.

Percentile values for size-specific trout catch rates referenced in the narrative, tables and figures in this paper were generated from summaries of DNR fishery surveys of Class 1 trout streams in the Driftless Area and Western Corn Belt Plains Ecoregion of

Wisconsin (referred to as Driftless Area) as well as statewide from 2012-2021 where at least one trout was collected in the survey (surveys where the catch was zero were excluded). For reference, the Level III Ecoregions of Wisconsin, including the Driftless Area, are shown in Figure 4. Please refer to Tables 10 and 11 for reference values for the 10th, 25th, 35th, 50th (median), 65th, 75th and 90th percentiles for catch rates for various size classes of brown trout and brook trout from surveys of Class 1 streams in the Driftless Area and statewide from 2012-2021. Catch rate values that fell below the 35th percentile indicated low trout abundance, those between the 35th and 65th percentiles indicated moderate abundance, and values above the 65th percentile indicated high abundance.

Results

In total, 31 stream sites were sampled on 10 streams within the Honey Creek and Wilson Creek management group in 2023. Data are presented for both individual stream sites as well as whole streams (average CPUE for all sites on a given stream) for regional and statewide comparisons. Unnamed streams sampled in 2023 are referred to by their Waterbody Identification Code (WBIC). Only brown trout were found in Honey Creek and its tributaries. Only brook trout were found in Wilson Creek and its unnamed tributary (WBIC 5033722). No trout of either species were found in Sugar Grove Valley Creek and one of the unnamed tributaries to North Branch Honey Creek (WBIC 1256600).

BROWN TROUT

Brown trout were found in six of the eight streams and at 21 of 27 sampling locations in Honey Creek and its tributaries. Please refer to Tables 12 and 13 and Figure 5 for mean brown trout catch rates for all size classes for each stream. Honey Creek had the highest mean total brown trout catch rate of all streams in the group. On a regional and statewide scale, total brown trout abundance was low to moderate across the Honey Creek portion of the management group, placing below median catch rate values in every stream except Honey Creek. YOY brown trout were found in all streams that contained brown trout, and abundance in those streams ranged from low to moderate, except in Honey Creek, where abundance was high. Mean YOY brown trout catch rates for each stream are presented in Figure 6.

Yearling brown trout were found in six of seven streams that contained brown trout, and abundance was low in every stream except for Honey Creek, where abundance was moderate. Mean yearling brown trout catch rates for all streams are presented in Figure 7. Adult brown trout were found in six of seven streams that contained brown trout, and adult abundance was low in every stream except for Honey Creek, where abundance was moderate (Figure 8). Preferred-length brown trout were found in four of seven streams that contained brown trout, and abundance was highest in North Branch Honey Creek downstream of Leland Millpond. Abundance of preferred-length

fish in the four streams where they were found ranged from low to moderate (Figure 9).

BROOK TROUT

Brook trout were found in both streams sampled in the Wilson Creek portion of the management group in 2023, including at all four sampling locations. Please refer to Table 14 and Figure 10 for brook trout catch rates for all size classes from all sampling locations, as well as averages for each stream. Wilson Creek had the highest mean total brook trout catch rate, followed by unnamed stream 5033722. On a regional and statewide scale, total brook trout abundance was moderate to high in Wilson Creek and low in unnamed stream 5033722. YOY brook trout were found in Wilson Creek (moderate abundance) and the unnamed tributary (low abundance). Mean YOY brook trout catch rates are presented in Figure 11.

Yearling brook trout (Age 1; 4.0-6.9 inches) were only found in Wilson Creek where abundance was considered moderate (Driftless Area) or low (statewide). Mean yearling brook trout catch rates are presented in Figure 12. Adult brook trout (≥ 7 inches) were only found in Wilson Creek, where abundance was considered high in both regional and statewide comparisons. Mean adult brook trout catch rates are presented in Figure 13. Preferred-length brook trout (≥ 10 inches) were only found in Wilson Creek, where abundance was considered high in both regional and statewide comparisons. Mean preferred length brook trout catch rates are presented in Figure 14.

Discussion

HONEY CREEK

Sampling in 2023 found the highest total abundance of brown trout in Honey Creek out of seven streams or stream segments in the Honey Creek and Wilson Creek management group where brown trout were found. This was true for all size classes of brown trout, except for preferred-length fish. Brown trout were found at eight of nine sampling locations on Honey Creek, and total brown trout catch rates at four out of nine locations were above median values for the Driftless Area and statewide. Catch rates at an additional four of nine sampling locations were low to moderate, while the catch rate at the furthest downstream sampling location was zero. Brown trout abundance in Honey Creek was the highest in the middle portion of the stream, from its crossing of State Road 23 downstream to Willow Road. Brown trout were present at low abundance upstream of Highway 23 and downstream of Willow Road all the way to Mill Road. No trout were found downstream of Mill Road.

In regional and statewide comparisons, the mean YOY brown trout abundance in Honey Creek averaged across all sample locations was high, yearling abundance was moderate, and abundances of adult and preferred length fish were low to moderate. When looking at only the four sites in the middle of the current Class 2 segment (sites

14-17), mean total brown trout abundance was high (1,517.6 fish/mile), as were abundances of YOY (725.5 fish/mile) and yearling fish (437.1 fish/mile). Abundances of adult (354.9 fish/mile) and preferred-length fish (74.5 fish/mile) were moderate to high. The best part of Honey Creek produces as many brown trout as the best Class 1 streams in Columbia and Sauk Counties (Rowan Creek, Bear Creek, South Branch Duck Creek).

Trout have not been stocked in Honey Creek since 2019, but long-term trend monitoring at Valley View Road and Hickory Road since 2007 and at Leland Road since 2016 indicated natural reproduction and recruitment of brown trout have been the highest in the years after stocking ceased (2021-2023). A sharp drop in trout abundance at Leland Road in 2022 may have been caused by an unconfirmed manure release at a nearby farm during a heavy rain event a few weeks before the 2022 survey occurred. By 2023, trout abundance at Leland Road was rebounding. Catch rate data from the three trend sampling locations are presented in Figures 15-17.

Prior to the 2023 evaluation, Honey Creek was classified as Class 2 trout water from County Road GG downstream to Willow Road. Data collected in 2023 indicated that this segment meets the definition of a Class 1 trout stream, and it should be reclassified from Class 2 to Class 1. Data collected from sites 12 and 13 upstream of the current Class 2 segment found YOY, yearling and adult trout, and based on the small size of that part of the stream (narrow width, limited flow volume), it appears that the trout are fully utilizing the available habitat. This meets the definition of a Class 1 trout stream, and Honey Creek should be reclassified from unclassified to Class 1 for approximately 2 miles from the confluence with unnamed stream 5032022 downstream to County Road GG. Stream temperatures upstream of the confluence with Shannahan Valley Creek are consistent with other Class 1 streams in the area; the mean July stream temperature at State Road 23 was 58.2 °F. However, the small size of the stream (1 cfs or less) upstream of Highway GG will be the greatest limiting factor for trout abundance there.

Additionally, sampling just upstream of Mill Road, the next road crossing downstream of Willow Road, found YOY, yearling and adult brown trout, although at low abundance, indicating trout were not able to fully utilize the available habitat (the stream is fairly large at this location). This meets the definition of a Class 2 trout stream, and Honey Creek should be reclassified from unclassified to Class 2 for approximately 1.5 miles from Willow Road downstream to Mill Road.

Currently, the DNR owns sizable streambank easements along Honey Creek on both sides of Valley View Road, both sides of Hickory Road and upstream of Leland Road. Habitat improvement projects along the existing easements between 2004 and 2010 have greatly improved the abundance and size of brown trout in those areas. Most of Honey Creek is SBE acquisition-eligible upstream of its confluence with Sugar Grove Valley Creek in the Village of Plain, and the stream could benefit from additional easements along the stream anywhere along the eligible segment, but particularly

from State Road 23 downstream to Willow Road. Easement acquisition along that segment would facilitate a larger protected buffer along the stream corridor where it passes through pastures and crop fields. Increased bank protection in this area would help limit sediment delivery to the stream during rain and runoff events and would give the DNR the ability to engage in trout habitat improvement activities along the banks and in the stream while also providing angler access. Stream improvements could include re-meandering segments that were previously straightened and channelized.

UNNAMED TRIBUTARY TO NORTH BRANCH HONEY CREEK 1256700

Sampling in 2023 found the second-highest total abundance of brown trout in unnamed stream 1256700 out of seven streams or stream segments in the Honey Creek and Wilson Creek management group where brown trout were found. The stream had the second-highest abundance of YOY and yearling brown trout in the group and the third-highest abundance of adult and preferred-length fish. Mean total brown trout abundance in unnamed stream 1256700 was low to moderate based on regional and statewide comparisons. When broken down by size classes, abundance of YOY brown trout was moderate, and yearling, adult and preferred-length abundances were low in regional and statewide comparisons.

DNR Water Quality staff surveyed unnamed stream 1256700 in 2022, providing an additional year of trout data. In 2022, brown trout abundance was nearly twice what it was in 2023. The 2022 catch was made up of mostly YOY (490 YOY/mile, moderate abundance) and yearling fish (112 yearlings/mile, low abundance). Adult (28 fish/mile) were also collected, but no preferred length fish were found in 2022. Unnamed stream 1256700 was unclassified at the time of this evaluation and had no prior history of stocking. Despite this, the stream showed the ability to naturally produce and recruit trout, performing favorably in regional and statewide comparisons of YOY abundances and producing an adult abundance higher than the minimum fishable population size of 50 adults/mile. The stream is relatively small, which probably limits its ability to produce large numbers of adult trout. However, trout that are produced and recruit in unnamed stream 1256700 may leave for North Branch Honey Creek, which is a larger stream with better habitat for adult trout. Additionally, drought conditions in 2022 and 2023 likely reduced flow in the stream below normal levels (the stream was noticeably shrunken within its typical channel), which probably limited the trout holding capacity of the stream during the evaluation compared to times of higher base flow. Because unnamed stream 1256700 is producing YOY, yearling and adult trout in sufficient numbers to utilize the available habitat, it is recommended that the stream be reclassified from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 5032114 downstream to its confluence with North Branch Honey Creek.

Most of the length of unnamed stream 1256700 and its forested catchment are under public ownership through Honey Creek SNA, and no further land acquisition efforts

are needed along the stream. Negative impacts from poor land use within the catchment of this stream are limited, although some degraded habitat was observed in an old pasture field just upstream of Skyview Road. The Wisconsin Society of Ornithology is the primary landowner for the SNA and should be approached about the possibility of engaging in trout habitat improvement work on the stream in that area.

NORTH BRANCH HONEY CREEK

North Branch Honey Creek (the classified portion upstream of Leland Millpond) had the third-highest mean total abundance of brown trout out of seven streams or stream segments in the management group where brown trout were found. North Branch Honey Creek ranked fourth in abundance in every size class. Mean total brown trout abundance in North Branch Honey Creek was low in regional and statewide comparisons. When looking at size-specific catch rates, abundance of YOY brown trout was moderate, while abundances of yearling, adult and preferred-length brown trout were low regionally and statewide. Trout abundance in North Branch Honey Creek was lower in 2023 than in 2017, and this was probably due at least in part to reduced streamflow, which in 2023 was only slightly more than half of the flow volume observed in 2017. Also, significant sediment bars had accumulated in some areas of North Branch Honey Creek, and many were heavily vegetated. This likely occurred due to a relative lack of significant rain/runoff events in recent times. With no high flows to create scour to flush away sediment, the bars accumulated in the stream and grew vegetation, reaching the surface in many areas and limiting space for trout to live in. This probably also contributed to lower brown trout abundance in 2023.

Additionally, part of the unclassified segment of North Branch Honey Creek downstream of Leland Millpond was surveyed by DNR water quality staff at two locations in 2022 (part of targeted watershed assessment) and DNR Fisheries staff in 2023. Brown trout were found at both locations in both years, with mean total trout abundance in 2023 ranking sixth out of seven streams or stream segments where brown trout were found. Total abundance was low in regional and statewide comparisons. When looking at size-specific catch rates, abundances of YOY, yearling and adult brown trout were low, while abundance of preferred-length fish was moderate. Damage to the Leland Millpond Dam from late summer flooding in 2018 necessitated a complete drawdown of the pond and caused the dam to be left open to pass all incoming flow until repairs to the dam were completed in early 2022. During that time, the stream was free-flowing, allowing the coldwater conditions found upstream of the pond to be extended to areas further downstream of the dam. The trout found downstream of the dam in 2022 and 2023 were probably a result of the free-flowing conditions in the stream from 2018-2022. Most of the trout found in 2022 and 2023 were adult fish, with minimal evidence of natural reproduction and recruitment.

As of 2022, North Branch Honey Creek was a Class 2 trout stream from its headwater downstream to its confluence with unnamed stream 1256600, and the stream was stocked with fingerling brown trout annually prior to being discontinued for the 2023 evaluation. Brown trout natural reproduction observed in 2023 was moderate, but recruitment was low in regional and statewide comparisons of Class 1 streams. Adult brown trout observed in 2023 would have been produced during years when the stream was stocked, and adult abundance in 2023 is, to some degree, reflective of stocking success. The mean adult brown trout catch rate in 2023 was slightly above the minimum fishable population size of 50 adults/mile for a stocked trout fishery. However, the limited natural recruitment of brown trout in North Branch Honey Creek will not be enough to sustain a fishable population of brown trout without additional stocking. The current Class 2 designation for most of the upper part of North Branch Honey Creek is correct and should remain unchanged. One exception is the segment upstream of the lower crossing of Skyview Road in SE $\frac{1}{4}$ SW $\frac{1}{4}$, Sec 26, T10N, R4E. Trout surveys occurred in that segment in 2011, 2017, 2022 and 2023, and to date, zero trout have been found. Flow rates are consistently low (0.35 cfs or less), and habitat for fish is limited and degraded. Temperatures are consistently cold, and mottled sculpins are occasionally found; however, catches are dominated by species tolerant of low dissolved oxygen or disturbed conditions, such as brook sticklebacks and creek chubs. Resultant coldwater fish IBI scores are consistently poor. All indications are that this segment of North Branch Honey Creek is not suitable for trout. It is recommended that North Branch Honey Creek be reclassified from Class 2 to unclassified for approximately 2.7 miles from the headwater downstream to the lower crossing of Skyview Road. No changes are recommended for the remainder of the current Class 2 segment.

Brown trout were found in North Branch Honey Creek downstream of the Leland Millpond Dam, including YOY, yearling and adult fish. However, natural reproduction and recruitment levels were very low, and the trout population found below Leland Millpond in 2023 was likely the result of the dam being open for several years and trout moving down to areas below the pond from further upstream. Now that the dam has been rebuilt and the pond restored, trout will not be able to move as freely in the stream, and water temperatures in the stream below the pond will be warmer, reducing the suitability of that part of the stream for trout. Temperature monitoring in summer 2023 found a mean July stream temperature of 67.1°F at the County Road PF bridge downstream of Leland and 67.8°F at Elm Road, a few miles further downstream. Maximum July temperatures were 73.9°F at County Road PF and 75.2°F at Elm Road. Both the July means and maximums were slightly cooler than what was recorded in Shannahan Valley Creek, another thermally marginal stream in the watershed that supports trout. Temperature data and the presence of trout below Leland Millpond nearly two years after the dam was repaired indicate that North Branch Honey Creek can support a trout population for some distance below the pond. It is recommended that the stream be reclassified from unclassified to Class 2 for approximately 4.8 miles from the outlet of Leland Millpond downstream to Elm Road. Fingerling brown trout should be stocked in this segment through at least the

next evaluation in 2029 to determine if a fishable population of trout can be maintained through stocking.

Upstream of Leland Millpond, North Branch Honey Creek is one of the coldest streams in the management group. Temperature monitoring at Alder Drive and County Road PF (upper crossing) found mean July stream temperatures of 58.9 °F and 61.6 °F, respectively. Maximum July temperatures were 67.2°F and 68.5 °F, respectively. A stream that runs in the upper 50s to low 60s and never exceeds 70°F during the hottest part of the summer is one where temperature is not the limiting factor for trout. Habitat quality is the limiting factor, with numerous areas of steep, eroded stream banks, a wide shallow channel with little to no structure or cover for trout, and excessive sediment deposits all hampering North Branch Honey Creek in its upper reaches. The stream could benefit greatly from intensive trout habitat improvement projects along its length. North Branch Honey Creek is not currently SBE acquisition-eligible, and it is recommended that it be added to the eligible list to facilitate acquisition for the purpose of habitat improvement and angler access. Easement acquisition should be pursued anywhere the stream is not currently under some form of public ownership (Honey Creek SNA).

UNNAMED TRIBUTARY TO HONEY CREEK (1257100)

Unnamed stream 1257100 had the fourth-highest mean total abundance of brown trout out of seven streams or stream segments in the management group where brown trout were found. The stream had the third-highest abundance of YOY brown trout in the group, the fifth-highest abundance of yearlings and the sixth-highest abundance of adults. No preferred-length brown trout were collected. Mean total brown trout abundance in unnamed stream 1257100 was low in regional and statewide comparisons. When broken down by size classes, the abundance of YOY brown trout was moderate, and yearling, adult and preferred-length abundances were low.

No trout were collected at the sampling location upstream of the dry dam structure owned by Sauk County. Likewise, no trout were collected at the sampling location downstream of Highway 23 where the stream had been straightened and channelized. Most trout were collected at the site just downstream of the dry dam, and the catch at that location was predominantly YOY fish. The stream was relatively small in its upper reaches, and habitat for larger trout was limited. Flow volume nearly doubled through the middle portion of the stream. However, trout abundance declined quickly at successive downstream sampling locations, as did habitat quality. Few adult trout were collected from the stream. However a large, deep plunge pool immediately below the dry dam provided the most significant overhead cover of any pool in the stream and likely would hold several adult trout. This pool was not part of any sampling station. Cattle grazing is common along the stream in its middle section, and overgrazing may occur in some places. Damage to the stream banks by

cattle was evident in several spots and contributed to the habitat degradation that limited trout abundance in the middle and lower reaches of the stream.

The stream was unclassified prior to the 2023 evaluation, which found YOY, yearling and adult brown trout despite no prior history of stocking in the stream. Mottled sculpins were the most common species found at the three sampling locations where trout were found, indicating the stream is consistently cold. The stream compared favorably with Class 1 streams regionally and statewide in terms of YOY trout abundance, but habitat limitations (small stream) in its upper reaches and habitat degradation (steep eroded banks, widening and loss of depth) along the middle part of the stream is limiting its performance in terms of recruitment and adult abundance. The stream should be reclassified from unclassified to Class 2 for approximately 2.7 miles from the outlet of the county dry dam downstream to State Road 23. The stream could benefit significantly from habitat improvements along the banks and in the stream. None of the land along the stream is currently under public ownership, and the stream is not eligible for easement acquisition under the SBE Program. It is recommended that this stream be added to the list of SBE-eligible streams. Once eligible, attempts should be made to acquire easements along the stream to facilitate trout habitat improvement projects and increased access for anglers.

SHANNAHAN VALLEY CREEK

Shannahan Valley Creek had the fifth-highest mean total abundance of brown trout out of seven streams or stream segments in the management group where brown trout were found. The stream had the sixth-highest abundance of YOY brown trout in the group, the third-highest abundance of yearlings and the fifth-highest abundance of adults. No preferred-length brown trout were collected. Mean total brown trout abundance in Shannahan Valley Creek was low in regional and statewide comparisons. When looking at size class specific catch rates, the abundance of YOY brown trout was low regionally and moderate statewide. Abundances of yearlings and adults were low regionally and statewide.

Prior to the 2023 evaluation, Shannahan Valley Creek was unclassified, and its stocking history was limited to one stocking of 294 small fingerling brown trout upstream of White Mound Lake in 2013. The fishery of the stream was monitored annually upstream of White Mound Lake at one location (Prouty Road) from 2007-2016 and again in 2023. Flow rates during DNR surveys from 2009-2016 (no data collected in 2007, 2008 data excluded due to being an extreme high-water year) and 2023 ranged from 0.46 to 2.79 cfs, averaging 1.23 cfs. Continuous temperature monitoring in the summer of 2015 found a mean July temperature of 64.2 °F. Brown trout were found in surveys in 2014 and 2023, indicating that trout have persisted since the 2013 stocking, and the 2023 survey provided current evidence of natural reproduction and recruitment. Although the stream is small and somewhat marginal upstream of White Mound Lake (coldwater fish IBI scores are consistently poor), it

has supported a small population of brown trout in that segment without the aid of stocking for the last 10 years.

Below the outlet of White Mound Lake, Shannahan Valley Creek has no history of stocking and has been monitored annually at one location (upstream of County Road GG) since 2007, except for 2020. During that time, brown trout CPUE has averaged 359.6 fish/mile, with the YOY fish making up the bulk of the catch in most years (Figure 18). After excluding four years of markedly higher YOY CPUE (2007, 2010, 2012 and 2021), the mean total brown trout catch rate averaged 178.2 fish/mile, which is low in regional and statewide comparisons. When broken down by size class (high YOY years excluded), the mean YOY catch rate was 66.1 fish/mile (low-moderate), the mean yearling catch rate was 60.1 fish/mile (low), and the mean adult catch rate was 52.1 fish/mile (low). Flow rates measured during DNR surveys from 2009-2023 averaged 4.3 cfs, so the stream carries a fair volume of water. However, the stream is thermally marginal, averaging 67.7 °F in July 2022 and 67.9 °F in July 2023 with coldwater fish IBI scores that are generally poor or very poor due to the high abundance of tolerant species found there relative to coldwater and intolerant species. Despite being thermally marginal, this lower segment of Shannahan Valley Creek has shown consistent natural reproduction and recruitment of brown trout and has maintained an average adult abundance above the minimum fishable population size of 50 fish/mile without any stocking. Based on the flow volume in the lower segment and the trout abundances found in connected streams that are colder, Shannahan Valley Creek would likely support a much larger trout population if it was a few degrees cooler on average. Shannahan Valley Creek also has a notable warming effect on Honey Creek. The average July temperature of Honey Creek at Valley View Road, just below the confluence of Shannahan Valley Creek and Honey Creek, was 4.7 °F warmer than it was immediately above the confluence in 2022 and 6.3 °F warmer in 2023 (Table 15).

Shannahan Valley Creek meets the definition of a Class 2 trout stream both upstream and downstream of White Mound Lake. However, the stream falls short of Class 1 status because thermal impairments limit the number of trout occupying the available habitat. Shannahan Valley Creek should be reclassified from unclassified to Class 2 for approximately 2 miles from its confluence with unnamed stream 5031953 downstream to White Mound Lake and then approximately 1.2 miles from the outlet of White Mound Lake downstream to its confluence with Honey Creek.

Currently, portions of Shannahan Valley Creek have public access through White Mound County Park (immediately above and below White Mound Lake) as well as a DNR SBE for approximately 0.1 miles from State Road 23 downstream to the confluence with Honey Creek. Shannahan Valley Creek is SBE-acquisition eligible, and the stream could benefit from additional easements along the stream from County Road GG downstream to State Road 23. Easement acquisition along that segment would facilitate a larger protected buffer along the stream corridor where it passes through a large crop field. Increased bank protection in this area would help limit

sediment delivery to the stream during rain and runoff events and give the DNR the ability to engage in trout habitat improvement activities along the banks and in the stream while also providing angler access.

UNNAMED TRIBUTARY TO HONEY CREEK (WBIC 1257600)

Unnamed stream 1257600 had the seventh-highest mean total abundance of brown trout out of seven streams or stream segments in the management group where brown trout were found. Only YOY brown trout were collected, representing the fourth-highest YOY catch rate in the group. The YOY catch rate ranked low regionally and moderate statewide. This stream is very small and is essentially a straight ditch that is the downstream-most segment that is part of a larger network of ditches dug to drain the lowland fields that lie east of Honey Creek. The ditch carries a small amount of cold base flow (0.7 cfs measured during the survey). This cold base flow allows the stream to hold a few YOY brown trout, but the relative lack of in-stream habitat and minimal amount of flow limit the stream's ability to support a viable trout population composed of all age groups. This stream doesn't fully meet the definition of a classified trout stream and, as such, should remain unclassified. Its highest value is its contribution of cold flow to Honey Creek just upstream of Leland Road. This stream is SBE-acquisition eligible and the DNR owns an easement along the banks of the lowermost 0.1 mile of the stream. Additional easement acquisition on this stream is a lower priority simply due to the small size of the stream, its limited potential as a fishery, and the limited benefits to habitat improvement and angler access that additional easements would provide.

SUGAR GROVE VALLEY CREEK

Trout were not found in Sugar Grove Valley Creek. The stream appears to be thermally suitable for trout based on flow volumes and stream temperatures recorded during surveys and the presence of mottled sculpins at the lower sampling location. Several small, cold tributary streams feed Sugar Grove Valley Creek. The stream is a tributary to Class 2 Honey Creek, so there is a source of trout nearby. However, nearly the entire stream flows through heavily grazed open pastures or row crop fields with little to no riparian buffer, and several segments have been straightened. The amount of quality trout habitat in the stream is extremely limited, and a thick layer of soft sediment covers the stream bottom in its lower reaches. Despite being cold, the stream does not support a trout population on any level and should remain unclassified. Locations sampled in 2023 should be sampled again in 2029 to monitor for any changes in the fish community of the stream. Sites that were investigated but not surveyed on unnamed tributaries 1257400 and 1257500 should be visited again in 2029 to record stream width, water temperature, dissolved oxygen and flow volume to document contributions from these streams to Sugar Grove Valley Creek over time. Deployment of continuous temperature loggers for a summer season is recommended to provide further insight into the thermal regime of the

stream to help shed light on why the stream doesn't support trout when other similar tributaries to Honey Creek do support trout.

UNNAMED TRIBUTARY TO NORTH BRANCH HONEY CREEK 1256600

Trout were not found in unnamed stream 1256600 in 2023. The stream appears to be thermally suitable for trout based on the presence of mottled sculpins in both 2022 and 2023 and the presence of a single trout in a survey in 2022. However, the stream is fairly small with limited flow (0.7 cfs during the 2023 survey), and the habitat is degraded with numerous areas of vertical, eroded banks and an abundance of wide, shallow habitats, extensive areas of soft sediment, and limited in-stream cover for fish. Trout may occasionally stray into this stream from North Branch Honey Creek, but the stream isn't suitable for supporting a self-sustaining trout population. The stream is not classified trout water, and no change is recommended. The stream has limited potential due to its small size, and easement acquisition is not a priority for this stream.

WILSON CREEK

Wilson Creek was stocked with fingerling brook trout for a few years in the late 1970s, but a survey in 2003 found no brook trout. However, conditions appeared to be favorable for trout and fingerling stocking began again in 2006. A 2008 survey found brook trout present in moderate abundance, with YOY, yearling and adult trout all present. Fingerling stocking continued annually through 2010 and occurred again in 2015. Since 2015, stocking has been limited to surplus adult broodstock in 2017 (29 fish) and 2020 (50 fish). In 2023, Wilson Creek was one of only two streams in the management group where brook trout were found in 2023. Wilson Creek had the highest total mean brook trout abundance in the group, as well as the highest abundance for all size classes. When broken down by size classes, YOY abundance was moderate, yearling abundance was low, and adult and preferred-length abundances were high in regional and statewide comparisons.

Surveys have occurred annually at two or more locations on Wilson Creek since 2019, with annual mean catch rate data presented in Figure 19. The stream consistently holds moderate to high abundances of brook trout, with moderate to high abundances of YOY, adult and preferred-length fish, but relatively few yearling fish, at least by our definition (4.0-6.9 inches). However, consistent good numbers of YOY and adult fish indicate that fish are being naturally produced, and they are recruiting to adulthood. It stands to reason then, that they are yearlings at some point along the way, but our methods aren't adequately quantifying the yearling component of the fishery. It may be that the brook trout in Wilson Creek grow very quickly and pass through the assigned yearling size window and reach seven inches, or "adult" size, before our surveys can categorize them as yearlings. Brook trout in Wilson Creek are often very fat and robust in appearance and appear to grow faster than brook trout in other area streams, with YOY fish approaching 4 inches already by early July each year. By late August or early September, these fish are approaching 5 inches in

length. In any case, Wilson Creek hasn't been stocked with fingerling trout for eight years, yet the stream holds a self-sustaining brook trout population equal in quality with many of the better brook trout streams in the area. It meets the definition of a Class 1 stream, and it is recommended that Wilson Creek be reclassified from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 1247800 downstream to its crossing of State Road 60, shortly before it enters the Wisconsin River backwaters. Moving forward, fishery surveys should occur at three locations on Wilson Creek (Butternut Road, Raymer Drive, and County Road C) on a 6-year rotational basis, with the next round of surveys being in 2029.

There is currently no public access to Wilson Creek upstream of State Road 60 other than a few bridge crossings, and the stream is not currently SBE acquisition eligible. It is recommended that Wilson Creek be added to the list of SBE-eligible streams. The valley was once home to nearly 30 small dairy farms, none of which still operate as dairies today. Currently, much of the land in the valley is either pastureland for grazing beef cattle or is dedicated to row crop agriculture, and riparian buffers along the stream are limited. The stream banks are steeply eroded in many places, and the channel suffers from a resultant widening and loss of depth (cover for trout). The stream could benefit from easement acquisition along most of its length. Easement acquisition would facilitate a larger protected buffer along the stream corridor where it passes through fields and pastures. Increased bank protection in this area would help to limit bank erosion and sediment delivery to the stream during rain and runoff events and would give the DNR the ability to engage in trout habitat improvement activities along the banks and in the stream while also providing angler access.

UNNAMED TRIBUTARY TO WILSON CREEK (5033722)

Unnamed stream 5033722 was unclassified prior to the 2023 evaluation and had no history of stocking. The 2023 survey found a low abundance of YOY brook trout and no yearling or adult brook trout. The stream was surveyed at one location annually from 2020-2023, and 2020 was the only year where more than a single trout was found (11 YOY and two yearlings). The stream is cold but very small, with flow rates typically < 1 cfs. The stream provides a valuable coldwater contribution to Wilson Creek. However, it does not appear to have sufficient flow or habitat to consistently support more than very low abundance of one or two size classes of brook trout (YOY and yearlings). It should be noted that in the only year when the flow rate measured >1 cfs during the DNR fishery survey (2020; 1.4 cfs), the stream had multiple year classes of trout present. Since 2020, the area has periodically experienced drought conditions and flow rates in many streams are lower as a result, and this stream is no exception.

This stream does not currently meet enough of the criteria to be classified as a trout stream. However, the stream should continue to be monitored on a 6-year rotational basis, with the next survey in 2029. If drought conditions are reversed and the region experiences wet conditions for a period of time, conditions in the stream may

change, and it may support more trout. If that occurs, reclassification can be revisited at that time. The stream is not currently SBE acquisition eligible, and there is no need to add the stream to the eligible list due to the small size and limited potential of the stream.

Management Recommendations

1. Reclassify Honey Creek from Class 2 to Class 1 from County Road GG downstream to Willow Road.
2. Reclassify Honey Creek from unclassified to Class 1 for approximately 2 miles from its confluence with unnamed stream 5032022 downstream to County Road GG.
3. Reclassify Honey Creek from unclassified to Class 2 for approximately 1.5 miles from Willow Road downstream to Mill Road.
4. Reclassify an unnamed tributary to North Branch Honey Creek (WBIC 1256700) from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 5032114 downstream to its confluence with North Branch Honey Creek.
5. Reclassify North Branch Honey Creek from Class 2 to unclassified for approximately 2.7 miles from its headwater downstream to its lower crossing of Skyview Road.
6. Reclassify North Branch Honey Creek from unclassified to Class 2 for approximately 4.8 miles from the outlet of Leland Millpond downstream to Elm Road.
7. Continue stocking large fingerling brown trout in North Branch Honey Creek in the Class 2 segment upstream of Leland Millpond.
8. Stock large fingerling brown trout in North Branch Honey Creek through the time of the next evaluation in 2029 to determine if a fishable population can be maintained through stocking.
9. Add North Branch Honey Creek to the list of SBE-eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.
10. Reclassify unnamed stream 1257100 for approximately 2.7 miles from the outlet of the Sauk County dry dam downstream to State Road 23 from unclassified to Class 2.
11. Add unnamed stream 1257100 to the list of SBE-eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.
12. Reclassify Shannahan Valley Creek from unclassified to Class 2 for approximately 2 miles from its confluence with unnamed stream 5031953 downstream to White Mound Lake and for approximately 1.2 miles from the outlet of White Mound Lake downstream to its confluence with Honey Creek.

13. Reclassify Wilson Creek from unclassified to Class 1 for approximately 2.8 miles from its confluence with unnamed stream 1247800 downstream to its crossing of State Road 60.
14. Add Wilson Creek to the list of SBE-eligible streams and pursue easement acquisition to protect and improve trout habitat and increase public access for anglers.

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Tables

Table 1. Land cover breakdown for the Honey Creek HUC-10 watershed (LW16; Ripp et al. 2002) in the Lower Wisconsin River basin.

LAND COVER		PERCENT OF WATERSHED	
Agriculture		42.8%	
Forest (total)		37.9%	
	<i>Broad-leaf deciduous</i>		36.9%
	<i>Coniferous</i>		1.0%
Grassland		9.8%	
Wetland (total)		6.6%	
	<i>Emergent/Wet meadow</i>		3.4%
	<i>Forested</i>		2.8%
	<i>Lowland Shrub</i>		0.4%
Open Water		1.6%	
Development		1.2%	

Table 2. Land cover breakdown for the Bear Creek HUC-10 watershed (LW14; Ripp et al. 2002) in the Lower Wisconsin River basin.

LAND COVER		PERCENT OF WATERSHED	
Forest (total)		43.4%	
	<i>Broad-leaf deciduous</i>		41.9%
	<i>Coniferous</i>		1.4%
	<i>Mixed Deciduous/Coniferous</i>		0.1%
Agriculture		31.2%	
Wetland (total)		11.4%	
	<i>Forested</i>		7.7%
	<i>Emergent/Wet Meadow</i>		2.3%
	<i>Lowland Shrub</i>		1.4%
Grassland		10.3%	
Open Water		2.2%	
Barren		0.9%	
Development		0.5%	

Table 3. Geographic and legal descriptions of the locations of the headwaters and outlets of streams in the Honey Creek and Wilson Creek trout stream management group evaluated in 2023. All streams are within Sauk County.

STREAM ¹	WBIC	ORIGIN TOWNSHIP	ORIGIN T-R-S	OUTLET TOWNSHIP	OUTLET T-R-S	RECEIVING WATERBODY	LENGTH (MILES)
Honey Creek	1253900	Westfield	11N-4E-32	Prairie du Sac	09N-6E-20	Wisconsin River	33.8
North Branch Honey Creek	1255600	Franklin	10N-4E-5	Troy	09N-5E-3	Honey Creek	15.8
Shannahan Valley Creek	1257900	Washington	11N-3E-25	Franklin	10N-4E-18	Honey Creek	4.8
Sugar Grove Valley Creek	1257200	Bear Creek	10N-3E-34	Franklin	09N-4E-4	Honey Creek	5.3
Unnamed	1257100	Bear Creek	10N-3E-14	Franklin	09N-4E-4	Honey Creek	6.8
Unnamed	1257600	Franklin	10N-4E-21	Franklin	10N-4E-29	Honey Creek	2.0
Unnamed	1256700	Westfield	11N-4E-27	Honey Creek	10N-4E-13	North Branch Honey Creek	4.8
Unnamed	1256600	Honey Creek	10N-5E-5	Honey Creek	10N-4E-13	North Branch Honey Creek	4.6
Wilson Creek	1247500	Franklin	09N-4E-20	Spring Green	08N-4E-3	Wisconsin River	6.6
UNT Wilson Creek	5033722	Troy	09N-4E-23	Spring Green	09N-4E-34	Wilson Creek	2.7

1. UNT=Unnamed Tributary.

Table 4. Active stocking quotas for streams in the Honey Creek and Wilson Creek trout stream management group prior to the 2023 evaluation.

WATERBODY	TROUT CLASS	SPECIES	STRAIN¹	AGE CLASS	NUMBER
North Branch Honey Creek	2	Brown trout	TCSF	Small Fingerling	1,512

1. TCSF = Timber Coulee Southwest Feral

Table 5. Descriptions of trout sampling locations for the Honey Creek part of the Honey Creek and Wilson Creek trout stream management group in 2023.

STREAM ¹	WBIC	TROUT CLASS ²	STREAM ORDER	LOCATION ³	START LATITUDE	START LONGITUDE	END LATITUDE	END LONGITUDE
UNT NBR Honey Creek	1256600	U	3	128m DS Hemlock Rd.	43.35027	-89.95320	43.35099	-89.95260
UNT NBR Honey Creek	1256700	U	3	42m US Skyview Rd.	43.35442	-89.97688	43.35442	-89.97783
NBR Honey Creek	1255600	2	2	112m DS upper Skyview Rd.	43.35896	-90.01257	43.35928	-90.01368
NBR Honey Creek	1255600	2	3	21m US Inland Lane	43.35310	-89.99920	43.35283	-90.00012
NBR Honey Creek	1255600	2	3	125m DS Alder Drive	43.35113	-89.98057	43.35153	-89.98162
NBR Honey Creek	1255600	2	4	308m DS County Rd. PF	43.35161	-89.96551	43.35176	-89.96719
NBR Honey Creek	1255600	U	4	61m US County Rd. PF	43.32996	-89.94985	43.33105	-89.94985
NBR Honey Creek	1255600	U	4	30m US Elm Rd.	43.30068	-89.92285	43.29983	-89.92457
Shannahan Valley Creek	1257900	U	2	14m US Prouty Rd.	43.37280	-90.09370	43.37336	-90.09323
Shannahan Valley Creek	1257900	U	3	39m US County Rd. GG	43.35125	-90.07850	43.35170	-90.07874
Shannahan Valley Creek	1257900	U	3	US State Rd. 23	43.34663	-90.06920	43.34699	-90.07042
Honey Creek	1253900	U	2	15m US Kramer Pit Rd.	43.36563	-90.06592	43.36652	-90.06601
Honey Creek	1253900	U	3	59m US County Rd. GG	43.35154	-90.07046	43.35234	-90.07089
Honey Creek	1253900	2	4	30m US Valley View Rd.	43.33321	-90.06151	43.33393	-90.06187
Honey Creek	1253900	2	4	29m US Hickory Rd.	43.33321	-90.06148	43.33400	-90.06810
Honey Creek	1253900	2	4	35m US Leland Rd.	43.31885	-90.05033	43.31964	-90.05092
Honey Creek	1253900	2	4	418m DS Leland Rd.	43.31413	-90.04913	43.31583	-90.04913
Honey Creek	1253900	2	4	50m US Willow Rd.	43.29358	-90.03744	43.29492	-90.03804
Honey Creek	1253900	U	5	30m US Mill Rd.	43.27780	-90.03021	43.27981	-90.03172
Honey Creek	1253900	U	5	50m US Factory Rd.	43.25921	-89.95542	43.25888	-89.95618
UNT Honey Creek	1257600	U	2	28m US mouth	43.31883	-90.04990	43.31946	-90.04905
UNT Honey Creek	1257100	U	2	12m US Deitl Rd.	43.31845	-90.09998	43.31929	-90.10031
UNT Honey Creek	1257100	U	3	125m DS County Dry Dam	43.30831	-90.08371	43.30905	-90.08440
UNT Honey Creek	1257100	U	3	Upper County Rd. N crossing	43.29951	-90.07395	43.30017	-90.07471
UNT Honey Creek	1257100	U	3	142m DS lower Hwy N crossing	43.29212	-90.05434	43.29281	-90.05514
SG Valley Creek	1257200	U	3	15m US Knob Rd.	43.28285	-90.06893	43.28302	-90.07016
SG Valley Creek	1257200	U	3	DS State Rd. 23	43.28143	-90.04165	43.28133	-90.04282

1. UNT = Unnamed Tributary, NBR=North Branch, SG=Sugar Grove

2. U = Unclassified

3. US = Upstream, DS = Downstream

Table 6. Descriptions of trout sampling locations for the Wilson Creek part of the Honey Creek and Wilson Creek trout stream management group in 2023.

STREAM¹	WBIC	TROUT CLASS²	STREAM ORDER	LOCATION³	START LATITUDE	START LONGITUDE	END LATITUDE	END LONGITUDE
UNT Wilson Creek	5033722	U	3	131m DS Butternut Rd.	43.21834	-90.0084	43.21899	-90.00916
Wilson Creek	1247500	U	3	145m DS Butternut Road	43.21597	-90.01315	43.21637	-90.01390
Wilson Creek	1247500	U	4	32m US Raymer Drive	43.21207	-90.0001	43.21190	-90.00071
Wilson Creek	1247500	U	4	30m US County Road C	43.20823	-89.99209	43.20911	-89.99289

1. UNT = Unnamed Tributary, NBR=North Branch, SG=Sugar Grove

2. U = Unclassified

3. US = Upstream, DS = Downstream

Table 7. Sampling station metrics for streams in the Honey Creek part of the Honey Creek and Wilson Creek trout stream management group during the 2023 evaluation.

STREAM ¹	SITE NUMBER ²	DATE	MEAN WIDTH; M (GEAR) ³	STATION LENGTH (M)	CPUE FACTOR (M)	FLOW RATE (CFS)	STREAM TEMPERATURE (F)	DISSOLVED O2 (PPM)	N SPECIES	COLDWATER IBI SCORE (RATING)
UNT NBR Honey Creek	1	8/10/2023	2.3 (BP)	100	16.1	0.7	60.0	12.0	9	10 (POOR)
UNT NBR Honey Creek	2	7/31/2023	3.0 (BP)	105	15.3	2.1	63.0	9.5	9	30 (FAIR)
NBR Honey Creek	3	7/31/2013	1.6 (BP)	100	16.1	0.4	62.0	6.5	7	20 (POOR)
NBR Honey Creek	4	7/31/2023	1.7 (BP)	100	16.1	0.7	62.0	10.4	8	20 (POOR)
NBR Honey Creek	5	7/5/2023	2.9 (BP)	100	16.1	2.5	62.0	10.1	6	50 (FAIR)
NBR Honey Creek	6	7/5/2023	4.3 (B)	150	10.7	NA	61.0	11.3	3	70 (GOOD)
NBR Honey Creek	7	7/24/2023	5.8 (B)	200	8.0	17.7	65.0	9.3	12	20 (POOR)
NBR Honey Creek	8	7/24/2023	6.1 (B)	215	7.5	17.3	68.0	12.5	13	20 (POOR)
SV Creek	9	7/7/2023	NA (BP)	100	16.1	0.7	61.0	10.4	6	0 (VERY POOR)
SV Creek	10	6/27/2023	4.0 (B)	134	12.0	2.8	70.0	9.7	8	0 (VERY POOR)
SV Creek	11	8/2/2023	3.1 (B)	105	15.3	2.5	66.0	11.1	8	10 (POOR)
Honey Creek	12	6/20/2023	1.7 (BP)	100	16.1	0.4	61.0	8.51	3	10 (POOR)
Honey Creek	13	7/7/2023	NA (BP)	100	16.1	1.1	54.0	10.2	4	30 (FAIR)
Honey Creek	14	6/26/2023	2.4 (B)	100	16.1	5.7	64.0	9.2	5	50 (FAIR)
Honey Creek	15	6/26/2023	2.6 (B)	100	16.1	6.7	62.0	9.6	7	50 (FAIR)
Honey Creek	16	6/26/2023	3.0 (B)	105	15.3	10.6	62.0	9.6	5	30 (FAIR)
Honey Creek	17	6/22/2023	6.1 (B)	210	7.7	8.1	66.0	13.6	6	30 (FAIR)
Honey Creek	18	6/22/2023	4.9 (B)	180	8.9	11.3	60.0	11.7	8	10 (POOR)
Honey Creek	19	6/12/2023	NA (B)	165	9.8	NA	NA	NA	6	0 (VERY POOR)
Honey Creek	20	6/27/2023	5.0 (B)	175	9.2	26.5	62.0	8.7	11	20 (POOR)
UNT Honey Creek	21	6/20/2023	1.6 (BP)	100	16.1	0.7	59.0	8.3	4	20 (POOR)
UNT Honey Creek	22	7/26/2023	2.1 (BP)	100	16.1	NA	60.0	9.3	1	40 (FAIR)
UNT Honey Creek	23	8/2/2023	1.6 (BP)	100	16.1	1.4	62.6	11.1	3	70 (GOOD)
UNT Honey Creek	24	7/26/2023	2.8 (BP)	100	16.1	1.8	59.5	9.9	2	50 (FAIR)
UNT Honey Creek	25	7/26/2023	2.7 (BP)	107	15.0	2.8	62.0	9.1	5	50 (FAIR)
SG Valley Creek	26	6/21/2023	1.7 (BP)	100	16.1	1.4	65.0	9.0	4	0 (VERY POOR)
SG Valley Creek	27	6/21/2023	2.4 (BP)	100	16.1	2.1	59.0	10.4	6	10 (POOR)

1. UNT=Unnamed Tributary, NBR=North Branch, SV=Shannahan Valley, SG=Sugar Grove.

2. Refer to Figure 1 for the mapped location of each site.

3. Gear refers to the electrofishing equipment used to complete the survey; BP = backpack, B = barge.

Table 8. Sampling station metrics for streams in the Wilson Creek part of the Honey Creek and Wilson Creek trout stream management group during the 2023 evaluation.

STREAM ¹	SITE NUMBER ²	DATE	MEAN WIDTH; M (GEAR) ³	STATION LENGTH (M)	CPUE FACTOR (M)	FLOW RATE (CFS)	STREAM TEMPERATURE (F)	DISSOLVED O2 (PPM)	N SPECIES	COLDWATER IBI SCORE (RATING)
UNT Wilson Creek	28	8/1/2023	1.0 (BP)	100	16.1	0.7	54.0	10.0	1	90 (EXCELLENT)
Wilson Creek	29	8/1/2023	1.9 (BP)	100	16.1	1.1	60.0	8.8	3	30 (FAIR)
Wilson Creek	30	8/1/2023	2.8 (B)	100	16.1	2.8	62.0	8.6	2	90 (EXCELLENT)
Wilson Creek	31	7/25/2023	4.6 (B)	140	11.5	3.2	62.0	8.5	7	70 (GOOD)

1. UNT=Unnamed Tributary

2. Refer to Figure 1 for the mapped location of each site.

3. Gear refers to the electrofishing equipment used to complete the survey; BP = backpack, B = barge.

Table 9. Mean July stream temperatures recorded during continuous temperature monitoring in Honey Creek and two tributaries in the summer of 2023.

STREAM	WBIC	LOCATION	MEAN JULY TEMPERATURE (°F)	MINIMUM JULY TEMPERATURE (°F)	MAXIMUM JULY TEMPERATURE (°F)
NBR Honey Creek	1255600	Alder Drive	58.9	51.9	67.2
NBR Honey Creek	1255600	County Road PF above pond	61.6	54.6	68.5
NBR Honey Creek	1255600	County Road PF below pond	67.1	61.0	73.9
NBR Honey Creek	1255600	Elm Road	67.8	60.2	75.2
Shannahan Valley Creek	1257900	State Road 23	67.9	56.9	78.1
Honey Creek	1253900	State Road 23	58.2	47.6	69.0
Honey Creek	1253900	Valley View Road	65.4	55.7	74.6
Honey Creek	1253900	Hickory Road	65.4	56.6	74.0
Honey Creek	1253900	Leland Road	65.9	56.1	75.6

Table 10. Brown trout CPUE (fish/mile) percentile breakdown for fishery surveys conducted on Class 1 trout streams in the Driftless Area and statewide where at least one trout was collected, 2012-2021.

	CPUE TOTAL	(ALL SIZES)	CPUE AGE-0	(<4.0 INCHES)	CPUE AGE 1	(4.0-7.9 INCHES)	CPUE ADULT	(≥ 8 INCHES)	CPUE PREFERRED	(≥12 INCHES)
Percentile	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide
10	108.3	39.7	15.1	12.5	27.9	21	40.2	18.9	16.1	10.6
25	323.6	178.4	40.2	32.2	82.6	70.6	128.7	63.8	31.9	20.3
35	492.2	305.9	71.1	58.1	135.6	115	191.6	112.7	42.9	30.3
50 (median)	729.8	537.3	136.1	119.3	229.9	199.2	330.8	205.8	63.2	47.6
65	1,121.4	880.6	256.1	247.5	383.2	337.2	509.7	341.9	85.8	72
75	1,478.3	1,241.7	405.4	402.1	518.8	482.8	677.6	479.2	115	91.4
90	2,720	2,203.1	856.7	933.5	877.1	836.6	1,194.2	864.5	181.5	156.5

Table 11. Brook trout CPUE (fish/mile) percentile breakdown for stream surveys conducted on Class 1 trout streams in the Driftless Area and statewide where at least one trout was collected, 2012-2021.

	CPUE TOTAL	(ALL SIZES)	CPUE AGE-0	(<4.0 INCHES)	CPUE AGE 1	(4.0-6.9 INCHES)	CPUE ADULT	(≥7 INCHES)	CPUE PREFERRED	(≥10 INCHES)
Percentile	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide	Driftless Area	Statewide
10	15.1	22.9	16.0	16.1	12.4	16.1	12.8	15.3	6.5	5.7
25	53.0	96.6	46.0	45.3	30.5	48.3	30.0	32.2	11.1	10.3
35	107.1	174.7	68.6	72.4	44.9	80.5	47.9	48.3	14.3	12.8
50 (median)	219.9	336.8	128.7	145.3	80.5	149.2	80.5	80.5	16.1	16.4
65	402.3	579.7	209.2	241.4	150.9	257.2	124.0	129.4	29.1	27.5
75	590.1	772.5	321.9	365.5	234.2	366.7	177.7	185.2	37.5	37.4
90	1,223.0	1,488.4	787.1	812.3	548.7	662.7	347.0	344.0	64.4	64.4

Table 12. Brown trout CPUE (fish/mile) for all sampling locations on brown trout streams in the Honey Creek and Wilson Creek trout stream management group in 2023.

STREAM ¹	SITE NUMBER ²	TOTAL CPUE	AGE-0 (<4 INCHES)	Age 1 (4.0-7.9 INCHES)	ADULT TOTAL (≥8 INCHES)	ADULT<PREFERRED (7.0-11.9 INCHES)	ADULT PREFERRED (≥12 INCHES)
UNT NBR Honey Creek	1	0.0	0.0	0.0	0.0	0.0	0.0
UNT NBR Honey Creek	2	383.3	230.0	76.7	76.7	61.3	15.3
NBR Honey Creek	3	16.1	0.0	0.0	16.1	16.1	0.0
NBR Honey Creek	4	289.8	241.5	16.1	32.2	32.2	0.0
NBR Honey Creek	5	515.1	161.0	75.1	161.0	128.8	32.2
NBR Honey Creek	6	88.5	16.1	8.0	80.5	40.2	40.2
NBR Honey Creek	7	82.4	0.0	0.0	82.4	15.0	67.4
Shannahan Valley Creek	8	80.5	64.4	16.1	0.0	0.0	0.0
Shannahan Valley Creek	9	156.2	84.1	24.0	48.1	48.1	0.0
Shannahan Valley Creek	10	214.6	46.0	92.0	76.7	76.7	0.0
Honey Creek	11	48.3	0.0	48.3	0.0	0.0	0.0
Honey Creek	12	241.5	193.2	48.3	0.0	0.0	0.0
Honey Creek	13	1,287.8	466.8	466.8	354.1	322.0	32.2
Honey Creek	14	2,398.5	756.6	998.0	643.9	531.2	112.7
Honey Creek	15	965.9	367.9	260.6	337.3	199.3	138.0
Honey Creek	16	1,418.1	1,310.8	23.0	84.3	69.0	15.3
Honey Creek	17	202.4	193.2	0.0	9.2	9.2	0.0
Honey Creek	18	82.8	27.6	18.4	36.8	18.4	18.4
Honey Creek	19	0.0	0.0	0.0	0.0	0.0	0.0
UNT Honey Creek	20	80.5	80.5	0.0	0.0	0.0	0.0
UNT Honey Creek	21	0.0	0.0	0.0	0.0	0.0	0.0
UNT Honey Creek	22	466.8	450.7	0.0	16.1	16.1	0.0
UNT Honey Creek	23	80.5	0	48.3	32.2	32.2	0.0
UNT Honey Creek	24	15.0	15.0	0.0	0.0	0.0	0.0
SG Valley Creek	25	0.0	0.0	0.0	0.0	0.0	0.0
SG Valley Creek	26	0.0	0.0	0.0	0.0	0.0	0.0
UNT NBR Honey Creek	27	0.0	0.0	0.0	0.0	0.0	0.0

1. UNT = Unnamed Tributary, NBR=North Branch, SG=Sugar Grove.

2. Refer to the map in Figure 1 for numbered sampling locations.

Table 13. Mean brown trout CPUE (fish/mile) for streams or stream segments in the Honey Creek part of the Honey Creek and Wilson Creek trout stream management group in 2023.

STREAM¹	TOTAL CPUE²	AGE-0 (<4 INCHES)	Age 1 (4.0-7.9 INCHES)	ADULT TOTAL (≥8 INCHES)	ADULT<PREFERRED (7.0-11.9 INCHES)	ADULT PREFERRED (≥12 INCHES)
1256600 (1)	0.0	0.0	0.0	0.0	0.0	0.0
1256700 (1)	383.3	230.0	76.7	76.7	61.3	15.3
NBR Honey Creek US Leland Pond (3)	273.7	134.1	30.4	69.8	59.0	10.7
NBR Honey Creek DS Leland Pond (2)	85.4	8.0	4.0	81.4	27.6	53.8
Shannahan Valley Creek (3)	150.4	64.8	44.0	41.6	41.6	0.0
Honey Creek (8)	830.7	414.5	232.9	183.2	143.6	39.6
1257600 (1)	80.5	80.5	0.0	0.0	0.0	0.0
1257100 (3)	187.5	155.3	16.1	16.1	16.1	0.0
Sugar Grove Valley Creek (2)	0.0	0.0	0.0	0.0	0.0	0.0

1. Unnamed streams are listed by their WBIC. The number of sampling locations for each stream is in parenthesis.

2. CPUE values of zero for individual sampling locations were excluded from mean CPUE calculations for Honey Creek (site _) and UNT Honey Creek 1257100 (site _) because these locations were outside the scope of current or proposed classified trout waters.

Table 14. Brook trout CPUE (fish/mile) for all sampling locations and mean values for each stream for brook trout streams in the Honey Creek and Wilson Creek trout stream management group in 2023.

STREAM^{1,2}	SITE NUMBER	TOTAL CPUE	AGE-0 (<4 INCHES)	Age 1 (4.0- 6.9 INCHES)	ADULT TOTAL (≥7 INCHES)	ADULT<PREFERRED (7.0- 9.9 INCHES)	ADULT PREFERRED (≥10 INCHES)
UNT Wilson Creek	28	15.3	15.3	0	0	0	0
Wilson Creek	29	104.3	74.5	14.9	14.9	14.9	0.0
Wilson Creek	30	579.5	354.1	48.3	177.1	144.9	32.2
Wilson Creek	31	1,322.3	138.0	92.0	1,092.3	195.5	896.9
UNT Wilson Creek (1)		15.3	15.3	0	0	0	0
Wilson Creek (3)		668.7	188.9	51.7	428.1	118.4	309.7

1. UNT = Unnamed Tributary.

2. The number of sampling locations for each stream is in parenthesis.

Table 15. Mean July temperature of Shannahan Valley Creek and Honey Creek immediately above and below their confluence in 2022 and 2023.

YEAR	LOCATION	MEAN JULY TEMPERATURE (°F)	Location (Above/Below Confluence)	HONEY CREEK ABOVE/BELOW DIFFERENCE (°F)
2022	Shannahan Valley Creek at SR 23	67.7	Above	4.7
2022	Honey Creek at SR 23	61.4	Above	
2022	Honey Creek at Valley View Rd.	66.1	Below	
2023	Shannahan Valley Creek at SR 23	67.9	Above	6.3
2023	Honey Creek at SR 23	59.1	Above	
2023	Honey Creek at Valley View Rd.	65.4	Below	

Figures

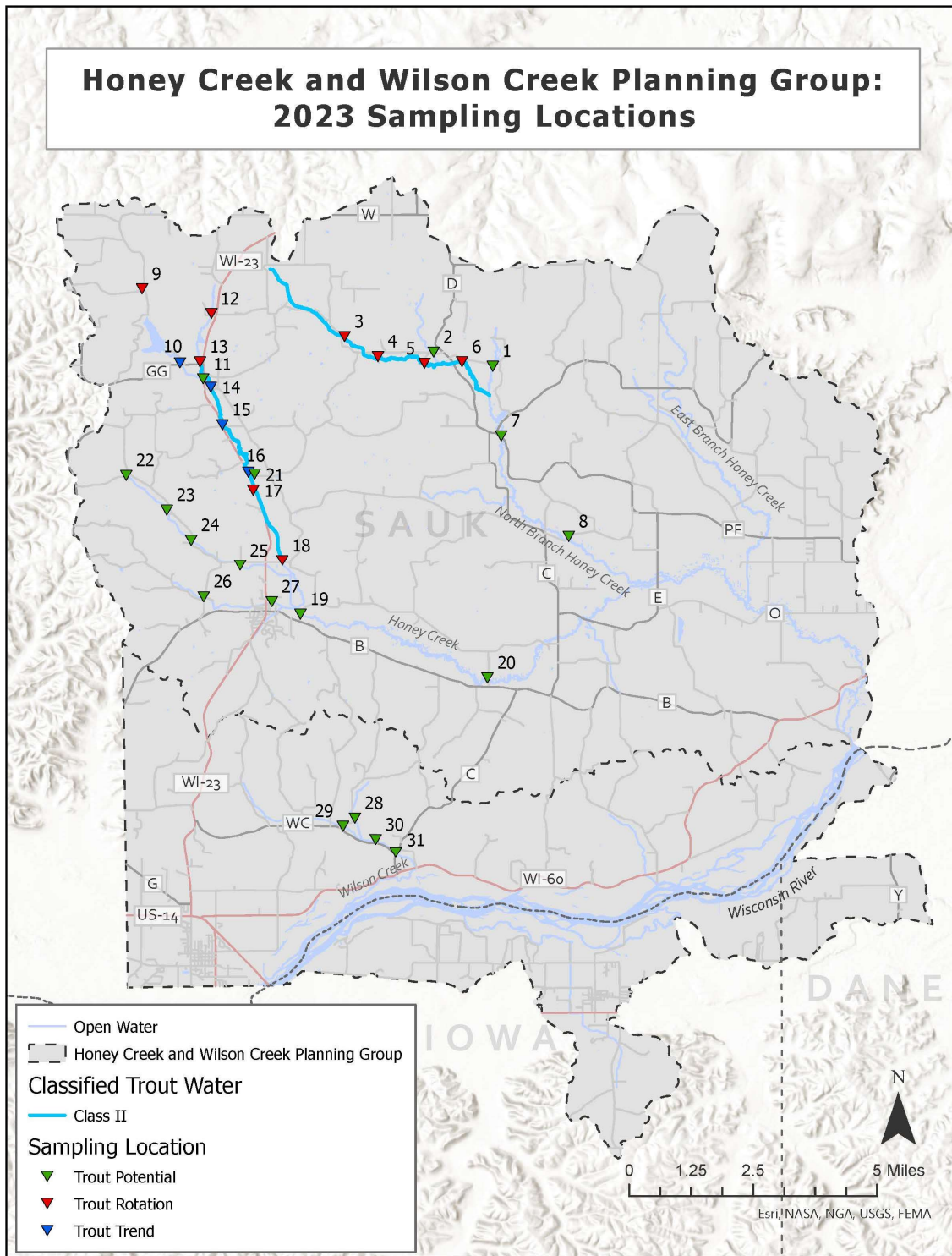


Figure 1. Trout class designations and 2023 fishery survey locations within the Honey Creek and Wilson Creek planning group.

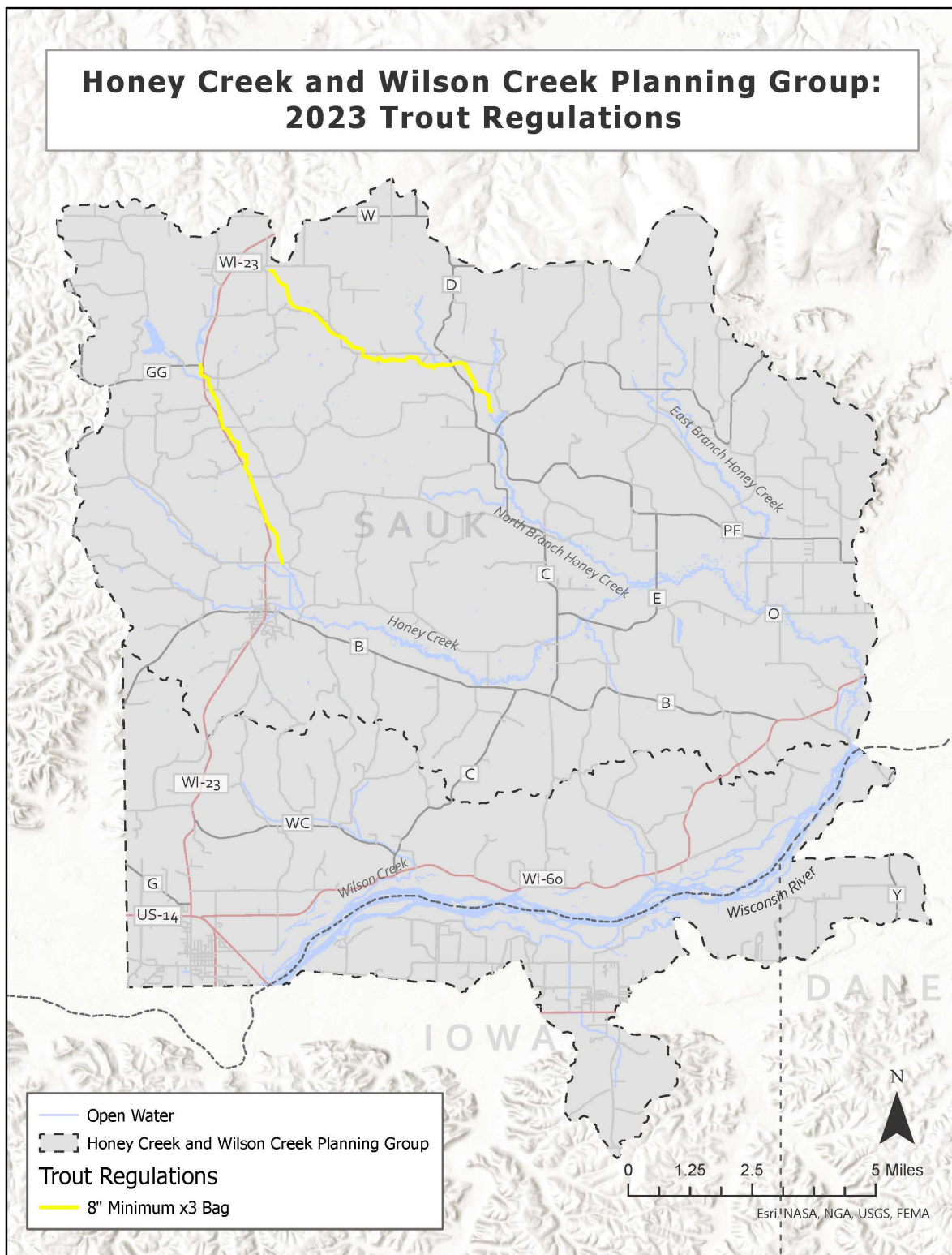


Figure 2. Current trout fishing regulations for classified trout streams in the Honey Creek and Wilson Creek planning group.

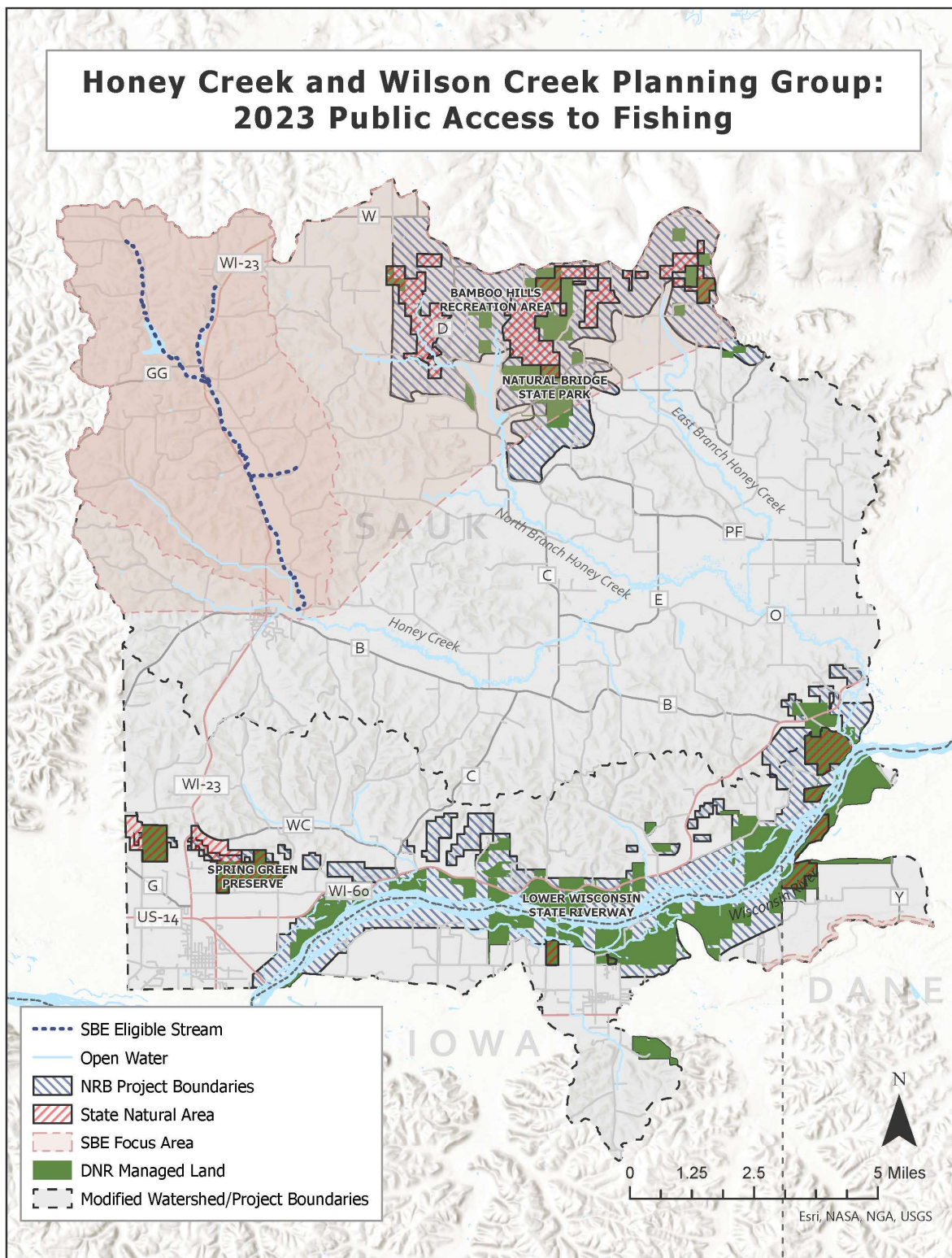


Figure 3. Public land access within the Honey Creek and Wilson Creek planning group.

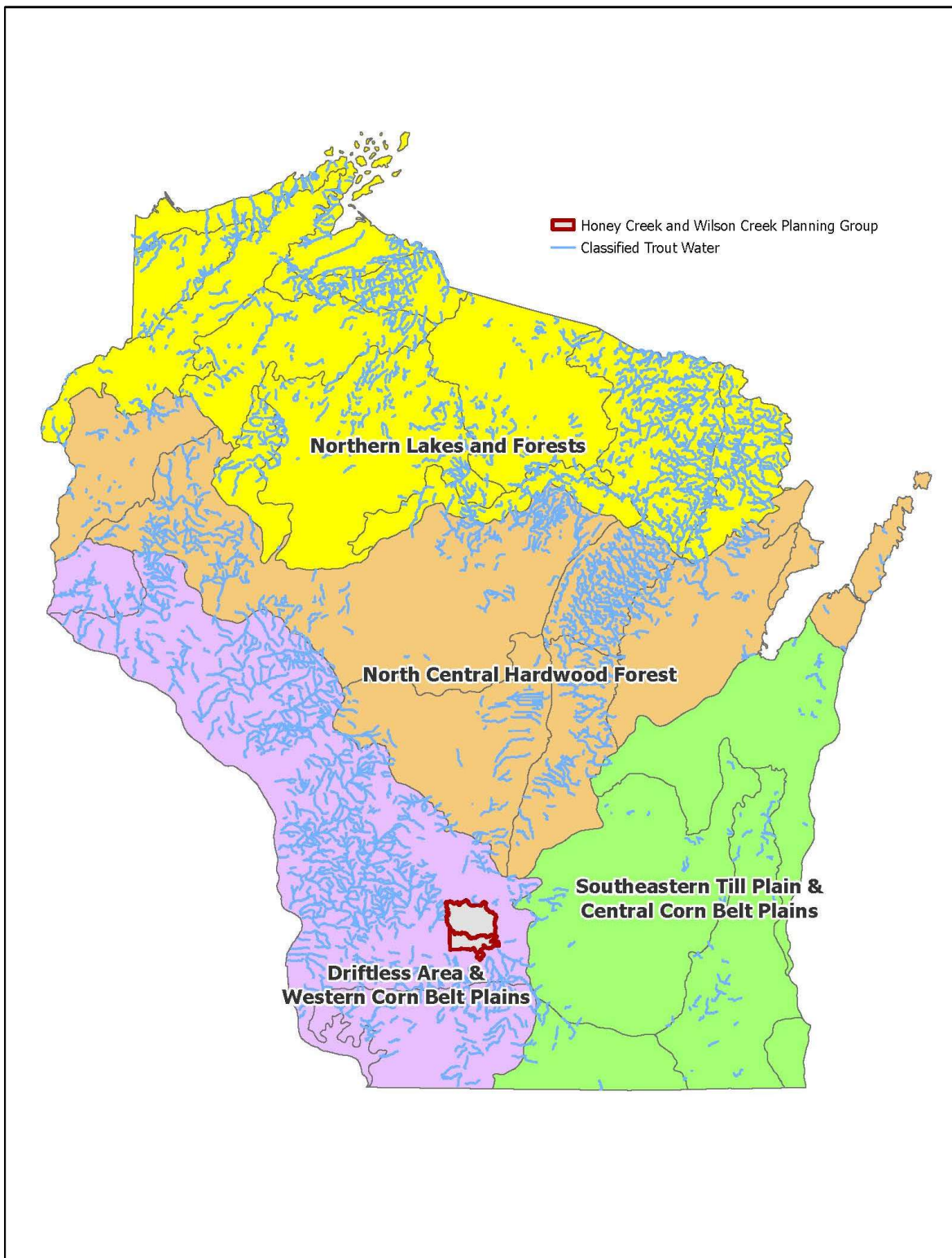


Figure 4. Level III Ecoregions of Wisconsin. The Honey Creek and Wilson Creek planning group is in the Driftless Area & Western Corn Belt Plains Ecoregion.

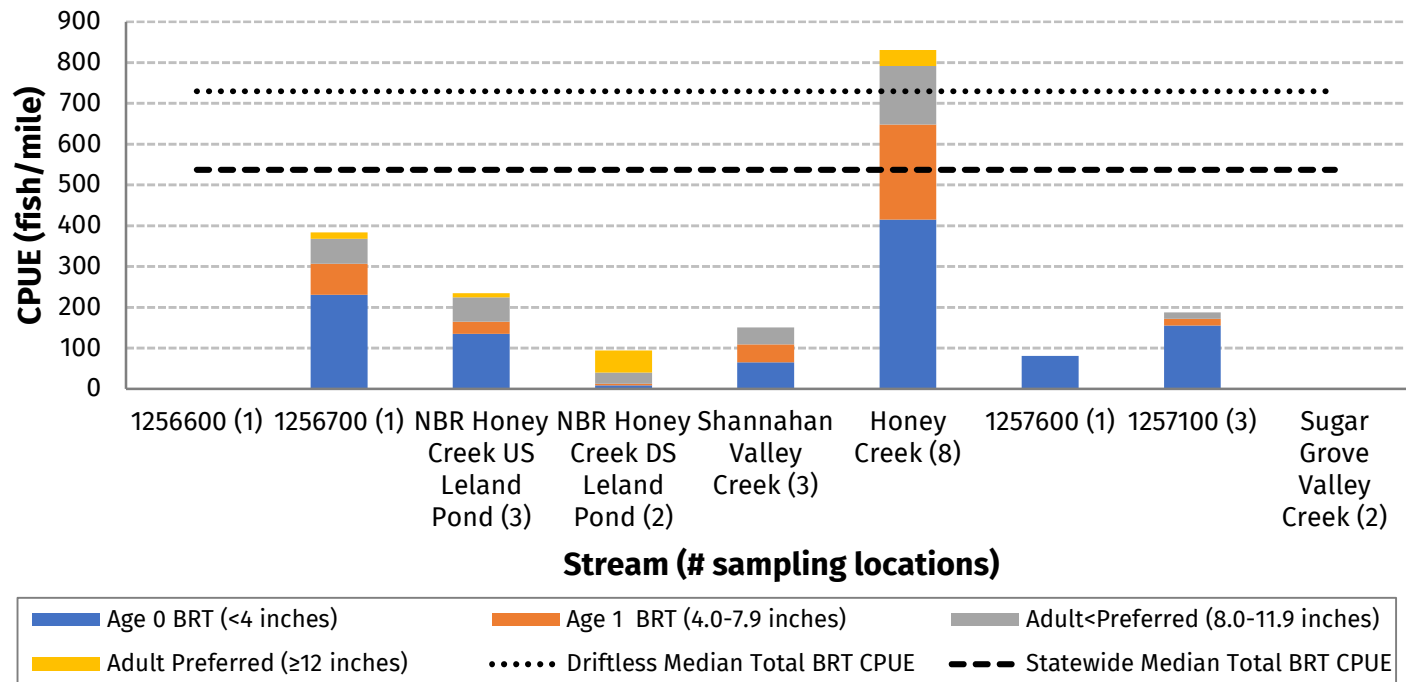


Figure 5. Mean total brown trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. The number of sampling locations for each stream is in parenthesis.

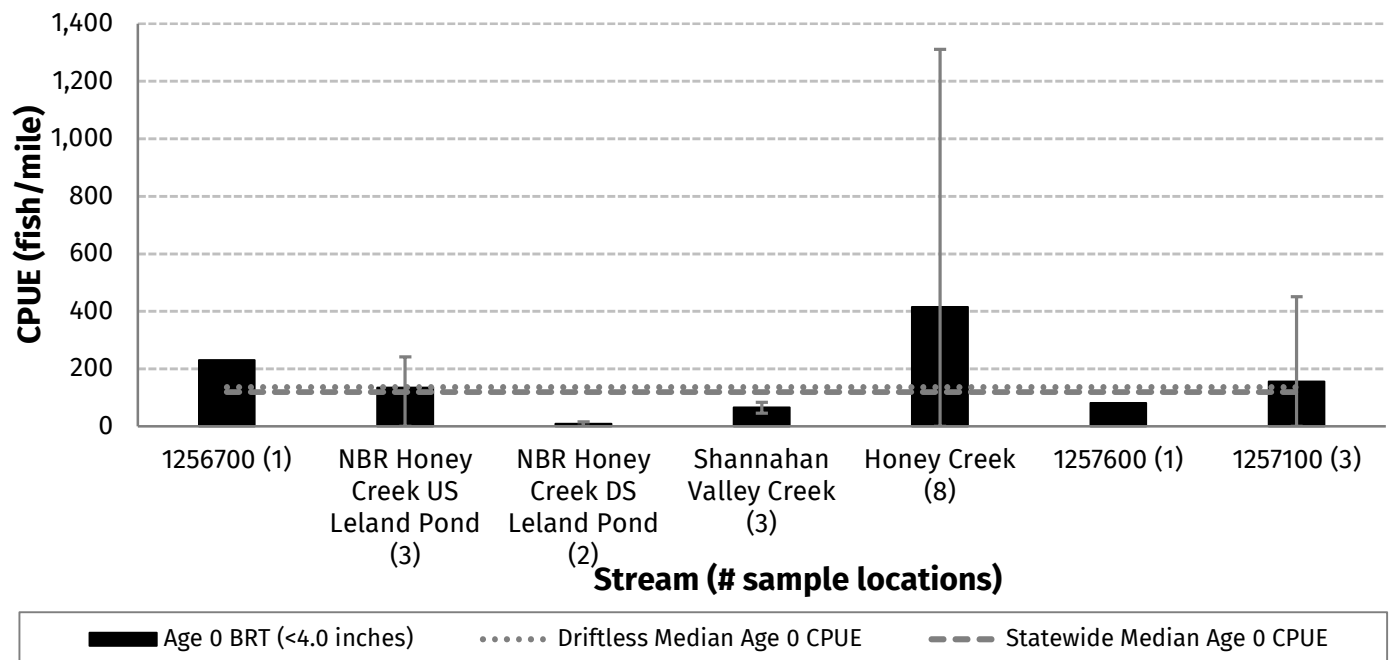


Figure 6. Mean age-0 brown trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream or stream segment. The number of sampling locations for each stream is in parenthesis.

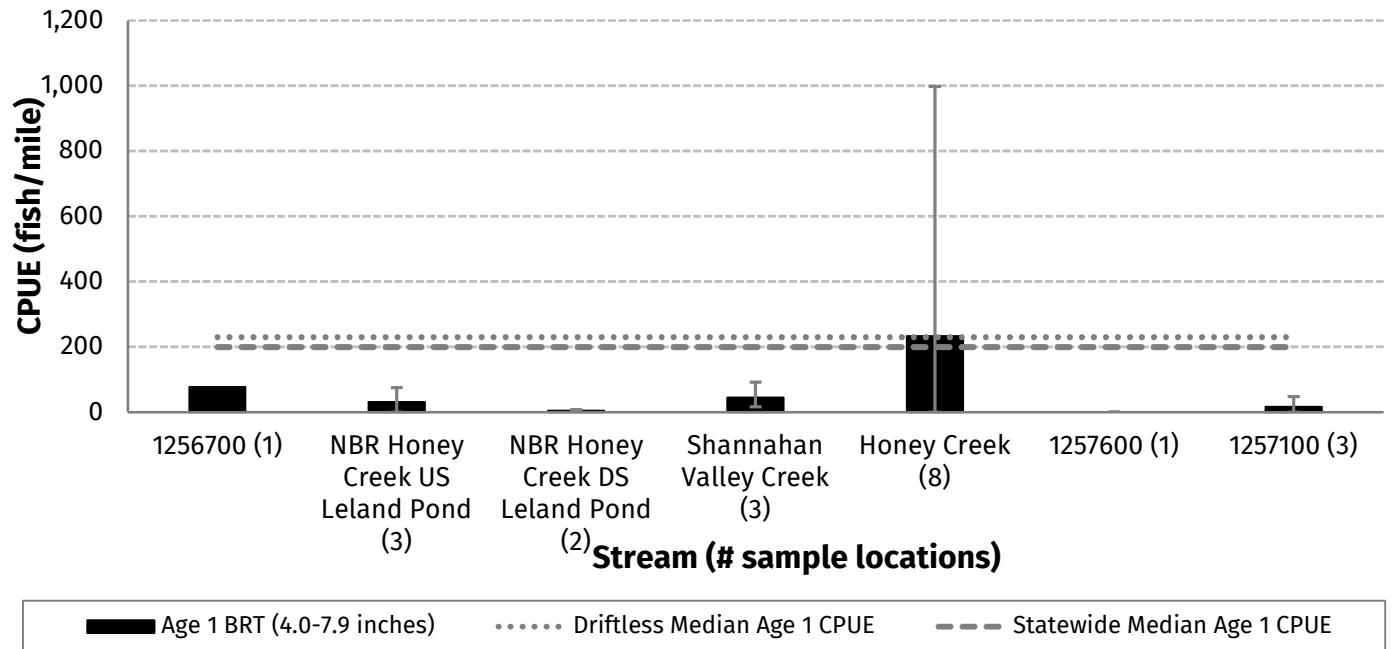


Figure 7. Mean yearling brown trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream or stream segment. The number of sampling locations for each stream is in parenthesis.

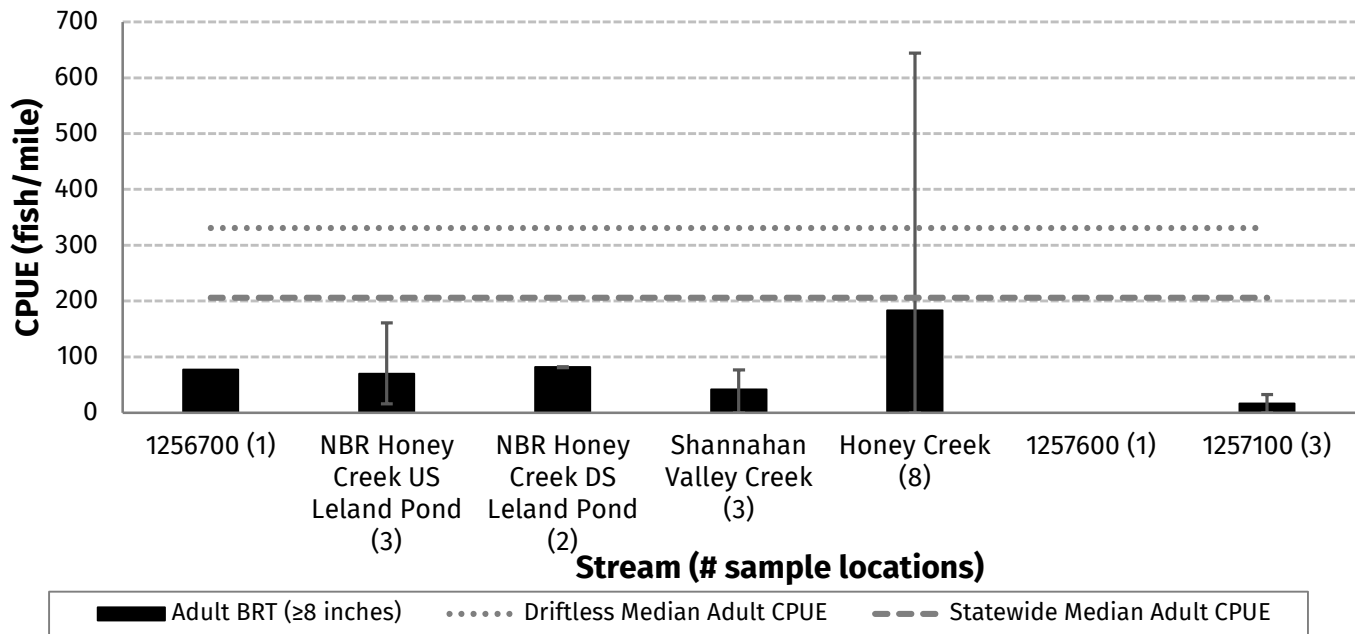


Figure 8. Mean adult brown trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream or stream segment. The number of sampling locations for each stream is in parenthesis.

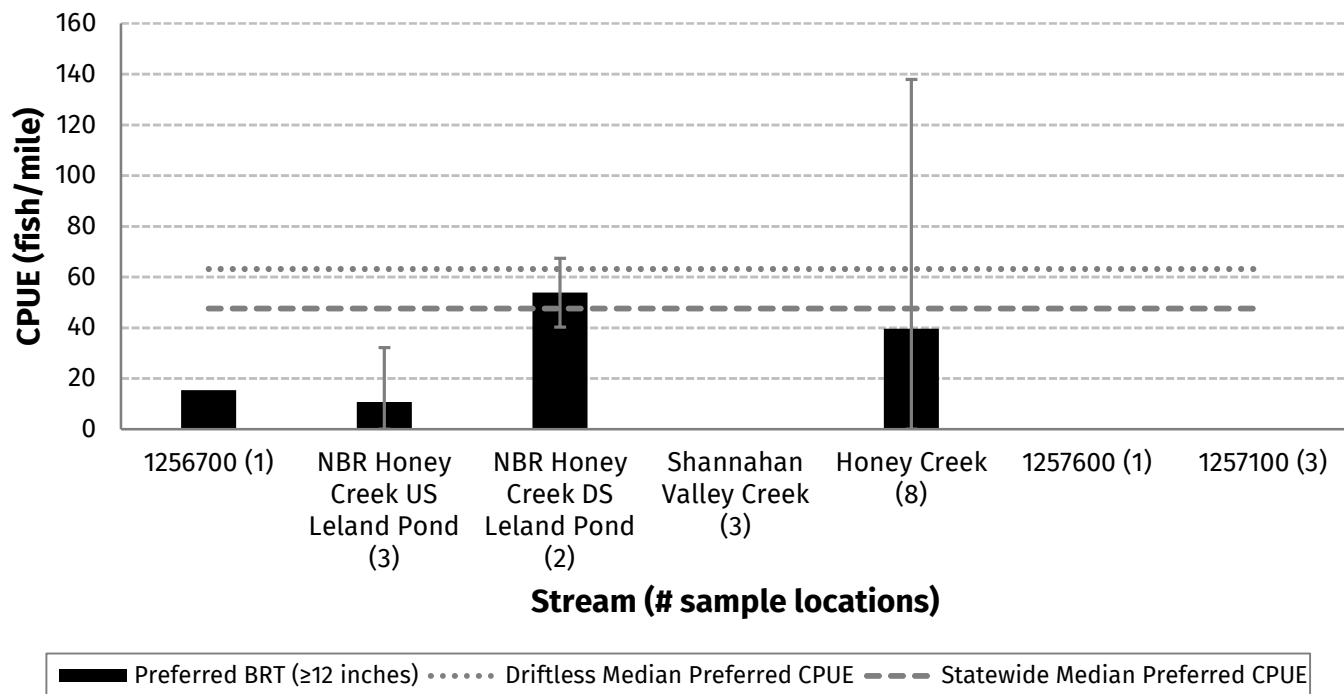


Figure 9. Mean preferred-length brown trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream or stream segment. The number of sampling locations for each stream is in parenthesis.

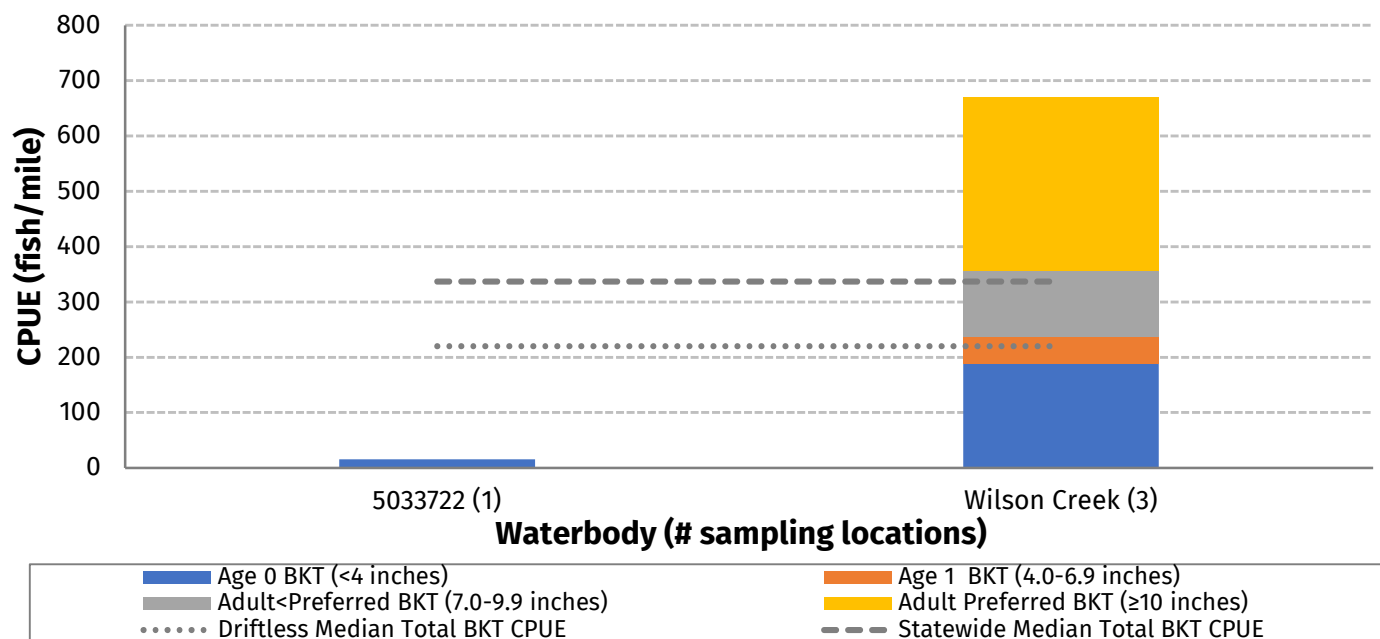


Figure 10. Mean total brook trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. The number of sampling locations for each stream is in parenthesis.

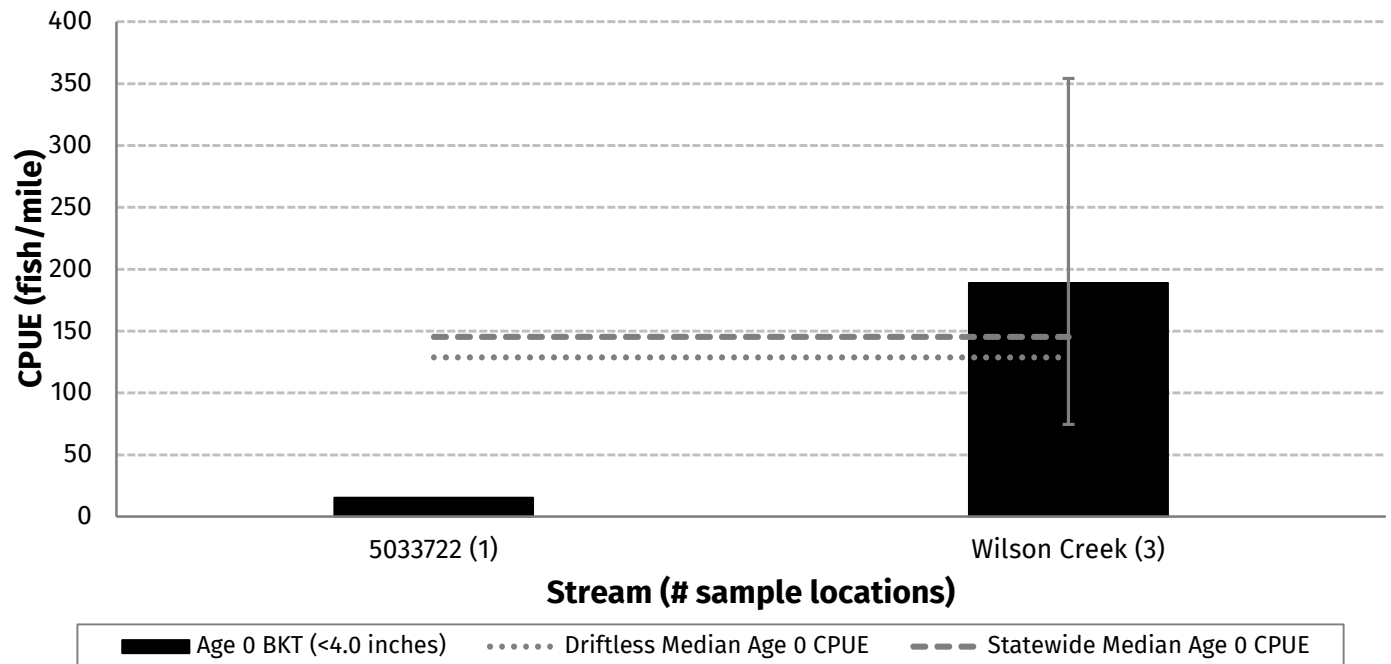


Figure 11. Mean age-0 brook trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream. The number of sampling locations for each stream is in parenthesis.

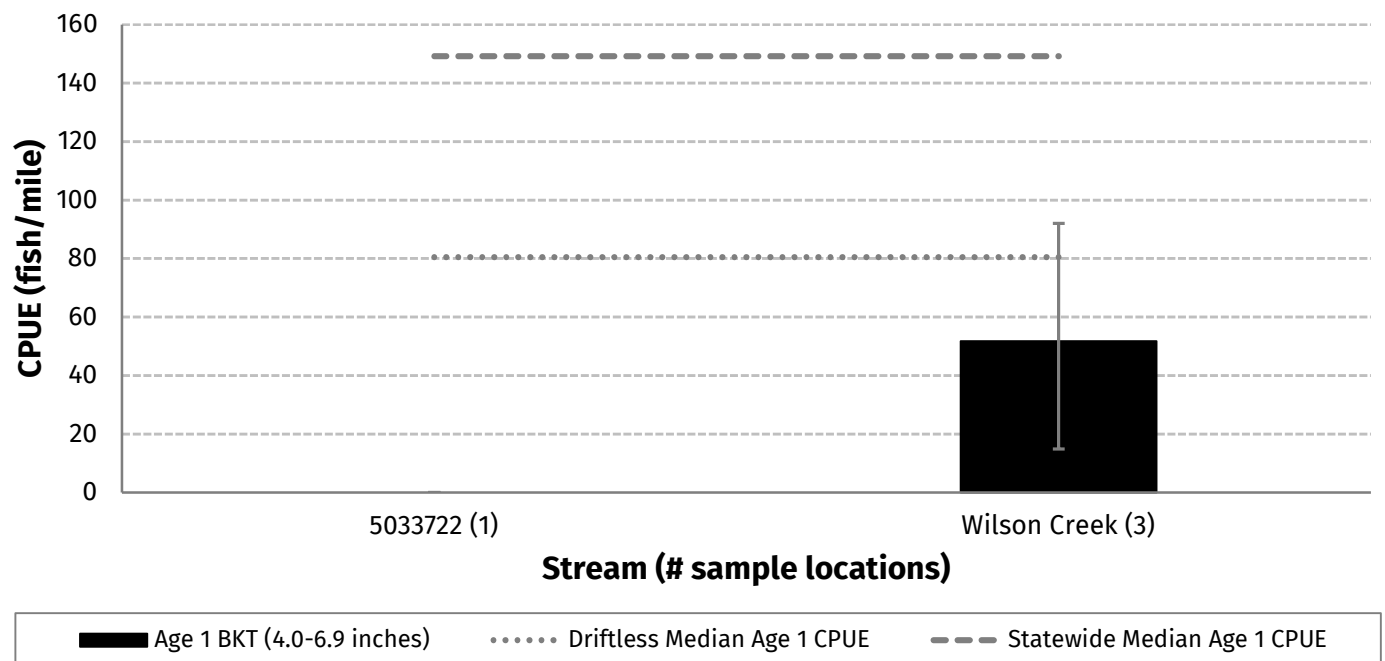


Figure 12. Mean yearling brook trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream. The number of sampling locations for each stream is in parenthesis.

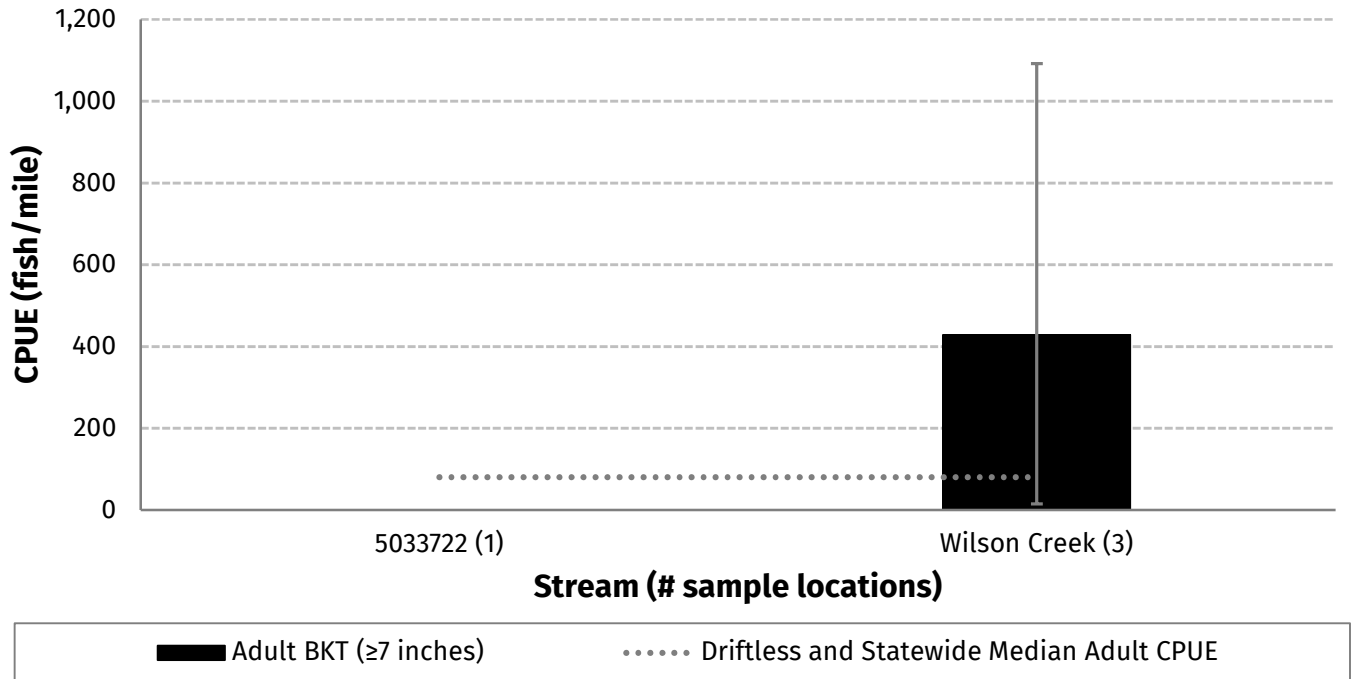


Figure 13. Mean adult brook trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream. The number of sampling locations for each stream is in parenthesis.

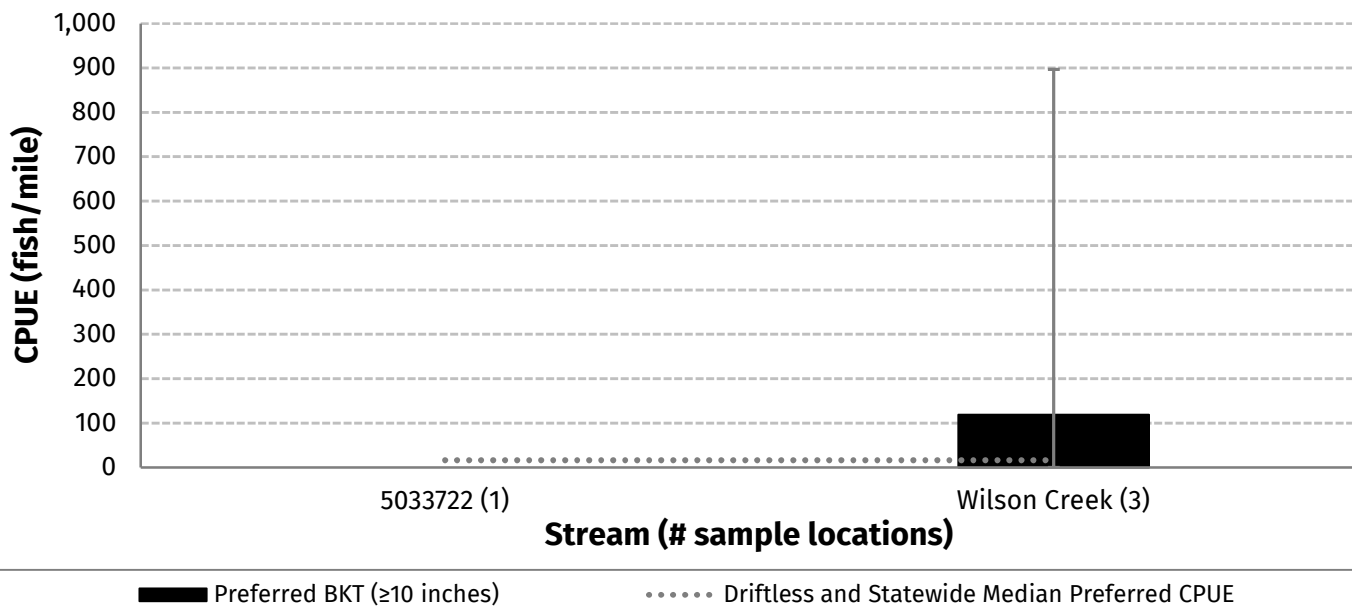


Figure 14. Mean preferred length brook trout catch-per-unit effort (CPUE) by stream in the Honey Creek and Wilson Creek trout stream management group in 2023. Error bars represent the range of CPUE values observed for each stream. The number of sampling locations for each stream is in parenthesis.

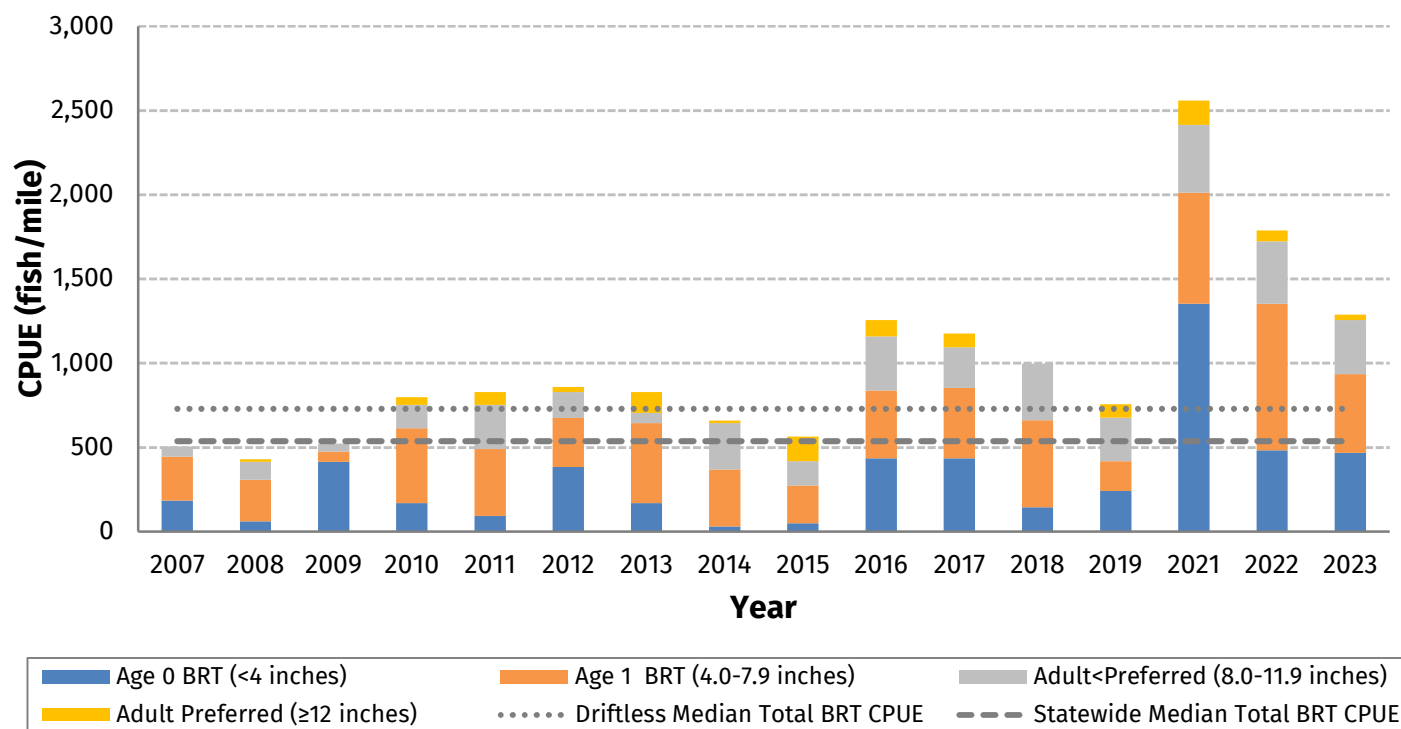


Figure 15. Mean total brown trout catch-per-unit effort (CPUE) at the Valley View Road trend monitoring station on Honey Creek, 2007-2023.

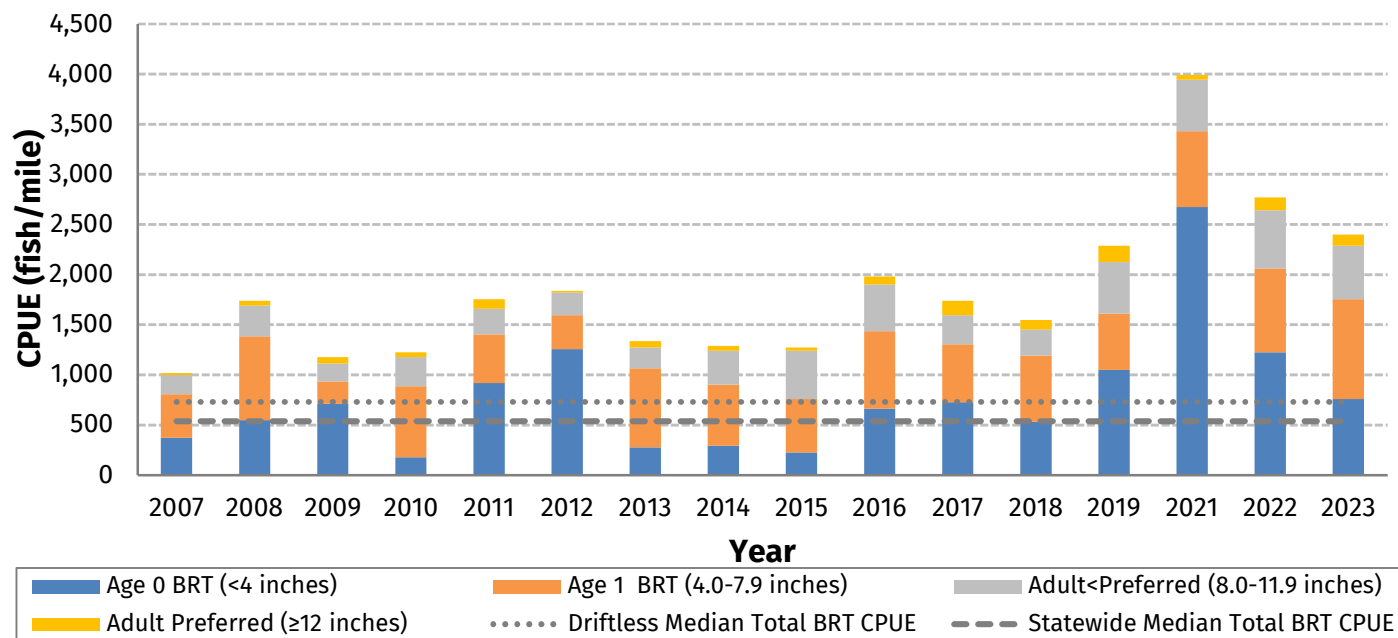


Figure 16. Mean total brown trout catch-per-unit effort (CPUE) at the Hickory Road trend monitoring station on Honey Creek, 2007-2023.

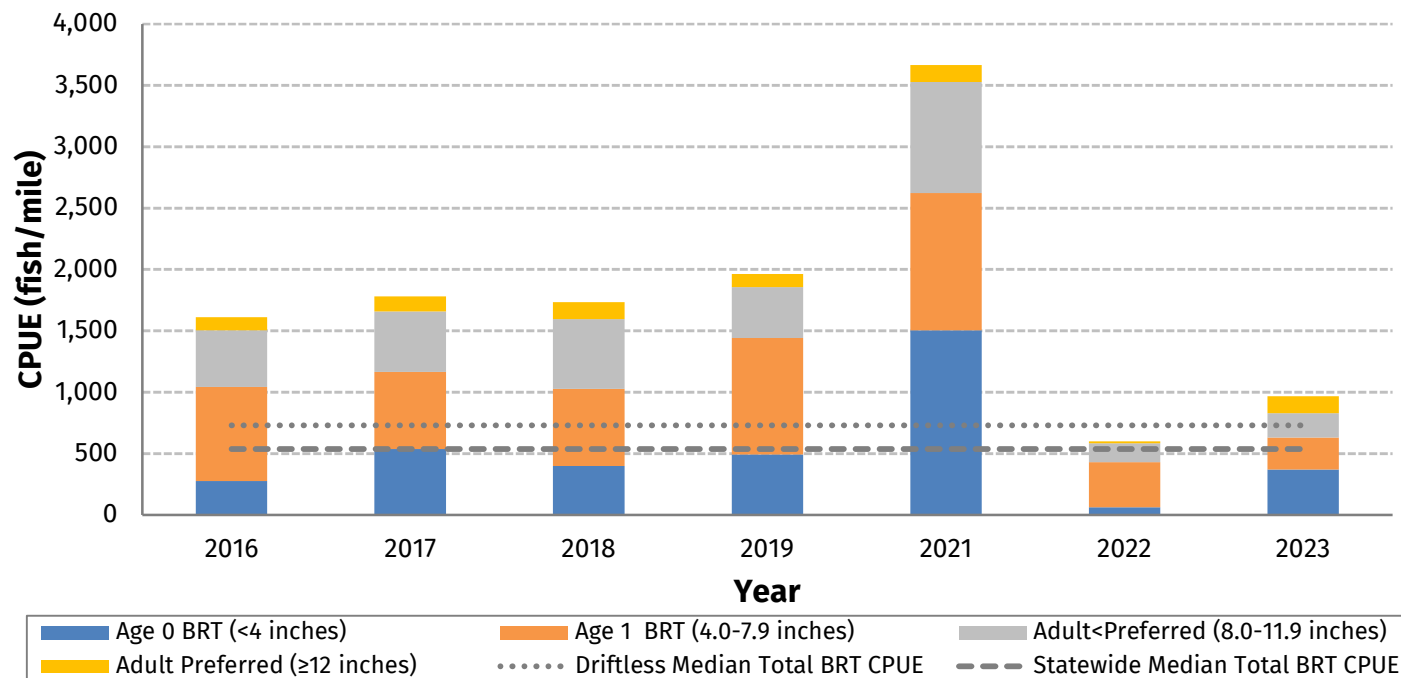


Figure 17. Mean total brown trout catch-per-unit effort (CPUE) at the Leland Road trend monitoring station on Honey Creek, 2016-2023.

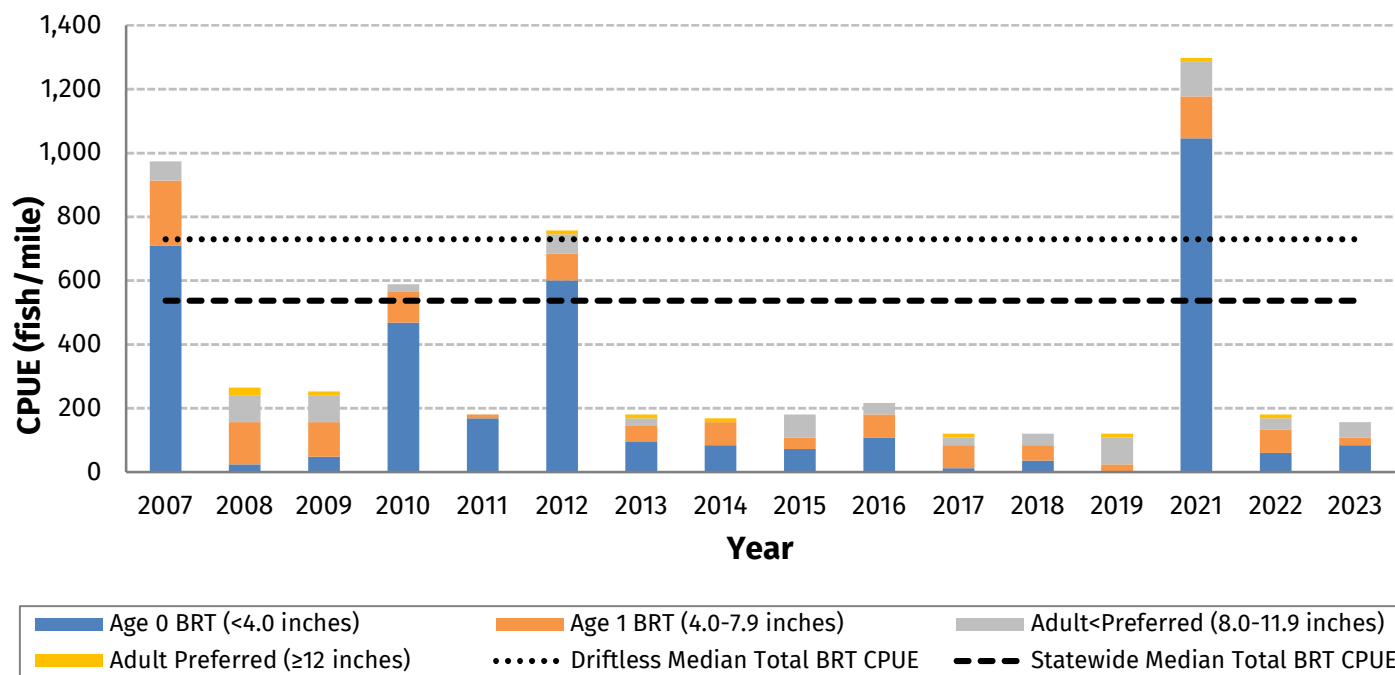


Figure 18. Mean total brown trout catch-per-unit effort (CPUE) at the County Road GG trend monitoring station on Shannahan Valley Creek, 2007-2023.

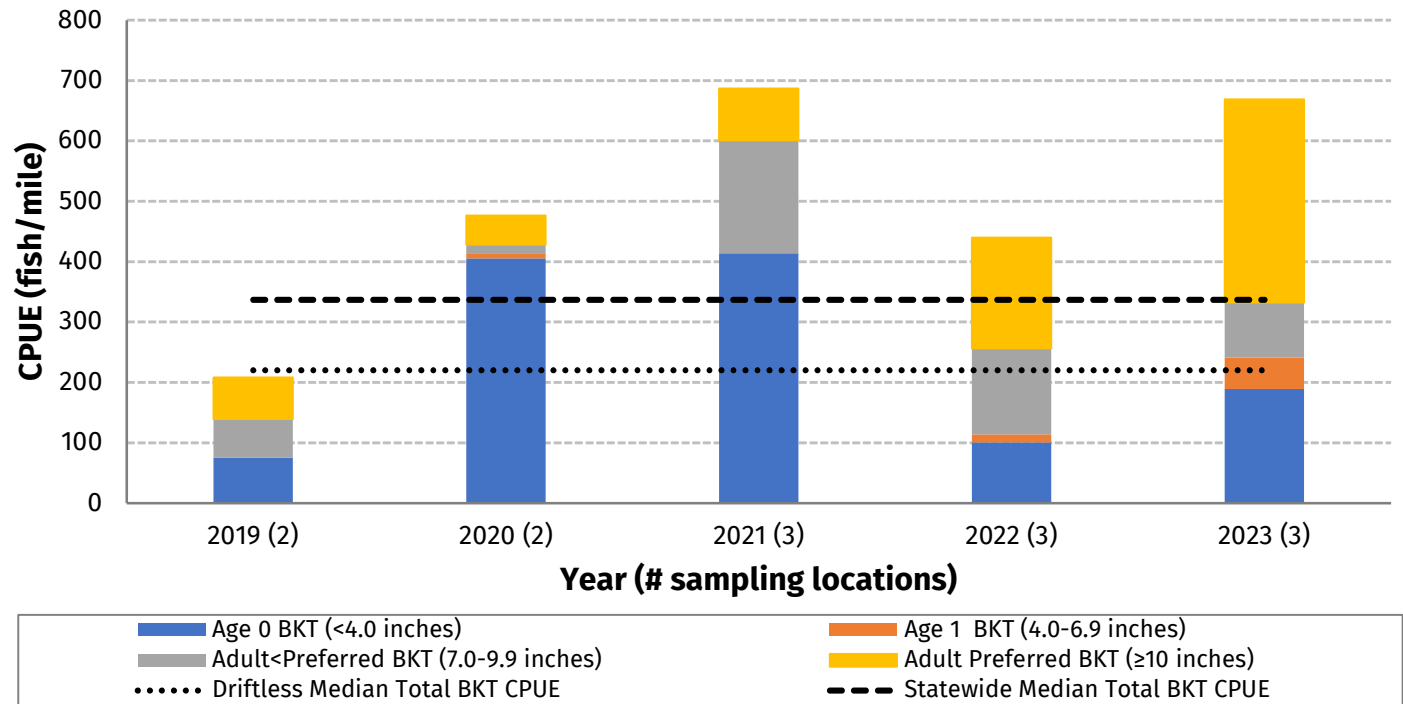


Figure 19. Mean total brook trout catch-per-unit effort (CPUE) for Wilson Creek, 2019-2023. The number of sampling locations for year is in parenthesis.