

STREAM INVENTORY REPORT

Right Bank Tributary Two to Martin Creek

INTRODUCTION

A stream inventory was conducted July 29, 2002 on Right Bank Tributary Two to Martin Creek. The survey began at the confluence with Martin Creek and extended upstream 0.60 miles.

The Right Bank Tributary Two to Martin Creek inventory was conducted in two parts: habitat inventory and biological inventory. The objective of the habitat inventory was to document the habitat available to anadromous salmonids in Right Bank Tributary Two to Martin Creek. The objective of the biological inventory was to document the presence and distribution of juvenile salmonid species.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for coho salmon, and steelhead trout. Recommendations for habitat improvement activities are based upon target habitat values suitable for salmonids in California's north coast streams.

WATERSHED OVERVIEW

Right Bank Tributary Two is a tributary to Martin Creek, a tributary to Big River, located in Mendocino County, California (Map 1). Right Bank Tributary Two to Martin Creek's legal description at the confluence is T17N R14W S16. Its location is 39°19'31" north latitude and 123°26'1" west longitude. Right Bank Tributary Two to Martin Creek is a first order stream and has approximately 0.32 miles of solid blue line stream according to the USGS Greenough Ridge 7.5 minute quadrangle. Right Bank Tributary Two to Martin Creek drains a watershed of approximately 1.2 square miles. Elevations range from about 780 feet at the mouth of the creek to 1600 feet in the headwater areas. Mixed conifer forest dominates the watershed. The watershed is entirely privately owned and is managed for timber production. Vehicle access exists via Highway 20 at mile marker 27. Pioneer Resources Timber Company's logging roads were used to reach the tributary.

METHODS

The habitat inventory conducted in Right Bank Tributary Two to Martin Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi et al, 1998). The California Department of Fish and Game Scientific Aids (DFG) and Watershed Stewards Project/AmeriCorps (WSP/AmeriCorps) Members that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game (DFG). This inventory was conducted by a two-person team.

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SAMPLING STRATEGY

The inventory uses a method that samples approximately 10% of the habitat units within the survey reach. All habitat units included in the survey are classified according to habitat type and their lengths are measured. All pool units are measured for maximum depth, depth of pool tail crest (measured in the thalweg), dominant substrate composing the pool tail crest, and embeddedness. Habitat unit types encountered for the first time are measured for all the parameters and characteristics on the field form. Additionally, from the ten habitat units on each field form page, one is randomly selected for complete measurement.

HABITAT INVENTORY COMPONENTS

A standardized habitat inventory form has been developed for use in California stream surveys and can be found in the *California Salmonid Stream Habitat Restoration Manual*. This form was used in Right Bank Tributary Two to Martin Creek to record measurements and observations. There are nine components to the inventory form. For specific information on the methods used see the Martin Creek report.

BIOLOGICAL INVENTORY

Biological sampling during the stream inventory is used to determine fish species and their distribution in the stream. Fish presence was observed from the stream banks in Right Bank Tributary Two to Martin Creek. These sampling techniques are discussed in the *California Salmonid Stream Habitat Restoration Manual*.

DATA ANALYSIS

Data from the habitat inventory form are entered into Habitat 8.4, a dBASE 4.2 data entry program developed by Tim Curtis, Inland Fisheries Division, California Department of Fish and Game. This program processes and summarizes the data, and produces the following six tables:

- Riffle, flatwater, and pool habitat types
- Habitat types and measured parameters
- Pool types
- Maximum pool depths by habitat types
- Dominant substrates by habitat types
- Mean percent shelter by habitat types

Graphics are produced from the tables using Excel. Graphics developed for Right Bank Tributary Two to Martin Creek include:

- Riffle, flatwater, pool habitats by percent occurrence
- Riffle, flatwater, pool habitats by total length

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- Total habitat types by percent occurrence
- Pool types by percent occurrence
- Total pools by maximum depths
- Embeddedness
- Pool cover by cover type
- Dominant substrate in low gradient riffles
- Mean percent canopy
- Bank composition by composition type
- Bank vegetation by vegetation type

HABITAT INVENTORY RESULTS

* ALL TABLES AND GRAPHS ARE LOCATED AT THE END OF THE REPORT *

The habitat inventory of July 29, 2002, was conducted by Scott Monday and Kristi Knechtle (DFG). The total length of the stream surveyed was 3,198 feet.

Stream flow was not measured on Right Bank Tributary Two to Martin Creek.

Right Bank Tributary Two to Martin Creek is a B4 channel type for the entire 3,198 of stream surveyed. B4 channel types are classified as moderately entrenched, moderate gradient, riffle dominated channels with infrequently spaced pools, very stable plan and profile, stable banks, and gravel-dominated substrates.

Water temperatures taken during the survey period ranged from 60 to 62 degrees Fahrenheit. Air temperatures ranged from 70 to 83 degrees Fahrenheit.

Table 1 summarizes the Level II riffle, flatwater, and pool habitat types. Based on frequency of occurrence there were 42% pool units, 40% flatwater units, 12% riffle units, and 6% dry units (Graph 1). Based on total length of Level II habitat types there were 77% flatwater units, 14% pool units, 8% riffle units, and 1% dry units (Graph 2).

Eight Level IV habitat types were identified (Table 2). The most frequent habitat types by percent occurrence were step runs, 38%; mid-channel pools, 36%; and low gradient riffles, 12% (Graph 3). Based on percent total length, step runs made up 77%, mid channel pools 12%, and low gradient riffles 8%.

A total of 21 pools were identified (Table 3). Main channel pools were the most frequently encountered, at 95%, and comprised 98% of the total length of all pools (Graph 4).

Table 4 is a summary of maximum pool depths by pool habitat types. Pool quality for salmonids increases with depth. Four of the 21 pools (19%) had a depth of two feet or greater (Graph 5). The depth of cobble embeddedness was estimated at pool tail-outs. Of the 21 pool tail-outs measured, 0 had a value of 1 (0%); 0 had a value of 2 (0%); 12 had a value of 3 (57%); 7 had a value of 4 (33%); and 2 had a value of 5 (10%) (Graph 6). On this scale, a value of 1 indicates

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the highest quality of spawning substrate.

A shelter rating was calculated for each habitat unit and expressed as a mean value for each habitat type within the survey using a scale of 0-300. Flatwater habitat types had a mean shelter rating of 100, pool habitats had a mean shelter rating of 34, and riffle habitat types had a mean shelter rating of 0 (Table 1). Of the pool types, the scour pools had the highest mean shelter rating at 60. Main channel pools had a mean shelter rating of 33 (Table 3).

Table 5 summarizes mean percent cover by habitat type. Large woody debris is the dominant cover types in Right Bank Tributary Two to Martin Creek. Graph 7 describes the pool cover in Right Bank Tributary Two to Martin Creek. Large woody debris is the dominant pool cover type followed by small woody debris.

Table 6 summarizes the dominant substrate by habitat type. Graph 8 depicts the dominant substrate observed in pool tail-outs. Gravel was the dominant substrate observed in 38% of pool tail-outs while small cobble was an equally observed substrate type, at 38%.

The mean percent canopy density for the surveyed length of Right Bank Tributary Two to Martin Creek was 86%. The mean percentages of deciduous and coniferous trees were 16% and 84%, respectively. Graph 9 describes the mean percent canopy in Right Bank Tributary Two to Martin Creek.

For the stream reach surveyed, the mean percent right bank vegetated was 30%. The mean percent left bank vegetated was 24%. The dominant elements composing the structure of the stream banks consisted of 50% sand/silt/clay, 14% bedrock, 27% boulder, and 9% cobble/gravel (Graph 10). Coniferous trees were the dominant vegetation type observed in 95% of the units surveyed. Additionally, 5% of the units surveyed had deciduous trees as the dominant vegetation type (Graph 11).

BIOLOGICAL INVENTORY RESULTS

No biological inventory was conducted on Right Bank Tributary Two to Martin Creek. Yearling salmonid presence was observed from the stream banks in Right Bank Tributary Two to Martin Creek up to 1,090 feet.

DISCUSSION

Right Bank Tributary Two to Martin Creek is a B4 channel type for the entire 3,198 feet of stream surveyed. The suitability of B4 channel type for fish habitat improvement structures is as follows: B4 channel types are excellent for low-stage plunge weirs, boulder clusters and bank placed boulders, single and opposing wing deflectors, and log cover

The water temperatures recorded on the survey day July 29, 2002 ranged from 60 to 62 degrees Fahrenheit. Air temperatures ranged from 70 to 83 degrees Fahrenheit. This is an unsuitable

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water temperature range for salmonids. Sixty degrees Fahrenheit, if sustained, is near the threshold stress level for salmonids. To make any further conclusions, temperatures would need to be monitored throughout the warm summer months, and more extensive biological sampling would need to be conducted.

Flatwater habitat types comprised 77% of the total length of this survey, pools 14%, and riffles 8%. The pools are relatively shallow, with 4 of the 21 (19%) pools having a maximum depth greater than 2 feet. In general, pool enhancement projects are considered when primary pools comprise less than 40% of the length of total stream habitat. In first and second order streams, a primary pool is defined to have a maximum depth of at least two feet, occupy at least half the width of the low flow channel, and be as long as the low flow channel width. Installing structures that will increase or deepen pool habitat is recommended for locations where their installation will not be threatened by high stream energy, or where their installation will not conflict with the modification of the numerous log debris accumulations (LDA's) in the stream.

None of the 21 pool tail-outs measured had embeddedness ratings of 1 or 2. Nineteen of the pool tail-outs had embeddedness ratings of 3 or 4. Two of the pool tail-outs had a rating of 5, which is considered unsuitable for spawning. Cobble embeddedness measured to be 25% or less, a rating of 1, is considered to indicate good quality spawning substrate for salmon and steelhead. Sediment sources in Right Bank Tributary Two to Martin Creek should be mapped and rated according to their potential sediment yields, and control measures should be taken.

Nineteen of the 21 pool tail-outs measured had gravel and small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean shelter rating for pools was 34. The shelter rating in the flatwater habitats was 100. A pool shelter rating of approximately 100 is desirable. The amount of cover that now exists is being provided primarily by large woody debris in all habitat types. Additionally, small woody debris contributes a small amount. Log and root wad cover structures in the pool and flatwater habitats would enhance both summer and winter salmonid habitat. Log cover structure provides rearing fry with protection from predation, rest from water velocity, and also divides territorial units to reduce density related competition.

The mean percent canopy density for the stream was 85%. In general, revegetation projects are considered when canopy density is less than 80%.

The percentage of right and left bank covered with vegetation was moderate at 30% and 24%, respectively. In areas of stream bank erosion or where bank vegetation is not at acceptable levels, planting endemic species of coniferous and deciduous trees, in conjunction with bank stabilization, is recommended.

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RECOMMENDATIONS

- 1) Right Bank Tributary Two to Martin Creek should be managed as an anadromous, natural production stream.
- 2) The limited water temperature data available suggest that maximum temperatures are above the acceptable range for juvenile salmonids. To establish more complete and meaningful temperature regime information, 24-hour monitoring during the July and August temperature extreme period should be performed for 3 to 5 years.
- 3) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.
- 4) Inventory and map sources of stream bank erosion and prioritize them according to present and potential sediment yield. Identified sites should then be treated to reduce the amount of fine sediments entering the stream.
- 5) Active and potential sediment sources need to be identified, mapped, and treated according to their potential for sediment yield to the stream and its tributaries.
- 6) There are several log debris accumulations present on Right Bank Tributary Two to Martin Creek that are retaining large quantities of fine sediment. The modification of these debris accumulations is desirable, but must be done carefully, over time, to avoid excessive sediment loading in downstream reaches.
- 7) Due to the high gradient of the stream, access for migrating salmonids is an ongoing potential problem. Fish passage should be monitored and improved where possible.

COMMENTS AND LANDMARKS

The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey reach.

Position

(ft):	Comment:
0'	Begin survey approximately 15' from the confluence with Martin Creek. The channel type is B4. A log debris accumulation (LDA) consisting of 6 pieces of large woody debris (LWD). There is a 3' jump to the net unit.
42'	An LWD and boulders are retaining fine sediment and gravel. Water is subsurface.
72'	There is a salamander and a frog in this unit. At 20' there is an LDA that measures 15' x 4' x 5'. Sediment is being retained.
147'	There is a newt.

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- 184' A 5" trout in this unit. There is an LDA 20' x 8' x 5' retaining sediment. The flow is subsurface.
- 249' The top 3' of this unit are dry. An LDA is retaining sediment.
- 264' An LDA is retaining sediment. Flow is subsurface.
- 568' Channel type was taken in this unit.
- 719' At 37' into the unit an LDA measuring 10' x 4' x 5' is clogging the channel.
- 1090' There is a steelhead yearling. There is a dry right bank tributary in this unit.
- 1282' Old instream restoration work. An LDA measuring 15' x 4' x 4' with 2 logs notched creating a log weir.
- 1438' A culvert measures 6' in diameter x 71' long. The bottom of culvert is rusted and there are holes in places.
- 1672' There is a 6.5' over a rootwad. The flow is very low. An LDA measures 15' x 7' x 4'.
- 1792' An LDA measures 10' x 4' x 4' and is retaining sediment.
- 1802' There is an LDA across the channel. This is possibly an old bridge crossing.
- 1830' The dry channel has a layer of fine sediment on top.
- 2110' There is an old landslide on the left bank measuring approximately 200' high x 100' wide. There is slash on the landing site.
- 2858' A right bank tributary enters at this point. It is dry for 50' where there is a small waterfall.
- 2870' End of survey. Upstream from the culvert, there were multiple LDAs that were potential fish barriers with substrate piled at the top. One of the lwd piles had a 6 foot jump to the top. The last fish seen on the trib was in unit 0023.

REFERENCES

Flosi, G., Downie, S., Hopelain, J., Bird, M., Coey, R., and Collins, B. 1998. *California Salmonid Stream Habitat Restoration Manual*, 3rd edition. California Department of Fish and Game, Sacramento, California.

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LEVEL III and LEVEL IV HABITAT TYPES

RIFFLE

Low Gradient Riffle	(LGR)	[1.1]	{ 1 }
High Gradient Riffle	(HGR)	[1.2]	{ 2 }

CASCADE

Cascade	(CAS)	[2.1]	{ 3 }
Bedrock Sheet	(BRS)	[2.2]	{24}

FLATWATER

Pocket Water	(POW)	[3.1]	{21}
Glide	(GLD)	[3.2]	{14}
Run	(RUN)	[3.3]	{15}
Step Run	(SRN)	[3.4]	{16}
Edgewater	(EDW)	[3.5]	{18}

MAIN CHANNEL POOLS

Trench Pool	(TRP)	[4.1]	{ 8 }
Mid-Channel Pool	(MCP)	[4.2]	{17}
Channel Confluence Pool	(CCP)	[4.3]	{19}
Step Pool	(STP)	[4.4]	{23}

SCOUR POOLS

Corner Pool	(CRP)	[5.1]	{22}
Lateral Scour Pool - Log Enhanced	(LSL)	[5.2]	{10}
Lateral Scour Pool - Root Wad Enhanced	(LSR)	[5.3]	{11}
Lateral Scour Pool - Bedrock Formed	(LSBk)	[5.4]	{12}
Lateral Scour Pool - Boulder Formed	(LSBo)	[5.5]	{20}
Plunge Pool	(PLP)	[5.6]	{ 9 }

BACKWATER POOLS

Secondary Channel Pool	(SCP)	[6.1]	{ 4 }
Backwater Pool - Boulder Formed	(BPB)	[6.2]	{ 5 }
Backwater Pool - Root Wad Formed	(BPR)	[6.3]	{ 6 }
Backwater Pool - Log Formed	(BPL)	[6.4]	{ 7 }
Dammed Pool	(DPL)	[6.5]	{13}

ADDITIONAL UNIT DESIGNATIONS

Dry	(DRY)	[7.0]	
Culvert	(CUL)	[8.0]	
Not Surveyed	(NS)	[9.0]	
Not Surveyed due to a marsh	(MAR)	[9.1]	

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TABLES AND GRAPHS

TABLE 8. FISH HABITAT INVENTORY DATA SUMMARY

STREAM NAME: RIGHT TRB 2 MARTIN CREEK
SAMPLE DATES:
STREAM LENGTH: 3198 ft.
LOCATION OF STREAM MOUTH:
USGS Quad Map: GREENOUGH Latitude: 39°19'31"
Legal Description: T17NR14WS16 Longitude: 123°26'1"

SUMMARY OF FISH HABITAT ELEMENTS BY STREAM REACH

STREAM REACH 01
Channel Type: B4 Canopy Density: 86%
Channel Length: 3198 ft. Coniferous Component: 84%
Riffle/flatwater Mean Width: 8 ft. Deciduous Component: 16%
Total Pool Mean Depth: 0.9 ft. Pools by Stream Length: 14%
Base Flow: 0.0 cfs Pools >=3 ft.deep: 0%
Water: 060- 062°F Air: 070-083°F Mean Pool Shelter Rtn: 34
Dom. Bank Veg.: Coniferous Trees Dom. Shelter: Large Woody Debris
Vegetative Cover: 27% Occurrence of LOD: 53%
Dom. Bank Substrate: Silt/Clay/Sand Dry Channel: 31 ft.
Embeddness Value: 1. 0% 2. 0% 3. 57% 4. 33% 5. 10%

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RIGHT TRB 2 MARTIN CREEK

Drainage: SF BIG RIVER

Table 1 - SUMMARY OF RIFFLE, FLATWATER, AND POOL HABITAT TYPES

Survey Dates: 7/29/02

Confluence Location: QUAD: GREENOUGH LEGAL DESCRIPTION: T17NR14WS16 LATITUDE:39°19'31" LONGITUDE:123°26'1"

HABITAT UNITS FULLY MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	PERCENT TOTAL LENGTH	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	MEAN ESTIMATED TOTAL AREA (sq.ft.)	MEAN ESTIMATED VOLUME (cu.ft.)	MEAN RESIDUAL POOL VOL (cu.ft.)	MEAN SHELTER RATING
6	1	12	41	247	8	2.0	0.2	12	72	2	14	0
20	2	40	124	2472	77	11.0	0.5	191	3810	95	1905	0
21	21	42	21	448	14	8.0	0.9	213	4474	232	4875	179
3	0	6	10	31	1	0.0	0.0	0	0	0	0	0
TOTAL UNITS	TOTAL UNITS		TOTAL LENGTH (ft.)					TOTAL AREA (sq. ft.)		TOTAL VOL. (cu. ft.)		
50	24		3198					8356		6794		

Right Bank Tributary Two to Martin Creek

RIGHT TRB 2 MARTIN CREEK

Drainage: SF BIG RIVER

Table 2 - SUMMARY OF HABITAT TYPES AND MEASURED PARAMETERS

Survey Dates: 7/29/02

Confluence Location: QUAD: GREENOUGH LEGAL DESCRIPTION: T17NR14WS16 LATITUDE:39°19'31" LONGITUDE:123°26'1"

HABITAT UNITS	HABITAT FULLY MEASURED	HABITAT OCCURRENCE	MEAN LENGTH	MEAN WIDTH	MEAN DEPTH	MEAN MAXIMUM DEPTH	MEAN AREA	TOTAL AREA	MEAN VOLUME	TOTAL VOLUME	MEAN RESIDUAL SHELTER	MEAN CANOPY
#		%	ft.	ft.	ft.	ft.	sq.ft.	sq.ft.	cu.ft.	cu.ft.	cu.ft.	%
6	1 LGR	12	41	2	0.2	0.4	12	72	2	14	0	93
1	1 RUN	2	15	17	0.5	1.1	255	255	128	128	0	80
19	1 SRK	38	129	5	0.5	1.1	126	2394	63	1197	0	120
18	18 MCP	36	22	8	0.8	2.8	224	4023	241	4344	186	32
1	1 CCP	2	21	8	0.8	1.8	168	168	134	134	84	60
1	1 STP	2	32	8	1.5	2.5	243	243	365	365	292	15
1	1 PLP	2	8	5	0.8	1.2	40	40	32	32	20	60
3	0 DRY	6	10	0	0.0	0.0	0	0	0	0	0	0
TOTAL UNITS	50		LENGTH (ft.)	3198			AREA (sq.ft.)	7195		TOTAL VOL. (cu.ft.)	6214	

Right Bank Tributary Two to Martin Creek

RIGHT TRS 2 MARTIN CREEK

Drainage: SF BIG RIVER

Table 3 - SUMMARY OF POOL TYPES

Survey Dates: 7/29/02

Confluence Location: QUAD: GREENOUGH LEGAL DESCRIPTION: T17NR14WS16 LATITUDE:39°19'31" LONGITUDE:123°26'1"

HABITAT UNITS	HABITAT FULLY MEASURED	HABITAT PERCENT OCCURRENCE	MEAN LENGTH (ft.)	TOTAL LENGTH (ft.)	MEAN WIDTH (ft.)	MEAN DEPTH (ft.)	MEAN AREA (sq.ft.)	TOTAL AREA (sq.ft.)	MEAN VOLUME (cu.ft.)	TOTAL VOLUME (cu.ft.)	MEAN RESIDUAL SHELTER	MEAN POOL VOL. RATING (cu.ft.)
20	20	95	22	440	8.1	0.9	222	4134	242	4843	186	33
1	1	5	8	8	5.0	0.8	40	40	32	32	20	60
TOTAL UNITS	21		TOTAL LENGTH (ft.)	448			TOTAL AREA (sq.ft.)	4174		TOTAL VOL. (cu.ft.)		4875

Right Bank Tributary Two to Martin Creek

RIGHT TRB 2 MARTIN CREEK

Drainage: SF BIG RIVER

Table 4 - SUMMARY OF MAXIMUM POOL DEPTHS BY POOL HABITAT TYPES

Survey Dates: 7/29/02

Confluence Location: QUAD: GREENOUGH LEGAL DESCRIPTION: T17NR14WS16 LATITUDE:39°19'31" LONGITUDE:123°26'1"

UNITS MEASURED	HABITAT TYPE	HABITAT PERCENT OCCURRENCE	<1 FOOT		1-<2 FT.		2-<3 FT.		3-<4 FT.		3-4 FT.		>=4 FT		>=4 FBFT	
			DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM	DEPTH OCCURRENCE	PERCENT MAXIMUM
18	MCP	86	0	0	15	83	3	17	0	0	0	0	0	0	0	0
1	CCP	5	0	0	1	100	0	0	0	0	0	0	0	0	0	0
1	STP	5	0	0	0	0	1	100	0	0	0	0	0	0	0	0
1	PLP	5	0	0	1	100	0	0	0	0	0	0	0	0	0	0

TOTAL
UNITS
21

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RIGHT TRB 2 MARTIN CREEK

Drainage: SP BIG RIVER

Table 6 - SUMMARY OF DOMINANT SUBSTRATES BY HABITAT TYPE

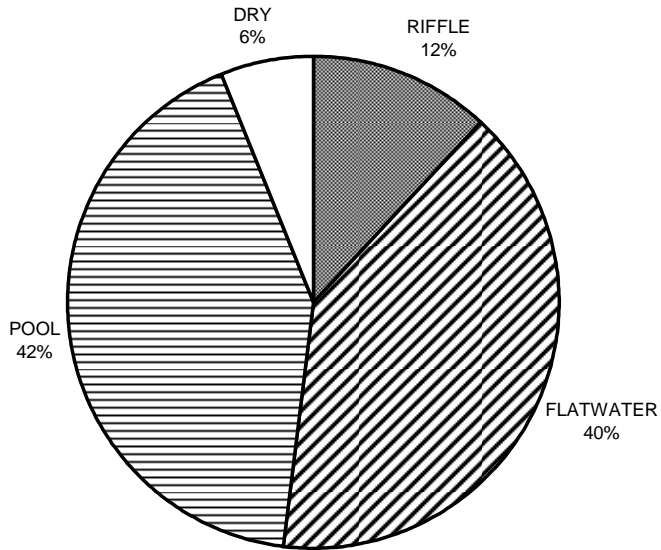
Survey Dates: 7/29/02

Confluence Location: QUAD: GREENOUGH LEGAL DESCRIPTION: T17NK14WS16 LATITUDE:39°19'31" LONGITUDE:123°26'1"

TOTAL HABITAT UNITS FULLY MEASURED	HABITAT TYPE	% TOTAL SILT/CLAY DOMINANT	% TOTAL SAND DOMINANT	% TOTAL GRAVEL DOMINANT	% TOTAL SM COBBLE DOMINANT	% TOTAL LG COBBLE DOMINANT	% TOTAL BOULDER DOMINANT	% TOTAL BEDROCK DOMINANT
6	LGR	0	0	0	0	0	100	0
1	RUN	100	0	0	0	0	0	0
19	SRN	0	0	0	0	0	100	0
18	MCP	40	0	0	0	20	40	0
1	CCP	100	0	0	0	0	0	0
1	STP	100	0	0	0	0	0	0
1	PLP	0	0	0	0	100	0	0
3	DRY	0	0	0	0	0	0	0

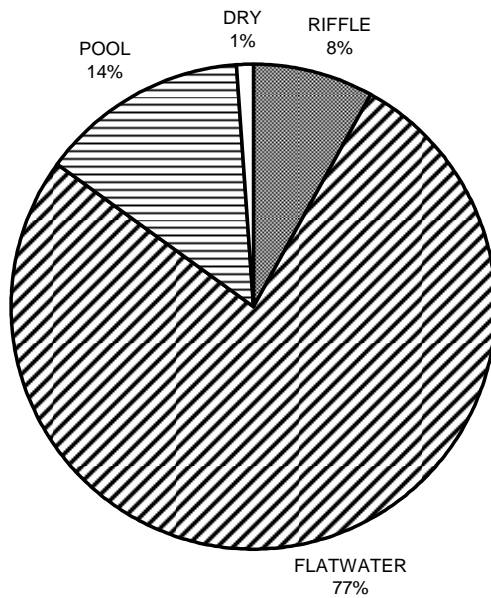
Right Bank Tributary Two to Martin Creek

**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
HABITAT TYPES BY PERCENT OCCURENCE**



GRAPH 1

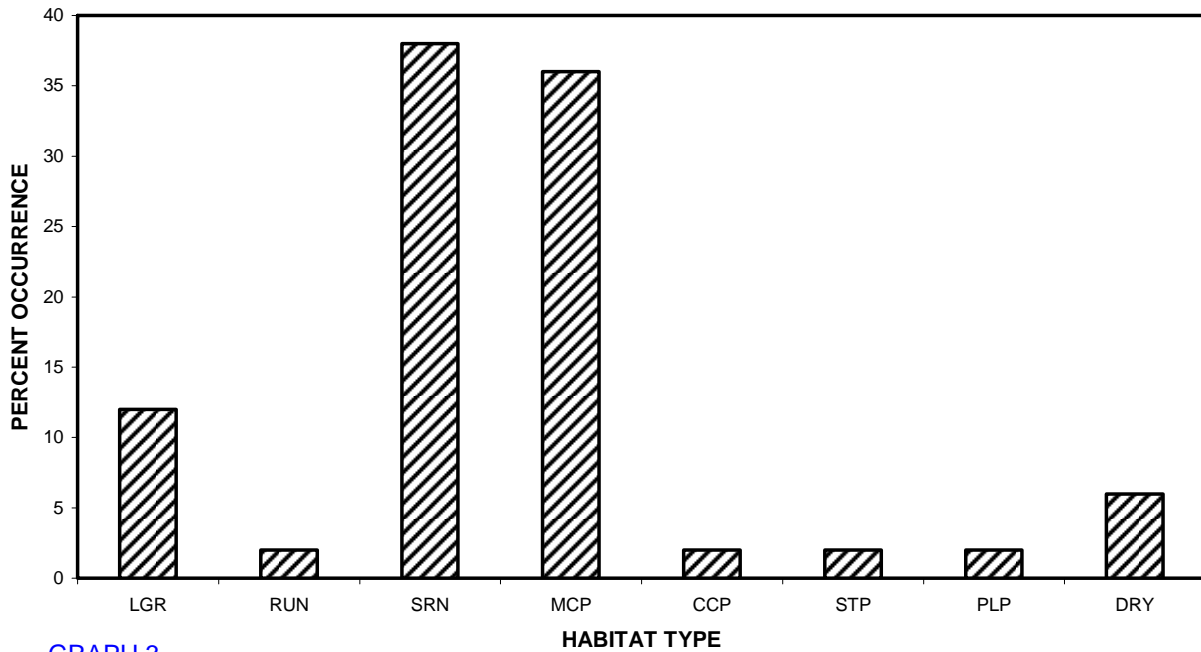
**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
HABITAT TYPES BY PERCENT TOTAL LENGTH**



GRAPH 2

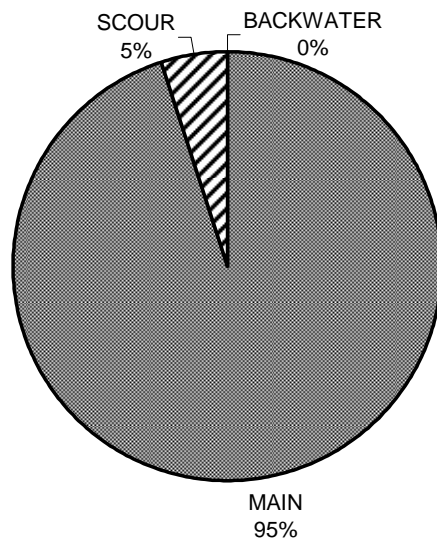
Right Bank Tributary Two to Martin Creek

**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
HABITAT TYPES BY PERCENT OCCURRENCE**



GRAPH 3

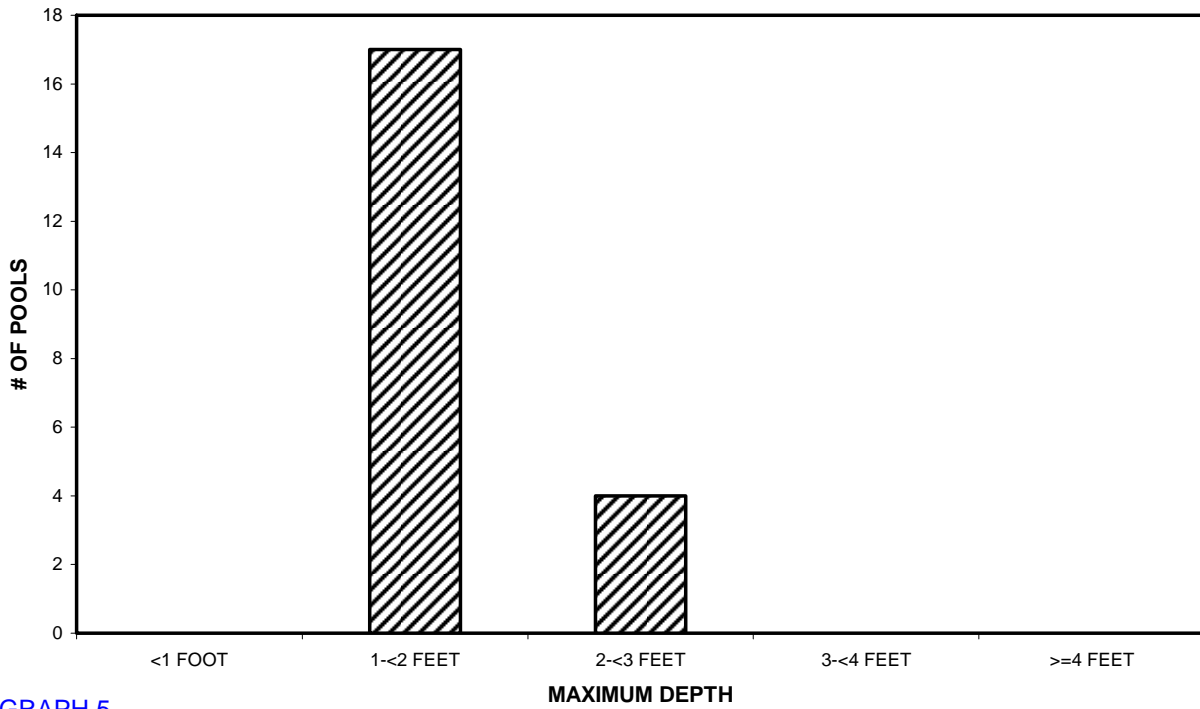
**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
POOL HABITAT TYPES BY PERCENT OCCURRENCE**



GRAPH 4

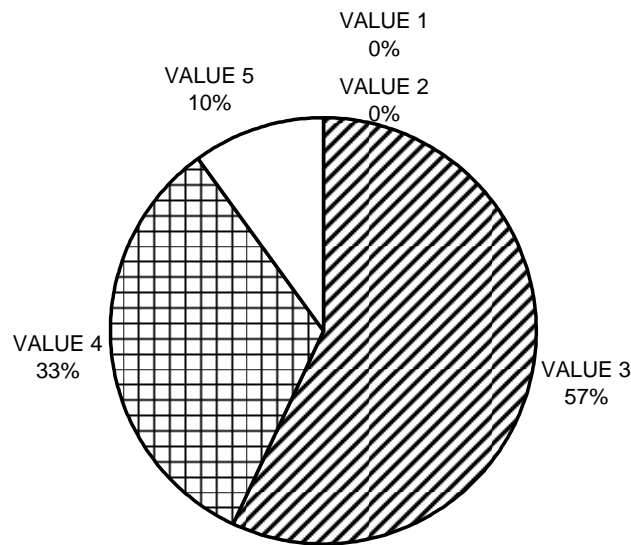
Right Bank Tributary Two to Martin Creek

RIGHT BANK TRIBUTARY 2 MARTIN CREEK MAXIMUM DEPTH IN POOLS



GRAPH 5

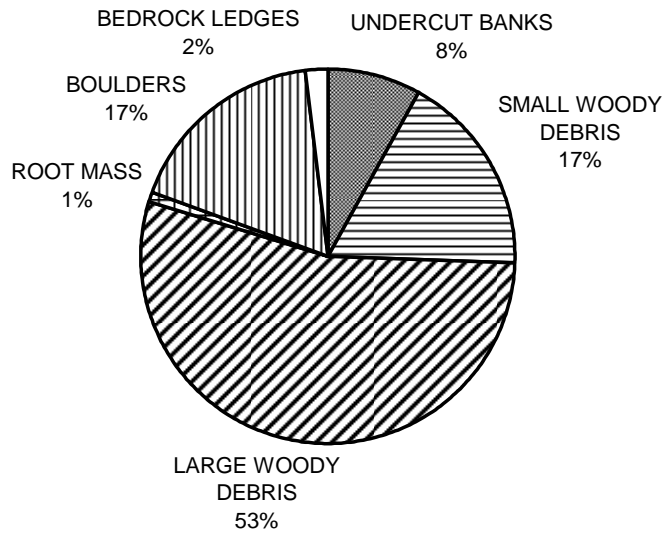
RIGHT BANK TRIBUTARY 2 MARTIN CREEK PERCENT EMBEDDEDNESS



GRAPH 6

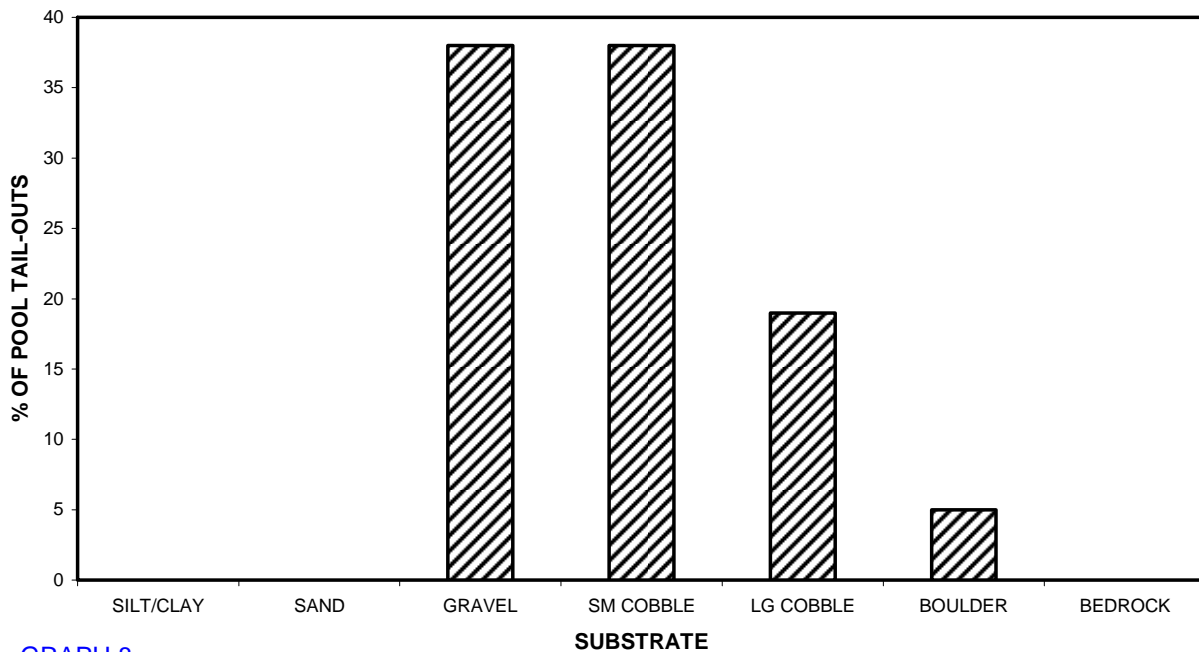
Right Bank Tributary Two to Martin Creek

**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
MEAN PERCENT COVER TYPES IN POOLS**



GRAPH 7

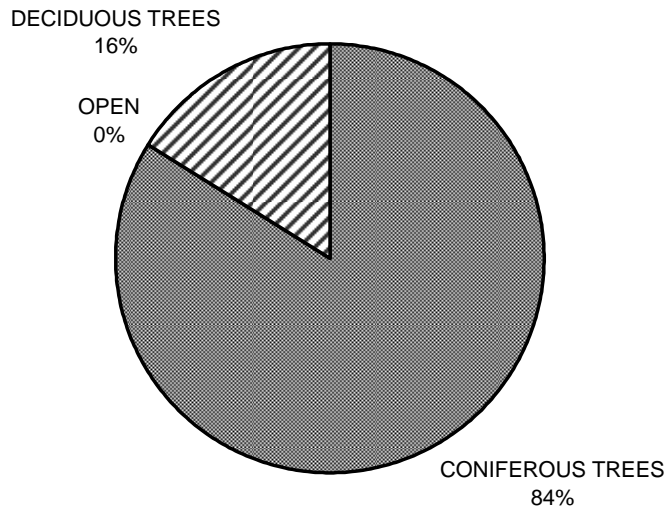
**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
SUBSTRATE COMPOSITION IN POOL TAIL-OUTS**



GRAPH 8

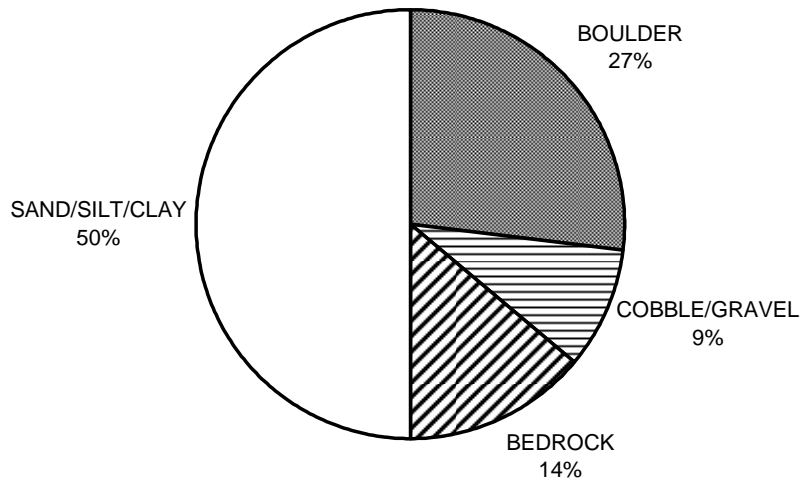
Right Bank Tributary Two to Martin Creek

**RIGHT BANK TRIBUTARY 1 MARTIN CREEK
MEAN PERCENT CANOPY**



GRAPH 9

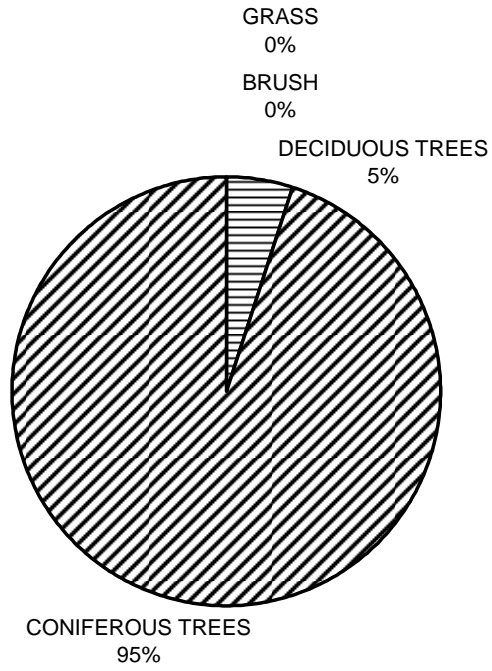
**RIGHT BANK TRIBUTARY 2 MARTIN CREEK
DOMINANT BANK COMPOSITION IN SURVEY REACH**



GRAPH 10

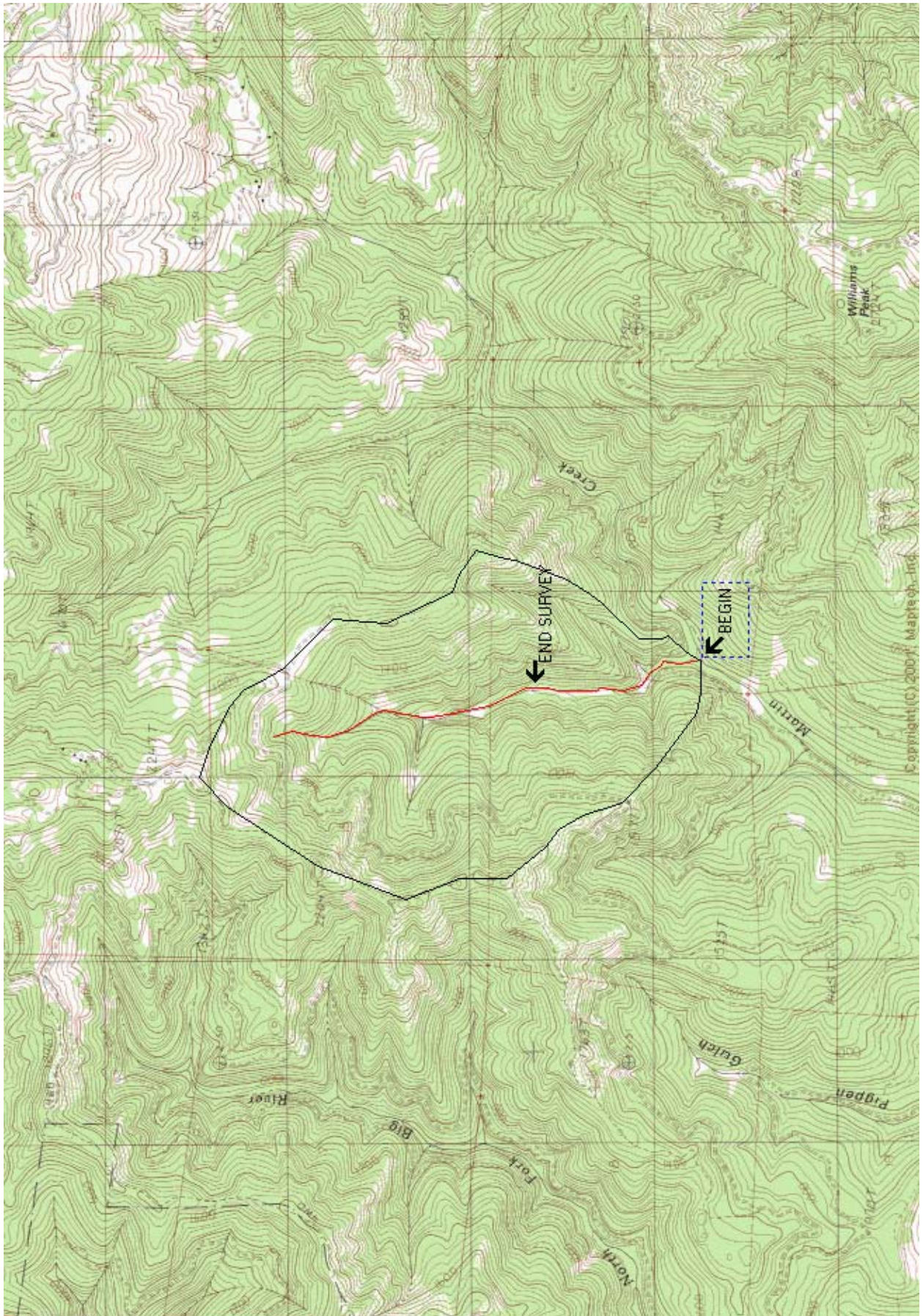
Right Bank Tributary Two to Martin Creek

RIGHT BANK TRIBUTARY 2 MARTIN CREEK
DOMINANT BANK VEGETATION IN SURVEY REACH



GRAPH 11

Right Bank Tributary Two to Martin Creek



MAP 1. RIGHT BANK TRIBUTARY TWO TO MARTIN CREEK.