

A Summary of Biological Surveys on the West Zone of the Payette National Forest, 2009



Council Ranger District
Payette National Forest

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INTRODUCTION

Fish surveys were completed in multiple areas across the West Zone of the Payette National Forest in 2009 ([Figure 1](#)).

Electrofishing surveys were conducted on the Middle Fork Weiser River to fulfill recommendations outlined in the Biological Opinion (USFWS 2009). Conservation recommendation #7 in section 2.10 states that “The Forest should conduct annual surveys for bull trout in the areas of the Middle Fork Weiser subwatershed where grazing is authorized as part of the Council and Indian Mountain Allotments” (USFWS 2009). Comprehensive electrofishing surveys of the Middle Fork Weiser River were conducted in 1999 and limited surveys were conducted again in 2007 as part of the Grays Creek Fire Salvage Project. Bull trout were not found in 1999 or 2007 and it is believed that they do not exist in the Middle Fork Weiser River.

Electrofishing surveys in Cold Springs Creek (East Fork Weiser River tributary) were completed to provide fish distribution and species composition data for the upcoming **Council Mountain Project**. Additional electrofishing will likely occur within the project area in 2010.

Snorkel surveys were used for brook trout monitoring and Management Indicator Species (MIS) monitoring in 2009. Fish distribution at two culvert removal locations in bull trout streams was also investigated using snorkel methods.

Snorkel surveys were completed in the Anderson Creek and Upper Little Weiser 6th level subwatersheds. Annual surveys to monitor brook trout (*Salvelinus fontinalis*) distribution near the confluence of Little Weiser River, Anderson Creek and Sheep Creek were required mitigation for the Little Weiser Vegetation Management Project. Surveys have been extended past the ending date required in the Little Weiser Vegetation Management EIS because project implementation took longer than expected.

Brook trout have been documented in the Little Weiser River above Wolf Creek. In 2000 and 2003 brook trout were observed in Anderson Creek, upstream of the confluence with the Little Weiser River. In 2007, a brook trout was observed near the mouth of Sheep Creek. In 2008, one brook trout was observed in Little Weiser River downstream of the mouth of Anderson Creek and two additional brook trout were observed in Little Weiser River immediately upstream of the mouth of Anderson Creek. Both Anderson Creek and Sheep Creek support genetically pure populations of bull trout (Adams 1994, Spruell 2000). Brook trout are not native to this drainage and are able to hybridize with bull trout. Brook trout/bull trout hybrids typically exhibit characteristics of both brook trout and bull trout. A combination of traits of both species is used for field identification. Our identification assumes, however, that surveyors in the field are able to differentiate between color variations of both species and can accurately identify when a combination of species-specific traits exist. For the purposes of this document, it is also assumed that our identification abilities are accurate. Genetic testing should be conducted if exact species determinations are required. All suspected brook trout/bull trout hybrids are referred to as hybrids in this document. Invasion of brook trout into Anderson and Sheep Creeks is a serious concern and would compromise the genetic integrity of the bull trout populations in these streams.

The Payette National Forest Land and Resource Management Plan (Forest Plan) (USDA 2003) designated bull trout as a Management Indicator Species. To comply with the National Forest Management Act (NFMA), trends in MIS viability are monitored and related to habitat conditions across the Payette National Forest (Burns et al. 2005). MIS monitoring was conducted using snorkel surveys in areas where bull trout are present or have been documented in the past on the Council Ranger District. MIS surveys were conducted in Upper Little Weiser, Anderson Creek, Crooked River,

Bear Creek, Indian Creek, and East Fork Weiser River 6th level subwatersheds. These survey sites were chosen by a journey level fisheries biologist and conducted by either a fisheries biologist or an experienced technician.

Snorkel surveys were conducted in the Bear Creek 6th level subwatershed to provide fish distribution data near culverts that were removed on FS Road 130 in 2007. The culverts had been identified as fish passage barriers and surveys were conducted prior to and post-removal to determine if bull trout are using habitat in or upstream of the removal locations.

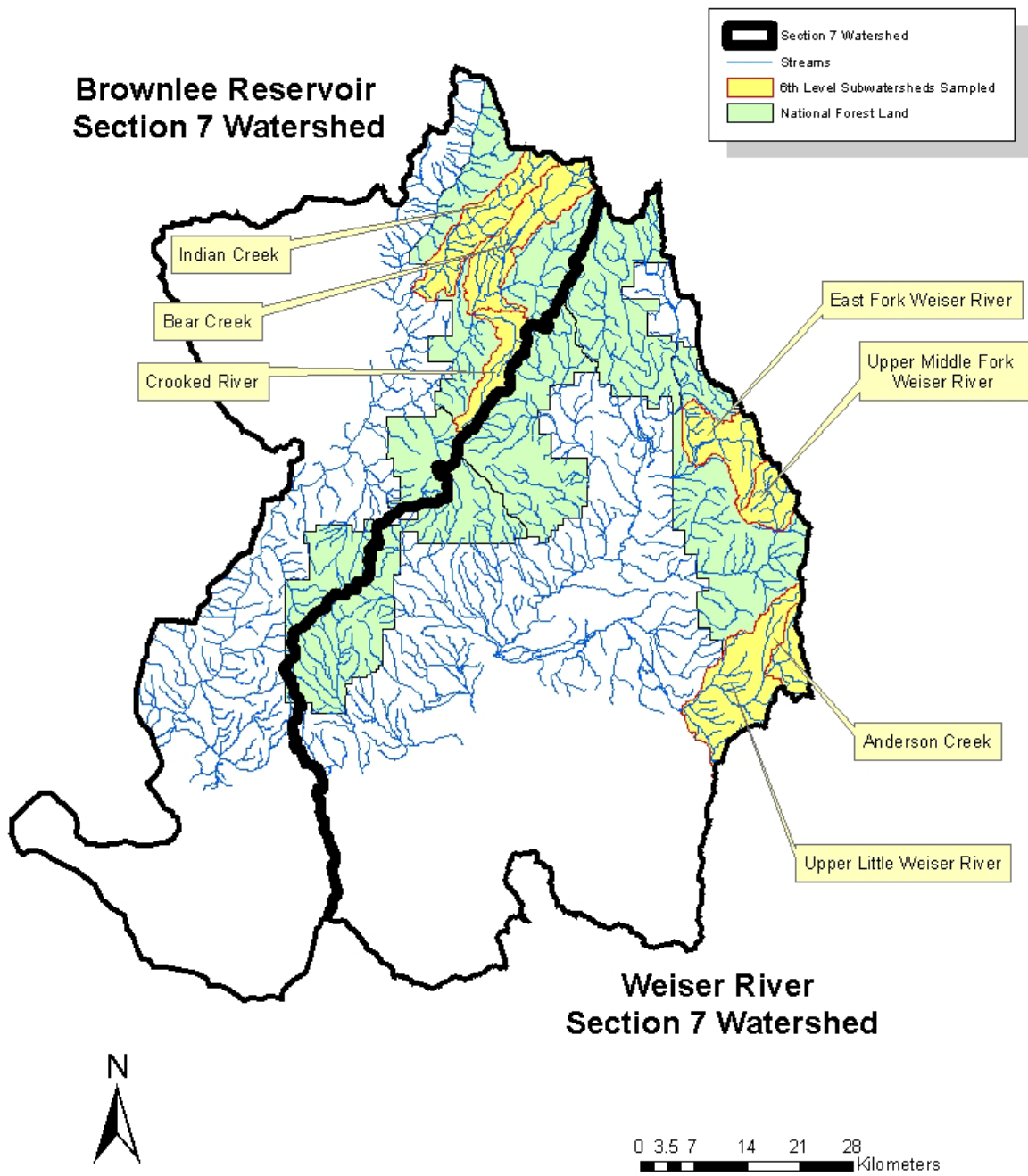
Snorkel surveys were also conducted in the East Fork Weiser River to investigate bull trout distribution within two riparian grazing exclosures. Riparian exclosures on both the Council Mountain and Indian Mountain Allotments are designed to protect spawning bull trout and bull trout spawning habitat annually from August 15th through mid-October. A complete description (including maps) of riparian exclosures on the aforementioned allotments can be referenced in Greenway 2008 (on file at the Council Ranger District).

Limited hook and line sampling was conducted in Crooked River (Wildhorse River tributary) to investigate the prevalence of bull trout upstream of the MIS snorkel site. Excluding the MIS snorkel surveys, fishery data has not been collected in upper Crooked River since 2003.

In 2009, bull trout spawning surveys were conducted within riparian grazing exclosures on both the Council Mountain (East Fork Weiser River and Dewey Creek) and on the Indian Mountain Allotments (Little Weiser River, Anderson Creek and Sheep Creek). Riparian exclosures on the Council Mountain and Indian Mountain Allotments are required mitigation by the Biological Assessment (BA) to limit effects to spawning bull trout and streams from grazing effects starting on August 15 and extending through the end of the grazing season (Hogen and Burns, 2002). The approximate bull trout spawning period on the Payette National Forest ranges from mid August through late September (Adams 1994; Hogen and Scarnecchia 2001, Watry and Hogen 2002; and Watry and Scarnecchia 2008). A complete description of riparian exclosures (including detailed maps) and annual exclosure monitoring can be referenced in Greenway 2008 (Riparian Exclosure Monitoring Summary, Council Mountain and Indian Mountain Allotments, 2004-2008) on file at the Payette National Forest Supervisor's Office, McCall, Idaho.

Spawning surveys were intended to provide spawning data for the streams within the riparian exclosures. Data could be used to locate spawning areas and determine, in the case of any unauthorized cattle intrusions, if damage was done to any bull trout redds. Surveys for redd trampling are required to be completed within one week of unauthorized cattle entry as a "term and condition" of the BO (USFWS 2009).

Figure 1. Map of 6th level subwatersheds sampled during the 2009 field season. (Map should be printed in color).



METHODS

Electrofishing Protocol

The Forest Service (FS) obtained a scientific collecting permit (permit # F-47-94-09) through the Idaho Department of Fish and Game (IDFG). Formal electrofishing training was not conducted in 2009. All persons that participated in electrofishing had prior electrofishing experience or were accompanied by someone who did.

An electrofishing crew typically consisted of two to three people, one person operating the electrofisher and one or two netters depending on available personnel and stream size. The positions remained the same throughout the entire survey to provide data consistency. A Smith-Root® Model 12B battery-powered backpack electrofisher was used. Electrofisher pulse frequency and voltage output were adjusted based on either water conductivity measurements from the electrofishing site or personal knowledge of the watershed. Crewmembers were required to wear waders, felt soled boots and protective gloves at all times while electrofishing. Polarized sunglasses were recommended in the Job Hazard Analysis, but not required. Dip nets were used to capture fish. Fish were placed in a five-gallon bucket until the entire site was completed. In an effort to reduce stress and the potential for mortality, no more than approximately twelve fish were to be placed in a bucket. Captured fish were identified to species and fork length was measured in millimeters. Anesthetics were not used during electrofishing in 2009. Fish were immediately released back into the stream after being measured. A data sheet illustrating the information recorded at a survey site can be referenced in [Appendix B-1](#). Any mortalities were to be preserved in 95% ethyl alcohol.

Electrofishing sites were 100m in length, with the location(s) being chosen by a fisheries technician and sampled using the protocol described above.

Upper Middle Fork Weiser River 6th level subwatershed

The BO for the Weiser River watershed recommends annually conducting bull trout surveys in areas of the Middle Fork Weiser River subwatershed where grazing is authorized in the Council Mountain and Indian Mountain Allotments (USFWS 2009). Comprehensive electrofishing surveys were completed throughout the Middle Fork Weiser River watershed in 1999. The six sites sampled in 2009 were not replicates of sites sampled in 1999, but were located in the vicinity of previous surveys ([Appendix D-1](#)). These sites were chosen by a fisheries technician with 10- years of experience on the District and sampled using the protocol described above.

East Fork Weiser River 6th level subwatershed

Three sites on Cold Springs Creek (East Fork Weiser River Tributary) were electrofished to determine fish distribution and species composition for the upcoming **Council Mountain Project** ([Appendix D-2](#)). Sites on Cold Springs Creek were chosen by a fisheries technician and sampled using the above protocol.

Brook Trout Monitoring Protocol

Snorkeling in the Anderson Creek and Upper Little Weiser River 6th level subwatersheds was conducted to complete annual monitoring of brook trout distribution near the confluence of Little Weiser River with Anderson Creek, and Anderson Creek to the confluence of Sheep Creek ([Appendix D-3](#))(McGee and Burns 2001). Eleven, 100m sites were chosen by a fisheries biologist and have been surveyed annually. Beginning in 2004, these sites were snorkeled in late July or early August instead of September or October as had been done in previous years (see Greenway and McGee 2004, and Greenway 2005 for more information regarding

timing of snorkel surveys). One or two divers were used at each site depending on stream width. At each of the snorkel sites, divers moved upstream recording the number of fish, species, and estimated size class. A data sheet illustrating the information recorded at a snorkeling site can be referenced in [Appendix B-2](#). Detailed comments as to the location of survey sites and any unusual or noteworthy observations were made. Photographs were taken upstream and downstream at the beginning and end of each site.

MIS Snorkel Protocol

Management Indicator Species (MIS) monitoring began in 2004 to comply with the National Forest Management Act (NFMA) and the newly revised Forest Plan. Bull trout are the only aquatic MIS species designated in the Forest Plan. MIS monitoring sites were chosen by a fisheries biologist in areas where known populations of bull trout exist. Sites were chosen in Anderson Creek, Upper Little Weiser River, East Fork Weiser River, Indian Creek, Bear Creek and Crooked River 6th level subwatersheds ([Appendices D-3 through D-7](#)). MIS monitoring was conducted at one site each in; Anderson Creek, Sheep Creek, Little Weiser River, East Fork Weiser River, Dewey Creek, Indian Creek, Camp Creek, Bear Creek, and Crooked River. Existing snorkel sites were used for MIS surveys in Sheep Creek, Indian Creek, and Camp Creek. All of these sites were 100m in length and were surveyed by the fisheries biologist or experienced fisheries technicians in the same manner as the other snorkel sites.

If bull trout are not observed in an MIS site, the West Zone MIS monitoring protocol (on file at the Council Ranger District) should be referenced ([Appendix F](#)). Locations of alternate sites are described in the protocol.

Anderson Creek 6th level subwatershed

MIS monitoring was conducted on Anderson Creek and Sheep Creek within the Anderson Creek 6th level subwatershed ([Appendix D-3](#)). The site on Anderson Creek was located 100m downstream of the culvert on FS Road 835, extending upstream to the outlet of the culvert (the culvert is a fish passage barrier). Site 11 (from annual snorkel surveys) on Sheep Creek was also selected for MIS monitoring. An additional site was surveyed on Sheep Creek immediately upstream of the bridge on FS Road 180 ([Appendix D-3](#)). This site was selected by a fisheries technician to provide additional bull trout data in the upper portion of Sheep Creek.

Upper Little Weiser River 6th level subwatershed

The MIS site on Little Weiser River is located approximately 140m downstream of the bridge at Beer Bottle Crossing (FS Road 326) ([Appendix D-3](#)).

Indian Creek 6th level subwatershed

One snorkel site on Indian Creek was selected for MIS monitoring ([Appendix D-4](#)). This site is located approximately ½ mile upstream of the confluence of Camp Creek. An additional snorkel site was surveyed ½ upstream of the MIS site to provide bull trout data for Indian Creek. An MIS site is also located on Camp Creek, a tributary to Indian Creek. This site begins approximately 10m upstream of the mouth of Camp Creek.

East Fork Weiser River 6th level subwatershed

MIS monitoring sites were surveyed on East Fork Weiser River and Dewey Creek in the East Fork Weiser River 6th level subwatershed ([Appendix D-5](#)). The East Fork Weiser site is located 100m downstream of the FS Road 906 crossing. ***The MIS site on Dewey Creek was changed in 2009.*** In previous years, the MIS site on Dewey Creek was located 15m downstream of the confluence of Louie Creek (Greenway 2008). Bull trout observations within this 100m site were inconsistent and in some cases bull trout were not observed, even though bull trout were present both

upstream and downstream of this location. In 2009, at the discretion of the District Fisheries Biologist, the MIS site was changed to site 03 from previous year's surveys. This new MIS site is located approximately 0.4 miles downstream of the confluence of Louie Creek ([Appendix D-5](#)).

Crooked River 6th level subwatershed

One MIS site was surveyed on Crooked River ([Appendix D-6](#)). The 100m site begins approximately ¼ mile upstream of the junction of FS Road 572 and FS Trail 235. An additional site was surveyed approximately ½ mile upstream of the existing MIS site. This site was selected by a fisheries technician to provide additional bull trout data in the upper portion of Crooked River.

Bear Creek 6th level subwatershed

One MIS site was surveyed in the Bear Creek 6th level subwatershed on Bear Creek. This site is located near the headwaters, approximately ¼ mile downstream of the confluence of an unnamed left bank tributary at T21N R2W S26, SE1/4 ([Appendix D-7](#)).

Culvert Removal Site Snorkel Protocol

Bear Creek 6th level subwatershed

Snorkel surveys were conducted on tributaries of Bear Creek where culverts had been removed on FS Road 130 in 2007([Appendix D-7](#)). One 100m site (with the culvert removal site in the middle) was surveyed on Wesley Creek. The other site was located on an unnamed tributary of Bear Creek. This site was also 100m in length with the culvert removal site in the center.

Riparian Exclosure Snorkel Protocol

East Fork Weiser River 6th level subwatershed

Snorkel surveys within the riparian exclosures on the East Fork Weiser River were conducted in the same manner as the brook trout and MIS monitoring sites. Sites were selected by a fisheries technician within East Fork Exclosure 5 (EF EXC5) and East Fork Exclosure 6 (EF EXC6) ([Appendix D-8](#)).

Hook and Line Sampling Protocol

Crooked River 6th level subwatershed

Hook and line sampling was conducted in the headwaters of Crooked River, upstream of the MIS snorkel site ([Appendix D-6](#)). Sampling was done to investigate the presence and relative abundance of bull trout in the vicinity of the MIS monitoring site and in upper Crooked River. A fishing rod was used with artificial flies. Personnel walked the stream, sampling in likely holding areas. Species, length estimates and GPS points were recorded. Fish were unhooked and released immediately after capture.

Spawning Survey Protocol

Fall spawning surveys were conducted in 2009 within riparian exclosures on both the Council Mountain and Indian Mountain Grazing Allotments. Conducting bull trout spawning surveys within riparian exclosures is not outlined as a Term and Condition in the BO, however, it requires that "If unauthorized cattle are located within cattle exclosures, they must be removed immediately (i.e., within one day), the exclosure shall be repaired, and bull trout habitat shall be surveyed for evidence of redd trampling within one week" (USFWS 2009).

The surveys conducted were intended to document bull trout spawning activities within the riparian exclosures that are known to contain bull trout and to facilitate locating and identifying areas of spawning activity if unauthorized cattle entry occurred. When unauthorized cattle were observed within any of the exclosures, additional assessments were made to comply with the Terms and Conditions outlined in the BO. These surveys focused on looking specifically for any redd trampling or other cattle related disturbance to spawning bull trout or bull trout redds.

Spawning surveys were conducted by one person walking the entire length of stream within the riparian exclosure. This was usually done in conjunction with routine exclosure monitoring. Surveyors were to remain on the streambanks or un-wetted portion of the streambed as much as possible to avoid causing any disturbance to fish, redds or the streambed itself. If entering the water was necessary (due to safety concerns, or to facilitate a complete survey) care was taken to cross where no redds were present. Since surveyors were generally not entering the water (thus disturbing sediment and creating water clarity issues), surveys were conducted by moving either upstream or downstream through the exclosure. Direction of survey was usually determined by convenience of access to the exclosure.

Surveyors looked for either single fish, paired fish or redds on the stream bottom. Disturbances to the stream bottom that appeared to most likely be caused by spawning fish were considered redds for the purposes of our surveys. Not all redds exhibited the classic pit and tailspill structure (Burner 1951). Some were only areas where small (gravel sized) substrate had been recently disturbed. Results of these surveys are based on the following assumptions:

- Surveyors are able to accurately identify redds.
- Observed redds were created by bull trout.
- Spawning actually occurred at that location.

Each fish, redd or combination thereof observed was assigned a chronological observation number (starting with 1 in each exclosure). For each observation, the GPS location was recorded along with the species (if a fish was present). If only a redd was observed, the species was recorded as “unknown” (UNK). Photos were taken of the redds and any additional comments were recorded. A copy of datasheets used during spawning surveys can be referenced in [Appendix B-3](#).

RESULTS

Electrofishing

Upper Middle Fork Weiser River 6th level subwatershed

The results of electrofishing surveys from 2009 are located in [Table 1](#). Six, 100m sites were sampled (site 01 was shortened to 30m due to a malfunctioning electrofisher). Redband trout (*Oncorhynchus mykiss*), brook trout and sculpin (*Cottus spp.*) were captured in the Middle Fork Weiser River. Bull trout were not captured or observed during electrofishing surveys.

East Fork Weiser River 6th level subwatershed

Electrofishing surveys were conducted on Cold Springs Creek to provide fish distribution and species composition for the upcoming **Council Mountain Project** ([Table 1](#)). Within the three sites sampled, redband trout were the only species captured in Cold Springs Creek.

Table 1. Results of 2009 electrofishing surveys.

6 th level subwatershed	Stream Name	Location UTM	Site Number	Redband Trout	Brook Trout	Other
Upper Middle Fork Weiser River	Middle Fork Weiser River	11T 0561934 4953536	01*	0	11	B(3)
		11T 0561744 4953565	02	1	30	B(2), A(1)
		11T 0561665 4953683	03	0	20	B(1)
		11T 0560771 4955168	04	0	52	E(1)
		11T 0560305 4957878	05	0	10	0
		11T 0561199 4958288	06	0	5	0
East Fork Weiser River	Cold Springs Creek	11T 0554222 4961794	01	8	0	0
		11T 0554358 4961138	02	2**	0	0
		11T 0554579 4960716	03	0	0	0

*Electroshocker began to malfunction approximately 30m into the site; the survey was ended.

**Bucket was spilled; approximately 11 fish escaped.

These observations were made in addition to listed data for specified sites:

A: Tailed frog tadpole or adult

D. Unidentified fish

B: Sculpin spp.

E. YOY

C: Mountain whitefish (*Prosopium williamsoni*)

F. Western Toad

Snorkeling

Brook Trout Monitoring

Anderson Creek and Upper Little Weiser 6th level subwatersheds

Results of snorkel surveys in Little Weiser River, Anderson Creek and Sheep Creek are located in [Table 2 \(Appendix D-3\)](#). One brook trout was observed in Little Weiser River immediately upstream of the mouth of Anderson Creek (site 3). One brook trout was observed in the site immediately upstream of the mouth of Anderson Creek in Anderson Creek (site 5). Brook trout were not observed at any of the other brook trout monitoring sites in 2009. A hybrid was observed in site 4 on Little Weiser River. Results of snorkel surveys from 1999 to 2008 can be referenced in [Appendix C](#).

Table 2. Summary of brook trout monitoring in Little Weiser River, Anderson Creek, and Sheep Creek 2009.

Stream Name	Site	Location UTM	Date	Bull Trout	Brook Trout	Redband Trout	Hybrid	Other (#)
Little Weiser River	1	11T 0559763 4924192	08/18	0	0	11	0	B(2), E(13)
Little Weiser River	2	11T 0560006 4930061	08/18	0	0	36	0	B(1), E(4)
Little Weiser River	3	11T 0560115 4930751	08/18	0	1	4	0	0
Little Weiser River	4	11T 0559965 4931916	08/19	0	0	70	1	E(2)
Anderson Creek	5	11T 0560110 4930677	08/18	0	1	30	0	B(2)
Anderson Creek	6	11T 0560992 4931587	08/19	1	0	135	0	E(6)
Anderson Creek	7	11T 0561435 4931840	08/13	0	0	81	0	B(5), E(1), A(1)
Anderson Creek	8	11T 0561693 4932348	08/13	1	0	64	0	A(1), B(2), E(9)
Anderson Creek	9	11T 0562413 4932663	08/14	21	0	163	0	0
Sheep Creek	10	11T 0561850 4932428	08/13	11	0	41	0	B(1), D(1)
Sheep Creek	11	11T 0562153 4932370	08/10	12	0	25	0	(A)
Totals				46	2	660	1	

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY

MIS Monitoring

[Table 3](#) summarizes the results of 2009 MIS monitoring. MIS monitoring results from 2004 through 2009 can be referenced in [Appendix E](#). Locations of MIS monitoring sites can be found in [Appendix D](#). Temperature data was also collected at each of the MIS sites, these data are available on file at the Payette National Forest Supervisor's Office, McCall, Idaho.

Table 3. Summary of results for MIS monitoring sites on the West Zone PNF 2009.

Stream Name	Location UTM	Date	Bull Trout	Brook Trout	Redband Trout	Hybrids	Other (#)
Indian Creek	11T 0530279 4997927	08/11	13	0	0	0	0
Camp Creek	11T 0529689 4997618	08/11	14	0	2	0	0
East Fork Weiser River	11T 0558421 4957911	08/12	1	2	0	0	0
Dewey Creek*	11T 0557327 4959788	08/12	17	1	0	0	D(2)
Crooked River	11T 0522802 4967294	08/13	2	28	0	3	D(2)
Little Weiser River	11T 0561347 4940224	08/10	11	2	19	1	0
Anderson Creek	11T 0563257 4936557	08/12	33	0	0	0	0
Sheep Creek	11T 0562153 4932370	08/10	12	0	25	0	A(1)
Bear Creek	11T 0535583 4996926	08/11	5	0	0	0	0

*A new site was surveyed as the MIS site on Dewey Creek in 2009.

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY
- F: Western Toad

Additional snorkel surveys were conducted in 2009 on Crooked River ([Appendix D-6](#)), Sheep Creek ([Appendix D-3](#)) and Indian Creek ([Appendix D-4](#)) to provide additional bull trout data in those streams. Results from these 3 sites are located in [Table 4](#). Brook trout (7) and hybrids (2) were observed in Crooked River at the additional snorkel site. No bull trout were observed there, but 2 were observed on the same day in the MIS site. Bull trout were observed in the site located on Sheep Creek. No other species was observed at the Sheep Creek site. Fish were not observed at the site on Indian Creek although a bull trout was observed approximately 100m downstream. Multiple natural passage barriers were observed downstream of this site.

Table 4. Additional snorkel surveys conducted during MIS surveys in 2009.

Stream	Location UTM	Date	Bull Trout	Brook Trout	Redband Trout	Hybrids	Other
Crooked River	11T 0522725 4966449	08/12	0	7	0	2	D(1)
Sheep Creek	11T 0563124 4930022	08/13	16	0	0	0	0
Indian Creek	11T 0530590 4998205	08/11	0	0	0	0	0

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY
- F: Western Toad

Culvert Removals

Bear Creek 6th level subwatershed

Three bull trout were observed in the site on an unnamed tributary of Bear Creek (immediately west of Bear Creek on FS Road 130) ([Table 5](#)) ([Appendix D-7](#)). Two bull trout were observed downstream of the culvert removal location and one was observed upstream of it. Fish were not observed at the culvert removal site surveyed on Wesley Creek.

Table 5. Results of snorkel surveys conducted at culvert removal locations in the Bear Creek 6th level subwatershed, 2009.

Stream Name	Location UTM	Date	Bull Trout	Brook Trout	Redband Trout	Hybrids	Other
Unnamed Tributary of Bear Creek	11T 0535941	08/11	3	0	0	0	0
	4996894						
Wesley Creek	11T 0536212	08/11	0	0	0	0	0
	4996496						

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY
- F: Western Toad

Riparian Exclosure Snorkel Surveys

East Fork Weiser River 6th level subwatershed

Snorkel surveys within the riparian exclosures on the East Fork Weiser River were conducted in the same manner as the brook trout and MIS monitoring sites ([Appendix D-5](#)). The results of these surveys are located in [Table 6](#).

Table 6. Results of snorkel surveys conducted in East Fork Weiser River riparian exclosures, 2009.

Stream Name	Riparian Exclosure	Location UTM	Date	Bull Trout	Brook Trout	Redband Trout	Hybrids	Other
East Fork Weiser River	EF EXC 5	11T 0558122	07/22	2	0	0	0	0
		4955128						
	EF EXC 6	11T 0557759	07/22	0	0	0	0	D(1)
		4954477						
		11T 0557491	07/22	0	0	0	0	
		4954118						

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY
- F: Western Toad

Hook and Line Sampling

Hook and line sampling was conducted on August 10 in Crooked River ([Appendix D-6](#)). Brook trout (12) was the only species captured. Lengths were estimated and ranged from approximately 4" to 9.5." All of the hook and line captures were in the vicinity of the MIS snorkel site. No bull trout were captured during hook and line sampling.

Spawning Surveys

Results of spawning surveys conducted on the Council Mountain Allotment are located in [Table 7 \(Appendix D-8\)](#). No fish or redds were observed in East Fork Exclosure 1 (EF EXC 1) and East Fork Exclosure 2 (EF EXC 2). One bull trout was observed in East Fork Exclosure 3 (EF EXC 3), but no redds were observed. An unidentified char was observed on a redd at the downstream end of East Fork Exclosure 4 (EF EXC 4). This fish was not a bull trout. It could not be determined if it was a brook trout or a hybrid. Eleven bull trout and one brook trout were observed in East Fork Exclosure 5 (EF EXC 5). Five redds were observed in this exclosure with fish present on 4 of them ([Figure 2](#)). Three of the 5 observed redds had either one or two bull trout nearby, the fish could not be identified on the other redd.

In Dewey Creek Exclosure 1 (DC EXC 1), one bull trout and 5 unidentified fish were observed. Seven unidentified fish were observed in Dewey Creek Exclosure 2 (DC EXC 2). Six bull trout, 4 of which were near a redd, were observed in Dewey Creek Exclosure 3 (DC EXC 3). One unidentified fish was observed in Dewey Creek Exclosure 4 (DC EXC 4) and no fish were observed in Dewey Creek Exclosure 5 (DC EXC 5). The only redd observed on Dewey Creek was in DC EXC 3.

Table 7. Results of spawning surveys conducted in riparian exclosures on the Council Mountain Allotment, 2009.

Stream Name	Riparian Exclosure	Date(s)	Bull Trout	Brook Trout	Hybrids Observed	Unidentified Fish	Redds Observed
East Fork Weiser River	EF EXC 1	09/16	0	0	0	0	0
	EF EXC 2	09/16	0	0	0	0	0
	EF EXC 3	09/16	1	0	0	0	0
	EF EXC 4	09/02	0	0	0	1*	1
	EF EXC 5	09/02,09/09	11	4	0	0	5
	EF EXC 6	Spawning Survey Not Completed in 2009					
Dewey Creek	DC EXC 1	09/16	1	0	0	5	0
	DC EXC 2	09/16	0	0	0	7	0
	DC EXC 3	09/02	6	0	0	0	1
	DC EXC 4	09/17	0	0	0	1	0
	DC EXC 5	09/17	0	0	0	0	0

*The unidentified fish was either a brook trout or a hybrid.

Figure 2. Bull trout redd observed in EF EXC 5 while conducting spawning surveys on September 09, 2009. A pair of bull trout were present at this site (not pictured).



[Table 8](#) contains the results of spawning surveys completed on the Indian Mountain Allotment ([Appendix D-9](#), [Appendix D-10](#) and [Appendix D-11](#)). Spawning surveys were not conducted in Little Weiser Exclosure 3 (LW EXC 3) and Anderson Creek Exclosure (AN EXC 2) on this allotment. The mainstem of Little Weiser River was surveyed within Little Weiser Exclosure 1 (LW EXC 1). An unnamed right-bank tributary is present within LW EXC 1 as well, but due to ice conditions and limited crew size, spawning surveys were not completed on the portion of this tributary within the exclosure. On Little Weiser River within LW EXC 1, 1 bull trout ([Figure 3](#)) and 10 redds were observed. The fish observed was not associated with a redd. No fish or redds were observed during surveys in Little Weiser Exclosure 2 (LW EXC 2). Within this exclosure, the unnamed Little Weiser River tributary splits into a northern stream channel and a southern channel. The north channel was surveyed upstream until flow was not adequate to facilitate fish movement. The southern channel was completely covered with grass in most areas, making a survey from the bank impossible. A survey was not conducted there. Due to time constraints and weather conditions, a spawning survey was not completed in LW EXC 3.

Table 8. Results of spawning surveys conducted in riparian exclosures on the Indian Mountain Allotment, 2009.

Stream Name	Riparian Exclosure	Bull Trout Observed	Brook Trout Observed	Hybrids Observed	Redds Observed
Little Weiser River	LW EXC 1	1	0	0	10
	LW EXC 2	0	0	0	0
	LW EXC 3	Spawning Survey Not Completed in 2009			
Little Weiser River Tributary	LW EXC 1	Spawning Survey Not Completed in 2009			
Anderson Creek	AN EXC 1	11	0	0	10
	AN EXC 2	Spawning Survey Not Completed in 2009			
Sheep Creek	SH EXC 1	5*	0	0	17
	SH EXC 2	0	0	0	22
	SH EXC 3	30	0	0	14

*Two of the observed bull trout were dead.

Figure 3. Bull trout observed in LW EXC 1 while conducting spawning surveys on October 07, 2009.



Eleven bull trout were observed in Anderson Creek Exclosure 1 (AN EXC 1) but only one of these fish was associated with a redd. Ten redds were observed within this exclosure and all are assumed to be bull trout redds. A spawning survey was not completed in AN EXC 2. It is believed that bull trout are not present in that exclosure.

Five bull trout and 17 redds were observed in Sheep Creek Exclosure 1 (SH EXC 1). It should be noted that 2 of the bull trout observed were dead. No obvious cause of death could be determined from the carcasses. One fish was observed on a redd, the other redds did not appear to have any fish nearby. Twenty-two redds were observed in Sheep Creek Exclosure 2 (SH EXC 2) (Figure 4). No fish were observed in this exclosure. In Sheep Creek Exclosure 3 (SH EXC 3), 30 bull trout and 14 redds were observed. One redd had one fish directly over it and another redd had 7 bull trout nearby. The remaining 13 redds observed did not have any fish observations associated with them. Fifteen bull trout were counted in one pool and bull trout were observed throughout SH EXC 3. Bull trout is the only fish species known to be present in the headwaters of Sheep Creek and all of the redds observed are assumed to be from bull trout.

Figure 4. Bull trout redd observed in SH EXC 2 during spawning surveys on September 30, 2009. (A bull trout was observed on this redd on August 27, 2009 during exclosure monitoring).



DISCUSSION

Electrofishing

Upper Middle Fork Weiser River 6th level subwatershed

Six electrofishing sites were surveyed on the mainstem Middle Fork Weiser River. One redband trout was captured (site 02) and brook trout were captured at all of the sites sampled. The data collected in 2009 is consistent with that from 1999 (Williams and Veach 1999). Brook trout, redband trout and sculpin were captured in the upper Middle Fork Weiser River 6th level subwatershed in both 1999 and 2009. Bull trout were not captured during surveys in both of those years and it is believed that bull trout are not present in the upper Middle Fork Weiser River.

East Fork Weiser River 6th level subwatershed.

Three sites were surveyed on Cold Springs Creek. Redband trout were captured at sites 01 and 02. Fish were not captured at site 03. Two culverts are present between sites 02 and 03 that may be limiting fish passage to the headwater areas of Cold Springs Creek ([Figure 5](#) and [Figure 6](#)), although one fish was observed between these two culverts. Fish were not observed upstream of the second culvert at site 03. Additional electrofishing surveys are recommended for 2010 to further refine fish distribution and species composition in Cold Springs Creek.

Figure 5. Lowermost culvert on Cold Springs Creek on November 05, 2009. Culvert is a potential fish passage barrier.



Figure 6. Upper culvert encountered on Cold Springs Creek on November 05, 2009. Culvert is a potential fish passage barrier. Fish were not captured at the electrofishing site immediately upstream of this culvert.



Brook Trout Monitoring

Brook trout inhabit Little Weiser River, but currently only two have been observed in Anderson Creek and one in Sheep Creek.

The results of brook trout monitoring from 1999 through 2009 can be referenced in [Appendix C](#). In 2009, two brook trout were observed during snorkel surveys. One in Little Weiser River immediately upstream of the confluence of Anderson Creek and the other in Anderson Creek, immediately upstream of the confluence of Anderson Creek. Brook trout were not observed at any of the other sites on Anderson Creek and were not observed in Sheep Creek. A hybrid was observed in site 04 on Little Weiser River. This is the first hybrid observed in the lower part of Little Weiser River during brook trout monitoring surveys. Hybrids have been observed at the Little Weiser MIS site during past surveys. [Figures 7 through 10](#) depict representative habitat conditions at Little Weiser, Anderson Creek and Sheep Creek snorkel sites. Based on our monitoring results, it does not appear that brook trout are invading bull trout habitat at a rapid rate.

Although brook trout observations since 1999 have been few, brook trout invasion into bull trout habitat in Anderson and Sheep Creeks is a serious concern due to hybridization potential between the two species.

If funding becomes limited annual brook trout monitoring should be discontinued and monitoring should continue at 3 year intervals, with the next survey occurring in 2012.

Figure 7. Habitat conditions at snorkeling Site 02 in Little Weiser River on August 18, 2009.



Figure 8. Habitat conditions at snorkeling Site 05 in Anderson Creek on August 18, 2009.



Figure 9. Habitat conditions at snorkeling Site 10 in Sheep Creek on August 13, 2009.



MIS Monitoring

MIS sites were selected in 2004 in areas where bull trout are known to exist or have been documented in the past. MIS survey sites have been surveyed for the past 6 years. Annual monitoring at these sites (including temperature monitoring) should continue at all of the MIS sites, including the alternate sites surveyed in 2009. In addition to snorkel surveys and temperature monitoring, PIBO monitoring sites should be added at each of the MIS sites to provide stream habitat data in these areas. Although no statistical analyses have been conducted, there does not appear to be

any apparent trend in bull trout, brook trout or hybrid populations at most of the sites. Indian and Camp Creeks however, had a very large increase in observations compared to previous years (see proceeding sections).

The MIS site on Dewey Creek was changed to site 03 from previous years' surveys ([Figure 10](#)). Bull trout observations at the MIS site surveyed from 2004-2008 tended to yield inconsistent bull trout observations. Four bull trout were observed at that site in 2008, but bull trout had not been observed at this site since 2004 when it was initially surveyed (8 were observed in 2004). Bull trout were consistently observed at alternate sites in past years either upstream of downstream of the MIS site. This prompted the change in 2009 to site 03, which is located approximately 0.4 miles downstream of the 2004-2008 MIS site. Seventeen bull trout and one brook trout were observed at the new MIS site on Dewey Creek in 2009. MIS monitoring on Dewey Creek should be conducted at this site for future surveys.

One bull trout and two brook trout were observed in the MIS site on East Fork Weiser River ([Figure 11](#)). Bull trout were not observed within the MIS site in 2008 and only one was observed in 2007. Low numbers of bull trout have been observed at this site since surveys began in 2004. Based on observations of multiple brook trout and hybrids each year, it is likely that brook trout encroachment and hybridization is impacting bull trout populations in East Fork Weiser River.

Figure 10. Habitat conditions at the Dewey Creek MIS site on August 12, 2009.



Figure 11. Habitat conditions at the East Fork Weiser River MIS site on August 12, 2009.



Two bull trout, 28 brook trout and 3 hybrids were observed in the Crooked River MIS site in 2009 ([Figure 12](#)). Brook trout and hybrids were observed in the site surveyed approximately ½ mile upstream of the MIS site. In 2008, 1 bull trout, 7 brook trout and 3 hybrids were observed at the MIS site and in 2007, one bull trout, 24 brook trout and 1 hybrid were observed there. The only other bull trout observation at the MIS site occurred in 2004. Brook trout and hybrids have been observed at the MIS site each year. Electrofishing surveys from 2001 also produced numerous hybrid captures in upper Crooked River. Based on data that we have collected, brook trout encroachment and hybridization in Crooked River is impacting existing bull trout populations there.

Figure 12. Habitat conditions at the Crooked River MIS site on August 13, 2009.



In 2009, 13 bull trout were observed at the MIS site on Indian Creek ([Figure 13](#)). Thirty-one bull trout were observed at the MIS site on Indian Creek in 2008. Prior to 2008, the most bull trout observations there occurred in 2007 when 5 were observed. The additional site surveyed on Indian Creek, approximately ½ mile upstream of the MIS site, did not result in any fish observations although a bull trout was observed downstream of the site. Crews observed multiple natural fish passage barriers (created by LWD) between the MIS site and the additional site snorkeled. More surveys should be conducted in Indian Creek to determine the upper extent of bull trout distribution.

Fourteen bull trout and 2 redband trout were observed in Camp Creek in 2009 ([Figure 14](#)). Nine bull trout were observed there in 2008. Bull trout had not been observed in Camp Creek since 2005 when 3 were observed. Fish were observed throughout the entire Camp Creek site in 2008 and 2009. In previous years, fish were not observed in or above a steep cascade that occurred approximately 30m into the site. The cascade has become less steep and fish are now observed throughout and above the cascade. Although the bull trout count in Indian Creek was lower in 2009 than in 2008 (13 compared to 31), bull trout numbers appear to show an increasing trend in the headwater areas of Indian Creek. Low numbers of bull trout have been observed in Indian and Camp Creeks since the flood event that occurred in 2003. Fish populations in this area may be increasing as the channel and stream habitat stabilizes.

Hybrids were not observed in Indian or Camp Creeks in 2009. One hybrid was observed in Camp Creek in 2008, and another was observed in Indian Creek in 2006. These are the only hybrid observations recorded upstream of the culvert at Landore since the flood event in 2003. Electrofishing surveys conducted in 2003 prior to the flood show that there were hybrids present above the culvert at Landore. More extensive surveys should occur to determine the extent to which hybridization is occurring in Indian and Camp Creeks. It should be noted that it is extremely difficult to visually differentiate between hybrids and genetically pure bull trout, even when they

are removed from the water for examination. Genetic analysis should be used if accurate determinations are required.

Figure 13. Habitat conditions at the Indian Creek MIS site on August 11, 2009.



Figure 14. Habitat conditions at the Camp Creek MIS site on August 11, 2009.



Bull trout are known to exist in Anderson Creek both above and below the culvert on FS Road 835. Thirty-three bull trout and no other fish species were observed during MIS monitoring at the site on Anderson Creek ([Figure 15](#)). Although none were observed in the MIS site, redband trout, brook trout, hybrids have been

documented further downstream in the watershed (in Anderson Creek, Sheep Creek and Little Weiser River). Monitoring of brook trout should continue near the confluence of Anderson Creek, Sheep Creek, and Little Weiser River.

Figure 15. Habitat conditions at the Anderson Creek MIS site on August 12, 2009.



Little Weiser River and its tributaries are known to support bull trout, brook trout and redband trout (Greenway and McGee, 2004; PNF unpublished data). Eleven bull trout, 2 brook trout, 19 redband trout and 1 hybrid were observed in the MIS site in 2009 ([Figure 16](#)). One hybrid was observed in this site in 2008, 2006 and 2005. Seven hybrids were observed when the site was surveyed in 2007. The presence of multiple hybrids over the last 4 years indicates that brook trout in Little Weiser River are impacting the bull trout population there.

Figure 16. Habitat conditions at the Little Weiser River MIS site on August 10, 2009.



Twelve bull trout were observed in the Sheep Creek MIS monitoring site along with numerous (25) redband trout ([Figure 17](#)). Brook trout or hybrids were not observed in the Sheep Creek MIS site in 2009 or 2008. One brook trout was observed at the MIS site in 2007. This is the first documented observation of a brook trout in Sheep Creek. Sixteen bull trout were observed at the additional snorkel site surveyed on Sheep Creek ([Figure 18](#)). This site was located immediately upstream of the bridge on FS Road 180. No other species of fish were observed at this site and it is believed that bull trout are the only species found in the upper portion of Sheep Creek. Sheep Creek supports a population of bull trout and numerous bull trout are observed every year in Sheep Creek Meadow. Invasion of brook trout and hybrids into Sheep Creek poses a serious concern for the bull trout population.

Five bull trout were observed in the MIS monitoring site in Bear Creek ([Figure 19](#)). No other species was observed, although brook trout, hybrids and redband trout exist lower in the watershed. Bull trout are the only species that have been observed at the Bear Creek MIS site during snorkel surveys. Based on the observations at the MIS site over the past 5 years, it appears that brook trout invasion is not occurring at a rapid enough rate to be detected by our limited surveys. If brook trout observations occur, it may be useful to conduct further surveys to determine their distribution in the headwaters of Bear Creek.

Figure 17. Habitat conditions at the Sheep Creek MIS site on August 10, 2009.



Figure 18. Habitat conditions at the additional Sheep Creek site on August 13, 2009.



Figure 19. Habitat conditions at the Bear Creek MIS site on August 11, 2009.



Culvert Removals in the Bear Creek 6th level subwatershed

Culvert removals on FS Road 130 took place in mid-August, 2007. Snorkel surveys were conducted on Wesley Creek and an Unnamed Tributary of Bear Creek in 2008 and 2009 to determine if fish (primarily bull trout) were using stream habitat in or upstream of the culvert removal locations. Fish were not observed in Wesley Creek when surveyed in 2008 or 2009. Bull trout have been observed in Wesley Creek (2002 data on file at the Council Ranger District), but not within approximately ¼ mile downstream of the crossing of FS Road 130. No apparent passage barriers exist between known bull trout distribution and the former culvert location, making it possible for fish to exist upstream of there. The culvert removal should allow fish to eventually access an additional 220 meters of stream habitat upstream of FS Road 130. In 2006 a likely passage barrier was discovered during a stream habitat inventory approximately 220m upstream of FS Road 130. Fish were not observed upstream of FS Road 130, but suitable fish habitat exists between there and the culvert removal location.

Three bull trout were observed in an unnamed tributary of Bear Creek in 2009. Two were downstream of the culvert removal location and one was upstream of it. In 2008, two bull trout were observed in an unnamed tributary of Bear Creek near the FS Road 130 crossing. One fish was observed upstream of the culvert removal location and the other downstream. Although surveys were not conducted upstream of FS Road 130 in 2007 prior to culvert removal, it is possible that the fish observed there in 2008 moved upstream from Bear Creek after the culvert had been removed. An electrofishing survey conducted on that stream in 2001 did not result in the observation or capture of any fish (2001 PNF Unpublished Data). One bull trout was observed at the culvert outlet when surveyed in 2007.

Riparian Enclosure Snorkel Surveys

Bull trout (2) were observed in EF EXC 5. One unidentified fish was observed in the lower end of East Fork Enclosure 6 (EF EXC 6), and fish were not observed at the site surveyed at the upper end of that enclosure. Based on these results, fish are

using habitat within the two uppermost riparian exclosures on East Fork Weiser River. A waterfall was discovered approximately 150m upstream of EF EXC 6. It appears to be a fish passage barrier and it is likely that fish are not present upstream of there. Spawning was also observed in East Fork Weiser River during spawning surveys (See following section of this report). It is recommended that further snorkel surveys occur in 2010 in both Dewey Creek and East Fork Weiser River to further refine bull trout habitat use data within the riparian exclosures

Hook and Line Sampling

Hook and line sampling on Crooked River occurred on August 10, 2009. Brook trout were the only species captured that day, although bull trout and hybrids were also observed in the nearby MIS site. Only a limited amount of sampling took place near the MIS snorkel site. Further surveys should be completed in 2010 to determine the relative abundance and distribution of bull trout in upper Crooked River. Extensive fish surveys have not been completed in Crooked River since 2001.

Spawning Surveys

Council Mountain Allotment

Spawning was observed in 3 of the exclosures on the Council Mountain Allotment. On East Fork Weiser River, spawning was observed in EF EXC 4 and EF EXC 5. These observations are consistent with spawning survey results recorded in 2001 (Watry and Hogen 2001). Although bull trout were recorded near 3 of the 5 redds observed in EF EXC 5, it cannot be determined with a high degree of certainty that they were indeed bull trout redds. Three brook trout were observed near one of the redds that had a pair bull trout present. An unidentified fish was observed on another redd. Redds observed without fish present could not be identified to species. A hybrid or a brook trout was observed on the redd at the lower end of EF EXC 4. This redd was most likely not created by bull trout. Spawning was recorded in only one (DC EXC 3) of the 5 exclosures on Dewey Creek. This redd had 4 bull trout nearby and was likely created by bull trout, although hybrids and brook trout are present in Dewey Creek. Fish, either bull trout or unidentified fish, were observed in all exclosures except DC EXC 5. Even though spawning was not observed, the presence of fish in those areas during the spawning period indicates that spawning may occur there.

Indian Mountain Allotment

Ten redds were observed in Little Weiser River within LW EXC 1 when spawning surveys were conducted. Spawning was also recorded in this area when surveys were done in 2001 (Watry and Hogen 2002). Since fish were not observed on or near any of these redds they could not positively identified as bull trout redds.

Although spawning was not observed in any of the other Little Weiser exclosures, surveys were not conducted in Little Weiser River Exclosure 3 (LW EXC 3), and vegetation covering the south stream channel in LW EXC 2 hampered any survey there. Bull trout were observed in the downstream end of LW EXC 2 during exclosure monitoring in 2009 and it appeared that flows were adequate to support spawning bull trout, especially in the lower portion of the south channel. Bull trout could potentially spawn within LW EXC 2, although none were observed there. Due to timing and lack of personnel, surveys were not conducted in LW EXC 3, but stream conditions there appear to be adequate for spawning as well.

In Anderson Creek, spawning was observed throughout AN EXC 1. Bull trout were also observed throughout the entire length of this enclosure. The redds observed are assumed to be bull trout redds. Brook trout or hybrids have not been documented in Anderson Creek upstream of the culvert on FS Road 835, which is a fish passage barrier. It is not believed that bull trout are present in AN EXC 2 due to a series of waterfalls between AN EXC 1 and AN EXC 2 (Watry and Hogen 2002). Spawning surveys were not conducted there.

Spawning was observed in all of the riparian enclosures on Sheep Creek. Although bull trout were observed on only a few redds, it is very likely that all of the redds observed were created by bull trout. Bull trout are commonly observed in Sheep Creek Meadow and in the enclosures upstream of there. No other species of fish have been observed in the upper part of Sheep Creek. Data collected in 1994 (unpublished data, Payette National Forest) reports numerous brook trout observations in the meadow, but no brook trout have been observed the upper part of Sheep Creek since. It is believed that these observations were inaccurate.

If spawning surveys are planned for future years, consideration should be given to conducting snorkel surveys prior to the bull trout spawning period to determine what species are present in the area. This could provide insight to determine if redds observed later in the year were created by bull trout.

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APPENDICIES

Appendix A

Appendix A-1. Locations of areas surveyed in 2009.

4 th Level HUC	5 th Level HUC	6 th Level HUC	Survey Stream Names	Sample Method
Brownlee Reservoir 17050201	Wildhorse River 1705020106	Crooked River 170502010603	Crooked River	Snorkeling Hook and Line
		Bear Creek 170502010603	Bear Creek Unnamed tributary of Bear Creek Wesley Creek	Snorkeling
	Indian Creek 1705020105	Indian Creek 170502010503	Indian Creek Camp Creek	Snorkeling
Weiser River 17050124	Upper Weiser River 1705012401	East Fork Weiser River 170501240103	East Fork Weiser River Dewey Creek	Snorkeling
	Little Weiser 1705012407	Anderson Creek 170501240702	Anderson Creek Sheep Creek	Snorkeling
		Upper Little Weiser 170501240701	Little Weiser River	Snorkeling
Middle Fork Weiser River 1705012405	Upper Middle Fork Weiser River 170501240501	Middle Fork Weiser River	Electrofishing	

Snorkel Data Form
Payette National Forest-West Zone

Stream Name: _____ UTM N: _____
 Legal Description: _____ UTM E: _____
 Site #: _____
 Site Description: _____

Time: _____ Date: _____
 Water Temperature: _____ Air Temperature: _____
 Length (m): _____ Width (m): _____
 Max Depth: _____ Visibility: _____
 Percent Pool: _____ Percent Riffle: _____
 Diver 1: _____ Diver 2: _____ Recorder: _____

Length Class (mm)	Bull Trout	Brook Trout	Bulltrout X Brooktrout hybrids	Redband Trout	Unidentified Salmonids
<100 (<4")					
100-199 (4-8")					
200-299 (8-12")					
300-399 (12-16")					
≥400 (≥16")					
TOTALS					

Sculpin _____ Dace _____ Whitefish _____ Red Side Shiner _____
 Other _____ YOY _____ TFA _____ TFT _____

Photos: _____
 Comments: _____

Use Reverse side of Form as Needed

**Spawning Survey Form
West Zone-Payette National Forest**

Stream Name _____ Date _____ Water Temperature _____ °C










Observer(s) _____

Start Point T___ R___ Sec___ 1/4 UTM 11T _____ (E) _____ (N)

Location Description _____

End Point T___ R___ Sec___ 1/4 UTM 11T _____ (E) _____ (N)

Location Description _____

Observation Number	GPS Location	Species	Number Present	Redd Present	Photo(s) #	Comments
	11T					
	11T					
	11T					
	11T					
	11T					
	11T					
	11T					
	11T					
	11T					

Species Codes: RBT-redband trout, BT-Bull Trout, HYB-Brook Bull Hybrid, BKT-Brook Trout, UNK-Unknown
Other notes and observations:

Appendix C

Appendix C. Summary of results for brook trout monitoring sites snorkeled in Little Weiser River, Anderson Creek, and Sheep Creek, 1999- 2004.

Site	Stream Name	Location UTM	Avg. Width	Elevation (m)	Spp.	Specific Density (fish/100m ²)							
						1999	2000	2001	2002		2003		2004
						Dates Surveyed 9/24-9/30	Dates Surveyed 9/20-9/27	Dates Surveyed 9/24-10/9	Dates Surveyed 8/19-8/29	Dates Surveyed 9/23-10/10	Dates Surveyed 7/29-8/04	Dates Surveyed 9/4-9/18	Dates Surveyed 7/20-8/03
1	Little Weiser River	11T 0559763 4924192	13.6	1286	RBT	NS	2.059	4.926	1.838	NS	5.809	0.441	1.471
					BKT	NS	0	0	0	NS	0	0	0
2	Little Weiser River	11T 0560006 4930061	13.9	1301	RBT	NS	3.022	NS	2.446	NS	5.540	1.223	6.403
					BKT	NS	0	NS	0	NS	0	0	0
3	Little Weiser River	11T 0560115 4930751	5.9	1330	RBT	NS	14.576	14.240	17.966	13.051	12.034	13.051	5.424
					BKT	NS	0	0	0	0	0	0	0
4	Little Weiser River	11T 0559965 4931916	5.9	1371	RBT	NS	12.881	10	8.475	NS	15.932	2.373*	14.237
					BKT	NS	0	0	0	NS	0.169	0	0
5	Anderson Creek	11T 0560110 4930677	7.4	1329	RBT	2.973	5.946	8.514	4.459	2.703*	6.757	7.973	8.784
					BKT	0	0	0	0	0*	0	0	0
6	Anderson Creek	11T 0560992 4931587	7.4	1377	RBT	1.486	NS	1.486*	11.892	1.216*	11.622	3.378*	14.054
					BKT	0	NS	0*	0	0*	0.135	0*	0
7	Anderson Creek	11T 0561435 4931840	7.4	1402	RBT	0.946	2.027*	0.541*	5.405	0.676*	9.595	1.757	9.595
					BKT	0	0*	0*	0	0*	0	0	0
					BT	0	0	0	0	0	0	0	0
8	Anderson Creek	11T 0561693 4932348	7.4	1420	RBT	1.081	1.757*	NS	2.973	NS	10.676	1.081	11.486
					BKT	0	0*	NS	0	NS	0	0	0
					B T	0	0*	NS	0	NS	0.135	0	0.135
9	Anderson Creek	11T 0562413 4932663	5.2	1475	RBT	0.385	4.038*	NS	10.577	NS	19.038	3.077*	10.962
					BKT	0	0	NS	0	NS	0	0*	0
					HYB	0	0	NS	0	NS	0	0*	0.1923
					BT	0	0	0	0	0	0	0	0
10	Sheep Creek	11T 0561850 4932428	4.6	1435	RBT	0.435	1.087*	1.739	2.391	0*	5.000	0.435*	6.957
					BKT	0	0*	0	0	0*	0	0*	0
					BT	0.435	0*	0.870	0	0*	0.435	0*	0
11	Sheep Creek	11T 0562153 4932370	4.6	1469	RBT	1.739	1.522*	4.130	4.130	0.217*	6.957	0.652*	4.130
					BKT	0	0*	0	0	0*	0	0*	0
					BT	0.435	0*	0.870	0.217	0*	1.087	0*	0.217
					HYB	0	0*	0	0	0*	0	0*	0.217

Width data from 1993 R1/R4 habitat inventories.

BKT= brook trout

* Water temperature was less than 9°C.

RBT= redband trout

BT= bull trout = none observed

** Temperature data from 2005 surveys may be unreliable due to inaccurate thermometers.

Appendix C continued. Summary of results for brook trout monitoring sites snorkeled in Little Weiser River, Anderson Creek, and Sheep Creek, 2005-2009.

Site	Stream Name	Specific Density (fish/100m ²)								
		Location UTM	Avg. Width	Elevation (m)	Spp.	2005**	2006	2007	2008	2009
						Dates Surveyed 7/21-8/10	Dates Surveyed 7/18-7/26	Dates Surveyed 8/01-8/08	Dates Surveyed 7/24-7/30	Dates Surveyed 8/10-8/18
1	Little Weiser River	11T 0559763 4924192	13.6	1286	RBT	2.941	1.618	1.103	1.691	0.808
					BKT	0.073	0.073	0	0.074	0
2	Little Weiser River	11T 0560006 4930061	13.9	1301	RBT	7.986	5.827	1.871	3.165	2.600
					BKT	0	0	0	0	0
3	Little Weiser River	11T 0560115 4930751	5.9	1330	RBT	7.45	4.576	0.678	9.153	0.678
					BKT	0	0	0	0.339	0.169
4	Little Weiser River	11T 0559965 4931916	5.9	1371	RBT	10.847	9.491	2.203	12.542	11.864
					HYB	0	0	0	0	0.169
					BKT	0	0	0	0	0
5	Anderson Creek	11T 0560110 4930677	7.4	1329	RBT	10.541*	7.432	0.946	8.649	4.054
					BKT	0*	0	0	0	0.135
6	Anderson Creek	11T 0560992 4931587	7.4	1377	RBT	11.081	10.541	7.297	15.135	18.243
					BT	0	0	0	0	0.135
					BKT	0	0	0	0	0
7	Anderson Creek	11T 0561435 4931840	7.4	1402	RBT	9.32	8.108	12.162	7.027	10.946
					BKT	0	0	0	0	0
					BT	0	0	0.270	0.0135	0
8	Anderson Creek	11T 0561693 4932348	7.4	1420	RBT	10.270	8.378	5.270	5.676	8.649
					BKT	0	0	0	0	0
					B T	0	0	0.135	0	0.135
9	Anderson Creek	11T 0562413 4932663	5.2	1475	RBT	14.038	13.654	10.769	14.42	31.346
					BKT	0	0	0	0	0
					HYB	0	0	0	0	0
					BT	0.0962	0.192	0.385	0.192	4.038
10	Sheep Creek	11T 0561850 4932428	4.6	1435	RBT	11.739*	6.739	4.348	5.217	8.913
					BKT	0*	0	0	0	0
					BT	0.217*	0.0652	0.217	1.739	2.391
11	Sheep Creek	11T 0562153 4932370	4.6	1469	RBT	9.783*	13.913	12.391	5.217	5.435
					BKT	0*	0	0.217	0	0
					BT	1.739*	1.304	5.652	0.435	2.609
					HYB	0*	0	0	0	0

Width data from 1993 R1/R4 habitat inventories.

BKT= brook trout

* Water temperature was less than 9°C.

RBT= redband trout

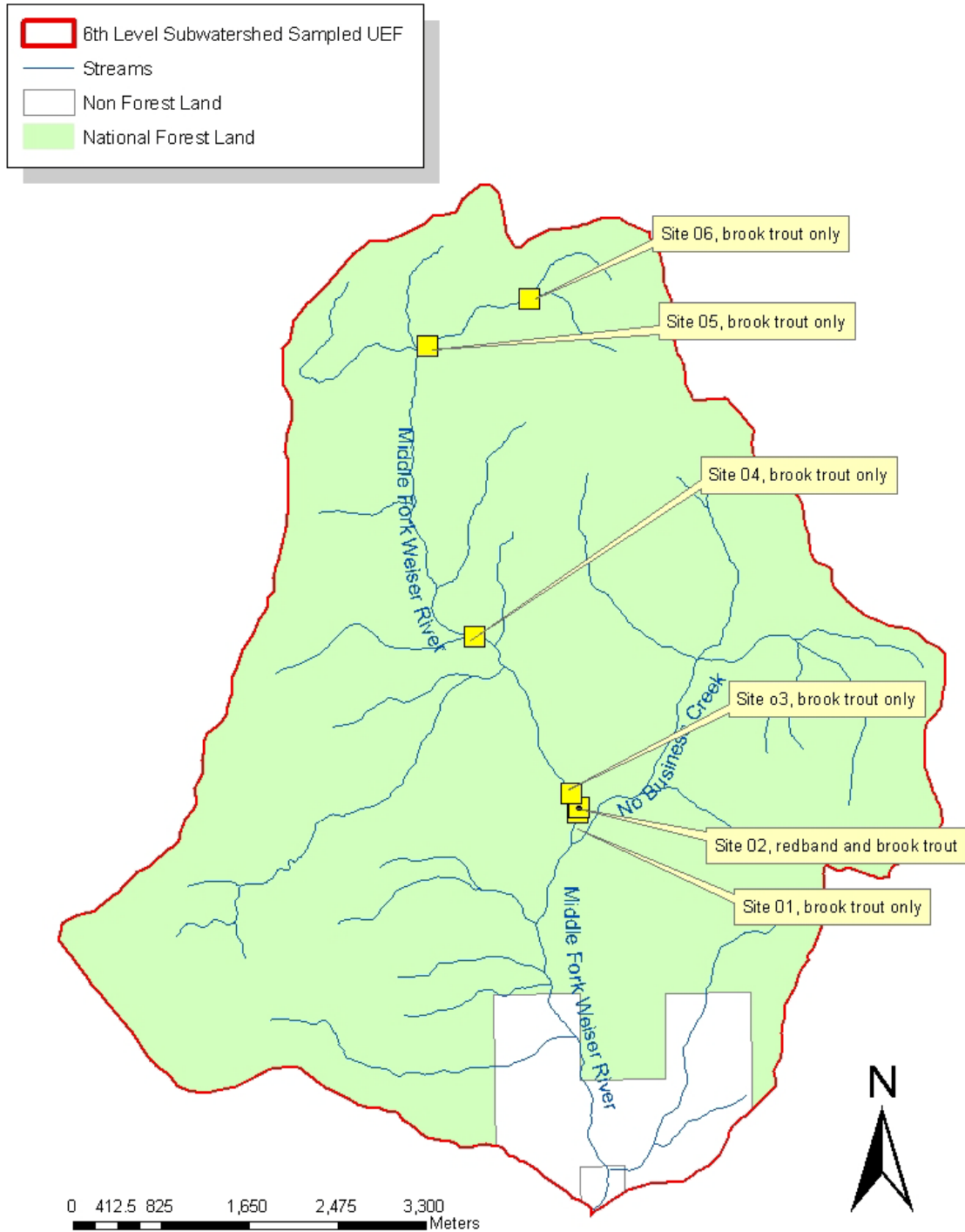
BT= bull trout = none observed

** Temperature data from 2005 surveys may be unreliable due to inaccurate thermometers.

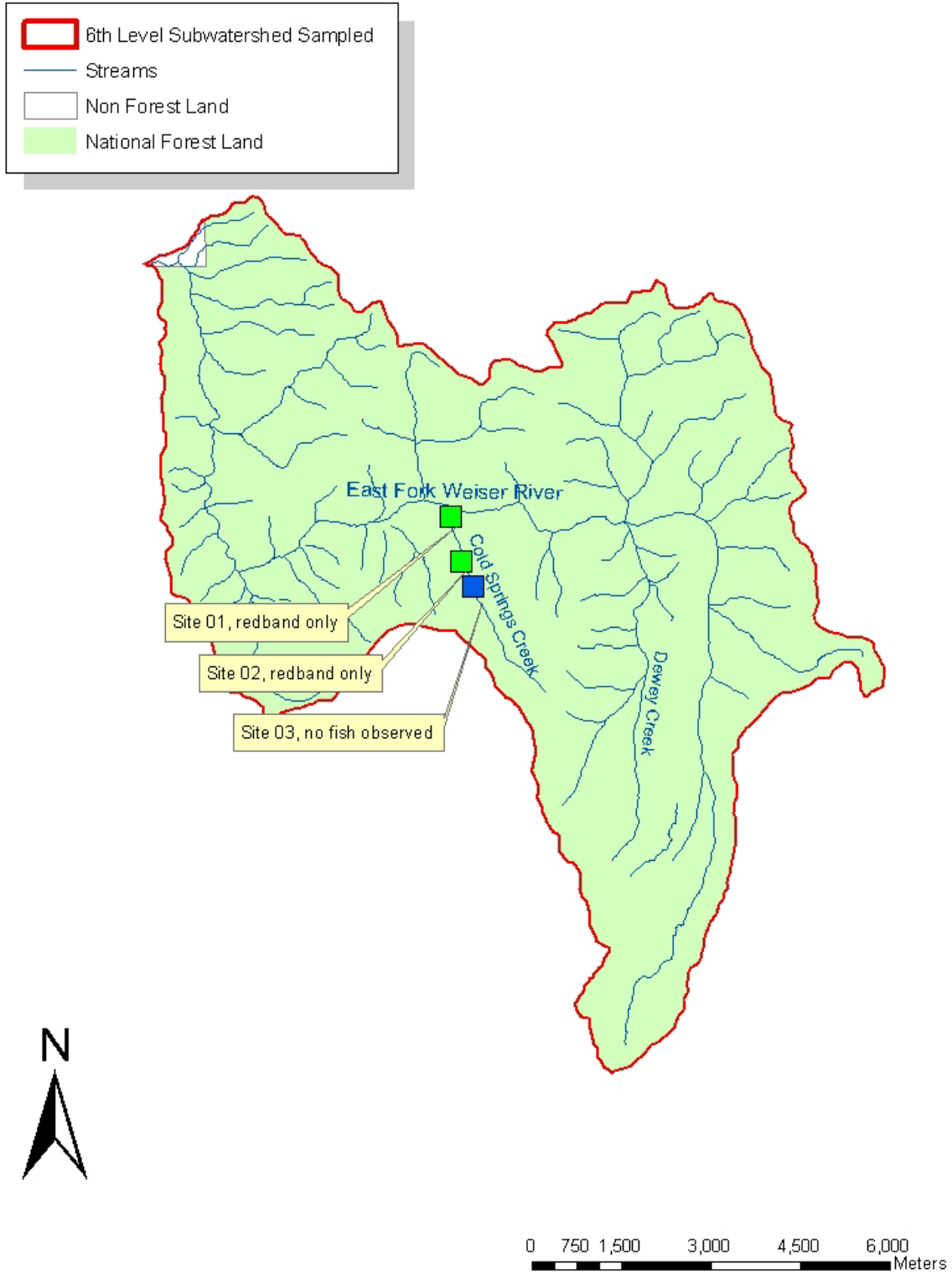
Appendix D.

Maps of areas surveyed by electrofishing and snorkeling.

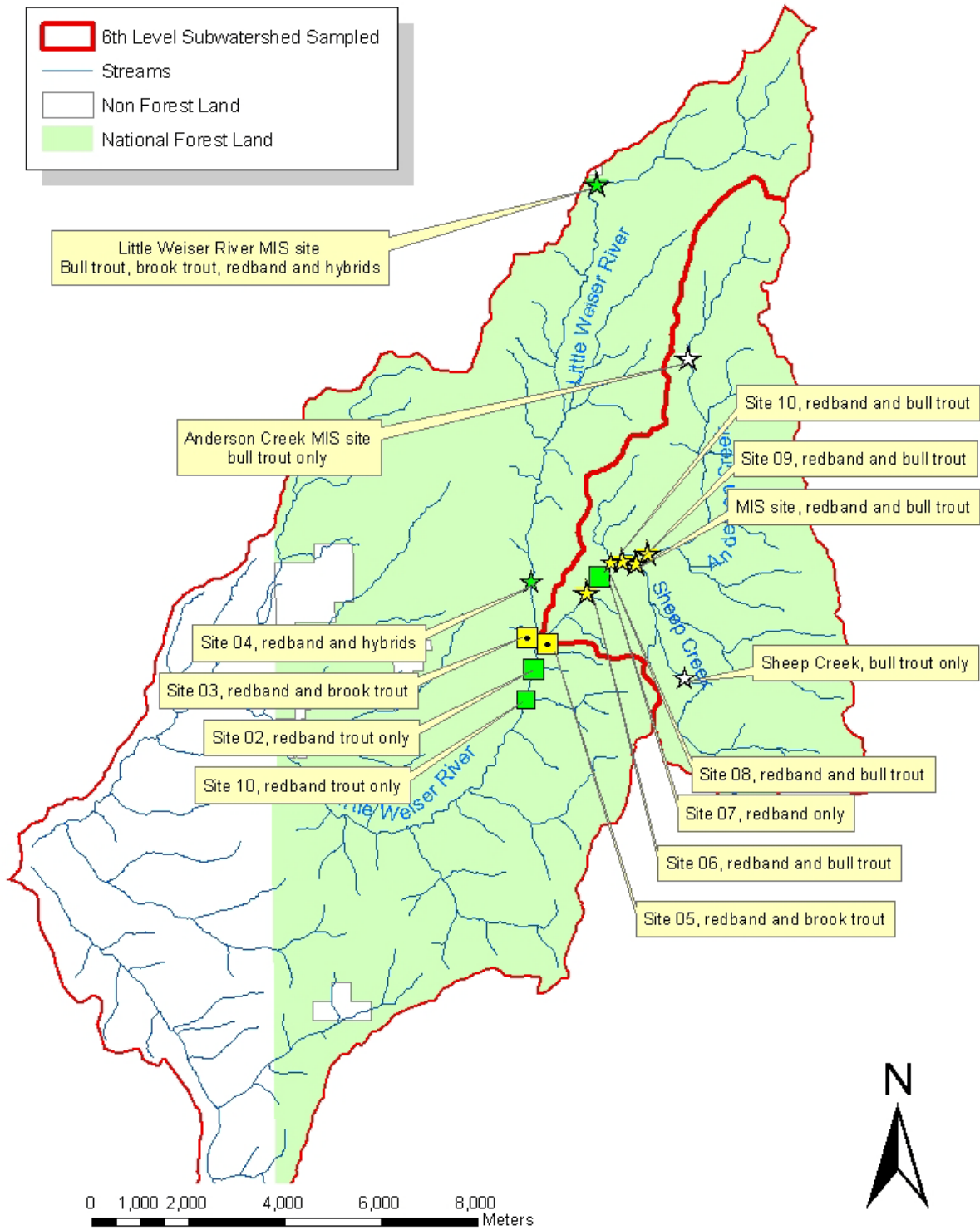
Appendix D-1. Electrofishing surveys conducted in the Upper Middle Fork 6th level subwatershed.



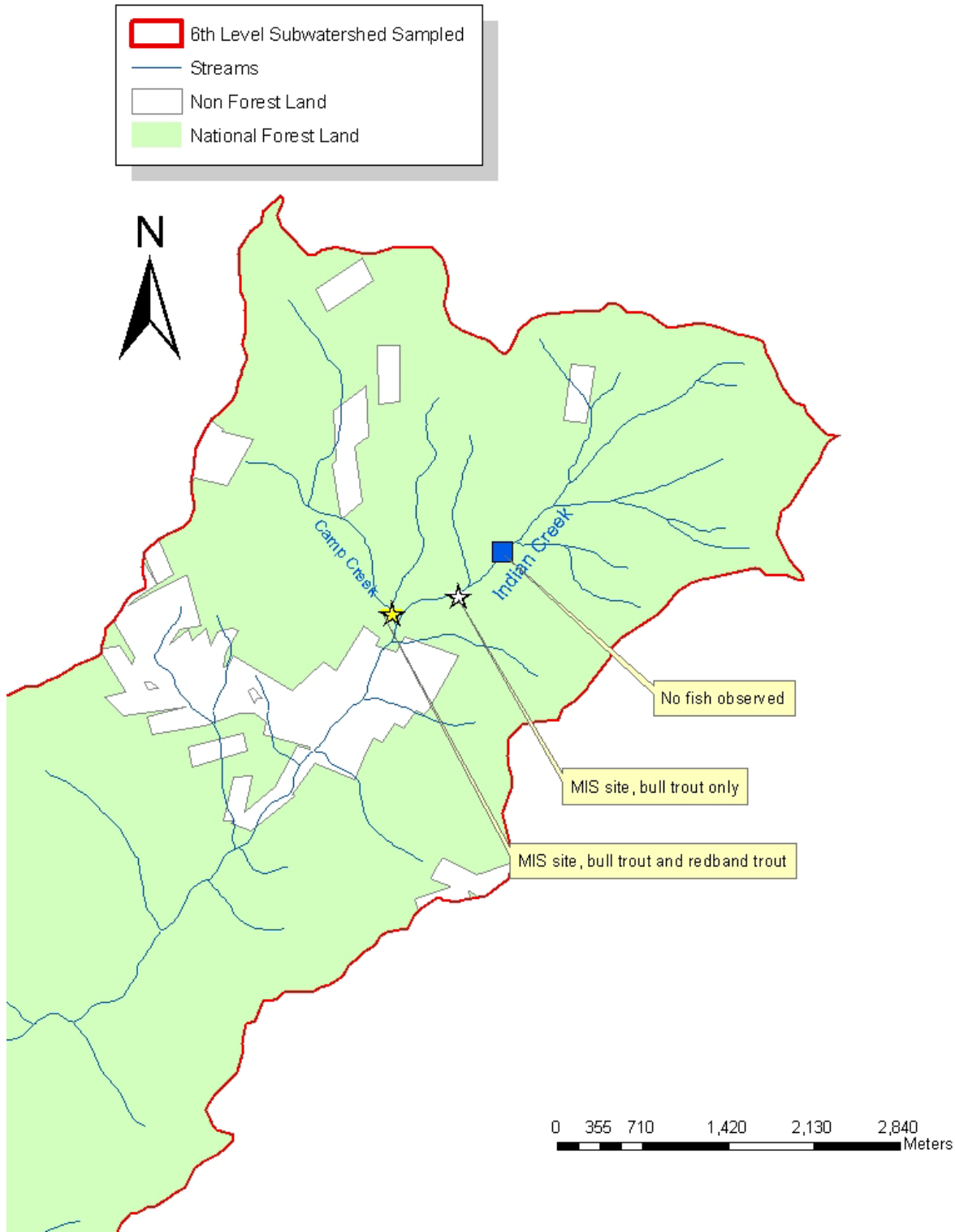
Appendix D-2. Electrofishing surveys conducted in the East Fork Weiser River 6th level subwatershed, 2009.



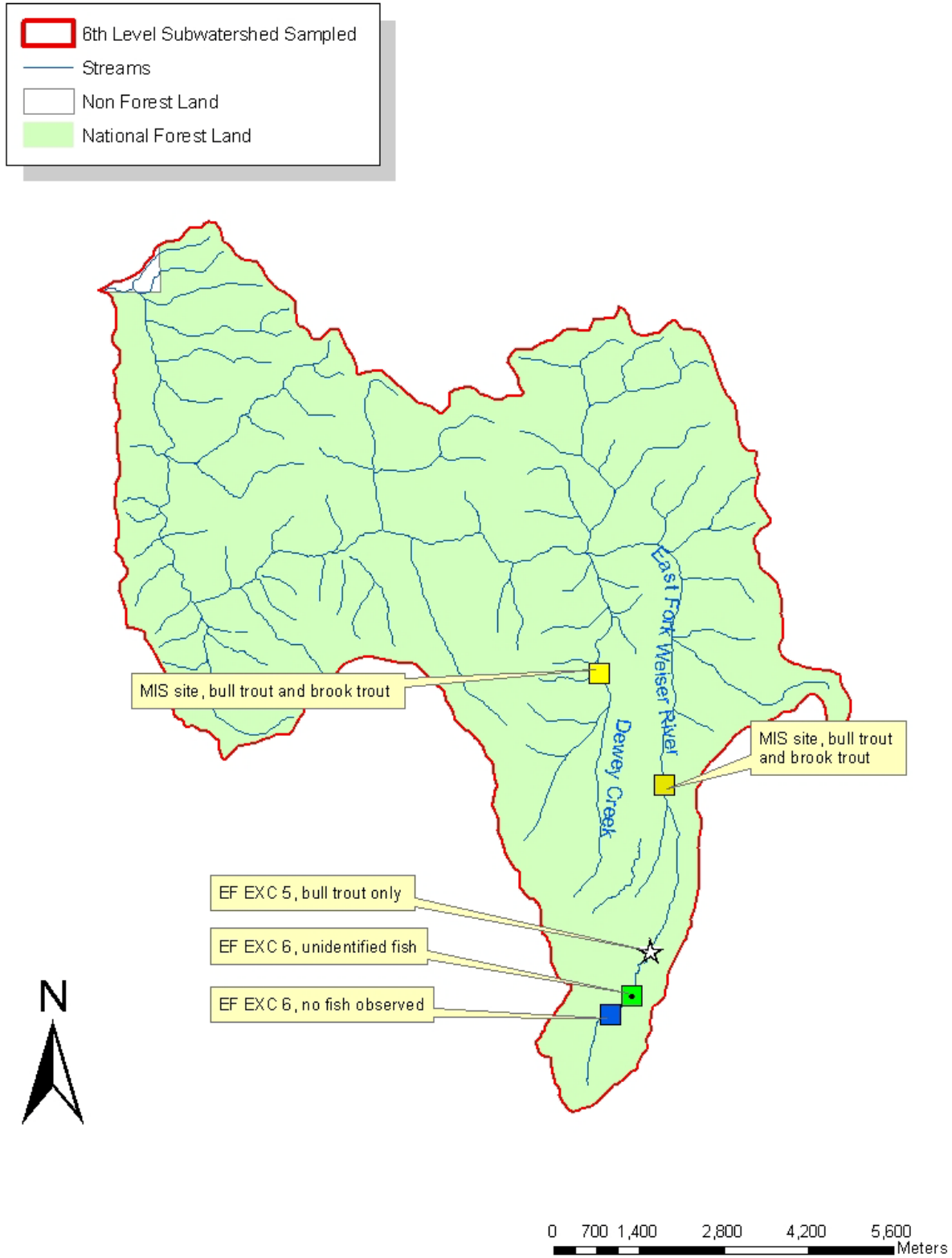
Appendix D-3. Brook trout monitoring and MIS snorkel surveys conducted in the Upper Little Weiser and Anderson Creek 6th level subwatersheds, 2009.



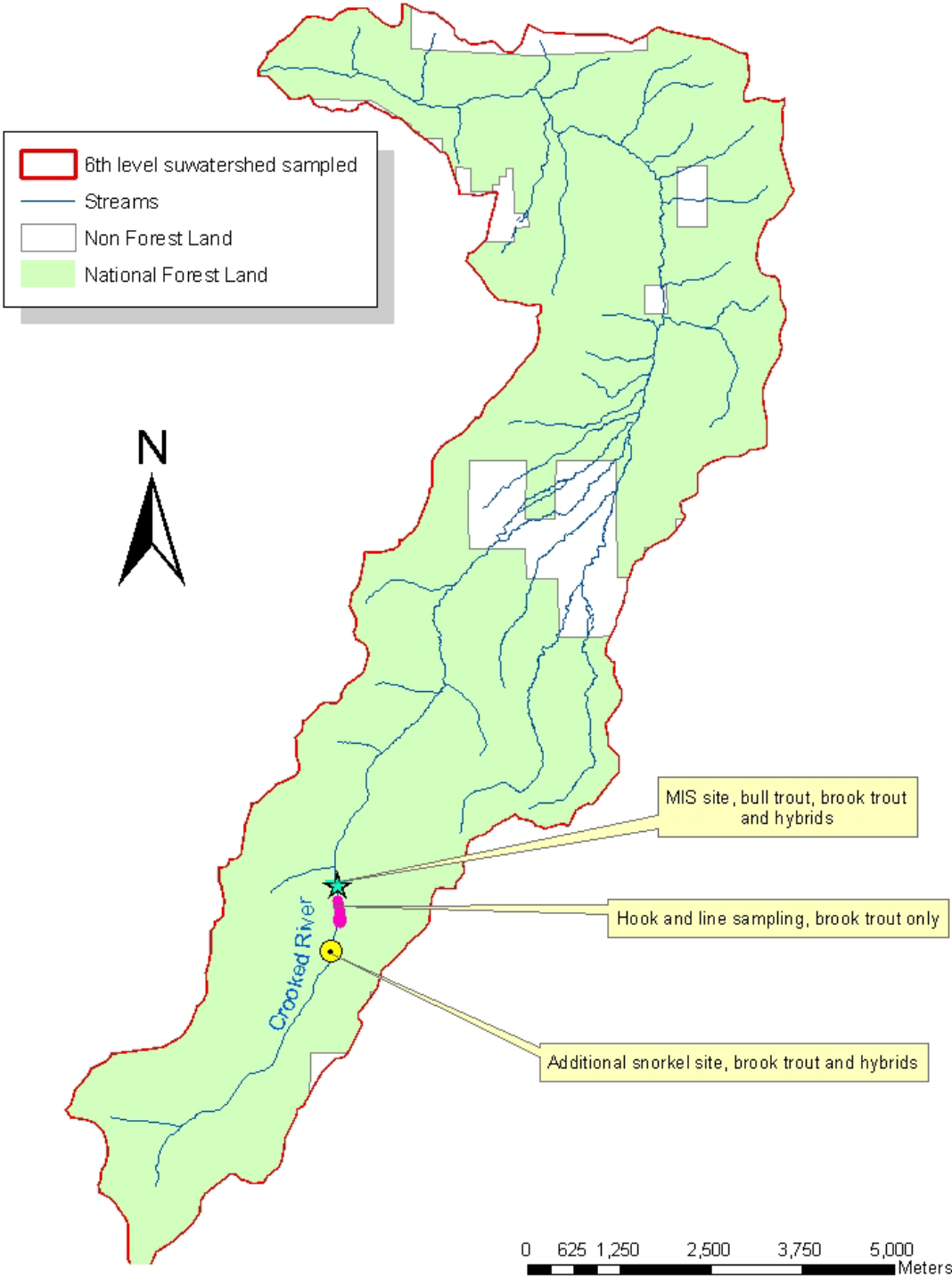
Appendix D-4. MIS snorkel surveys conducted in the Indian Creek 6th level subwatershed, 2009.
(Entire 6th level subwatershed not displayed).



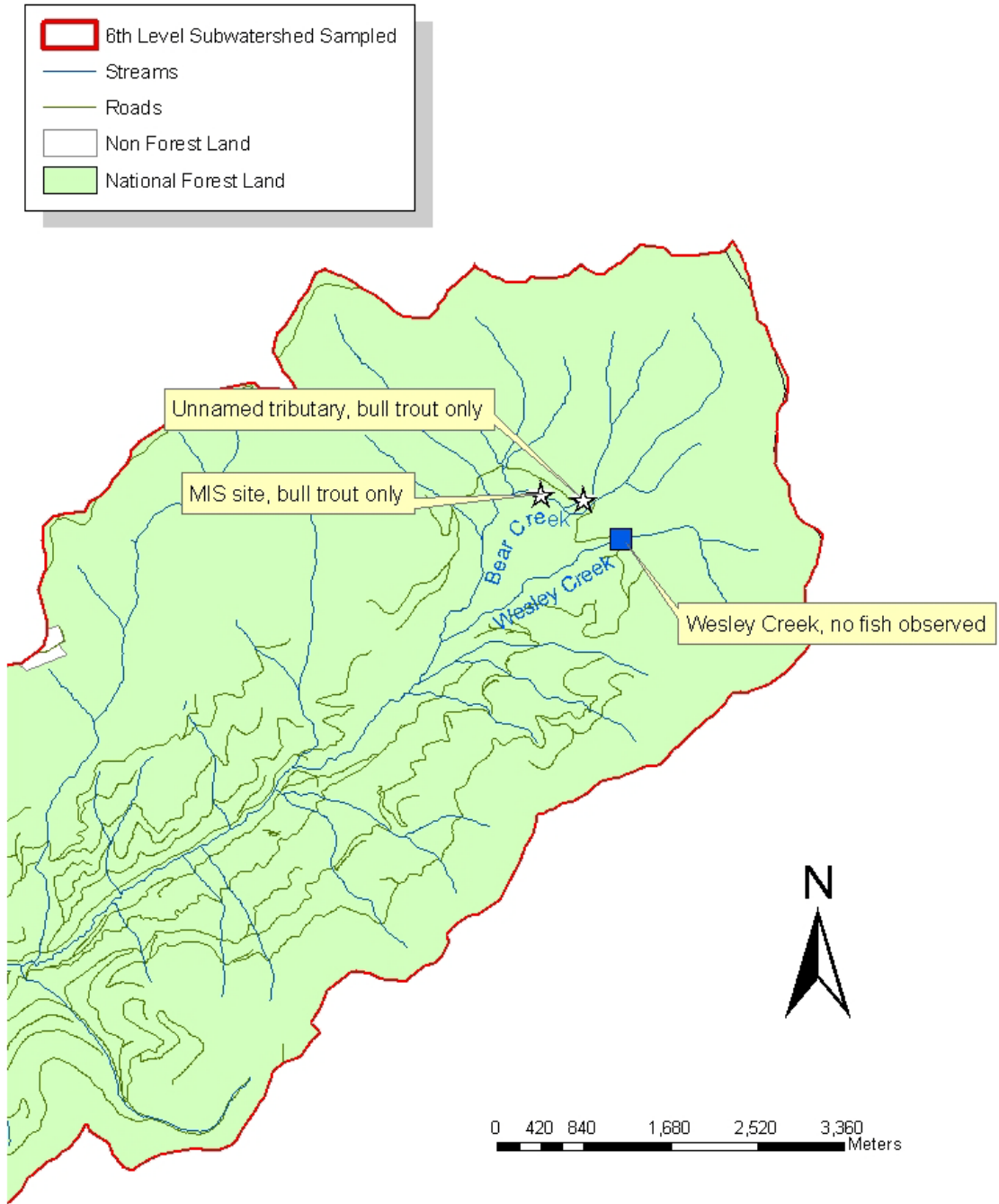
Appendix D-5. MIS snorkel surveys conducted in the East Fork Weiser River 6th level subwatershed, 2009.



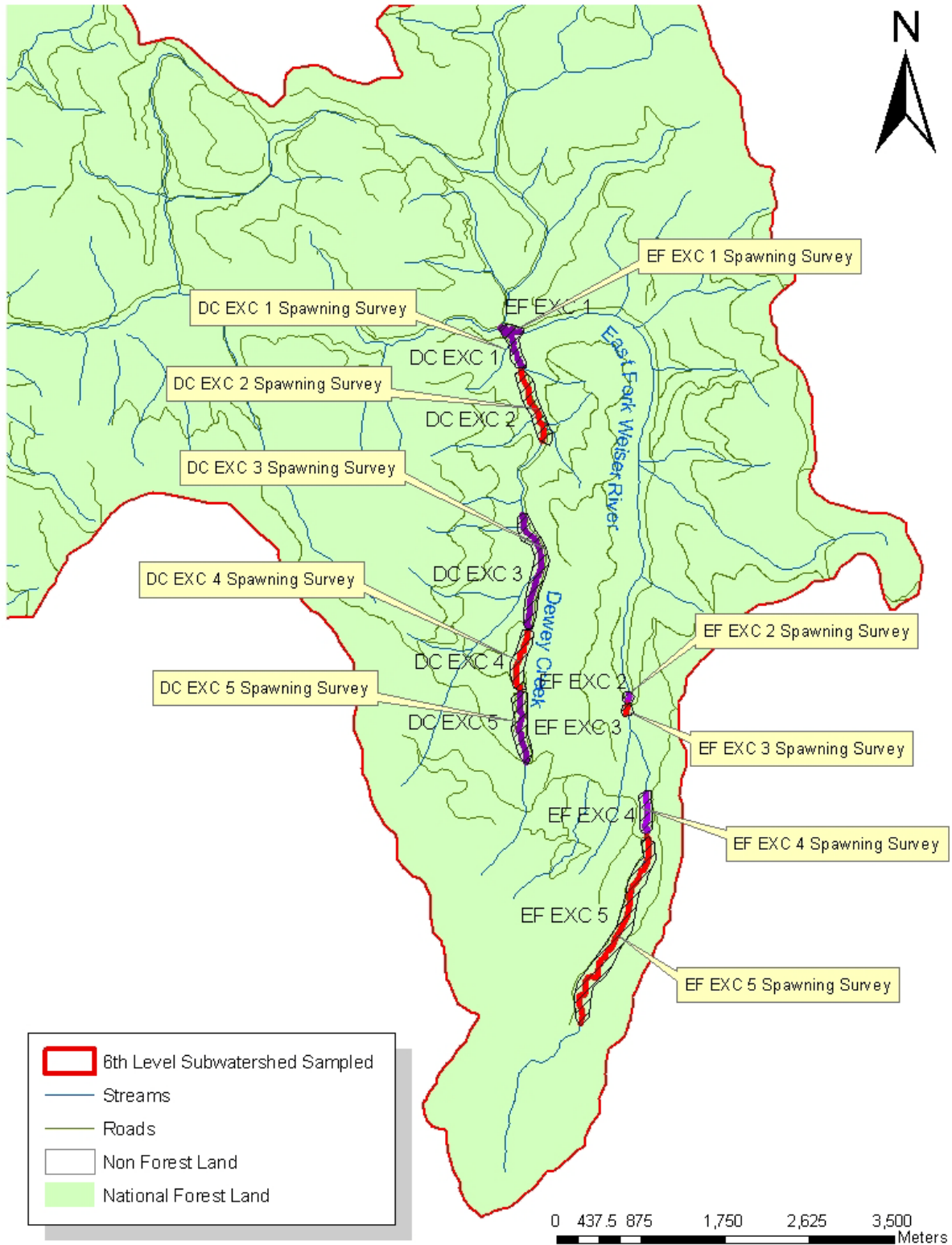
Appendix D-6. MIS snorkel and hook and line surveys conducted in the Crooked River 6th level subwatershed, 2008.



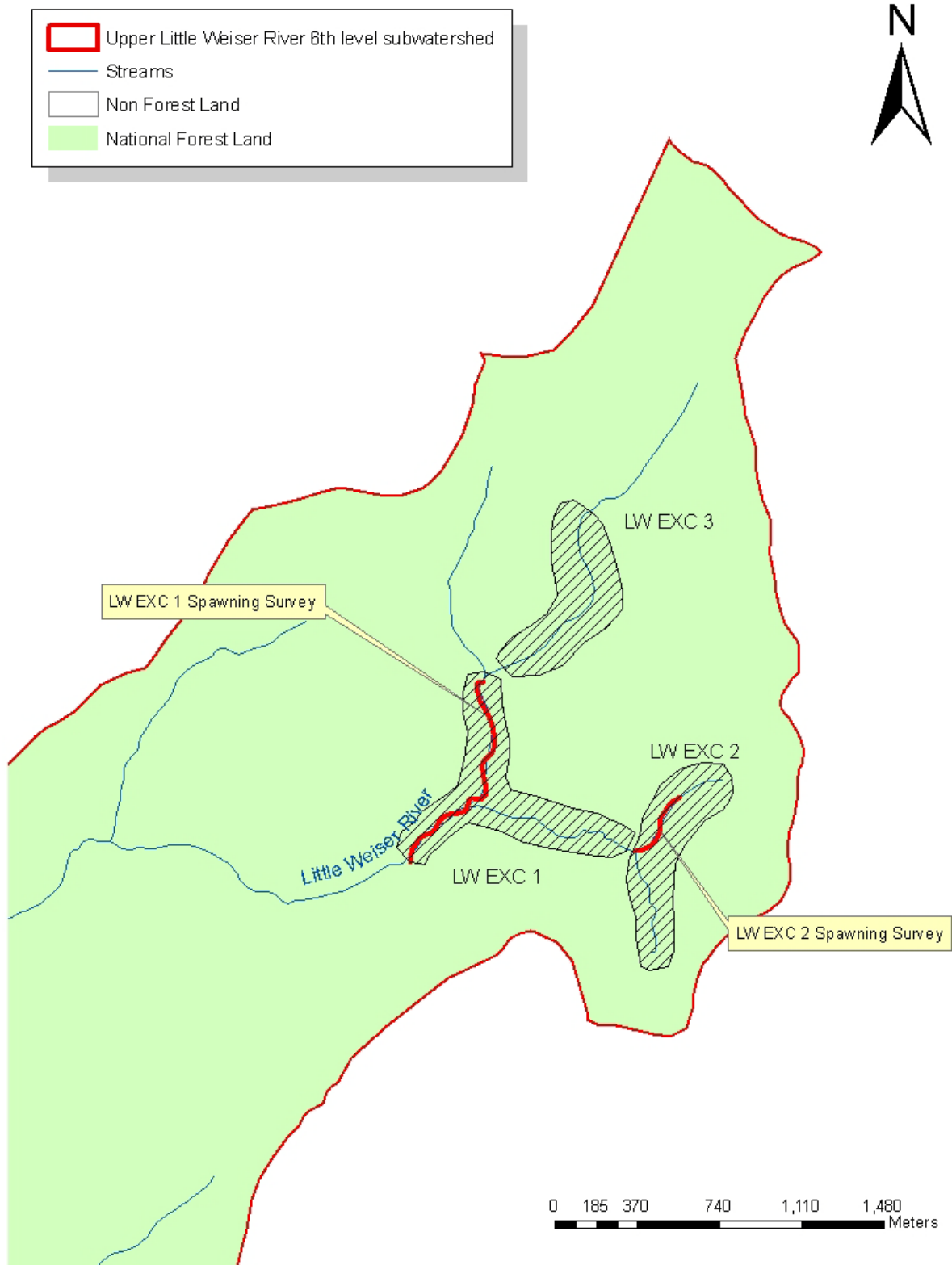
Appendix D-7. MIS and culvert removal snorkel surveys conducted in the Bear Creek 6th level subwatershed, 2009. (Entire 6th level subwatershed not displayed).



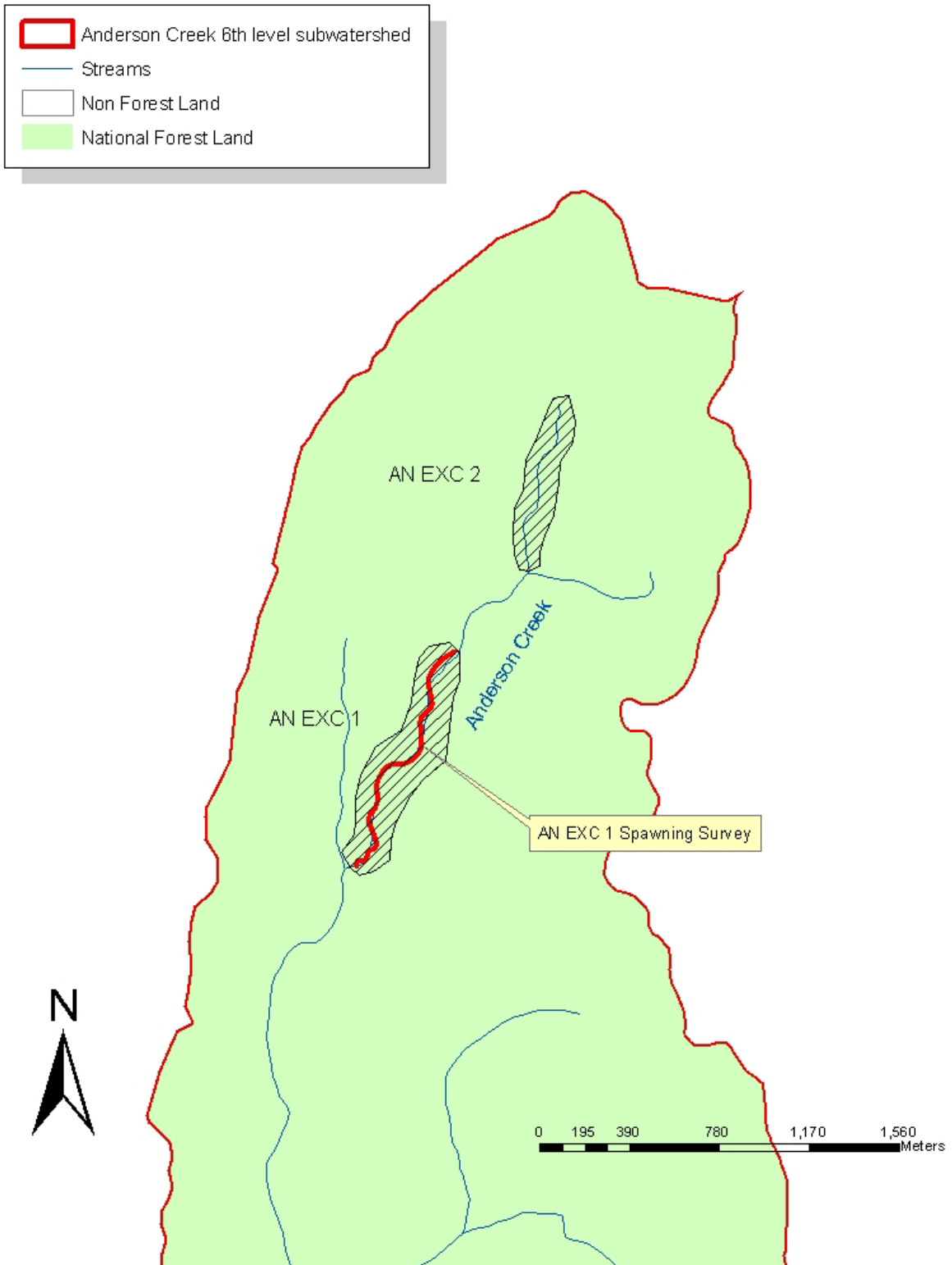
Appendix D-8. Spawning Surveys conducted within riparian exclusions on Dewey Creek and East Fork Weiser River on the Council Mountain allotment, 2009.



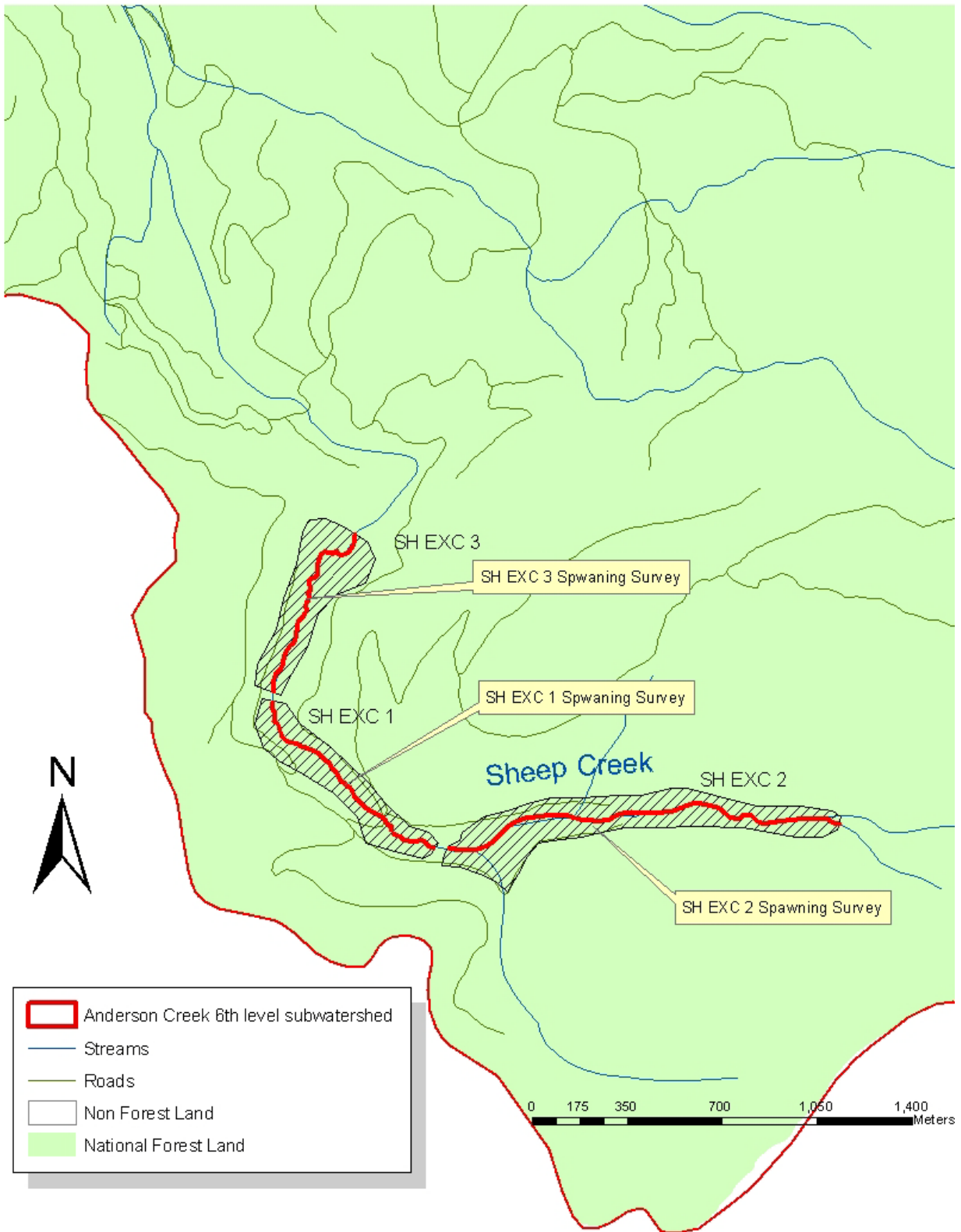
Appendix D-9. Spawning Surveys conducted in Little Weiser River riparian exclosures on the Indian Mountain allotment, 2009.



Appendix D-10. Spawning Surveys conducted in Anderson Creek riparian exclosures on the Indian Mountain allotment, 2009.



Appendix D-11. Spawning Surveys conducted in Sheep Creek riparian exclosures on the Indian Mountain allotment, 2009.



Appendix E

Appendix E. Results of MIS monitoring 2004 through 2009.

Stream Name	Elevation (m)	Date	Bull Trout	Brook Trout	Redband Trout	Hybrids	Other (#)
Indian Creek	1758	07/27/04	4	0	0	0	0
		08/04/05	1	0	0	0	0
		07/27/06	3	0	0	1	0
		07/31/07	5	0	0	0	0
		08/06/08	31	0	0	0	0
		08/11/09	13	0	0	0	0
Camp Creek	1716	07/27/04	2	0	0	0	0
		08/04/05	3	0	0	0	0
		07/27/06	0	0	0	0	0
		07/31/07	0	0	0	0	0
		08/06/08	9	0	1	1	0
		08/11/09	14	0	2	0	0
East Fork Weiser River	1828	08/11/04	0	13	2	0	0
		08/02/05	2	8	2	4	0
		07/26/06	0	15	5	1	0
		08/01/07	1	4	1	0	0
		08/05/08	0	6	0	0	D(1)
		08/12/09	1	2	0	0	0
Dewey Creek	1758	08/11/04	8	0	0	0	A(1)
		08/03/05	0	0	0	0	0
		08/08/05	0	0	0	0	0
		07/26/06	0	0	0	0	0
		08/14/06	0	0	0	0	0
		08/01/07	0	0	0	0	0
		08/05/08	4	0	0	1	0
		08/12/09*	17	1	0	0	D(2)
Crooked River	1706	08/10/04	1	4	0	8	D(2)
		08/08/05	0	4	0	7	E(1)
		08/02/06	0	15	0	3	0
		08/06/07	1	24	0	1	0
		08/12/08	1	7	0	3	D(1)
		08/13/09	2	28	0	3	D(2)
Little Weiser River	1953	07/29/04	6	2	12	0	D(1)
		08/02/05	7	2	10	1	D(1)
		07/26/06	6	0	12	1	A(2)
		08/01/07	18	0	17	7	0
		08/04/08	10	0	7	1	0
		08/10/09	11	2	19	1	0
Anderson Creek	1816	07/29/04	17	0	0	0	A(1),F(1)
		08/02/05	28	0	0	0	0
		07/26/06	24	0	0	0	0
		08/01/07	19	0	0	0	0
		07/30/08	29	0	0	0	0
		08/12/09	33	0	0	0	0
Sheep Creek	1469	07/26/04	1	0	19	1	D(1)
		08/01/05	8	0	45	0	0
		07/25/06	6	0	64	0	0
		08/01/07	26	1	57	0	D(1),E(2)
		07/30/08	2	0	24	0	0
		08/10/09	12	0	25	0	A(1)
Bear Creek	1828	08/04/04	3	0	0	0	0
		08/03/05	19	0	0	0	A(1)
		08/01/06	15	0	0	0	D(1)
		07/30/07	24	0	0	0	0
		08/07/08	11	0	0	0	0
		08/11/09	5	0	0	0	0

*New site surveyed in 2009.

These observations were made in addition to listed data for specified sites:

- A: Tailed frog tadpole or adult
- B: Sculpin spp.
- C: Mountain whitefish (*Prosopium williamsoni*)
- D: Unidentified fish
- E: YOY
- F: Western Toad

Appendix F

Appendix F. MIS Survey Protocol, West Zone Payette National Forest.

MIS Survey Protocol West Zone, Payette National Forest Council Ranger District November 9, 2006

Nine MIS survey sites are present on the West Zone of the Payette National Forest, all on the Council Ranger District. Sites are located on Little Weiser River, Anderson Creek, Sheep Creek, East Fork Weiser River, Dewey Creek, Crooked River, Bear Creek, Indian Creek and Camp Creek (Indian Creek tributary). These sites were chosen in 2004 by fisheries biologists in areas where bull trout have been observed in past surveys. The following guidelines apply to all of the MIS sites.

- **MIS sites are 100m in length.**
- **Sites will be surveyed by one experienced diver.**
- **Sites should be surveyed in late July or early August, prior to August 15.**
- **A thermograph should be deployed at each of the MIS sites in the spring as other West Zone thermographs are deployed.**
- **If bull trout are not observed within the MIS site, alternate sites should be used to locate bull trout (as described below).**
- **Alternate sites will be 100m in length.**
- **If bull trout are not observed in the MIS site or alternates, the fishery biologist will determine additional locations and methods to detect bull trout.**

Little Weiser River

The MIS site is located approximately 120m downstream of the bridge at Beer Bottle Crossing (FS Road 326). Temperature monitoring site W10740 is located within the 100m site; an additional thermograph at this site is not required. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed at this site, an alternate site 400m upstream should be surveyed. If bull trout are observed at the first alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site 400m upstream of the first should be surveyed. If bull trout are not observed at this site, the district fishery biologist will determine additional survey locations and methods.

Anderson Creek

The MIS site is located 100m downstream of the culvert on FS Road 835. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed at this site, an alternate site 400m downstream should be surveyed. If bull trout are observed at the first alternate site, additional surveys are not required. If bull trout are NOT observed, a second alternate site 400m downstream of the first alternate should be surveyed. If bull trout are not observed at the second alternate site, the district fishery biologist will determine additional survey locations and methods.

Sheep Creek

The MIS site is located approximately 20m upstream of the switchback on FS Road 180. This is one of the two sites used for brook trout monitoring. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed at this site, an alternate site 400m upstream should be surveyed. If bull trout are observed at the first alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site 400m upstream of the first alternate should be surveyed. . If bull trout are not observed at the second alternate site, the district fishery biologist will determine additional survey locations and methods.

East Fork Weiser River

The East Fork Weiser River MIS site begins 100m downstream of the culvert on FS Road 906. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed, an alternate site should be surveyed approximately 400m upstream. If bull trout are observed at the alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site 400m upstream of the first alternate should be surveyed. If bull trout are not observed at the second alternate site, the district fishery biologist will determine additional survey locations and methods.

Dewey Creek

The Dewey Creek MIS site begins 15m downstream of the confluence of Louie Creek. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed, an alternate site 100m downstream of the second culvert on FS Road 487 should be surveyed. If bull trout are observed at the first alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site, 30m upstream of the second culvert on FS Road 487 should be surveyed. If bull trout are not observed at this site, the district fishery biologist will determine if additional surveys will be conducted. Two additional alternate sites have been surveyed on Dewey Creek in 2005 and 2006. Their locations are available on file at the Council Ranger District.

Crooked River

The MIS site on Crooked River is located approximately 400m upstream of the confluence of an unnamed right bank tributary (the first tributary that FS Trail 235 crosses). If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed, an alternate site 400m upstream should be surveyed. If bull trout are observed at the first alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site 400m upstream of the first should be surveyed. If bull trout are NOT observed at the second alternate site, the district fishery biologist will determine additional survey locations and methods.

Bear Creek

The Bear Creek MIS site begins approximately 400m downstream of the second bridge on FS Road 130. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed, an alternate site 400m upstream (near the second bridge on FS Road 130) should be surveyed. If bull trout are observed at the alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site should be surveyed approximately 400m upstream of the first alternate site. If bull trout are NOT observed at the second alternate site, the district fishery biologist will determine additional survey locations and methods.

Indian Creek

The MIS site on Indian Creek is located approximately 800m upstream of the mouth of Camp Creek, approximately 20m upstream of an unnamed left bank tributary. If bull trout are observed at the MIS site, additional surveys are not required. If bull trout are NOT observed, an alternate site should be surveyed approximately 400m downstream. If bull trout are observed at the alternate site, additional surveys are not required. If bull trout are NOT observed at the first alternate site, a second alternate site should be surveyed approximately 400m downstream of the first alternate (begin at the mouth of Camp Creek). If bull trout are not observed at this site, the district fishery biologist will determine additional survey locations and methods.

Camp Creek

The MIS Site on Camp Creek begins approximately 10m US of the mouth of Camp Creek. A steep cascade/falls exists in the middle of the site. This is likely an upstream passage barrier in its current configuration. If bull trout are observed, additional surveys are not required. If bull trout are not observed at this site, the district fishery biologist will determine additional survey locations and methods.