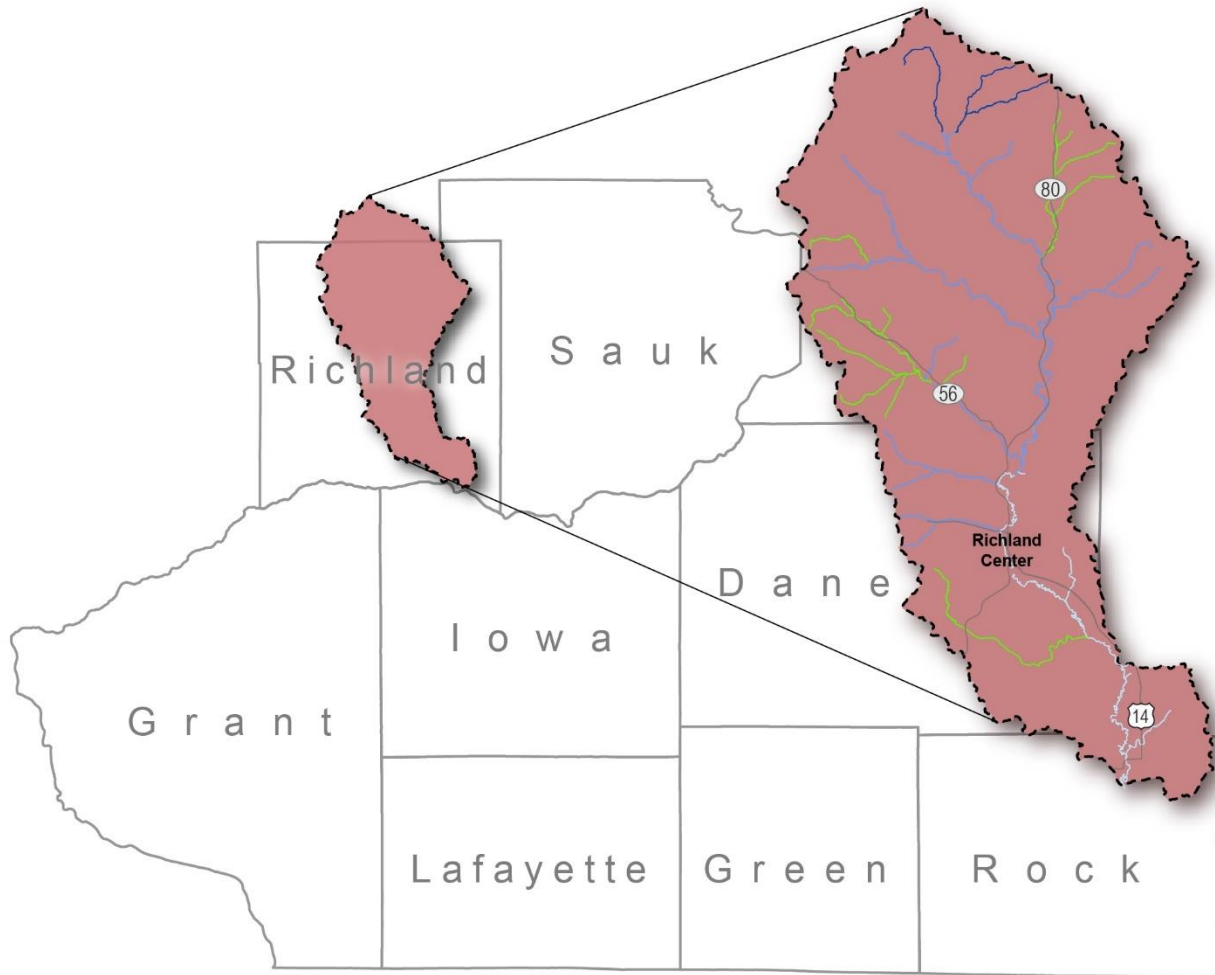


WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Trout Management and Status Report Of The Pine River
Watershed

Richland and Vernon Counties, Wisconsin 2021



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EXECUTIVE SUMMARY

Wisconsin Department of Natural Resources (DNR) staff conducted stream electrofishing surveys on the Pine River, along with larger coldwater tributaries that included Champion and Greenwood Valley, Melancthon, West Branch Pine, Marshall, Fancy, Hawkins, Horse, Brush and Ash creeks, as well as other smaller streams and a few unclassified tributaries.

Stocking and regulations are two management tools used by DNR staff. Only Champion and Greenwood Valley creeks have been stocked in the last 10 years as an active management tool. Within the watershed, five regulations are used to manage the trout populations. These include the Vernon County base regulation of five trout in total, no minimum length and the Richland County base regulation of three trout over 8 inches. Other special regulations include catch and release only, two trout over 12 inches, and five trout in total. Brook trout shall be immediately released, brown and rainbow trout have no minimum length.

The purpose of these surveys is to understand the recruitment and reproduction of our fisheries. This allows us to evaluate the trout populations and is critical for properly managing the fisheries. For the evaluation, all fish stocking was suspended a year prior to the surveys. This allowed us to determine how much natural reproduction and recruitment were occurring. Natural reproduction refers to the presence of age-0 fish. Natural recruitment is defined by juvenile fish surviving to age 1. Based on the results, we can determine how productive these fisheries are as well as assess adult abundance in relation to the overall stocking efforts and regulations currently implemented.

The Pine River watershed offers diverse trout resources with both brook and brown trout fisheries throughout. Streams vary from small to large, with sympatric populations existing in a majority of the streams. Habitat is also very diverse, with small headwater streams that provide excellent reproductive potential to large portions of deep rivers with shifting sand substrates that have potential to hold trophy fish. Brook trout were present in highest abundance in tributaries to upper Pine River, Melancthon Creek, Fancy Creek, Marshall Creek complex and Ash Creek. Brown trout were present in almost every stream surveyed but were highest in abundance in Basswood Creek, West Branch Pine River, Melancthon Creek, Fancy Creek and Ash Creek. Overall, both brook and brown trout populations are productive in the watershed and coexist in many streams.

Management goals will focus on expanding streambank easement mileage within the Pine River watershed to increase angler access on a number of streams. Fisheries Management will also focus on the classification or reclassification of a number of streams. This will include the reclassification of Champion Valley, Greenwood Valley, Unnamed Tributary to Greenwood Valley, Cherry Valley, Basswood Creek, Soules Creek and South Branch Marshall Creek. Annual stocking of Champion and

Greenwood Valley creeks will also be discontinued. Management will also focus on brook trout in Melancthon Creek by initiating a brown trout removal and relocation project to increase brook trout productivity.

WATERSHED LOCATION

Pine River Watershed, Richland and Vernon counties

PURPOSE OF SURVEY

- Assess natural reproduction and recruitment
- Assess trout stream classification
- Assess current status and abundance of trout populations
- Evaluate regulations

DATES OF FIELDWORK

June 14 – Aug. 18, 2021

SPECIES SAMPLED

- American brook lamprey
- Black bullhead
- Bluegill
- Bluntnose minnow
- Brook stickleback
- Brook trout
- Brown trout
- Burbot
- Central mudminnow
- Central stoneroller
- Common carp
- Common shiner
- Creek chub
- Emerald shiner
- Fantail darter
- Fathead minnow
- Golden redhorse
- Golden shiner
- Green sunfish
- Johnny darter
- Largemouth bass
- Longnose dace
- Mississippi silvery minnow
- Mottled sculpin
- Northern hogsucker
- Redside dace
- Sand shiner
- Shorthead redhorse
- Southern redbelly dace

- Tiger trout
- Walleye
- Western blacknose dace
- White sucker
- Yellow perch

INTRODUCTION

The Pine River is located within the lower Wisconsin River subbasin. This area lies within the Driftless Area of Wisconsin and is characterized by steep bluffs and karst topography. These streams are typically higher in gradient, have faster flows and are embedded in complex floodplains (DNR 2013). They also include streams where groundwater recharge is high and spring complexes are abundant, leading to excellent coldwater resources. This watershed contains Class 1, Class 2 and Class 3 trout waters, which are small-to-large sized and have a range of fair to excellent habitat, with fishable populations of both brook and brown trout.

Champion Valley is a Class 3 trout stream located in Vernon County, although it's thought to function as a Class 2 water. The surrounding lands of Champion Valley are heavily grazed and influenced by agriculture, contributing sediment to the stream. Because of this, poor water quality has been observed in the past. This stream would benefit from increased buffers and better management of the riparian corridor.

Greenwood Valley is a seepage and spring-fed stream, beginning in Vernon County and flowing downstream to Champion Valley Creek. This stream is similar to Champion Valley in that agriculture is influencing the water quality. Cropland and pasturing have eroded the banks and increased sediment load to the streambed. Once again, better streambank management should be a priority to mitigate the effects of agriculture on the overall health of the system.

Melancthon Creek is a high-priority, Class 1 trout stream located in Vernon and Richland counties. This stream is designated as an exceptional resource water (ERW) and has natural reproduction of both brook and brown trout (Ripp et al. 2002). This stream is also used as a broodstock source for the southwest feral brook trout propagation program, where eggs and milt are collected on a rotation for the Nevin Hatchery. The watershed consists mostly of wooded corridors and grazed pastures. Both public access state lands and easements are located throughout this stream for use by anglers and the general public.

Grinsell Creek is a small tributary to Melancthon Creek. This stream is considered Class 1 trout water, containing brown and brook trout. This stream is also an ERW with good water quality throughout (Ripp et al. 2002). This is likely due to the dense, wooded corridors and minimal sedimentation along the streambed. Fishability could be increased along this stream as the corridor is over-vegetated in some locations. No public access is located along Grinsell Creek.

Hanzel Creek is another small, spring-fed, Class 1 trout water that feeds to Melancthon Creek. This is also considered an ERW and contains spawning reaches for brook trout (Ripp et al. 2002). Water quality is good in this stream, and the corridor consists mostly of wooded and grassland buffers, surrounded by row cropping. The

spring-fed headwaters are also surrounded by the Hanzel Creek Fishery Area, providing public access and a variety of uses for the public.

Soules Creek is a small spring and seepage-fed tributary to the upper Pine River. This stream is currently classified as Class 2 trout water at the lower reaches for approximately 0.6 miles, although it's thought that the upper reaches have the potential to be a trout fishery (Ripp et al. 2002). The stream is heavily row cropped along the upper reaches but flows through woodlands and wetlands along the lower reaches. This stream is eligible for streambank easement acquisition, which is currently being pursued.

Hawkins Creek is a spring and seepage-fed Class 2 tributary to the Pine River. In-stream habitat is good throughout and contains an appropriate substrate for spawning and plenty of riffles, pools, and runs for additional age classes of fish. Agricultural grazing along the streambanks has been known to increase sedimentation, and this is a high-priority to reduce impacts to the population (Ripp et al. 2002). It's possible that with proper management, Hawkins Creek could support a Class 1 fishery.

Basswood Creek is a small, Class 2 stream that flows to the West Branch Pine River. This stream is surrounded by grazed pastures throughout. Upstream of Cherry Valley Road, a DNR streambank easement exists for angler access. However, this stream is currently not on the list of eligible waters for easement acquisition. Additional efforts should be focused on streambank protection to ensure the contribution of good water quality for the West Branch Pine River.

Hynek Hollow is a spring-fed tributary to Gault Hollow and both flow to the middle West Branch Pine River. These streams historically had excellent water quality and contained brook trout throughout. Grazing exists along Hynek Hollow, and beavers are known to be problematic. Both these factors tend to increase habitat degradation and cause in-stream sedimentation. Streambank easement acquisition should be pursued so DNR can actively manage the streambank and beaver issues along this stream reach.

Gault Hollow is a Class 1 tributary of the West Branch Pine River in Richland County. This stream is known to contain an excellent population of brook trout. This stream is recognized as an ERW with rare aquatic species present in the past (Ripp et al. 2002). Grazing is present throughout, and therefore this stream has been ranked as a high priority for nonpoint source pollution and would benefit from streambank management. Streambank easement acquisition is also a priority here.

West Branch Pine River is a quality Class 2 trout water and a major tributary to the upper Pine River. This stream has excellent habitat overall and a mixture of both brook and brown trout. This stream has been straightened in some portions to increase agricultural production in the surrounding landscape. Erosion and barnyard

runoff can be moderate to severe in some locations, and streambank management should be a priority here. Overall, streambank easement acquisition is a high priority for West Branch Pine River and its tributaries.

North and South Buck creeks are both spring and seepage-fed tributaries to the Pine River. These streams are both very small but contain cold water. Past surveys of these streams have not identified any trout present, although they are known to support forage fish communities (Ripp et al. 2002).

Marshall, West Branch Marshall and South Branch Marshall creeks are all Class 1 tributaries to Fancy Creek. These streams have historically contained abundant populations of brook trout, with some brown trout present. The corridors surrounding the streams are made up mostly of woodlands, with agricultural row cropping and grazing intermittent throughout. Beavers are abundant within these systems, altering the landscape and potentially reducing stream connectivity. Beaver management should be addressed where possible within these stream systems.

Fancy Creek is an excellent Class 1 and Class 2 trout water that flows to the Pine River north of Richland Center. The lower portion consists of Class 2 trout water, while the upper 4.6 miles are considered Class 1 water. This stream has excellent habitat and the ability to harbor multiple year classes of fish. Only a small portion of streambank easements exist at two properties on this stream. Additional streambank easement acquisition is a priority on Fancy Creek and is currently being pursued.

Horse and Rusk creeks are seepage and spring-fed tributaries to the Pine River. Both streams are Class 2 trout water and contain naturally reproducing populations of brook trout. These streams are heavily wooded in the upper reaches, but transition to row cropped and grazed banks along the middle and lower reaches. Streambank stability is a major concern along these streams as eroded banks tend to increase sedimentation along the streambed. They likely have the potential to be Class 1 waters if land use practices can be addressed to improve water quality.

Brush and Pier Spring creeks are Class 2 trout waters that flow to the Pine River in Richland Center. Pier Spring is an excellent spring system; however, agricultural practices at the lower reaches contribute excess sediments to Brush Creek at STH 14. Brush Creek is also heavily row cropped and grazed throughout, which likely limits the potential for this stream. Even with current land management along the riparian area, Brush Creek continues to maintain a brook trout fishery.

Ash Creek is a very popular Class 1 trout fishery that flows to the lower Pine River. This stream has historically produced an excellent brook trout fishery, although in the recent past brown trout have begun to increase in numbers. This stream has excellent public access with the Richland County Park property at the headwaters and the DNR fishery area property located along the middle reach. As this stream

progresses, row cropping and grazing become abundant and likely limit the fishery in the lower reaches.

The mainstem of the Pine River is Class 2 trout water from the headwaters down to CTH AA north of Richland Center. This stream is highly variable, transitioning from a small headwater stream in Vernon County with excellent substrate for spawning to a large shifting sand substrate stream in the lower reaches. The Pine River contains excellent to fair habitat throughout. This mainstem is managed to maintain a low-density, high-size structure population, especially along the lower stretches. This stream also contains a number of fee title properties and easements throughout that provide excellent public access for hunters, anglers, and kayakers. Overall, the Pine River provides excellent recreational opportunities for the public and is a major tourist attraction for Richland County.

CURRENT STATUS

STOCKING

The only streams stocked on an annual basis in the Pine River watershed are Champion Valley and Greenwood Valley creeks. Champion Valley Creek has been stocked with an average of 641 yearling brook trout annually since 2013. Greenwood Valley Creek was stocked from 2013-2020 with an average of 1,212 yearling brook trout annually. Both of these streams were stocked from fish raised at the Viola Coop Ponds.

REGULATIONS

The classified trout waters in the Pine River watershed are managed under five different regulations (Figure 2). Regulations include the Vernon County base regulation of five trout in total, no minimum length, and the Richland County base regulation of three trout over 8 inches. Three special regulations are also currently implemented. One special regulation consisting of two trout over 12 inches is used to manage for quality size trout populations. One catch and release only regulation is also used, which typically helps manage low-density populations or protect stream reaches where spawning occurs. The other special regulation allowing the harvest of five trout in total, brook trout should be immediately released: brown and rainbow trout no minimum length; is used to protect brook trout but allows the harvest of brown trout to reduce competition between species.

HABITAT IMPROVEMENT

Habitat restoration projects have been conducted along easements, fishery areas and county properties within this watershed. A few habitat restoration projects were conducted on Ash Creek within the county property upstream of STH 80 in 1999 and 2012-2015 (Hanson 2015). This work included bank stabilization, brushing and in-stream boulders. Melancthon Creek had a series of improvements conducted along the stream through the Melancthon Creek Fishery Area in 2008 and 2009 (Hanson

2015). Prescriptions included brushing, LUNKER structures, vortex weirs and plunge pools. Friends of the Pine River also recently conducted a project on the Pine River – YUBA property along STH 80 in 2020. This involved bank stabilization work and the installation of two LUNKERS. A parking lot and canoe/kayak launch were also constructed at this site to increase public access.

PUBLIC ACCESS

Public access throughout these watersheds is plentiful due to DNR-owned fee title properties and streambank easements. These lands contain nearly 14 miles of publicly accessible trout water and flow through a total of 724 acres of the above-mentioned properties. Fishing easements and habitat areas allow for public access along the stream corridor for a variety of uses, including hunting (fee title only), fishing, hiking, wildlife observation and cross-country skiing (Figure 3).

LAND USE

The Pine River watershed is located almost entirely in Richland County, with a small portion extending into southern Vernon County. The Pine River watershed covers approximately 244 square miles (Stroud 2021). Land use practices within the watershed consist of 26% pasture/hay, 15% cultivated crops, 50% forested lands and 9% other (Table 1). In total, this watershed contains 145 miles of classified trout waters.

WATERSHED SCALE ASSESSMENT

Understanding reproduction and recruitment is critical to managing trout populations. In Class 1 streams, as defined in NR 1.02, there is no need for stocking because there is adequate natural reproduction to maintain the fishery. The DNR stocks fingerling trout in streams where there is insufficient natural reproduction and recruitment to maintain a fishable population but adequate survival of trout to adulthood. These are designated as Class 2 streams, and the stocking is referred to as “put and grow.” Often, based on the life history strategy of trout, reproduction occurs in stream segments that differ from juvenile and adult habitat types. Natural reproduction is the presence of age-0 fish, which may be more variable in their catchability to electrofishing and may occur upstream in nursery habitats. Natural recruitment is defined by juvenile fish surviving to age-1. The absence of young-of-year (YOY; age-0) trout (i.e., natural reproduction) does not necessarily mean there is a lack of natural recruitment.

METHODS

Summer stream sampling on trend (sampled annually), rotation (sampled on a rotation) and potential (thought to have trout but previously unverified) sites spanned from June 14 – Aug. 18, 2021 (Figure 1; Table 2). All 71 stream sites were surveyed with either a backpack electrofishing unit or tow behind stream barge. Backpack electrofishing units are used on small streams that are typically shallow in

nature. Tow behind stream shockers are larger units in which the generator is mounted in a barge that is towed by one individual. These units are used in larger waters that are also wadable.

The number of sites varies depending on the stream segment length. One site is sampled on segments less than 1.5 miles, two sites on segments from 1.5-3 miles and one site per 3 miles on segments greater than 3 miles. The length of the stream site sampled is determined by stream width, with site length being 35 times the mean stream width on segments greater than 3 meters. On streams less than 3 meters wide, a minimum of 100 meters is sampled. All fish are collected on trend sites where gamefish, exotic species and threatened/endangered species are measured to total length. Only the first 200 fish are measured if large numbers of gamefish are encountered. Young-of-year are counted, and a subsample of 50 fish are measured. All other fish are counted to conduct an index of biotic integrity (IBI). Other specifics can be found in the Fisheries Management Handbook Chapter 510 (Simonson 2015).

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 handheld flow meter. Temperature, dissolved oxygen and specific conductivity were also measured using a handheld YSI Pro 2030 meter.

POPULATION ASSESSMENT

Once gamefish and other fish species have been collected, the number of fish per mile was computed (CPUE – catch per unit effort, in this case miles) based on the number of fish collected and the length of stream station sampled. This allowed for the comparison of catch rates both within and among stream sites. Total CPUE, as well size specific-catch rates, were calculated for age-0 fish (young-of-year, <4.0 inches), yearlings (4.0-7.9 inches for brown trout and 4.0-6.9 inches for brook trout) and adults (≥ 8 inches for brown trout and ≥ 7 inches for brook trout). The median values for size-specific trout CPUE metrics presented in several of the tables and figures in this paper were generated from summaries of DNR fishery surveys of Class 1 trout streams in the 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; Table 3). These regional and statewide summaries were used to compare stream-specific abundance data as low abundance (<35th percentile), medium (35th-65th percentile) and high (>65th percentile; Table 3).

RESULTS

In total, 71 stream sites were sampled within the Pine River watershed (Figure 1; Table 2). Data were compiled both on individual stream sites (Table 5; Table 6) and grouped based on stream segments. For segments that combined multiple stream sites, CPUE was averaged (Figure 4-11).

Reproduction of brown trout was observed in 29 of the 35 streams surveyed within the Pine River watershed during the summer of 2021. CPUE of age-0 fish was high in a number of these streams, especially those in the headwaters of the Pine River, Melancthon Creek and its tributaries, and Fancy Creek and its tributaries (Figure 4). These populations are well above the Driftless Area and statewide medians. The site with the highest observed reproduction was Unnamed Tributary to Melancthon Creek (1232625), exhibiting 769 age-0 brown trout per mile. Followed up by Fancy Creek at STH 56, Unnamed Tributary to the Pine River and West Branch Pine River at Enoch Jewell Lane with 505, 492, and 505 fish per mile, respectively. Melancthon, Hawkins, Cherry Valley, Grinsell, UNT to Fancy, Pier Spring, and Ash creeks also had average catch rates above both statewide and Driftless Area median values for reproduction. Overall, the reproduction of Brown Trout was widespread and abundant throughout the entire watershed (Figure 4; Table 5).

Fewer streams showed signs of brook trout reproduction, with 26 streams of the 35 streams containing age-0 brook trout. The highest reproduction occurred in UNT to Pine River (1234100), UNT to Fancy Creek (1228600), UNT to Fancy Creek (1228700), and Pier Spring Creek, with 585, 455, 229 and 376 per mile, respectively (Figure 5; Table 6). These populations were above both the Driftless Area and statewide medians. All other streams where age-0 brook trout were observed were below the statewide and Driftless Area median values (Figure 5).

Five streams exhibited recruitment of brown trout above both statewide and Driftless Area median values. These streams included Basswood, Melancthon, Grinsell, Fancy and Ash creeks (Figure 6; Table 5). Basswood Creek had the highest recruitment, with an average of 1,263 yearling brown trout per mile. Melancthon and Grinsell creeks followed, with 357 and 292 fish per mile, respectively. Fancy and Ash creeks came in right at the Driftless Area median value. All other streams where recruitment was observed contained low-moderate recruitment (Figure 6).

Recruitment of yearling brook trout was observed in 23 of the streams surveyed. On average, Unnamed Tributary to Fancy (1228700), Pier Spring Creek and Unnamed Tributary to Fancy (1228600) had the highest recruitment with 385, 284, and 235 fish per mile, respectively (Figure 7; Table 6). One site on Soules Creek contained 359 age-1 brook trout per mile, which is considered high. Melancthon, Indian, Champion, Gault, and West Branch Marshall creeks also had at least one site surveyed that contained a high abundance (above the 65th percentile) for Driftless Area streams. All other streams where recruitment was observed contained low-moderate abundances (Figure 7).

Overall, 26 streams contained adult brown trout within the Pine River watershed. Fancy, Melancthon, and Basswood creeks had the highest abundance on average, with 428, 344, and 330 adults per mile respectively (Figure 8; Table 5). Fancy Creek at site 62 had the highest abundance overall with 708 adult brown trout per mile, followed by Ash Creek at site 22, with 569 adults per mile (Table 5). Pine River, Gault

Hollow, Hawkins Creek and West Branch Pine River also had at least one site where adult abundance was above both statewide and Driftless Area standards (Figure 8). All other sites had low-moderate abundances of adult brown trout. However, a number of streams also contained preferred size fish. Eight streams contained preferred brown trout in high abundances. These streams included Greenwood Valley, Melancthon Creek, Gault Hollow, Basswood Creek, West Branch Pine River, Marshall Creek, Fancy Creek and Ash Creek (Figure 10; Table 5). Pine River, Hawkins Creek, Cherry Valley and Brush Creek also contained preferred fish in moderate abundance.

Adult brook trout were found in 25 of the 35 streams surveyed in 2021, of which 13 contained preferred-size fish. Sites that contained the highest abundance were Gault Hollow at Spring Valley Road, Champion Valley at Sunrise Lane and Unnamed Tributary to Fancy Creek (1228600), exhibiting 554, 475 and 323 adult brook trout per mile, respectively (Table 6). Unnamed Tributary to Pine River (1234100), Cherry Valley, Unnamed Tributary to Fancy (1228700), West Branch Marshall, Marshall, Pier Spring, and Brush creeks also had average adult brook trout catch rates above both Driftless Area and statewide standards. Catch rates of preferred-size brook trout were high and above the 65th percentile at sites in Champion Valley, Greenwood Valley, Unnamed Tributary to Pine River (1234100), Gault Hollow, West Branch Marshall, Marshall, Fancy and Ash creeks (Figure 11; Table 6). In fact, Champion Valley and Ash creeks contained preferred size brook trout in abundance above the 90th percentile for both the statewide and Driftless Area (Figure 11).

DISCUSSION

Overall, the Pine River watershed contains populations of trout that are well spread out. The Pine River is mostly dominated by brown trout, yet it's major contributing streams and smaller tributaries contain sympatric populations of trout that seem to coexist fairly well. The major streams, such as Melancthon, West Branch Pine, Fancy and Ash creeks, are dominated by brown trout, whereas the small tributaries located near the headwaters contain healthy numbers of brook trout. Because of this diversity, many angling opportunities exist throughout the watershed and plenty of public access is granted through streambank easements and state lands.

Champion and Greenwood Valley creeks are Class 3 tributary streams that contribute to the headwaters of the Pine River watershed in Vernon County. Both streams have been stocked extensively since 2013, with brook trout raised at nearby coop ponds. These stocking events have proven to contribute to the populations with good holdover to adults and fish achieving preferred sizes. Brown trout are also found in Greenwood Valley, despite the lack of stocking events for this species. Habitat is good to excellent throughout, with temperatures hovering in the mid 60's. Due to the quality habitat, cool-cold temperatures and holdover of fish for both species, Champion and Greenwood Valley creeks should be reclassified to Class 2 trout water during the next classification cycle in 2025. The Richland County base regulation

should also be implemented for Champion and Greenwood Valley Creeks. This will allow for the harvest of three trout over 8 inches and reduce regulation complexity across county lines.

Melancthon Creek is a Class 1 tributary that begins in Vernon County and flows to Richland County before meeting up with the Pine River. This is one of the DNR's broodstock streams, where brook trout eggs are collected for the wild brook trout propagation program. Despite being used for broodstock collection, brown trout numbers are on the rise (Figure 12). Historically, brook trout dominated with a low abundance of brown trout. However, in 2019 brown trout numbers began to rise while brook trout declined. In 2021, brown trout age classes exceeded both statewide and Driftless Area median values, while brook trout age classes were moderate at best. Especially concerning was the lack of reproduction of brook trout throughout all survey sites, with only 12.8 age-0 brook trout per mile collected at the uppermost trend site (Figure 5; Table 6). It looks as though the invasion of brown trout is clearly suppressing the reproduction of brook trout in Melancthon Creek, and if this stream is going to continue to be used for broodstock collection, the brook trout need to be protected. DNR staff should plan and execute a brown trout removal and relocation effort from the upper reaches of Melancthon Creek. This removal effort should reduce pressure on the brook trout by reducing competition, allowing for better reproductive success. This strategy has been effective in other similar streams in Wisconsin.

Grinsell and Hanzel creeks are two small contributing Class 1 tributaries to Melancthon Creek. These streams were thought to historically contain brook trout and used as spawning locations for the brook trout population in Melancthon Creek. However, it seems that with the increase in brown trout, brook trout numbers are in decline. Brown trout reproduction and recruitment was moderate, hovering near both statewide and Driftless Area median values, while brook trout were nearly non-existent. Both Grinsell and Hanzel creeks are clearly being used by brown trout for spawning, where fish recruit to age-1 before moving downstream to Melancthon Creek as adults. Grinsell should be included with Melancthon for future brown trout removal efforts.

Soules Creek is a small tributary to the Pine River that is classified for 0.6 miles along the lowermost reaches, near the confluence with the Pine River. This small stream had a surprising number of both brook and brown trout. brook trout dominated the upper reaches with moderate reproduction, high abundance of yearling fish and medium abundance of adults. As Soules flows downstream, this transitions to brown trout dominated waters with low number of age-0 and yearling fish and a medium abundance of adults. Based on the numbers of fish, fair to good habitat, size of stream, and cold temperatures throughout, Soules Creek should be reclassified to Class 1 trout water during the next classification cycle. This stream has been functioning as a small nursery stream, with some adults that are utilizing all the

available habitat in the stream. Streambank easement acquisition should also be continued to increase buffers and protect habitat.

Hawkins is a Class 2 tributary to the middle Pine River. This stream has been stocked extensively over the years with brook trout, despite the lack of brook trout observed in the surveys. In 2019 stocking was discontinued due to the presence of brown trout. Brown trout dominated Hawkins Creek in 2021 with a high abundance of age-0 fish, and moderate age-1 and adult fish on average. This stream has excellent potential to host a high abundance of trout throughout given its cold temperatures and good habitat. Streambank easement acquisition is currently being pursued, although landowners have been hesitant. Due to the high, eroded banks along Hawkins Creek, habitat restoration would be a priority if streambank easements were acquired.

Basswood and Cherry Valley are two small tributaries that make up the headwaters of the West Branch Pine River. Basswood Creek is Class 1 trout water, while Cherry Valley is unclassified. Basswood Creek has streambank easement along its fishable reaches. Basswood Creek had good to excellent habitat with temperatures in the upper 50's and low 60's. Brown trout reproduction was low, with excellent recruitment to age 1 and moderate to high holdover of adult and preferred-size fish. On the other hand, Cherry Valley exhibited a high abundance of age-0 brown trout, with low-moderate numbers of age-1 and adult fish. Brown trout in the upper reaches are likely utilizing Cherry Valley to spawn before they move downstream to Basswood Creek and the upper reaches of the West Branch Pine River. Given the brown trout populations in Basswood and Cherry Valley creeks, along with the low abundance brook trout populations, these streams should be reclassified to Class 1 trout water during the next classification cycle.

Gault and Hynek Hollow creeks are two tributaries to the middle West Branch Pine River. These streams contain mixed populations of both brook and brown trout. Habitat is fair in Hynek Hollow and good in Gault Hollow. Gault Hollow contains a brook trout population with low reproduction, moderate recruitment and an excellent abundance of adults. This stream also contains a high abundance of adult brown trout. The brook and brown trout population in Hynek is low overall, with low to moderate abundances of age-0, yearlings and adults. This is likely due to the fair habitat resulting from encroaching agricultural practices. This stream is row cropped and grazed throughout with increasing beaver activity, likely contributing to increased sedimentation. Although the fish populations in Gault Hollow are healthy, this stream is also surrounded by agriculture in the lower reaches. Both streams would benefit from streambank protection; therefore, these streams should be added to the list of eligible streams for streambank easement acquisition.

West Branch Pine River is a major Class 2 tributary to the Pine River. This stream has variable habitat throughout, ranging from a small stream in the headwater reaches with rocky substrate to a large, wide, shifting sand substrate stream in the lower reaches, dominated by large woody debris throughout. Habitat scores range from

excellent in the headwaters to fair in the lower reaches, with temperatures in the low to mid-60's throughout. This stream is dominated by brown trout, with natural reproduction and recruitment in the upper reaches. The fishable population of adult trout is moderate throughout most stream reaches. One limitation of the West Branch Pine River is increasingly eroded banks and sedimentation, especially downstream of Bloom City. This stream would benefit tremendously from DNR streambank easements, as row-cropping and grazing are abundant and negatively impact the stream in many locations. West Branch Pine River should be pursued for streambank easement acquisition to allow for the healing of the banks and preservation of streambed habitat. The catch and release regulation on West Branch Pine and lower Gault Hollow should also be removed and revert to the county base regulation to increase opportunities for anglers. Adult abundance upstream and downstream of the special regulation is considered moderate based on statewide values, and no barriers exist between reaches with different regulations. Overall, this regulation change will reduce confusion, increase simplicity and allow for harvest opportunities.

The Marshall Creek complex has long been known for hosting an excellent population of brook trout, which is still evident today. Marshall, West Branch Marshall and South Branch Marshall creeks are all Class 1 trout waters that flow to upper Fancy Creek. These streams contain mixed populations with both brook and brown trout present. West Branch Marshall Creek contains the highest abundance of brook trout with low reproduction, moderate recruitment, and a high abundance of adult fish on average. Marshall Creek was dominated by brown trout, with a moderate abundance of fish overall. South Branch Marshall didn't have much of a fishable population of trout; however, a low number of brown trout were found. These streams are likely being impacted by the agricultural practices along the banks. Even where easements exist, encroachment seems to be an issue. Fisheries staff should plan to make contact with landowners to make sure the required easement buffers along the streams are being met.

Fancy Creek continues to do quite well, with many productive tributaries along its classified reaches. However, this stream has seen quite a shift over the last decade. Fancy Creek used to be dominated by brook trout in the upper reaches. However, this has since shifted to more of a brown trout dominated fishery (Figure 13). This trend will likely continue as climate change and land use practices continue to favor brown trout over brook trout. It is possible that Fancy Creek tributaries will continue to provide a mix of brook and brown trout, with brook trout persisting and thriving in a few of the unnamed tributaries. One clear lacking feature of Fancy Creek is the presence of streambank easements. This stream has excellent stream reaches accessible at only a few road crossings. Future management plans should focus on outreach to purchase easements along Fancy Creek where access and habitat management are needed, especially along the lower reaches where temperatures are cold, yet habitat is fair at best. If easements can be procured, habitat restoration along the middle and lower reaches should be a priority.

The Horse/Rusk Creek complex continues to provide a low to moderate abundance fishery dominated by brook trout. These fish seemingly spawn in the stream reaches of Rusk Creek before moving down to the larger waters of Horse Creek. The watershed surrounding these streams is a mixture of woodlands and agriculture in the upper reaches before transitioning to an agriculturally dominated setting downstream where row crops nearly touch the banks. These sites also contain some warmer water temperatures within the Pine River watershed. Habitat management should be a priority along the banks of Horse Creek, and buffers should be established. However, without the ability to purchase streambank easements, this will likely not occur. Therefore, Horse and Rusk creeks should be added to the list of eligible streams to purchase streambank easements on during the next acquisition cycle.

The small spring-fed Pier Spring Creek was full of trout during the summer of 2021. This stream had a high abundance of age-0 brook and brown trout, excellent recruitment of age-1 brook trout, and a high abundance of adult brook trout. Very few age-1 brown trout were found with the absence of adults. These fish likely move down to Brush Creek after the first year to forage in the larger waters of Brush Creek, where both species were observed. Overall, Brush Creek had a mixed population with a moderate abundance of both brook and brown trout. This isn't surprising given the good in-stream habitat and cool temperatures throughout. Both habitat and population abundance could benefit by increasing riparian buffers and establishing forested canopy with native tree species. Both Pier Spring and Brush creeks should be added to the list of eligible streambank easement streams in order to protect habitat and better manage trout populations in the future.

Ash Creek continues to provide an excellent brook and brown trout fishery throughout. On average, age-0, age-1 and adult brown trout were moderate overall. Brook trout reproduction and recruitment were very low in 2021, although abundance of adults and preferred-size fish was moderate. This is likely trending towards more of a brown trout dominated fishery, which has been observed over the last decade. Access for anglers is abundant with both Richland County lands and the DNR fishery area. The current special regulation will be kept, which favors brook trout in Ash Creek; however, with the overall trend and lack of angler harvest, brown trout will likely continue to make up most of the fish population.

The mainstem of the Pine River is dominated by brown trout throughout, where populations were moderate at best. Few brook trout were observed, as these fish likely moved down to the Pine from nearby tributaries. This is likely due to habitat that exists in the Pine River, especially in the lower reaches where shifting sand substrates are common and temperatures are higher. The best habitat in the Pine River exists along the middle reaches where tributaries contribute cold water and gravel/cobble substrates are common. These locations exhibited natural reproduction, good recruitment and a fishable population of adult brown trout.

Overall, this population in Pine River has remained stable and no major changes to this stream are needed (Figure 14). Staff will also continue to conduct outreach to acquire streambank easements where allowed.

Eight trout potential sites were surveyed during the watershed assessment in 2021 (Figure 1). Of the eight sites surveyed, six contained trout. Surveys on Soules Creek produced age-0, age-1 and adult brook and brown trout. brook trout were abundant in the headwater reaches at site 29 and brown trout became the dominant species at site 2 downstream. Interestingly, very few fish were collected at the lower site (Table 5; Table 6). Based on the abundance of both brook and brown trout, habitat and stream temperatures, the entire reach upstream of Ravine Drive should be reclassified to Class 1 trout water during the next classification cycle. Unnamed Tributary to Center Creek and Center Creek also contained brook and brown trout at very low numbers. Only age-0 and age-1 trout were encountered during these surveys. Even though these streams exhibited cold temperatures, these streams are unlikely to function as a fishery or a productive nursery stream to the Pine River; therefore, they should remain unclassified at this time.

The classified trout waters within the Pine River watershed are managed under five different regulations (Figure 2). Champion Valley and Greenwood Valley from CTH H upstream to the headwaters are managed under the five trout in total; no minimum length regulation. Champion Valley from CTH H downstream to the confluence of the Pine River is managed under the two trout over 12-inch regulation. Melancthon Creek is managed solely under the regulation of five trout in total: all brook trout caught shall be immediately released; brown and rainbow trout – no minimum length. Catch and release only regulations are implemented on West Branch Pine River from Old County Farm Drive upstream to Spangler Ridge Road and the entirety of Ash Creek. Pine River from State Highway 80 all the way to the headwaters is managed under the two trout over 12-inch regulation. All other classified waters within the watershed are managed under the county base regulation of three trout over 8 inches. As stated previously, two regulations should be changed at this time. The catch and release regulation on the West Branch Pine River and Gault Hollow should revert to the county base regulation of three trout over 8 inches. Both Champion and Greenwood Valley creeks should also revert to the Richland County base regulation of three trout over 8 inches to reduce regulation complexity across county lines and simplify management on these tributaries.

MANAGEMENT RECOMMENDATIONS

- 1) **GOAL:** Acquire more streambank easements to provide access for fishing.
OBJECTIVE: Acquire 2 miles of additional streambank easements along Champion and Greenwood Valley c, West Branch Pine River and its classified tributaries, Rusk Creek, Horse Creek, Pier Spring Creek, Brush Creek and Ash Creek over the next six years.
STRATEGY: Expand streambank easement authority during the next watershed acquisition review cycle and continue landowner outreach through postcard mailings and landowner contacts.
- 2) **GOAL:** Expand angler harvest opportunities and regulation simplicity on West Branch Pine River and Gault Hollow, Champion Valley and Greenwood Valley creeks by reverting to the county base regulation.
OBJECTIVE: Allow for the harvest of three trout over 8 inches.
STRATEGY: Remove catch and release regulation on middle West Branch Pine River and lower Gault Hollow; remove no minimum length, five bag limit regulation on Champion Valley and Greenwood Valley creeks.
- 3) **GOAL:** Increase reproduction of brook trout in Melancthon Creek.
OBJECTIVE: Increase CPUE of age-0 brook trout at sites 64 and 48 to 145 fish per mile, 50th percentile based on statewide values.
STRATEGY: Conduct brown trout removal on upper Melancthon Creek, UNT to Melancthon (WBIC: 1232625) and Grinsell Creek. Mark relocated fish with PIT tags and use PIT Tag Array to determine movement patterns for two years post brown trout removal and relocation.
- 4) **GOAL:** Manage for brook trout on UNT to Melancthon, Grinsell and Hanzel creeks.
OBJECTIVE: Protect brook trout populations by allowing harvest of brown trout only.
STRATEGY: Implement the special regulation of five trout in total, brook trout should be immediately released, brown and rainbow trout no minimum length.

ADDITIONAL MANAGEMENT RECOMMENDATIONS

- Reclassify Champion Valley and Greenwood Valley creeks to Class 2 trout water during the next classification cycle in 2025.
- Discontinue stocking of yearling fish in Champion Valley and Greenwood Valley creeks.
- Declassify UNT to Greenwood Valley Creek (WBIC: 1233900)
- Reclassify Cherry Valley Creek to Class 1 trout water during the next classification cycle in 2025.
- Reclassify Basswood Creek to Class 1 trout water during the next classification cycle in 2025.

- Reclassify Soules Creek as Class 1 trout water during the next classification cycle in 2025.
- Reclassify South Branch Marshall Creek as Class 2 trout water during the next classification cycle in 2025.
- Increase outreach efforts to landowners regarding easement encroachment issues.

References

Hanson, T. 2015. Map Guide to Improved Trout Waters of Wisconsin, Second Edition.

Where am I Publications Inc, Madison.

Ripp, C.W., Koperski, C., and J. Folstad. 2002. The State of the Lower Wisconsin River

Basin. 459pp. Wisconsin Department of Natural Resources, Madison,

Wisconsin. PUBL WT-559-2002.

Simonson, T. 2015. Surveys and Investigations – Inland Fisheries Surveys. Fish Management Handbook Chapter 510, Wisconsin Department of Natural Resources internal publication. Madison, Wisconsin.

Stroud Water Research Center. 2021. Model My Watershed.

<https://modelmywatershed.org/>. (December 2021).

Wisconsin Department of Natural Resources. 2013. Regional and property analysis for the development of a master plan for Department of Natural Resources' properties along trout and Smallmouth Bass streams in the Driftless Area.

Wisconsin Department of Natural Resources internal publication LF-071.

Madison, Wisconsin.

Table 1. Watershed and land cover statistics in the Pine River Watershed.

LAND COVER	PERCENT OF WATERSHED
Forest	50
Cultivated Crops	15
Pasture/hay	26
Other	9

Table 2. Sampling locations by stream and station.

STREAM	STATION NAME	STATION NUMBER	SAMPLING DATE	LATITUDE	LONGITUDE
CHAMPION VALLEY	CHAMPION VALLEY CR US OF SUNRISE LN	59	08/05/2021	43.58262	-90.43859
CHAMPION VALLEY	CHAMPION VALLEY ~1500M US OF GREENWOOD VALLEY CONFLUENCE	60	08/05/2021	43.559391	-90.439136
CHAMPION VALLEY	CHAMPION VALLEY STATION 1, CHY H BRIDGE	44	08/05/2021	43.54888	-90.43336
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1233900) TO GREENWOOD VALLEY CR ~1200M US OF GREENWOOD CONFLUENCE	58	06/23/2021	43.5720347	-90.417401
GREENWOOD VALLEY	UNNAMED STREAM 31-11 (GREENWOOD VALLEY CR.) AT QUARRY DRIVEWAY CROSSING	55	06/22/2021	43.57131	-90.38382
GREENWOOD VALLEY	UNNAMED CREEK 31-11 (GREENWOOD VALLEY CR.) AT KOLASH RD. BRI	61	06/22/2021	43.5642249	-90.411336
GREENWOOD VALLEY	GREENWOOD VALLEY CR ~640M DS ALLEN LN	56	07/27/2021	43.557786	-90.423744
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1234100) AT 1ST PRIVATE DR OFF MUNSIE RD	71	06/21/2021	43.5542038	-90.467892
INDIAN CREEK	INDIAN CREEK ~600M DS ENGINE CREEK RD.	15	06/23/2021	43.53818	-90.40217
INDIAN CREEK	INDIAN CREEK ~3000FT US OF YUBA DR	14	06/23/2021	43.5315003	-90.411293
MELANCTHON CREEK	MELANCTHON CR ~1800 FEET DS AT FURTHEST US HWY 80	64	06/17/2021	43.5613102	-90.351495
MELANCTHON CREEK	MELANCTHON CR ~950M US GRINSELL LN	48	06/28/2021	43.54128	-90.35439
MELANCTHON CREEK	MELANCTHON CR AT PLINER LN	7	06/28/2021	43.52075	-90.35931
MELANCTHON CREEK	MELANCTHON CR @ 2ND US CROSSING HWY 80	11	07/08/2021	43.49372	-90.3575
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1232625) OF MELANCTHON CR US CONFLUENCE OF MELANCTHON CR	36	06/28/2021	43.54657	-90.35287
GRINSELL BRANCH	GRINSELL BRANCH	5	06/16/2021	43.5349	-90.34966
HANZEL CREEK	HANZEL CREEK #2-(ATBH LANE AND CTH CC)	35	06/16/2021	43.51423	-90.34998
SOULES CREEK	SOULES CREEK AT SUNNY SLOPE RD	29	06/16/2021	43.504646	-90.32393
SOULES CREEK	SOULES CREEK AT CEMETERY LN	2	08/02/2021	43.488895	-90.338326
SOULES CREEK	SOULES CREEK AT RAVINE LN	1	08/02/2021	43.475784	-90.35072
JOHNSTON CREEK	JOHNSTON CR ~1600M US HAWKINS CREEK RD	37	06/22/2021	43.481754	-90.30102
JOHNSTON CREEK	JOHNSON CR. STATION 1, HAWKENS RD BRIDGE	52	06/14/2021	43.475037	-90.31226
HAWKINS CREEK	HAWKINS CREEK AT THIRD CTY I BRIDGE CROSSING	3	07/08/2021	43.46829	-90.3346
HAWKINS CREEK	HAWKINS CREEK OFF PRIVATE FIELD DRIVE ON CTY I	43	06/14/2021	43.474163	-90.28909

CHERRY VALLEY	CHERRY VALLEY CR US OF PRIVATE CROSSING ON EASEMENT	25	06/14/2021	43.5223235	-90.508394
GAULT HOLLOW	GAULT HOLLOW STATION 4, CULVERT SPRING VALLEY RD BRIDGE	8	06/16/2021	43.49879	-90.5033
GAULT HOLLOW	GAULT HOLLOW CREEK LOWER BASELINE	9	06/16/2021	43.48706	-90.47744
HYNEK HOLLOW	HYNEK HOLLOW CREEK AT PORT DR	18	06/16/2021	43.482362	-90.491903
BASSWOOD CREEK	BASSWOOD CR. STATION 2 ALONG CTH D ABOVE CONFLUENCE	51	06/14/2021	43.53335	-90.499245
BASSWOOD CREEK	BASSWOOD CR. STATION 1 AT CHERRY VALLEY RD	26	06/14/2021	43.524525	-90.48948
WEST BRANCH PINE RIVER	WEST BRANCH PINE R US ENOCH JEWELL LN	21	07/20/2021	43.5155885	-90.477928
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH H	12	07/21/2021	43.4919082	-90.464538
WEST BRANCH PINE RIVER	WEST BRANCH PINE R ~800FT US OF WOODSTOCK DR	20	07/21/2021	43.4732698	-90.428744
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH DD	10	08/03/2021	43.46577	-90.40318
WEST BRANCH PINE RIVER	WEST BR PINE RIVER AT BLOOD LN	40	08/03/2021	43.456543	-90.3916
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1229100) US LITTLE LN	70	08/18/2021	43.4327292	-90.381948
SOUTH BUCK CREEK	SOUTH BUCK CR ~1100M US CTH D	67	08/18/2021	43.4188062	-90.348431
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228700) TO FANCY CR US WILSON SPRINGS RD	4	06/16/2021	43.4572633	-90.505811
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228600) TO FANCY CREEK ~700M US OF FANCY CREEK CONFLUENCE	45	06/23/2021	43.4524876	-90.476431
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1228000) TO FANCY CREEK AT GILLINGHAM DR	34	06/23/2021	43.428833	-90.444885
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1227900) TO FANCY CR US BELL HOLLOW LN	28	06/23/2021	43.422405	-90.43483
WEST BRANCH MARSHALL CREEK	WEST BR MARSHALL CR ~318M US UNNAMED TRIB (WBIC 1228400)	13	06/30/2021	43.43306	-90.48698
WEST BRANCH MARSHALL CREEK	WEST BRANCH MARSHALL CREEK STATION 1 AT HWY Z AND DRIVEWAY	6	06/23/2021	43.426197	-90.47094
MARSHALL CREEK	MARSHALL CR US CTH Z	27	06/30/2021	43.4238182	-90.472043
MARSHALL CREEK	MARSHALL CREEK AT CONFLUENCE OF FANCY CREEK	31	07/12/2021	43.428352	-90.45539
SOUTH BRANCH MARSHALL CREEK	SOUTH BR MARSHALL CR ~600M US MARSHALL CR CONFLUENCE	42	07/08/2021	43.4225933	-90.465161
FANCY CREEK	FANCY CR ~265M DS HWY 56 (UPPERMOST CROSSING)	62	06/30/2021	43.455532	-90.49808

FANCY CREEK	FANCY CR AT HWY 56	32	07/08/2021	43.44465	-90.47614
FANCY CREEK	FANCY CREEK STATION 1-HWY Z	17	07/12/2021	43.43251	-90.45757
FANCY CREEK	FANCY CR AT DANZ RD	50	07/12/2021	43.4125372	-90.42497
FANCY CREEK	FANCY CREEK BASELINE (ATSTH 80)	41	07/12/2021	43.38532	-90.38962
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO HORSE CREEK ALONG BISHOP LANE(5032267)	69	06/29/2021	43.374233	-90.43808
HORSE CREEK	HORSE CR US HIDDEN VALLEY RD	46	06/14/2021	43.377013	-90.445506
HORSE CREEK	HORSE CR US COVERED BRIDGE RD	33	07/12/2021	43.37218	-90.41869
PIER SPRINGS CREEK	PIER SPRING CREEK UPSTREAM OF HWY 14 BRIDGE	19	06/17/2021	43.348194	-90.44197
BRUSH CREEK	BRUSH CREEK UPSTREAM OF VIVIAN'S RD	49	07/19/2021	43.34973	-90.432076
BRUSH CREEK	BRUSH CREEK UPSTREAM OF HIGH SCHOOL DRIVEWAY	39	07/19/2021	43.34565	-90.40308
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC-1225900) OF CENTER CR.	68	08/18/2021	43.3336012	-90.400484
CENTER CREEK	CENTER CREEK UPSTREAM OF NORMAN DRIVE CULVERTS	66	08/18/2021	43.33534	-90.40309
CENTER CREEK	CENTER CR US S STEWART ST	65	08/18/2021	43.3335157	-90.395372
ASH CREEK	ASH CR ~600 M US HWY 80	22	07/19/2021	43.2940073	-90.424921
ASH CREEK	ASH CR ALONG ASH CR RD STATE PROPERTY	24	07/27/2021	43.286484	-90.3969
ASH CREEK	ASH CR US MEADOWOOD LN	23	07/27/2021	43.28841	-90.3444
PINE RIVER	PINE R ~6100 FT US OF MUNSIE DR	57	06/22/2021	43.5540406	-90.477576
PINE RIVER	PINE RIVER 1974 STATION 13 RESAC LANE TO HEIDENREICH LANE	16	07/14/2021	43.54503	-90.44613
PINE RIVER	PINE RIVER STATION 6 (CTY C UP 100YDS)	53	07/15/2021	43.522976	-90.41596
PINE RIVER	PINE RIVER AT CTH C AND DOVE LN TO QUARRY DR	54	07/20/2021	43.499523	-90.38873
PINE RIVER	PINE R US OF HWY 80 N OF HUB CITY	63	08/16/2021	43.4843824	-90.363913
PINE RIVER	PINE R AT HWY 80 5TH CROSSING N OF RICHLAND CTR	47	07/06/2021	43.4558548	-90.357635
PINE RIVER	PINE RIVER ~800M US OF HWY 80 ON THE PUBLIC LAND	30	07/06/2021	43.4116076	-90.360129
PINE RIVER	PINE R US OF CTH AA	38	07/20/2021	43.3732234	-90.383713

Table 3. Statewide and Driftless Area percentiles for brook and brown trout populations. These values were summarized for Class 1 trout populations sampled from 2012-2021, where at least one trout was collected.

	STATEWIDE PERCENTILES			DRIFTLESS PERCENTILES		
	35 TH	MEDIAN	65 TH	35 TH	MEDIAN	65 TH
Brown						
<4 inches	58.1	119.3	247.5	71.1	136.1	256.1
4 to 8 inches	115	199.2	337.2	135.6	229.9	383.2
>8 inches	112.7	205.8	341.9	191.6	330.8	509.7
>12 inches	30.3	47.6	72	42.9	63.2	85.8
Brook						
<4 inches	72.4	145.3	241.4	68.6	128.7	209.2
4 to 7 inches	80.5	149.2	257.2	44.9	80.5	150.9
>7 inches	48.3	80.5	129.4	47.9	80.5	124
>10 inches	12.8	16.4	27.5	14.3	16.1	29.1

Table 4. Station metrics for Pine River watershed and its tributaries.

STATION NAME	HABITAT RATING	TROUT CLASS	GEAR	STATION LENGTH (MILES)	MEAN STREAM WIDTH (M)	FLOW (CFS)	STREAM TEMPERATURE (°F)
CHAMPION VALLEY CR US OF SUNRISE LN	EXCELLENT	3	BARGE	0.08	4.40	1.8	64
CHAMPION VALLEY ~1500M US OF GREENWOOD VALLEY CONFLUENCE	GOOD	3	BARGE	0.17	4.10	3.2	66
CHAMPION VALLEY STATION 1, CHY H BRIDGE	GOOD	3	BARGE	0.13	4.30	6	68
UNNAMED TRIB (1233900) TO GREENWOOD VALLEY CR ~1200M US OF GREENWOOD CONFLUENCE	GOOD	3	BACKPACK	0.10	1.50	1.1	59
UNNAMED STREAM 31-11 (GREENWOOD VALLEY CR.) AT QUARRY DRIVEWAY CROSSING	GOOD	3	BACKPACK	0.08	3.0	0.35	64
UNNAMED CREEK 31-11 (GREENWOOD VALLEY CR.) AT KOLASH RD. BRI	GOOD	3	BACKPACK	0.09	2.50	2.8	57
GREENWOOD VALLEY CR ~640M DS ALLEN LN	EXCELLENT	3	BARGE	0.12	2.60	3.5	64
UNNAMED TRIB TO PINE RIVER (1234100) AT 1ST PRIVATE DR OFF MUNSIE RD	GOOD	UNCLASSIFIED	BACKPACK	0.07	1.50	0.7	57
INDIAN CREEK ~600M DS ENGINE CREEK RD.	FAIR	2	BACKPACK	0.11	1.50	0.7	57
INDIAN CREEK ~3000FT US OF YUBA DR	GOOD	2	BACKPACK	0.07	NA	1.1	62.9
MELANCTHON CR ~1800 FEET DS AT FURTHEST US HWY 80	EXCELLENT	1	BACKPACK	0.08	1.70	1.4	52
MELANCTHON CR ~950M US GRINSEL LN	GOOD	1	BACKPACK	0.07	2.20	3.9	60
MELANCTHON CR AT PLINER LN	GOOD	1	BACKPACK	0.07	2.90	7.1	63
MELANCTHON CR @ 2ND US CROSSING HWY 80	EXCELLENT	1	BARGE	0.13	3.70	15.2	58
UNNAMED TRIB (WBIC 1232625) OF MELANCTHON CR US CONFLUENCE OF MELANCTHON CR	GOOD	1	BACKPACK	0.06	1.70	0.7	56
GRINSELL BRANCH	GOOD	1	BACKPACK	0.10	1.30	1.4	55.5
HANZEL CREEK #2-(ATBH LANE AND CTH CC)	GOOD	1	BACKPACK	0.06	1.30	1.4	57.1
SOULES CREEK AT SUNNY SLOPE RD	GOOD	UNCLASSIFIED	BACKPACK	0.05	1.70	1	56
SOULES CREEK AT CEMETERY LN	GOOD	UNCLASSIFIED	BACKPACK	0.09	2.00	1.1	57
SOULES CREEK AT RAVINE LN	FAIR	UNCLASSIFIED	BACKPACK	0.08	1.60	1.8	58
JOHNSTON CR ~1600M US HAWKINS CREEK RD	GOOD	2	BACKPACK	0.08	1.00	0.4	64
JOHNSON CR. STATION 1, HAWKENS RD BRIDGE	GOOD	2	BACKPACK	0.08	1.60	0.8	67.3
HAWKINS CREEK AT THIRD CTY I BRIDGE CROSSING	GOOD	2	BARGE	0.13	4.30	9.9	58

HAWKINS CREEK OFF PRIVATE FIELD DRIVE ON CTY I	GOOD	2	BACKPACK	0.07	1.80	2.5	60.7
CHERRY VALLEY CR US OF PRIVATE CROSSING ON EASEMENT	GOOD	UNCLASSIFIED	BACKPACK	0.08	2.90	1.4	64
GAULT HOLLOW STATION 4, CULVERT SPRING VALLEY RD BRIDGE	GOOD	1	BACKPACK	0.07	1.50	1.1	52
GAULT HOLLOW CREEK LOWER BASELINE	GOOD	1	BACKPACK	0.10	2.90	5.3	60
HYNEK HOLLOW CREEK AT PORT DR	FAIR	2	BACKPACK	0.08	1.90	1.8	62
BASSWOOD CR. STATION 2 ALONG CTH D ABOVE CONFLUENCE	GOOD	2	BACKPACK	0.08	1.60	2.5	56
BASSWOOD CR. STATION 1 AT CHERRY VALLEY RD	EXCELLENT	2	BACKPACK	0.07	1.70	3.2	62
WEST BRANCH PINE R US ENOCH JEWELL LN	EXCELLENT	2	BARGE	0.10	3.45	9.2	64
WEST BR PINE R US CTH H	GOOD	2	BARGE	0.16	6.60	10.2	64
WEST BRANCH PINE R ~800FT US OF WOODSTOCK DR	FAIR	2	BARGE	0.17	5.60	18.5	66.9
WEST BR PINE R US CTH DD	FAIR	2	BARGE	0.12	5.30	23	61
WEST BR PINE RIVER AT BLOOD LN	GOOD	2	BARGE	0.12	5.20	27.9	63
UNNAMED TRIB TO PINE RIVER (1229100) US LITTLE LN	FAIR	UNCLASSIFIED	BACKPACK	0.08	1.30	1.1	66
SOUTH BUCK CR ~1100M US CTH D	EXCELLENT	UNCLASSIFIED	BACKPACK	0.07	1.40	0.7	62
UNNAMED TRIB (1228700) TO FANCY CR US WILSON SPRINGS RD	GOOD	1	BACKPACK	0.08	1.50	1.7	50
UNNAMED TRIB (1228600) TO FANCY CREEK ~700M US OF FANCY CREEK CONFLUENCE	EXCELLENT	1	BACKPACK	0.07	0.80	0.5	55
UNNAMED TRIB (WBIC 1228000) TO FANCY CREEK AT GILLINGHAM DR	GOOD	2	BACKPACK	0.07	1.30	1.3	60.3
UNNAMED TRIB (WBIC 1227900) TO FANCY CR US BELL HOLLOW LN	FAIR	1	BACKPACK	0.06	1.00	1.2	60
WEST BR MARSHALL CR ~318M US UNNAMED TRIB (WBIC 1228400)	GOOD	1	BACKPACK	0.08	1.80	1.8	64
WEST BRANCH MARSHALL CREEK STATION 1 AT HWY Z AND DRIVEWAY	GOOD	1	BACKPACK	0.07	2.10	1.8	59.7
MARSHALL CR US CTH Z	EXCELLENT	1	BACKPACK	0.07	1.90	2.8	69
MARSHALL CREEK AT CONFLUENCE OF FANCY CREEK	GOOD	1	BARGE	0.13	3.00	6.7	61
SOUTH BR MARSHALL CR ~600M US MARSHALL CR CONFLUENCE	GOOD	1	BACKPACK	0.07	2.70	0.7	61
FANCY CR ~265M DS HWY 56 (UPPERMOST CROSSING)	EXCELLENT	1	BACKPACK	0.07	1.80	3.5	57

FANCY CR AT HWY 56	EXCELLENT	1	BACKPACK	0.10	2.70	6.4	59
FANCY CREEK STATION 1-HWY Z	FAIR	1	BARGE	0.11	3.70	6	60
FANCY CR AT DANZ RD	FAIR	2	BARGE	0.15	6.40	17	65
FANCY CREEK BASELINE (ATSTH 80)	FAIR	2	BARGE	0.13	7.00	20.5	63
UNNAMED TRIB TO HORSE CREEK ALONG BISHOP LANE(5032267)	GOOD	2	BACKPACK	0.09	1.70	1.1	59
HORSE CR US HIDDEN VALLEY RD	FAIR	2	BACKPACK	0.08	1.90	1.9	72
HORSE CR US COVERED BRIDGE RD	FAIR	2	BACKPACK	0.07	3.10	3.5	64
PIER SPRING CREEK UPSTREAM OF HWY 14 BRIDGE	GOOD	2	BACKPACK	0.09	3.30	1.4	62
BRUSH CREEK UPSTREAM OF VIVIAN'S RD	GOOD	2	BACKPACK	0.07	2.70	1.8	62.4
BRUSH CREEK UPSTREAM OF HIGH SCHOOL DRIVEWAY	GOOD	2	BACKPACK	0.08	2.10	3.5	64.5
UNNAMED TRIB (WBIC-1225900) OF CENTER CR.	GOOD	UNCLASSIFIED	BACKPACK	0.06	1.20	0.7	54
CENTER CREEK UPSTREAM OF NORMAN DRIVE CULVERTS	GOOD	UNCLASSIFIED	BACKPACK	0.21	1.40	0.4	62
CENTER CR US S STEWART ST	FAIR	UNCLASSIFIED	BACKPACK	0.08	2.10	1.1	60
ASH CR ~600 M US HWY 80	EXCELLENT	1	BACKPACK	0.11	2.60	1.8	60
ASH CR ALONG ASH CR RD STATE PROPERTY	GOOD	1	BACKPACK	0.09	2.50	3.9	56
ASH CR US MEADOWOOD LN	GOOD	1	BARGE	0.09	5.00	8.8	60
PINE R ~6100 FT US OF MUNSIE DR	GOOD	UNCLASSIFIED	BACKPACK	0.07	1.40	2.5	59
PINE RIVER 1974 STATION 13 RESAC LANE TO HEIDENREICH LANE	EXCELLENT	2	BARGE	0.16	3.00	4.6	67
PINE RIVER STATION 6 (CTY C UP 100YDS)	FAIR	2	BARGE	0.16	5.10	15.2	68
PINE RIVER AT CTH C AND DOVE LN TO QUARRY DR	GOOD	2	BARGE	0.15	6.60	23	65
PINE R US OF HWY 80 N OF HUB CITY	EXCELLENT	2	BARGE	0.26	11.40	46.3	63
PINE R AT HWY 80 5TH CROSSING N OF RICHLAND CTR	GOOD	2	BARGE	0.15	6.60	58.3	70
PINE RIVER ~800M US OF HWY 80 ON THE PUBLIC LAND	FAIR	2	BARGE	0.24	10.10	90.8	73
PINE R US OF CTH AA	FAIR	2	BARGE	0.34	13.60	131.4	67

Table 5. Brown trout CPUE (fish/mile) by size group, stream and station.

STREAM	STATION NAME	STATION NUMBER	CPUE			
			<4"	4"-7.9"	≥8"	≥12"
CHAMPION VALLEY	CHAMPION VALLEY CR US OF SUNRISE LN	59	0.0	12.5	25.0	0.0
CHAMPION VALLEY	CHAMPION VALLEY ~1500M US OF GREENWOOD VALLEY CONFLUENCE	60	0.0	0.0	24.0	12.0
CHAMPION VALLEY	CHAMPION VALLEY STATION 1, CHY H BRIDGE	44	0.0	0.0	31.0	15.5
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1233900) TO GREENWOOD VALLEY CR ~1200M US OF GREENWOOD CONFLUENCE	58	0.0	0.0	0.0	0.0
GREENWOOD VALLEY	UNNAMED STREAM 31-11 (GREENWOOD VALLEY CR.) AT QUARRY DRIVEWAY CROSSING	55	0.0	0.0	0.0	0.0
GREENWOOD VALLEY	UNNAMED CREEK 31-11 (GREENWOOD VALLEY CR.) AT KOLASH RD. BRI	61	11.4	159.1	181.8	90.9
GREENWOOD VALLEY	GREENWOOD VALLEY CR ~640M DS ALLEN LN	56	67.8	144.1	228.8	76.3
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1234100) AT 1ST PRIVATE DR OFF MUNSIE RD	71	492.3	30.8	46.2	0.0
INDIAN CREEK	INDIAN CREEK ~600M DS ENGINE CREEK RD.	15	73.4	73.4	0.0	0.0
INDIAN CREEK	INDIAN CREEK ~3000FT US OF YUBA DR	14	44.8	134.3	29.9	14.9
MELANCTHON CREEK	MELANCTHON CR ~1800 FEET DS AT FURTHEST US HWY 80	64	25.6	153.8	128.2	12.8
MELANCTHON CREEK	MELANCTHON CR ~950M US GRINSELL LN	48	132.4	441.2	264.7	58.8
MELANCTHON CREEK	MELANCTHON CR AT PLINER LN	7	394.4	366.2	450.7	84.5
MELANCTHON CREEK	MELANCTHON CR @ 2ND US CROSSING HWY 80	11	217.1	465.1	534.9	93.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1232625) OF MELANCTHON CR US CONFLUENCE OF MELANCTHON CR	36	769.2	123.1	15.4	0.0
GRINSELL BRANCH	GRINSELL BRANCH	5	166.7	291.7	83.3	0.0
HANZEL CREEK	HANZEL CREEK #2-(ATBH LANE AND CTH CC)	35	129.0	177.4	112.9	0.0
SOULES CREEK	SOULES CREEK AT SUNNY SLOPE RD	29	37.7	94.3	0.0	0.0
SOULES CREEK	SOULES CREEK AT CEMETERY LN	2	11.4	79.5	250.0	22.7
SOULES CREEK	SOULES CREEK AT RAVINE LN	1	23.8	23.8	0.0	0.0
JOHNSTON CREEK	JOHNSTON CR ~1600M US HAWKINS CREEK RD	37	0.0	0.0	0.0	0.0
JOHNSTON CREEK	JOHNSON CR. STATION 1, HAWKENS RD BRIDGE	52	24.7	37.0	0.0	0.0

HAWKINS CREEK	HAWKINS CREEK AT THIRD CTY I BRIDGE CROSSING	3	401.6	228.3	440.9	78.7
HAWKINS CREEK	HAWKINS CREEK OFF PRIVATE FIELD DRIVE ON CTY I	43	191.2	132.4	29.4	0.0
CHERRY VALLEY	CHERRY VALLEY CR US OF PRIVATE CROSSING ON EASEMENT	25	423.1	153.8	153.8	51.3
GAULT HOLLOW	GAULT HOLLOW STATION 4, CULVERT SPRING VALLEY RD BRIDGE	8	15.4	61.5	276.9	30.8
GAULT HOLLOW	GAULT HOLLOW CREEK LOWER BASELINE	9	0.0	184.5	339.8	106.8
HYNEK HOLLOW	HYNEK HOLLOW CREEK AT PORT DR	18	103.9	64.9	13.0	0.0
BASSWOOD CREEK	BASSWOOD CR. STATION 2 ALONG CTH D ABOVE CONFLUENCE	51	144.7	763.2	105.3	26.3
BASSWOOD CREEK	BASSWOOD CR. STATION 1 AT CHERRY VALLEY RD	26	55.6	1263.9	555.6	111.1
WEST BRANCH PINE RIVER	WEST BRANCH PINE R US ENOCH JEWELL LN	21	485.1	277.2	346.5	49.5
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH H	12	0.0	43.5	242.2	80.7
WEST BRANCH PINE RIVER	WEST BRANCH PINE R ~800FT US OF WOODSTOCK DR	20	40.9	52.6	128.7	40.9
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH DD	10	0.0	108.1	216.2	108.1
WEST BRANCH PINE RIVER	WEST BR PINE RIVER AT BLOOD LN	40	0.0	41.0	147.5	32.8
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1229100) US LITTLE LN	70	0.0	0.0	0.0	0.0
SOUTH BUCK CREEK	SOUTH BUCK CR ~1100M US CTH D	67	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228700) TO FANCY CR US WILSON SPRINGS RD	4	48.2	108.4	60.2	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228600) TO FANCY CREEK ~700M US OF FANCY CREEK CONFLUENCE	45	382.4	88.2	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1228000) TO FANCY CREEK AT GILLINGHAM DR	34	0.0	14.7	29.4	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1227900) TO FANCY CR US BELL HOLLOW LN	28	32.3	0.0	0.0	0.0
WEST BRANCH MARSHALL CREEK	WEST BR MARSHALL CR ~318M US UNNAMED TRIB (WBIC 1228400)	13	0.0	12.5	25.0	0.0
WEST BRANCH MARSHALL CREEK	WEST BRANCH MARSHALL CREEK STATION 1 AT HWY Z AND DRIVEWAY	6	60.6	90.9	106.1	30.3
MARSHALL CREEK	MARSHALL CR US CTH Z	27	45.5	15.2	60.6	60.6
MARSHALL CREEK	MARSHALL CREEK AT CONFLUENCE OF FANCY CREEK	31	204.5	113.6	303.0	121.2

SOUTH BRANCH MARSHALL CREEK	SOUTH BR MARSHALL CR ~600M US MARSHALL CR CONFLUENCE	42	13.5	13.5	67.6	0.0
FANCY CREEK	FANCY CR ~265M DS HWY 56 (UPPERMOST CROSSING)	62	353.8	323.1	707.7	46.2
FANCY CREEK	FANCY CR AT HWY 56	32	505.1	515.2	525.3	50.5
FANCY CREEK	FANCY CREEK STATION 1-HWY Z	17	250.0	142.9	437.5	142.9
FANCY CREEK	FANCY CR AT DANZ RD	50	73.8	127.5	308.7	80.5
FANCY CREEK	FANCY CREEK BASELINE (ATSTH 80)	41	22.2	29.6	163.0	81.5
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO HORSE CR. STATION 1 ALONG BISHOP LN	69	0.0	0.0	22.7	0.0
HORSE CREEK	HORSE CR US HIDDEN VALLEY RD	46	13.0	51.9	13.0	0.0
HORSE CREEK	HORSE CR US COVERED BRIDGE RD	33	29.9	29.9	0.0	0.0
PIER SPRINGS CREEK	PIER SPRING CREEK UPSTREAM OF HWY 14 BRIDGE	19	305.9	23.5	0.0	0.0
BRUSH CREEK	BRUSH CREEK UPSTREAM OF VIVIAN'S RD	49	175.7	162.2	135.1	54.1
BRUSH CREEK	BRUSH CREEK UPSTREAM OF HIGH SCHOOL DRIVEWAY	39	0.0	50.6	101.3	63.3
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC-1225900) OF CENTER CR.	68	16.1	0.0	0.0	0.0
CENTER CREEK	CENTER CREEK UPSTREAM OF NORMAN DRIVE CULVERTS	66	0.0	0.0	0.0	0.0
CENTER CREEK	CENTER CR US S STEWART ST	65	64.1	12.8	0.0	0.0
ASH CREEK	ASH CR ~600 M US HWY 80	22	229.4	587.2	568.8	91.7
ASH CREEK	ASH CR ALONG ASH CR RD STATE PROPERTY	24	244.7	42.6	21.3	0.0
ASH CREEK	ASH CR US MEADOWOOD LN	23	10.6	117.0	212.8	106.4
PINE RIVER	PINE R ~6100 FT US OF MUNSIE DR	57	202.7	135.1	81.1	40.5
PINE RIVER	PINE RIVER 1974 STATION 13 RESAC LANE TO HEIDENREICH LANE	16	0.0	6.4	12.8	0.0
PINE RIVER	PINE RIVER STATION 6 (CTY C UP 100YDS)	53	0.0	6.3	12.6	0.0
PINE RIVER	PINE RIVER AT CTH C AND DOVE LN TO QUARRY DR	54	95.9	89.0	294.5	47.9
PINE RIVER	PINE R US OF HWY 80 N OF HUB CITY	63	101.2	190.7	385.2	81.7
PINE RIVER	PINE R AT HWY 80 5TH CROSSING N OF RICHLAND CTR	47	19.5	64.9	142.9	58.4
PINE RIVER	PINE RIVER ~800M US OF HWY 80 ON THE PUBLIC LAND	30	4.2	0.0	12.6	8.4
PINE RIVER	PINE R US OF CTH AA	38	2.9	0.0	2.9	2.9

Table 6. Brook trout CPUE (fish/mile) by size group, stream and station.

STREAM	STATION NAME	STATION NUMBER	CPUE			
			<4"	4"-6.9"	≥7"	≥10"
CHAMPION VALLEY	CHAMPION VALLEY CR US OF SUNRISE LN	59	12.5	187.5	475.0	87.5
CHAMPION VALLEY	CHAMPION VALLEY ~1500M US OF GREENWOOD VALLEY CONFLUENCE	60	0.0	0.0	0.0	0.0
CHAMPION VALLEY	CHAMPION VALLEY STATION 1, CHY H BRIDGE	44	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1233900) TO GREENWOOD VALLEY CR ~1200M US OF GREENWOOD CONFLUENCE	58	0.0	0.0	0.0	0.0
GREENWOOD VALLEY	UNNAMED STREAM 31-11 (GREENWOOD VALLEY CR.) AT QUARRY DRIVEWAY CROSSING	55	39.5	0.0	0.0	0.0
GREENWOOD VALLEY	UNNAMED CREEK 31-11 (GREENWOOD VALLEY CR.) AT KOLASH RD. BRI	61	0.0	113.6	170.5	34.1
GREENWOOD VALLEY	GREENWOOD VALLEY CR ~640M DS ALLEN LN	56	0.0	0.0	16.9	8.5
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1234100) AT 1ST PRIVATE DR OFF MUNSIE RD	71	584.6	76.9	169.2	30.8
INDIAN CREEK	INDIAN CREEK ~600M DS ENGINE CREEK RD.	15	91.7	220.2	27.5	0.0
INDIAN CREEK	INDIAN CREEK ~3000FT US OF YUBA DR	14	14.9	44.8	44.8	0.0
MELANCTHON CREEK	MELANCTHON CR ~1800 FEET DS AT FURTHEST US HWY 80	64	12.8	282.1	153.8	0.0
MELANCTHON CREEK	MELANCTHON CR ~950M US GRINSELL LN	48	0.0	0.0	14.7	0.0
MELANCTHON CREEK	MELANCTHON CR AT PLINER LN	7	0.0	14.1	0.0	0.0
MELANCTHON CREEK	MELANCTHON CR @ 2ND US CROSSING HWY 80	11	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1232625) OF MELANCTHON CR US CONFLUENCE OF MELANCTHON CR	36	0.0	107.7	0.0	0.0
GRINSELL BRANCH	GRINSELL BRANCH	5	0.0	10.4	20.8	0.0
HANZEL CREEK	HANZEL CREEK #2-(ATBH LANE AND CTH CC)	35	0.0	0.0	0.0	0.0
SOULES CREEK	SOULES CREEK AT SUNNY SLOPE RD	29	113.2	358.5	94.3	0.0
SOULES CREEK	SOULES CREEK AT CEMETERY LN	2	22.7	0.0	79.5	0.0
SOULES CREEK	SOULES CREEK AT RAVINE LN	1	0.0	0.0	11.9	0.0
JOHNSTON CREEK	JOHNSTON CR ~1600M US HAWKINS CREEK RD	37	0.0	0.0	0.0	0.0

JOHNSTON CREEK	JOHNSON CR. STATION 1, HAWKENS RD BRIDGE	52	12.3	0.0	0.0	0.0
HAWKINS CREEK	HAWKINS CREEK AT THIRD CTY I BRIDGE CROSSING	3	0.0	0.0	7.9	0.0
HAWKINS CREEK	HAWKINS CREEK OFF PRIVATE FIELD DRIVE ON CTY I CHERRY VALLEY CR US OF PRIVATE CROSSING ON EASEMENT	43	0.0	0.0	29.4	0.0
CHERRY VALLEY	GAULT HOLLOW STATION 4, CULVERT SPRING VALLEY RD BRIDGE	25	25.6	12.8	89.7	12.8
GAULT HOLLOW	GAULT HOLLOW CREEK LOWER BASELINE	8	30.8	153.8	553.8	30.8
GAULT HOLLOW	HYNEK HOLLOW CREEK AT PORT DR	9	9.7	0.0	48.5	9.7
HYNEK HOLLOW	BASSWOOD CR. STATION 2 ALONG CTH D ABOVE CONFLUENCE	18	64.9	90.9	77.9	0.0
BASSWOOD CREEK	BASSWOOD CR. STATION 1 AT CHERRY VALLEY RD	51	0.0	0.0	0.0	0.0
BASSWOOD CREEK	WEST BRANCH PINE R US ENOCH JEWELL LN	26	0.0	0.0	0.0	0.0
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH H	21	9.9	0.0	29.7	0.0
WEST BRANCH PINE RIVER	WEST BRANCH PINE R ~800FT US OF WOODSTOCK DR	12	0.0	0.0	0.0	0.0
WEST BRANCH PINE RIVER	WEST BR PINE R US CTH DD	20	0.0	0.0	0.0	0.0
WEST BRANCH PINE RIVER	WEST BR PINE RIVER AT BLOOD LN	10	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO PINE RIVER (1229100) US LITTLE LN	40	0.0	0.0	0.0	0.0
SOUTH BUCK CREEK	SOUTH BUCK CR ~1100M US CTH D	70	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228700) TO FANCY CR US WILSON SPRINGS RD	67	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (1228600) TO FANCY CREEK ~700M US OF FANCY CREEK CONFLUENCE	4	228.9	385.5	96.4	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1228000) TO FANCY CREEK AT GILLINGHAM DR	45	455.9	235.3	323.5	14.7
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC 1227900) TO FANCY CR US BELL HOLLOW LN	34	88.2	0.0	29.4	0.0
WEST BRANCH MARSHALL CREEK	WEST BR MARSHALL CR ~318M US UNNAMED TRIB (WBIC 1228400)	28	80.6	0.0	48.4	0.0
WEST BRANCH MARSHALL CREEK	WEST BRANCH MARSHALL CREEK STATION 1 AT HWY Z AND DRIVEWAY	13	50.0	162.5	175.0	12.5
MARSHALL CREEK	MARSHALL CR US CTH Z	6	60.6	45.5	136.4	30.3
MARSHALL CREEK	MARSHALL CREEK AT CONFLUENCE OF FANCY CREEK	27	90.9	30.3	121.2	30.3
		31	0.0	0.0	75.8	0.0

SOUTH BRANCH MARSHALL CREEK	SOUTH BR MARSHALL CR ~600M US MARSHALL CR CONFLUENCE	42	40.5	0.0	0.0	0.0
FANCY CREEK	FANCY CR ~265M DS HWY 56 (UPPERMOST CROSSING)	62	15.4	0.0	107.7	46.2
FANCY CREEK	FANCY CR AT HWY 56	32	0.0	0.0	10.1	10.1
FANCY CREEK	FANCY CREEK STATION 1-HWY Z	17	0.0	8.9	0.0	0.0
FANCY CREEK	FANCY CR AT DANZ RD	50	0.0	0.0	33.6	6.7
FANCY CREEK	FANCY CREEK BASELINE (ATSTH 80)	41	0.0	0.0	0.0	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB TO HORSE CREEK ALONG BISHOP LANE(5032267)	69	113.6	45.5	68.2	0.0
HORSE CREEK	HORSE CR US HIDDEN VALLEY RD	46	13.0	51.9	77.9	13.0
HORSE CREEK	HORSE CR US COVERED BRIDGE RD	33	0.0	0.0	0.0	0.0
PIER SPRINGS CREEK	PIER SPRING CREEK UPSTREAM OF HWY 14 BRIDGE	19	376.5	294.1	129.4	11.8
BRUSH CREEK	BRUSH CREEK UPSTREAM OF VIVIAN'S RD	49	40.5	67.6	175.7	0.0
BRUSH CREEK	BRUSH CREEK UPSTREAM OF HIGH SCHOOL DRIVEWAY	39	0.0	0.0	12.7	0.0
UNNAMED SINGLE-LINE STREAM	UNNAMED TRIB (WBIC-1225900) OF CENTER CR.	68	64.5	64.5	0.0	0.0
CENTER CREEK	CENTER CREEK UPSTREAM OF NORMAN DRIVE CULVERTS	66	0.0	0.0	0.0	0.0
CENTER CREEK	CENTER CR US S STEWART ST	65	12.8	0.0	0.0	0.0
ASH CREEK	ASH CR ~600 M US HWY 80	22	9.2	36.7	192.7	82.6
ASH CREEK	ASH CR ALONG ASH CR RD STATE PROPERTY	24	0.0	0.0	0.0	0.0
ASH CREEK	ASH CR US MEADOWOOD LN	23	0.0	0.0	0.0	0.0
PINE RIVER	PINE R ~6100 FT US OF MUNSIE DR	57	0.0	13.5	67.6	13.5
PINE RIVER	PINE RIVER 1974 STATION 13 RESAC LANE TO HEIDENREICH LANE	16	0.0	0.0	0.0	0.0
PINE RIVER	PINE RIVER STATION 6 (CTY C UP 100YDS)	53	0.0	0.0	0.0	0.0
PINE RIVER	PINE RIVER AT CTH C AND DOVE LN TO QUARRY DR	54	0.0	0.0	0.0	0.0
PINE RIVER	PINE R US OF HWY 80 N OF HUB CITY	63	0.0	0.0	3.9	0.0
PINE RIVER	PINE R AT HWY 80 5TH CROSSING N OF RICHLAND CTR	47	0.0	0.0	0.0	0.0
PINE RIVER	PINE RIVER ~800M US OF HWY 80 ON THE PUBLIC LAND	30	0.0	0.0	0.0	0.0
PINE RIVER	PINE R US OF CTH AA	38	0.0	0.0	0.0	0.0

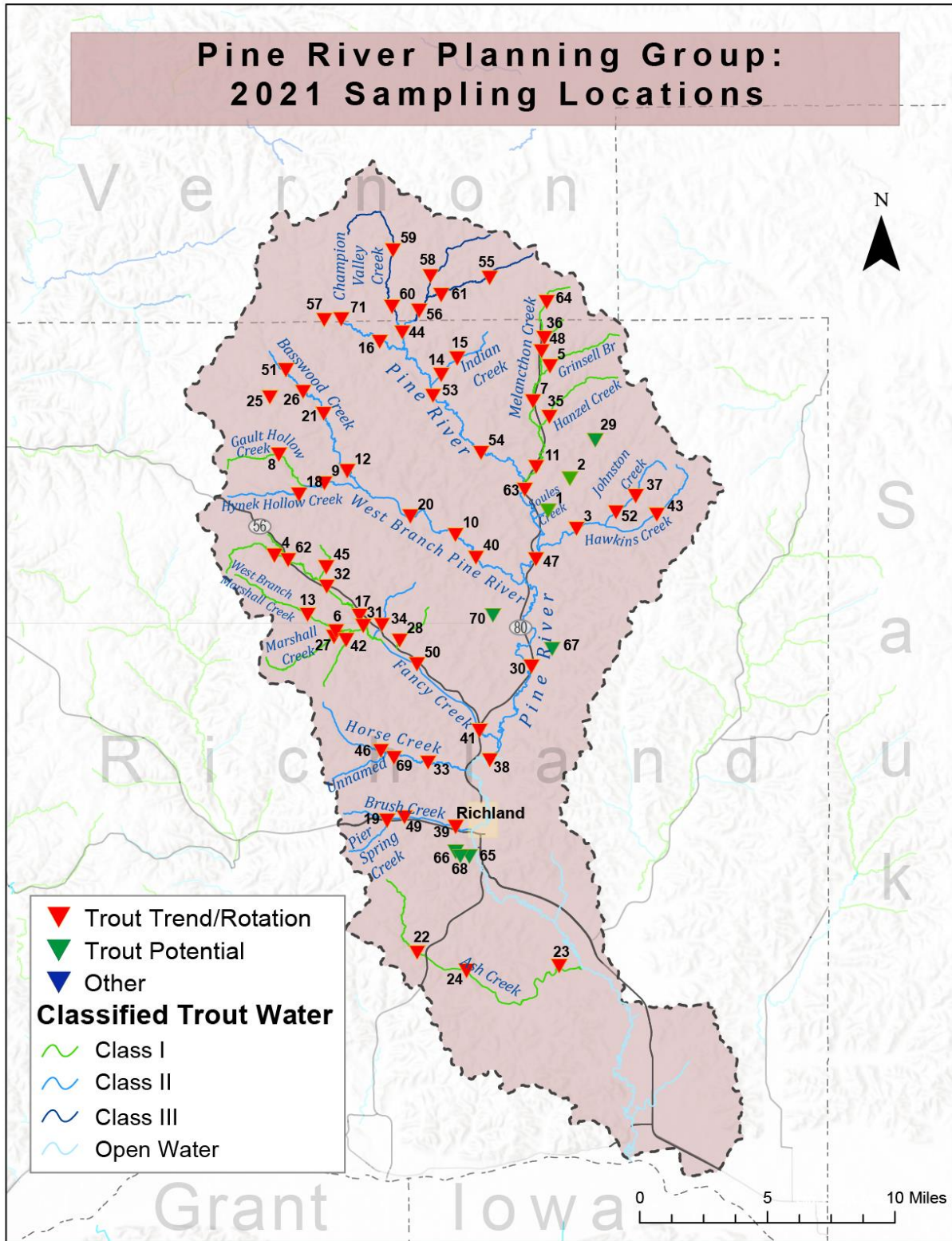


Figure 1. All sampled locations within the Pine River watershed in 2021.

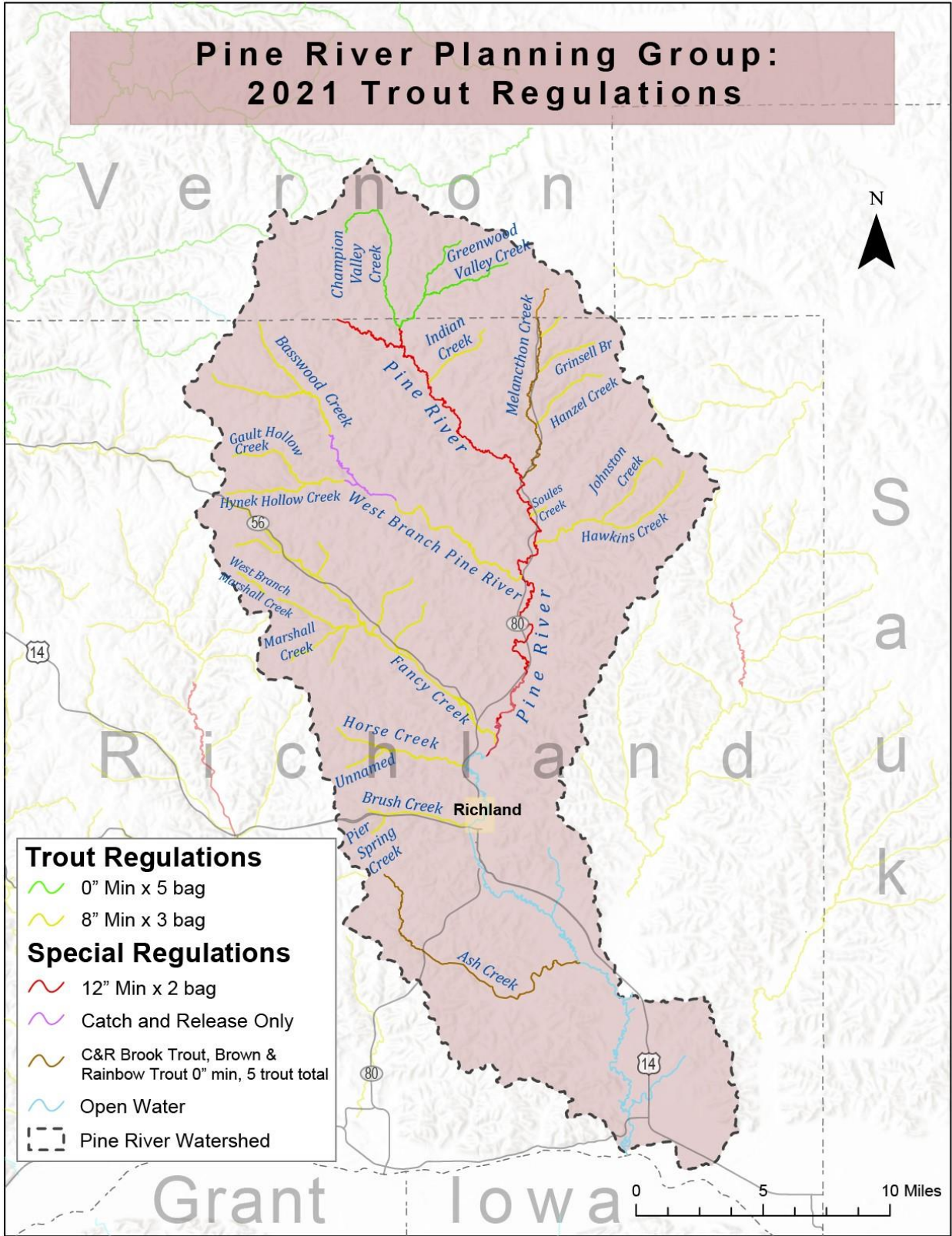


Figure 2. Trout regulation map within Pine River watershed in 2021.

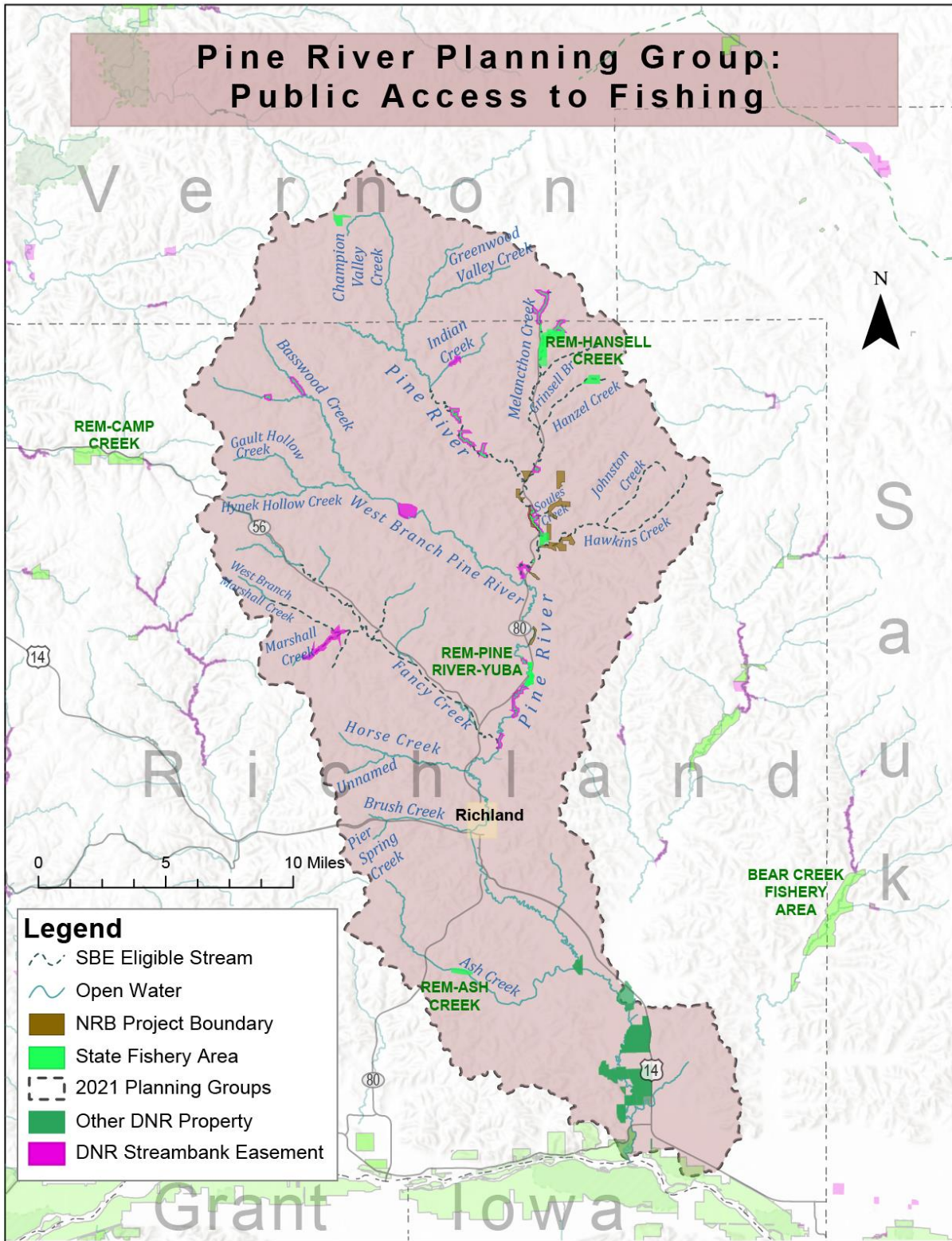


Figure 3. Current public access locations within the Pine River watershed in 2021.

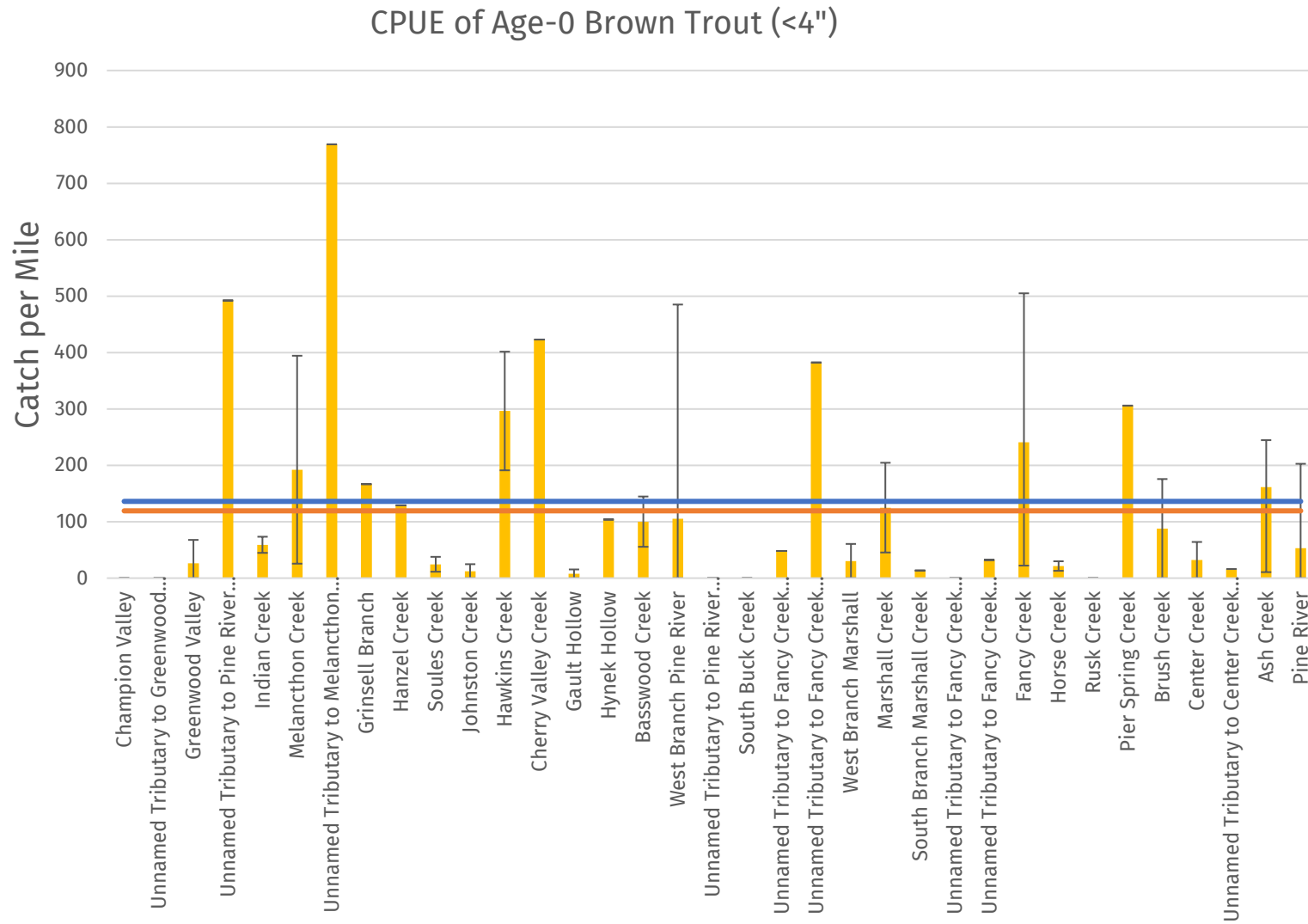


Figure 4. CPUE (fish/mile) of age-0 brown trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

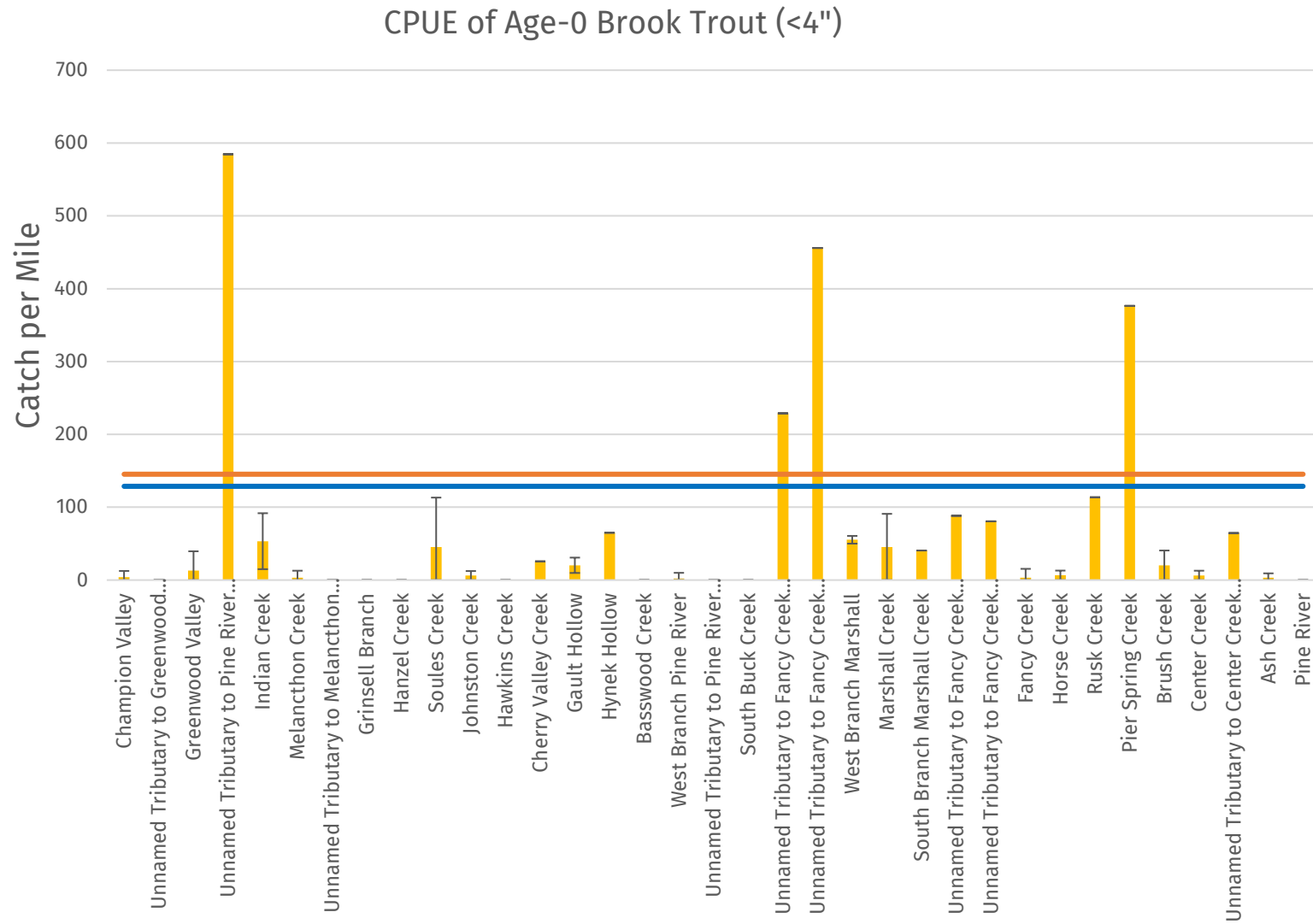


Figure 5. CPUE (fish/mile) of age-0 brook trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

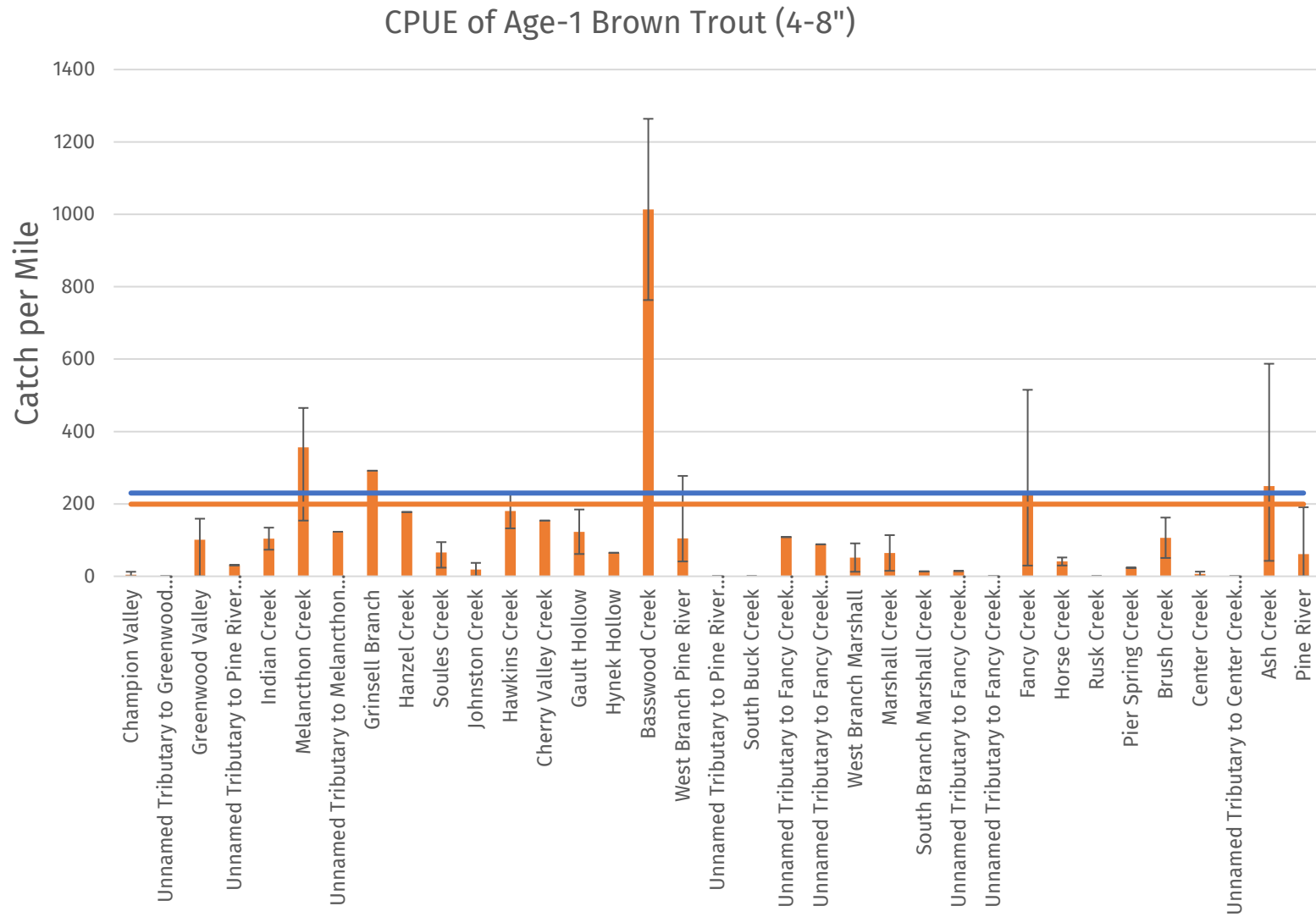


Figure 6. CPUE (fish/mile) of yearling brown trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

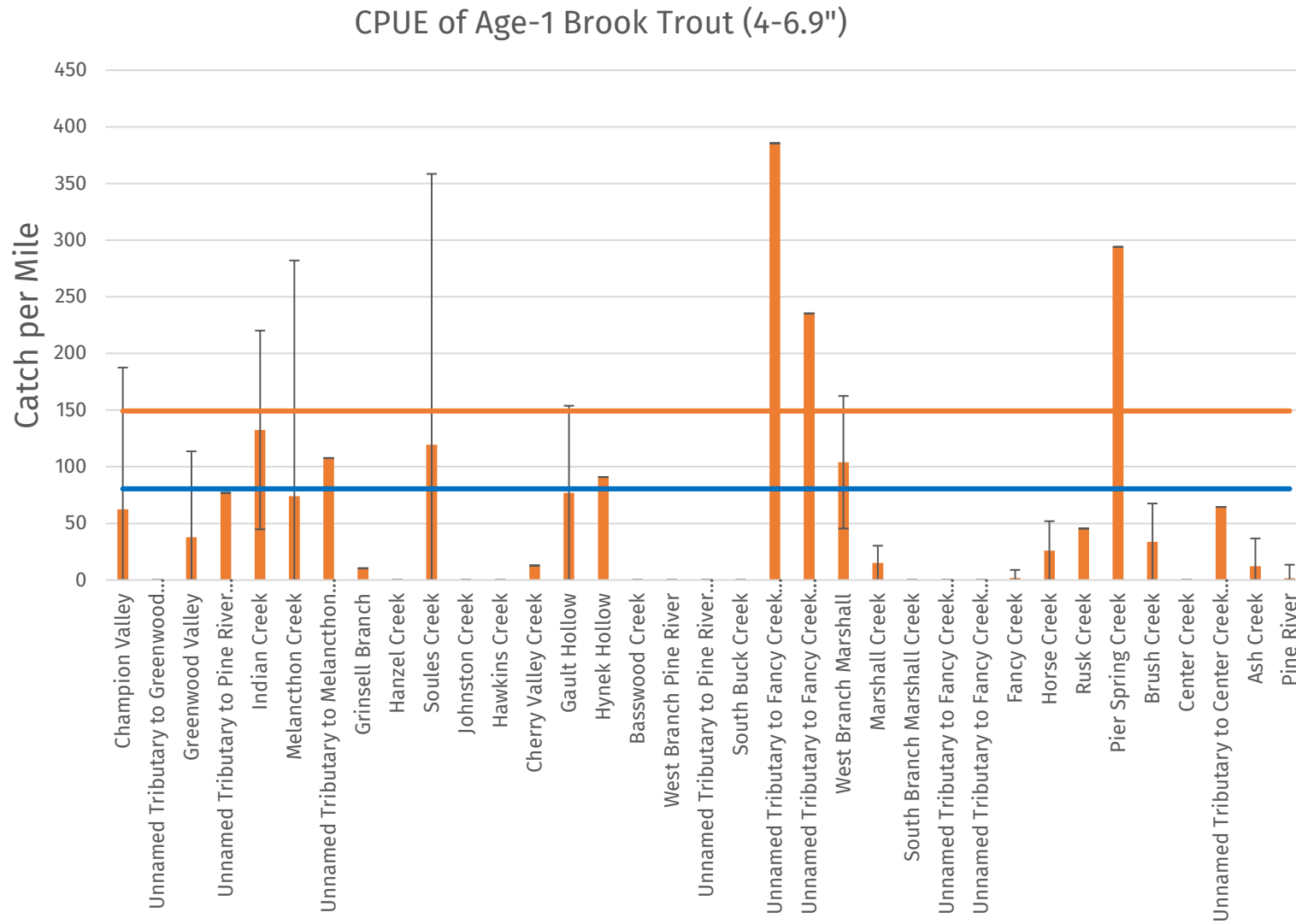


Figure 7. CPUE (fish/mile) of yearling brook trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

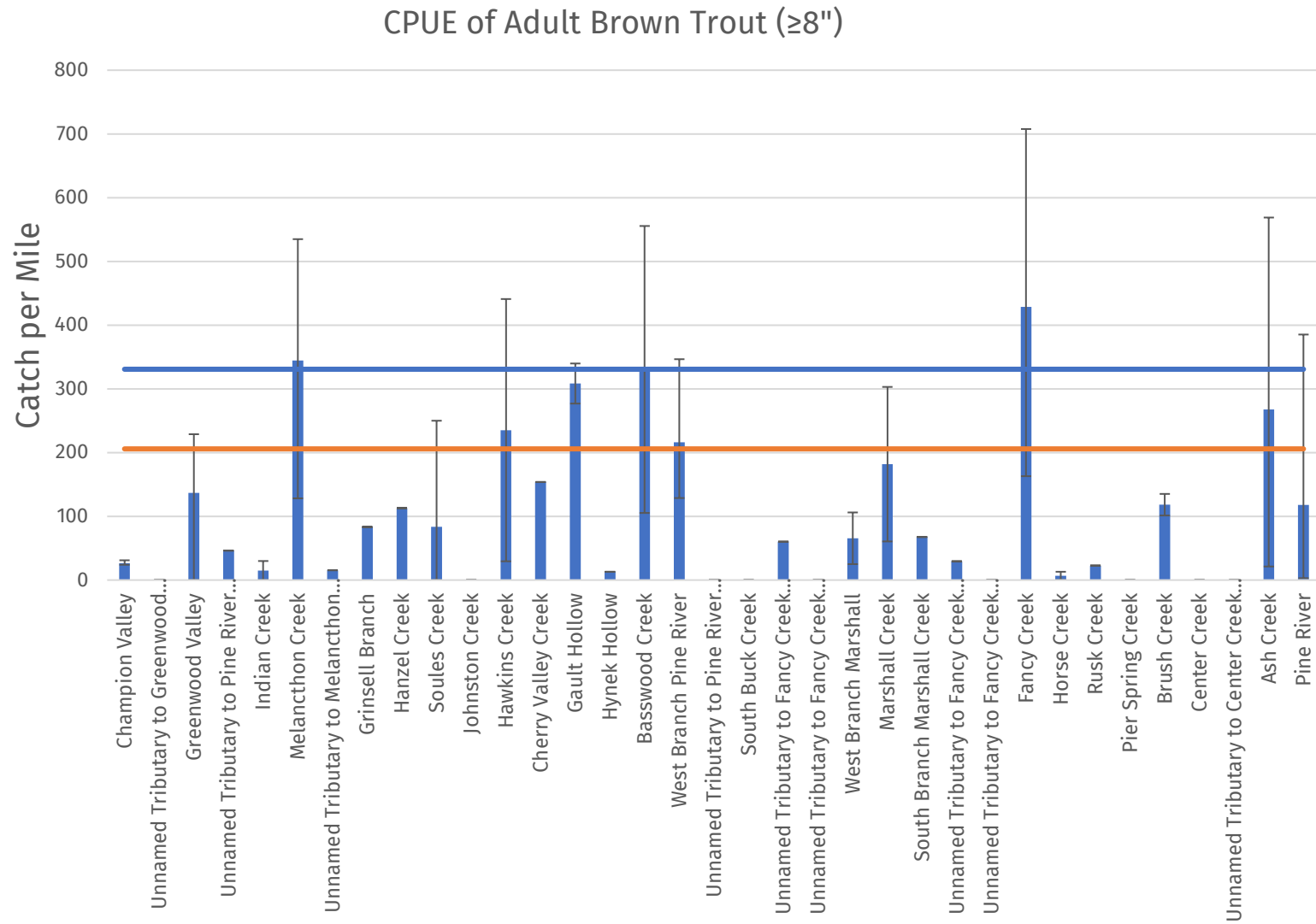


Figure 8. CPUE (fish/mile) of adult brown trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

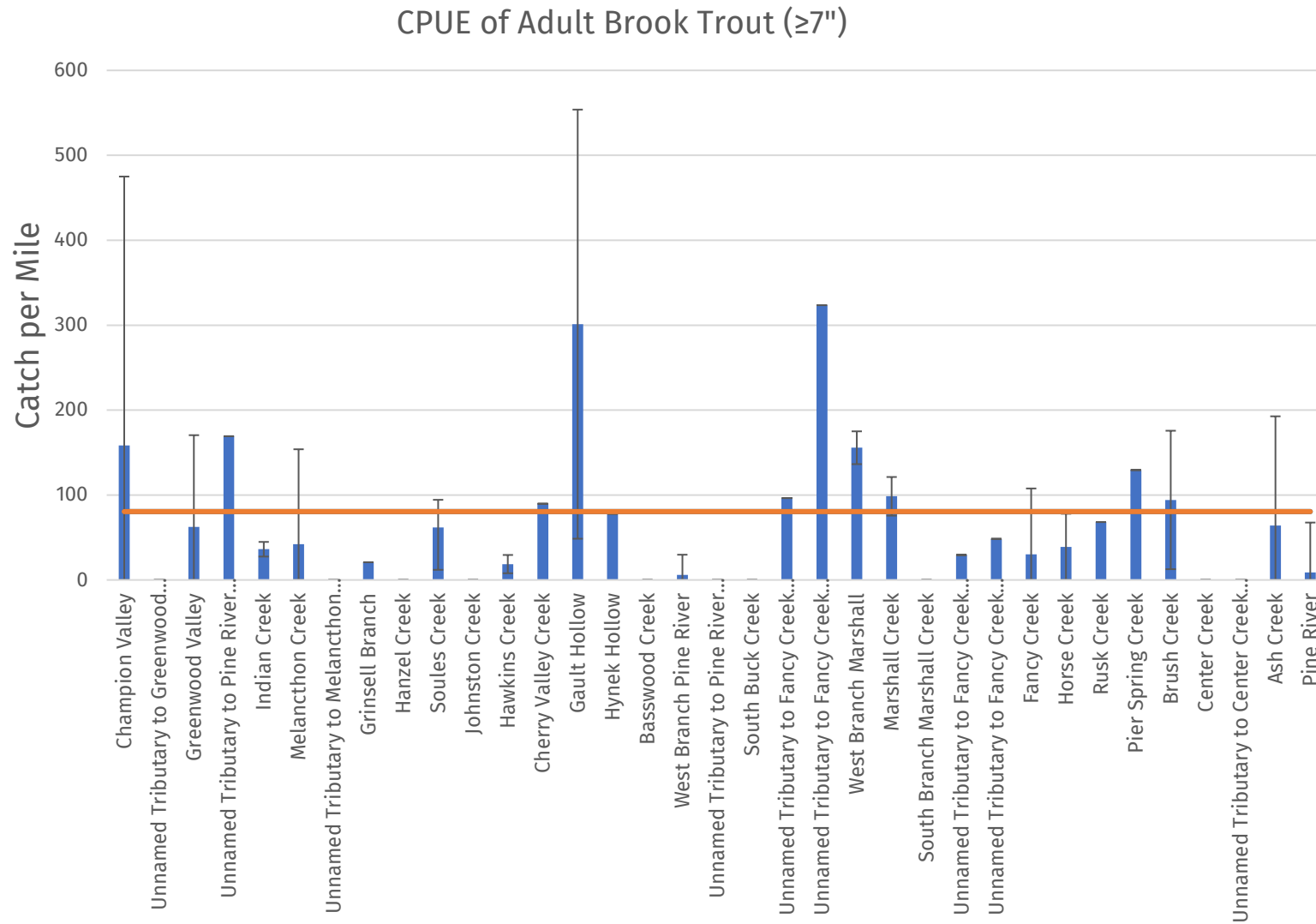


Figure 9. CPUE (fish/mile) of adult brook trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

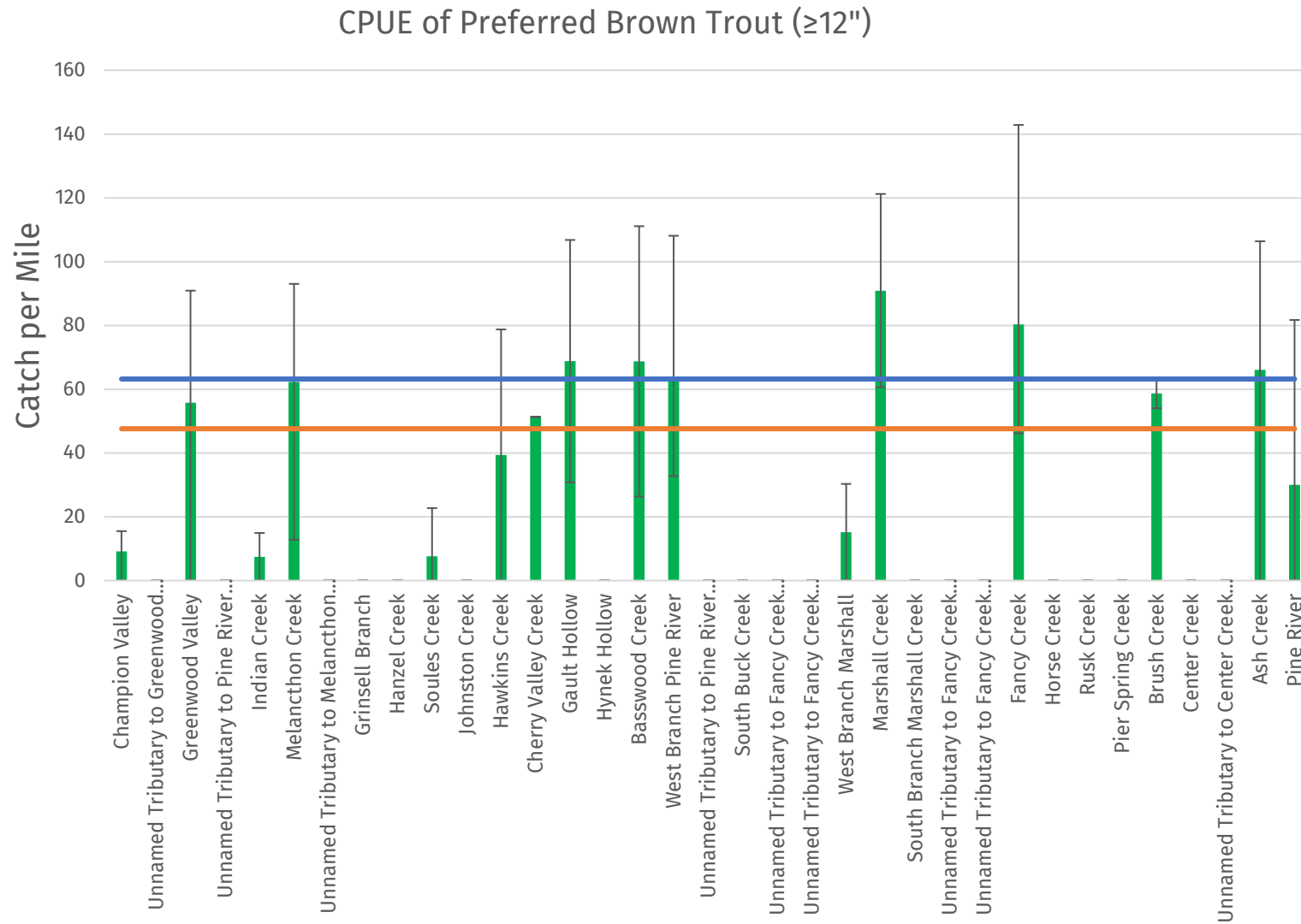


Figure 10. CPUE (fish/mile) of preferred size brown trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

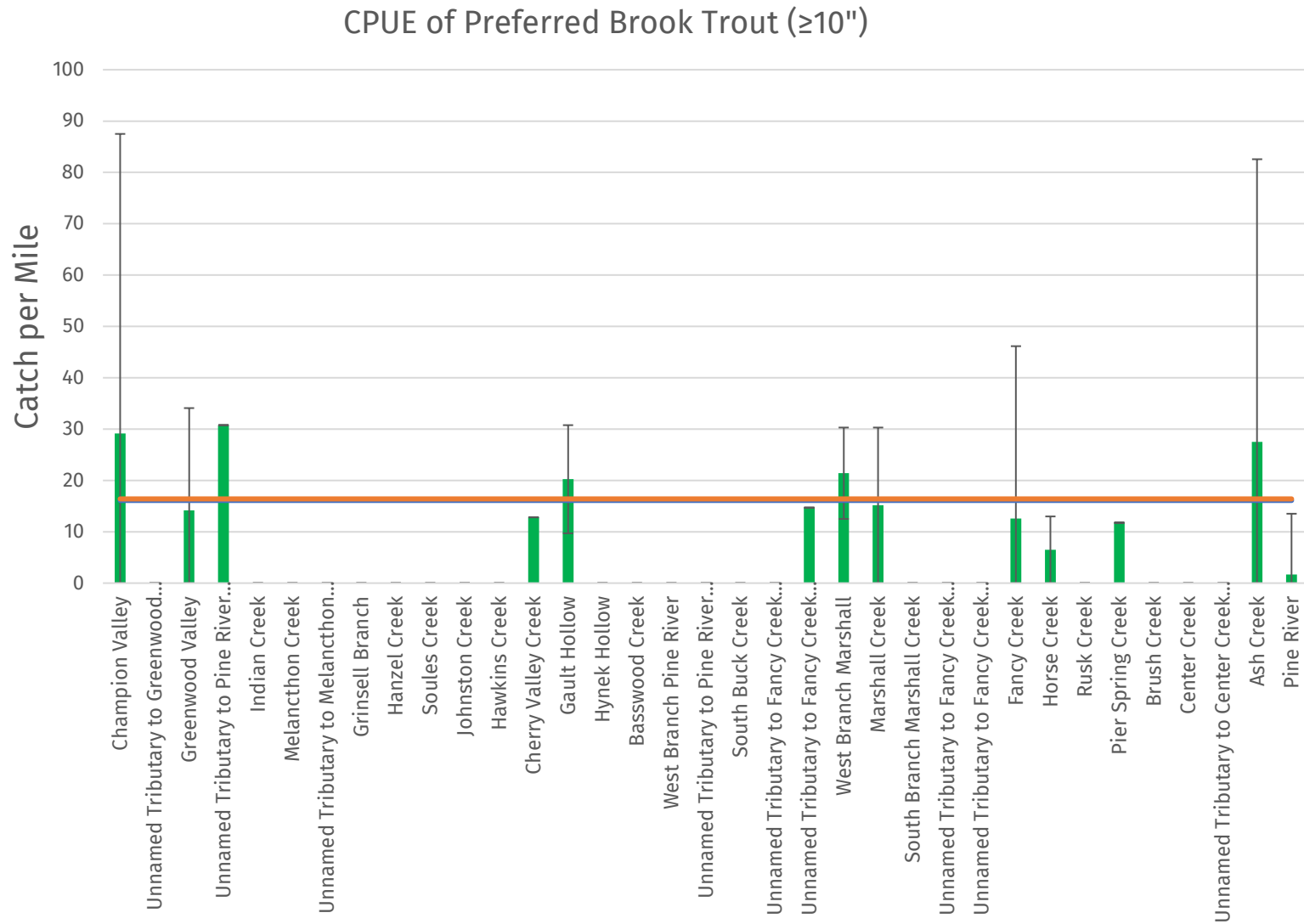


Figure 11. CPUE (fish/mile) of preferred size brook trout in the Pine River watershed. The blue line refers to the Driftless Area median while the orange line refers to the statewide median.

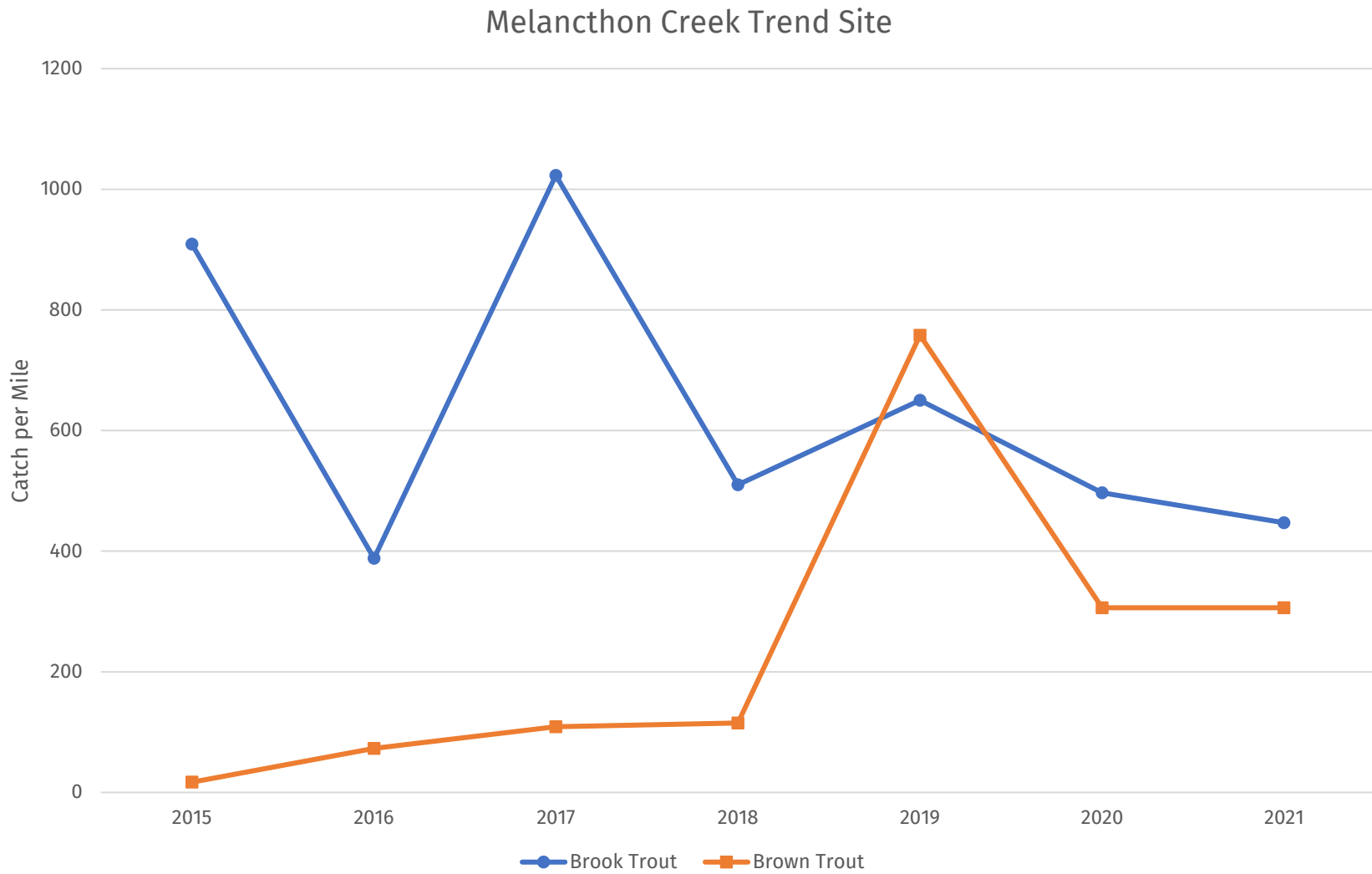


Figure 12. CPUE (fish/mile) of all brown and brook trout sampled from 2015-2021 at the Melancthon Creek trend site (Melancthon Cr ~1800 feet DS at furthest US HWY 80).

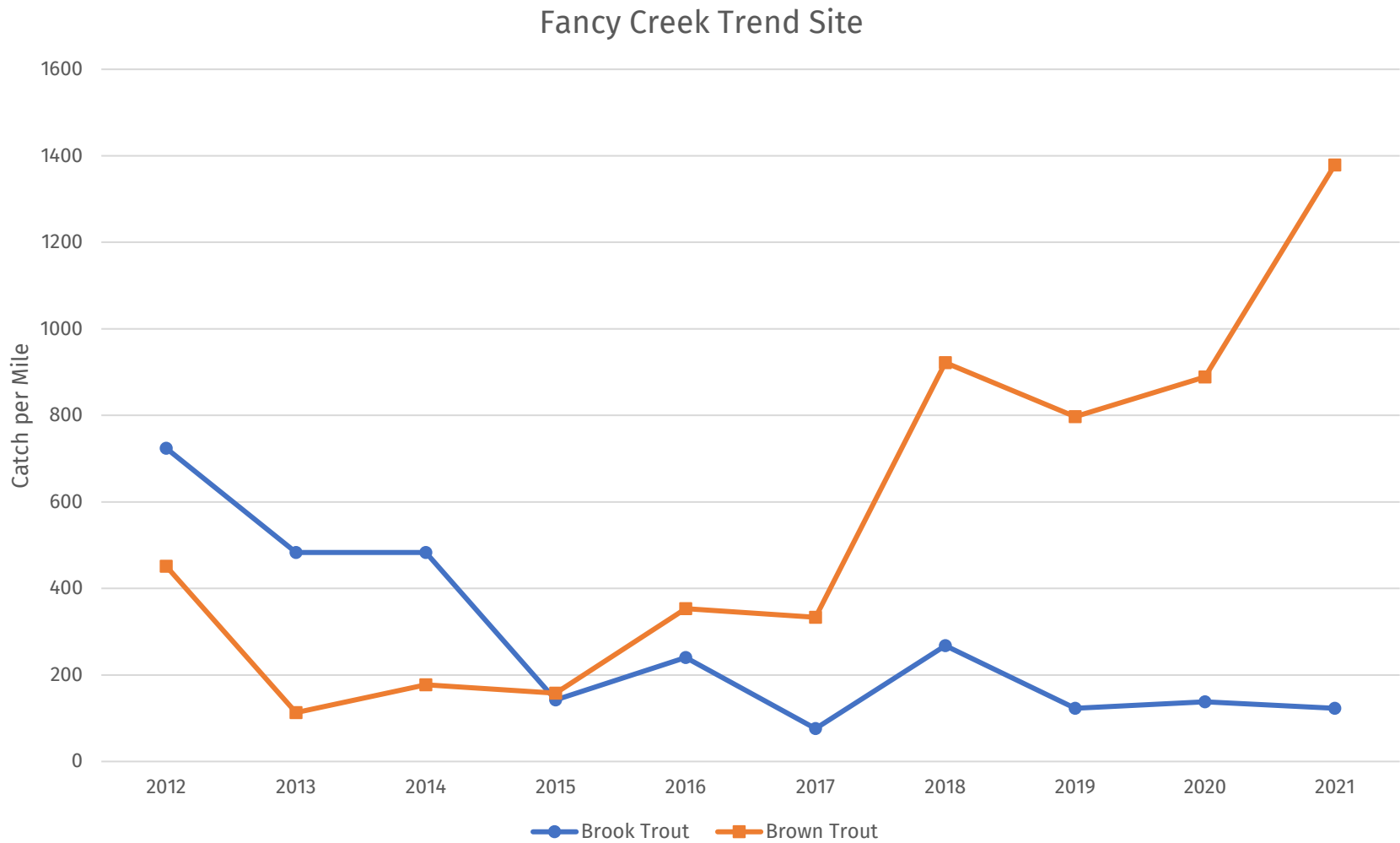


Figure 13. CPUE (fish/mile) of all brown and brook trout sampled from 2012-2021 at the Fancy Creek trend site (Fancy Cr ~265m DS HWY 56 (uppermost crossing)).

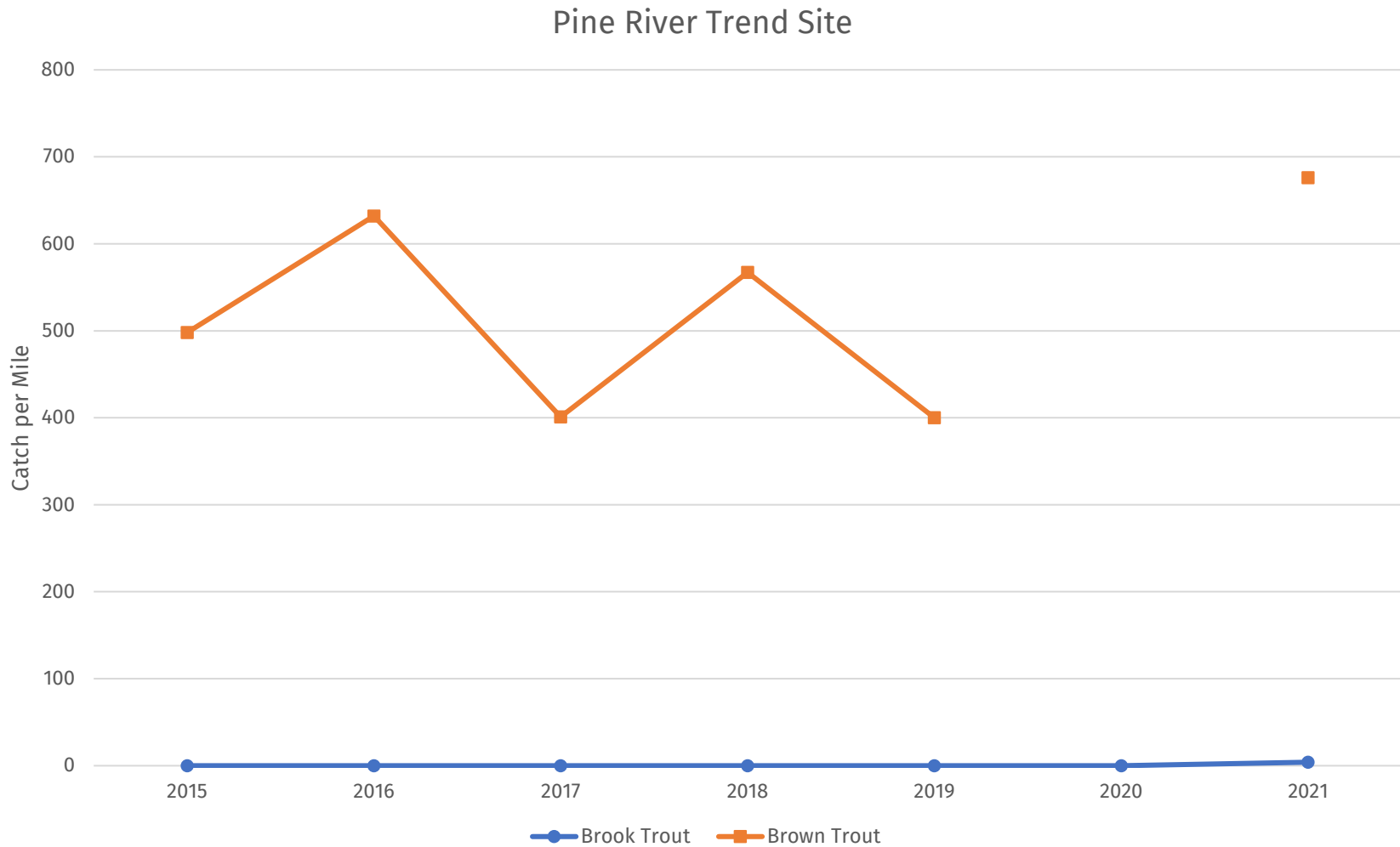


Figure 14. CPUE (fish/mile) of all brown and brook trout sampled from 2015-2021 at the Pine River trend site (Pine R US of Hwy 80 N of Hub City). Data was not collected at this site in 2020 due to COVID restrictions.