Statewide Fisheries Surveys, 2016
Survey of Public Waters
Part 1 – Streams
Region 1

By

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Introduction

Streams within the Black Hills Fish Management Area were surveyed during May – September 2016 to monitor fish populations and to gain an understanding of the distribution and abundances of fish. This was also the third year in a process to update the Black Hills Streams Inventory and Classification as part of the Black Hills Streams Management Area Plan (http://gfp.sd.gov/wildlife/management/plans/docs/BHStreamManagementPlan.pdf). Watersheds that were included in the survey were Battle Creek, Bear Butte Creek, Beaver Creek, Boxelder Creek, Cold Springs Creek, Elk Creek, Fall River, False Bottom Creek, French Creek, Lame Johnny Creek, Rapid Creek, Redwater River, Spearfish Creek, Spring Creek, and Whitewood Creek (Figure 1). Most other streams within the Black Hills were surveyed in 2014 or 2015. In 2008 and 2009, a similar effort was made to survey all streams in the Black Hills. This was just after a prolonged drought period in most of western South Dakota from 2002 to 2008 (US Drought Monitor 2009). Since then, most years have received average and above average moisture, which likely has affected the aquatic biota within the area. Additionally, the historic October 2013 blizzard, commonly referred to as Atlas, brought 36 to 72 inches of wet snow to the Black Hills and surrounding area. This single event not only affected the amount of water within every stream and watershed, but also caused excessive habitat changes in the way of countless downed trees, bent over bushes and movement of instream structure. The full effects of these changes are impossible to quantify, but have likely affected the fish communities. Another effect of this blizzard was the inability to access and effectively survey some of the stream reaches that have been previously sampled. For this reason, new sites were created up or downstream from historic sites when necessary.

Copies of this report and references to the data can be made with permission from the authors or the Director of the Division of Wildlife. South Dakota Department of Game, Fish, and Parks, 523 E. Capitol, Pierre, South Dakota, 57501-3182.

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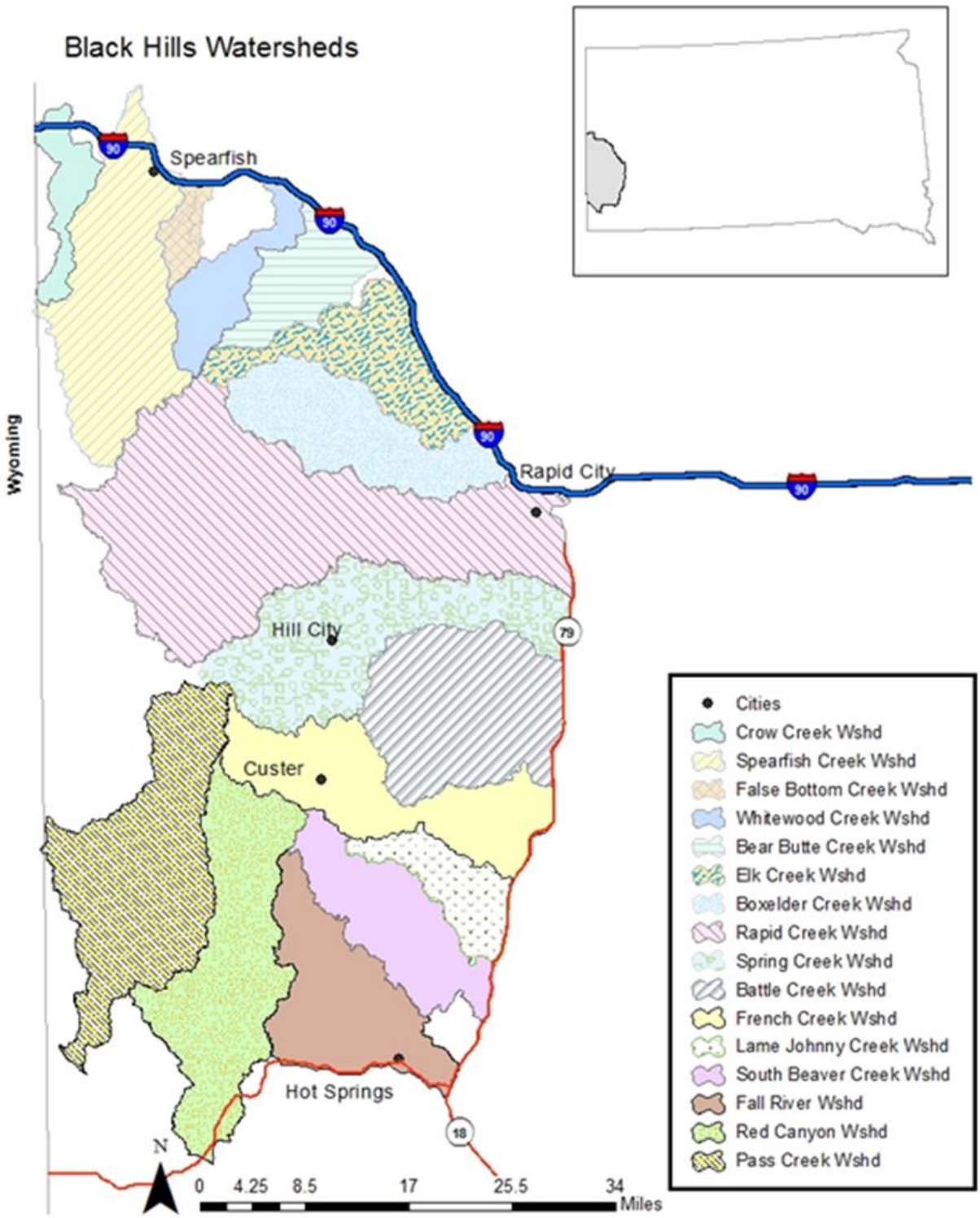

Figure 1. Watersheds within the Black Hills Fish Management Area, South Dakota.

Survey Methods for All Watersheds

Efforts were made to satisfy the assumptions 1) the population is static, 2) capture probability remained constant across sampling periods, and 3) all fish in the population are equally vulnerable to capture (Van Den Avyle and Hayward 1999; Hayes et al. 2007). All sample reaches were 100 m in length. Block nets at the upstream and downstream boundaries were used to prevent fish from emigrating or immigrating within the sample site. Initially, a single pass was conducted. If trout over 200 mm or mountain sucker were captured, two additional passes were conducted. One backpack electrofishing unit was used when mean stream width was less than 6 m. Captured fish were anesthetized with carbon dioxide, measured to the nearest millimeter total length (TL), weighed to the nearest gram, and returned to the stream after recovery. After 50 individual TL and weights were collected from small fish (<100mm) of a specific species, bulk counts were collected to expedite data collection. For three-pass surveys, a maximum-likelihood estimator was used to estimate catchability and population (Junge and Libosvarsky 1965; cited in Hayes et al. 2007). For single-pass surveys, relative abundance was calculated as CPUE (number of fish captured per 100 m of stream). Abundances and density were compared to past data from individual sites when historical sampling occurred within comparable months. For samples completed in May or June, previous samples in May and June were used for comparison. For samples completed in July or August, previous samples in July or August were used for comparison. As a result of the small sample size, caution must be given when interpreting the data and extrapolating it to the entire stream. Current stream classifications for Black Hills Fish Management Area (BHFMA) stream trout fisheries are found in Table 1.

In addition to fish data, pH, temperature, and specific conductance were collected. Stream widths were measured every ten meters and averaged to obtain an estimate of total area sampled. Stream flow data was also downloaded from the USGS web site for water years 2000-2015 (available at: http://waterdata.usgs.gov/sd/nwis/current/?type=flow). Eighteen species of fish were captured during the 2016 survey (Table 2).

Table 1. Current trout classifications for streams within the Black Hills Fish Management Area, South Dakota.

Brown trout fisheries -- based on number of fish greater than 200 mm total length (8 in).	
Class BR1	number of wild brown trout exceeds 150 per acre
Class BR2	number of wild brown trout ranges from 25 to 150 per acre
Class BR3	number of wild brown trout is less than 25 per acre
Brook trout fisheries-- based on number of fish greater than 200 mm total length (8 in).	
Class BK1	number of wild brook trout exceeds 150 per acre
Class BK2	number of wild brook trout ranges from 25 to 150 per acre
Class BK3	number of wild brook trout is less than 25 per acre
Rainbow trout fisheries -- based on number of fish greater than 200 mm total length (8 in).	
Class RB1	number of wild rainbow trout exceeds 25 per acre
Class RB2	number of wild rainbow trout is less than or equal to 25 per acre

Table 2. List of species captured during the 2016 survey within the Black Hills Fish Management Area, South Dakota.

Common name	Species code	Scientific name
Brook trout	BKT	*Salvelinus fontinalis*
Brown trout	BNT	*Salmo trutta*
Rainbow trout	RBT	*Oncorhynchus mykiss*
Cutthroat trout	CUT	*Oncorhynchus clarkii*
Brook stickleback	BRS	*Culaea inconstans*
Creek chub	CRC	*Semotilus atromaculatus*
Fathead minnow	FHM	*Pimephales promelas*
Green sunfish	GSF	*Lepomis cyanellus*
Jack Dempsey cichlid	JAD	*Rocio octofasciata*
Longnose dace	LND	*Rhinichthys cataractae*
Longnose sucker	LNS	*Catostomus catostomus*
Mountain sucker	MTS	*Catostomus platyrhynchus*
Plains topminnow	PTM	*Fundulus sciadicus*
Rock bass	ROB	*Ambloplites rupestris*
Sand shiner	SSH	*Notropis stramineus*
Stone cat	STC	*Noturus flavus*
White sucker	WHS	*Catostomus commersoni*
Shorthead Redhorse	SHR	*Moxostoma macrolepidotum*

Battle Creek Watershed

Counties: Pennington

Fish populations in the Battle Creek Watershed within the BHFMA were surveyed in May and August to monitor fish populations. The Battle Creek Watershed lies between the Spring Creek and French Creek watersheds. The headwaters of Battle Creek are west of Keystone, SD with the creek then running east through the BHFMA until passing through the south end of Hermosa. The Battle Creek watershed is in a mixed pine/spruce forest which is managed by the US Forest Service, with the exception of the southern tributaries which lie in Custer State Park. Many forest service roads cross creeks in the watershed and a few houses and ranches are present. The main stem of Battle Creek was last stocked with trout in 2004. Sections of Grace Coolidge Creek as well as Lakota Lake, Horsethief Lake, Center Lake, and Legion Lake are all stocked with catchable size rainbow trout. Center Lake was also stocked with fingerling tiger trout in 2008, 2009, and fall 2016. Battle Creek and its tributaries are managed under standard regulations with a daily harvest limit of five trout (in any combination) with one trout allowed over 14 inches.

Table 3. Abundance (estimated number in site) and 95% confidence intervals of trout species captured within three sample sites of the Battle Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	BKT <200 mm	BKT ≥ 200 mm	BKT ≥ 200 mm/acre	BNT<200 mm	BNT≥200 mm	BNT≥200 mm/ acre
BAT05	5 (5-7)	7 (7-9)	33	2 (2-4)	3 (3-4)	14
BAT09	19 (19-20)	7 (7)	37	7 (7)	3 (3-4)	16
ICS05	92 (91-95)	5 (5-6)	100			

Table 4. Abundance (estimated number in site) and 95% confidence intervals of non-trout species captured within three sample sites of the Battle Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	CRC	FHM	LND	ROB	WHS
BAT05	222(199-245)	2(2)	20(14-40)	14(10-30)	56(41-83)
BAT09	383(354-412)	12(12)	244(116-430)		70(46-113)
ICS05			25(20-38)		

Battle Creek (BAT)

In the Battle Creek site 5, creek chub were the most abundant species, followed by white sucker, with 193 and 41 sampled in the site, respectively. Five brown trout were sampled with three being over 200 mm (estimated 14 per acre ≥200 mm). Twelve brook trout were also sampled with seven being over 200 mm, which provided an estimated number per acre of 33. This meets a class three for brown trout and class two for brook trout. Other fish species sampled include fathead minnow (N=2), longnose dace (N=14) and rock bass (N=10).

In the Battle Creek 09 site, creek chub was the most abundant species sampled followed by longnose dace with 335 and 116 sampled, respectively. Brown trout were detected with 11 sampled and three being over 200 mm. This resulted in an estimated number per acre of 16 ≥ 200 mm, meeting a class three designation. Twenty-six brook trout were sampled with seven being over 200 mm (estimated 37 per acre ≥ 200 mm). Other fish species sampled included fathead minnow (N=12), and white sucker (N=46).

Iron Creek South (ICS)
One historically sampled site on Iron Creek South was sampled on August 15, 2016. The most abundant species was brook trout with 96 sampled in the site (five over 200mm) which resulted in an estimated number per acre of 100 ≥200 mm. This met a class two designation. Twenty longnose dace were also sampled in the site.

Estimates for these sites can be found in Tables 3 and 4.

Bear Butte Creek Watershed

Counties: Lawrence, Meade

Five sites in Bear Butte Creek were surveyed in June 2016. All other tributary creeks in the watershed were surveyed in 2014 to monitor fish populations. The Bear Butte Creek Watershed within the BHFMA is located along a southwest to northeast orientation between Englewood (south of Lead) and Sturgis. Bear Butte Creek's headwaters are located about four miles south of Lead and it flows north east where it drains into the Belle Fourche River about 22 miles east of Sturgis. The watershed is in a pine/spruce forest and managed by the US Forest Service. Historically, the Bear Butte Watershed played an important role in the gold mining activities. Several small gold mines are located within the watershed with the Gilt Edge Mine, a Superfund Site, located on the Strawberry Creek drainage (EPA Region 8). The Bear Butte Watershed is largely undeveloped aside from the towns of Sturgis and Galena and several campsites and tourist facilities along Hwy 385. Recently, this watershed has seen increased human development with a few golf courses and housing developments added. Bear Butte Creek in Meade County was last stocked with catchable Rainbow Trout in 2006, but upper reaches within the BHFMA have not been stocked since 1989. Bear Butte Creek and its tributaries are currently managed under standard regulations with a daily limit of five trout (in any combination) with one 14 inches or longer allowed.

Table 5. Abundance (estimated number in site) and 95% confidence intervals of species captured within five sample sites of the Bear Butte Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	BKT <200 mm	BKT ≥200 mm	BKT ≥200 mm per acre	LND	MTS	WHS
BBC864	37 (37-39)	1(1)	13	676 (648-704)	1 (1)	
BBC16	67 (67-69)	5 (5)	152	51 (48-57)		
BBC844	95 (95-96)	15 (15)	187	174 (155-193)		
BBC887	22 (19-30)			246 (215-277)	10 (10)	3(3)
BBC904	22 (21-26)	5 (5)	85	127 (106-149)	9 (9-10)	

Bear Butte Creek (BBC)

In the Bear Butte Creek watershed, five sites were sampled on June 7, 2016. In site 864, longnose dace were the most abundant species with 614 sampled. Thirty-eight brook trout were also sampled with one over 200 mm and an estimate of 13 ≥ 200 per acre. This gives site 864 a class 3 designation. One mountain sucker was sampled.

In the Bear Butte Creek 16 site longnose dace and brook trout were sampled with 48 and 72, respectively. Five brook trout were ≥ 200 mm (152 estimated per acre). This meets a class I brook trout designation.

Bear Butte Creek site 844 yielded 153 longnose dace and 110 Brook Trout (15 over 200 mm) (187 estimated per acre). This also meets the class I brook trout stream designation.

Longnose dace were most abundant in Bear Butte Creek site 887 with 205 sampled. Brook trout were the second most abundant with 19 sampled and none ≥200 mm giving site 887 a class 3 designation. Other species collected included mountain sucker (N=10) and white sucker (N=3).

In the Bear Butte Creek site 904, 106 longnose dace were sampled. Brook trout were also sampled with 26 total in the site and 5 over 200 mm (85 estimated per acre) giving site 904 a class 2 designation. Nine mountain sucker were also sampled.

Estimates for these sites can be found in Table 5.

Beaver Creek Watershed

Counties: Pennington, SD; Weston, WY

One site was surveyed in the Beaver Creek Watershed during 2016. This site and three other sites in this watershed were surveyed in 2014. The Beaver Creek Watershed lies on the South Dakota Wyoming border west of Deerfield Lake and has a north to south orientation. The headwaters are located about two miles south of the county boundaries of Pennington and Lawrence. The watershed is in a pine/spruce forest on the South Dakota side and is managed by the US Forest Service. This is one of the most remote areas of the Black Hills with Moon, consisting of a few buildings, being the only town. Much of it is used for grazing and it is interspersed with ATV trails mostly used by local ranchers and grazing leases. Within South Dakota, Beaver Creek's tributaries are currently managed under standard regulations with a daily limit of five trout (in any combination) with one 14 inches or longer allowed.

There are few perennial flowing waters in this watershed. Beaver Creek, which starts about four miles west of the state border and eight miles south of the Lawrence county border, runs north through Beaver Creek Campground, and drains into Beaver Creek just across the state border.

Table 6. Abundance (estimated number in site) and 95% confidence intervals of species captured within one sample site of the Beaver Creek watershed during the 2016 survey.

Site	BKT <200 mm
BV2-01	36(36-37)

Beaver Creek (BV2)
Brook Trout was the only species sampled at site 1 and 36 were sampled with none over 200mm (Table 6). In June 2014, the survey of this site yielded 67 brook trout with 11 ≥ 200 mm. In July 2014, the survey of this site yielded 51 brook trout with eight ≥ 200 mm.

Cold Springs Creek Watershed

Counties: Lawrence, SD; Weston, WY; Crook, WY

One site on Cold Creek within the Cold Springs Creek Watershed was sampled in 2016 as a part of a mountain sucker research project and to monitor fish populations. The Cold Spring Creek Watershed lies mainly in Wyoming with Cold Springs Creek and Cold Creek being the only perennial streams in the watershed. The headwaters are about 3-4 km from the state border west of the town of Rochford. Cold Creek and Cold Springs Creek converge near the headwaters. The watershed is in a pine/spruce forest on the South Dakota side and is managed by the US Forest Service. This is one of the most remote areas of the Black Hills with few roads.

Table 7. Abundance (estimated number in site) and 95% confidence intervals of species captured within one sample site of the Cold Creek watershed during the 2016 survey.

Site	BKT ≤200 mm
CLC	16 (16-18)

Cold Creek (CLC)
One site on Cold Creek (CLC01) was sampled on June 22, 2016. Brook trout was the only species sampled and 16 were sampled with none over 200mm (Table 7).

Boxelder Creek Watershed

Counties: Lawrence, Meade, and Pennington

Nine sites in the Box Elder Creek Watershed were surveyed during June and July of 2016 to monitor fish populations and as part of a master's research project on mountain suckers. The Box Elder Creek Watershed lies between Elk Creek and Rapid Creek Watersheds. The headwaters of Box Elder Creek's forks lie west of Custer Crossing off of highway 385. The creek flows east north of Rapid City and drains into the Cheyenne River south of Wasta, SD. The Box Elder Creek Watershed is in a pine/spruce forest and managed by the US Forest Service. As with the rest of the Black Hills, many forest service roads cut through the watershed with a few houses and ranches present. Sections of Box Elder Creek, Roubaix Lake on Middle Box Elder Creek, and Reausaw Lake on Hay Creek are currently stocked with catchable rainbow trout. Box Elder Creek and its tributaries are managed under standard regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer.

Table 8. Abundance (estimated number in site) and 95% confidence intervals of trout species captured within ten sample sites of the Boxelder Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	BKT <200 mm	BKT > 200 mm	BKT ≥200 mm per acre	BNT < 200 mm	BNT ≥ 200 mm	BNT ≥200 mm per acre
BOX01	6(6)	10(10-11)	48	25(25-26)	24(24)	116
BOX01*	1(1)			47(41-58)	18(18)	90
BOX04	129(123-137)	23(23-24)	265	5(5-7)	2(2-3)	23
BOX09	18 (18-19)	10(10)	68	64(63-67)	19 (19)	129
JIM02	147(146-150)	12(12-13)	324			
JIM01	269(259-279)	1(1)	16	27(27-28)		
HAY03	1(1)					
EST01	316(308-324)	1(1)	18			
BXM02	99 (97-103)	4 (4-5)	92			
BXN01	43 (43)	3 (3)	76			

*Sampled twice for mountain sucker research project

Table 9. Abundance (estimated number in site) and 95% confidence intervals of non-brook and brown trout species captured within ten sample sites of the Boxelder Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	CRC	FHM	LND	MTS	STC	WHS	RBT
BOX01		3(3-4)	199(169-229)	2(2-6)	140(28-928)	9(9)	
BOX01*	1(1-2)	1(1)	233(206-260)	3(3-4)	155(31-979)	26(26-28)	
BOX04			156(134-178)	3(3)		1(1-2)	
BOX09			309(293-325)	33(33-34)			2(2)
JIM02			42(42-43)	3(3-4)		3(3-5)	
JIM01			5(5-7)	2(2-4)			
HAY03			6(6-8)			11(9-21)	
BJC01	70(70)		204(204)				
BXN01			35(33-40)				

*Sampled twice for mountain sucker research project

Boxelder Creek (BOX)
Three sites on the main stem of Boxelder Creek were sampled. Boxelder 1 was sampled twice; once on June 6, 2016 and once on July 7, 2016. The first sampling event showed longnose dace and stonecat as the most abundant species with 163 and 28 sampled, respectively. Sixteen brook trout were sampled with 10 being over 200mm. This resulted in an estimated number per acre of 48, meeting a class 2 designation. Brown trout were more abundant with 49 sampled and 24 being larger than 200mm (estimated 116 per acre), meeting a class 2 designation. Other species collected included fathead minnow (N=3), mountain sucker (N=2), and white sucker (N=9). The second sampling again showed longnose dace and stonecat as the most abundant species with 198 and 31 sampled, respectively. One brook trout under 200 mm was sampled and 59 brown trout with 18 over 200mm (estimated 90 per acre, Class 2 designation) were sampled in the site. Other species sampled included creek chub (N=1), fathead minnow (N=1), mountain sucker (N=3), and white sucker (N=26).

In the Boxelder 4 site, longnose dace and brook trout were found to be the most abundant species with 132 and 146 (23 over 200mm, estimated 265 per acre) sampled in the site, meeting a class 1 designation. Seven brown trout were sampled with two over 200mm (estimated 23 per acre), meeting a class 3 designation. Other species sampled include mountain sucker (N=3) and white sucker (N=1).

In the Boxelder 9 site, longnose dace and brown trout were found to be the most abundant species with 287 and 82 (19 over 200mm, estimated 129 per acre) sampled in the site, meeting a class 2 designation. Twenty-eight brook trout were sampled with ten over 200mm (estimated 68 per acre), meeting a class 2 designation. Other species sampled include mountain sucker (N=33), rainbow trout (N=2) and white sucker (N=4).

Middle Fork Boxelder Creek (BXM)
One site on the middle fork of Boxelder Creek was sampled on June 6, 2016. Brook trout was the only species sampled with 101 and four over 200mm (estimated 92 per acre). This met a brook trout classification of 2.

North Fork Boxelder Creek (BXN)
One site on the north fork of Boxelder Creek was sampled on June 6, 2016. Forty-six brook trout were sampled with three over 200mm (estimated 76 per acre, Class 2 designation) and 33 longnose dace were sampled.

Jim Creek (JIM)
On July 7, 2016, two sites were sampled on Jim Creek. In the site Jim 1, brook trout was the most abundant species with 259 (1 over 200mm, estimated 16 per acre) sampled, meeting a class 3 site. Twenty-seven brown trout were sampled in the site with none over 200mm. Other fish species sampled were longnose dace (N=5) and mountain sucker (N=2).

In Jim Creek 2, 158 brook trout were sampled (12 over 200mm, estimated 324 per acre), meeting a class 1 site. Forty-two longnose dace, three mountain suckers, and three white suckers were also sampled.

Hay Creek (Hay)
One site was sampled on Hay Creek on June 2, 2016. Nine white sucker, six longnose dace, and a single brook trout were sampled in the site with no brook trout over 200mm.

Estes Creek (EST)
On July 7, 2016, one site was sampled on Estes Creek. Brook trout was the only species sampled with 308 collected in the site and one over 200mm (estimated 18 per acre, class 3 designation).

Bogus Jim Creek (BJC)
One site on Bogus Jim Creek was sampled on July 6, 2016. Longnose dace were the most abundant species with 204 sampled. Creek chubs were the only other species sampled, with 70 collected.

Estimates for total number of fish in the sites can be found in Tables 8 and 9.

Elk Creek Watershed

Counties: Meade and Lawrence

The Elk Creek watershed's headwaters are approximately four miles west of Brownsville, SD on Hwy 385 and the creek drains into the Cheyenne River north of the city of Wasta, SD. Most of the Elk Creek Watershed within the BHFMA is located along a west to east orientation between Hwy 385 and I 90 north and west of Piedmont, SD (Figure 29). The Elk Creek watershed is in a pine/spruce forest and managed by the US Forest Service. Elk Creek near forest service road 151 was last stocked in 1995 with catchable brown trout. Dalton Lake on Little Elk Creek is currently stocked with catchable rainbow trout. Elk Creek and its tributaries are managed under standard regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer.

Table 10. Abundance (estimated number in site) and 95% confidence intervals of trout species captured within 3 sample sites of the Elk Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	BKT <200 mm	BKT ≥200 mm	BKT ≥200 mm per acre	BKT Class	BNT <200 mm	BNT ≥200 mm	BNT ≥ 200 mm per acre
ELK07	31(31-32)	20(20)	211	1	2(2-3)	2(2)	21
MEC02	3 (3-4)			3			
ELK05	48 (48-49)	17(17-18)	282	1			

Table 11. Abundance (estimated number in site) and 95% confidence intervals of non-trout species captured within 3 sample sites of the Elk Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	CRC	FHM	LND	MTS	WHS
ELK07	5 (5)	3 (3-4)	116 (111-123)	122 (118-128)	56 (55-59)
MEC02			70 (14-632)		
ELK05			6 (6-8)	9 (9-10)	

Elk Creek (ELK)

On June 2, 2016, two sites on Elk Creek were sampled. In Elk Creek 7, mountain sucker and longnose dace were found to be the most abundant species with 118 and 111 sampled, respectively. Brook trout and brown trout were collected with 51 (20 over 200mm, estimated 211 per acre) and 4 (2 over 200mm, estimated 21 per acre) sampled, respectively. This met a site classification of class 1 and class 3, respectively. Other species sampled include: creek chub (N=5), fathead minnow (N=3), and white sucker (N=56).

In Elk Creek 5, brook trout was found to be the most abundant species with 65 sampled and 17 over 200mm (estimated 282 per acre, class 1 designation). Other species sampled include longnose dace (N=6) and mountain sucker (N=9).

Meadow Creek (MEC)

One site on Meadow Creek was sampled on June 2, 2016. Longnose dace was found to be the most abundant species with 14 sampled. Brook trout were also collected with three sampled in the site and none over 200mm.

Estimates for these sites can be found in Tables 10 and 11.

Fall River Watershed

Counties: Fall River

In June of 2016, three sites in Fall River and in August, one site in Cascade Creek were sampled to monitor fish populations. Fall River starts at the confluence of Cold Brook and Hot Brook on the northern end of Hot Springs and flows southwest until flowing into the Cheyenne River southwest of Hot Springs. The surrounding land is urban in the upper reaches and changes to grassland surrounding the lower end of the river. Most of the land on the lower river is privately owned and used for grazing. The river is fed by natural hot springs which gives Fall River much higher temperatures than other streams in the Black Hills. These warm temperatures make Fall River suitable for the invasive tropical species, Jack Dempsey. The site on Cascade Creek is within the boundaries of land owned by the Nature Conservancy.

Table 12. Abundance (estimated number in site) and 95% confidence intervals of species captured within 4 sample sites of the Fall River watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	CRC	GSF	JAD	LND	MTS	PTM	SDS	WHS
FAL1	9(9-10)	8 (8-9)		37 (35-42)	6(6-8)	3 (3-4)	27 (24-34)	18 (18-20)
FAL2	5(5-7)		100 (96-106)	12 (12-14)		18 (13-35)		2 (3-26)
FAL3	37(31-49)	2 (2-3)	39 (37-44)	27 (26-31)		10 (8-19)	7 (7-9)	6 (6-7)
CCC1				4 (4-6)				9 (9-10)

Fall River (FAL)

On June 20, 2016, three sites on Fall River were sampled. In Fall River 1, longnose dace was the most abundant species sampled with 35 sampled in the site. Other species sampled include creek chub (N=9), green sunfish (N=8), mountain sucker (N=6), plains top minnow (N=3), sand shiner (N=24), and white sucker (N=18).

In Fall River 2, Jack Dempsey was the most abundant species sampled with 96 sampled in the site. Other species collected include creek chub (N=5), longnose dace (N=12), plains top minnow (N=13), and white sucker (N=2).

In Fall River 3, Jack Dempsey, creek chub, and longnose dace were the most abundant species with 37, 31, and 26 sampled in the site, respectively. Other species sampled include green sunfish (N=2), plains top minnow (N=10), sand shiner (N=7) and white sucker (N=6).

Cascade Creek (CCC)

On August 15, 2016, one site was sampled on Cascade Creek. Longnose dace and white sucker were sampled with 4 and 9 sampled in the site, respectively.

Estimates for these sites can be found in Table 12.

False Bottom Creek Watershed

Counties: Lawrence

The False Bottom Creek watershed is located in the northern Black Hills of South Dakota. A total of three sites on two creeks were sampled within the False Bottom Creek watershed in 2016. These creeks include False Bottom Creek and Burno Gulch Creek. Brook and brown trout were the only fish species collected in this watershed in 2014. Size and harvest regulations within the False Bottom Creek watershed are the statewide regulations for trout which is a five fish (any combination) daily limit with only one over 14".

Table 13. Abundance (estimated number in site) and 95% confidence intervals of species captured within 3 sample sites of the False Bottom Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Site	BKT < 200mm	BKT ≥ 200mm	BKT ≥ 200mm per acre	BNT < 200mm	BNT ≥ 200mm	BNT ≥ 200 mm per acre
BRG01	185 (185-187)	4 (4-5)	54			
FBC02	67 (65-71)	6 (6-7)	75	126 (121-133)	7 (7)	87
FBC01	54 (54-55)	1 (1)	20	50 (49-53)	1 (1)	20

Burno Gulch (BRG)

One site on Burno Gulch was sampled on June 30, 2016. Brook trout was the only species sampled with 189 sampled in the site with four over 200mm. This resulted in an estimated number of 54 ≥ 200 mm brook trout per acre, meeting a class 2 site.

False Bottom Creek (FBC)

On June 30, 2016, two sites were sampled on False Bottom Creek. In False Bottom site 2, brook trout and brown trout were sampled with 71 (6 over 200m, estimated 75 per acre) and 128 (7 over 200mm, estimated 87 per acre) sampled and class designations of 2 for both brook and brown trout.

In False Bottom 1, brook trout and brown trout were sampled with 55 (1 over 200mm, estimated 20 per acre) and 50 (1 over 200mm, estimated 20 per acre) estimated in the site, respectively. This resulted in a classification of 3 for both brook and brown trout.

Estimates for these sites can be found in Table 13.

French Creek Watershed

Counties: Custer

Fish populations in the French Creek Watershed within the BHFMA were surveyed during to monitor fish populations. The French Creek Watershed lies south of the Battle Creek Watershed and includes part of Custer State Park (CSP). The headwaters of French Creek lie about seven miles west of the city of Custer and the creek flows southeast through CSP. The drainage experiences a loss zone (where flow is lost to underlying geologic units) near the CSP east primitive campground 2 miles west of the park boundary and only has water in very wet years. The drainage crosses Hwy 79 near Fairburn. Water typically re-surfaces east of Fairburn and drains into the Cheyenne River about 14 miles east near Red Shirt. The French Creek Watershed within the BHFMA is in a pine/spruce forest managed by the US Forest Service and the State of South Dakota. As with the rest of the Black Hills, many forest service roads cut through the watershed with a few houses and ranches present. French Creek is stocked with catchable rainbow trout from just downstream of Stockade Lake to the Horse Camp by Bluebell in CSP. French Creek and its tributaries are managed under standard BHFMA regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer.

Table 14. Abundance (estimated number in site) and 95% confidence intervals of trout species captured within two sample sites of the French Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	BKT < 200 mm	BKT ≥ 200 mm	BNT < 200 mm	BNT ≥ 200 mm	BNT ≥ 200 mm per acre
FRC741	1(1)		102 (102-103)	39 (39-39)	187
FRC979			13 (13)	11(11-11)	68

Table 15. Abundance (estimated number in site) and 95% confidence intervals of species other than brook and brown trout captured within two sample sites of the French Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	CRC	FHM	LND	MTS	RBT ≥200mm	RBT ≥ 200mm per acre	WHS
FRC741	44(44)		39 (39-41)				11 (11)
FRC979	38(36-43)	5 (5)	161 (157-167)	3 (3-4)	1 (1-1)	6	111 (108-116)

French Creek (FRC)

On June 28, 2016, two sites on French Creek were sampled. In French Creek 741, brown trout were the most abundant species with 141 sampled in the site and 39 over 200mm (estimated 187 per acre, class 1 designation). Other species sampled include brook trout (1 under 200mm), creek chub (N=44), longnose dace (N=39), and white sucker (N=11).

In French Creek 979, longnose dace and white sucker were the most abundant species with 157 and 108 sampled in the site, respectively. Other species sampled include brown trout (N=24, 11 over 200mm, estimated 68 per acre, class 2 designation), creek chub (N=36), fathead minnow (N=5), mountain sucker (N=3), and rainbow trout (1 over 200mm, estimated 6 per acre, class 2 designation).

Estimates for these sites can be found in Tables 14 and 15.

Lame Johnny Watershed

Counties: Custer

Fish populations in the Lame Johnny Creek Watershed within the BHFMA were surveyed to monitor fish populations. The creeks within this watershed are managed under standard fishing regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer. Most of the watershed within the BHFMA is located in Custer State Park in a mixed prairie and pine/spruce forest. The headwaters of Flynn Creek are roughly 9 km (5.5 mi) south of the city of Custer. Flynn Creek converges into South Fork Lame Johnny Creek which joins North Lame Johnny Creek to make Lame Johnny Creek near the southeast end of Custer State Park. The drainage below this point is on private ground and mostly dry. Lame Johnny Creek continues southeast until it enters the Cheyenne River about 17 km (10.6 mi) east of Buffalo Gap.

Table 16. Abundance (estimated number in site) and 95% confidence intervals of species captured within 2 sample sites of the Lame Johnny watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	CRC	LND	MTS
FLN1	7(7)	80(74-89)	14(14-15)
FLN3	4(4)	74(74-76)	5(5-7)

Flynn Creek (FLN)

On June 28, 2016 two sites were sampled on Flynn Creek in the Lame Johnny Creek watershed. In Flynn Creek 1, longnose dace was the most abundant species sampled with 74 sampled. Other species sampled include creek chub (N=7) and mountain sucker (N=14).

In Flynn Creek 3, longnose dace was the most abundant species sampled with 74 sampled. Creek chub (N=4) and mountain sucker (N=5) were also sampled.

Estimates for these sites can be found in Table 16.

Rapid Creek Watershed

Counties: Pennington and Lawrence
The Rapid Creek Watershed begins at the headwaters of the north and south forks of Rapid Creek, northwest of Rochford, SD and at the north and south fork of Castle Creek west of Deerfield Lake. Castle Creek runs through Deerfield Reservoir and enters Rapid Creek near Mystic, SD. Rapid Creek runs east through Pactola Reservoir and Canyon Lake before entering the Cheyenne River about 13 miles east of Farmingdale, SD. A majority of the Rapid Creek Watershed is located in a pine/spruce forest which is managed by the US Forest Service. This Watershed is also the most populated watershed in the Black Hills and due to its proximity to Rapid City, serves as the main source of water for this population. Currently, more fish are stocked in the Rapid Creek Watershed than any other watershed. A few sections of Rapid Creek and Castle Creek are stocked with rainbow trout. Additionally, Deerfield Lake, Pactola Reservoir, Canyon Lake, and several small bodies of water within the town of Rapid City are also stocked with rainbow trout.

The majority of Rapid Creek and its tributaries are managed under standard regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer. Two sections of Rapid Creek are managed under catch-and-release regulations where the harvest of fish and possession of organic bait within 100 feet of the stream are prohibited. The section of stream from Pactola Dam downstream two miles to the Placerville foot bridge has been managed under catch-and-release regulations since 1991. Also, the section of stream from Park Drive to Jackson Boulevard in the town of Rapid City has been managed under catch-and-release regulations since 2006.

Rapid Creek, itself, was not sampled in 2015 due to very high water flows (90-660 cfs) all summer (USGS 2016). Rapid Creek's 30-year mean flow at the USGS gauging station above Pactola for May and June is 119 and 126 cubic feet per second (cfs), respectively. Average flows in May and June 2015 were 311 and 508 cfs, respectively. Flows were over 300 cfs until mid-July and didn't get below 70 cfs until mid-September.

Table 17. Abundance (estimated number in site) and 95% confidence intervals of brook and brown trout captured within 35 sample sites of the Rapid Creek watershed during the 2016 survey. Sites are listed in order from downstream to upstream.

Species	BKT <200 mm	BKT ≥200 mm	BKT ≥200 mm per acre	BNT <200 mm	BNT ≥200 mm	BNT ≥200 mm per acre
RAP95				118(96-142)	48(38-66)	200
RAP1420				29(21-50)	62(59-68)	240
RAP1642				96(96-342)	63(54-77)	286
RAP1741				260(218-302)	38(38-39)	128
RAP1821		1(1-2)	4	114(72-175)	41(38-48)	149
RAP1832	1(1)	2(2-3)	8	280(143-448)	42(42-44)	169
RAP1842	12(12-14)	3(3-4)	10	400(80-1,707)	29(29-30)	97
RAP1927(July)				14 (14-16)	2 (2-3)	11
RAP1927(Oct)				17(16-17)	11(1-12)	60
RAP1932(July)				39(39-42)	20(20-22)	97
RAP1932(Oct)		1(1-2)	4	16(16-17)	6(6-7)	24
RAP1945(July)				30(30-31)	9(9-10)	50
RAP1945(Oct)				47(45-51)	6(6)	37
RAP1947(July)				43(43-44)	31(29-36)	170
RAP1947(Oct)				104(101-109)	42(42-44)	215
RAP1962(July)	10(2-240)			64(59-72)	29(28-29)	
RAP1962(Oct)				89(71-112)	31(31-31)	133
RAP2093				75(70-83)	20(20)	148
RAP2127				32(31-35)	17(17)	144
RCN02	35(35-36)	2(2)	57			
RCN03	23(23-25)	1(1)	14	18(18)	7(7)	101
RCN04	25(25)	3(3)	32	19(19-21)	11(11)	116
CAS153				58(58-60)	20(20-22)	153
CAS181				64(64-65)	11(11)	91
CAS186	1(1-2)			40(39-43)	14(14-16)	134
CAS252	128(94-167)	14 (12-21)	127			
CAS324	10(10-11)	3(3-4)	24	33(31-38)	31(31-32)	246
CAS2014	21(21-22)	4(4)	35	13(13-14)	10(10)	87
CAS334	28(28-30)	14(14-15)	104	60(53-71)	102(100-106)	755
CAS337	36(35-39	5	41	65(61-72)	24(24)	197
CAS356	42(28-74)	42(41-45)	306	62(52-77)	111(110-114)	808
CAS363	132(131-135)	101(101-103)	638	32(32-33)	88(88-89)	556
CAS426	134(110-159)	31(26-42)	397			
CAS450	94(88-102)	7(7)	139			
CCN03	57(53-64)	6(6)	68			
CCS61	115(112-120)	2(2)	39			
DTC01	160(146-174)	1(1)	8			
SLC03				5(5-6)		
SWD02	63(63-64)			34(33-38)	1(1)	13
TIL03	68(68-69)			2(2)		

Table 18. Abundance (estimated number in site) and 95% confidence intervals of non-brook and brown trout species captured within 26 sample sites of the Rapid Creek Watershed during the 2016 survey. Sites are listed in order from downstream to upstream.

Species	CRC	LND	MTS	RBT <200 mm	RBT >200 mm	ROB	WHS
RAP95		1(1)					1(1)
RAP1420		2(2-4)					44(37-57)
RAP1642					2(2-4)		
RAP1741					1(1)		
RAP1821				3(3)	2(2-3)		
RAP1832				5(5-7)	6(6-9)		
RAP1842				10(9-15)	1(1-5)		
RAP1927(July)				1(1-2)	3(3)		5(5-7)
RAP1927(Oct)				4(4-6)	12(12-13)		
RAP1932(Jul)						3(3-4)	1(1-2)
RAP1932(Oct)					7(7-8)		2(2-6)
RAP1945(July)				1(1)		3(3-4)	
RAP1945(Oct)				1(1)			1(1)
RAP1947(July)				2(2-4)	1(1)	5(5-6)	
RAP1947(Oct)				2(2-2)	6(6-7)	2(2-6)	7(7-9)
RAP1962(July)			2(2-6)			2(2)	
RAP1962(Oct)				2(2-3)	2(2-2)		1(1-5)
RAP2127		1(1)	1(1)				
RCN02					1(1-2)		
RCN03		70(59-86)	11(11-13)				1(1)
RCN04		134(59-299)	38(34-46)				4(4)
CAS153							6(6-7)
CAS181							1(1)
CAS186			1(1)				
CAS252				33(24-54)	6(5-6)	111(103-121)	
CAS426				6(6-8)	4(4)		
CAS450				3(3-4)	1(1)		
CCN03				14(13-18)	1(1)		
CCS61				1(1)	1(1)		
SLC03	123(120-128)	240(226-254)					7(7-9)
SWD02		49(45-57)	2(2-4)				

Rapid Creek (RAP)

In May and July, 13 sites were sampled in Rapid Creek. In Rapid Creek 95, 134 brown trout were sampled with 38 over 200mm (estimated 200 per acre, class 1 designation). One longnose dace and one white sucker were also sampled.

In Rapid Creek 1420, 80 brown trout were sampled with 59 being over 200mm (estimated 240 per acre, class 1 designation). Two longnose dace and 37 white sucker were also sampled.

In Rapid Creek 1642, 150 brown trout were sampled with 54 being over 200mm and 2 rainbow trout over 200mm were sampled. This yielded a $\geq$ 200 mm number per acre estimation of 286 and 9, respectively, meeting a class 1 designation for brown trout and a class 2 for rainbow trout.

In Rapid Creek 1741, 242 (38 over 200 mm) brown trout and one rainbow trout over 200mm were sampled with 128 (class 1) and three (class 2) estimated per acre, respectively.

In Rapid Creek 1821, 150 (41 over 200 mm, estimated 149 per acre, class 2 designation) brown trout and 5 (two over 200mm) rainbow trout (estimated 18 per acre, class 2 designation) were sampled in the site.

In Rapid Creek 1832, three brook trout (two over 200 mm, estimated 8 per acre, class 3 designation), 185 (42 over 200mm, estimated 169 per acre, class 1 designation) brown trout, and 11 (six over 200mm, estimated 24 per acre, class 2 designation) rainbow trout were sampled.

In Rapid Creek 1842, 12 (three over 200 mm, estimated 10 per acre, class 3 designation) brook trout, 80 (29 over 200mm, estimated 97 per acre, class 2 designation) brown trout, and 10 (one over 200mm, estimated 3 per acre, class 2 designation) rainbow trout were sampled.

Rapid Creek sites 1927-1962, above Pactola Lake, are being sampled bi-annually to evaluate if the brown trout stockings into lake are contributing to the creek above. This evaluation will be written in a separate report during the winter of 2017-2018, so it will not be included here.

In Rapid Creek 2093, brown trout was the only species sampled with 90 sampled in the site and 20 being 200mm (estimated 148 per acre, class 2 designation).

In Rapid Creek 2127, 48 brown trout sampled with 17 being larger than 200mm (estimated 144 per acre, class 2 designation). One longnose dace and one mountain sucker were also sampled.

North Fork Rapid Creek (RCN)
On May 25, 2016 three sites were sampled on the north fork of Rapid Creek. In Rapid Creek North 2, 37 brook trout with two being over 200mm (estimated 57 per acre, class 2 designation) and one rainbow trout (29 estimated per acre, class 1 designation) over 200mm were sampled.

In Rapid Creek North 3, longnose dace was the most abundant species with 59 sampled. Twenty-four (one over 200mm, estimated 14 per acre, class 3 designation) brook trout and 25 (seven over 200mm, estimated 101 per acre, class 2 designation) brown trout were sampled. Eleven mountain sucker and one white sucker were also sampled in the site.

In Rapid Creek North 4, longnose dace was the most abundant species with 59 sampled. Twenty-eight (three over 200mm, estimated 32 per acre, class 2 designation) brook trout and 30 (11 over 200mm, estimated 116 per acre, class 2 designation) brown trout were sampled in the site. Mountain sucker (N=34) and white sucker (N=4) were also sampled in the site.

Castle Creek (CAS)
In May, June, and July 2016, 12 sites were sampled on Castle Creek. In Castle Creek 153, 78 brown trout with 20 over 200mm were estimated in the site (estimated 153 per acre, class 1 designation). Six white sucker were also sampled.

In Castle Creek 181, seventy-five (11 over 200mm, estimated 91 per acre, class 2 designation) brown trout and one white sucker were sampled.

In Castle Creek 186, one brook trout under 200mm, 53 (14 over 200mm, estimated 134 per acre, class 2 designation) brown trout, and one mountain sucker were sampled.

In Castle Creek 252, brook trout and rock bass were the most abundant species with 106 (12 over 200mm, estimated 127 per acre, class 2 designation) and 103 sampled in the site, respectively. Twenty-four rainbow trout were also sampled with five being over 200mm (estimated 54 per acre, class 1 designation).

In Castle Creek 324, brown trout were the most abundant species with 62 (31 over 200mm, estimated 246 per acre, class 1 designation) sampled in the site. Thirteen brook trout with three over 200mm (estimated 24 per acre, class 3 designation) were also sampled.

In Castle Creek 334, 42 (14 over 200mm, estimated 104 per acre, class 2 designation) brook trout and 153 (100 over 200mm, 755 per acre, class 1 designation) brown trout were sampled.

In Castle Creek 337, forty brook trout (five over 200mm, estimated 41 per acre, class 2 designation) and 85 brown trout (24 over 200mm, estimated 197 per acre, class 1 designation) were sampled.

In Castle Creek 356, 69 brook trout (41 over 200mm, estimated 306 per acre, class 1 designation) and 162 brown trout (110 over 200mm, estimated 808 per acre, class 1 designation) were sampled.

In Castle Creek 363, brook trout and brown trout were sampled with 234 (101 over 200mm, estimated 638 per acre, class 1 designation) and 120 (88 over 200mm, estimated 556 per acre, class 1 designation) sampled, respectively.

In Castle Creek 426, 136 brook trout (26 over 200mm, estimated 396 per acre, class 1 designation) and 10 rainbow trout (4 over 200mm, estimated 51 per acre, class 1 designation) were sampled.

In Castle Creek 450, brook trout and rainbow trout were sampled with 96 (seven over 200mm, estimated 139 per acre, class 2 designation) and four (one over 200mm, estimated 20 per acre, class 2 designation) sampled in the site, respectively.

In Castle Creek 2014, 25 brook trout (4 over 200mm, estimated 35 per acre, class 2 designation) and 23 brown trout (10 over 200mm, estimated 87 per acre, class 2 designation) were sampled.

North Fork Castle Creek (CCN)
On July 19, 2016, in Castle Creek North 3, 59 brook trout (6 over 200mm, estimated 68 per acre, class 2 designation) and 14 rainbow trout (1 over 200mm, estimated 11 per acre, class 2 designation) were sampled.

South Fork Castle Creek (CCS)
On July 19, 2016 one site on the South Fork of Castle Creek was sampled. Brook trout and rainbow trout were sampled in Castle Creek South 61 with 114 (two over 200mm, estimated 39 per acre, class 2 designation) and two (one over 200mm, estimated 19 per acre, class 2 designation) sampled, respectively.

Ditch Creek (DTC)
On July 19, 2016 one site was sampled on Ditch Creek. Brook trout was the only species sampled in Ditch Creek 1 with 146 (one over 200mm, estimated 8 per acre, class 3 designation) collected.

Slate Creek (SLC)
On June 15, 2016, one site was sampled on Slate Creek. Longnose dace and creek chub were the most abundant species in Slate Creek 3 with 222 and 120 sampled. Five brown trout under 200mm were also sampled.

Swede Gulch (SWD)
On May 25, 2016, one site was sampled in Swede Gulch. Brook trout was the most abundant species in Swede Gulch 2 with 63 under 200mm sampled. Thirty-four brown trout (one over 200mm, estimated 13 per acre, class 3 designation), 45 longnose dace, and two mountain sucker were also sampled.

Tilson Creek (TIL)
On May 25, 2016, one site was sampled on Tilson Creek. Two brown trout and 68 brook trout, all under 200mm, were estimated in Tilson Creek 3.

Estimates for these sites can be found in Tables 17 and 18.

Redwater River Watershed

Counties:

Fish populations in Redwater River Watershed and Crow Creek watershed within the BHFMA were surveyed during 2016. Crow Creek Watershed's headwaters begin about five miles west of Savoy with the Beaver Creek Forks. About six miles west of Spearfish, Beaver Creek (north) joins Crow Creek, which flows north and drains into the Redwater River about two miles north of I 90. The northern end of the Crow Creek Watershed lies on private land with Crown Creek itself running though McNenny State Fish Hatchery and the Mirror Lakes Game Production Areas. Crow Creek was last stocked in 1995 with catchable rainbow trout, and 1990 with catchable brown trout; however, some fish from McNenny State Fish Hatchery have likely escaped into the creek near hatchery grounds. Both Mirror Lakes are currently stocked with catchable rainbow trout, and Beaver Creek was last stocked with fingerling rainbow trout in 1986. Crow Creek and its tributaries are managed under standard regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer. Crow Creek below McNenny State Fish Hatchery is a productive wild brown trout fishery and is managed by South Dakota Game, Fish and Parks as a Class I brown trout fishery.

Beginning at the South Dakota-Wyoming border, the Redwater River runs west toward Belle Fourche. Once Crow Creek drains into the Redwater River north of Spearfish the surrounding land is primarily grassland which is used for grazing cattle. The land is predominantly managed by private ranches. The river is typically very deep with steep banks which can provide challenges to sampling.

Table 19. Abundance (estimated number in site) and 95% confidence intervals of brown trout (BNT) captured within 5 sample sites of the Redwater River watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	BNT < 200 mm	BNT ≥ 200 mm	BNT ≥ 200 mm per acre
CRW5	31(31)	22(22-23)	148
CRW9	315(63-1468)	12(12-13)	53
RED1	8(8-11)	7(7-8)	42
RED2		5(5)	26
RED4	14(14-15)	23(23-24)	183

Table 20. Abundance (estimated number in site) and 95% confidence intervals of non-salmonid species captured within 5 sample sites of the Redwater River watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	BSB	GSF	LND	LNS	MTS	SHR	STC	WHS
CRW5				10(10-11)				4(4)
CRW9	24(7-190)	8(6-19)						3(3-4)
RED1			2(2-4)					4(4)
RED2		2(2-4)					3(3-4)	3(3-4)
RED4			8(6-19)	5(5-6)	3(3)	5(5)		6(6)

Crow Creek (CRW)
Two sites were sampled in Crow Creek on May 26, 2016. In Crow Creek 5, 53 brown trout were sampled with 22 over 200mm (estimated 148 per acre, class 2 designation). Four white sucker and 10 longnose sucker were also sampled.

In Crow Creek 9, brown trout was the most abundant species sampled with 75 sampled and 12 over 200mm (estimated 53 per acre, class 2 designation). Brook stickleback (N=7), green sunfish (N=8), and white sucker (N=3) were also sampled.

Redwater River (RED)
On July 13, 2016, three sites were sampled on the Redwater River. In Redwater River 1 brown trout was the most abundant species with 15 sampled (7 over 200mm, estimated 42 per acre, class 2 designation). Two longnose dace, four white sucker, and two longnose sucker were also sampled.

In Redwater River 2, five brown trout, all over 200mm (estimated 26 per acre, class 2 designation), two green sunfish, three stonecat, and three white sucker were sampled.

In Redwater River 4, 37 brown trout (23 over 200mm, estimated 183 per acre, class 1 designation) were sampled. Six longnose dace, five longnose sucker, three mountain sucker, five shorthead redhorse, and six white sucker were also sampled.

Estimates of these sites can be found in Table 19 and 20.

Spearfish Creek Watershed

Counties: Lawrence

Fish populations in the Spearfish Creek Watershed within the BHFMA were surveyed to monitor fish populations. The Spearfish Creek Watershed lies between the Crow Creek and False Bottom Creek, and Whitewood Creek Watersheds in the northern Hills. The headwaters of Spearfish Creek lie about 8km (5mi) east of the Wyoming border and 15km (9 mi) west-south-west of Dumont. Spearfish Creek runs north along Hwy 85 until Cheyenne Crossing were it mostly runs along Hwy 14A until the city of Spearfish. It continues to run north through Spearfish and crosses I90 just west of the Hwy 85 exit. It experiences a loss zone between Bridal Veil Falls and the city of Spearfish, partially due to uptake of water by the City of Spearfish. Water returns to the creek prior to the city campground on the south end of town. The majority of Spearfish Creek and its tributaries are managed as a wild trout (natural yield) fishery with standard regulations of a daily limit of five trout (in any combination) with one allowed 14 inches or longer. A one-mile reach of Spearfish Creek from the Maurice Intake upstream to the Hydro #2 building is currently managed with catch and release regulations for rainbow trout. Other trout species may be harvested according to standard regulations. This reach of Spearfish Creek is unique in that it contains the only naturally reproducing rainbow trout population in the Black Hills capable of maintaining a Class I rainbow trout fishery (> 25 fish $\geq$200 mm / surface acre). No creeks within the watershed have been stocked since 1990 except for Iron Creek and East Spearfish Creek. Iron Creek was last stocked in 1997 with brook trout, and East Spearfish Creek was last stocked in 2005 with brown trout. Iron Creek Lake is stocked with around 6,800 catchable rainbow trout annually from April to September. Iron Creek also experiences a short loss zone in most years approximately one mile up from its confluence with Spearfish Creek, so these fisheries are often not connected.

Table 21. Abundance (estimated number in site) of brook trout captured within sample sites of the Spearfish Creek Watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream. Confidence intervals (95%) are shown in parenthesis.

Site	BKT <200mm	BKT ≥200 mm	BKT ≥200 mm/acre
SFC585	1(1-1)		
SFC636	16(16-17)	1(1-2)	9
SQU10	77(71-86)	13(13-15)	114
ANN6	41(421-43)	1 (1)	15
IBG02	35(35)		
ESP02	2 (2-4)		
WAR03	31 (31)		
WAR01	67 (63-74)		

Table 22. Abundance (estimated number in site) of brown trout and rainbow trout captured within sample sites of the Spearfish Creek Watershed in 2016. Sites are listed in order from furthest downstream to upstream. Confidence intervals (95%) are shown in parenthesis.

Site	BNT <200 mm	BNT ≥200 mm	BNT ≥ 200 mm/acre	RBT <200 mm	RBT ≥ 200 mm	RBT ≥200 mm/acre
SFC31	70(70-72)	24(24-25)	145			
SFC30[+]	15(15)					
SFC29	50(49-53)	159(145-173)	1,205			
SFC179	36(29-51)	71(66-79)	340			
SFC179[*]	30(27-37)	107(102-114)	510			
SFC189	14(14-16)	118(98-140)	678			
SFC195	4(4-5)	39(36-46)	246			
SFC220	63(60-69)	93(88-100)	351		1(1)	4
SFC354	96(71-129)	64(59-72)	257	25(23-31)	6(6-7)	24
SFC406	57(56-60)	44(41-50)	209	1(1)		
SFC415	210(200-220)	121(119-125)	345		5(5)	14
SFC472	207(195-219)	56(56-57)	280			
SFC522	190(152-228)	114(107-123)	622			
SFC543	157(130-184)	57(52-66)	297			
SFC585	210(187-233)	30(30-32)	222			
SFC636	89(87-93)	36(34-41)	310			
SQU10	14(14-16)	11(11-12)	96	189(181-197)	14(14)	123
LSC03	160(119-201)	115(109-123)	920			
LSC05	13(13-14)	13(13)	340			
ANN06	1(1)	1(1)	15			
ESP01	227(203-251)	50 (50-52)	484			
ESP02	55(44-73)	17 (16-21)	199			
WAR03	5(5)					
WAR01	6(6)					

[+]single pass; [*]sampled twice

Spearfish Creek (SFC)

In June and July of 2016, 16 sites were sampled on Spearfish Creek. Spearfish Creek sites 29 and 30 are in a flood control channel and were sampled to evaluate the population and transport fish from the channel that was being drained. Spearfish Creek 30, which is the lowest site in the flood control channel, was sampled with one pass because only 15 brown trout were sampled and all were under 200mm (Table 14). The upper reach of the channel, Spearfish Creek 29,

included 194 brown trout with 145 ≥ 200mm sampled in the reach (1,205 estimated per acre, class 1 designation).

In Spearfish Creek 31, a site far below the flood control channel and out on the prairie reach of the stream, 94 brown trout were sampled with 24 ≥ 200 mm. This class 2 designation site yielded a number per acre estimation of 145 ≥ 200 mm.

Spearfish Creek 179 was sampled twice, once on June 21 and once on July 12. On June 21, 95 brown trout were sampled with 66 ≥ 200 mm (340 estimated per acre, class 1 designation). On July 12, 129 brown trout were sampled with 102 ≥ 200 mm (510 estimated per acre, class 1 designation).

In Spearfish Creek 189, 112 brown trout were sampled in the site with 98 ≥ 200 mm (678 estimated per acre, class 1 designation).

Sampling of Spearfish Creek 195 yielded 40 brown trout with 36 ≥ 200 mm (246 estimated per acre, class 1 designation).

In Spearfish Creek 220, one rainbow trout ≥ 200mm and 148 brown trout (88 ≥ 200mm) were sampled with four (class 2 designation) and 246 ≥ 200 mm (class 1 designation) estimated per acre, respectively.

Spearfish Creek 354, is within the special regulation area for protection of rainbow trout. It had the highest density of rainbow trout with 29 (6 ≥ 200mm) sampled. Brown trout were also sampled with 130 (59 ≥ 200mm) sampled in the site. This yielded a number per acre estimation of 24 and 257 ≥ 200 mm (class 2 and 1 designations), respectively.

Site 406 in Spearfish Creek was sampled on June 14. Ninety-seven brown Trout (estimated 483 per acre) and one Rainbow Trout (estimated 5 per acre) were sampled with 41 and one being over 200mm, respectively.

In Spearfish Creek site 415, 319 brown trout and five rainbow trout were sampled with 119 and five ≥ 200mm, respectively. This resulted in a number per acre of 345 and 14 ≥ 200 mm, (class 1 and 2) respectively.

Brown trout was the only species sampled in Spearfish Creek 472 with 250 sampled in the site and 56 ≥ 200 mm (280 estimated per acre, class 1 designation).

In Spearfish Creek 522, 254 brown trout were sampled with 107 ≥ 200 mm (622 estimated per acre, class 1 designation).

Sampling of Spearfish Creek site 543 yielded 180 brown trout with 52 over 200mm. This resulted in a number per acre estimation of 297 ≥ 200 mm (class 1 designation).

In Spearfish Creek site 585, one brook trout under 200 mm and 211 brown trout were sampled with 30 ≥ 200mm (222 estimated per acre, class 1 designation)(Tables 14 and 15).

In Spearfish Creek site 636, 17 brook trout (one over 200mm, 9 estimated per acre, class 3 designation) and 121 brown trout with 35 ≥ 200 mm (310 estimated per acre, class 1 designation) were sampled.

Cleopatra Creek /Squaw Creek (SQU)
Cleopatra Creek was surveyed at site 10, 100 m above the confluence with Spearfish Creek, on May 26, 2016. Brook trout, brown trout, and rainbow trout were all surveyed at the site. Of the 93 brook trout sampled, 13 were ≥200 mm (114 per acre). Of the 30 brown trout sampled, 11 were ≥200 mm (96 per acre). And of the 202 rainbow trout sampled, 14 were ≥200 mm (123 per acre). This meets the classification of a class II brook trout and brown trout fishery and a class I rainbow trout fishery. This is an increase from the July 2008 survey were just one fish ≥200 mm of each species was surveyed.

Little Spearfish Creek (LSC)
Two sites were surveyed in Little Spearfish Creek in 2016. Site 3, behind the Spearfish Canyon Lodge, was surveyed on May 25 with 228 brown trout captured. Of those, 109 were ≥200 mm (920 estimated per acre) which meets the qualification for a class I brown trout fishery.

Site 5 was created and surveyed in May 26, 2016 near the parking area for the hiking trailhead above Timon Campground. Twenty-eight brown trout were surveyed with 13 ≥200 mm (130 estimated per acre), meeting a class II brown trout fishery.

Annie Creek (ANN)
On June 3, 2016, four sites were sampled on Annie Creek. No fish were sampled in sites 2, 7, and 11. In Annie Creek 6, above the confluence with Spearfish Creek, 42 brook trout (one over 200 mm, 634 estimated per acre) and two Brown Trout (one over 200 mm, 30 estimated per acre) were sampled in the site.

Icebox Gulch (IBG)
A new site (2) was sampled in Icebox Gulch on May 18, 2016 approximately 0.7 km up from Cheyenne Crossing. Thirty five brook trout <200 mm were captured during the survey. The original site 1 was not sampled due to private access.

East Spearfish Creek/Hanna Creek (ESP)
Site 1, 350 m below Hanna Campground, was surveyed on May 1, 2016 with 246 brown trout captured. Fifty of those were ≥200 mm (484 per acre) meeting a class I brown trout fishery.

Site 2, almost 1.5 km upstream from site 1, was surveyed on May 18, 2016 with 60 brown trout and 2 brook trout. Of those, 16 brown trout were ≥200 mm (199 estimated per acre) meeting a class I brown trout fishery.

Ward Draw (WAR)
A new site (3) was created and sampled on May 18, 2016 in Ward Draw less than ½ km up from the confluence with East Spearfish Creek. Brook trout and brown trout <200 mm were sampled with 31 and five respectively. Site 1, almost one km further up the road, was also sampled on May 18, 2016 with 63 brook trout and 6 brown trout captured <200 mm.

Keough Creek (KEO), Dead Ox Creek (DOX) and Intake Gulch (ITG) were all dry when checked in May 2016

Raddick Gulch (RAD)
Raddick Gulch was sampled with no fish detected in May 2016.

Estimates of these sites can be found in Tables 21 and 22.

Spring Creek Watershed

Counties: Pennington

In 2016, fish populations in the Spring Creek Watershed within the BHFMA. The Spring Creek Watershed lies between Rapid Creek and Battle Creek Watersheds. The headwaters of Spring Creek lie about eleven miles west of Hill City and the creek flows east through Hill City, SD and enters Sheridan Lake approximately 4.5 miles (7.2 km) east north east. After exiting Sheridan Lake, Spring Creek flows east until it drains into the Cheyenne River southwest of Wasta, SD. The creek does experience a loss zone (where flow is lost to underlying geologic units) near Hwy 79 north of Hermosa and is intermittent from the town of Rockerville, SD downstream most years. The Spring Creek Watershed within the BHFMA is in a pine/spruce forest and managed by the US Forest Service. As with the rest of the Black Hills, many forest service roads cut through the watershed with a few houses and ranches present. Sections of Spring Creek as well as Newton Fork Dam, Sheridan, Sylvan, Sunday Gulch, Mitchell, and Major Lakes are all currently stocked with rainbow trout. Spring Creek and its tributaries are managed under standard regulations with a daily limit of five trout (in any combination) with one allowed 14 inches or longer.

Table 23. Abundance (estimated number in site) and 95% confidence intervals of salmonid-species captured within 4 sample sites of the Spring Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	BKT <200 mm	BKT ≥ 200 mm	BKT ≥ 200 mm per acre	BNT < 200 mm	BNT ≥ 200mm	BNT ≥ 200 mm per acre
SPR1					9(9)	41
SPR6	47(47-48)	3(3)	135			
SPR7				20(19-24)	1(1-2)	9
SPR10				2(2-6)	3(3-3)	18

Table 24. Abundance (estimated number in site) and 95% confidence intervals of additional species captured within 4 sample sites of the Spring Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	CRC	LND	RBT	RBT ≥ 200 mm per acre	ROB	WHS
SPR1	155(150-161)	2(2-6)			2(2)	
SPR6						
SPR7	4(4-5)	21(16-36)			3(3-4)	10(9-15)
SPR10	220(210-230)	15(3-296)	2(2-2)	2(2)	16(9-50)	1(1)

Spring Creek (SPR)

On June 22 and 27 of 2016, four sites were sampled on Spring Creek. In Spring Creek 1, creek chub was the most abundant species sampled with 150 sampled. Nine brown trout over 200mm, two longnose dace, and two rock bass were also sampled. This yielded a number per acre estimation of 41 (class 2 designation) for brown trout.

In Spring Creek 6, brook trout was the only species sampled with 50 sampled and three over 200mm (135 estimated per acre, class 2 designation).

In Spring Creek 7, brown trout and longnose dace were the most abundant species sampled with 20 and 16 sampled, respectively (one brown trout over 200mm, 9 estimated per acre, class 3 designation).

In Spring Creek 10, creek chub was the most abundant species sampled with 209 sampled. Five brown trout (three over 200mm, 18 estimated per acre, class 3 designation), three longnose dace, two rainbow trout over 200mm (12 estimated per acre, class 2 designation), 16 rock bass, and one white sucker were also sampled.

Estimates of these sites can be found in Tables 23 and 24.

Whitewood Creek Watershed

Counties: Lawrence

Fourteen sites in Whitewood Creek and one site in Grizzly Gulch Creek were sampled within the Whitewood Creek Watershed in 2016. All other tributary creeks were surveyed in 2015. The Whitewood Creek watershed is located in the north central and eastern portions of the BHFMA and continues onto the prairie east of the Black Hills until it eventually reaches the Belle Fourche River near Vale, SD. Size and harvest regulations within the Whitewood Creek watershed are the BHFMA regulations for trout which is a five fish (any combination) daily limit with only one over 14". Hatchery rainbow trout were last stocked in Whitewood Creek near Deadwood, SD in 2013.

Table 25. Abundance (estimated number in site) and 95% confidence intervals of salmonid species captured within 15 sampled sites of the Whitewood Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	CUT	BKT <200 mm	BKT ≥200 mm	BKT ≥200mm per acre	BNT<200 mm	BNT ≥200 mm	BNT ≥200mm per acre	RBT
WWC22						3(3)	16	
WWC21					1(1-5)	1(1)	4	
WWC21*								
WWC20								
WWC19					15(15-17)	8(8)	34	
WWC19*					15(15-16)			
WWC27					9(8-14)	2(2)	11	
WWC5					4(4)	12(12)	64	
WWC11								
WWC3	1(1-2)				68(68-69)	47(47-48)	234	2(2-3)
WWC3*	1(1)				93(89-99)	76(76-84)	40	
WWC25	1(1-2)	1(1)			26(26-28)	24(24-25)	140	1(1)
WWC1		3(3)			151(133-269)	55(55)	327	
WWC1*					184(181-189)	60(60-61)	397	
WWC8		1(1)			47(46-50)	69(69-71)	654	
WWC8*		1(1)	1(1)	10	82(80-86)	60(59-63)	605	
WWC6			2(2)	15	61(61-62)	25(25)	188	
GGC2		65(65-66)			13(13)	3(3)	138	
WWC24		58(58-60)	2(2)	20	94(94-96)	21(21)	197	

**Sampled twice*

Table 26. Abundance (estimated number in site) and 95% confidence intervals of non-salmonid species captured within 15 sampled sites of the Whitewood Creek watershed during the 2016 survey. Sites are listed in order from furthest downstream to upstream.

Species	CRC	GSF	LND	FHM	MTS	SDS	SHR	STC	WHS
WWC22		6(6-7)	34(17-97)	2(2-3)	2(2-6)	2(2)	5(5)	46(37-62)	6(6)
WWC21	11(11-13)	2(2)	194(115-289)		32(31-35)			8(6-19)	31(20-62)
WWC21*	3(3)	2(2)	10(10)					3(3)	2(2)
WWC20	1(1-7)		25(20-38)		1(1)	3(3)		6(5-13)	
WWC19			495(346-644)		90(44-197)				
WWC19*			185(161-209)		2(2)				2(2-4)
WWC27	14(13-19)		2,836(1,818-3,854)		639(496-782)				80(79-83)
WWC5			2,931(2,341-3,521)		1,208(419-2,018)				1(1)
WWC11			3,902(3,815-3,989)		301(284-318)				
WWC3			1,760(352-4,486)		105(82-133)				
WWC3*			1,872(1,783-1,961)		284(217-315)				
WWC25			243(152-334)		119(55-258)				
WWC1			75(15-651)		28(15-77)				
WWC1*			26(22-36)		96(87-107)				
WWC8									
WWC8*					2(2)				

**Sampled twice*

WWC22
Longnose dace was the most abundant species in Whitewood Creek 22, with 17 sampled. Other species sampled were brown trout (N=3, all over 200mm, 16 estimated per acre, class 3 designation), green sunfish (N=6), fathead minnow (N=2), mountain sucker (N=2), sand shiner (N=2), shorthead redhorse (N=5), stonecat (N=37) and white sucker (N=6).

WWC21
Whitewood Creek 21 was sampled twice in 2016; once on May 23 and once on July 5. Longnose dace was the most abundant species on May 23, with 115 sampled and 766 estimated per acre. Two brown trout (one over 200mm, 4 estimated per acre, class 3 designation), 11 creek chub, two green sunfish, 31 mountain sucker, six stone cat, and 20 white suckers were also sampled. On July 5, three creek chub, two green sunfish, 10 longnose dace, three stonecat, and two white sucker were sampled.

WWC20
In Whitewood Creek 20, longnose dace was the most abundant species sampled with 20 sampled. One creek chub, one mountain sucker, three sand shiners, and five stonecat were also sampled in the site.

WWC19
Whitewood Creek 19 was sampled on May 31 and July 5. On May 31, 23 brown trout were sampled with 8 over 200mm (34 estimated per acre, class 2 designation). Other species sampled included longnose dace (N=295) and mountain sucker (N=44). On July 5, longnose dace was again the most abundant species sampled with 157 sampled. Brown trout (N=15, all under 200mm), mountain sucker (N=2), and white sucker (N=2) were also sampled.

WWC27
In Whitewood Creek 27, longnose dace and mountain sucker were found in high abundance with 1,084 and 403 sampled, respectively. Ten brown trout (two over 200mm, 11 estimated per acre, class 3 designation), 13 creek chub, and 79 white sucker were also sampled.

WWC5
Whitewood Creek 5 had the highest abundance of mountain sucker of all the sites, with 419 sampled. Other species sampled included brown trout (N=16, 12 over 200mm, 64 estimated per acre, class 2 designation) and white sucker (N=1).

WWC11
In Whitewood Creek 11, longnose dace and mountain sucker were the only species sampled with 3,433 and 277 sampled, respectively.

WWC3
Whitewood Creek 3 was sampled on June 1 and July 6. On June 1, 352 longnose dace and 82 mountain suckers were sampled. Sixty-eight brown trout (47 over 200mm, 339 estimated per acre), one cutthroat trout over 200mm (5 estimated per acre), and two rainbow trout over 200mm (10 estimated per acre) were also sampled. On July 6, 1,542 longnose dace and 200 mountain sucker (145 estimate per acre) were sampled. Eighty-nine brown trout (76 over 200mm, 47 estimated per acre) and one cutthroat trout over 200mm were also sampled.

WWC25
In Whitewood Creek 25, longnose dace and mountain sucker were the most abundant species with 152 and 55 sampled, respectively. One brook trout under 200mm, 50 brown trout (24 over 200mm, 140 estimated per acre, class 2 designation), one cutthroat trout over 200mm (6 estimated per acre), and one rainbow trout over 200mm (6 estimated per acre, class 2 designation) were also sampled in the site.

WWC1
Whitewood Creek 1 was sampled on May 19 and July 8. On May 19, three brook trout under 200mm, 187 brown trout (55 over 200mm, 336 estimated per acre, class 1 designation), 15 longnose dace, and 15 mountain sucker were sampled in the site. On July 8, 181 brown trout (60 over 200mm, 397 estimated per acre, class 1 designation), 22 longnose dace, and 87 mountain sucker were sampled.

WWC8
Whitewood Creek 8 was sampled twice in 2016; once on June 1 and once on July 6. On June 1, one brook trout under 200mm and 115 brown trout (69 over 200mm, 654 estimated per acre, class 1 designation) were sampled. On July 6, two brook trout (one over 200mm, 10 estimated per acre, class 3 designation), 80 brown trout (59 over 200mm, 605 estimated per acre, class 1 designation), and two mountain sucker were sampled.

WWC6
Two brook trout over 200mm (15 estimated per acre, class 3 designation) and 86 brown trout (25 over 200mm, 188 estimated per acre, class 1 designation) were sampled in Whitewood Creek 6.

WWC24
In Whitewood Creek 24, brook trout and brown trout were the only species sampled. Sixty brook trout (two over 200 mm, 19 estimated per acre, class 3 designation) and 115 brown trout (21 over 200mm, 197 estimated per acre, class 1 designation) were sampled.

Grizzly Gulch Creek (GGC)
On June 2, 2016 one site was sampled on Grizzly Gulch Creek (GGC 2). Brook trout was the most abundant species sampled with 65 under 200 mm sampled. Brown trout were also sampled with 13 (3 over 200 mm, 138 per acre, class 2 designation) collected.

Estimates of these sites can be found in Tables 25 and 26.

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Appendix A

2016 sampling sites listed by watershed in alphabetical order. Coordinates presented using the Universal Transverse Mercator (UTM) coordinate system.

Watershed	Stream	Site	Y (northing)	X (easting)
Battle Creek	Battle Creek	BAT05	4861639	630862
Battle Creek	Battle Creek	BAT09	4860846	631490
Battle Creek	Iron Creek South	ICS05	4854807	624448
Bear Butte Creek	Bear Butte Creek	BBC864	4907744	607502
Bear Butte Creek	Bear Butte Creek	BBC16	4904690	604278
Bear Butte Creek	Bear Butte Creek	BBC844	4908711	607613
Bear Butte Creek	Bear Butte Creek	BBC887	4906863	606191
Bear Butte Creek	Bear Butte Creek	BBC904	4905868	605569
Beaver Creek	Beaver Creek	BV201	4879787	578105
Boxelder Creek	Boxelder Creek	BOX1	4890420	622695
Boxelder Creek	Boxelder Creek	BOX4	4898237	611884
Boxelder Creek	Jim Creek	JIM2	4889081	615984
Boxelder Creek	Jim Creek	JIM1	4889157	619671
Boxelder Creek	Hay Creek	HAY3	4901536	609280
Boxelder Creek	Estes Creek	EST1	4891712	617105
Boxelder Creek	Bogus Jim Creek	BJM1	4886859	626075
Boxelder Creek	Middle Fork Boxelder Creek	BXM2	4894647	603864

Boxelder Creek	North Fork Boxelder Creek	BXN1	4897488	604522
Cold Springs Creek	Cold Creek	CLD1	4889043	578500
Elk Creek	Elk Creek	ELK7	4905621	614912
Elk Creek	Meadow Creek	MEC2	4905529	614895
Elk Creek	Elk Creek	ELK5	4905654	604047
Fall River	Fall River	FAL1	4806774	628587
Fall River	Fall River	FAL2	4808490	624862
Fall River	Fall River	FAL3	4810176	922912
Fall River	Cascade Creek	CCC1	4796672	616257
False Bottom Creek	Burno Gulch	BRG1	4919977	592332
False Bottom Creek	False Bottom Creek	FBC2	4916832	595316
False Bottom Creek	False Bottom Creek	FBC1	4914783	594199
French Creek	French Creek	FRC741	4841834	631512
French Creek	French Creek	FRC979	4841626	621723
Lame Johnny Creek	Flynn Creek	FLN1	4838046	623101
Lame Johnny Creek	Flynn Creek	FLN3	4836224	623864
Rapid Creek	Rapid Creek	RAP95	4882238	643817
Rapid Creek	Rapid Creek	RAP1420	4880834	638488
Rapid Creek	Rapid Creek	RAP1642	4879270	627719
Rapid Creek	Rapid Creek	RAP1741	4881972	625720
Rapid Creek	Rapid Creek	RAP1821	4881493	622028
Rapid Creek	Rapid Creek	RAP1832	4881000	622134
Rapid Creek	Rapid Creek	RAP1842	4881431	621389
Rapid Creek	Rapid Creek	RAP2093	4884529	607882
Rapid Creek	Rapid Creek	RAP2127	4885060	606353
Rapid Creek	North Fork Rapid Creek	RCN2	4894500	599007
Rapid Creek	North Fork Rapid Creek	RCN3	4894551	598982
Rapid Creek	North Fork Rapid Creek	RCN4	4894544	598982
Rapid Creek	Castle Creek	CAS153	4880183	603588
Rapid Creek	Castle Creek	CAS181	4881322	602665
Rapid Creek	Castle Creek	CAS186	4881643	602748
Rapid Creek	Castle Creek	CAS252	4880855	600230
Rapid Creek	Castle Creek	CAS324	4878182	598435
Rapid Creek	Castle Creek	CAS334	4877491	598245
Rapid Creek	Castle Creek	CAS337	4877419	598398
Rapid Creek	Castle Creek	CAS356	4875925	597523
Rapid Creek	Castle Creek	CAS363	4875956	597529
Rapid Creek	Castle Creek	CAS426	4874846	593206
Rapid Creek	Castle Creek	CAS450	4876289	592184
Rapid Creek	Castle Creek	CAS2014	4877839	598308
Rapid Creek	North Fork Castle Creek	CCN03	4882137	596728
Rapid Creek	South Fork Castle Creek	CCS03	4873839	593697
Rapid Creek	South Fork Castle Creek	CCS61	4870286	591395
Rapid Creek	Ditch Creek	DTC01	4869478	592684
Rapid Creek	Slate Creek	SLC03	4876347	609483
Rapid Creek	Swede Gulch	SWD2	4884587	622956
Rapid Creek	Tilson Creek	TIL3	4885480	620470
Redwater River	Crow Creek	CRO5	4936223	658129
Redwater River	Crow Creek	CRW9	4934854	578781
Redwater River	Redwater River	RED1	4938003	657736
Redwater River	Redwater River	RED2	4938607	588058

Redwater River	Redwater River	RED4	4936799	578039
Spearfish Creek	Spearfish Creek	SFC31	4938076	588338
Spearfish Creek	Spearfish Creek	SFC30	4930450	589956
Spearfish Creek	Spearfish Creek	SFC29	4930077	589961
Spearfish Creek	Spearfish Creek	SFC179	4928938	590159
Spearfish Creek	Spearfish Creek	SFC189	4928216	590031
Spearfish Creek	Spearfish Creek	SFC195	4927753	590017
Spearfish Creek	Spearfish Creek	SFC220	4925839	590931
Spearfish Creek	Spearfish Creek	SFC354	4917112	588008
Spearfish Creek	Spearfish Creek	SFC406	4914389	586530
Spearfish Creek	Spearfish Creek	SFC415	4913949	586188
Spearfish Creek	Spearfish Creek	SFC472	4910099	586422
Spearfish Creek	Spearfish Creek	SFC522	4907483	588932
Spearfish Creek	Spearfish Creek	SFC543	4906238	590054
Spearfish Creek	Spearfish Creek	SFC585	4904327	588032
Spearfish Creek	Spearfish Creek	SPF636	4900744	586057
Spearfish Creek	Annie Creek	ANN2	4909213	589454
Spearfish Creek	Annie Creek	ANN6	4908788	588184
Spearfish Creek	Annie Creek	ANN7	4910728	658893
Spearfish Creek	Annie Creek	ANN11	4909234	5889487
Spearfish Creek	Cleopatra	SQU10	4916978	588132
Spearfish Creek	East Spearfish	ESP02	4902015	591991
Spearfish Creek	Icebox Gulch	IBG02	4905503	591059
Spearfish Creek	Keough	KEO01	4900812	593263
Spearfish Creek	Little Spearfish Creek	LSC03	4911433	585196
Spearfish Creek	Little Spearfish Creek	LSC05	4908765	580515
Spearfish Creek	Raddick Gulch	RAD01	4900789	585429
Spearfish Creek	Ward	WAR01	4900130	592191
Spearfish Creek	Ward	WAR03	4900925	592400
Spring Creek	Spring Creek	SPR1	4871316	626028
Spring Creek	Spring Creek	SPR6	4862132	600650
Spring Creek	Spring Creek	SPR7	4843970	619725
Spring Creek	Spring Creek	SPR10	4871996	627683
Whitewood Creek	Whitewood Creek	WWC22	4941966	621230
Whitewood Creek	Whitewood Creek	WWC21	4938392	61746
Whitewood Creek	Whitewood Creek	WWC20	4942044	621292
Whitewood Creek	Whitewood Creek	WWC19	4930294	610635
Whitewood Creek	Whitewood Creek	WWC27	4921900	609044
Whitewood Creek	Whitewood Creek	WWC5	4923914	609782
Whitewood Creek	Whitewood Creek	WWC11	4925407	609238
Whitewood Creek	Whitewood Creek	WWC3	4918417	603989
Whitewood Creek	Whitewood Creek	WWC25	4916649	603276
Whitewood Creek	Whitewood Creek	WWC1	4915477	602068
Whitewood Creek	Whitewood Creek	WWC8	4913333	600890
Whitewood Creek	Whitewood Creek	WWC6	4912085	600559
Whitewood Creek	Grizzly Gulch	GGC2	4910783	600595
Whitewood Creek	Whitewood Creek	WWC24	4908312	598150