2001 Perennial Initiation Point Project

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Introduction

During the Forest and Fish discussions the default initiation point of perennial stream flow was established for the eastern Washington watersheds at a basin area of 300 acres. This point would be used to delineate between the type 4/5 break under the present water typing system. Under the new water typing criteria this point will be used to determine the upper most flow of type N (non-fish bearing) waters. Type N waters are further sub-divided into two categories: perennial (Np) segments that do not dry up, and seasonal (Ns) segments that do become dry in a year of normal rainfall. Type Np streams require partial forest buffering and other protections during forest practices (logging, road maintenance) not required for Ns streams.

The Perennial Initiation Point (PIP) Pilot Project was created to collect baseline data supporting adaptive management related to water typing in headwater streams. The field sample protocol for this project was developed in order to identify locations in streams where continuous perennial flow and spatially intermittent perennial flow are found. In addition, the validity of the default 300-acre (eastern WA) basin area was to be tested, addressing one of the L-2 questions on CMER's priority list of unresolved issues. Currently, the West-side default lies at 52 acres. However, Pre-2001 PIP data collected from Hydrologist Curt Veldhuisen of the Skagit System suggested a much lower basin size of 21 acres.

The Data collected for this project was in accordance with the protocol established by the Np Survey Working Group/ In-Stream Advisory Group (ISAG). Additional information resulting from this pilot project includes:

- data suggesting the appropriate sample sizes for the statewide stratification
- suggestions/ recommendations regarding the field sampling protocol
- additional variables related to stream relationships and functions that may add insight on better data stratification.

In addition, the data collected within the 2001 field season may be helpful in the development of the water typing system model and statewide map, which is a habitat based model to determine fish habitat Type F breaks, currently being created for the WADNR Forest Practices Act WAC222-16-030. There will also be a new section of the Forest Practices Board Manual (Section 23) developed to provide technical guidance to

landowners and foresters in determining the upper most headwater spring and/or the upper most extent of Type Np streams.

Eastern Washington is composed of a wide range of regional variability, which contributes to its diverse ecosystems. In order to better understand these complex relationships, data must be collected which is representative of the geographic diversity found in eastern Washington. The random site selection process in this study was designed to account for multiple environmental variables such as: aspect, elevation, geology, soils, vegetation, and precipitation. The TFW Biologists of the Upper Columbia United Tribes (UCUT) including, the Colville Confederated Tribes (CCT) and the Spokane Tribe of Indians (STOI), conducted the PIP surveys'.

Goals and Objectives

The goal of this project is to investigate the appropriateness of the 300-acre basin size demarcation for the point of perennial flow of non-fish bearing waters in eastern Washington. The overall intent of this study was to aid in the development of State Forest Practice Regulations, while streamlining timber harvest operations and maintaining a high level of stream quality related to the management of public resources.

The objectives of this pilot project are consistent with the Scope of Work in Attachment A within the interagency agreement # IAA 02-109 between the Department of Natural Resources and the Colville Confederated Tribes.

Methods

The methods used in this study are in compliance with the Perennial Stream Survey Field Sample Protocol (version 1.21) written by the Np Survey working Group/ In-Stream Advisory Group (ISAG). Sample sites were randomly selected in accordance with option 3 of the sample protocol. Following site selection the Main Thread Survey was performed using the Downstream Method.

CCT GIS coordinates were collected using a handheld Garmin GPS CX and downloaded into a PC using Garmin Mapsource. All coordinates were then converted to a shapefile in association with Arcview 3.2 GIS. Three individual maps were created for each PIP representing a 7.5 minute/1:24000-scale. Due to time constraints, 6 of the CCT off – reservation survey sites do not have aerial photo or vegetation mapping. In addition, the STOI basin mapping does not include vegetation or aerial photos due to discrepancies in map projections. The mapping data includes: National Geographic Seamless USGS Topographic Base Map with DNR stream layers (DNRSTR_83), Aerial Photo/Digital Ortho-quad images (DOQ 1991/1996), and a NRCS/CCT Land Operations soil based vegetation data layer (soils_83). The basin sizes for each PIP were calculated in Arcview by creating a Polygon Theme and digitizing the basin boundaries on top of the USGS Topographic Base Map. Starting from the PIP, a line was drawn to the nearest ridge

following the upper extent of the topography surrounding the basin. The polygon shape was completed when the line tied back into the PIP. The elevations for each PIP were determined using the associated contour lines on the individual USGS Topographic site maps.

STOI captured real-time Global Positioning System (GPS) coordinates using a TSC1 Tremble Navigator. Coordinates were downloaded into a PC using GPS Pathfinder Office Vers 2.70 software support. Differential conversions were run from base station files stored on the STOI GIS base station rover files. The PIP differential corrected files were then exported into Arc View and converted to shape-file format. The shape-file was then delivered to the CCT GIS specialist to determine basin size. As an additional resource, the STOI has their shape-files overlaid onto Arc View background overlay coverage's with WADNR watershed administrative units (lit.cit.), DOE (lit.cit.), USGS 24K Contour (lit.cit.) files and saved into (STOIPIP.apr) project. Other additional resources available from the STOI include: PIP basin vegetations recovered from a variety of scientific citations such as: Zamora 1983, Spokane Tribe Forest Habitat Type (FHA.shp) shape file coverage's, United States Forest Service Regional Ecosystem Office recovered GIS data dictionaries for vegetation of Lake Roosevelt and Pend Oreille and Little Spokane River basins (c115.shp and c116.shp). If no vegetation coverage's were accessible, then sites were confirmed by field observation according to Kovalchik, 2001. (Contact Sandra Collins, TFW Biologist STOI for more information)

The STOI and CCT participated in QA Training and QC Review on September 5th, 2001with Allen Pleus (Forest Practices Coordinator, NWIFC) and Mara McGrath (Botanist, Ecological Land Services, Inc.). In addition, Mara McGrath met both the CCT and the STOI for field survey QA/QC training and review.

STOI & CCT TFW/F&F also participated in on going scientific peer review to the "*Perennial Stream Survey Field Sample Protocol (Vers1.21)*" prepared by the Np Survey Working Group 8/8/01.

Results and Discussion

The PIP survey's began in early August, but were postponed within the lands surrounding the Colville Confederated Tribes due to the extreme fire hazards and regulatory forest restrictions associated with the Virginia Lake Fire. Precipitation levels created drought like conditions limiting access to forested lands within the region. The surveys' resumed in mid-September through mid-October and ended due to seasonal increases in precipitation. The locations of our survey sites spanned from northcentral to northeast Washington (see master map). There was a significant variation between individual survey sites, associated with the changing topography, geology etc., across such a large landscape.

The TFW Biologists of the CCT and the STOI surveyed a total of 21 Perennial Initiation Points in the 2001 field season, averaging approximately 13 hours per PIP. These hours

include: site selection, travel, locating PIP and conducting the field survey. Hours associated with GIS mapping were not included. Basin size was calculated using Arcview 3.2 GIS for all 21 PIP's (see appendix A or Table 1.). The basin sizes varied from 3258.9 acres (Beaver Cr. 1) to 20.8 acres (Deadman Cr.), and averaged 343 acres. However, the average basin size is not a fair representation due to the extreme basin size of Beaver Cr. 1 and Kinkaid Cr. When the 2 smallest and 2 largest basins are eliminated from the average as outliers, the revised average becomes 159 acres. The average elevation including all sites was 3741 feet, and with the 4 outliers eliminated 3640 feet. The elevations associated with each PIP suggest that basin size may be a representation of the elevation at which the PIP is located (see table 1). The two largest basins, Beaver Cr. 1 (3258.9 acres) and Kinkaid Cr. (2461 acres) were both located at approximately 2500 feet or less. This could be analogous to an increase in the available surface area as you move down the side of a mountain. Additional field data may clarify this relationship, adding insight toward stratifying the default basin size with respect to elevation bands. For example, harvest practices occurring at a higher elevation would receive a smaller default basin size than those at a lower elevation.

Table 1. Relationship Between Elevation and Basin Size

Stream Name	Elevation (ft)	Basin Size (acres)
Peel Cr.	2789	227
Smith Cr.	2461	*22
Kinkaid Cr.	2461	*1202
Stepstone Cr.	4593	293
John's Mt. Cr.	4100	252
Lynx Cr.	4430	147
Sleepy Hollow Cr.	4600	143
Rock Cr. 01	3773	40
Rock Cr. 02	5300	66
Central Cr.	4260	211
Sinlahekin Cr.	*6234	40
Salmon Cr.	*6234	67
Bear Cr.	4101	171
Castle Cr.	2300	374
Joe Moses Cr.	3600	232
Buffalo Cr.	3445	126
Chamokane Cr	3200	178
Beaver Cr. 01	*2200	*3259
Beaver Cr. 02	2800	88
Cottonwood Cr.	*2000	44
Deadman Cr.	3680	*21

(* = outlier)

Two examples that offer insight into the variability with which eastside PIP's can occur during seasonally low flows are Smith and Kinkaid Creek. In the 2001 field season we observed the presence of Brook Trout and Cutthroat Trout immediately below the perennial initiation point at 2 of our surveyed sites. Both of these sites were within the "Ponderosa Pine Zone" at approximately 2500 ft. in elevation.

The first of these sites was Smith Creek, which initiated at a spring, located at the base of a small bowl, approximately 22.2 acres in size (see appendix A). The immediate topography surrounding Smith Creek does not appear to be large enough to support perennial flow. Therefore it is likely that the spring is fed by subsurface water flows related to a larger basin area, not connected by a dry channel, but possibly influenced by geological variables. In addition, Smith Creek goes subsurface where it enters an agricultural area before entering the Nespelem River. There appears to be no associated surface channel present to connect the mouth to the headwaters, and there is no recent record of fish stocking. It is important to consider that the nature of the soils within the Okanogan Highlands (ash and loess), in combination with agricultural water use, can result in a significant drop in local water tables. One possible result of such an event is subsurface stream flow, which may cut off resident fish populations from downstream access. Dry stream channels or other features obstructing fish passage do not rule out the possibility of resident fish populations occurring upstream, especially at lower elevations associated within agricultural lands.

The second site was Kinkaid Creek, which initiated at a point far below the upper most extent of the dry stream channel. The calculated basin size above the Kinkaid Creek PIP was 1202 acres (see Appendix A). Riparian associated vegetation was continuous and the gradient of the dry channel was less than 8%, which suggests the potential for seasonal fish usage during periods of higher water. This is further substantiated by the presence of a 6" Eastern Brook Trout. Kinkaid Creek shows us that selecting August as the primary surveying month may facilitate a larger default basin size due to the PIP occurring farther downstream then it would occur during winter or spring. A repercussion of this idea is the default basin size being larger than necessary, resulting in negative impacts associated with downstream sediment delivery. Machinery associated with forest practices often increases soil density through compaction, resulting in decreased soil porosity. "A reduction in porosity reduces the rate at which water can enter soil, thus increasing the proportion of water flowing over the soil surface" (Singer and Munns 62). The soil that is picked up from this increase in water movement will eventually enter type F (fish bearing) waters.

The relationship between intermittent stream flow and fish/amphibian habitat is of great importance in this study. The idea of delineating default basin sizes, relative to perennial flow, shows little regard for the importance of the seasonal contributions made to downstream habitats by intermittent streams. For example, allochthonous material, water, sediment, and large wood are all delivered through intermittent stream flow. Reid and Ziemer (1994) found that intermittent channels contribute significantly to downstream reaches, as they can form a high proportion of the entire channel system in a watershed (lit. cit.). The occurrence of fish at the PIP, during drought conditions, suggests that fish could be found farther up the stream channel during seasons of high discharge such as spring run-off. The presence of fish in a stream should warrant type 3 protections, regardless of whether it is perennial or intermittent.

The extreme variability in basin size may be a function of multiple factors. The soils ability to retain water with respect to gradient, aspect, annual precipitation, and elevation will ultimately decide where perennial flow begins. Outside variables, such as agricultural water use, further increase the level of complexity associated with perennial stream flow in eastern Washington. The point of perennial flow will fluctuate as seasons change and the presence of riparian associated species in a stream channel may mirror these seasonal fluctuations. It is important that the default basin size for eastern Washington does not eliminate seasonal fish habitat on the basis of perennial flow in August.

Ideas and Suggestions

- The protocol for the PIP study relies heavily on the location of perennial flow during drought conditions. It is important to understand the relationship between low seasonal precipitation and the location of the perennial initiation points within a watershed, but it is not a healthy representation of how streams and rivers function throughout the year. In eastern Washington drought-like conditions can have a substantial affect on the perennial flow of streams and rivers. Within the STOI study area, 9 out of 15 randomly selected streams were confirmed to be dry at the mouth. The amount of water available to a watershed is assumed to be a function of the current precipitation occurring on the landscape, as well as the precipitation from previous months/years. In order to draw solid scientific conclusions regarding the relationship between stream function and forest practices we must also include data, which represents seasonal precipitation throughout the year. "Most streams and rivers have a maximum discharge during winter rains or spring snow melt", which suggests the importance of surveying perennial initiation points throughout the year (Horne and Goldman 357).

- Overall as a group we felt concerned with the date of the sample period. The group felt that peak flow should be considered as a potential time for determining perennial initiation points.
- It was also felt that due to 2001 being an unusually dry year, the perennial flow would deviate substantially from normal variations in stream hydrology.
- Vegetation is an important indicator related to aquatic environments. Elevation, precipitation, soils, and geology all reflect the type of vegetation (E+P+S+G=V). It would be beneficial to place more emphasis on the presence and absence of riparian related plant and tree species in association with the perennial initiation points. This may be the easiest way to determine the upper most extent of flowing water. Ephemeral stream flow does not usually support riparian vegetation, limiting the occurrence of riparian vegetation to sites that have a regular presence of water.
- The presence and absence of organic matter in the stream channel is an important part of the PIP survey. Evidence of heavy range cattle use can alter or mimic the appearance of native organic in-stream components. The presence of broken down fecal material often covers the native stream substrate, making it difficult to accurately classify. In addition, bankfull width and depth measurements can be

altered when cattle overuse a stream channel. Field forms should contain side notes regarding the presence/absence and severity of cattle use. This could be incorporated as part of the Poorly Defined Channel (PDC) or Modified Channel (MC) classification.

- The dry channel portion of the survey may be using valuable time, which could be used to locate and sample additional wet sites. The answer to this problem might be in noting the presence of a dry channel for 200 meters, but no data collection. However, if the data obtained from the dry channel survey is critical to Np delineation or basin size determination, a simplified version of data collection for the dry portion may be beneficial.
- The need for 200 meters of continuous visible or audible flowing water, in order to assume perennial flow to the mouth, may be moving the perennial initiation points too far down stream. The result of this is a larger basin size. Flowing water that subsurfaces and then reappears further down the stream channel should be considered perennial flow, regardless of how far it runs underground or whether you can hear it.
- Develop hydro-geomorphic associations to describe the watershed. (Developed and available through NWIFC).
- Record the Water Resource Inventory Area (WRIA) number on the field form for the segment of concern.
- Note an area on the field form to document if any fish or amphibians are present within PIP segment area.
- Note another area on the field form to record: associated seeps, springs, and wetlands and their approximate size (acreage) and relationship to the PIP.
- Standardize how precise the instream measurements need to be. Should the bankfull width/depth be rounded to the nearest tenth or hundredth? The QA/QC field auditor and PIP field crews need to be consistent.
- Segment breaks, associated with a change in gradient, should only occur when it is significant enough to result in a flow category change.
- Record the Rosgen Stream type on the field form.
- If the stream segment of concern is predominantly all agricultural land and void of any over story trees, is it warranted to eliminate the site from the PIP Survey?
- Calculating the basin size from topography breaks on a GIS based map may not be a fair representation of the actual basin size. In the field: draws, swales, and gullies, etc. that are undetectable on GIS based maps or aerial photos' may limit precipitation from entering the stream channel.

Literature cited

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Singer, Michael J. and Donald N. Munns. Soils. 3rd ed. New Jersey: Prentice-Hall, Inc. 1996.

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Department of Ecology 2001, Shapefile: rivers.shp; hydro54.shp; hydro55.shp; hydro59.shp

United States Geological System 24K Contour 2001, Shapefile: Adams.shp; Empey.shp

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Todd Baldwin, TFW Biologist, Kalispel Natural Resource Department
Cathy Cochrane, Biologist Technician, Spokane Tribe of Indians
Tahnea Jafari, Wildlife Biologist II, Fish and Wildlife Department
Donavon Antoine, Fisheries Technician, CCT Fish and Wildlife Department
Yvonne Passmore, GIS Technician, CCT GIS
Charlie Joseph, Fisheries Technician, CCT Fish and Wildlife Department
Jackie Marchand, Biologist Technician, CCT Fish and Wildlife Department

Appendix A

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Summit Creek	Stream Name: Rock Cr.	T/R/S T34 R24 S11	Topoquad name: Buck Mtn.
Organization: Colville Confederated Tribes TFW Fish & Wildlife Dept.	Description of start point (GPS optional): SEE NOTES		Landowner; State
Site Number: 01	Date: 10-01-01	Recorder(s): R. Peone, E. Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	D	NC			1	3					notes
2	30-60		D	NC			5	5					
3	60-90		D	NC			2	2					
4	90-120		D	NC			4	6	F	WS			
5	120-150		D	NC			0	2	F	WS			notes
6	150-180		D	DC	0.7	0.3	9	17	F	GB			notes
7	180-210		D	NC			10	2	F	WS			notes
8	210-240		FW	DC	0.5	0.2	11	42	F	WS/GB			
9	240-270		FW	DC	0.5	0.3	19	17	F				
10	270-300		FW	DC	0.4	0.2	11	2	F				
11	300-330		FW	DC	0.4	0.2	3	5	F				
12	330-360		FW	DC	0.5	0.3	5	9					
13	360-390		D	PDC	0.6	0.2	43	27	B				Gradient
14	390-420	Y	D	PDC	0.4	0.1	11	2	F	WS			14 END

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES Rock Creek 01
Seg. 1 Another 100m will be at top of divide
Seg. 4 to 8 15 m of wide wetsite.
Seg. 5 Pocket of water in wholes of indentions in wet site
Seg. 6 165m to 175m standing pocket water
Seg. 7 channel starts at 195m first 15m is a bog. Pocket water in ingentions.
Seg. 8 Water subsurface under boulders
Seg. 9 225m to 235m 2 % gradient, 235m to 240m 49% gradient Average as a whole 17%
Seg.14 25m of subsurface then 5m of water to end.
Seg. 4 to 8 15 m of wide wetsite.
Seg. 7 END N 48 27 31.4 W 119 48 47.6
PIP N 48 27 35.1 W 119 47 17.1
END N 48 27 31.4 W 119 47 25.1
Road N 48 27 35.1 W 119 47 16.2

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

Summit Cr

WAU: Loup Loup	Stream Name: ROCK CREEK	T/R/S T34R24E 11	Topoquad name: Buck MT
Organization: CCT/TFW	Description of start point (GPS optional): N48° N 48 27.601 W119 47.092		Landowner: State
Site Number: 01	Date: Oct. 2, 2001	Recorder(s): Ruby + Erie + Jim	
Precipitation (in mm) for the 2 days prior to survey		Survey type: (Main thread) or Total Tributary	Tributary Number: /

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		D	NC	—	—	1	3					1.
2	30-60		D	NC	—	—	5	5					
3	60-90		D	NC	—	—	2	2					
4	90-120		D	NC	—	—	4	6	Ø F	W S			
5	120-150		D	NC	—	—	0	2	Ø F	W S			5.
6	150-180		D	DC	.7	.3	9	17	S F	GB			6
7	180-210		D	NC	—	—	10	2	Ø F	WS			7. PIP
8	210-240		FW	DC	.5	.2	11	42	S F	WS/GB			
9	240-270		FW	DC	.5	.3	19	17	S F				
10	270-300		FW	DC	.4	.2	[illegible]	52	S F				
11	300-330		FW	DC	.4	.2	3	5	S F				
12	330-360		FW	DC	.5	.3	5	9					
13	360-390		D	PDC	.6	.2	43	27	B				Gradient
14	390-420		D	PDC	.4	.1	11	2	S F	WS			14 END

Seg 7 PIP N48° 27.595 W 119° 47.215

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

End PIP N48° 27.532 W 119° 47.348
Road N 48° 27.595 W 119° 47.200

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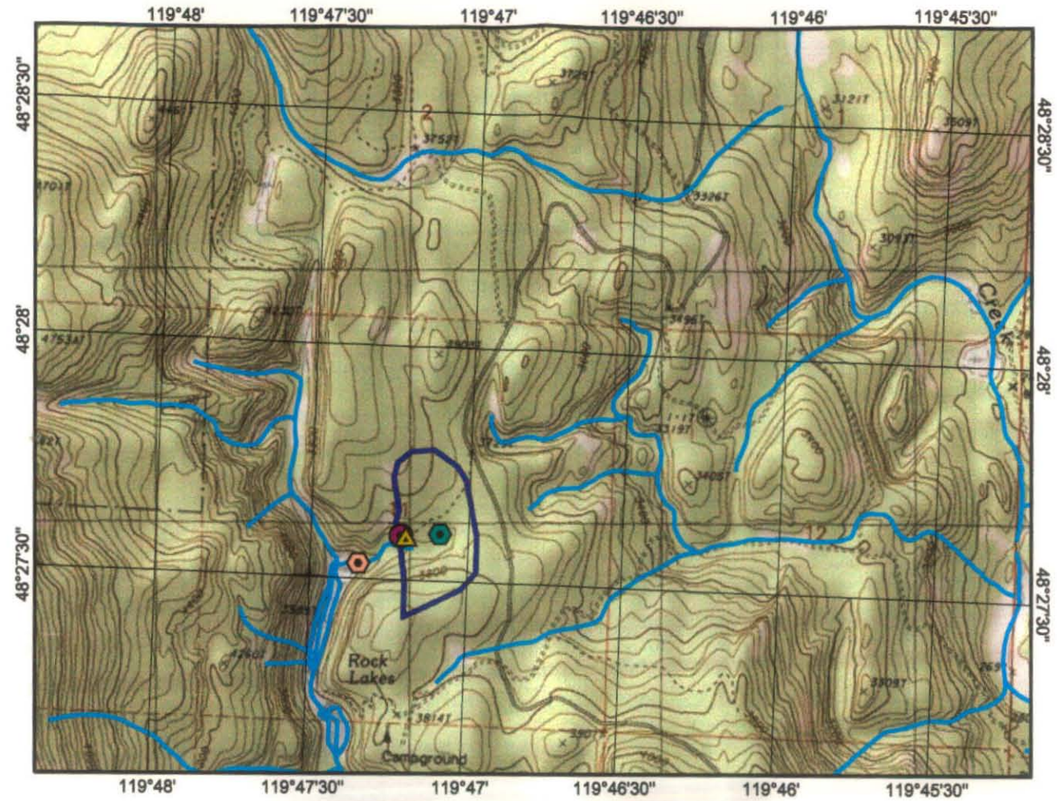
NOTES
Seg. 1 Another 100 meters will be at top of divide.
Seg 5: Pocket of H_2O in wholes of ~~dent~~ indentions in wet site
Seg. 6 165m to 175m Standing Pocket Water
Seg 7. Channel starts at 195m. 1st 15m. A BOG. Pocket H_2O in indentions
Seg. 8 H_2O subsurface under boulders
Seg. 9. 225 to 235m 2% gradient
235 to 240m 49% gradient
Average as a whole 17%
Seg. 14. 25m of subsurface then
5m of H_2O to end.
End of Seg. 10m to Lake.
Seg 4 to 8 15m wide wet site

SKETCH

Rock Creek 01

Rock Creek 01
Date of Survey 10/02/01
WAU: Summit Creek
WMUS: N/A
Quad: Buck Mountain
T 34 R 24 E S 11
48.4597500 -119.7880900
Basin Acreage: 39.766



0 0.5 1 Miles

1:24000

For Reference Use Only.

This map has been produced on the Colville Confederated Tribes' Geographic Information System. Data provided herein is derived from sources with varying levels of accuracy. The Colville Confederated Tribes disclaims all responsibility for the accuracy or completeness of information contained herein.

CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Summit Creek	Stream Name: Rock Cr. 02	T/R/S T 34 R 24 S 22	Topoquad name: Buck Mountain
Organization: Colville Confederated Tribes TFW/F&F Fish & Wildlife Dept.	Description of start point (GPS optional): SEE NOTES		Landowner; State
Site Number: 02	Date: 10-03-01	Recorder(s): R.Peone, E.Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	FW	DC	0.1	0.2	27	33	Substrate				see notes
	15		Seeps coming from both sides of trib. 10m on each side										
2	30-60		FW	DC	0.5	0.15	25	25	g				
	50-60		Seeps on left bank exttends to about 30m out										
3	60-90		FW	DC	0.4	0.1	24	23	Substrate				
	60		Channel braids, seep extends down to 60m on both sides of channel										
4	90-120		FW	DC	0.5	0.3	57	39	F	GB			
			Beg. Of Seg. 4 large clusters of 8 to 10 down wood about 100m long										
5	120-150		FW	DC	0.5	0.3	29	34	Substrate				
	130		Side trib. On left bank, seep on left bank (flowing from seeps seg. 2 and 3 to make trib., surrounded by seeps about 10m out LB										
6	150-180		FW	DC	0.4	0.3	33	33	Substrate				lot of boulders
7	180-210		FW	DC	0.4	0.2	22	24	Substrate				
	195		Creek obscured by down woody material										
	207		patches of woody debre										END

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

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NOTES Rock Creek 02
PIP starts at spring
Seg. 1 PIP At spring, spring channel is 2m wide with seep extending
up to 10m or 15m wide.
PIP N 48 26 13.8 W 119 48 55.0
END N 48 26 12.1 W 119 48 47.6
ROAD N 48 26 06.6 W 119 48 33.3

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

Summit CR

WAU: Loup Loup Cr.	Stream Name: Rock Creek 02	T/R/S T34R24E22	Topoquad name: Buck Mountain
Organization: CCT TFW - Fish + Wildlife	Description of start point (GPS optional): See notes		Landowner:
Site Number: 02	Date: 10/03/01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

Southeast facing slope

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0~~30~~		FW	DC	.1	.2	27	33	S				
	15		seeps coming from both sides of trib - 10m										
2	30-60		FW	DC	.5	.15	25	25	G				
	50-60	seep on LB extends to about 30 m out											
3	60-90		FW	DC	.4	.1	24	23	S				
	60	Channel braids		/cm2			~~24~~	~~23~~					
		seep extends down to 60 m on both sides of Channel											
4	90-120		FW	DC	.5	.3	57	39	OF	GB			~~3~~
	Beginning of seg 4 large cluster of 8 to 10 Down wood about 1100 m long												
5	120-150		FW	DC	.5	.3	29	34	S	~~GB~~ segments			
	130	side Trib on LB seep on LB flowing from seeps 2+3 to make Trib.											permanent
		by seeps about 10 m then cut on LB											
6	150-180		FW	DC	.4	.3	33	33	S	lots of boulders			
7	180-210		FW	DC	.4	.5.2	22	24	S				
	195	Creek obscured by down Woody material (debris											
201m	~~200~~	Creek appears see ~~see~~ ~~woody~~ ~~debris~~ open								patches of Woody debris			see creek
	210.	then open at 207 m											ends.

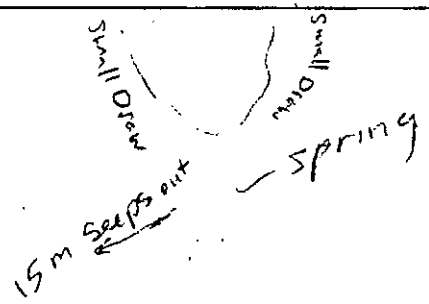
Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

NOTES PIP starts @ spring

Seg. 1 PIP @ Spring - Spring Channel is 2m wide w/ seep extending up to 10m or 15m wides.

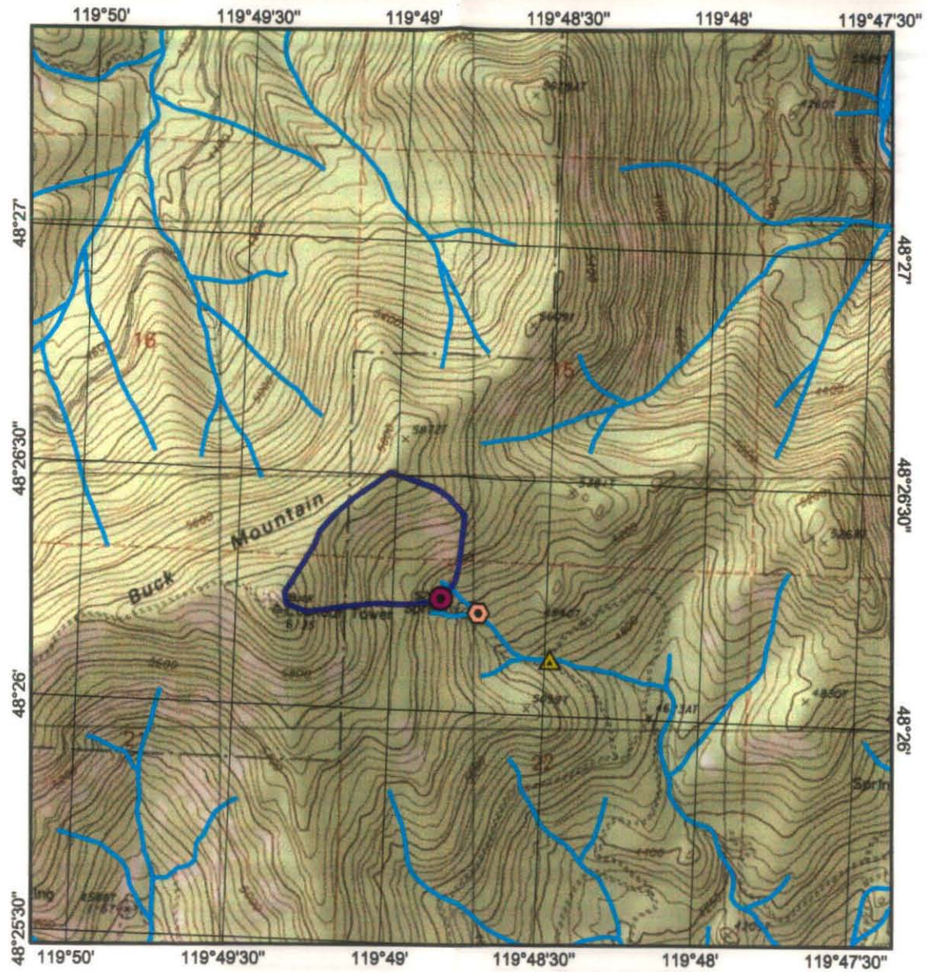
SKETCH



Page _____ of _____

Rock Creek 02

Rock Creek 02
Date of Survey 10/03/01
WAU: Summit Creek
WMUS: N/A
Quad: Buck Mountain
T 34 R 24 E S 22
48.4371700 -119.8152700
Basin Acreage: 66.250



0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Summit Creek	Stream Name: Central Creek	T/R/S T 34 R 24 S 29	Topoquad name: Buck Mountain
Organization: Colville Confederated Tribes TFW/F&F Fish & Wildlife Dept.	Description of start point (GPS optional): SEE NOTES		Landowner; State
Site Number: 01	Date: 10-03-01	Recorder(s): R. Peone, E. Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-15	Y	FW	NC	NA	NA	7	7	F	SP			see notes
	15-30		FW	PDC	1	0.1		7	F	WS			
2	30-45		FW	PDC	1	0.1	7		F				
	45-60		FW	PDC	1	0.1		7	Substrate				
3	60-90		FW	PDC	1.2	0.1	5	5	Substrate				
4	90-120		FW	PDC	0.5	0.1	7	7	Substrate				
5	120-150		FW	PDC	0.3	0.1	11	10	Substrate				
6	150-180		FW	PDC	0.3	0.05	9	11	F				
7	180-210		FW	PDC	0.3	0.01	10	11	F	WS			

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES Central Creek
From PIP on down heavy cattle impact on stream.
modified channel due to cattle degradation.
1. First 15m no channel and 20m of wetsite on PIP
Had there been no cattle present this stream would have a defined
channel.
GPS READINGS
PIP N 48 24 49.7 W 119 50 52.0
END N 48 24 45.3 W 119 50 45.9
ROAD N 48 24 43.7 W 119 50 40.1

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Summit Creek	Stream Name: Central Creek	T/R/S T34/R24/S29	Topoquad name: Buck Mountain
Organization: Colville Confederated Tribes / TFW Fish & Wild Life	Description of start point (GPS optional): See note's		Landowner:
Site Number: 01	Date: 10/3/01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number:

SE Facing Slope — Picture #12 aftermushroom

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-15		FW	PDC	NA	NA	7	7	F	SP			
	15-30		FW	PDC	.1	.1	——	7	F	WS			
2	30-45		FW	PDC	.6	.1	7	——	F				
	45-60		FW	PDC	1	.1	——	7	S				
3	60-90		FW	PDC	1.2	.1	5	5	S				
4	90-120		FW	PDC	.5	.1	7	7	S				
5	120-150		FW	PDC	.3	.1	11	10	S				
6	150-180		FW	PDC	.3	.05	9	11	SF				
7	180-210		FW	PDC	.3	.01	10	11	F	WS			

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

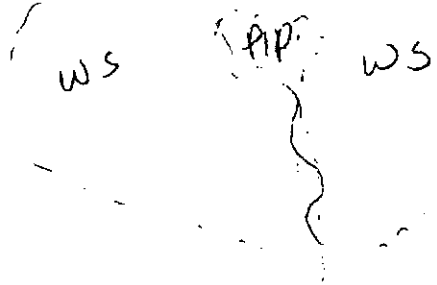
Back of Form B

NOTES From PIP on down heavy cattle impact on stream. modified channel due to cattle degradation

Seg 1 1st 15m NC and 20m of wetsite on PIP.

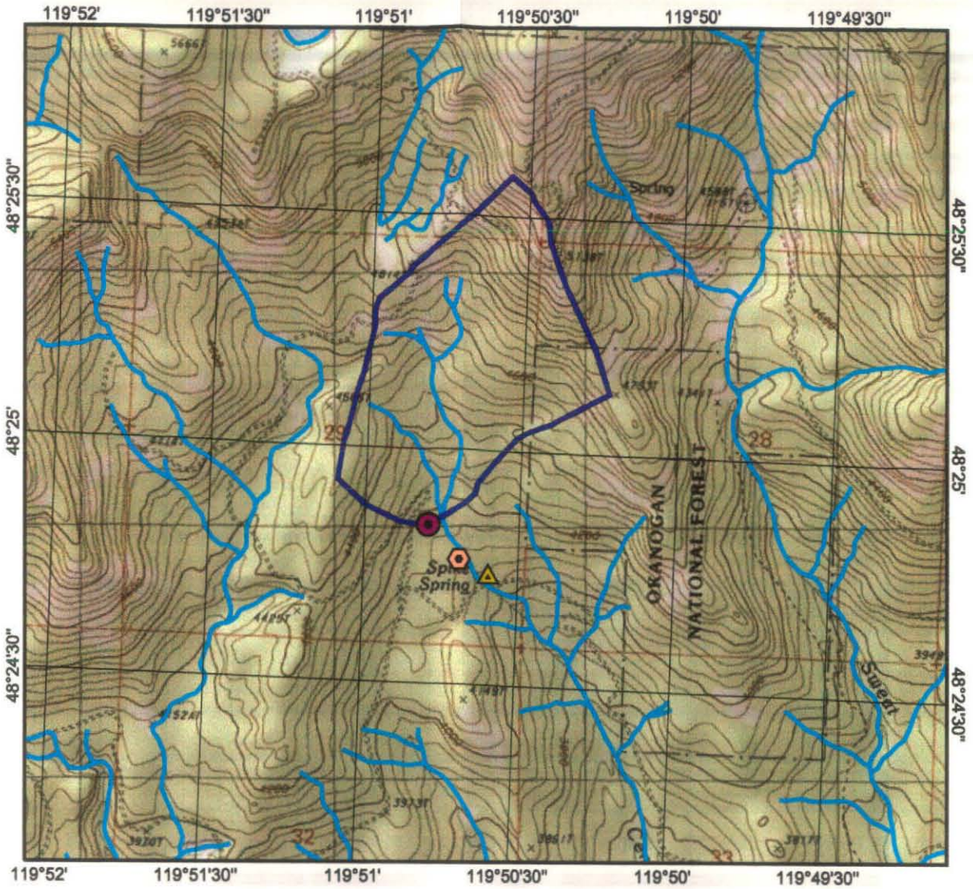
Had there been no cattle present this stream would have a defined channel

SKETCH



Central Creek

Central Creek
Date of Survey 10/03/01
WAU: Summit Creek
WMUS: N/A
Quad: Buck Mountain
T 34 R 24 E S 29
48.4138200 -119.8477800
Basin Acreage: 210.495



0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Sinlanekin	Stream Name: Sinlanekin Cr.	T/R/S T 37 R 23 S 02	Topoquad name: Tiffany Mountain
Organization: Colville Confederated Tribes TFW/F&F Fish & Wildlife Dept.	Description of start point (GPS optional): PIP N 48 43 44.5 W119 55 04.2 END N 48 43 48.5 W 119 54 57.2		Landowner; Okanogan Naional Forest
Site Number: 01	Date: 10-10-01	Recorder(s): R. Peone, E. Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	177.6 coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		FW	DC	0.4	0.2	6	5	F				
2	30-60		FW	DC	0.6	0.35	5	6	F				
3	60-90		FW	DC	0.5	0.4	6	5	F				
4	90-120		FW	DC	0.6	0.4	8	6	F	WL			on both sides
5	120-150		FW	DC	0.7	0.45	6	3	F				
6	150-180		FW	DC	0.5	0.45	12	10	Substrate				
7	180-210		FW	DC	0.6	0.45	12	10	Substrate				

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES Sinlanekin Creek
PIP starts at end of wetland

SKETCH
see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: SINLAN CKIN CR	Stream Name: Sinlanekin Cr	T/R/S T37 R23 S02	Topoquad name: Tiffany Mountain
Organization: CCT TFW Fish Wildlife	Description of start point (GPS optional): P.P N48 43 44.5 W119 55 04.2 END N48 43 48.5 W119 54 57.2		Landowner:
Site Number: 01	Date: 10/10/01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number:

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		FW	DC	.4	.2	6	5	Ø F				
2	30-60		FW	DC	.6	.3½	5	6	Ø F				
3	60-90		FW	DC	.5	.4	6	5	Ø F				
4	90-120		FW	DC	.6	.4	8	6	Ø F	WL			On Both Sides
5	120-150		FW	DC	.7	.4½	6	3	F				
6	150-180		FW	DC	.9	.4½	12	10	X S				
7	180-210		FW	DC	.6	.45	12	10	S				

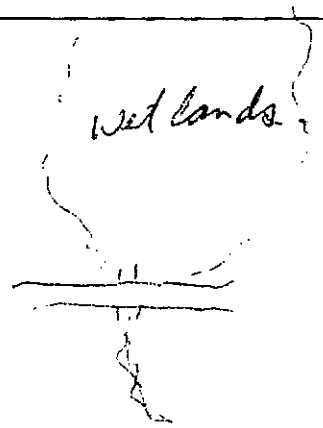
Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

NOTES

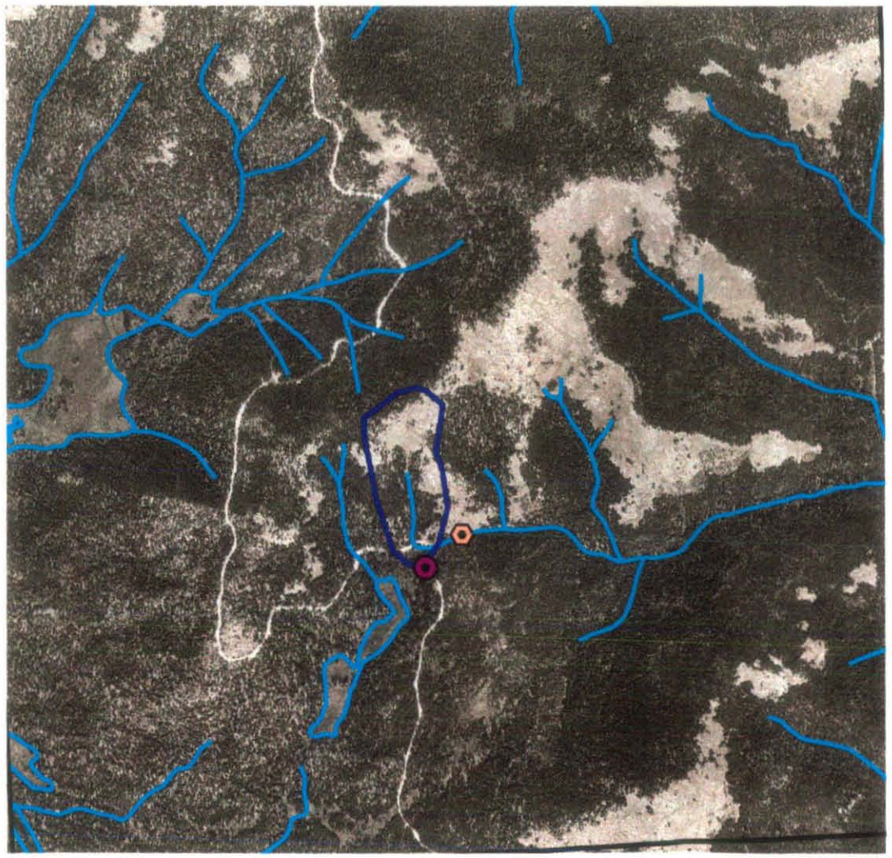
PIP starts @ end of Wetlands.

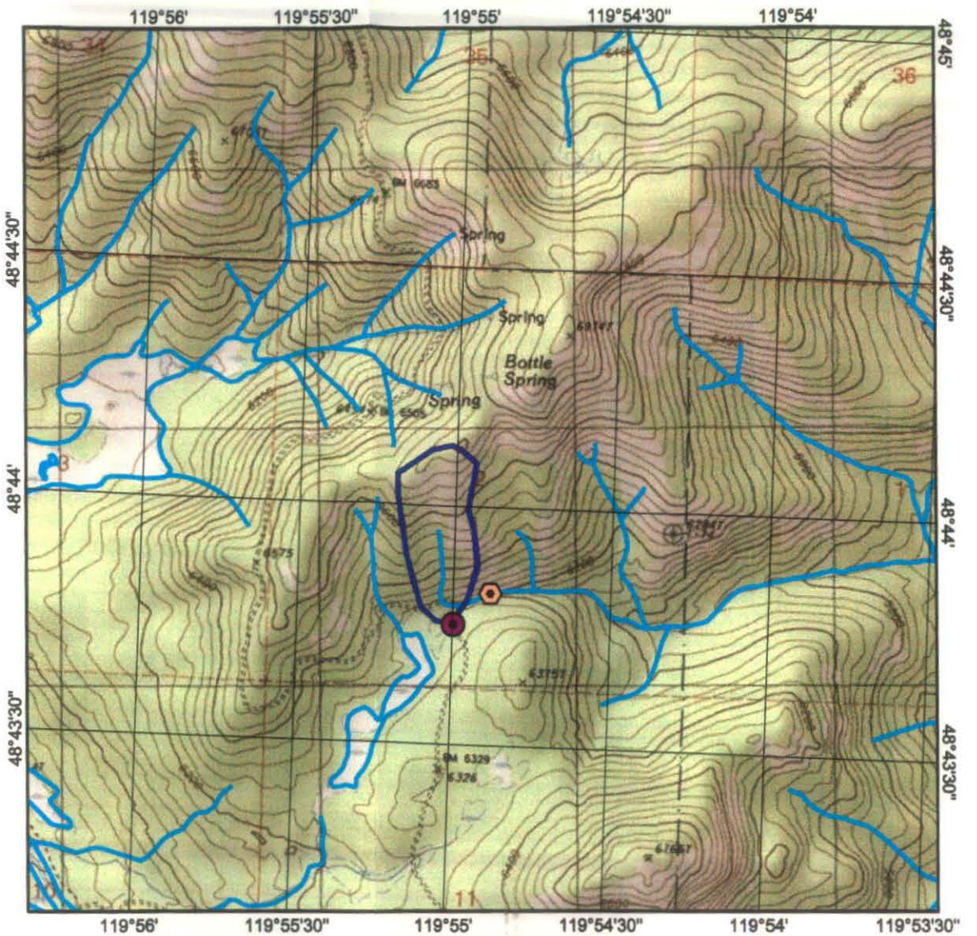
SKETCH



Sinlahekin Creek

Sinlahekin Creek
Date of Survey 10/10/01
WAU: Sinlahekin
WMUS: N/A
Quad: Tiffany Mountain
T 37 R 23 E S 02
48.7290300 -119.9178400
Basin Acreage: 40.369





0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Little Pend Oreille Middle	Stream Name: Bear Creek	T/R/S T34 R42 S19	Topoquad name: Calispel Peak
Organization:	Description of start point (GPS optional):		Landowner:
Colville Confederated Tribes	PIP N 48 26 03.8 W117 33 39.9		Stimpson & Burlington
TFW Fish & Wildlife Depth.	END N 48 26 02.9 W 117 33 48.7		Resources
Site Number: 01	Date: 10-17-01	Recorder(s): R. Peone,E. Krausz,J. Marchand,S. Collins, C. Cochran	
Precipitation (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-06		D	PDC	0.3	0.1	16	F					
	,30,		D	NC				F	WT				1
2	30-38		D	NC			13	F					
	38-60		D	PDC	0.5	0.1		F	GB				
3	60-90		D	DC	0.8	0.2	28	F					
4	90-120		D	DC	1	0.3	12	F					
	115		D	DC				F	WL				
5	120-135		D	DC			12	F	WL				5
6	135-143		D	MC									CULVERT
	143-150		D	PDC	2	0.1	10	F					
7	150-186		D	DC	1.5	0.2	21	F	GB				
8	210	Y	FP	DC	0.7	0.3	14	13	G				
9	240		FW	DC	0.7	0.4	14	14	G				
10	270		FW	DC	0.7	0.3	10	11	Substrate				
11	300		FW	DC	1	0.3	17	17	Substrate				
12	330		FW	DC	1.2	0.3	12	11	G				
13	360		FW	DC	1	0.4	11	11	G				
14	390		FW	DC	1.2	0.2	11	10	Substrate	SE			

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; BEAR CREEK
No channel above Seg.1 dry.
Seg. 1 headwaters of forest wetland greater than 20 acreas.
Seg. 5 Forested werland rightbank and leftbank.
At 290 meters braided stream, at 300 meters right bank trib. Of flowing water.
Seg. 11 subsurfaces under downed woody debre and forest litter.
At 350 meters braided stream returns left bank and small seep on right bank.
At 390 seeps.

SKETCH
see original

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

Sub. of LTL Pond Cr

AU: Lille Pend Oreille Middle | Stream Name: Bear Cr | T/R/S T34 R42 S19 | Topoquad name: Calispel Peak

Organization: Colville Confederated Tribes / TFW Fish & Wildlife | Description of start point (GPS optional): P.P N 48 26 03.8 W 117 33 39.9 END N 48 26 62.9 W 117 33 48.7 | Landowner:

Site Number: 01 | Date: 10/17/01 | Recorder(s): Ruby Peone, Sandra Collins

Precipitation (in mm) for the 2 days prior to survey | Survey type: Main thread or Total Tributary | Tributary Number: 1

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Downstream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-6		D	PDC	.3	.1	16	—	F				
	6-30		D	NC	—	—	—	14	F	WT			1.
2	30-38		D	NC	—	—	13	—	F				
	38-60		D	PDC	.5	.1	—	32	F	GB			
3	60-90		D	DC	.8	.2	28	19	F				
4	90-120		D	DC	1	.3	12	8	F				
	115		D	DC	—	—	—	—	F	WL			
5	120-135		D	DC			12	—	F	WL			2
6	135-143		D	MC	—	—	~~10~~	—	—				Culvert
	143-150		D	PDC	2	.1	10	—	F				
7	150-186		D	DC	1.5	.2	21	21	F	GB			
	186												END

for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

no channel above Seg 1
Dup

Seg. 1 Headwater of Forest wetland.
greater than 20 acres.

Seg. 5 Forested wetland RB & LB

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

Cliff Ridge

WAU: Little Pend O Reille	**Stream Name:** Bear Cr	**T/R/S** T34R42S19	**Topoquad name:** Calispel Peak
Organization: Colville Confederated Tribes / TFW Fish+wildLife	**Description of start point (GPS optional):** PtP 48 24 03.8 W 117 33 39.9 END 48 26 02.9 W 117 33 48.4		**Landowner:** LPNWR -
Site Number: 01	**Date:** 10/17/01	**Recorder(s):** cathy, Jackie, Eric	
Precipitation (in mm) for the 2 days prior to survey		**Survey type:** Main thread or Total Tributary	**Tributary Number:**

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
8	210		FP	DC	.7	.3	14	13	G				
9	240		FW	DC	.7	.4	14	14	G				
10	270	F1	FW	DC	.7	.3	10	11	S				
11	300	F2	FW	DC	1.0	.3	17	17	S				
12	330	F3	FW	DC	1.2	.3	12	11	G				
13	360		FW	DC	1.	.4	11	11	G				
14	390	F4	FW	DC	1.2	.2	11	10	S	SE			

Codes for Flow Categories: **FW** = Flowing Water, **SW** = Standing Water, **FP** = Flowing Pocket Water, **SP** = Standing Pocket Water, **D** = Dry, **U** = Unknown, **O** = Obscured.
Codes for Channel Categories: **DC** = Defined Channel, **PDC** = Poorly Defined Channel, **MC** = Modified Channel, **PC** = Piped Channel, **CC** = Covered Channel, **NC** = No Channel

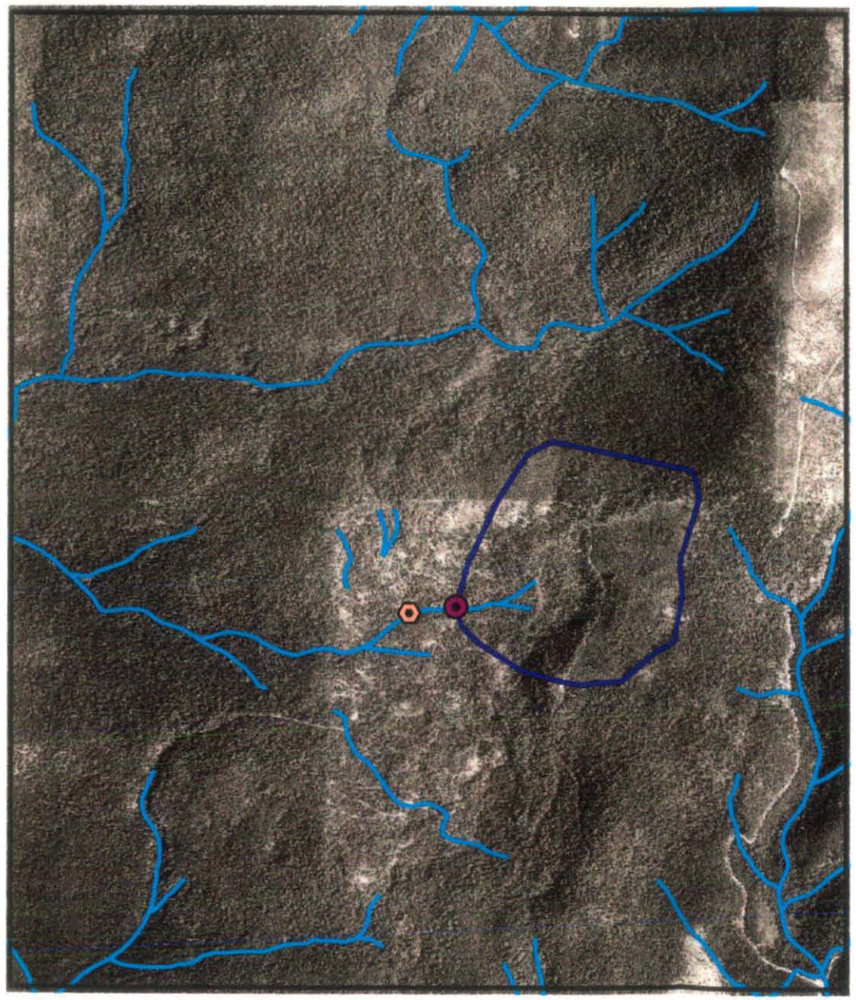
Back of Form B

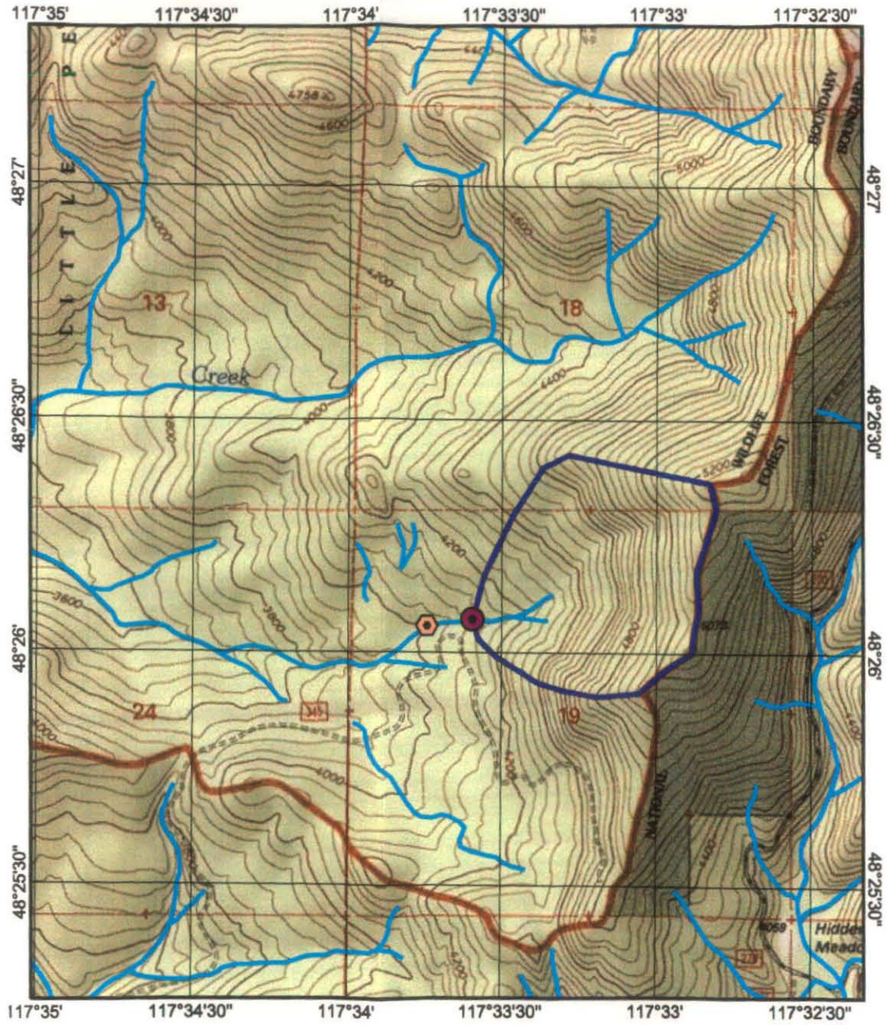
NOTES
Forested Wetland LB+RB
F1 at 290 m braided stream
at 300 m RB. Trib of FW
F2 Seg 11 Subsurfaces under-downed
woody debris & forest litter.
F3= at 350 m braided stream
returns LB & small seep
on RB
F4= Seep

SKETCH

Bear Creek

Bear Creek
Date of Survey 10/17/01
WAU: Little Pend Oreille Middle
WMUS: N/A
Quad: Calispell Peak
T 34 R 42 E S 19
48.4343900 -117.5610700
Basin Acreage: 171.051





0 0.5 1 Miles

1:24000

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CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

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- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem Upper	Stream Name: Stepstone Ck.	T/R/S T 33 R 30 S 11	Topoquad name: Moses Mountain
Organization: Colville Confederated Tribes TFW Fish & Wildlife Depth.	Description of start point (GPS optional): See Notes		Landowner: Colville Confederated Tribes
Site Number: 09-03	Date: 09-20-01	Recorder(s): R. Peone and E. Krausz	
Precipitation (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	D	MC			6	4	O				1
2	30-60		D	MC			4	6	O				2
3	60-90		D	PDC	0.1	0.1	4	5	O				3
4	90		D	PDC	0.1	0.2	8		O				4
4	120		D	MC						RC			MC/CULVERT
5	120-150		D	DC	0.1	0.25	8	6	O				
6	150-180		D	DC	0.1	0.2	7	9	O				
7	180-210		D	DC	0.1	0.3	14	20	B	SEEPS			
8	210-240	Y	FW	DC	0.25	0.3	15	12	B	SEEPS			8
9	240-270		FW	DC	0.2	0.1	14	18	Substrate	SEEPS			9
10	270-300		FW	DC	0.6	0.3	27	26	B	SEEPS			10
11	300-330		FW	DC	0.9	0.35	22	26	B	SEEPS			
12	330-360		FW	DC	0.1	0.25	20	45	G/B	SEEPS			12
13	360-390		FW	DC	0.13	0.5	19	18	B	SEEPS			
14	390-420	Y	FW	DC	0.1	0.4	20	15	G	Trib. LB			END 14

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured
Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Stepstone Creek
Seg. 1 MC due to past -
corridors - organic and woody debre
at 0 meters is DC for 2 meters.
Seg. 2 Appears to be a skid trail from logging
30 meters of no channel.
Seg. 3 Channel covered with woody debre.
Seg. 4 At 105 meters MC/Culvert 2'x2'
undefined channel, woody debre & organic material
Seg. 5 140 meters pocket of water
Seg. 8 10 yards on both sides of the stream channel are seeps
Present are boulders, cobbles and gravel, whole area on
this contour is a seep.
Seg. 9 Sand/Organic. Boulder in lower part.
Seg. 12 Channel under and around vegetation from bed.
Seg. 14 Side spring on LB looking downstream.
GPS READINGS
PIP N 48 22 05.4 W 119 00 54.7
START N 48 22 03.7 W 119 00 57.5
ROAD N 48 21 45.2 W 119 01 22.9
END N 48 21 18.8 W 119 00 56.8

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

Nespelem UPPER

WAU: Stepstone Cr.	Stream Name: Stepstone Cr.	T/R/S T33 R30 S11	Topoquad name: Moses Mountain
Organization: CCT TFW fish + wildlife	Description of start point (GPS optional): see notes		Landowner: Colville Confederated Tribes
Site Number: 09-03	Date: 9-20-01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: /

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		D	MC			6	4	O				1
2	30-60		D	MC			4	6	O				2
3	60-90		D	PDC	.1	.1	4	5	O				3
4	90		O	PDC	.1	.2	8	—	O				4
4a.	120		D	MC	—	—	—	—	—	RC			mc/culverts
5	120-150		D	DC	.1	.25	8	6	O				
6	150-180		D	DC	.1	.2	7	9	O				
7	180-210		D	DC	.1	.3	14	20	B	Seeps			
8	210-240		FW	DC	.25	.3	15	12	B	Seeps.			8
9	240-270		FW	DC	.2	.1	14	18	S	Seep.			9
10	270-300		FW	DC	.6	.3	27	26	B	Seep.			10
11	300-330		FW	DC	.9	.35	20	26	BP	Seep.			
12	330-360		FW	DC	.1	.25	20	45	G/B	Seep			12
13	360-390		FW	DC	.13	.5	19	18	B	Seep			
14	390-420		FW	DC	.1	.4	20	15	G	Trib LB.			END 14

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

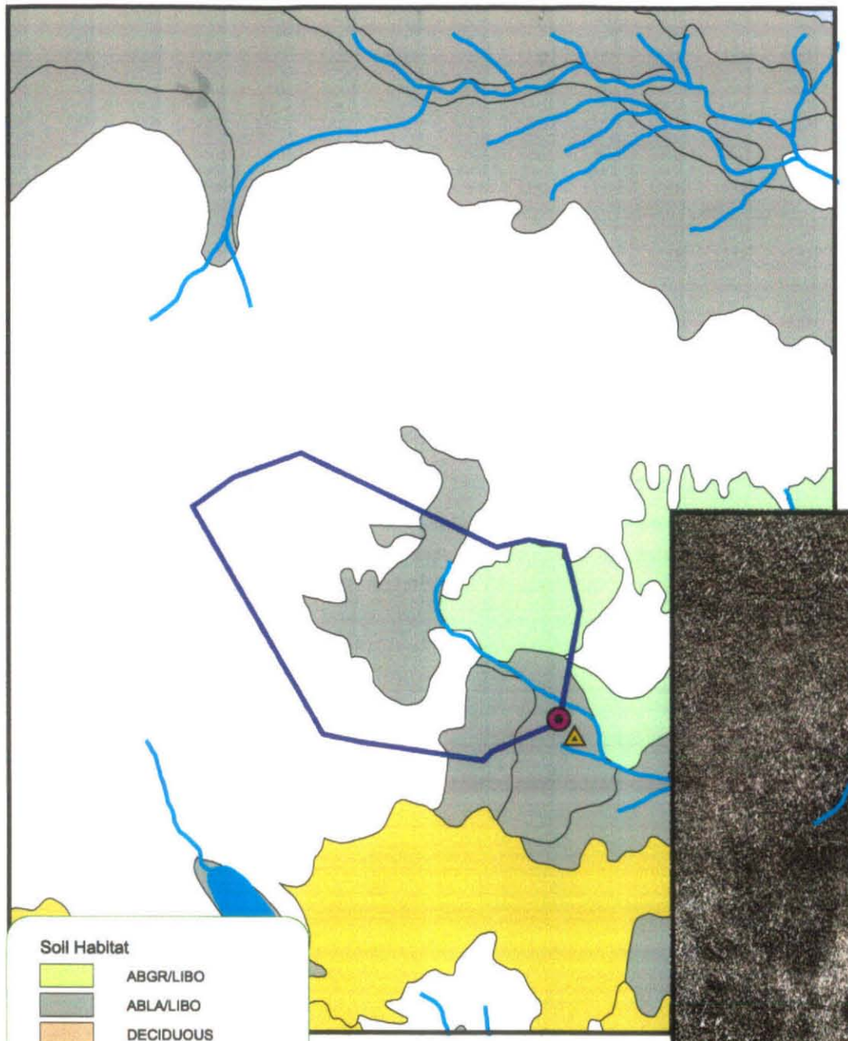
Back of Form B

NOTES
Seg. 1 MC Due to past logging - Corridors - organic and woody debre
At 0 meters is DC for 2 meters.
Seg. 2 appears to be a SKID TRAIL from logging. 30m of no channel.
Seg. 3 Channel covered with woody debre.
Seg. 4 At 105 m MC/culvert 2'x2' undefined channel -woody debre and organic material
Seg. 5 140m pocket of water
Seg. 8 10 yards on both side of the Stream channel are seeps. Present Boulder, cobble + gravel, Whole area on this contour is a seep.
Seg. 9 Sand/organic. Boulder in Lower part.
Seg. 12. Channel under and around vegetation head.
Seg 14 Side spring on LB Looking down stream.

SKETCH

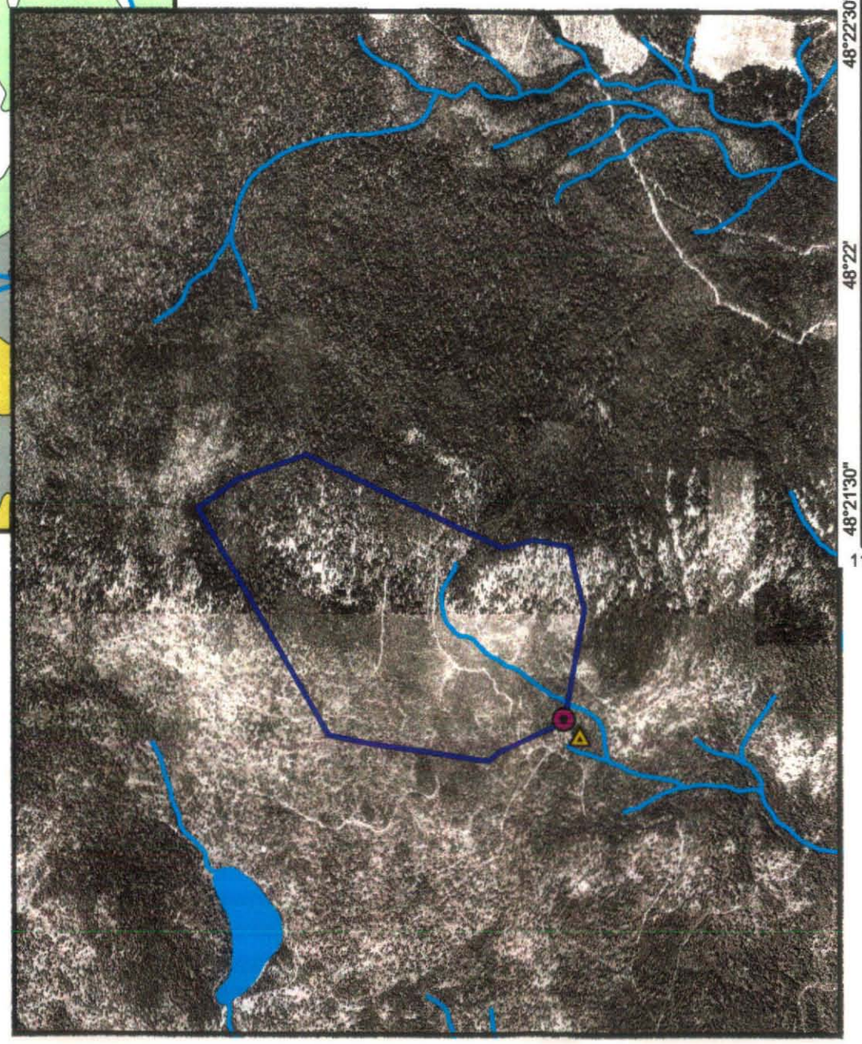
Stepstone Creek

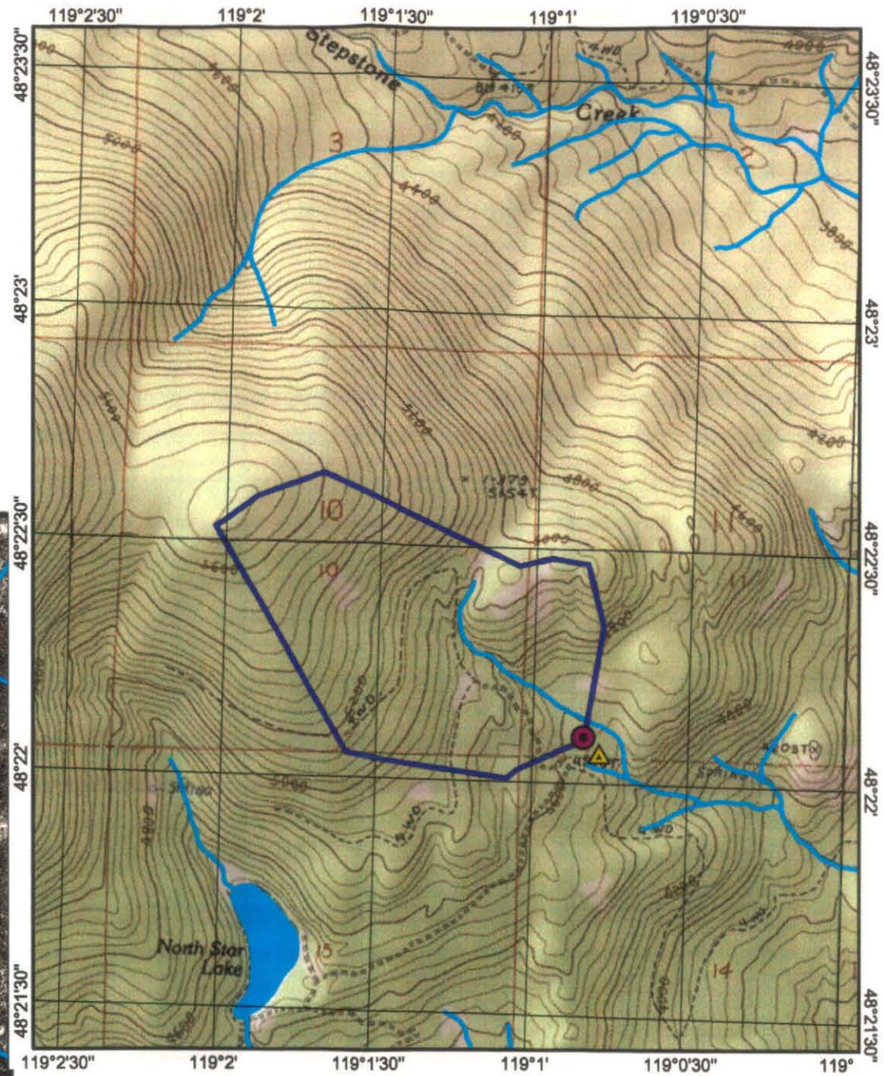
Stepstone Creek
Date of Survey: 8/30/01
WAU: Nespelem Upper
WMUS: Stepstone Creek
Quad: Moses Mountain
T 33 R 30 E S 11
48.3681700 -119.0151800
Basin Acreage 293.835



Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW





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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: HALL CREEK UPPER	Stream Name: Sleepy Hollow	T/R/S T34R35S31	Topoquad nameSitdown Mountain
Organization: Colville Confederated Tribes TFW Fish & Wildlife Depth.	Description of start point (GPS optional): PIP N 48 29 43.4 W 118 27 28.1 END N 48 29 38.1 W 118 27 29.1		Landowner; Colville National Forest
Site Number: 112	Date: 09-27-01	Recorder(s): R.Peone and E.Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	O	PDC	0.4	0.1	39	39	O				PIP FW
2	30-60		FW	DC	0.4	0.1	36	30	O				
3	60-90		FW	DC	0.3	0.1	32	16	Substrate				3
4	90-120		FW	DC	0.5	0.2	25	45	Substrate				
5	120-150		FW	DC	0.3	0.3	24	15	Substrate				
6	150-180		FW	DC	0.5	0.4	17	15	C				6
7	180-210	Y	FW	DC	0.4	0.4	15	15	Substrate				7. END

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Sleepy Hollow Creek
Densed stand of Alder at PIP site
Drainage/Spring
1. PIP starts down slope of road
no channel above PIP - no water in culvert
wet site above PIP includes willow, organic material covers streams
debth up to 0.5 m stream exposed once in a while then covered with
organic material.
2. A 35m stream appears
3. At about 75m two tribs. Meet left bank (LB)
4. At 90m another trib. Meets LB
5. At 120m channel braids out. At 145 single channel.
6. 1st half cobble second half boulder
7. 200m goes under groun (stream) then last 5m then stream appears
about 45m to 50m to the bottom of road.

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Sleepy Hollow	Stream Name: Sleepy Hollow	T/R/S T34R34S1	Topoquad name: Sitdown Mountain
Organization: CCT TFW Fish + Wildlife	Description of start point (GPS optional): P.D N 48 29 43.4 W118 27 28.1 END N 48 29 38.1 W118 27 29.1		Landowner: Colville Confederated Tribes
Site Number: 01-12	Date: 9-27-01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number:

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		O	PDC	.4	.1	39	39	O				1. PIP/FW
2	30-60		FW	DC	.4	.1	36	30	O				
3	60-90		FW	DC	.3	.1	32	16	S				3.
4	90-120		FW	DC	.5	.2	25	45	S				
5	120-150		FW	DC	.3	.3	24	15	S				
6	150-180		FW	DC	.5	.4	17	15	C				6.
7	180-210		FW	DC	.4	.4	15	15	S				7. END

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

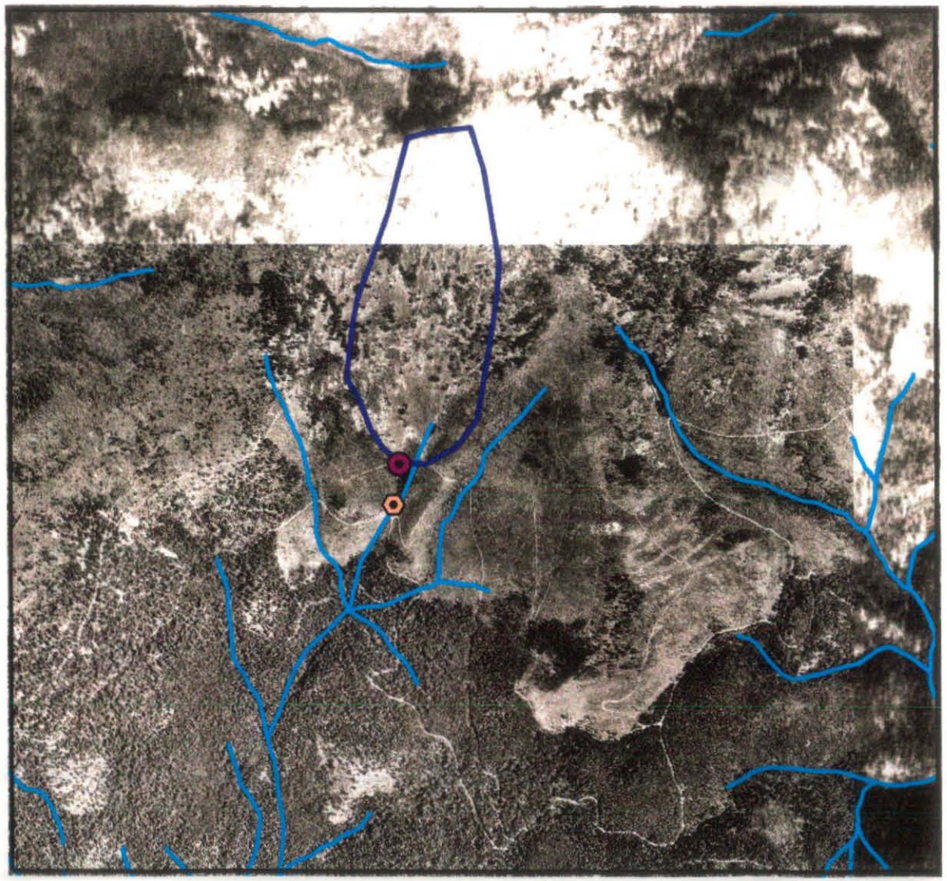
Back of Form B

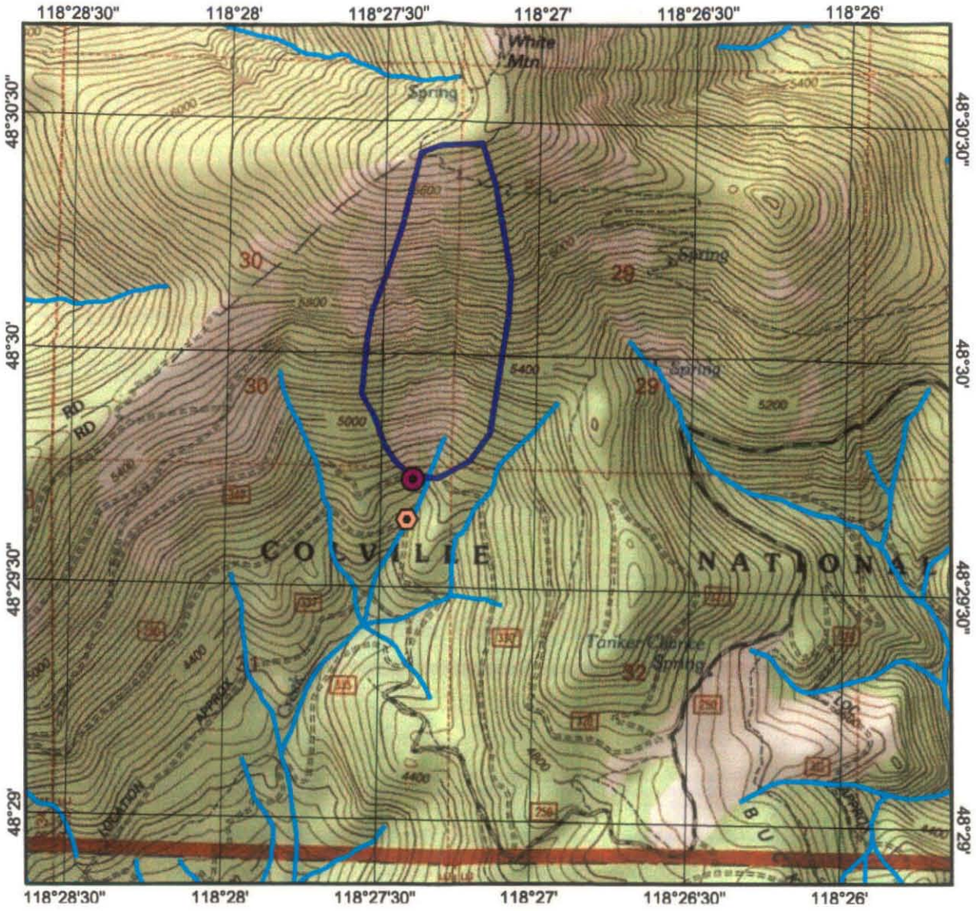
NOTES
Dense stand of Alder at PIP site.
Drainage / Spring
1. PIP starts down slope side of road
no channel above PIP - no water in culvert
Wet site above PIP includes willow, organic
material covers streams debt up to .5m,
stream exposed once in a while then
covered w/organic material.
2. A 35m stream appears
3. At about 75m two trib's meet LB
4. At 90m another trib. meets LB
5. At 120m channel braids out. At
145m single channel.
6. 1st ½ cobble 2nd ½ Boulder
7 200m goes under ground (stream)
then 5m (last) then stream appears
About 45 to 50m to bottom
road.

SKETCH

Sleepy Hollow Creek

Sleepy Hollow Creek
Date of Survey 9/27/01
WAU: Hall Creek Upper
WMUS: N/A
Quad: Sitdown Mountain
T 35 R 35 E S 31
48.4953800 -118.4578000
Basin Acreage: 143.560





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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU:North Fork of Salmon Cr.	Stream Name: Mutton Creek	T/R/S T 37 R 24 S 19	Topoquad name: Tiffany Mountain
Organization: Colville Confederated Tribes TFW/F&F Fish & Wildlife Dept.	Description of start point (GPS optional): SEE NOTES FOR GPS READINGS		Landowner; Okanogan National Forest
Site Number: 1	Date: 10-11-01	Recorder's): R. Peone, E. Krausz	
Precipitation (mm) for the 2 days prior to survey 0		Survey type: Main thread Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	FW	DC	0.7	0.1	27	27	C				GPS readings
	14		FW							seep			
2	30-60		FW	DC	0.8	0.5	24	33	C				
	30		FW							seep			
3	60-75		FW	DC	0.5	0.2							channel braided
	75		FW	DC	0.8	0.2	31	17	C	C			
	88-90		FW	DC									channel braided
4	90-100												channel braided
	100-120		FW	DC	0.5	0.4	34	34	C/B				
5	120-150		FW	DC	0.5	0.4	32	41	B				
	125									SPW			
6	180		FW	DC	O.5	0.5	37	33	B				
7	180-210		FW	DC	0.6	0.5	35	33	B				

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES Mutton Creek

PIP at three seeps located at base at three small draws that form a define channel. Seep extends up to 20m.

Seg. 5 at lower end 5m wide section is flowing under boulders organic and roots sustem of trees then emerges at Seb.6

GPS READINGS

PIP N48 41 05.4 W119 52 54.6

END OF SEGMENT N48 41 08.6 W119 52 44.7

ROAD N48 50 52.4 W119 52 27.6

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

AU: North Fork Salmon	Stream Name: Mutton Cr.	T/R/S T37R24S19	Topoquad name: Tiffany Mountain
ganization: CCT TFW Fish + Wildlife	Description of start point (GPS optional): See notes for GPS Reading		Landowner:
e Number: 01	Date: 10/11/01		Recorder(s): Ruby + Erie
ecipitation (in mm) for the 2 days prior to survey			Survey type: ~~Main thread~~ or Total Tributary Tributary Number: 1

ment ber	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		FW	DC	.7	.1	27	27	C				
	0-14		FW.							Seep.			
2.	30-60		FW	DC	.8	.5	24	33	C				
	30m		FW							Seep			
3	60-75		FW	DC	.5	.1½				CB.			3.
	75-88		FW	DC	.8	.2	31	17	C				
	88-90		FW	DC.						CB.			3
4	90-100		FW	DC						CB			4
	100-120		FW	DC	.5	.4	34	34	C/B				
5	120-180		FW	DC	.5	.4	32	41	B				
	@125									SPW			5
6.	150-180		FW	DC	.5	.5	37	33	B				
7	180-210		FW	DC.	.6	.5	35	33	B				

for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Spruce / DF.

PIT- located at Base of 3 small draws forms seeps that forms a defined channel. Seeps extend up to 20m.

Seg. 3 Channel braided splits into two pieces

- Channel braids again.

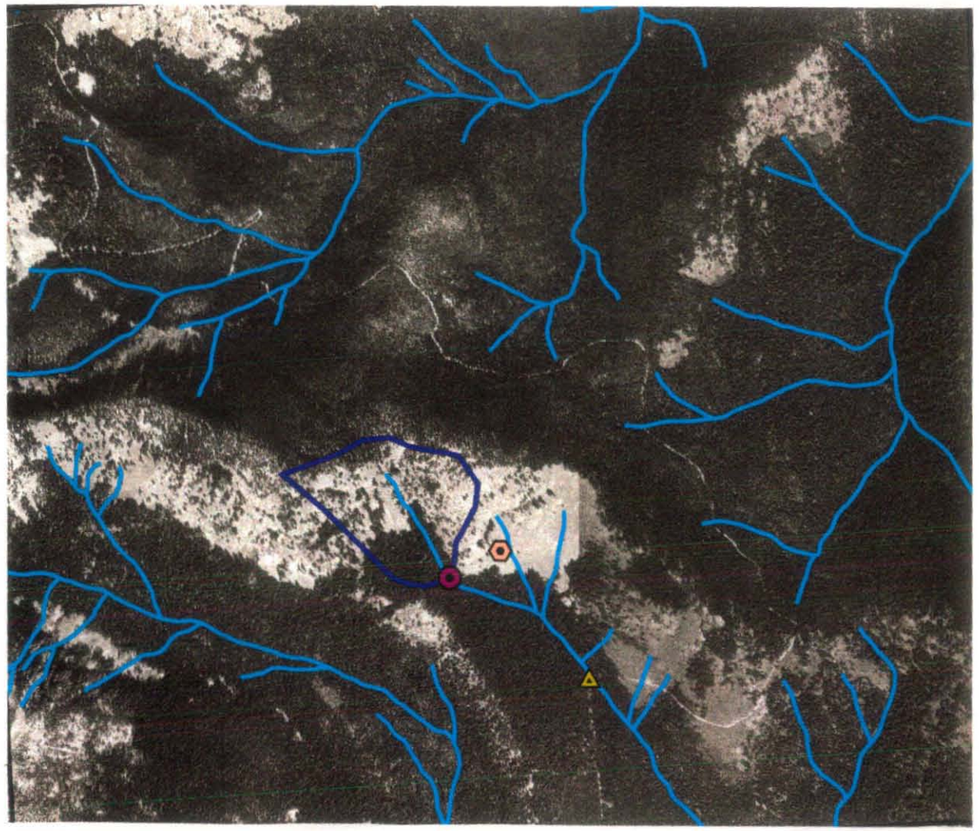
Seg. 4 Channel braids

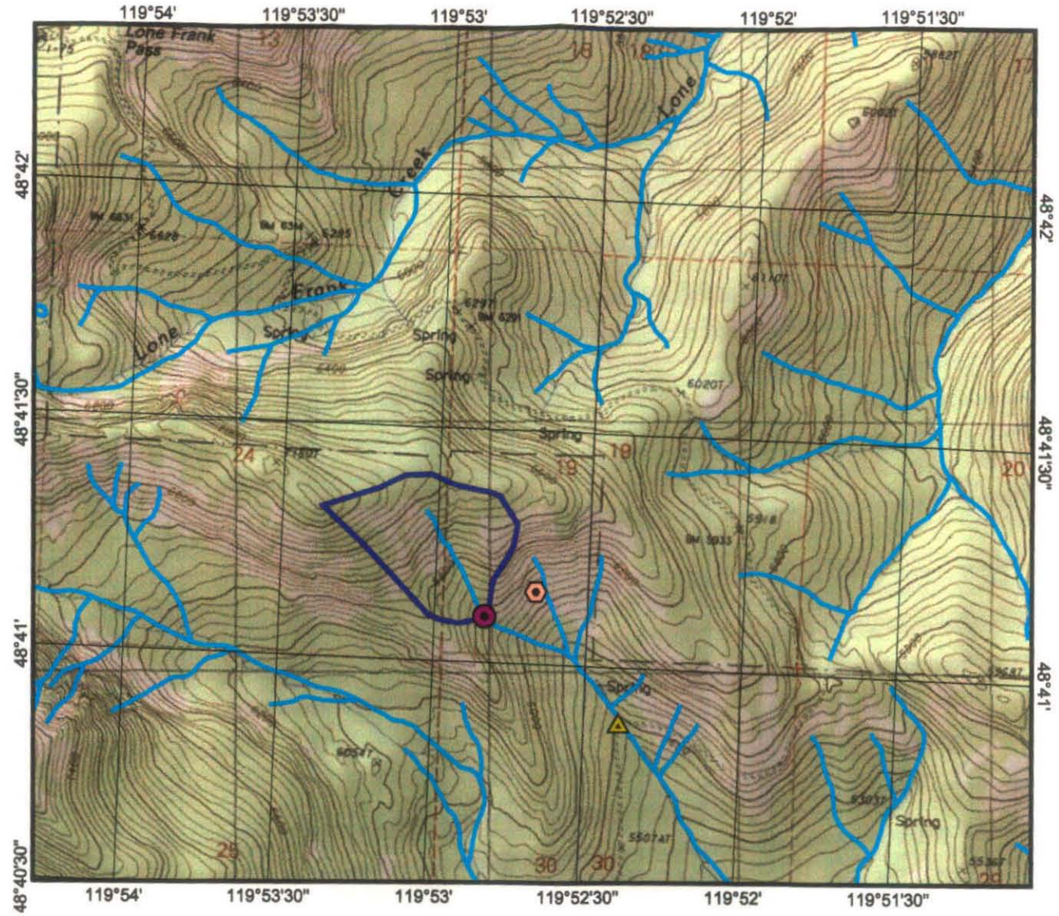
Seg 5. PW = Pocket H_2O to the right of stream.

- at lower end 5m wide section flowing under boulders + organic and root system of trees, then emerges at Seg. 6.

Mutton Creek

Mutton Creek
Date of Survey 10/11/01
WAU: Salmon Creek NF
WMUS: N/A
Quad: Tiffany Mountain
T 37 R 24 E S 19
48.6848200 -119.8818300
Basin Acreage: 67.452





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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem Upper	**Stream Name: Peel Cr.**	**T/R/S: T 32 R 30 S 21**	**Topoquad name:Moses Mountain**
Organization: CCT	**Description of start point (GPS optional):**		**Landowner: Landowner:**
Timber, Fish, and Wildflife/UCUT	**NAD 1983 Road N5346415217 E348837.642**		**Colville Confederated Tribes**
Site Number: 09-08	**Date: Sept. 5, 2001**	**Recorder(s): R. Peone**	
Precipitation (in mm) for the 2 days prior to survey 0		**Survey type: Main thread Tributary Number: 1**	

GPS N5346485 E348216015 Head Waters

Segment Number	Distance from Start(m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth	Up stream gradient (%)	Down stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
1	0		D	DC	1	0.2	9	11	F				
2	30		D	PDC	1	0.1	14	11	F				
2	42		D	DC	1.5	0.4			S				
3	60		D	DC	1.5	0.3	11	6	F				
4	90		D	PDC	1	0.25	10	8	F				
5	120		D	DC	1	0.1	6	8	F				
6	150		D	PDC	0.5	0.25	6	3	F				
7	180		SP	DC	1	0.1	4	4	F				
8	202		FW	DC	1	0.25	6		F	WS			
9	208		FW	DC	1	0.2	5	1	F	SP,WS	SE,FW	DC	1 RB
10	238		FW	DC	1	0.25	3	3	F				
11	268		FW	DC	0.5	0.3	5	5	F	WS			
12	298		FW	DC	0.5	0.25	4	8	F	WS			
13	328		FW	DC	0.5	0.3	5	3	F	WS/LB			
14	358		FW	DC	0.5	0.2	2		F				
15	368		FW	DC	1	0.2	1	4	F	WT	D	PDC	LB
16	398		FW	DC	1	0.2	2		F	WT			
17	413		FW	DC	1	0.3	5	1	G		D	DC	1 LB

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem Upper	Stream Name: Peel Cr.	T/R/S: T 32 R 30 S 21	Topoquad name:Moses Mountain
Organization: CCT	Description of start point (GPS optional):		Landowner: Landowner:
Timber, Fish, and Wildflife/UCUT	NAD 1983 Road N5346415217 E348837.642		Colville Confederated Tribes
Site Number: 09-08	Date: Sept. 5, 2001	Recorder(s): R. Peone	
Precipitation (in mm) for the 2 days prior to survey 0		Survey type: Main thread Tributary Number: 1	

GPS N5346485 E348216015 Head Waters

Segment Number	Distance from Start(m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth	Upstream gradient (%)	Down stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
18			FW	DC	1.5	0.2	2	3	G				
19			FW	DC	1.5	0.3	3	1	GF				
20			FW	DC	1	0.1	1	3	F				
21			FW	DC	1	0.2	1	2	F				
22			FW	DC	PDF				F				

Back of Form B

NOTES; Peel Creek
Seg. 1&2 CMZ / cattle impacted BFW + or - 0.5m / BFD + or - 0.1m
1. Junction of RB 10m trib. W/spring at head. Spring comes out from
under orphan road bed - no channel or flow evidence above (see map)
2. 20m of upstream of start gradient becomes steeper and cobble size
rocks.
Seg. 22 End of survey upstream of road culvert.
Seg. 17 5% on bend

SKETCH
see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem River	Stream Name: Peel Cr.	T/R/S T32 R30 S21	Topoquad name: Armstrong + Nespelem
Organization: TFW CCT Fish; Wildlife	Description of start point (GPS optional): ROAD 618 metres NAD 1983 (M) N5346415 217 E 348837.642		Landowner: CCT
Site Number: 09-08	Date: Sept. 5, 2001	Recorder(s): Ruby	Ele 2759
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

GPS ⇒ N 5346 485 E 3482160 63 head H2O's

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	30 ~~30~~		D	DC	1m	.2	9	~~9~~ 11	F				
2	30		D	PDC	1m	.1	~~13~~ 14	11	F				
2	42		D	DC	1.5	.4		7	~~F~~ FS				
3	60		D	DC	1.5	.3	11	~~4~~ 6	F				
4	90		D	PDC	1m	.25	10	~~8~~ 8	F				
5	120		D	PDC	1	0.1	6	(8)	F				
6	150		D	DC	0.5	.25	6	3	F				
7	180		D	PDC	1m	.1	4	4	F				
8	~~210~~ 202		SP	~~DC~~	1m	0.25	6		F	WS			
9	208		FW	DC	1m	0.2	5%	(1)	F	SP, WS ⇒ SE	FW	DC	0 RB
10	238		FW	DC	1	.25	3	3	F				
11	268		FW	DC	0.5	.3	5	5	F	WS			
12	298		FW	DC	.5	.25	4	8	F	WS			
13	328		FW	DC	0.5	.3	5	3	F	WS (LB)			
14	358		FW	DC	0.5	.2	2		F				
15	368		FW	DC	1.0	.2	1	4	F	WT	D	PDC	LB
16	398		FW	DC	1.0	.2	2		F	WT			

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, NC = No Channel
[Codes for Associated Features: SP = Spring, SE = Seep, PT = Perennial Tributary, WT = Wetland, BP = Beaver Pond, GB = Gradient Break, DS = Debris Slide, RC = Road Crossing, RD = Road Drainage Input, DI = Diversion, WS = Wet Site, SU = Substrate Change, OT = Other (describe in notes)]

413

Back of Form B

NOTES

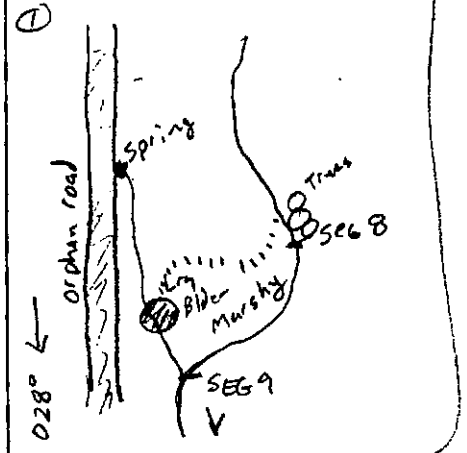
Segm. 1+2 CMZ / Cattle impacted
BFW +or- 0.5m / BFD +-or- 0.1m
~~Segment 7 Spring Right Bank.~~
① Junction of RB 10m trib w/spring at head ~~trend~~
Spring comes out from under orphan road bed - NO
tunnel or flow evidence above (see map)

② 20 m d upstream of start gradient
becomes steeper and cable size rocks

Seg. 22 End of survey upstream of
road culvert.

Seg. 17. 5% on bend.

SKETCH



Page _____ of _____

lake

566
501

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem River	Stream Name: Peel Cr.	T/R/S T32R30S21	Topoquad name: Armstrong + Nespelem
Organization: TFW, CCT Fish & Wildlife	Description of start point (GPS optional): Road. N5346415.217 E348837.642		Landowner: CCT
Site Number: 09-08	Date: 9-5-01	Recorder(s): Ruby	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
17	413		FW	DC	1.0	.3	5	1	G		D	BC DC	LB D
18	446		FW	DC	1.5	.2	2	3	G				
19	476		FW	DC	1.5	.3	3	1	G&F				
20	506		FW	DC	1.0	.1	1	3	F				
21	536		FW	DC	1.0	.2	1	2	F				
22	801		FW	DC/PDF/~~PDC~~					F				
	END	OF SURVEY	upstream	side	of Road	Culvert.							

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, NC = No Channel
[Codes for Associated Features: SP = Spring, SE = Seep, PT = Perennial Tributary, WT = Wetland, BP = Beaver Pond, GB = Gradient Break, DS = Debris Slide, RC = Road Crossing, RD = Road Drainage Input, DI = Diversion, WS = Wet Site, SU = Substrate Change, OT = Other (describe in notes)]

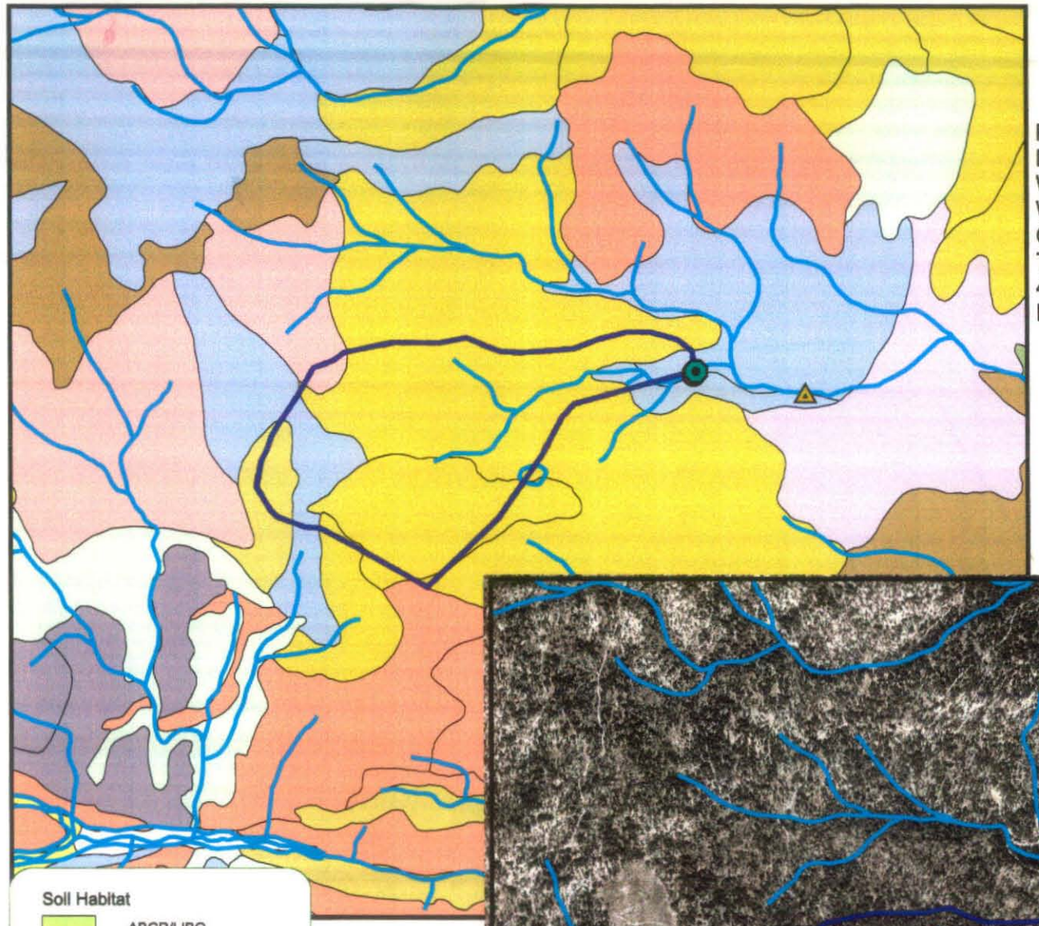
Back of Form B

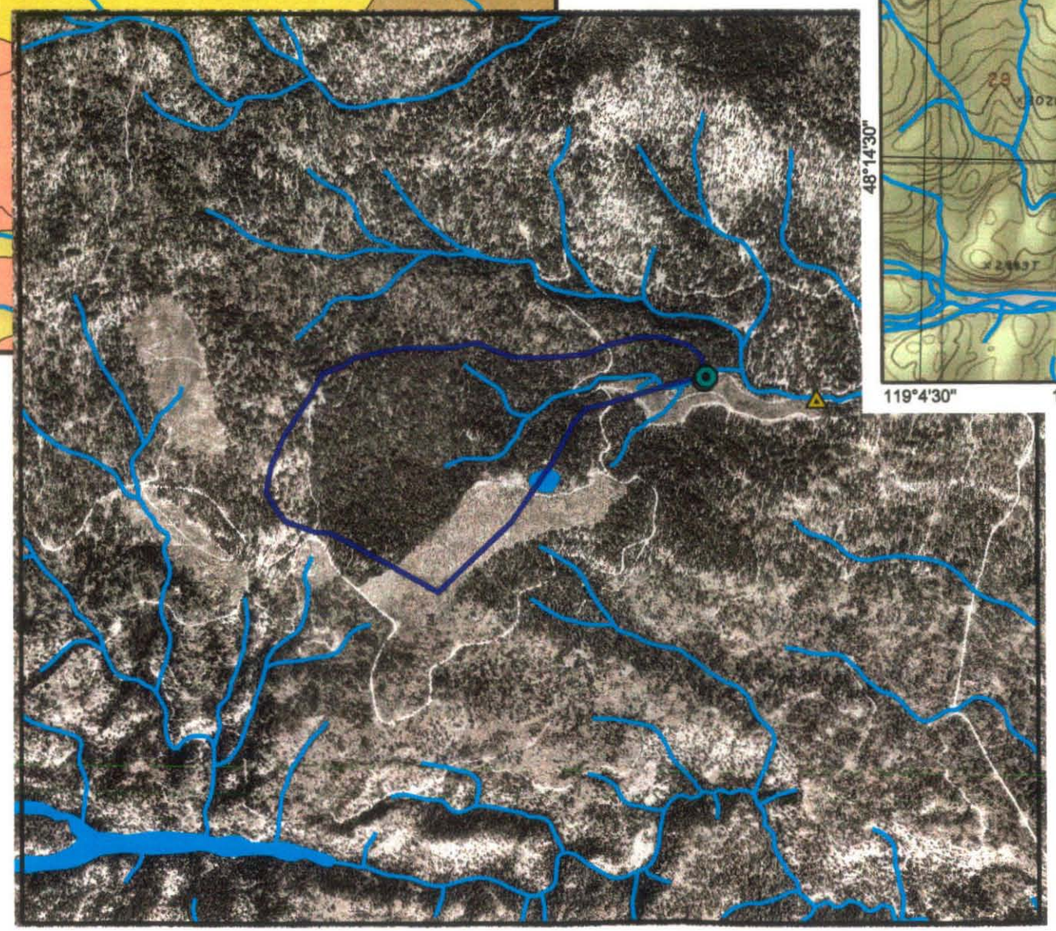
NOTES
① 5% on bend.

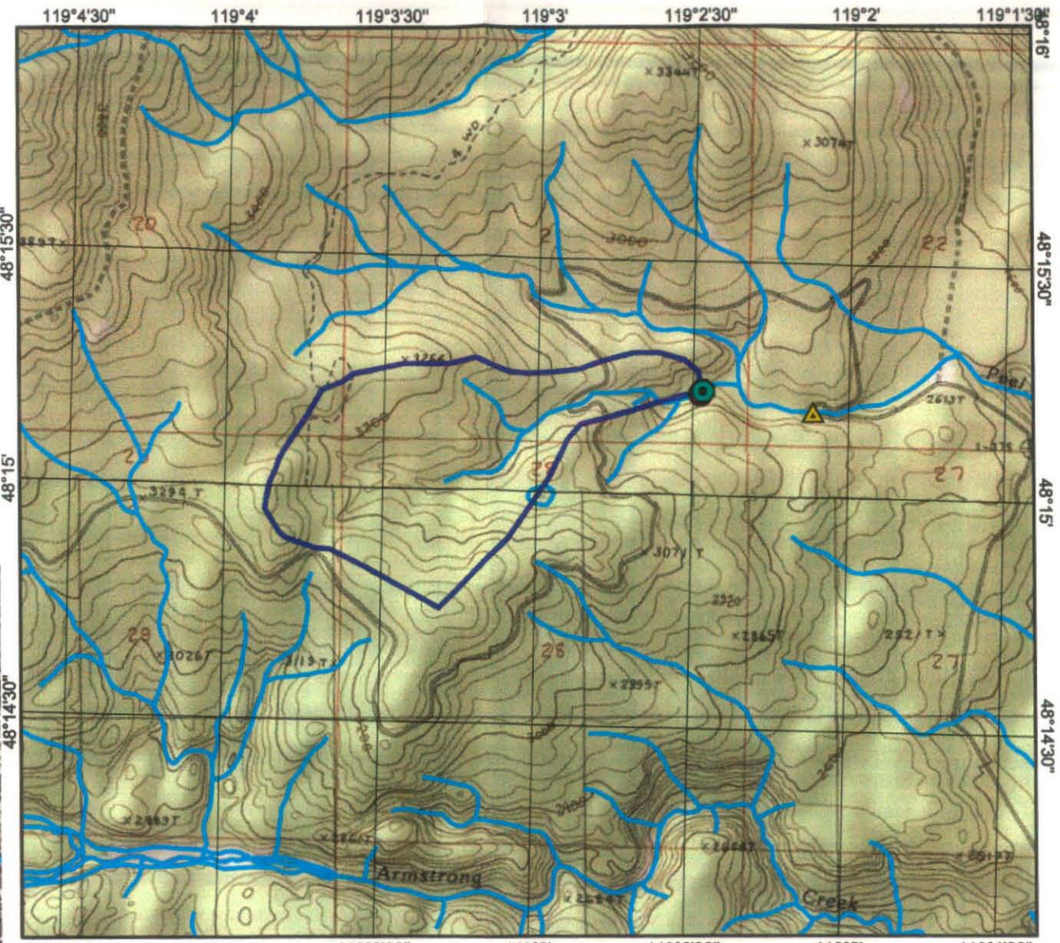
SKETCH

Peel Creek

Peel Creek
Date of Survey: 9/4/01
WAU: Nespelem Upper
WMUS: Peel Creek
Quad: Moses Mountain
T 32 R 30 E S 21
48.25346053 -119.0424818
Basin Acreage: 226.845







Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: UPPER NESPELEM	Stream Name: Kinkaid Cr.	T/R/S T 32 R 31 S 10	Topoquad name: Stepstone creek
Organization: Colville Confederated Tribes TFW Fish & Wildlife Depth.	Description of start point (GPS optional): PIP N 48 17 06.4 W 118 54 34.8 ROAD N 48 17 20.5 W 118 54 56.1		Landowner; Colville Confederated Tribes
Site Number: 09-02	Date: 09-13-01	Recorder(s): R. Peone, E. Krausz, T Jafari	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		D	PDC	0.8	0.2	3	3	F				
2	30-60		D	PDC	0.9	0.15	3	3	G				
3	60-90		D	DC	1	0.3	3	3	G				
4	90-120		D	DC	1.3	0.2	2	2.5	G				
5	120-150		D	DC	1	0.1	2	3	G				
6	150-180		D	DC	1.2	0.3	4	4	G				
7	180-210		D	DC	0.8	0.1	7	8	G				
8	210-240	Y	SW	DC	1.6	0.2	7	5	G	SP			SP feed spring
9	240-270		FW	DC	1.8	0.3	9	5	G				
10	270-300		FW	DC	2	0.2	8	5	G				
11	300-330		FW	DC	1.5	0.25	7	8	G				
	307				1	0.3		15	G		FW	DC	SIDE TRIB.
12	330		FW	DC	1.3	0.45	10	10	G	SP			
13	360		FW	DC	1.5	0.3	6	12	G				
14	390		FW	DC	2	0.3	6	12	G				
	420												end point

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Kinkaid Creek
Downstream Survey
Start poin is located West of road, 150m past end of sharp corner,
below East facing ridge. PIP is West- southwest approx. 100m/ flagging
at road is orange and white with orange dots on west right side of road.
Seg. 8 small seep area extending 10m.
On left side of down stream direction approx. 15m from start.
Seg. 9 small seep extending 15m. On both side approx. 45m. from start
Seg. 10 seep (10 x 15m) located on right side down stream direction
approx. 75m. from start.
Seg. 11 side trib. Branches from right side of stream (down stream
direction) at 97m. From start. Tributart runs 30m. Reaching spring site.
GPS for spring N 48.17.154' W 118.54.534'
Entire stream has large amounts of large downed wood throughout.
Seg. 12 seep on right side of stream at 150m. From start
(approximately 15m x 10m in size).

SKETCH

SEE ORIGINAL COPIES OF FIELD FORMS

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

3

KinKaid Cr.

AU: Upper Nespelem	Stream Name: Kincaid Cr.	T/R/S T32 R31 S10	Topoquad name: Stepston Creek
ganization: Fish & Wildlife (TFW)	Description of start point (GPS optional): PiP N48 17 06.8 W118 54 348 Road N48 17 20.5 W118 54 56.1		Landowner: Colville Conf. Tribe
e Number: 0902	Date: 09/13/01	Recorder(s): Eric Krause	
ecipitation (in mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: 1

starting point

ment ber	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
Dry channel → 1	0		D	PDC	.8	.2	3%	3%	F				
2	30		D	PDC	.9	.15	3%	3	G				
3	60		D	DC	1.0	.3	3	3	G				
4	90		D	DC	1.3	.2	2	2 1/2	C				
5	120		D	DC	1.0	.1	2	3	G				See notes
6	150		D	DC	1.2	.3	4	4	G				
7	180		D	DC	.8	.1	7	8	C				S NOTE
Spring fed PIP → 8	210		SW	DC	1.6m	.2m	7%	5%	Gravel	SP		30 ft [illegible]	
9	240		FW	DC	1.8m	.3m	9%	5%	G				
10	270		FW	DC	2.0m	.2m	8%	5%	G				
11	300		FW	DC	1.5m	.25m	7%	8%	G				
Side trib.	307	N48°17.149' W118°54.556	—	—	1.0m	.3m		15%	G		FW	DC	
12	330		FW	DC	1.3m	.45m	10%	10%	Cobble				
13	360		FW	DC	1.5m	.3m	7%	5%	G				
14	390		FW	DC	2.0m	.3m	6%	12%	G				
End point	420												

for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

(5) 135/150 PDC

(7) 190 M - channel MZ last for 10 M

Eric 935-6605

Kincaid

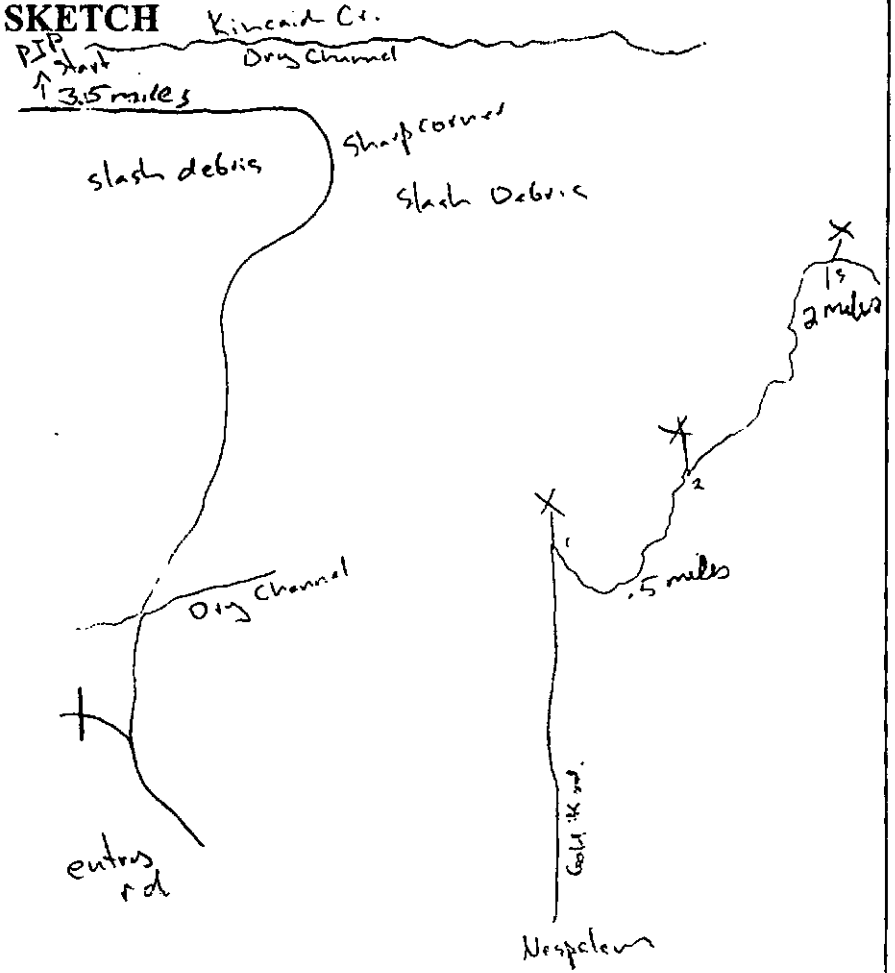
Kincaid Cr.
(downstream surveys)

Back of Form B

NOTES-start point is located W of road, 150m past end of sharp corner, below NE facing ridge. PIP is West - Southwest approx. 100 m. / flagging & road is orange & white w/orange dots on white right side of road
- start elevation (PIP) 2909' from GPS location -

Segment 8 small seep area extending 10m on left side of downstream direction approx. 15m from start.
Segment 9 small seep extending 15m on both sides, approx 45m from start.
Segment 10 seep (10x15m) located on right side downstream direction approx. 75m from start
Segment 11 - side trib branches from right side of stream (downstream direc.) @ 97 m from start. Trib. runs 30m reaching spring site.
GPS for spring - N 48° 17, 154' W 118° 54, 334'
- Entire stream has large amounts of large downed wood throughout.
Segment 12 - seep on right side of stream @ 150m from start (Approx. 15m x 10m in size)

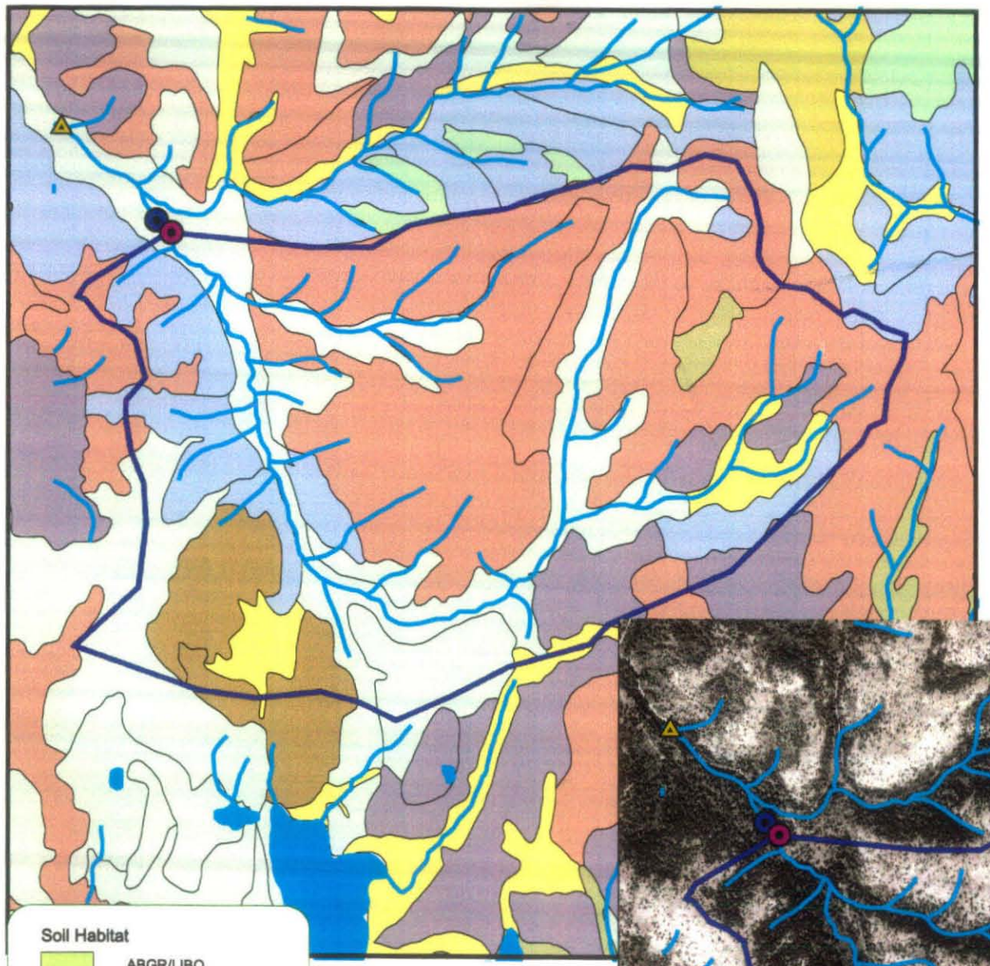
SKETCH Kincaid Cr.



- should be 3 right turns off of Gold 1K rd coming from Nespelem.

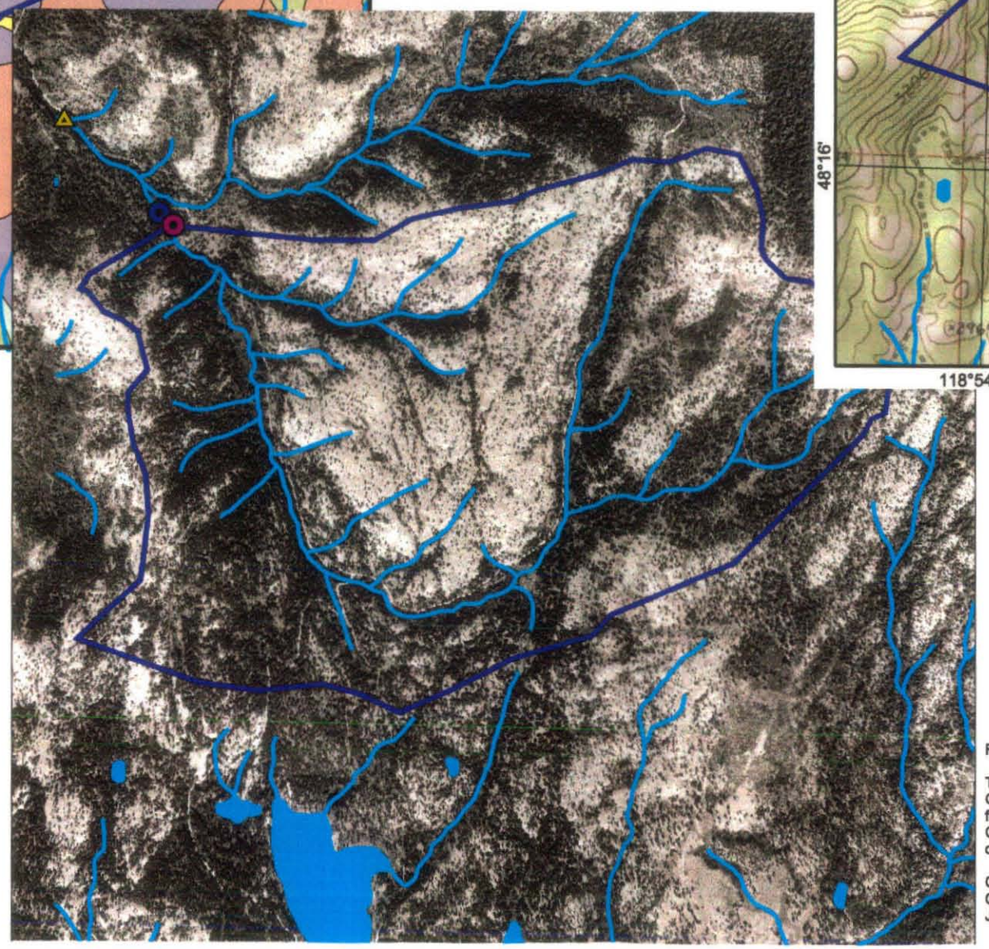
Kinkaid Creek

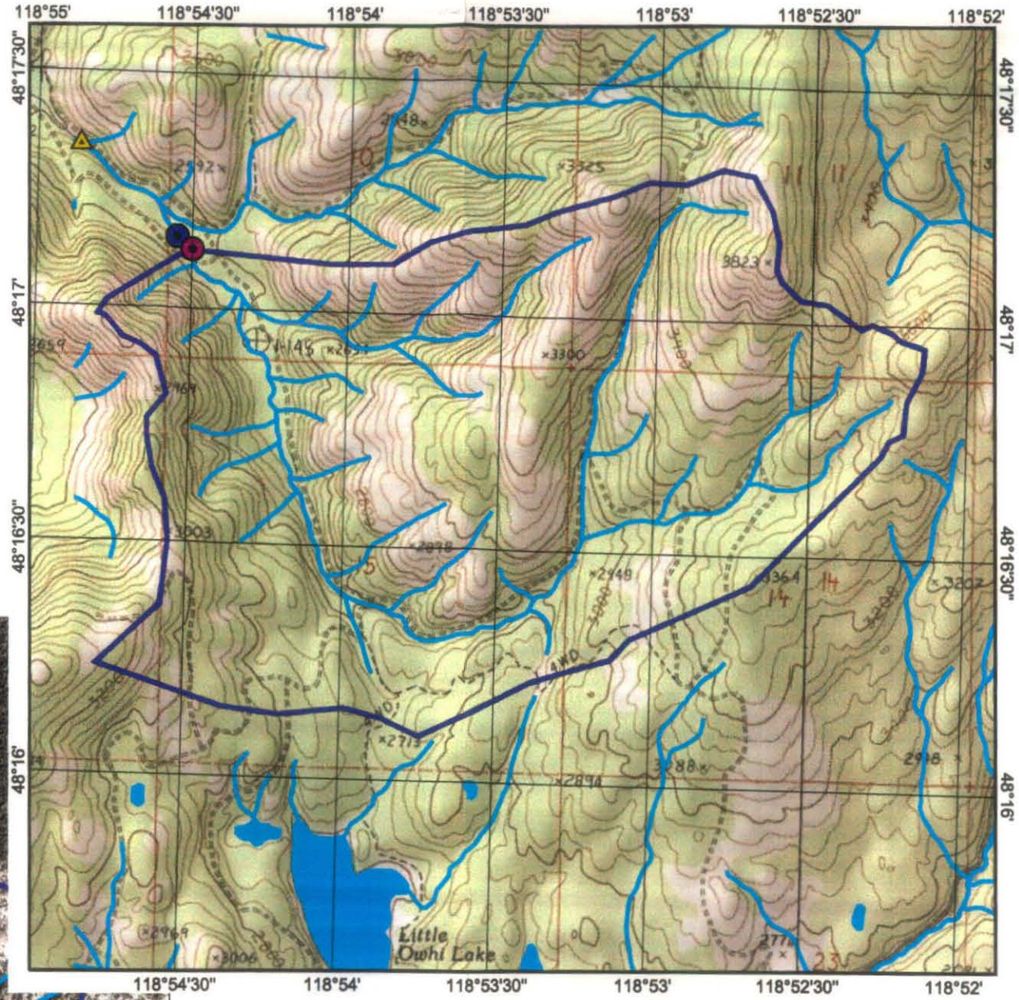
Kinkaid Creek
Date of Survey: 09/13/02
WAU: Nespelem Upper
WMUS: Stepstone Creek
Quad: Stepstone
T 32 R 31 E S 10
48.2852800 -118.9095200
Basin Acreage 1202.058



Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW





0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Lynx-Hall	Stream Name: Lynx Cr. 01	T/R/S T 33 R34 S10	Topoquad name: Twin & Cody Lks
Organization: Colville Confederated Tribes TFW/FFR Fish & Wildlife Depth	Description of start point (GPS optional): SEE NOTES		Landowner; Colville Confederated Tribes
Site Number: 01-17	Date: 09-26-01	Recorder(s): R. Peone & E. Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Surv type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	D	DC	0.5	0.2	27	25	G				
2	30-60		D	DC	0.6	0.2	22	20	B				
3	60-90		D	DC	0.6	0.2	22	16	C				
4	90-120		D	DC	0.6	0.2	11	11	O				
5	120-135		D	MC									MC/CULVERT
6	135-150		D	DC	0.5	0.1		18	O				
7	150-165		D	MC									MC/CULVERT
8	165-195		D	DC	0.8	0.2	29	19	Substrate				
9	195-225	Y	FW	DC	0.7	0.2	26	21	Substrate				
10	225-240		FW	DC	0.6	0.3	15		Substrate				
11	240-255		D	MC									MC/CULVERT
12	255-285		FW	DC	0.5	0.2	20	20	Substrate				
13	285-315		FW	DC	0.5	0.2	19	22	B				
14	315-345		FW	DC	0.5	0.3	28	35	B				notes
15	345-375		FW	DC	0.7	0.3	18	23	G/O				
16	375-405		FW	DC	0.5	0.2	18	19	Substrate				
17	405	Y	END										END

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Lynx Cr. 01
Seg. 14 flow is obscured by down woody material
GPS READINGS
PIP N 48 22 17.2 W118 30 03.6
START N 48 22 23.1 W 118 30 10.9
END N 48 22 17.0 W 118 29 54.7

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Lynx Cr.	Stream Name: LynxCr.01	T/R/S T33 R34 S10	Topoquad name: Twin + Cody lakes
Organization: CCT TFW Fish + Wildlife	Description of start point (GPS optional): see notes		Landowner: Colville Confederated Tribes
Site Number: 01-17	Date: 9-26-01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey		Survey type: (Main thread) or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		D	DC	.5	.2	27	25	G				
2	30-60		D	DC	.6	.2	22	20	B				
3	60-90		D	DC	.6	.2	22	16	C				
4	90-120		D	DC	.6	.2	11	11	O				
5	120-135		D	MC									mc/culvert
6	135-150		D	DC	.5	.1	—	18	O				
7	150-165		D	MC									mc/culvert
8	165-195		D	DC	.8	.2	29	19	S				
9	195-225		FW	DC	.7	.2	26	21	S				
10	225-240		FW	DC	.6	.3	15	—	S				
11	240-255		D	MC									mc/culvert
12	255-285		FW	DC	.5	.2	20.	20	S				
13	285-315		FW	DC	.5	.2	19	22	B				
14	315-345		FW	DC	.5	.3	28	35	B				notes.
15	345-375		FW	DC	.7	.3	18	23	G/O				
16	375-405		FW	DC	.5	.2	18	19	S				
17	405		END										END

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

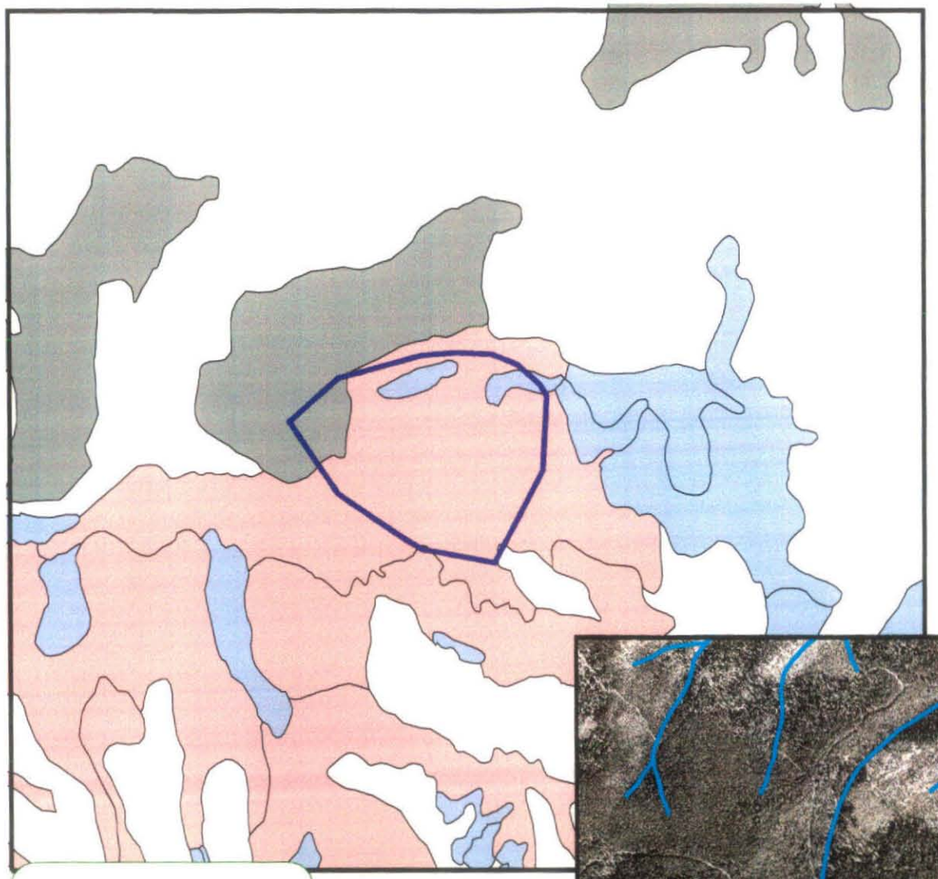
Back of Form B

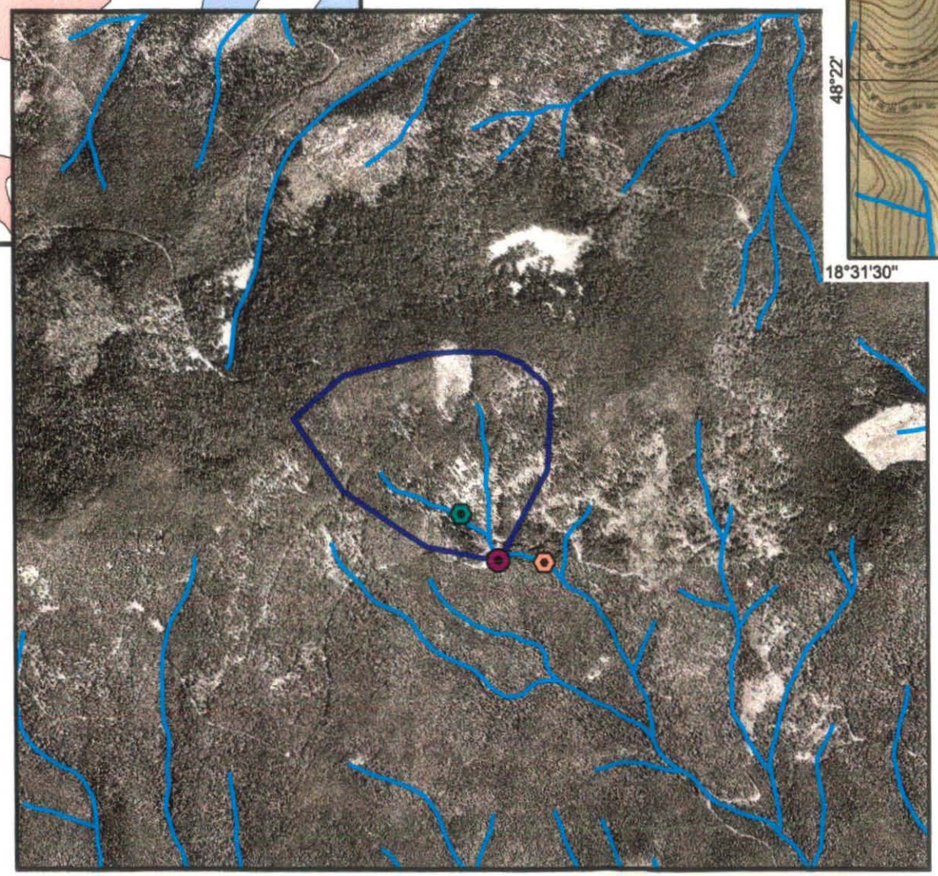
NOTES
14. Seg - flow is obscured by down woody debre. (material) and organic material.

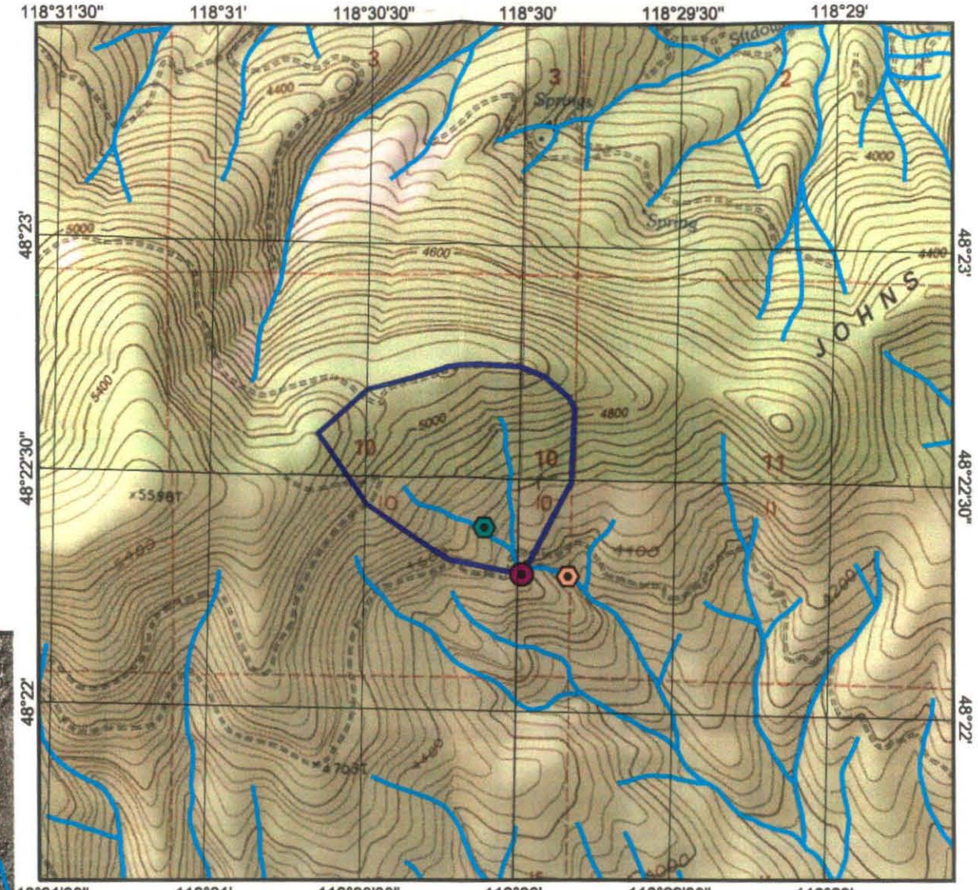
SKETCH

Lynx Creek

Lynx Creek
Date of Survey:9/26/01
WAU: Lynx-Hall
WMUS: Upper Lynx Creek
Quad: Twin Lakes / Cody Lake
T 33 R 34 E S 10
48.3714500 -118.5009900
Basin Acreage: 147.638







Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Nespelem Upper	Stream Name: Smith Creek	T/R/S T 31 R 30 S4	Topoquad name: Armstrong Creek
Organization: Colville Confederated Tribes TFW Fish & Wildlife Depth.	Description of start point (GPS optional): See Notes		Landowner: Colville Confederated Tribes
Site Number: 09-10	Date: 09-12-01	Recorder(s): R.Peone and E.Krausz	
Precipitation (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary Tributary Number: 1	

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0		FW	PDC	3	0.15	14	31	F				
2	30		FW	DC	2	0.2	21	14	Substrate	steep slope			
3	60		FW	DC	1.3	0.25	10	9	G				
3	45				1	0.2			G		D	DC	dry side trib.
4	90		FW	DC	2	0.3	10	8	G				
5	120		FW	DC	1	0.3	6	4	F				
6	150		FW	DC	1.3	0.35	3	5	F				
7	180		FW	DC	1.2	0.4	8	8	F				
	210												

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Smith Cr.
Distanc from road (upstream) 2264ft. (approx. 690m) To PIP
PIP channel starts from South facing slope(17%) emerging from the
slope at spring (20m. Wide). Spring emerges from several points
within the 20m zone.
Temp. @ PIP Air 20 deg. C (73 deg. F)
11:00am Stream 8 deg.C, 47 deg. F
Temp. @ End Point Air 72 deg. F; water 11 deg. C, 3:00pm.
Dry trib. @ 45m from start of PIP on right side of downstream orientation
End Point Alt. 2402 ft.
road crossing N 48 12. 973' W 119 03.137'
All seg. Except 1 & 2 had been effected by cattle trampling the stream
bed.
Fish were found from Seg. 2 downstream.
Many Garter Snakes and Western Toads were found.
No channel trib. Or dry streambed above the PIP.
GPS READINGS IN LAT./LONG.
SMITH 1 N 48 13 12.5 W 119 03 20.1
SMITH 2 N 48 13 08.9 W 119 03 19.4
SMITH RD N 48 12 58.0 W 119 03 12.2

SKETCH

SEE ORIGINAL COPIES FOR MAP

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

AU: Nespelem Upper	Stream Name: Smith Cr.	T/R/S T31 R30 S5	Topoquad name: Armstrong Creek
ganization: Colville Conf. Tribe Fish & Wildlife / TFW	Description of start point (GPS optional): See notes		Landowner: CCT
e Number: 0910	Date: 09/12/01	Recorder(s): Eric Kraus	
ecipitation (in mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: /

ment ber	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
					overall spin 20m wide								
1	0m	N48°13.217' W119°03.369'	FW	PDC	3m	.15m	14%	31%	F				
2	30m		FW	DC	2m	.2m	21%	14%	S	steep slope			
dry side Trib 3	60m		FW	DC	1.3m	.25m	10%	9%	G				
3	45m				1m	.2m			G		D	DC	
4	90m		FW	DC	2m	.3m	10%	8%	G				
5	120m		FW	DC	1m	.3m	6%	4%	F				
6	150m		FW	DC	1.3m	.35m	3%	5%	F				
7	180m	N48°12.153' W119°02.251'	FW	DC	1.2m	.4m	8%	8%	F				
End Point	210m												

for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured,
for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

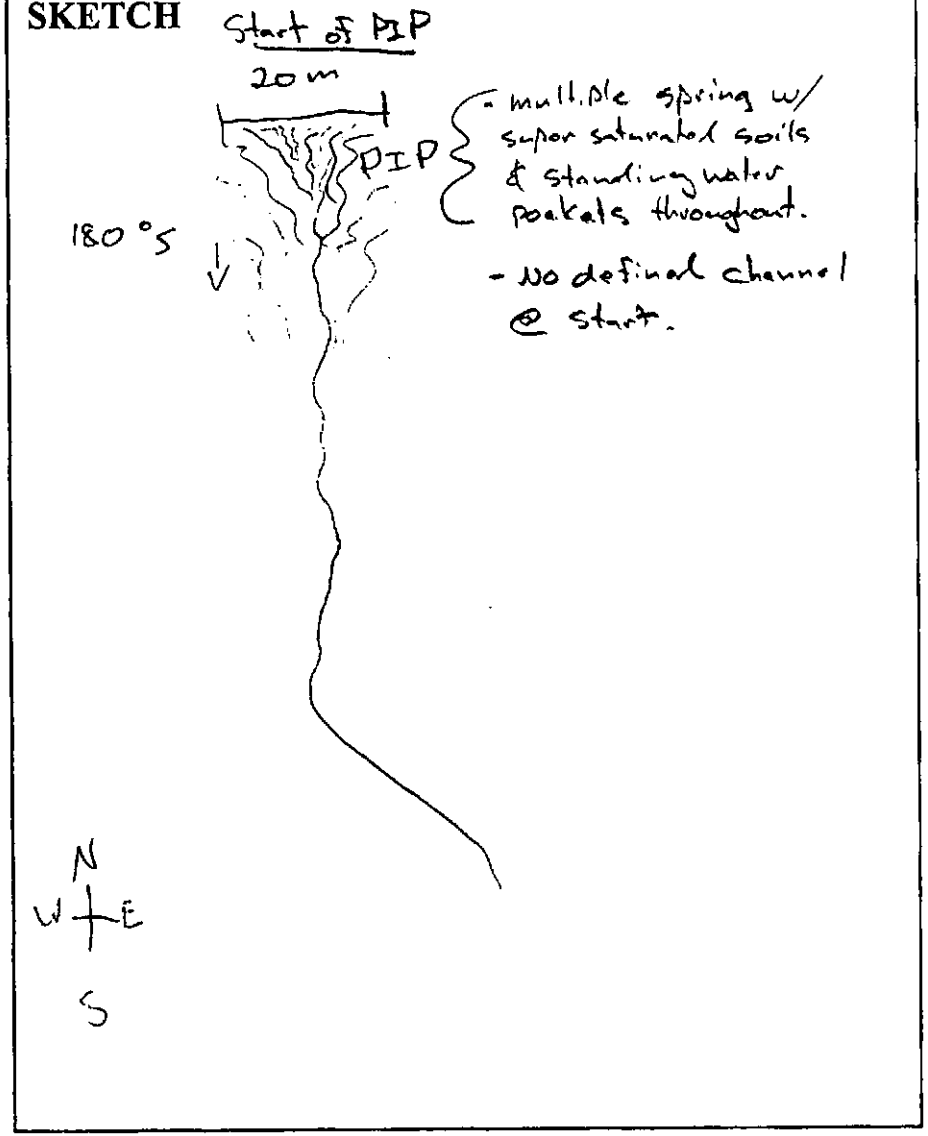
PIP
ASH
- Black Hawthorne - Smith Cr.
- acorn spring
- mountain maple
- black cottonwood
- water birch

Back of Form B

NOTES Distance from road (upstream) 2264 ft to PIP. approx. 690 m

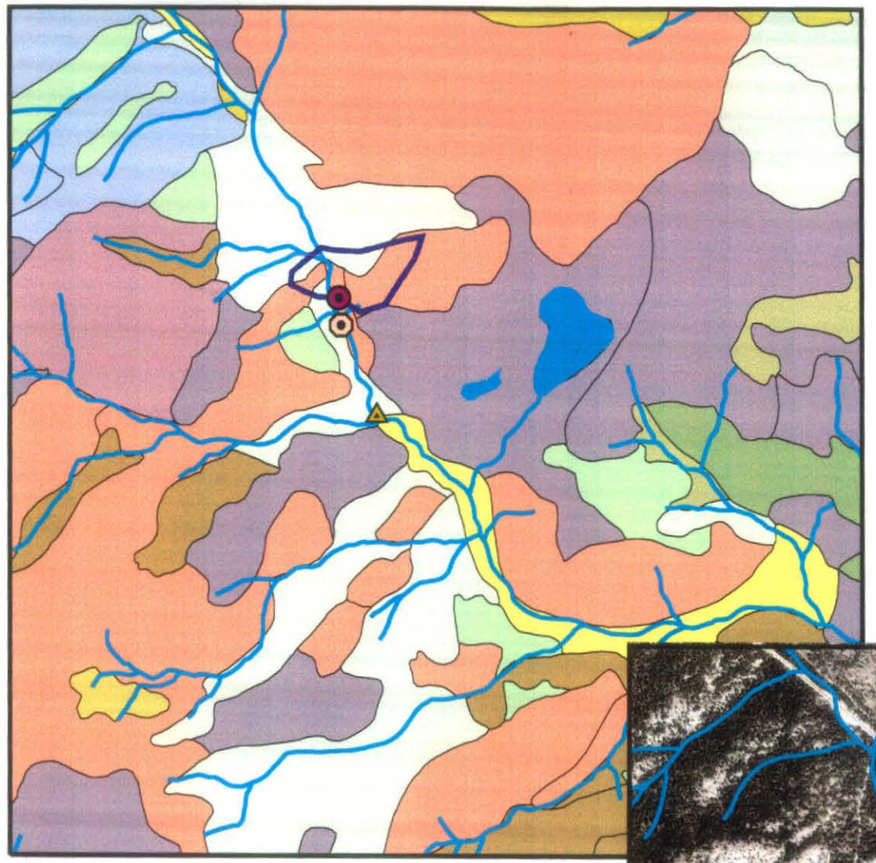
- PIP channel starts from South facing slope (17%) emerging from the slope @ spring 20 m wide. Spring emerges from several points within the 20 m zone.
- temp @ PIP (Air 73°F) 20°C
  11:00 am (Stream 47°F) 8°C
- Temp. @ End point Air 72°F / water 11°C (3 PM)
- Dry trib @ 45 m from start of PIP on right side of downstream orientation.
- Endpoint Alt - 2402 ft.
- road crossing N 48° 12.973'
  W 119° 03.137'
- all segments except (1 & 2) had been effected by cattle trampling the streambed.
- Fish were found from segment 2 downstream.
- Many Garter snakes / Western toad
- No channel, trib. or dry streambed above the PIP.

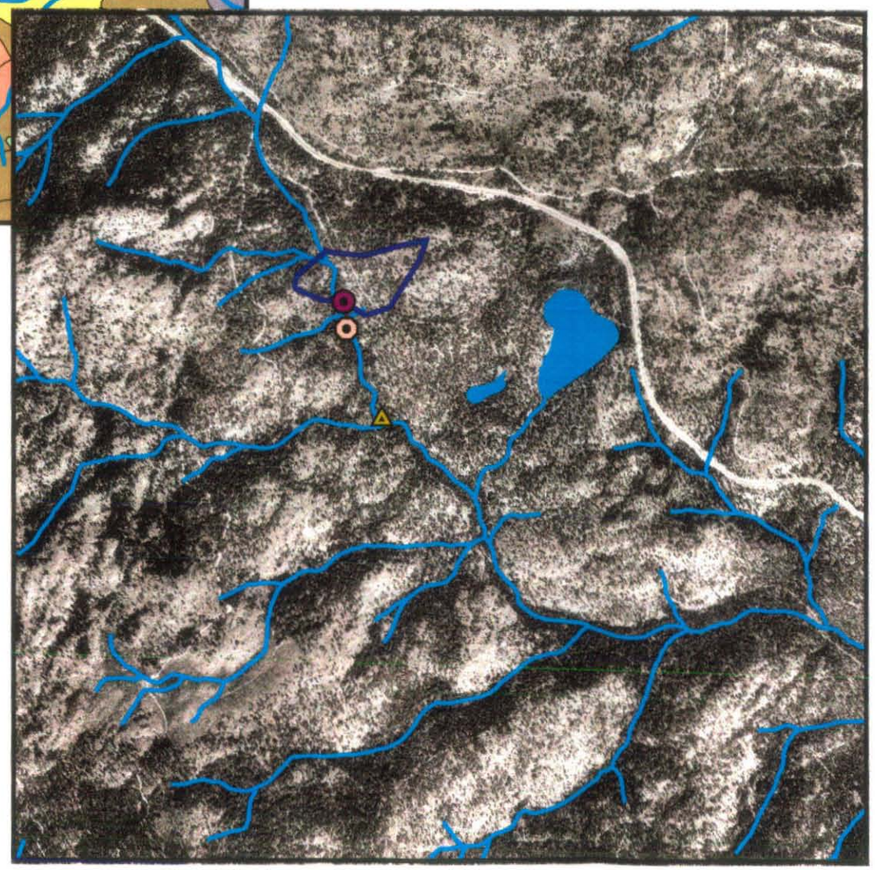
SKETCH

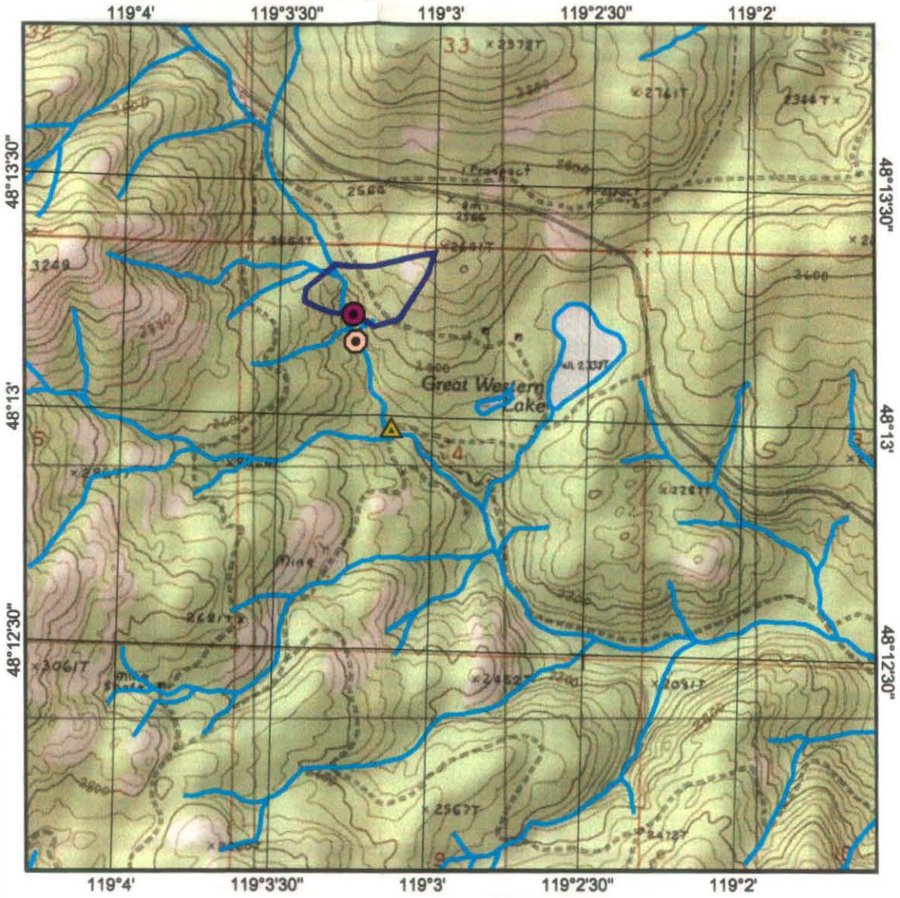


Smith Creek

Smith Creek
Date of Survey: 9/12/01
WAU: Nespelem Upper
WMUS: Smith Creek
Quad: Armstrong Creek
T 31 R 30 E S
48.322012603 -119.0555871
Basin Acreage: 22.166







0 0.5 1 Miles

1:24000

Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Lynx-Hall	Stream Name:Johns Mtn. Ck.	T/R/S T33 R 34 S 12	Topoquad name: Twin Lakes
Organization: Colville Confederated Tribes TFW/F&F Fish & Wildlife Dept.	Description of start point (GPS optional): SEE NOTES		Landowner; COLVILLE CONFEDERATED TRIBES
Site Number: 116	Date: 09-25-01	Recorder(s): R. Peone, E. Krausz	
Precipitaion (mm) for the 2 days prior to survey 0		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance From Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Up-stream gradient %	Down-stream gradient %	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30	Y	D	PDC	0.7	0.2	4	5	Substrate				see notes
2	30-60		D	DC	0.7	0.2	4	4	Substrate				
3	60-90		D	DC	0.8	0.3	9	3	Substrate				
4	90-120		D	DC	0.8	0.2	7	7	Substrate				
5	120-150		D	DC	0.8	0.3	10	6	Substrate				
6	150-180		D	DC	1	0.2	7	12	Substrate				
7	180-210		D	DC	1	0.2	10	12	C				
8	210-240	Y	FW	DC	1	0.4	10	10	Substrate				see notes
9	240-270		FW	DC	0.7	0.4	11	12	Substrate				
10	270-300		FW	DC	0.6	0.3	10	8	Substrate				
11	300-330		FW	DC	0.6	0.3	9	10	Substrate				
12	330-360		FW	DC	0.7	0.3	8	6	Substrate				
13	360-390		FW	DC	0.9	0.3	10	11	Substrate				
14	390-420	Y	FW	DC	0.6	0.25	14	8	Substrate				see notes

Codes for Flow Categories: FW=Flowing Water, SW=Standing Water, FP=Flowing Pocket Water, SP=Standing Pocket Water, D=Dry, U=Unknown, O=Obscured

Codes for Channel Categories: DC=Defined Channel, PDC=Poorly Defined Channel, MC=Modified Channel, PC=Piped Channel, CC=Covered Channel, NC=No Channel

Back of Form B

NOTES; Johns Mtn. Cr. Creek
PIP is below a North facing slope flowing south.
End of Seg. 2 10ft of CMZ
Seg. 12, first 15meters are boulders
Seg. 14 end of 30m flag. 3meters from road, stream 3 meters form road.
350 meters up the stream from road is the end of the PIP survey.
Took a picture of PIP
GPS READINGS
PIP N 48 22 24.0 W 118 28 09.7
START N 48 22 24.6 W 118 28 18.9
END N 48 22 22.2 W 118 28 00.5

SKETCH

see original forms

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Lynx – Hall	Stream Name: JOHNS MTN CREEK	T/R/S T33 R34 S12	Topoquad name: Twin Lakes
Organization: CCT Fish + wildlife	Description of start point (GPS optional): See notes		Landowner: CCT
Site Number: 01-16	Date: 09-25-01	Recorder(s): Ruby + Eric	
Precipitation (in mm) for the 2 days prior to survey JMC PIP		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	0-30		D	PDC	.7	.2	4	5	S				
2	30-60		D	DC	~~.8.7~~	.2	~~8~~4	4	S				NOTE
3	60-90		D	DC	.8	.3	9	3	S				~~NOTE~~
4	90-120		D	DC	.8	.2	7	7	S				
5	120-150		D	DC	.8	.3	10	6	S				
6	150-180		D	DC	1	.2	7	12	S				
7	180-210		D	DC	1	.2	10	12	C				C
8	~~210-240~~		FW	DC	1	.4	10	10	S				PIP
9	240-270		FW	DC	.7	.4	11	12	S				
10	270-300		FW	DC	.6	.3	10	8	S				
11	300-330		FW	DC	.6	.3	9	10	S				
12	330-360		FW	DC	.7	.3	8	6	S				
13	360-390		FW	DC	.9	.3	10	11	S				NOTE RD 6.1
14	390-420		FW	DC	.6	.25	14	8	S				

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

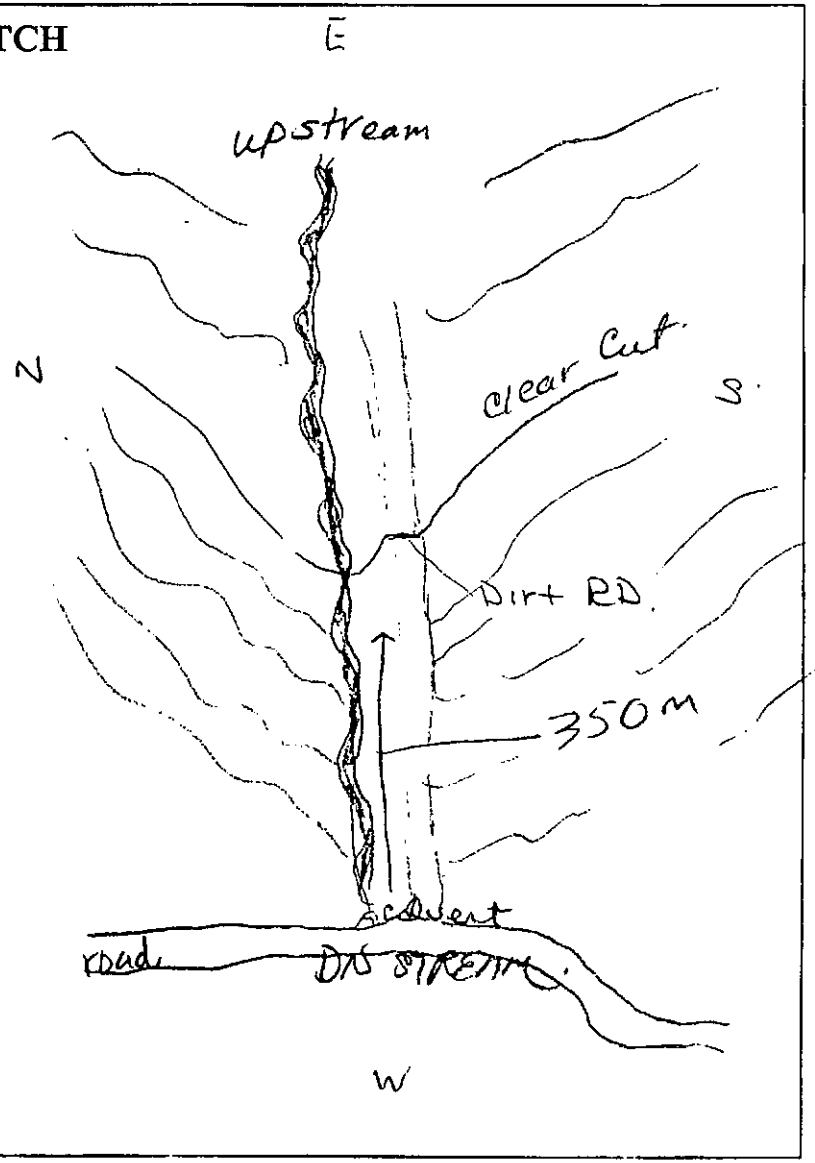
Back of Form B

NOTES

PIP is Below a North Facing slope flowing south.
3.2 End of seg. 2 10 ft of CMZ
12. segment 12 just 15m Boulders
Seg. 14 end of 38m flag 3m from road – stream 3m from Rd.
350 meter up the creek of Rd to end of PIP Seg. 14.

look a picture at PIP

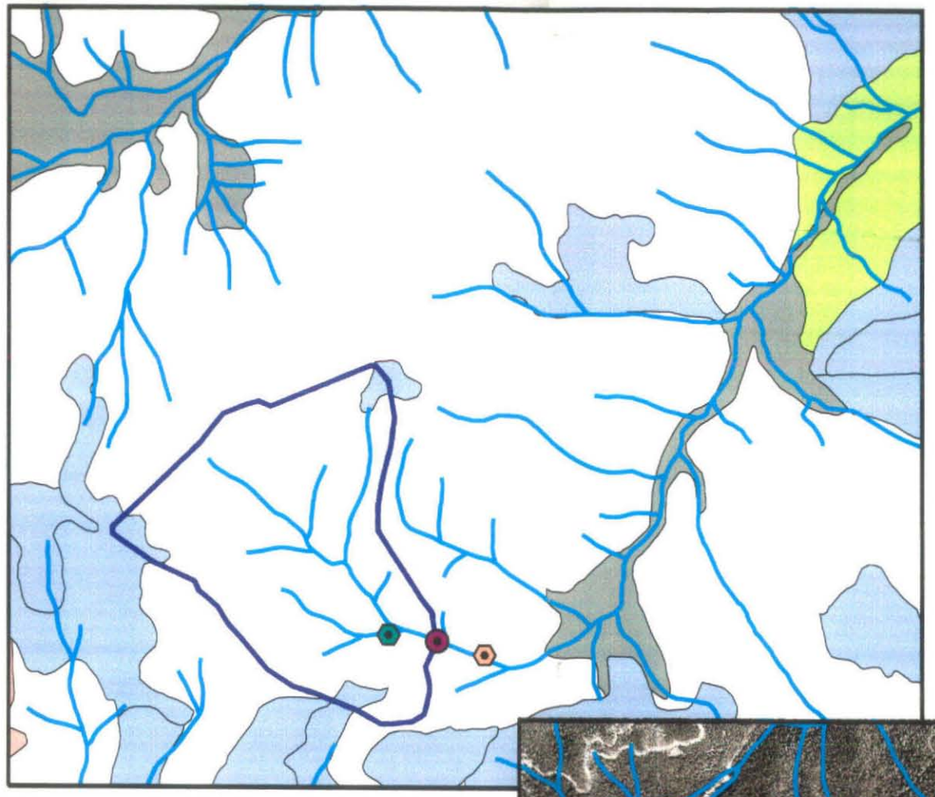
SKETCH

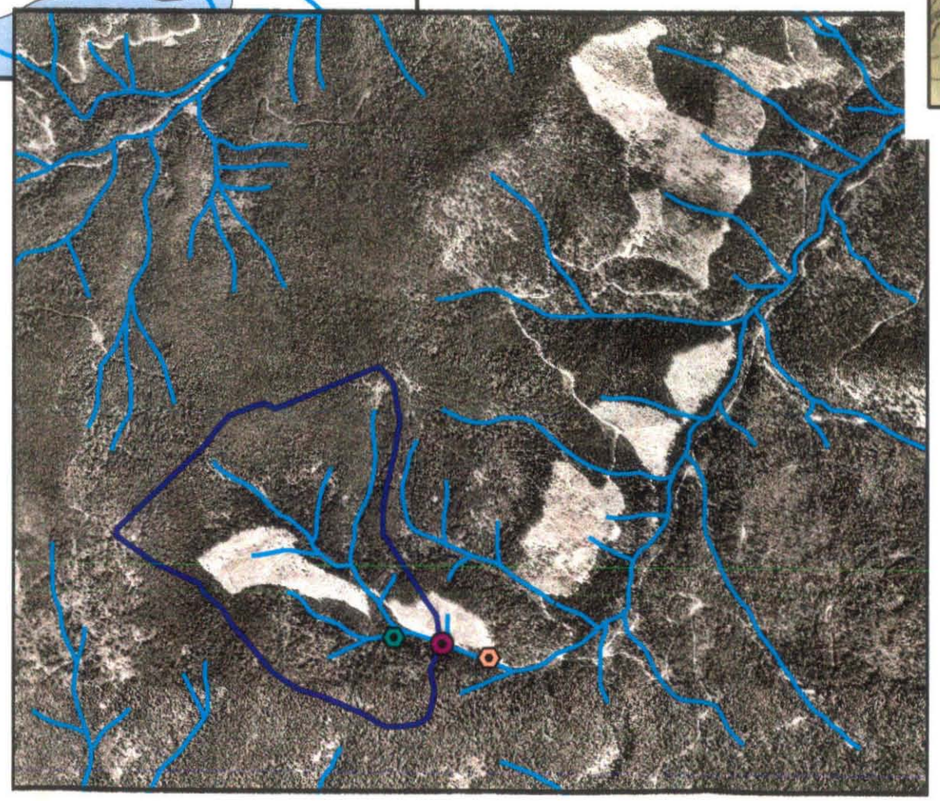


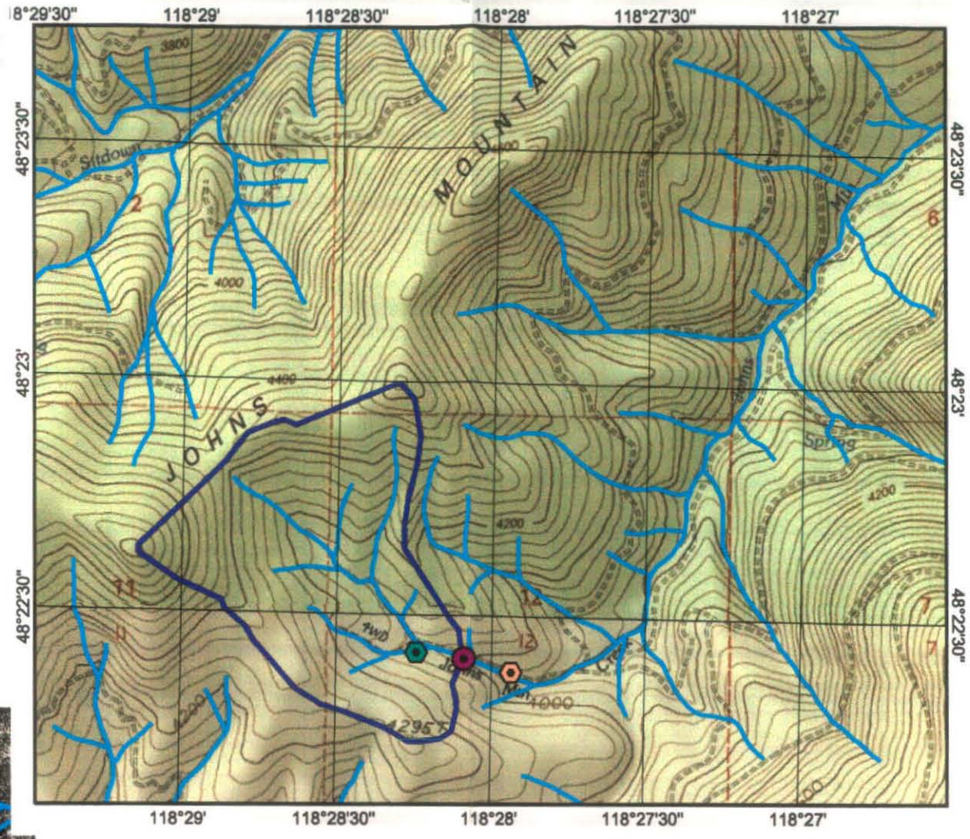
Page _____ of _____

Johns Mountain Creek

Johns Mountain Creek
Date of Survey 9/25/01
WAU: Lynx-Hall
WMUS: Johns Mountain Creek
Quad: Twin Lakes
T 33 R 34 E S 12
48.3733300 -118.4693500
Basin Acreage: 252.098







Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: WRIA 55 Beaver Creek	Stream Name: Beaver Cr. 1	T/R/S: T29N/R41E/24	Topoquad name: Deer Lake
Organization: Spokane Tribe Timber, Fish, and Wildlife/UCUT	Description of start point (GPS optional): 4 miles south from Hwy395 and 291 junction.	Landowner;	Bill and Annie Sebright 4383 Hwy395S Clayton, WA.
Site Number: 55-3	Date: 10/17/01	Recorder(s): E. Krausz, R. Peone, S. Collins, C. Cochran, J. Marchand	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start(m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Downstream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
10	200		SW	DC	1.2	0.3	1	2	F	SE			F1 Large seep on both sides of creek
11	230		SW	DC	1.2	0.4	2	2	F	SE			F2 Large seep on LB going downstream; spring started on seg. 15 on LB.
	245		SW	DC	1.2	0.3	1	1	F	SE			
12	260		SW	DC	1.4	0.5	2	1	F	SE			
13	290		SW	DC	1.9	0.5	1	2	F	SE			
14	320		FW	DC	1.1	0.6	1	1	F	SE			
15	350		FW	DC	2.3	0.9	1	1	S	SE F2			
16	200		FW	DC	2	0.6	1	1	S	SE F3			F3 Seep conecting from segment 15 LB.

Back of Form B

NOTES; **Beaver Creek 01**
Seg. 1 Large seep on both side 40 meters.
Seg. 15 Large seep on LB going downstream.
Spring started In Seg. 15 on LB
Seg. 16 Seep connecting LB
UTM NAD 1983 N5316724.478m E456566.280M ZONE 11 N
PIP END OF WET

SKETCH

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Dragoon Creek | Stream Name: Beave Cr. 01 | T/R/S 28N/4IE/24 | Topoquad name: Chehalis 100K Quad
WRIA: 55
ganization: UCUT | Description of start point (GPS optional): 4 miles southwestern HWY 395 and 291 Rd Junct. | Landowner: Bill and Irma Subright 4383 Hwy 395 Clayton, WA.

e Number: WRIA55-Site 3 | Date: 10/17/01 | Recorder(s): Ruby, Sandra, Eric Knutzen, Kathy O'Cochran, Jackie Marchand

ecipitation (in mm) for the 2 days prior to survey | Survey type: Main thread or Total Tributary | Tributary Number:

nent uber	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
	200-												
10	220 230		SW	DC	1.2	.3	1	2	F	SE			F1
11	230-260		SW	DC	1.2	.4	2	2	F	SE			
	245		SW	PDC					F	SE	CMZ		Frog
12	260-290		SW	DC	1.4	.5	2	1	F	SE			
13	290-320		SW	DC	1.9	.5	1	2	F	SE			
14	320-350		FW	DC	1.1	.6	1	1	F	SE			
15	350-380		FW	DC	2.3	.9	1	1	S	SE			
16	380-410		FW	DC	2	.6	1	1	S	SE			

UTM NAD 1983 N5316724.478m E456566.280m Zone 11 N PIPE on W of.

for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
for Channel Categories: DC = Defined Channel, PDC = Poorl, Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Seg. 1 Large seep on both sides
40 meters

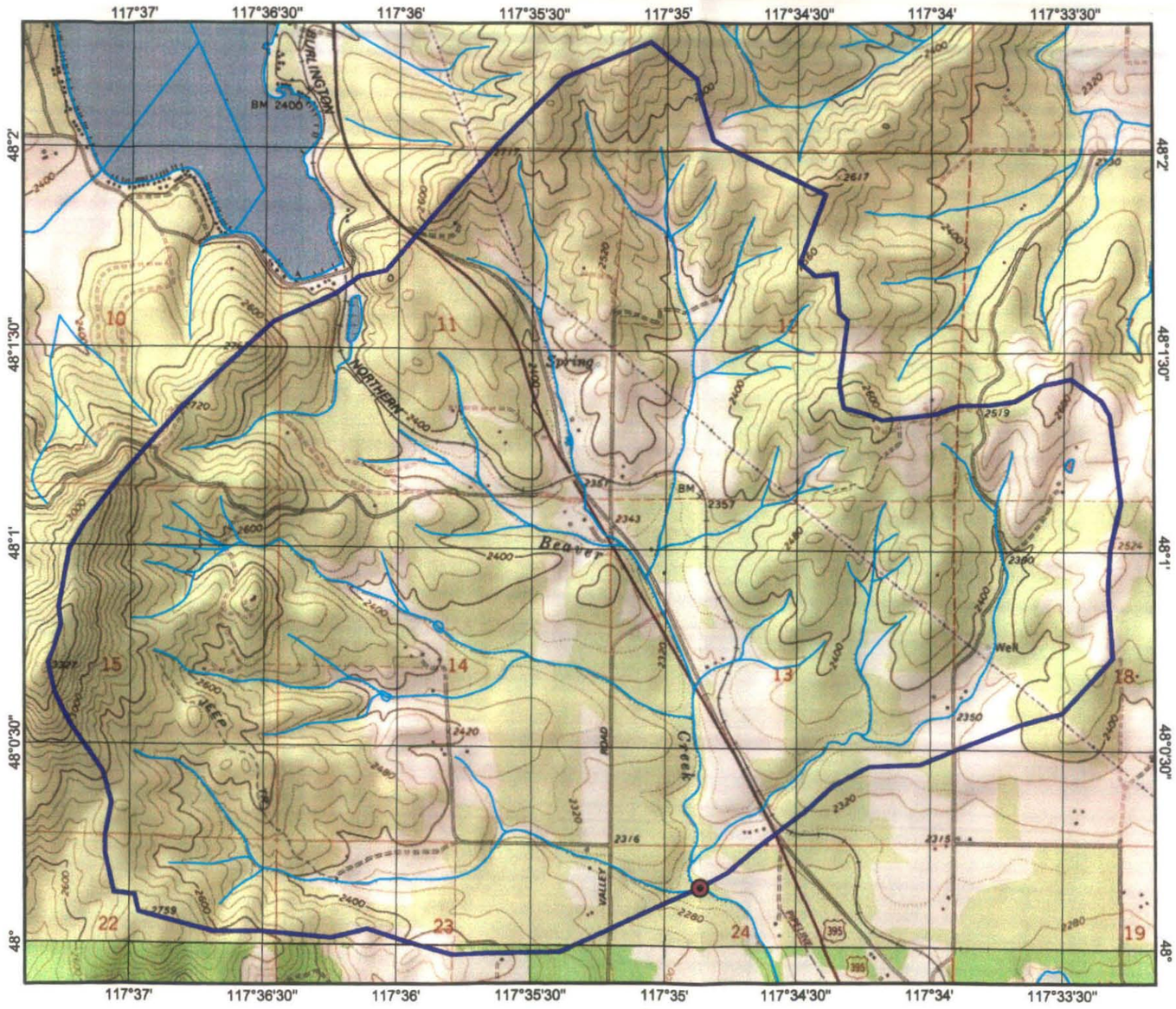
Seg 15 large seep on LB going
downstream
Spring started on Seg-15 on LB.

Seg. 16 Seep connecting LB.

F1

Beaver Creek 1

Beaver Creek 1
Date of Survey: 10/17/01
WAU: Beaver Creek
WMUS: N/A
Quad: Deer Lake
T 29 R 41 E S 24
N5316724.478 E456566.280
Basin Acreage: 3258.813
PIP Surveyed by Spokane Tribe of Indians



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CCT Resource Inventory & Analysis and CCT Fish & Wildlife
January 2002

0 0.5 1 Miles

1:24000

2001 Perennial Initiation Point Survey

Basin Boundary

PIP

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: WRIA 55 Branch W	Stream Name: Beaver Cr. 2	T/R/S: T30N/R42E/S09	Topoquad name: Deer Lake
Organization: Spokane Tribe Timber, Fish, and Wildlife/UCUT	Description of start point (GPS optional): from Hwy395 and 291 in Loon Lake head East up Porcupine Pass. Call in advance for entry to road/property from landowner.		Jay and Mary Baker 4632 Keenan Rd. 509-276-5322 Deer Park, WA
Site Number: 55-4	Date: 10/17/01	Recorder(s): E. Krausz, R. Peone, S. Collins, C. Cochran, J. Marchand	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start(m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Up stream gradient (%)	Down stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
1	30		D	DC	0.4	0.2	14	13	G				F1
2	60		D	PDC	0.4	0.1	9	9	G				
3	90		D	PDC	0.5	0.2	11	8	F				
4	120		D	DC	0.6	0.2	11	8	F				
5	150		D	DC	0.9	0.2	8	6	F				
6	180		D	PDC	1.5	0.1	9	8	F				
7	210		D	PDC	1.3	0.1	8	9	F				
8	200	F1	SW	DC	1.2	0.3	1	2	F	SE			
9	230		SW	DC	1.2	0.4	2	2	F				
10	260		SW	DC	1.4	0.5	2	1	F				
11	290		SW	DC	1.9	0.5	1	2	F				
12	320		FW	DC	1.1	0.6	1	1	F				
13	350		FW	DC	2.3	0.9	1	1	S				
14	380		FW	DC	2	0.6	1	1	S				

Back of Form B

NOTES; Beaver Creek 02
F1 PIP wet start .
N5329455.499m E461928.763m
(UTM NAD83 Zone 11N)

SKETCH

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: W. Branch Little Spokane WRIA-55	**Stream Name:** Beaver Cr. 2 UTM NAD83 Zone 11 N	**T/R/S** 30N/42E/9	**Topoquad name:** Chewelah 100k quad
Organization: UCUT	**Description of start point (GPS optional):** Pip Start N5329455.179m E461928.763m		**Landowner:** 21632 Keenan Rd. Deer Park, WA. Jay Baker 276-5322
Site Number: WRIA 55 Site 4	**Date:** 10/17/01		**Recorder(s):** Pete Nelson, Ruby, Sandra, Eric, Cathy, & Jacky Mordhorst
Precipitation (in mm) for the 2 days prior to survey			**Survey type: Main thread or Total Tributary** **Tributary Number:**

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
1	0-30		D	DC	.4	.2	14	13	G,				
2	30-60		D	PDC	.4	.1	9	9	G,				
3	60-90		D	PDC	.5	.2	11	8	F				
4	90-120		D	DC	.6	.2	11	8	F				
5	120-150		D	DC	.9	.2	8	6	F				
6	150-180		D	PDC	1.5	.1	9	8	F				
7	180-210		D	PDC	1.3	.1	8	9	F				
8	200-230		SW	DC	1.2	.3	1	2	F	SE			
9	230-260		SW	DC	1.2	.4	2	2	F				
10	260-290		SW	DC	1.4	.5	2	1	F				
11	290-320		SW	DC	1.9	.5	1	2	F				
12	320-350		FW	DC	1.1	.6	1	1	F				
13	350-380		FW	DC	2.3	.9	1	1	S				
14	380-410		FW	DC	2.0	.6	1	1	S				

Codes + Yello

Codes for Flow Categories: **FW** = Flowing Water, **SW** = Standing Water, **FP** = Flowing Pocket Water, **SP** = Standing Pocket Water, **D** = Dry, **U** = Unknown, **O** = Obscured.
Codes for Channel Categories: **DC** = Defined Channel, **PDC** = Poorly Defined Channel, **MC** = Modified Channel, **PC** = Piped Channel, **CC** = Covered Channel, **NC** = No Channel

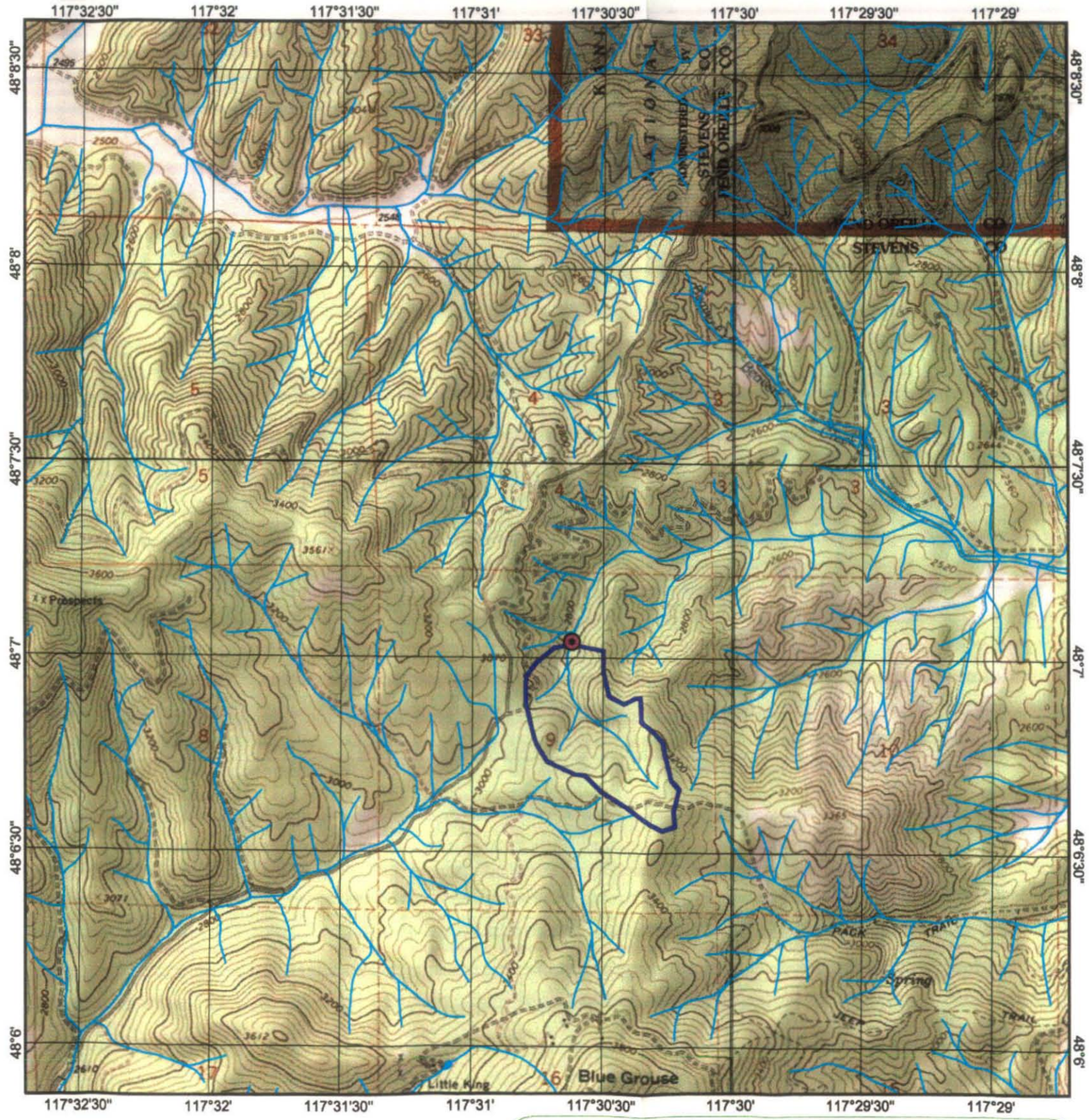
Back of Form B

NOTES

SKETCH

Beaver Creek 2

Beaver Creek 2
Date of Survey: 10/17/01
WAU: Branch W
WMUS: N/A
Quad: Deer Lake
T 30 R 42 E S 09
N5329455.499 E461928.763
Basin Acreage: 87.899
PIP Surveyed by Spokane Tribe of Indians



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CCT Resource Inventory & Analysis and CCT Fish & Wildlife
January 2002

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: WRIA 55 Deadman Creek Organization: Spokane Tribe Timber, Fish, and Wildflife/UCUT	Stream Name: Deadman Creek	T/R/S: T28N/R45E/28	Topoquad name: Mount Spokane Landowner: Mt. Spokane State Park
	Description of start point (GPS optional): From Hwy2 travel 15.6 mi. to site area. Look for "No Vehicle Access sign" ; .8mi. From Mt. Spokane . State Park main entrance gate.		
Site Number: 55-1	Date: 09/11/01	Recorder(s): P. Peterson, T. Baldwin, S. Collins, C. Cochran	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread Tributary Number: 1	

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width (m)	Channel Bankfull Depth (m)	Upstream gradient (%)	Down stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see also back page)
1	15	F8	D	NC			39	37	F	WT			F1
2	45		D	NC			39	38	F	WT			F2
3	75		D	NC			31	29	F	WT	SW		F3
4	105		D	NC			20	21	F	WT			F4
5	135		D	NC			20	19	F	WT	SE, WS		F5
6	165		D	NC			14	18	F	WT			F6
7	180	F7	D	NC			10	11	F	SP			F7
8	196		SP	PDC	0.5	0.12M	7	8	F	SE			F15
9	220		FW	DC	0.8	0.2	20	19	G				
10	235		FW	DC	0.6	0.3	30	29	F				F8, F9
11	265		FW	DC	0.72	0.3	22	21	G				
12	292		FW	DC	0.76	0.32	9	9	F	FW	PT	PDC	F10
13	312		FW	DC	0.72	0.3	9	11	G	WT			F11
14	342		FW	DC	0.6	0.32	8	8	G	SE			
15	372		D	DC	0.6	0.3	8	10	F	RC			F12
16	402	F15	FW	DC	0.6	0.3	10	12	G	SE, WT			F13, F14

Back of Form B

NOTES; Deadman Creek
Flags (FWT= Forested Wetland)
F1,F2,F3, Assosciate FWT <20acres RB.
F4 ,F5, F6 Associated FWT<20acres, approx. 1/2 acre RB.
F7 PIP start; UTM N5305116.924m E491020.208m
F8 Associated FWT <20acres.
F9 Creek subsurfaces for 6m.
F10 Associated FWT <20acres RB.
F11 Associated FWT <20acres RB.
F12 Creek subsurfaces at 282m for 10m.
F13 Associated FWT LB & RB <20acres
F14 Historical Road Crossing.
F15 PIP End UTM Zone 11N, NAD 83,
N5304955.760m E491032.645m
End of PIP N5304955.601 E491032.645

SKETCH

Form B: Perennial Stream Survey Field Measurements

Note: Record all Measurements in metric units

WAU: Deadman	Stream Name: Deadman Cr.	T/R/S: 28N/45E/22	Topoquad name: Mt. Spokane 1:24K
Organization: UCUT WRIA 55	Description of start point (GPS optional): from Hwy 2 or Hwy 206 travel 15.6 miles to small reach. Look for "No Vehicle Access sign"; 8m from State Park Gate		Landowner: Mt. Spokane State Park
Site Number: 55-1	Date: 9-11-01	Recorder(s): Pete P, Todd B, Sondra C, Cathy C	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

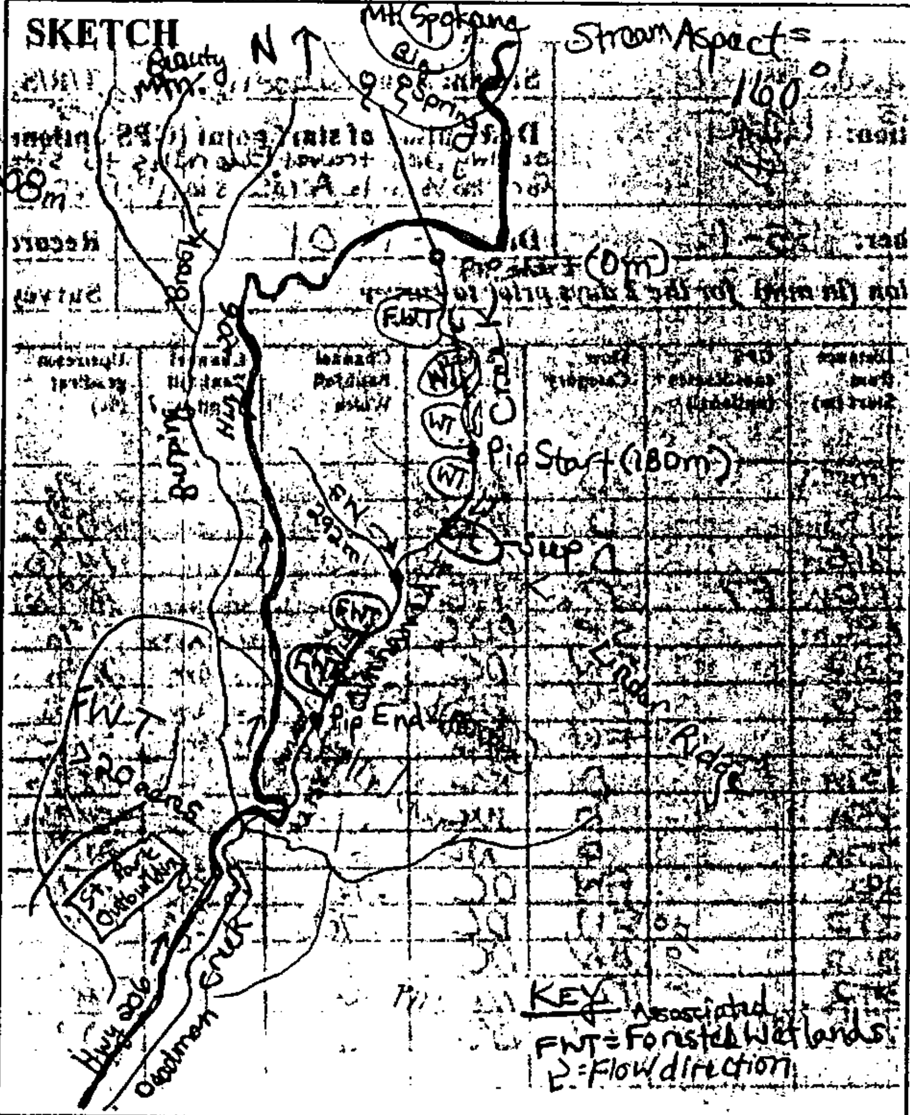
Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Downstream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
4	105m		ID	NC	NC	NC	20%	21%	F	WT	—	—	F4
5	135m		D	NC	NC	NC	20%	19%	F	WT	—	—	F5
6	165m		D	NC	NC	NC	14%	18%	F	WT	—	—	F6
7	180m	F7	ID	FWC	NC	NC	10%	11%	F	SP	—	—	F7
8	196m		SP	PDC	.5m	.12m	7%	8%	F	SE	—	—	F15
9	200		FW	DC	.8m	.2m	20%	9%	G		—	—	1
10	235		FW	DC	.4m	.3m	50%	29%	F	SE	—	—	F8, F9,
11	265		FW	DC	.72	.3m	28	21%	G		—	—	F
1	15m	F8	D	NC	NC	NC	37%	37%	F	WT	—	—	F1
2	45m		D	NC	NC	NC	39%	34%	F	WT	—	—	F2
3	75m		D	NC	NC	NC	31%	24%	F	WT	—	—	F3
12	295		FW	DC	.76	.32	29%	29%	F	FW	PT	PDC	F10
13	310		FW	DC	.72	.30	9%	11%	G	WT	—	—	F11
14	325		FW	DC	.6	.32	8%	8%	G	RC	—	—	
15	345		ID	DC	.6	.3	8%	10%	F	RC	—	—	F12
16	400m	F9	FW	DC	.6	.3	10%	12%	G	SE, WT	—	—	F13, F14

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

NOTES
F4, F5 Associated forested wetland < 20acres ~ ½ acre RB
F6 Associated forested wetland < 20acres RB
F7 Pip START; GPS N 5305716.924m E 491020.208m
F1, F2, F3 Assos. forested wetland < 20acres RB.
F8 Assos. forested wetland ≥ 20 acres continuing.
F9 Creek subsurfaces for 6m.
F10 Assos. forested wetland < 20acres ~ 1 acre RB.
F11 Assos. forested wetlands < 20acres RB.
F12 Creek subsurfaces @ 282m for 10m.
F13 Assos. forested wetland LB + RB < 20acres.
F14 Historical Road Crossing; Pip End Survey
GPS: N 5304955.760m E 491032.645m UTM
(NAD 27)
F15 Seep on Left Bank

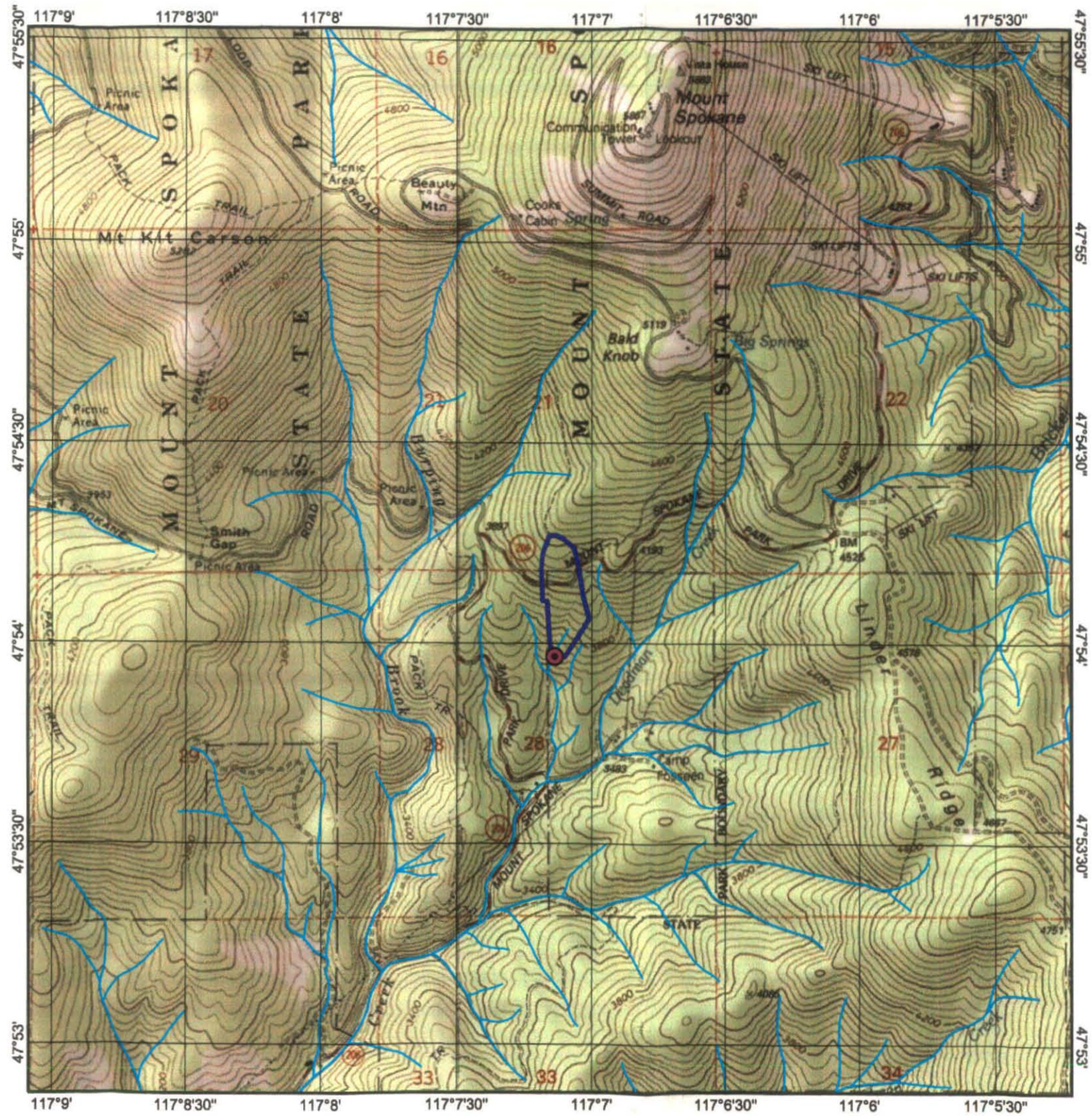
SKETCH



3462
130
222

Deadman Creek

Deadman Creek
Date of Survey: 9/11/01
WAU: Deadman Creek
WMUS: N/A
Quad: Mount Spokane
T 28 R 45 E S 28
N5305116.924 E491020.208
Basin Acreage: 20.766
PIP Surveyed by Spokane Tribe of Indians



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January 2002

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: OR-A-PAK-EN CR.	Stream Name: Castle Rock Cr. T/R/S:T29 R36 S29	Topoquad name:Fort Spokane
Organization: Spokane Tribe Timber, Fish, and Wildflife/UCUT	Description of start point (GPS optional): LAT/LONG N4759.402 W118 18.800	Landowner: Spokane Tribe of Indians
Site Number: 54-2	Date: 10/19/01	Recorder(s): R. Peone and C. Cochran
Precipitation (in mm) for the 2 days prior to survey 0	Survey type: Main thread or Total Tributary	Tributary Number:1

WRIA 54

Segment Number	Distance from Start(m)	GPS coordinates (opt.ional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Up stream gradient (%)	Down stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
1	0-30		D	DC	1.5	0.8	9	9	C				
2	30-60		FW	DC	1.5	0.7	6	5	F	SP (F1)			F1-Small spring on LB flowing downstream
	41			DC						SP			F2-Spring on RB
3	60-90		FW		3.5	1.7	1.5	1.5	F	WL			
4	90-120		FW	DC	3.5	1.9	6	6	F	WS/WL			
5	120-150		FW	DC	1.9	0.6	3	4	F	WL			
6	150-180		FW	DC	0.5	0.3	8	8	F	WL			
7	180-210		D (F3)	DC	0.6	0.5	2	2	F				F3-for the whole 30m the water sub-surfaces than appears after segment 7.

Back of Form B

NOTES; Castle Rock Creek

Seg. 2. Small spring on LB going downstream LB (left bank)

Seg. 7 For the whole 30m the water subsurfaces than appears after Seg. 7

Road crossing at beginning of PIP. Above road 200m of no channel but riparian area.

SKETCH

Spokane Tribe (usa.shp)
WSA: Spokane River

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Or-A-Pak-En	Stream Name: Cashup Rock Creek	T/R/S: T29N/R36E/29 LAT/LONG	Topoquad name: Coulee Dam 100K
Organization: WRIA 54	Description of start point (GPS optional): N47 59 24.1 W118 18 48.0		Landowner: Spokane Tribe
Site Number: 54-2	Date: 10/19/01	Recorder(s): Ruby & Calvin	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number:

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
1	0-30		D	DC	1.5	.8	9	9	C				1
2	30-60		FW	DC	1.5	.7	6	5	F	SP			2-LB
	41									SP			RB
3	60-90		FW	DC	3½	1.7	1.5		F	WL			
4	90-120		FW	DC	3½	1.9	6		F	WS/WL			log/rock
5	120-150		FW	DC	1.9	.6	3	4	F	WL			
6	150-180		FW	DC	.5	.3	8	8	F	WL			
7	181-210	*	D	DC	.6	.5	To 2 IL	5	F				7

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

NOTES

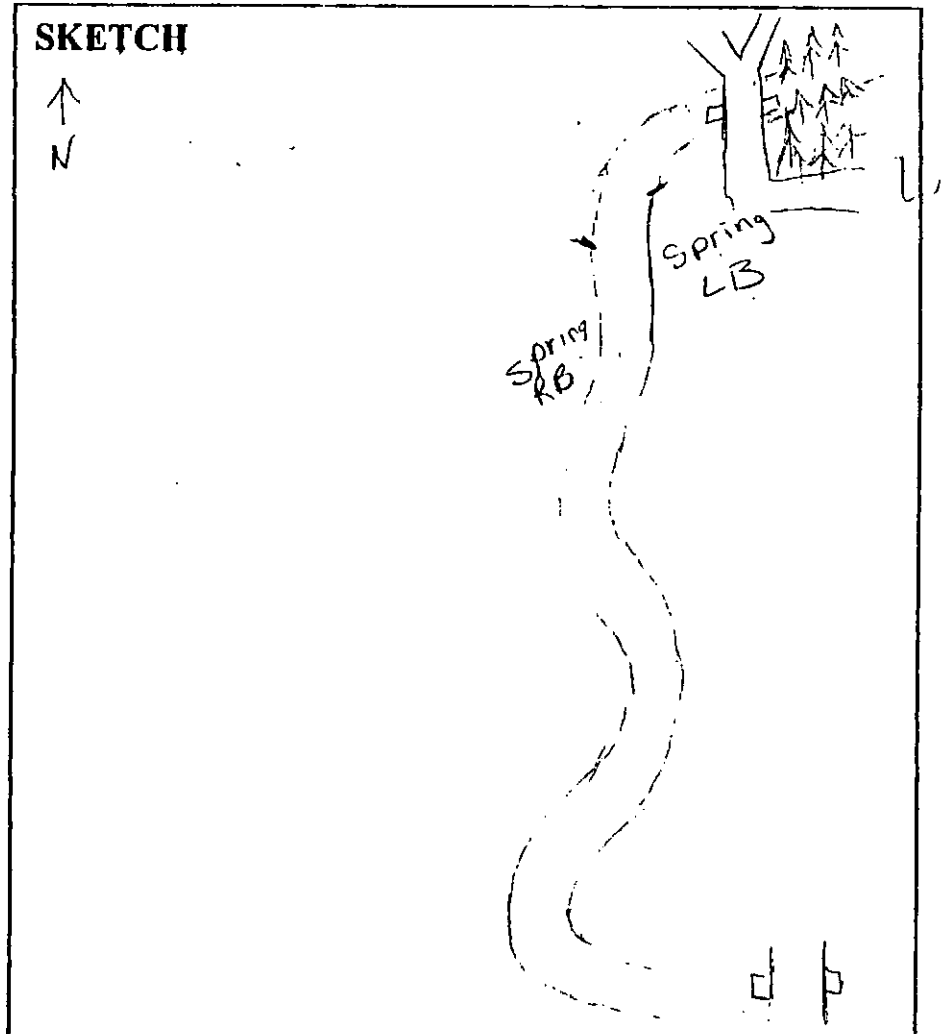
Seg. 2 Small Spring on LB going down stream

Seg 7. For the whole 30m the water subsurfaces than appears after Seg. 7.

Road crossing at beginning of PIP

Above road 200 m of no channel but riparian area

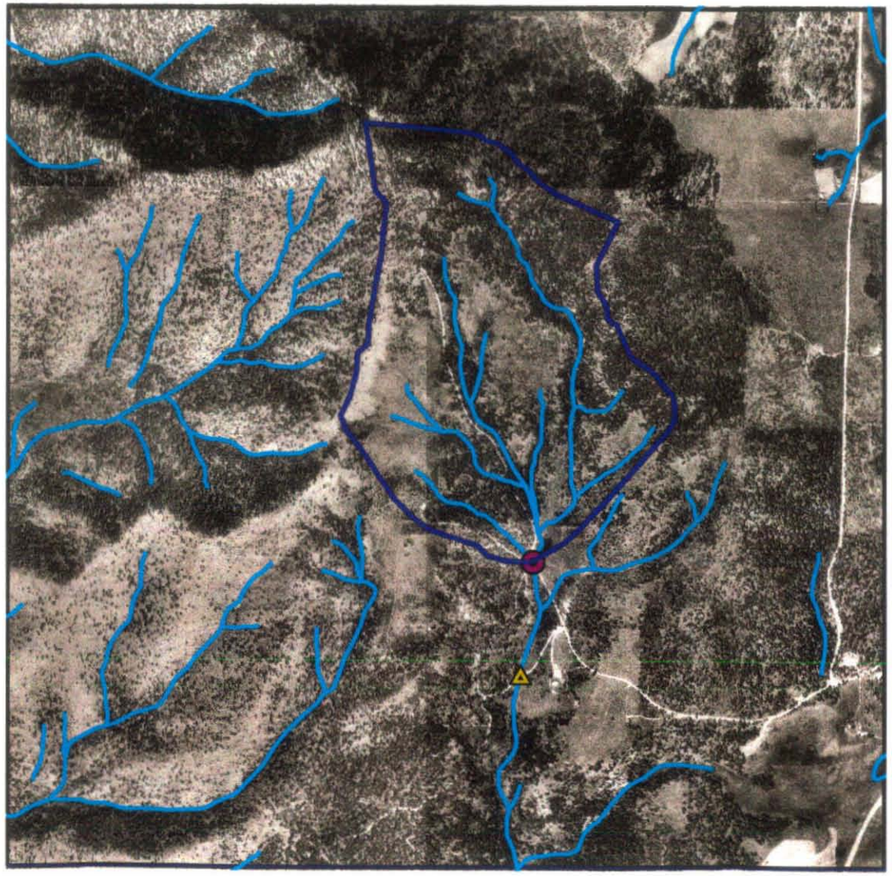
SKETCH

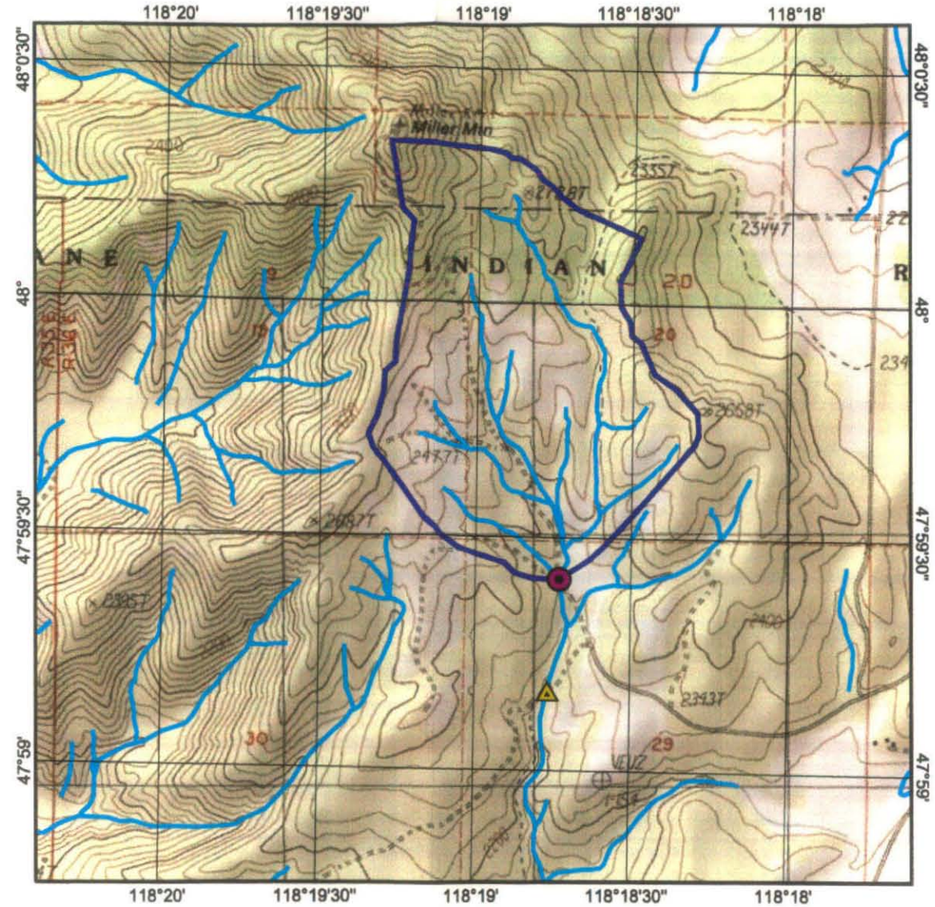


Page _____ of _____

Castle Rock Creek

Castle Rock Creek
Date of Survey 10/19/01
WAU: OR-A-PAK-EN Creek
WMUS: N/A
Quad: Fort Spokane
T 29 R 36 E S 29
47.9900400 -118.3133300
Basin Acreage: 374.522





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2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

N

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: WRIA 55 Deer Creek	Stream Name: Cottonwood Cr.	T/R/S: T28N/R44E/16	Topoquad name: Chattaroy
Organization: Spokane Tribe Timber, Fish, and Wildlife/UCUT	Description of start point (GPS optional): From Hwy2 travel North; Turn Right Elk/ Chattaroy Rd; Turn Right Deer Creek Road travel 2miles to 10915 Deer Cr. Road.		Landowner: Ida Ostby 10915 Deer Cr. Rd. Chattoroy, WA. 99003
Site Number: 55-2	Date: 09/13/01	Recorder(s): Pete Peterson., Todd Baldwin, Sondra Collins, Cathy Cochran	
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary	Tributary Number: 1

Segment Number	Distance from Start(m)	GPS coordinates (opt.ional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Downstream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
1	0	F1	D	DC	2.5	0.4	1	1	S				F1 start PIP dry N5377869.901m
2	30		D	DC	1	0.3	4	4	G				E480908.367m (UTM NAD83 Zone 11N
3	60		D	DC	1.2	0.3	1	1	G				
4	90		D	DC	1.6	0.4	1	1	G				
5	120		D	DC	1.5	0.5	2	1	G				
6	150		D	DC	1.5	0.3	1	3	G				F2 Associated Forested Wetland >20 acres LB
7	180		D	DC	2	0.4	1	1	G	WT			
8	200	F2	SW	DC	2.6	0.46	1.5	1.5	G				F3 Start PIP wet N5307710.001m
													E489832.011m
													UTM NAD83 Zone 11N

Back of Form B

NOTES; CootonwoodCreek
F2-Assoc. Forested Wetland>20 acres LB
F3 N5307710.0011m UTM NAD 83
End PIP dry, start of 200m, Zone 11 N PIP wet.

SKETCH

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Deer Creek	Stream Name: Cottonwood Cr	T/R/S: 28N/4E/16
Organization: UCUT WRIA-55	Description of start point (GPS optional): N5377869.901m E, 480908.367m	Topoquad name: Mt. Rit Carson
		Landowner: Ida Ostby 10915 Deer Cr. Rd Chattaroy, WA 99003
Site Number: 55-2	Date: 9-13-01	Recorder(s): Rob Peterson, Todd Baldwin, Cathy E., S. Collins
Precipitation (in mm) for the 2 days prior to survey		Survey type: Main thread or Total Tributary Tributary Number:

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see p back page)
1	0	F1	D	DC	2.5	.4	1%	1%	S				
2	30		D	DC	1.0	.3	4%	4%	G				
3	60		D	DC	1.2	.3	1%	1%	G				
4	90		D	DC	1.6	.4	1%	1%	G				
5	120		D	DC	1.5	.5	2%	1%	G				
6	150		D	DC	1.5	.3	1%	3%	G				
7	180		D	DC	2.0	.4	1%	1%	G	WT			F2
End	200	F2	SW	DC	2.6	.46	1.5%	1.5%	G				

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

NOTES

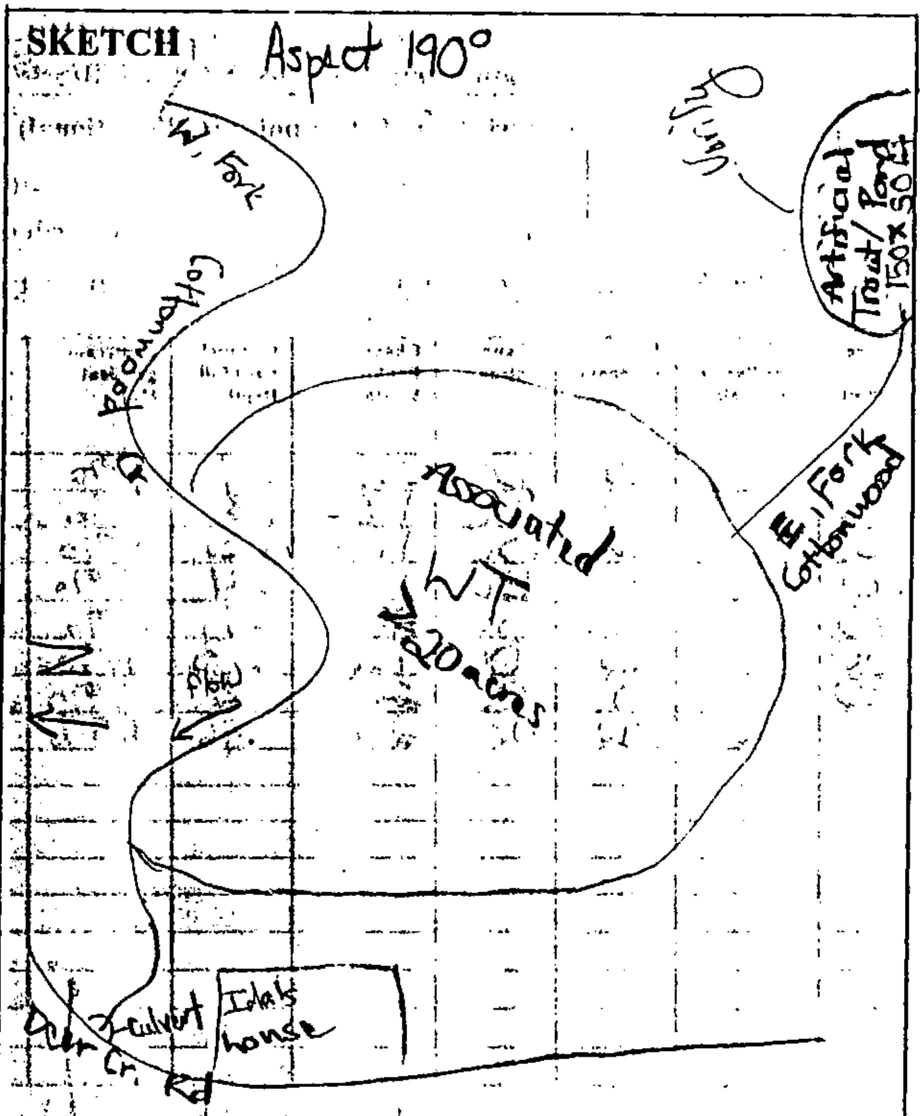
F2 - Assoc. Forested Wetlands 20 acres LB

F3 - N5307711.0001m E480832.011m UTM NAD83

End: P.I.P. dry, start of 200m, Zone 11N

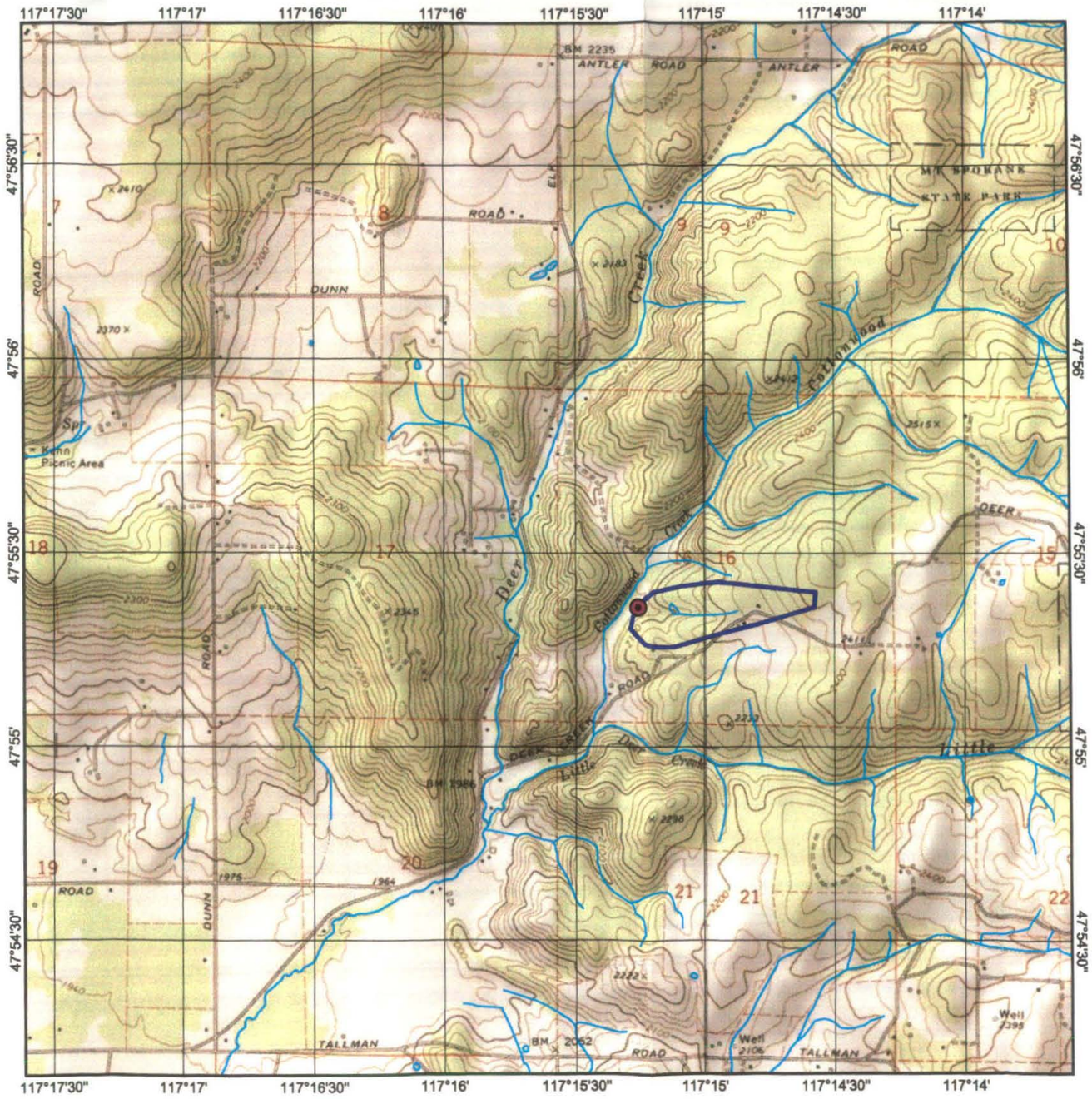
P(P)Wet.

SKETCH



Cottonwood Creek

Cottonwood Creek
Date of Survey: 9/13/01
WAU: Deer Creek
WMUS: N/A
Quad: Chattaroy
T 28 R 44 E S 16
N5307710.001 E480832.011
Basin Acreage: 44.406
PIP Surveyed by Spokane Tribe of Indians



0 0.5 1 Miles

1:24000

2001 Perennial Initiation Point Survey

Basin Boundary

PIP

N

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January 2002

Spokane Tribe
WSA: Chamokane Creek

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Camas Valley WRIA54-21	**Stream Name:** NF Chamokane Creek	**T/R/S** 30N/38E/15	**Topoquad name:** Adams MT. 1:24,000
Organization: UCUT/STOI	**Description of start point (GPS optional):** Travel 15.8 miles West along Hunters/Springdale Road to site area.		**Landowner:** Boise Cascade
Site Number: WRIA54-S1	**Date:** 9/27/01	**Recorder(s):** Cathy C. & Sondra Collins	
Precipitation (in mm) for the 2 days prior to survey		**Survey type:** (Main thread) or Total Tributary	**Tributary Number:** 1

Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
1	0	F6	D	PDC	1.3	.1	14	14	F	WT			Forested WT
2	30	F5	D	PDC	2.6	.25	10	12	F	WT			" "
3	31	F3&4	SW							SP	SW		" "
4	60		D	DC	1.0	.1	13	12	F	SE			" "
5	90		D	PDC	.5	.15	13	14	F	WT	SE, WS		F3
6	120		D	PDC	.5	.1	18	11	F	WT			Forested WT
7	130		D	DC	.8	.2	13	14	F	WT			"
8	160		D	DC	1.0	.25	16	14	F	WT			F2
9	200	F1	D	DC	2.8	.25	16	8	F	SE, WT			
10	230	F7	SW	DC	1.3	.4	10	9	F	SE, WT	SE		F7
11	260		FW	DC	2.2	.4	8	8	G				
12	290		FW	DC	1.8	.5	9	9	F	SE			F8
13	320		FW	DC	1.3	.4	8	7	G				
14	350		FW	DC	1.1	.4	6	6	F	SE			F9
15	380		FW	DC	1.2	.3	7	7	G				
	410	END											F10

Codes for Flow Categories: **FW** = Flowing Water, **SW** = Standing Water, **FP** = Flowing Pocket Water, **SP** = Standing Pocket Water, **D** = Dry, **U** = Unknown, **O** = Obscured.
Codes for Channel Categories: **DC** = Defined Channel, **PDC** = Poorly Defined Channel, **MC** = Modified Channel, **PC** = Piped Channel, **CC** = Covered Channel, **NC** = No Channel

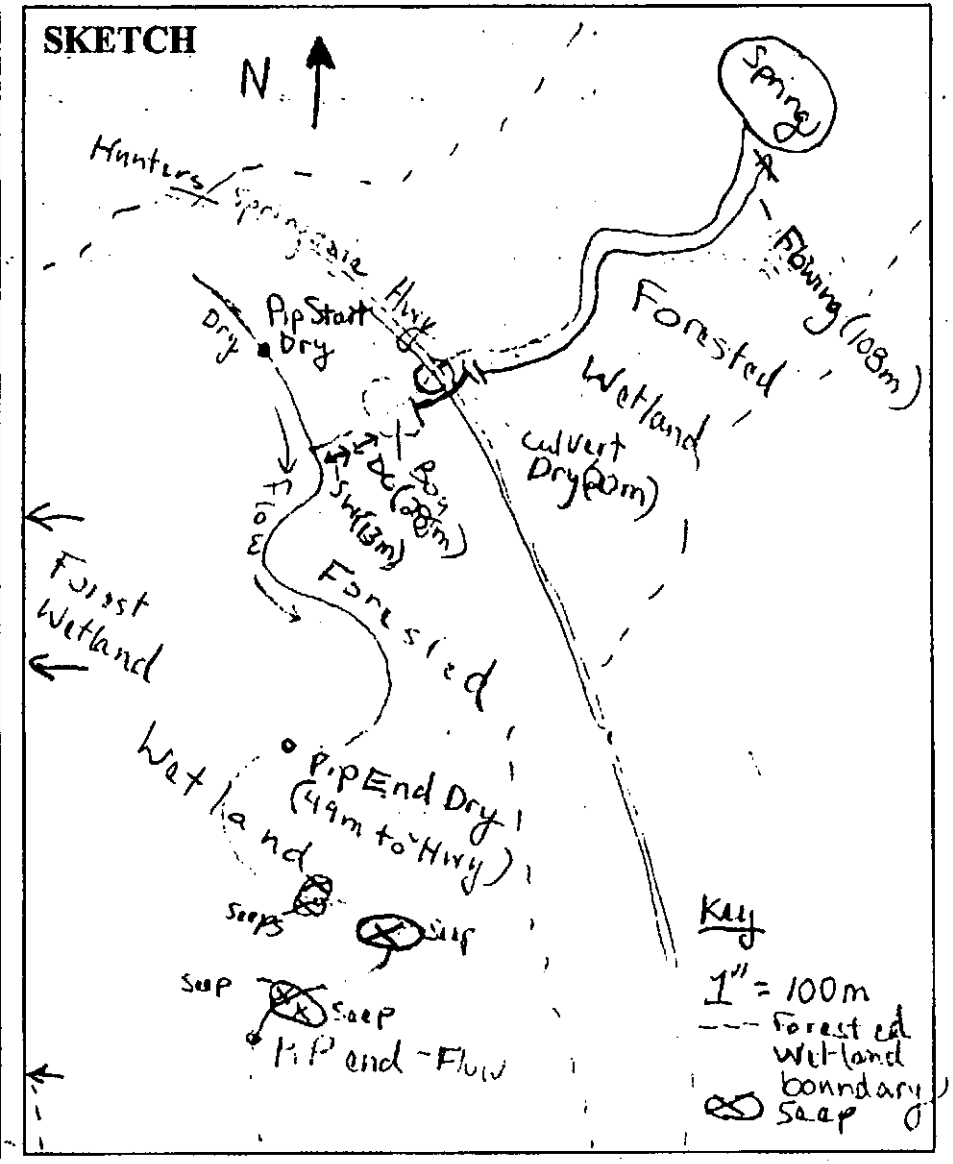
Back of Form B

NOTES

F1 UTM NAD83 N5327250.358m E424619.22m
F2 >20ac re-forested wetland extending beyond >100ft LB+RB and upstream and downstream of PIP start and end.
F3 New significant breach -SW13m; 320° LB 28m dry to associated bog (10x10m) to DC road culvert (20m) following 108m continuous flow to LARGE SPRING!

F4 Old historic road bed augmenting channel RB.
F5 - UNZ though ephemeral flow.
F6 UTM NAD83 20nad IN-N5327226.19 m E424438.400 m
F7 Seep/Moss-Lichen Wetland LB and RB 17m x 18m.
F8 Seep RB 1m and Seep LB 1x1.7m
F9 Seep RB 1m and seep LB 1x9.m
F10 PIP end of 200m continuous flow.

SKETCH



Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: WRIA 54 Camas Valley	Stream Name: MF Chimokane	T/R/S: T30N/R38E/15	Topoquad name: Adams Mt. 1:24K
Organization: Spokane Tribe Timber, Fish, and Wildflife/UCUT	Description of start point (GPS optional): from Springdale, 15.8 mi. west along Hunter/Springdale Road to site area.		Landowner: Boise Cascade
Site Number: 54-1	Date: 09/27/01	Recorder(s): Sondra Collins, Cathy Cochran	
Precipitation (in mm) for the 2 days prior to survey 1	Survey type: Main thread or Total Tributary	Tributary Number: 1	

Segment Number	Distance from Start(m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Downstream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow category of side trib not on main thread	Channel categories of side trib not on main thread	Notes
1	0	F6	D	PDC	1.3	0.1	14	14	F	WT			Forested Wetland (FW)
2	30	F5	D	PDC	2.6	0.25	10	12	F	WT			FW continuing
3	31	F3 & F4	SW	DC						SP	SW		FW continuing
4	60		D	DC	1	0.1	13	12	F	SE			FW continuing
5	90		D	PDC	0.5	0.15	13	14	F	WT	SE, WS		F3, FW CONTINUING
6	120		D	PDC	0.5	0.1	12	11	F	WT			FW continuing
7	130		D	DC	0.8	0.2	13	14	F	WT			FW continuing
8	160		D	DC	1	0.25	16	14	F	WT			F2
9	200	F1	D	DC	2.8	0.25	6	8	F	SE, WT			
10	230	F7	SW	DC	1.3	0.4	10	9	F	SE, WT	SE		F7
11	260		FW	DC	2.2	0.4	8	8	G				
12	290		FW	DC	1.8	0.5	8	8	F	SE			
13	320		FW	DC	1.3	0.4	8	7	G				
14	350		FW	DC	1.1	0.4	6	6	F	SE			
15	380-410		FW	DC	1.2	0.3	7	7	G				END

Back of Form B

NOTES; MF Chimokane Creek
F1 UTM NAD 83 N5327250.358m E424619.22m
F2 >20 acre forested wetland extending beyond>100ft.
LB&RB andupstream and downstream of PIP start and end.
F3 New segment break-SW for 13m^2-320 degrees LB, then 28m DC to
associated bog 10m2 to DC road culvert(20m) following 108m continuous
flow to LARGE SPRING.
F4 Old historic road bed augmenting channel RB.
F5 CMZ, though ephemeral flow.
F6 UTM NAD 83 Zone 11N- N5327226.797m E424438.400m
F7 SE/Moss-Lichen Wetland LB and RB 17x18m.
F8 SE RB 1m and SE LB 1x 17m.
F9 SE RB 1m and SE LB 1 x 9m
F10 PIP end of 200m continuous flow.

SKETCH

Spokane Tribe
WSA: Chamokane Creek

Form B: Perennial Stream Survey Field Measurements
Note: Record all Measurements in metric units

WAU: Tamah Valley WRIA54Q1	**Stream Name:** Mf Chamokane Creek	**T/R/S** 30N/38E/15	**Topoquad name:** Adams MT. 1:24,000
Organization: UCUT / STOI	**Description of start point (GPS optional):** Travel 15.8 miles West along Hunters/Springdale Road to site area.		**Landowner:** Boise Cascade
Site Number: WRIA54-S1	**Date:** 9/27/01	**Recorder(s):** Cathy C. & Sondra Collins	
Precipitation (in mm) for the 2 days prior to survey		**Survey type:** (Main thread) or Total Tributary	**Tributary Number:** 1

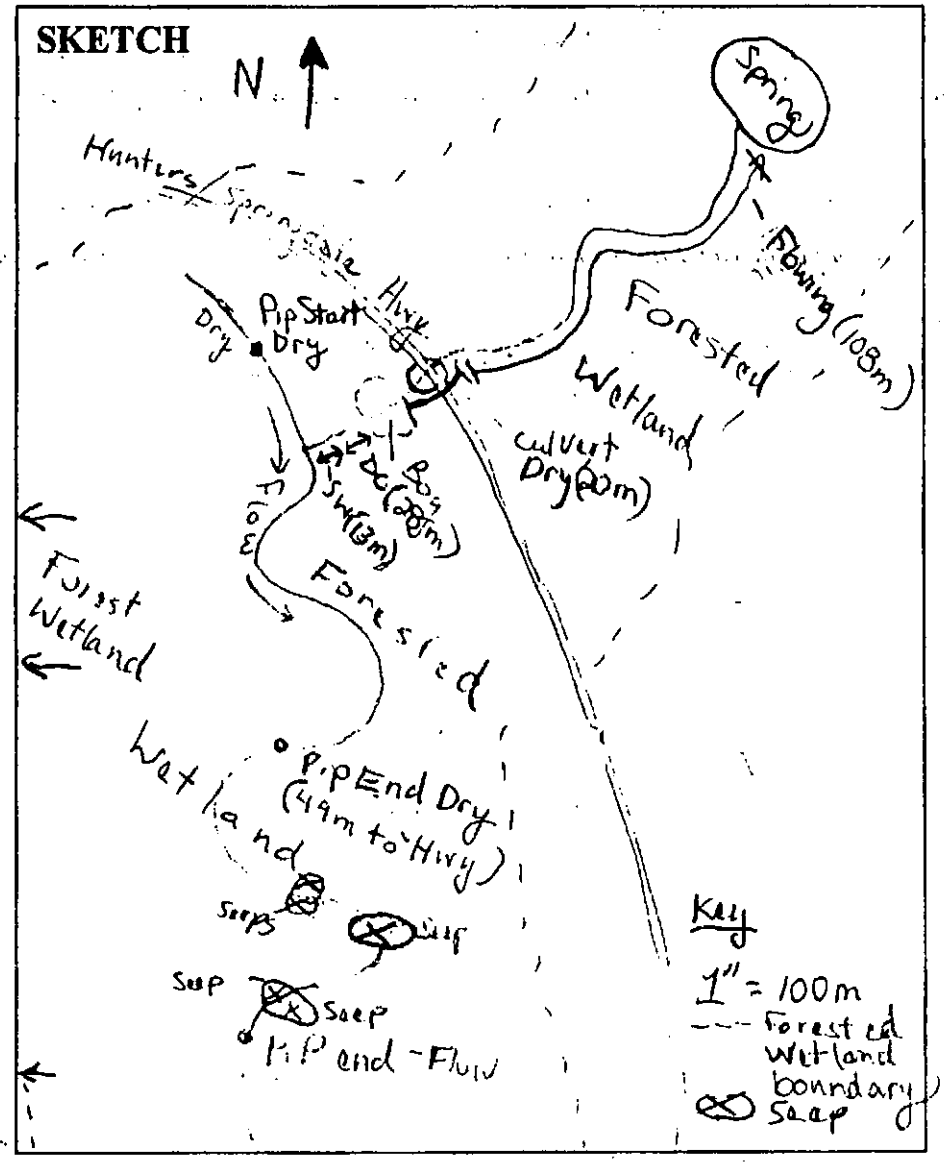
Segment Number	Distance from Start (m)	GPS coordinates (optional)	Flow Category	Channel Category	Channel Bankfull Width	Channel Bankfull Depth	Upstream gradient (%)	Down-stream gradient (%)	Dominant Substrate	Associated Feature at flow change	Flow categories of side trib not on main thread	Channel categories of side trib not on main thread	Notes (see a back page)
1	0	F6	D	PDC	1.3	.1	14	14	F	WT			Forested WT
2	30	F5	D	PDC	2.6	.25	10	12	F	WT			" "
3	31	F3&4	SW							SP	SW		" "
4	60		D	DC	1.0	.1	13	12	F	SE			" "
5	90		D	PDC	.5	.15	13	14	F	WT	SE, WS		F3
6	120		D	PDC	.5	.1	18	11	F	WT			Forested WT
7	130		D	DC	.8	.2	13	14	F	WT			" "
8	160		D	DC	1.0	.25	16	14	F	WT			F2
9	200	F1	D	DC	2.8	.25	16	8	F	SE, WT			
10	230	F7	SW	DC	1.3	.4	10	9	F	SE, WT	SE		F7
11	260		FW	DC	2.2	.4	8	8	G				
12	290		FW	DC	1.8	.5	8	8	F	SE			F8
13	320		FW	DC	1.3	.4	8	7	G				
14	350		FW	DC	1.1	.4	6	6	F	SE			F9
15	380		FW	DC	1.2	.3	7	7	G				
	410	END											F10

Codes for Flow Categories: FW = Flowing Water, SW = Standing Water, FP = Flowing Pocket Water, SP = Standing Pocket Water, D = Dry, U = Unknown, O = Obscured.
Codes for Channel Categories: DC = Defined Channel, PDC = Poorly Defined Channel, MC = Modified Channel, PC = Piped Channel, CC = Covered Channel, NC = No Channel

Back of Form B

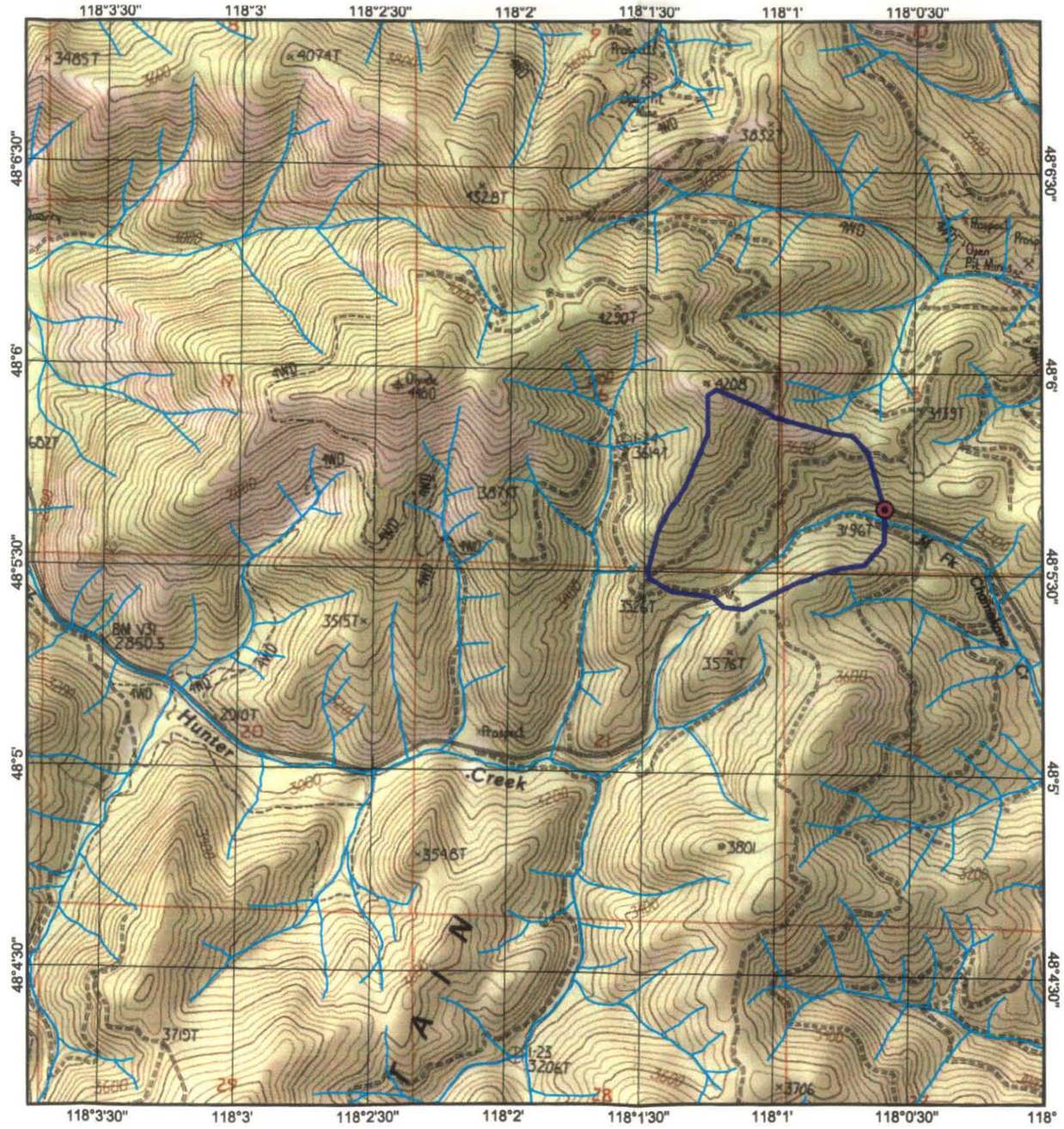
NOTES
F1 UTM NAD83 N5327250.358, E424619.22m
F2 >20ac. forested wetland extending beyond
>100ft LB+RB and upstream and downstream
of PIP start and end.
F3 New segment break. -SW13m; 320° LB
28m dry to associated bog (10x10m) to DC/road
culvert (20m) following 108m continuous flow to
LARGE SPRING!
F4 Old historic road bed augmenting
channel RB.
F5 - UMZ though ephemeral flow.
F6 UTM NAD83 zone 11N - N5327226.197m
E424438.400m
F7 Seep/Moss-Lichen Wetland LB and
RB 17m x 18m.
F8 Seep RB 1m and Seep LB 1x1.7m
F9 Seep RB 1m and seep LB 1x9m
F10 PIP end of 200m continuous flow.

SKETCH



Chamokane Creek

Chamokane
Date of Survey: 9/27/01
WAU: Camas Valley
WMUS: N/A
Quad: Adams Mountain
T 30 R 38 E S 15
N5327049.336 E424699.084
Basin Acreage: 178.030
PIP Surveyed by Spokane Tribe of Indians



0 0.5 1 Miles

1:24000

2001 Perennial Initiation Point Survey

Basin Boundary

PIP

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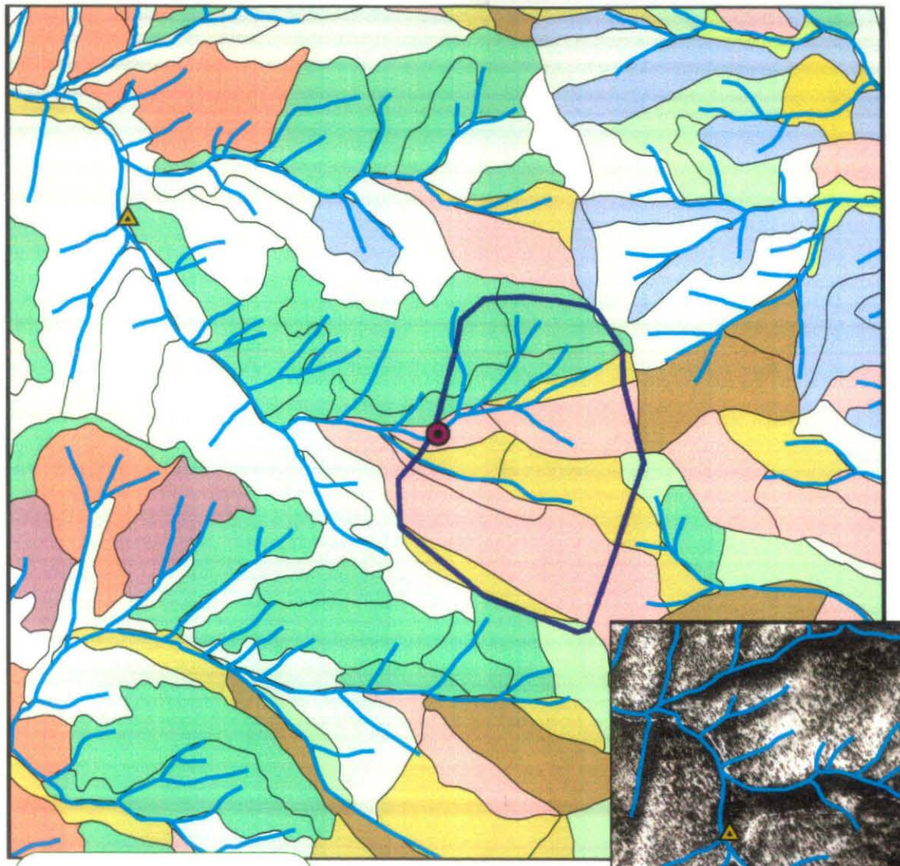
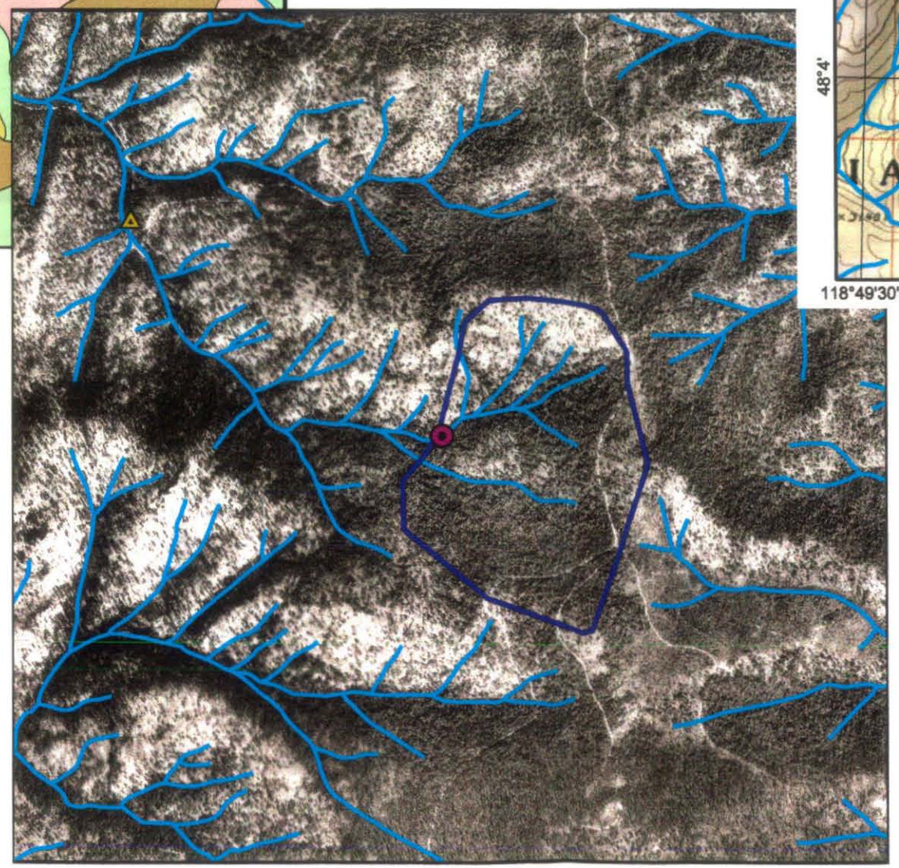
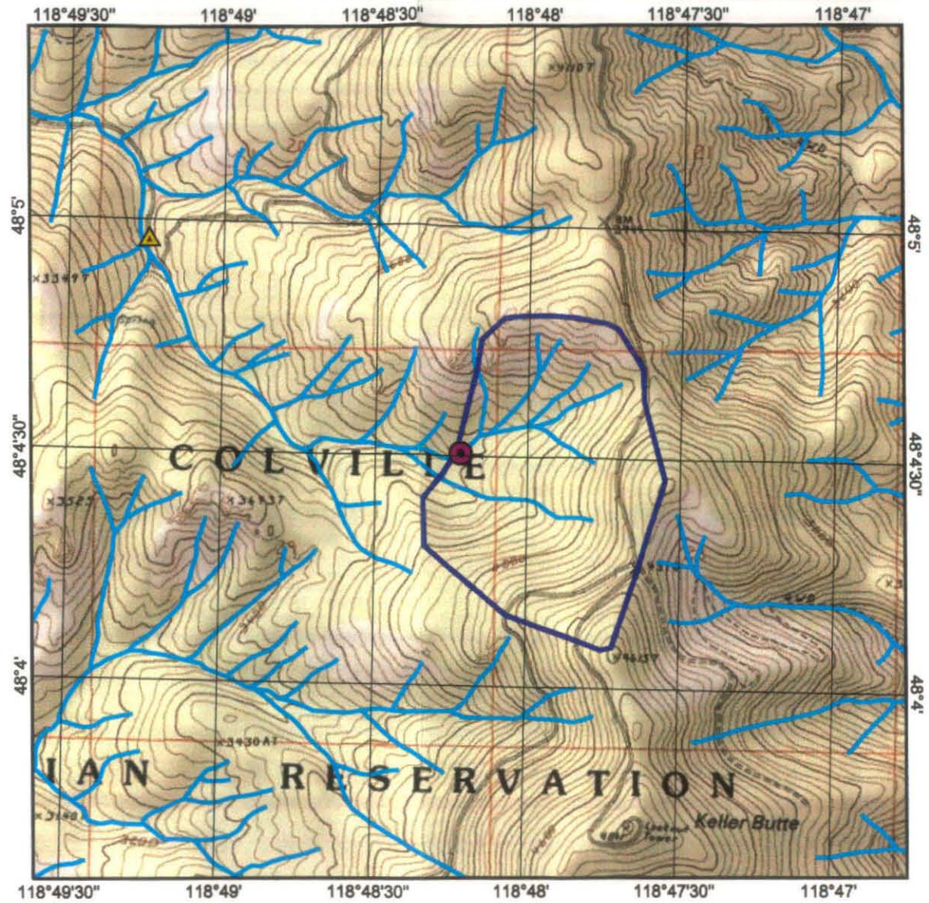
CCT Resource Inventory & Analysis and CCT Fish & Wildlife
January 2002

Joe Moses Creek

Joe Moses Creek
Date of Survey: 5/11/01
WAU: Little Nespelem
WMUS: Joe Moses Creek
Quad: Keller Butte
T 30 R 32 E S 29
48.07495415 -118.8048703
Basin Acreage: 232.215







Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

0 0.5 1 Miles

1:24000

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CCT Resource Inventory & Analysis and
CCT Fish and Wildlife
January 2002

2001 Perennial Initiation Point Survey

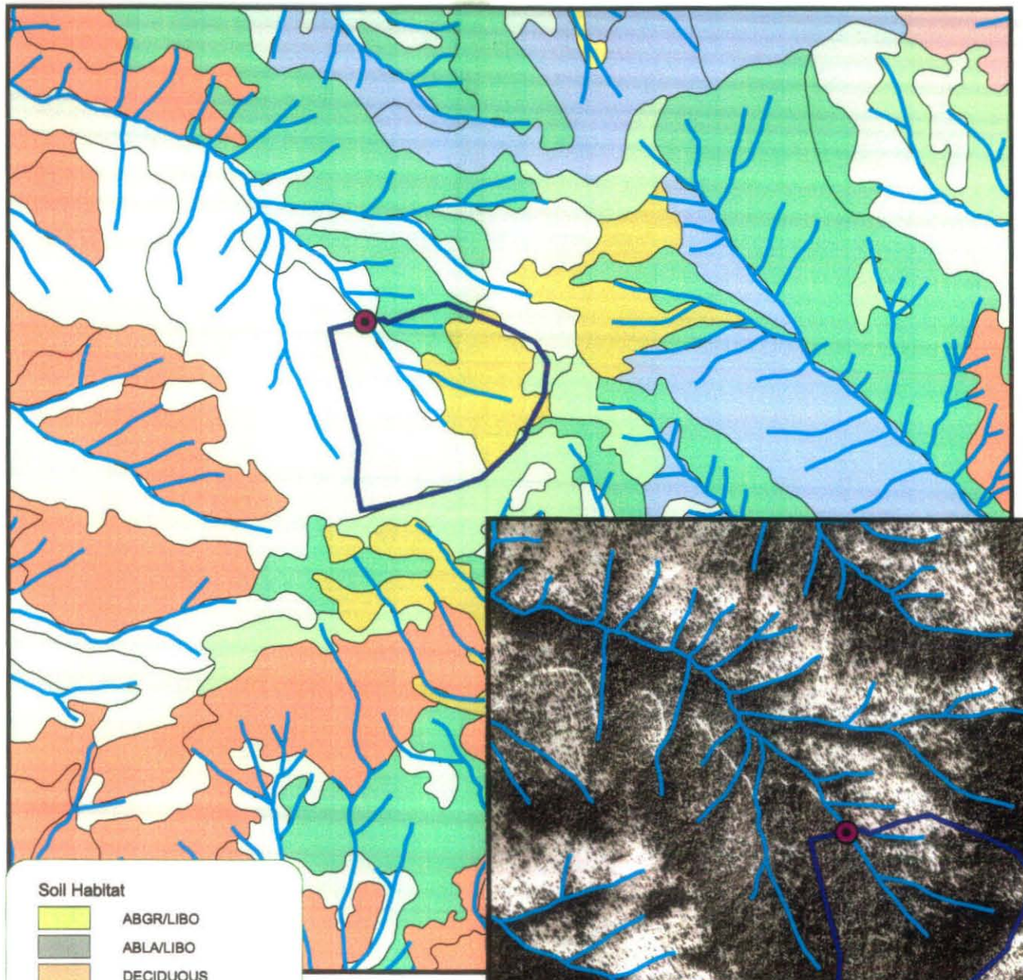
- Basin Boundary

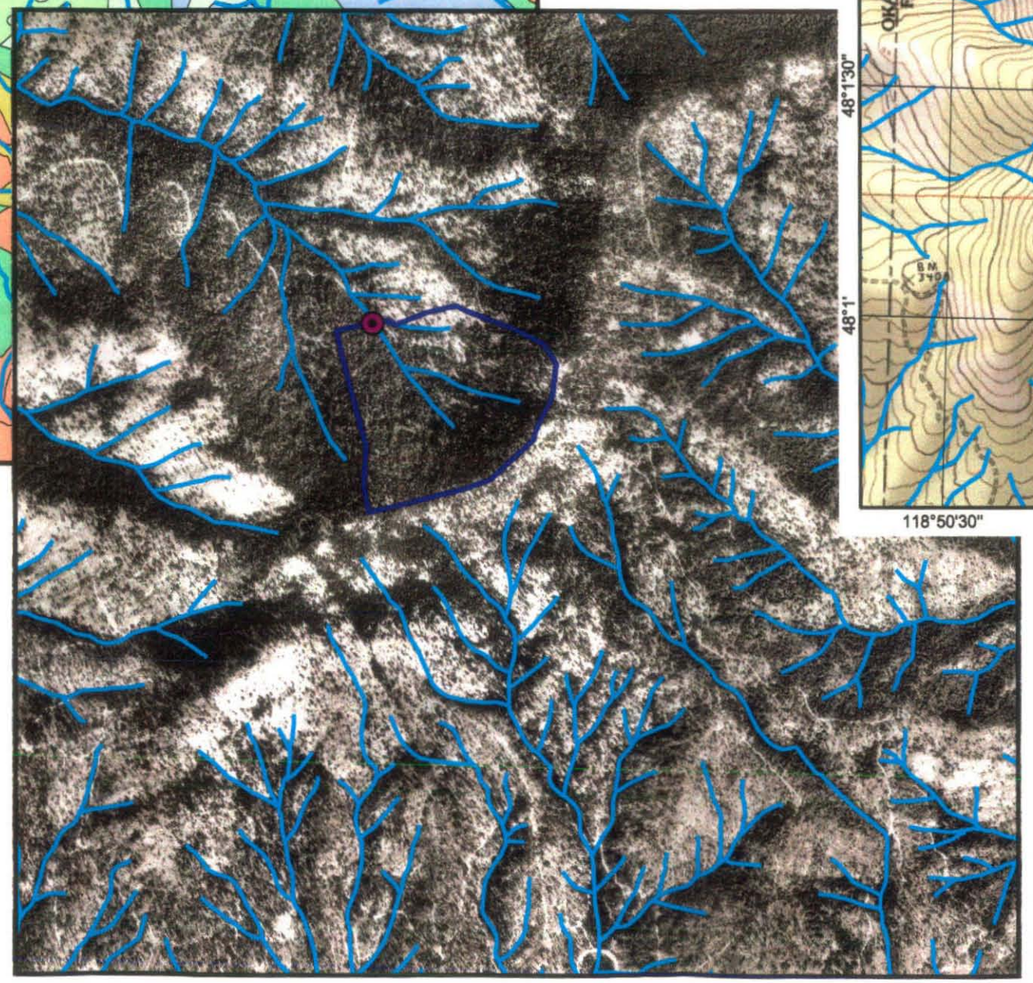
Points

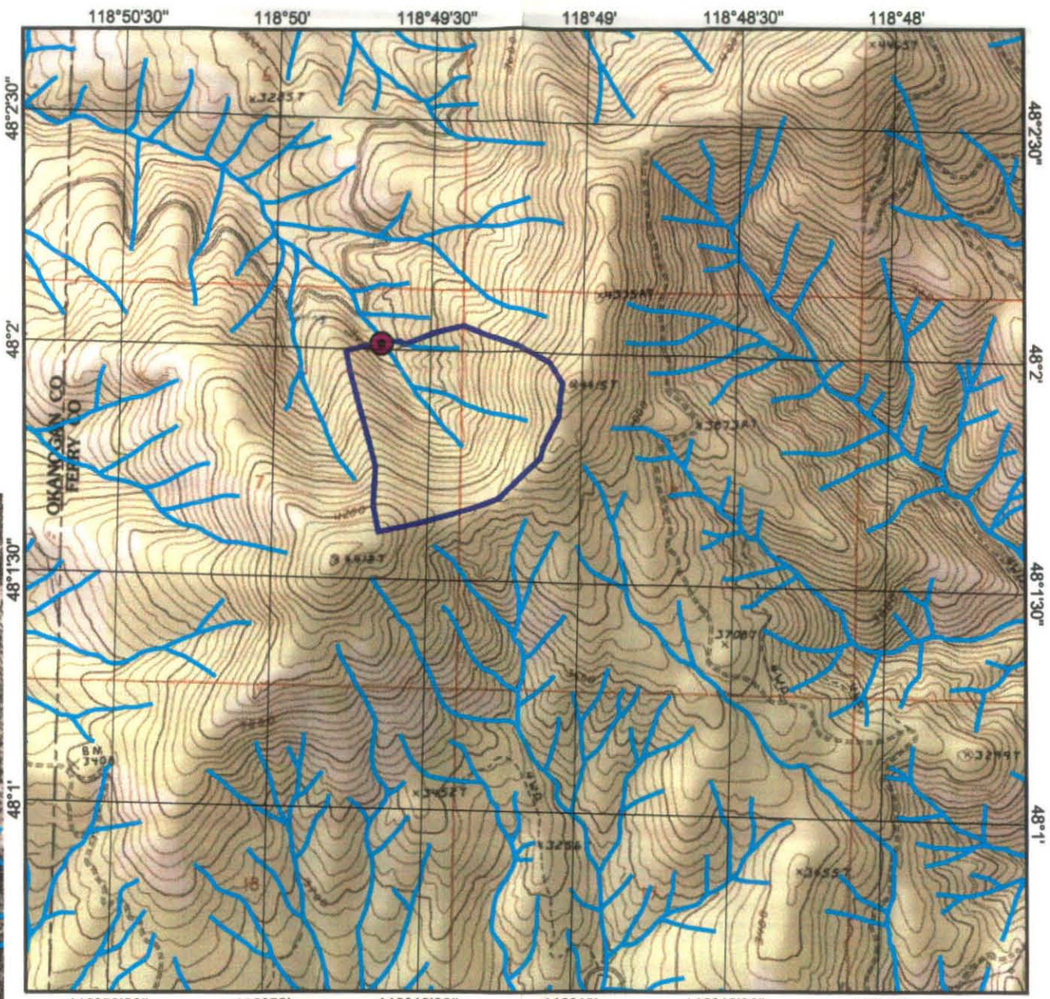
- PIP
- Road Access Pt.
- Spring
- Start Survey
- Survey End Point

Buffalo Creek

Buffalo Creek
Date of Survey: 5/11/01
WAU: Buffalo Lake
WMUS: Buffalo Creek
Quad: Keller Butte
T 29 R 32 E S 07
48.03341210 -118.8288492
Basin Acreage: 126.014







Soil Habitat

- ABGR/LIBO
- ABLA/LIBO
- DECIDUOUS
- PIPO/AGSP
- PIPO/FEID
- PIPO/PUTR,AGSP
- PIPO/PUTR,FEID
- PIPO/SYAL
- PIPO/SYAL,WET
- PSME/CARU
- PSME/CARU,ARUV
- PSME/FEID
- PSME/PHMA
- PSME/PHMA,ARCO
- PSME/PHMA,PAMY
- PSME/SPBE
- PSME/SYAL
- PSME/SYAL,WET
- PSME/SYAL-LOW

0 0.5 1 Miles

1:24000

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2001 Perennial Initiation Point Survey

- Basin Boundary

Points

- PIP
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- Spring
- Start Survey
- Survey End Point