Appendix 1. Buffer strip widths (in metres) measured from each side of the stream bank, 70, 30 and 10 metres below the sampling reach, every 5 metres within the 25-m sampling reach, and 10, 30 and 70 metres above the sampling reach.

---> Beginning of sampling reach

Transect	-70m		-30m		-10m		0m		5m		10m	
STREAM	left	right	left	right	left	right	left	right	left	right	left	right
45	+20	+20	+20	+20	+20	+20	+35	+35	+35	35	+20	+20
2	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20
11	+30	27	+30	26	+30	25	+30	25	+30	25	+30	25
7	+30	+30	+30	+30	+30	+30	13	+20	12	+20	10	+20
21	+30	7	+30	11	21	11	19.5	12.5	28	10	26.5	10
Haley												
25	25	25	28	+30	25	+30	24	+30	26	+30	25.5	+30
Dustin	0	0	24	+20	24	+20	26.5	+20	33	+20	+33	+20
41	+30	+30	+30	+30	+30	+30	+30	+30	+30	+30	+30	+30
15	0	0	0	0	0	0	0	0	0	0	0	0
McGee	0	0	0	0	0	0	0	0	0	0	0	0
40	+30	+30	+30	+30	12	+30	+20	+20	+20	+20	+20	+20

Note: Selective harvesting was observed in the buffer strips of streams #40, #11 and Dustin.
The left side of stream #11 and the right side of stream #25 were forested along their sampling reaches.
The buffer strip of stream #41 consisted of a very open forest with many budworm killed trees.

End of sampling reach --->

Transect	15m		20m		25m		+10m		+30m		+70m	
STREAM	left	right	left	right	left	right	left	right	left	right	left	right
45	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20
2	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20	+20
11	+30	25	+30	25	+30	25	+30	17	+30	17	+30	6
7	6	+20	5	+20	0	+20	0	+20	0	+20	0	+20
21	23	9.5	21	11	24	11	15.5	13	15	18	14	10
Haley	10	+20	5	+20	5	+20	7	+20	0	+20	18	+20
25	24	+30	23	+30	15	+30	16	+30	18	+30	18	+30
Dustin	+33	+20	+30	+20	+30	+20	+30	+30	+30	+30	+30	+30
41	+30	+30	+30	+30	+30	+30	+30	+30	+30	+30	+30	0
15	0	0	0	0	0	0	0	0	0	0	0	0
McGee	0	0	0	0	0	0	0	0	0	0	0	0
40	+20	+20	+20	+20	+20	+20	+20	0	+20	+20	+20	+20

Appendix 2(a) . Mean, maximum and minimum daily temperature for stream #11, forested on one side, with a 6-27 m buffer strip on the other. Cutting occurred in this basin during 1984 and 1987.
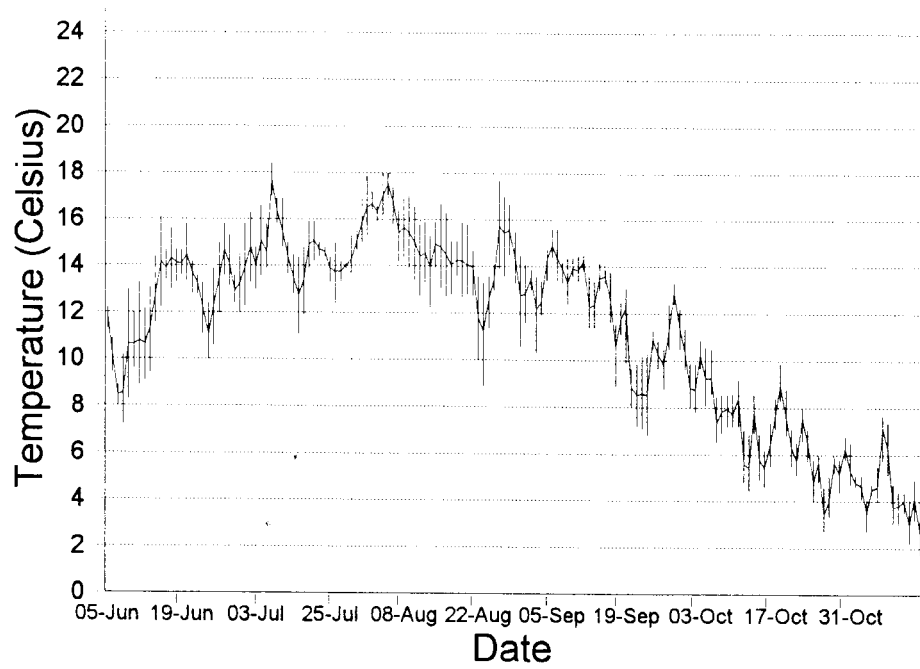
Appendix 2(b). Mean, maximum and minimum daily temperature for stream #15, with no buffer strip. Cutting occurred in this basin during 1979.
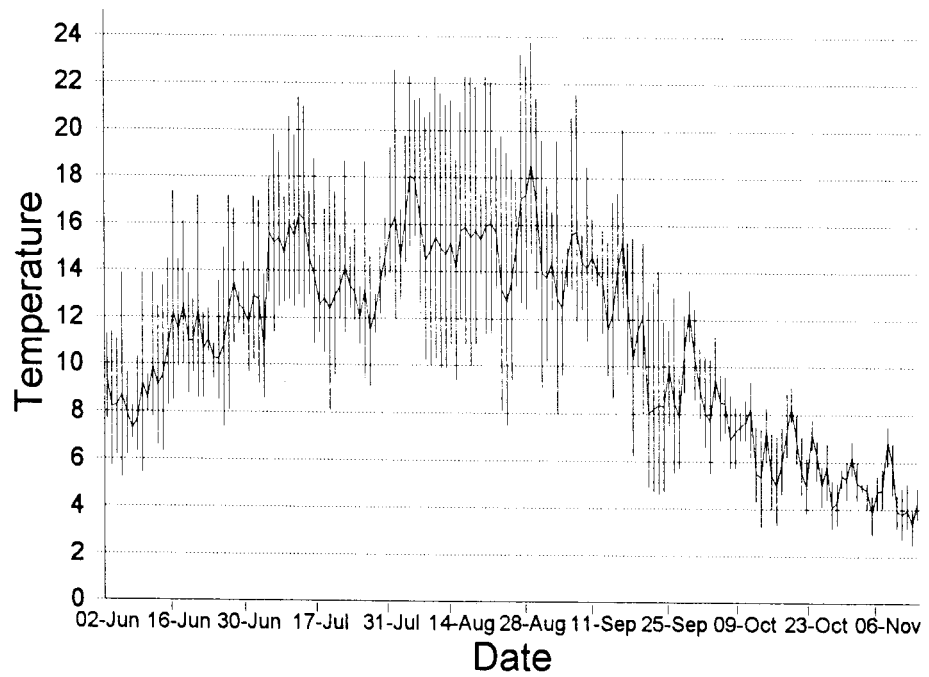
Appendix 2(c). Mean, maximum and minimum daily temperature for the reference stream, Sweeney Brook.
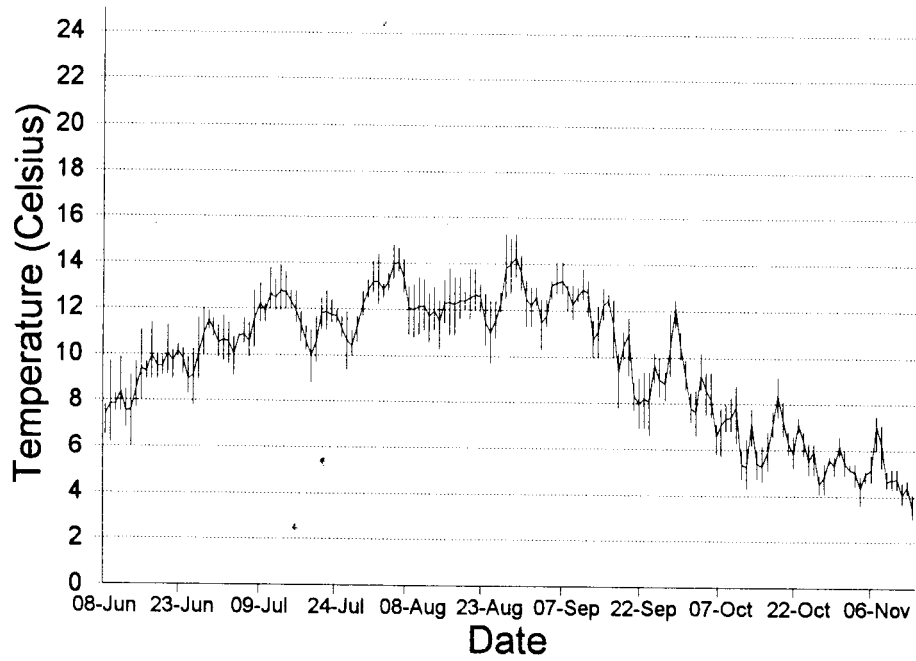
Appendix 2(d). Mean, maximum and minimum daily temperature for the reference stream, Upper Vault.
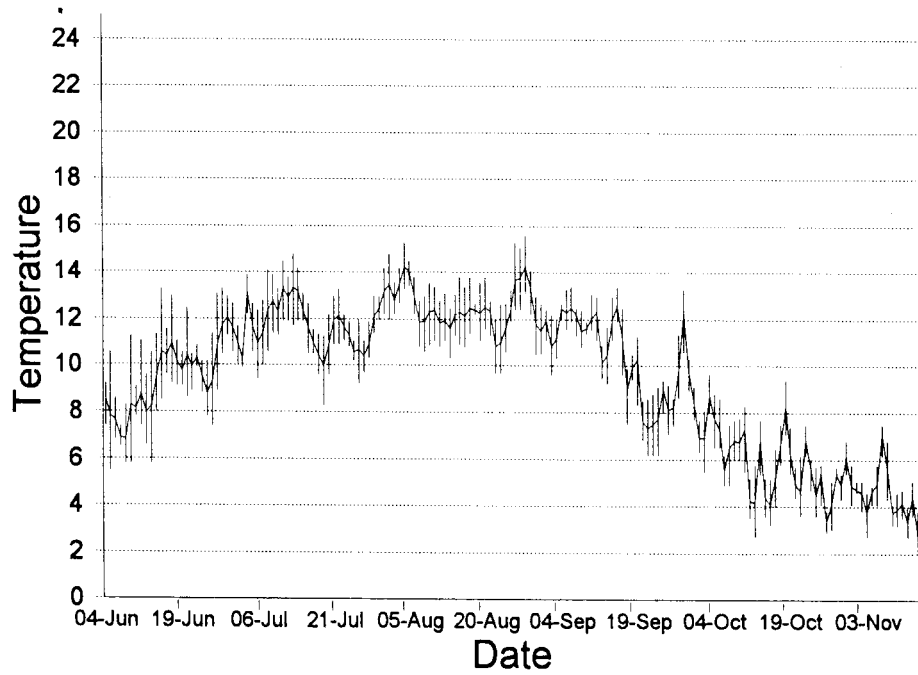
Appendix 2(e) . Mean, maximum and minimum daily temperature for stream #25, which flows unprotected through a 1984 clearcut, then enters a buffer strip >15 m on one side, and forested on the other. Thermograph malfunctioned from early July to mid-September.
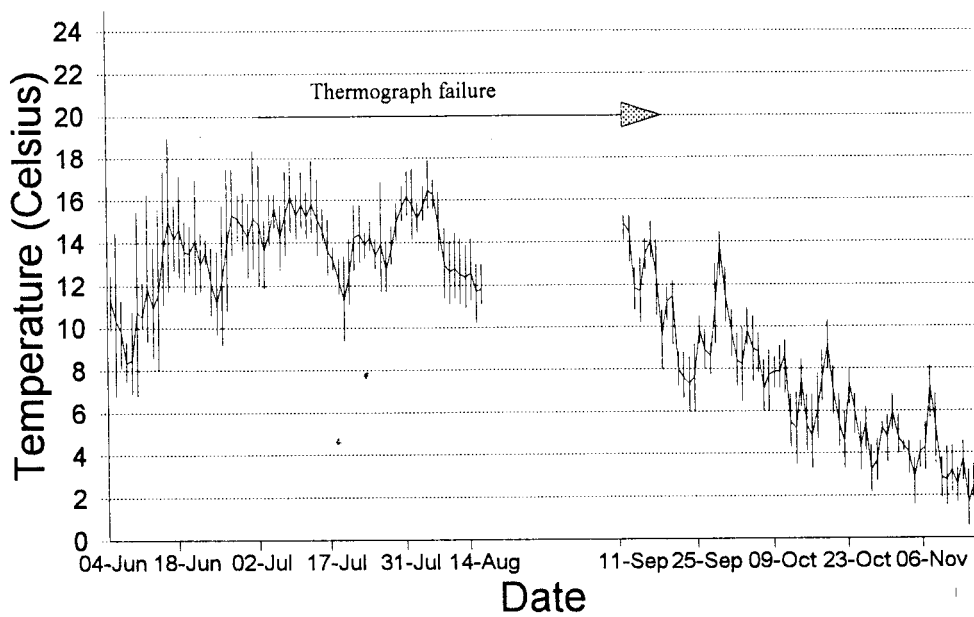
Appendix 3(a). Maximum/minimum thermometer data showing the 4-5 day temperature range of streamwater. Streams #45, #2, #7 and #21 were cutover in the mid-late 1980s.

Stream #45

Stream #2
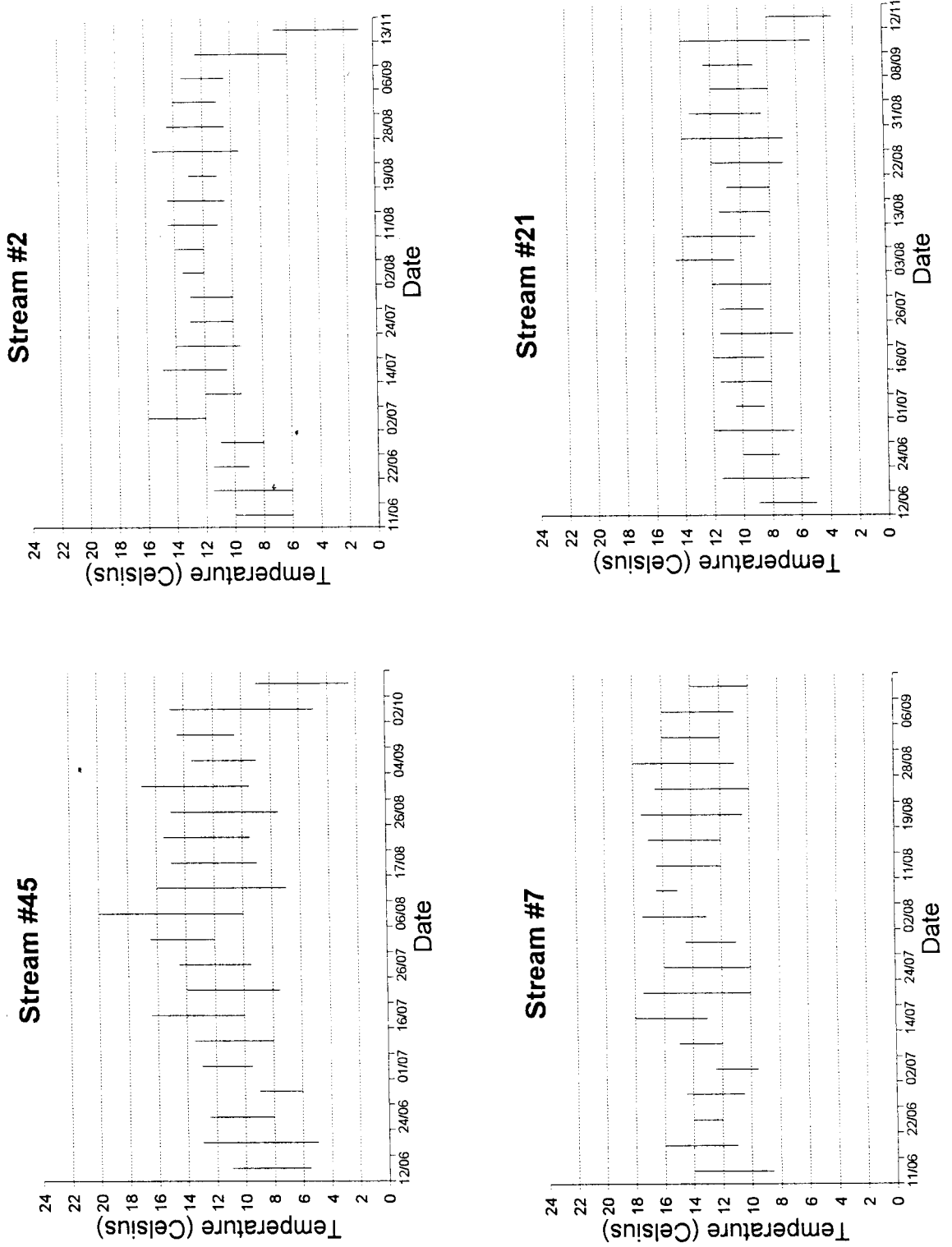
Stream #7

Stream #21

Appendix 3(b). Maximum/minimum thermometer data showing the 4-5 day temperature range of streamwater. Haley, Dustin and stream #41 were cutover in the early 1980s, and McGee was cutover in 1978.

Haley Brook

Dustin Brook

McGee Brook
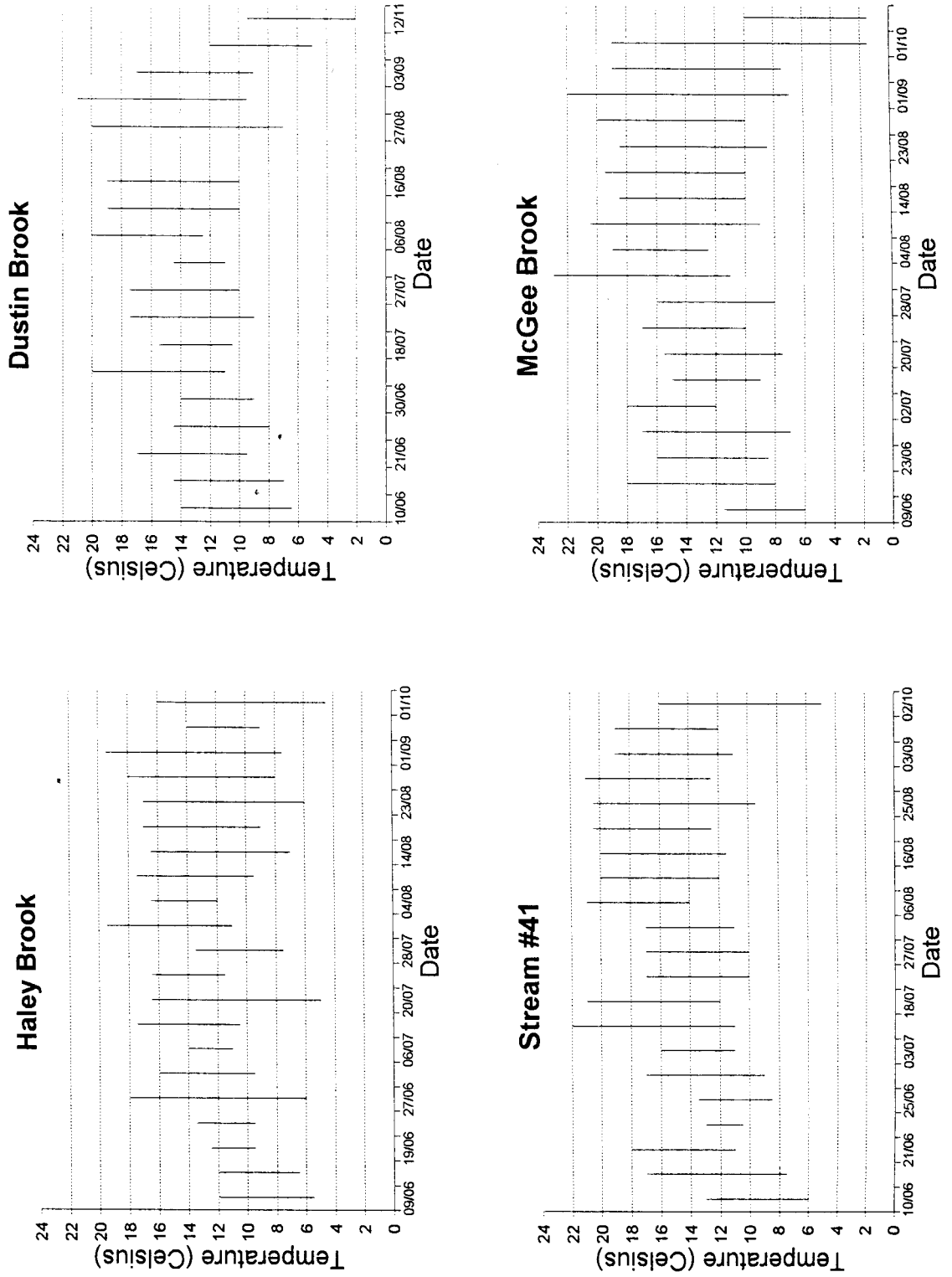
Stream #41

Appendix 3(c). Maximum/minimum thermometer data showing the 4-5 day temperature range of streamwater. Stream #40 was clearcut in 1973, and Cains and the Forks are reference streams.

Stream #40

Cains Brook

The Forks
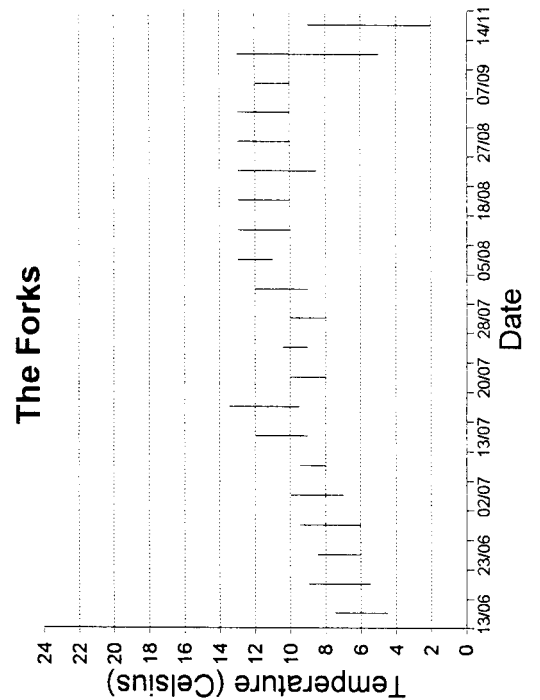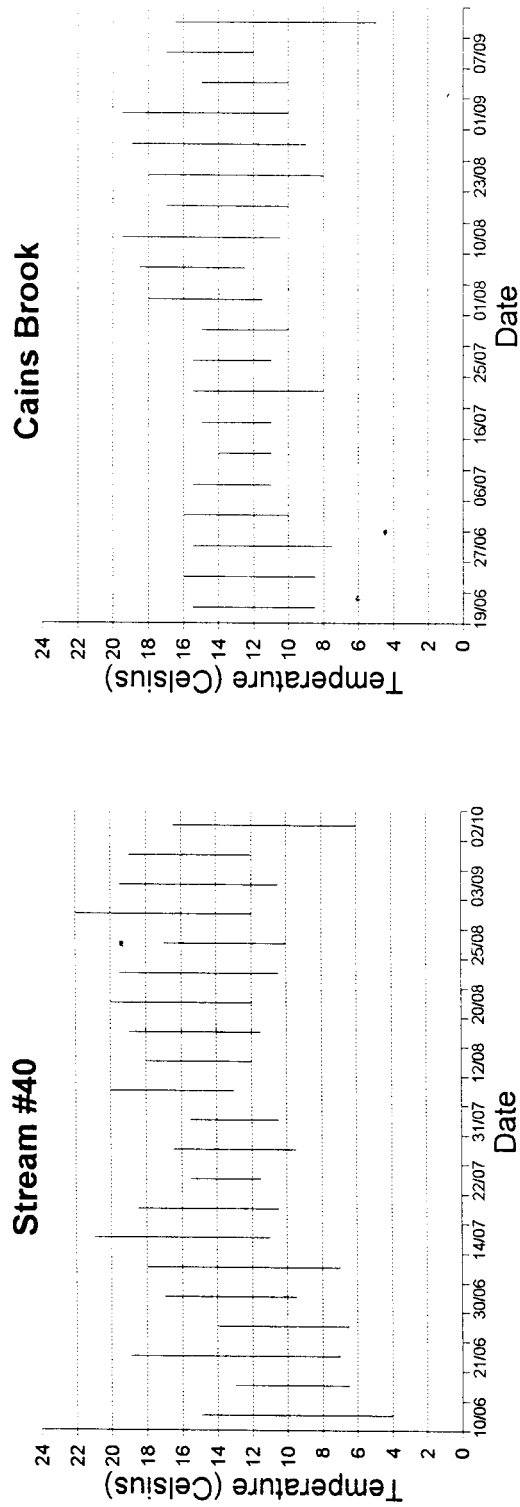
Appendix 4. Pearson correlation coefficients for relationships between physical, chemical and biological variables. Variables with non-normal distributions were transformed in the following ways: age of stand (inverse transformed); snag, shrub and tree density, chloride, magnesium, alkalinity, sodium, channel area and width, and siltation (log transformed); moss cover and nitrogen (square root transformed); and surface fines (arcsine transformed).

	Age of stand	Snag density	Shrub density	Tree density	Tree diversity	Buffer width	Canopy cover
Age of stand	1.00						
Snag density	-0.17	1.00					
Shrub density	-0.04	-0.70*	1.00				
Tree density	0.26	0.64*	-0.65*	1.00			
Tree diversity	0.26	0.35	nc	nc	1.00		
Buffer width	-0.27	0.67*	-0.39	0.54*	nc	1.00	
Canopy cover	0.17	0.50*	-0.67*	0.54*	0.26	0.45	1.00
Moss cover	-0.05	0.71*	-0.80*	0.49	-0.04	0.40	0.46
Chloride	0.16	0.34	nc	nc	-0.47	nc	0.14
Magnesium	0.03	-0.35	nc	nc	0.17	nc	0.07
Alkalinity	0.28	-0.63*	0.66*	-0.32	nc	-0.39	-0.42
Potassium	0.75*	-0.15	-0.13	0.26	nc	-0.10	0.06
Sodium	0.32	0.12	nc	nc	-0.04	nc	0.45
Nitrogen	0.80*	-0.08	nc	nc	0.07	nc	0.10
Maximum temp.	0.09	-0.34	nc	nc	0.03	nc	-0.69*
Area	0.12	0.06	-0.04	-0.16	nc	-0.11	0.12
Width	-0.23	0.22	-0.21	-0.15	0.29	-0.11	0.06
Surface cobble	0.01	0.24	nc	nc	0.60*	nc	0.02
Surface bedrock	0.67*	0.12	nc	nc	0.03	nc	0.42
Surface fines	0.34	-0.15	nc	nc	0.01	nc	0.01
Siltation	0.62*	-0.25	nc	nc	0.41	nc	0.05

* significant at $P < 0.05$
nc Pearson r not calculated; known from larger matrix that variables unlikely to be significantly correlated.

Appendix 4. Continued.

	Moss cover	Chloride	Magnesium	Alkalinity	Potassium	Sodium	Nitrogen
Moss cover	1.00						
Chloride	0.44	1.00					
Magnesium	-0.15	-0.31	1.00				
Alkalinity	-0.47	nc	nc	1.00			
Potassium	0.14	nc	nc	0.30	1.00		
Sodium	0.14	0.45	0.38	nc	nc	1.00	
Nitrogen	0.08	-0.32	0.63*	nc	nc	0.32	1.00
Maximum temp.	-0.37	-0.60*	-0.17	nc	nc	-0.67*	0.12
Area	-0.08	nc	nc	-0.16	-0.11	nc	nc
Width	0.19	0.10	-0.53*	-0.29	-0.36	-0.11	-0.52*
Surface cobble	-0.09	-0.20	0.04	nc	nc	0.05	0.07
Surface bedrock	0.47	0.01	0.33	nc	nc	0.39	0.75*
Surface fines	0.02	-0.12	0.24	nc	nc	-0.11	0.16
Siltation	-0.13	-0.63*	0.59*	nc	nc	-0.02	0.62*

Appendix 4. Continued.

	Maximum temperature	Area	Width	Surface cobble	Surface bedrock	Surface fines	Siltation
Maximum temp.	1.00						
Area	nc	1.00					
Width	-0.01	0.74*	1.00				
Surface cobble	-0.07	nc	0.21	1.00			
Surface bedrock	-0.15	nc	-0.20	0.00	1.00		
Surface fines	0.14	nc	-0.13	-0.37	-0.04	1.00	
Siltation	0.35	nc	-0.12	0.08	0.51	0.10	1.00

* significant at P = 0.05
nc Pearson r not calculated; known from larger matrix that variables unlikely to be significantly correlated.

Appendix 5. Invertebrate abundance of each taxonomic group in each rockball for all 16 streams.

STREAM	ROCKBALL	EPHEMEROPTERA	PLECOPTERA	COLEOPTERA	ELMIDAE	TRICHOPTERA	CHIRONOMIDAE (DIPTERA)	SIMULIIDAE	TIPULIDAE	ATHERICIDAE	CERATOPOGONIDAE	EMPIDIDAE	NYMPHOMYIIDAE	PSYCHODIDAE	OTHER DIPT	OLIGOCHAETE	PELECYPODA	COPEPODA	COLLEMBOLA	ARACHNIDA	ANISOPTERA	TOTAL PER ROCKBALL	AVERAGE PER SAMPLE
#45	1	12	54			20	69	391	4					1		9						560	188.00
#45	2	6	35		2	3	52		2		1			1	1	3						105	
#45	3	1	15			5	15		1						1	10						104	
#45	4	3	31	1	1	4	47	5	4							7						123	
#45	5	17	23			16	60									7						71	174.20
#2	1	4	15			7	43		1							1						138	
#2	2	23	21			6	71		1							16						148	
#2	3	5	44			3	85		7							4						299	
#2	4	18	49			10	196	14	8			1				4						215	
#2	5	8	64			17	116		5							4						292	362.75
#11	1	4	15			6	219	43	3		1					1						217	
#11	2	2	13			2	196	1								3						426	
#11	3	13	22		2	9	377	2	3							3						516	
#11	4	5	36		1	3	462	2	3							4						231	201.20
#7	1	3	18		1	19	175	2	7			1		1		5						246	
#7	2	17	23		2	23	163	8	7			1				2						139	
#7	3	32	9			9	75	13							1							146	
#7	4	11	13	1		5	95	11	4							5						244	
#7	5	81	29			16	100	8	4							6						332	252.40
#21	1	13	38			12	174	21	10							60	4					301	
#21	2	9	30			30	196	27	5							4						291	
#21	3	10	15			25	208	21	3							9	3					142	
#21	4	4	19			6	69	5	4							32						196	
#21	5	3	14			17	153	2	4							3						186	334.75
Haley	1	11	22		1	8	131	1	4			1				7				1		244	
Haley	2	53	62		2	11	101	7	6					1								722	
Haley	3	30	151	1	4	50	361	96	14			4		4		7						187	
Haley	4	10	15		1	4	130	14	3			1				9						332	214.75
#25	1	66	60		6	2	180	12	1							5						250	
#25	2	55	40		6	4	119	22	2							2						206	
#25	3	29	12		6	1	154		2							2						71	
#25	4	15	13		3	1	37					1				1		1				296	283.60
Dustin	1	7	14		3	36	211	21	1			1				2						328	
Dustin	2	2	13		2	29	221	59	1				1			1			1			292	
Dustin	3	14	29		5	23	195	22	1			1				1						192	
Dustin	4	1	3			10	158	16		1						1	1					310	
Dustin	5	10	32	1	3	17	229	16	1	1		1				1							

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Appendix 5. Continued.

STREAM	ROCKBALL	EPHEMEROPTERA	PLECOPTERA	COLEOPTERA	ELMIDAE	TRICHOPTERA	CHIRONOMIDAE	SIMULIIDAE	TIPULIDAE	ATHERICIDAE	CERATOPOGONIDAE	EMPIDIDAE	NYMPHOMYIIDAE	PSYCHODIDAE	OTHER DIPT	OLIGOCHAETE	PELECYPODA	COPEPODA	COLLEMBOLA	ARACHNIDA	ANISOPTERA	TOTAL PER ROCKBALL	AVERAGE PER SAMPLE
																					1	25	128.80
#41	1	2	4		1	2	13	3								1						145	
#41	2	5	11			4	120	2	1							1						201	
#41	3	12	26		3	4	154	1														82	
#41	4	22	8		4	3	44					1										191	
#41	5	24	10		3	3	151															366	424.80
#15	1	4	16		5	14	258	60								9						408	
#15	2	6	27		4	46	302	17	2		1		1			2						278	
#15	3	19	7	3	17	4	222		1			7	4			5						593	
#15	4	9	16	6	12	14	509	10	5			2	3			1						479	
#15	5	22	25		6	1	328	91					1			1				1		636	673.00
McGee	1	64	23		6	3	466	63	5		1	2	1			1						797	
McGee	2	45	17		9	5	706	2	6	1		2				4						587	
McGee	3	9	16		1	4	551		3		1	1				1						259	243.20
#40	1	32	12		1	6	184	22	2							2						163	
#40	2	20	11		1	3	123	3														489	
#40	3	44	26		2	10	278	129				1	1			1						115	
#40	4	3	11		2	3	86	8														190	
#40	5	22	13			8	143	3	1				1			1						482	518.20
Cain	1	7	10			8	350	105	1			3										583	
Cain	2	16	17		1	18	506	21	1			1				1						535	
Cain	3	16	18		1	4	478	13	3	1			3			2						454	
Cain	4	25	17		1	17	323	60	6			2					1					539	
Cain	5	14	13	1		7	402	99														525	592.50
Sweeney	1	2	9		1	5	502	3	3							1						552	
Sweeney	2	1	6		1	10	533	1				1	1			1						474	
Sweeney	3	6	14			30	411	3	8	1			3			3						818	
Sweeney	4	2	6		1	22	776		5			1	2				1					610	810.00
Upper Vault	1	37	10		1	5	506	48	1			4				1	1					948	
Upper Vault	2	56	14	4		17	775	73	4			2	2			1						800	
Upper Vault	3	17	11	1		10	752		3			1	1	1		2						763	
Upper Vault	4	24	12			17	680	19	6			1	3			2						930	
Upper Vault	5	41	31			14	832	1	5			1										485	240.20
Forks	1	3	21		1	18	434	4	5													251	
Forks	2	2	13		4	7	170	55	4													197	
Forks	3	0	5		1	5	171	12	4			1	1									101	
Forks	4	1	9			4	77	6	1													167	
Forks	5	1	1			6	136	21	2											2	1		
Total per taxa		1242	1627	14	141	830	19095	1818	211	3	6	43	22	9	4	284	10	1	1	2	1		

Appendix 6. The arrangement of stream sites based on correspondence analysis of invertebrate data using each sample from every stream site. Axis 1 x Axis 2, and Axis 2 x Axis 3 are shown.
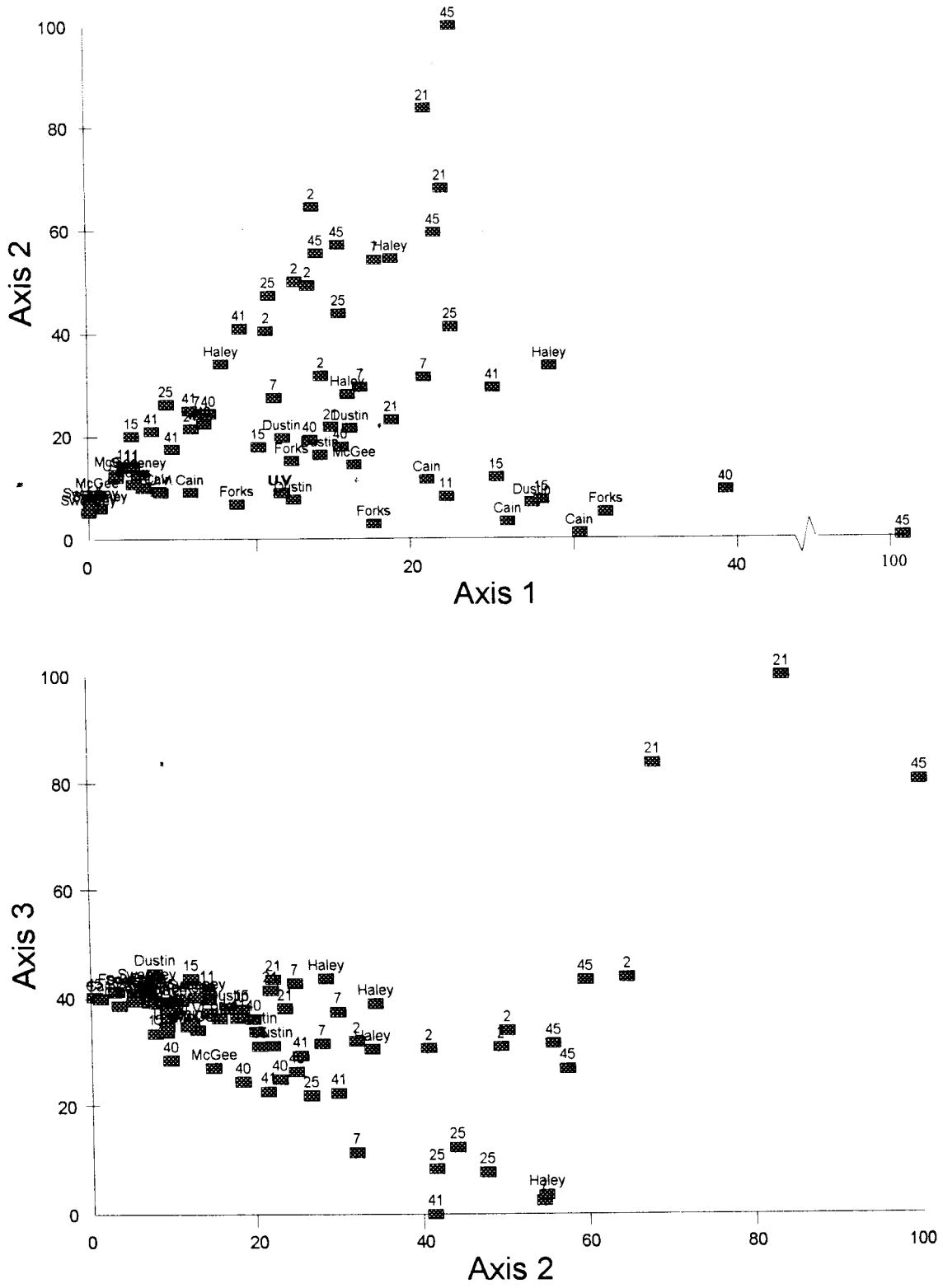
Appendix 7. Latin names and the corresponding common names of
plant and fish species referred to in this study.

Latin name	Common name(s)
Plant species	
Abies balsamea (L.)	Balsam Fir
Acer pensylvanicum L.	Moosewood, Striped Maple
Acer rubrum L.	Red Maple
Acer saccharum Marsh.	Speckled Alder
Acer spicatum Lamb.	Sugar Maple
Alnus incana ssp. rugosa (Du Roi)	Mountain Maple
Amelanchier spp.	Juneberry, Serviceberry, Shadbush
Betula alleghaniensis Britt.	Yellow Birch
Betula papyrifera Marsh.	White or Paper Birch
Cornus rugosa Lam.	Round-leaved Dogwood
Cornus spp.	Dogwood
Corylus cornuta Marsh.	Beaked Hazelnut
Fagus grandifolia Ehrh.	American Beech
Fraxinus nigra Marsh.	Black Ash
Lonicera spp.	Honeysuckle
Nemopanthus mucronata (L.) Trél.	Mountain-Holly
Picea glauca (Moench) Voss	White Spruce
Picea rubens Sarg.	Red Spruce
Prunus pensylvanica L.F.	Pin, Bird or Fire Cherry
Prunus virginiana L.var.virginiana	Choke Cherry
Rubus spp.	Salmon Berry
Salix bebbiana Sarg.	Long-beaked Willow
Salix discolor Muhl.	Pussy-Willow
Salix spp.	Willow
Sambucus racemosa L.	Red-berried Elder
Sorbus americana Marsh.	American Mountain-Ash
Spirea spp.	Spirea
Thalictrum pubescens Pursh	Meadow-rue
Viburnum cassinoides L.	Witherod, Wild Raisin
Viburnum trilobum Marsh.	Highbush Cranberry
Fish species	
Oncorhynchus keta Walbaum	Chum Salmon
Oncorhynchus kisutch Walbaum	Coho Salmon
Oncorhynchus tshawytscha Walbaum	Chinook Salmon
Salmo salar L.	Atlantic Salmon
Salmo trutta L.	Brown Trout
Salvelinus fontinalis Mitchill	Brook Trout