Cameron Lake Rainbow Trout Strain Evaluation and Stocking Assessment, 2003

Region 1, Nanaimo
Nanaimo/Cowichan Planning Unit

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1.0 Introduction

1.1 Objective

Cameron Lake, in the Nanaimo/Cowichan planning unit, was assessed in the fall of 2003 as part of a rainbow trout strain evaluation, to compare growth and survival (relative abundance) of stocked Blackwater and Tzenzaicut rainbow trout in deeper lakes where pelagic habitat predominates.

The assessments in this study were carried out in six Vancouver Island lakes, chosen to represent a variety of lakes where Tzenzaicut rainbow are presently stocked. The first objective was to determine if one of the rainbow trout strains now stocked in Vancouver Island lakes is more suitable than the other for these larger, deeper lakes.

The second objective of this assessment was to determine whether the current stocking plan is meeting needs for the trout fishery.

The Cameron Lake assessment will focus on:

- differential survival and growth of stocked Blackwater and Tzenzaicut rainbow
- effectiveness of the current stocking plan in providing adequate numbers of trout of suitable size to sustain the fishery
- current level of natural recruitment of trout in the lake
- condition factor, size at age and age structure of the trout population in the lake
- presence and relative abundance of non-native fish
- future considerations for the Cameron Lake fish stocking and management program

1.2 Background

Documentation produced by (the former) Fish Culture Section suggests Blackwater rainbow preferentially feed in shoal areas while Tzenzaicut rainbow prefer to feed in the pelagic zone. An earlier study by Region 1 Fisheries compared growth, survival and catchability of these 2 strains in smaller lakes, where shoal habitat predominates. In those lakes it was found that while growth was similar, Tzenzaicut survival was better, but Blackwater were significantly more catchabable. It is not known if lower Blackwater survival was due to their higher vulnerability to angling, or to other causes. Anecdotal evidence suggests Tzenzaicut rainbow trout perform better in the larger, deeper lakes.

Cameron Lake, located approximately 11 km southwest of Qualicum Beach, was previously assessed in 1951. Cameron Lake lies in the Coastal Western Hemlock Biogeoclimatic Zone, within the South Island Forest District. The lake is situated at an elevation of 200 m in management zone 1-06. The surface area of the lake is 429.9 ha,

with a perimeter of 13.6 km. The lake has a maximum depth of 43.0 m and has been stocked 77 times from 1919 to 2003. The entire stocking record can be seen in Appendix A. Table 1 lists the last 5 years of stocking data.

Table 1. Stocking history of Cameron Lake for the past five years.

Year	Species (Stock)	Number	Stage	Size (g)	Clip
1998/03/16	Cutthroat trout (Taylor)	10,000	Yearling	44.0	
1998/05/15	Rainbow trout (Tzenzaicut)	4,968	Yearling	33.0	
1998/06/05	Rainbow trout (Blackwater DR)	5,030	Yearling	23.0	
1999/03/17	Cutthroat trout (Taylor)	10,000	Yearling	41.1	
1999/04/13	Rainbow trout (Blackwater)	10,000	Yearling	25.6	
1999/07/16	Rainbow trout (Tzenzaicut)	1,268	Yearling	44.1	
2000/03/27	Cutthroat trout (Taylor)	10,000	Yearling	47.4	
2000/04/13	Rainbow trout (Badger Tunkwa)	2,922	Yearling	26.2	
2000/05/09	Rainbow trout (Tzenzaicut)	10,000	Yearling	32.0	
2001/03/21	Cutthroat trout (Taylor)	10,000	Yearling	35.9	
2001/04/30	Rainbow trout (Badger Tunkwa)	10,000	Yearling	30.7	
2002/03/15	Cutthroat trout (Taylor)	10,000	Yearling	38.5	
2002/04/30	Rainbow trout (Tzenzaicut DR)	10,000	Yearling	28.6	
2003/03/20	Cutthroat trout (Taylor)	10000	Yearling	35.7	
2003/05/22	Rainbow trout (Tzenzaicut)	5700	Yearling	34.72	RM
2003/05/22	Rainbow trout (Blackwater)	5700	Yearling	35.23	LM

2.0 Methods and Materials

Selection criteria for the lakes included in this study were: (1) deeper lakes where pelagic habitat predominates, representative of lakes presently stocked with Tzenzaicut rainbow and (2) lakes where a priority has been recognized for assessment of the current lake stocking program. Cameron Lake was stocked in the spring of 2003 with differentially clipped Tzenzaicut (5,700) and Blackwater (5,700) rainbow yearlings of the same size. The lake was netted in the fall to determine if there was any significant difference in growth and survival between the strains. Earlier assessments included reconnaissance information, thus only temperature, oxygen and fish sample data were collected in 2003.

Assessment of Cameron Lake was performed by boat, with depth measurements obtained using a Lowrance X-65 sounder. A previously constructed bathymetric map was used to locate the deepest part of the lake as well as identify locations in which to set the floating and sinking gill nets (Figure 1). The temperature-oxygen profile and Secchi disk readings were not performed in the deepest part of the lake, due to the extreme depth, however, a site was selected in moderately deep water, well away from the influences of land (survey site, Figure 1, Appendix B). The temperature-oxygen profile was obtained using a model 51B YSI meter with a 16m long cable on the sensor.

In an effort to increase sample size, a total of four gill nets were set overnight in the lake. One pair consisted of one floating and one sinking standard, 90 m long by 2m deep monofilament experimental gang net, each with 6 panels of varying mesh size. The second pair was the same but had an additional 15 m panel of 1.5 inch mesh added to the offshore end (making the nets 105 m long), in order to extend them further into the pelagic region. The floating gill nets were set to cover shoal areas and extend out to the pelagic

zone. The sinking gill nets were set where they would extend into a deeper part of the lake (Figure 1). The nets were set with the smallest mesh size panel near shore and extended roughly perpendicular to the contours, into deeper water. All four nets were set late in the day, left overnight, and were retrieved the following morning.

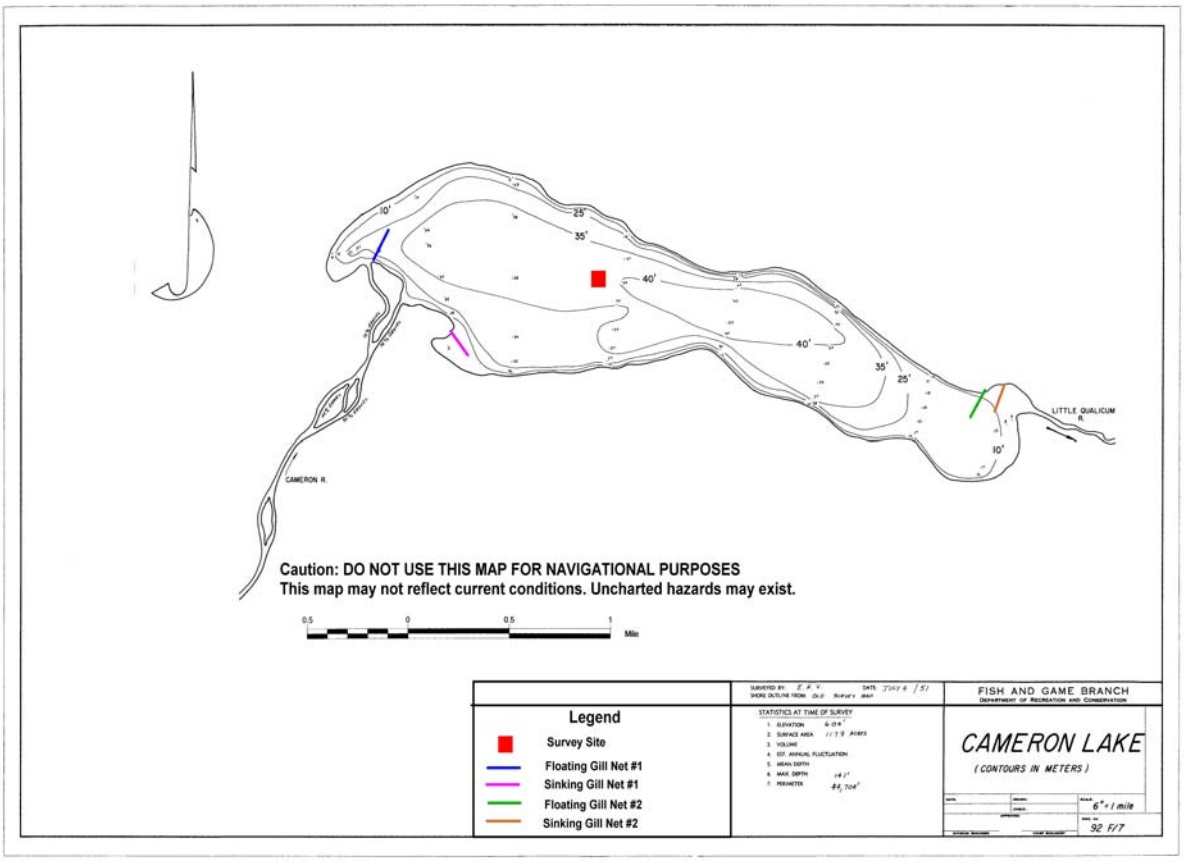


Figure 1. A bathymetric map of Cameron Lake showing the survey site location and the positions of the floating and sinking gill nets.

Data recorded from the gillnet catch included length (cm), weight (g), sex, stage of gonad maturity, and stomach contents and parasite presence, for all trout and salmon captured. A summary of the catch record is listed in Appendix C, and photographs of the catch are in Appendix D.

Scales were taken from a representative sample of cutthroat trout, rainbow trout, brown trout and kokanee salmon. Scales were removed from the area between the posterior edge of the dorsal fin and the lateral line, approximately 2 scale rows above the lateral and placed between labelled glass microscope slides. A contractor, Columbia Environmental Ltd., read the scales to determine age. Printed copies of each scale sample, with contractor's determination of annuli indicated, are presented in Appendix E.

Condition factor, length-age, and length-weight relationships were calculated separately for clipped and unclipped trout. Condition factor was calculated using the following equation:

$$K = \frac{100000W}{L^3}$$

where W represents weight in grams and L represents length in millimetres.

3.0 Results

3.1 Temperature-Oxygen Profile

Cameron Lake is a relatively deep lake (43.0 m) that contains limited amounts of shoal area. The temperature-oxygen profile shows the surface layer is well mixed with no thermocline in the upper 15 meters of the water column (Figure 2). Measurements were only obtained for the first 15 m, as that was the limit of the YSI cable. Temperature values were uniform at 13.3 ^{0}C from the surface to 15 meters. Oxygen levels were at or near saturation throughout the depths sampled. Oxygen values through the depths sampled ranged between 10.4 mg/L (surface) and 10.2 mg/L (15 m).

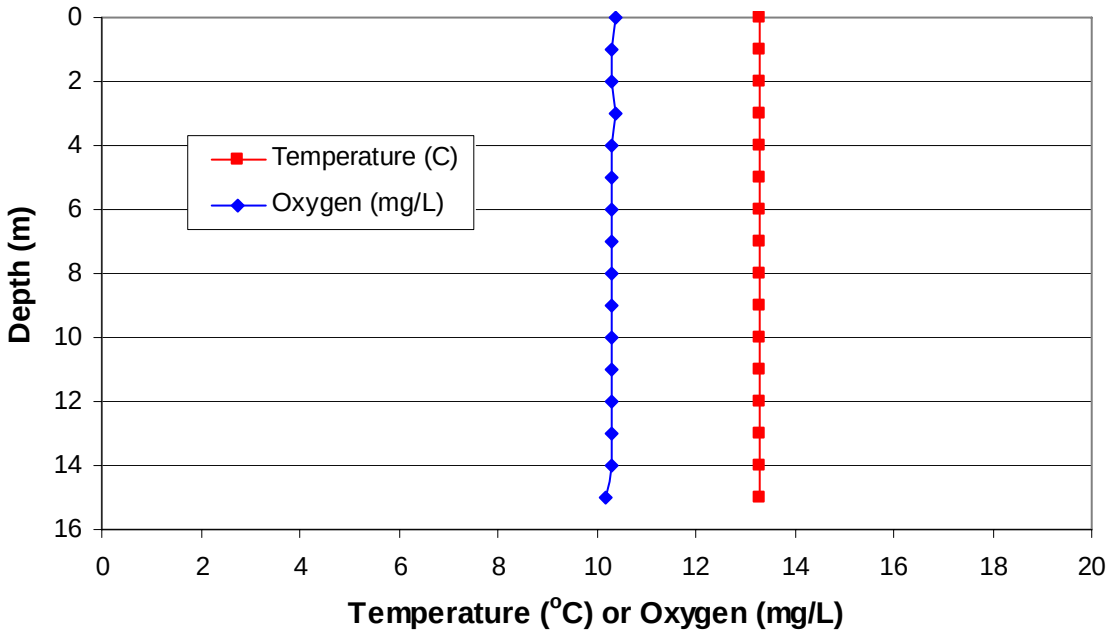


Figure 2. Temperature-oxygen profile of Cameron Lake, October 15, 2003.

3.2 Netting Data

A total of three Blackwater rainbow trout, eight Tzenzaicut rainbow trout, 108 unclipped rainbow trout, 41 cutthroat trout, nine brown trout and one kokanee salmon were captured

in the floating and sinking gill nets in Cameron Lake (Table 2). The only other fish species captured were prickly sculpins (Cottus asper). The Blackwater and Tzenzaicut rainbow trout stocked in the spring of 2003 comprised 1.8 % and 4.7 % of the total gill net catch, respectively.

Table 2. Summary of catch from the floating and sinking gill nets in Cameron Lake, October 8, 2003.

Species	Sample Size	% of Catch	Size Range	Mean Length (cm)	Mean Weight (g)	Mean K Value	K Value Std. Dev.	Sex Ratio (M:F:U)
Rainbow Trout (unidentified)	108	63.5	10.1cm-31.0cm 10g-400g	18.2	95.1	1.2652	0.1355	48:58:2
Rainbow Trout (Blackwater)	3	1.8	19.7cm-20.3cm 76g-88g	19.9	82	1.0345	0.04911	2:1:0
Rainbow Trout (Tzenzaicut)	8	4.7	15.0cm-19.7cm 36g-80g	16.7	49.25	1.0301	0.0300	4:4:0
Cutthroat Trout	41	24.1	11.8cm-40.5cm 20g-748g	18.3	80	1.0013	0.1228	19:22:0
Brown Trout	9	5.3	20.3cm-65.0cm 92g-3950g	40.1	1521	1.2492	0.1851	7:2:0
Kokanee	1	0.6	16.2cm 48g	n/a	n/a	n/a	n/a	1:0:0

Figure 3 shows the length-frequency distribution, by age, of all rainbow trout captured in Cameron Lake. The same is also true for the length at age data for the unclipped rainbow trout. There is no overlap in size between age groups of the unclipped rainbow.

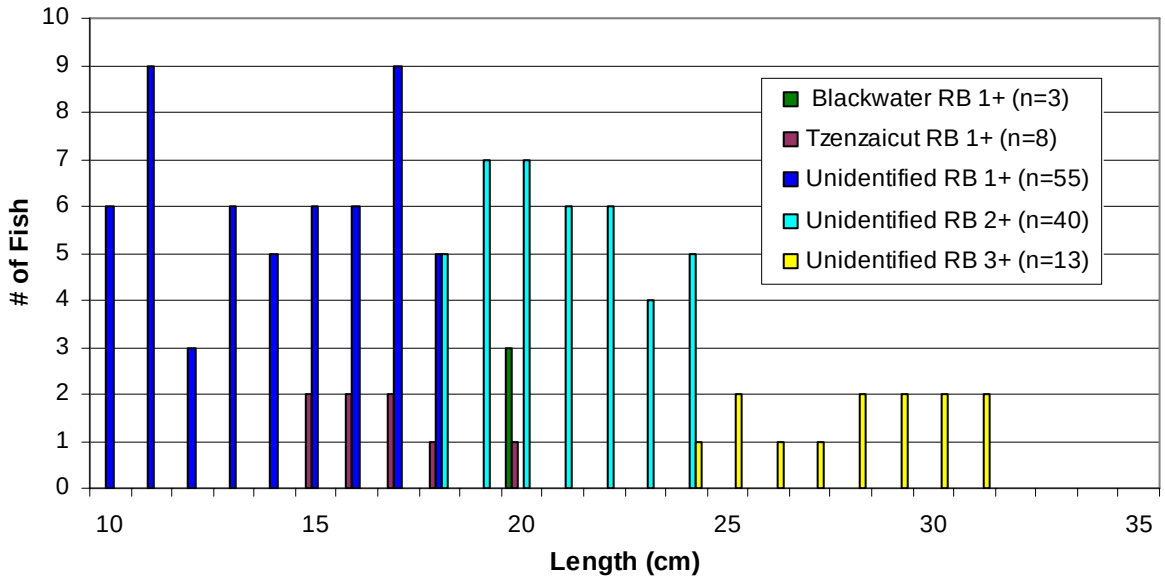


Figure 3. Length-frequency distribution, by age, of rainbow trout in Cameron Lake, October 8, 2003. Rainbow trout separated by strain.

Figure 4 displays the length-frequency distribution, by age, of cutthroat trout and kokanee salmon captured in Cameron Lake. The length at age values of all cutthroat trout appears

normal with average growth for cutthroat trout on Vancouver Island. Clear distinction between age classes also exists.

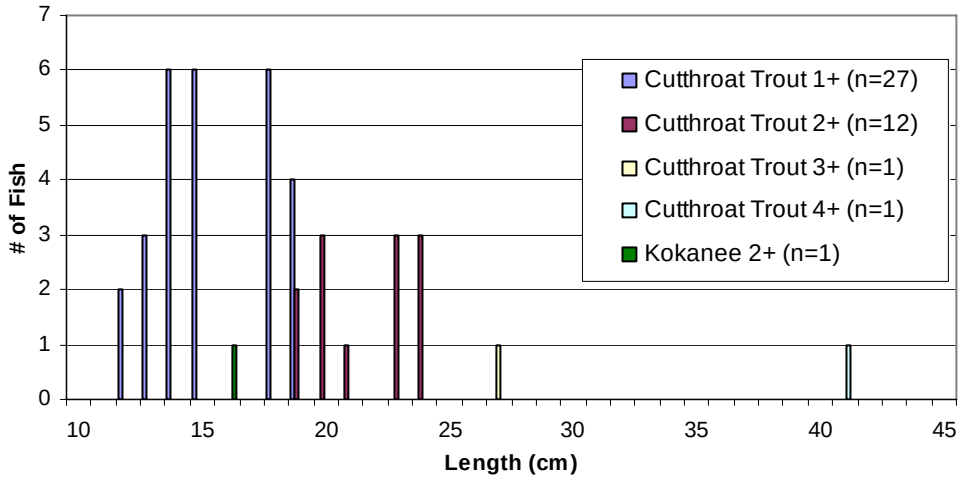


Figure 4. Length-frequency distribution, by age, of cutthroat trout and kokanee salmon in Cameron Lake, October 8, 2003.

Figure 5 displays the length-frequency distribution, by age, of all brown trout captured in Cameron Lake. There is clear distinction in length between age classes exists. There were no brown trout aged 4+ and 5+ in the gillnet samples.

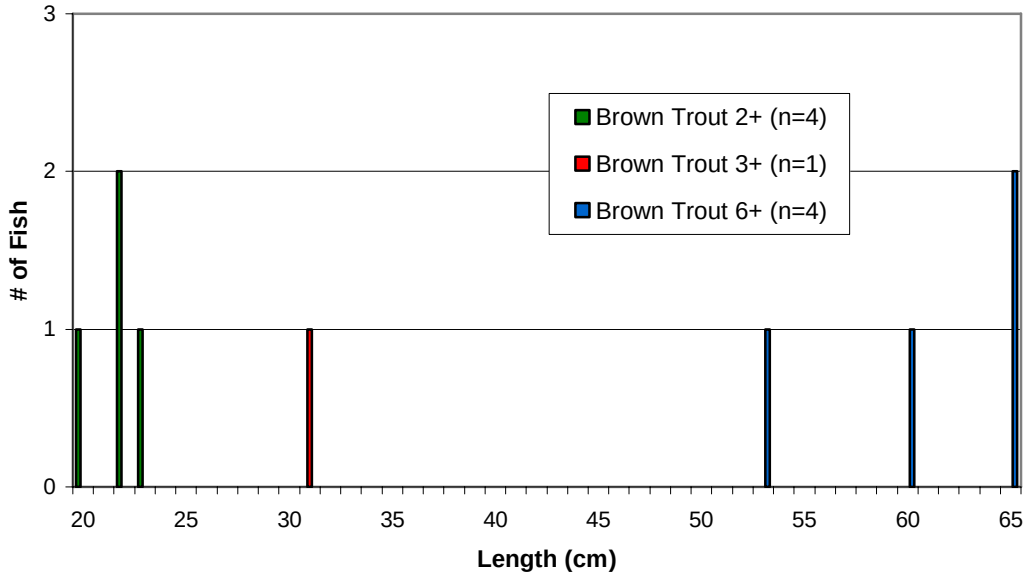


Figure 5. Length-frequency distribution, by age, of all brown trout captured in Cameron Lake, October 8, 2003.

Figure 6 illustrates the length/weight relationships and mean condition factors of cutthroat, rainbow and brown trout captured in Cameron Lake. The rainbow trout were separated by strain in an effort to differentiate growth between the Blackwater and Tzenzaicut strains. Three Blackwater rainbow trout and eight Tzenzaicut rainbow trout were captured in the gill nets. The weight of the sampled population of Blackwater rainbow trout increased according to the formula $W = 2.5353e^{0.1743L}$, where W represents weight in grams and L represents length in centimetres. The equation has a closeness of fit or R^2 value equal to 0.584. The weight of the sampled populations of Tzenzaicut and unidentified rainbow trout increased according to the formulae $W = 2.5846e^{0.1743L}$ and $W = 3.3753e^{0.1638L}$, with R^2 values equal to 0.989 and 0.956, respectively. The average condition factor of the Blackwater, Tzenzaicut and unidentified rainbow trout were 1.0345, 1.0301 and 1.2652, respectively. The weight of the sampled population of cutthroat trout increased according to the formula $W = 3.9571e^{0.1439L}$, with an R^2 value of 0.9385 and an average condition factor of 1.0013. Brown trout growth, measured as weight, increased according to the formula $W = 19.835e^{0.0834L}$, with an R^2 value of 0.9886 and an average condition factor of 1.2492. No length-weight analysis could be performed for kokanee, as only one fish was captured.

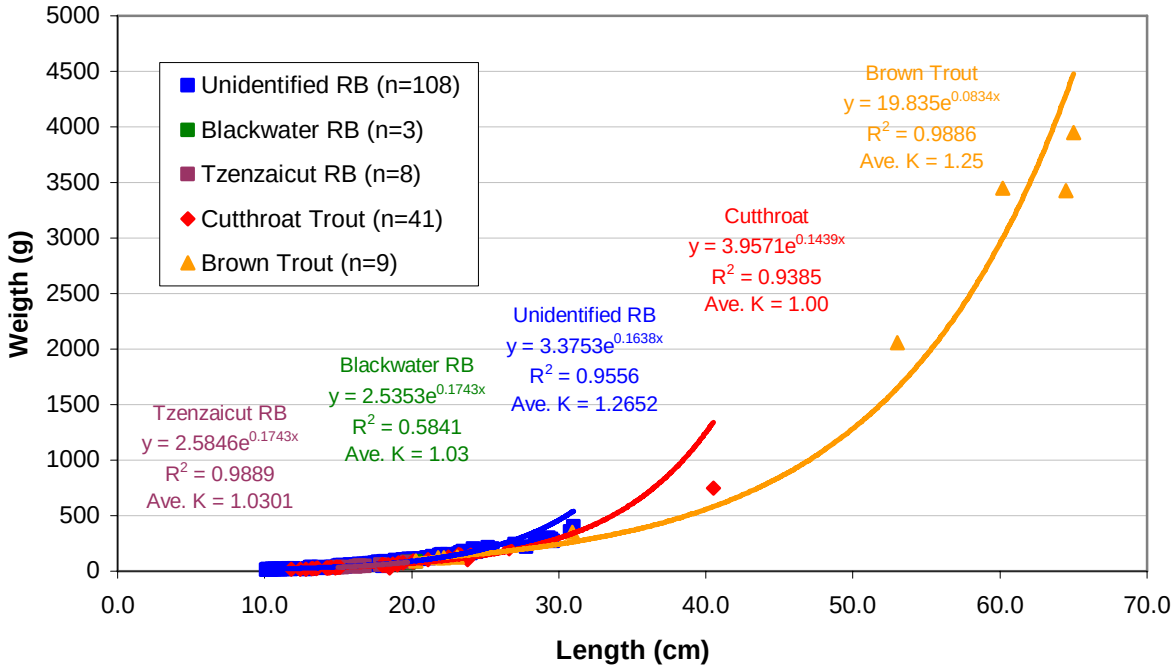


Figure 6. Length/weight relationships and average condition factors of cutthroat trout, rainbow trout, and brown trout in Cameron Lake, October 8, 2003. Rainbow trout separated by strain.

The comparison of mean length and mean weight of Blackwater and Tzenzaicut rainbow trout is shown in Figure 7. The mean length and weight of all Blackwater rainbow trout captured was 19.9 cm and 82.0 g, respectively. The mean length and weight of all Tzenzaicut rainbow trout captured was 16.7 cm and 49.3 g, respectively. 95% confidence intervals are shown for each mean.

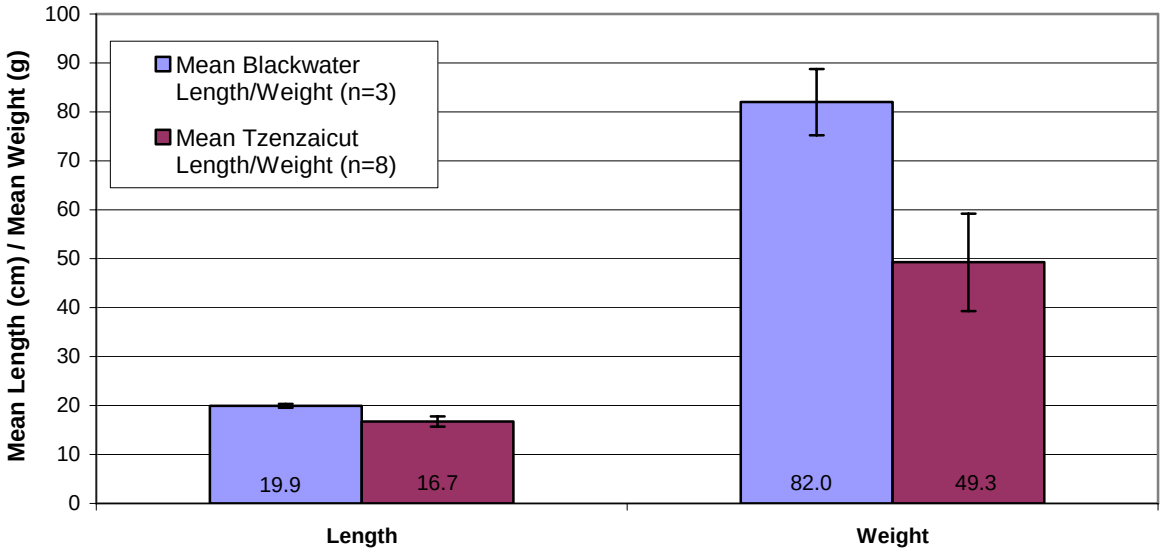


Figure 7. Comparison of mean length and mean weight of Blackwater and Tzenzaicut rainbow trout in Cameron Lake, October 8, 2003. Graph displays 95% confidence intervals.

3.3 Presence/Absence of Non-Native Species

The presence of cutthroat trout, rainbow trout, brown trout and kokanee in the gill nets in Cameron Lake is consistent with the BC Fisheries database. Prickly sculpin (*Cottus asper*) and crayfish (*Pacificastacus sp.*)were found in the samples, but are not noted in the BC Fisheries database. No other fish species, including non-native species, were found in the samples.

4.0 Discussion

4.1 Temperature-Oxygen Profile

The temperature-oxygen profile shows well mixed surface waters with oxygen values near saturation throughout the depths measured. These conditions are suitable for fish health and development. Values obtained for both oxygen and temperature fall within the tolerance range of all species present in the lake. Summer and/or winter fish kills are not of concern in Cameron Lake, due to its depth and location at low elevation.

4.2 Netting Data

Comparison of mean length and weight of the two rainbow trout strains, shows slightly greater growth for the Blackwater strain. The average length of the Blackwater is 3.2 cm greater than the Tzenzaicut (19.9 cm vs 16.7 cm). The average weight of the Blackwater

is 32.7 g greater than the Tzenzaicut (82 g vs 49.3 g). The relative abundance of the Tzenzaicut was higher than Blackwater by a factor of 2.7 (8 vs 3). This result is consistent with earlier studies that indicated Blackwater have a slight (but not significant) advantage in growth and that survival for Blackwater is lower than for Tzenzaicut, when both strains are present in the same lake.

The length-frequency distributions of Blackwater and Tzenzaicut rainbow trout indicate slow growth since their release in the spring. The mean condition factors are on the low end of normal for Vancouver Island rainbow trout. Mean condition factor of the unidentified rainbow was higher than both the Blackwater and Tzenzaicut strains. The natural recruitment level of rainbow trout in Cameron Lake appears high as only11 of 119 rainbows captured were clipped fish from the spring 2003 hatchery stockings.

The average length at age and condition factors for cutthroat trout and brown trout show normal growth and condition factor for trout in Vancouver Island lakes. The length-frequency distribution also appears normal for both species.

The unclipped rainbow were much more abundant that the clipped hatchery rainbow released in spring 2003. There is little overlap in length at age for the unclipped rainbow aged 2+ and older, which likely represent a mixture of hatchery and naturally recruited fish. The clipped hatchery rainbow were at the high end of the length scale for age 1+ rainbow. It is apparent that hatchery fish have a size advantage over wild fish when they are first released, but that difference is not apparent in subsequent years as the size distribution within each age class appears normal and does not overlap other age classes.

The reason for the absence of age 4+ and 5+ brown trout is unclear, but may be due to the ineffectiveness of the gillnets for holding larger fish. The large brown trout, aged 6+, tended to be males and were not gill-trapped in the net, but were rolled up after their kypes were tangled. This may also explains the difference in the male biased sex ratio.

4.3 Netting Data in Relation to Stocking History

The low catch of Blackwater and Tzenzaicut rainbow trout is surprising given the large numbers stocked and the total number of rainbow trout captured. This is likely an indication that natural recruitment levels in the lake are high, relative to the number of fish annually stocked. Of the total number of unidentified rainbow trout captured (108), 55 were aged 1+. It can be concluded that these fish are of natural origin, as no unmarked fry or yearlings were stocked in 2002 or 2003. The proportion of hatchery fish aged 1+ (11) to wild fish aged 1+ (55) indicates that natural recruitment is contributing significantly more to the fishery than hatchery augmentation.

A total of 108 rainbow trout, other than those stocked this year, were captured in the gill nets in Cameron Lake. The presence of rainbow trout in age classes younger than the fish

stocked this year, and the high number of older rainbow suggests there is adequate natural recruitment of rainbow trout to provide for the fishery in this lake.

Cutthroat trout are also stocked in Cameron Lake but could not be distinguished as either hatchery or wild origin as marking does not occur. Cutthroat numbers were much lower than rainbow. Brown trout are not native, nor are they currently stocked in Cameron Lake. They have become naturalized here and those now present are of wild origin.

5.0 Conclusion

Growth of the Blackwater rainbows was greater than Tzenzaicut growth. Conversely, the relative abundance of Tzenzaicut rainbow was higher than Blackwater rainbow in Cameron Lake by a factor of 2.7x. It is undetermined whether the lower abundance of Blackwater is due to their greater vulnerability to angling, or to other factors. It cannot be concluded that one strain is more suitable than the other for this lake.

The assessment of Cameron Lake indicates satisfactory numbers of trout are available for the fishery. Continued annual stocking of rainbow trout will not be necessary to sustain the fishery. Cutthroat numbers are low and it appears that the stocked cutthroat contribute little to the fishery. The present stocking rate of 10,00 rainbow and 10,000 cutthroat yearlings annually appears unnecessary. Natural recruitment levels of rainbow trout appear capable of sustaining the fishery at the present level of effort.

Growth and condition of trout in Cameron Lake appears near normal for Vancouver Island lakes.

6.0 Recommendations

The recommendation by the Regional Lakes Biologist is that hatchery stocking of rainbow and cutthroat trout in Cameron Lake be deferred at this time. Future assessment may be required if there is an indication that angling effort has increased significantly.

Appendix A – Stocking History of Cameron Lake

System	Location	Release Date	Spp	Stg	Stock	Number	Size (g)	Mark	Hat	Waterbody ID
CAMERON	PARKSVILLE	19190101	CT	FR	COWICHAN	12,000	0.0		CLH	00316PARK
CAMERON	PARKSVILLE	19210101	CT	FR	COWICHAN	4,581	0.0		CLH	00316PARK
CAMERON	PARKSVILLE	19230101	CT	FR	COWICHAN	10,000	0.0		CLH	00316PARK
CAMERON	PARKSVILLE	19240101	RB	FR	PINANTAN	15,000	0.0		CLH	00316PARK
CAMERON	PARKSVILLE	19270101	RB	EE	PINANTAN	40,000	0.0		CLH	00316PARK
CAMERON	PARKSVILLE	19290101	RB	EE	PINANTAN	40,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19300101	RB	EE	PINANTAN	30,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19320101	RB	EE	PINANTAN	75,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19330101	RB	EE	PINANTAN	60,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19350101	RB	EE	PINANTAN	35,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19360101	RB	EE	PINANTAN	70,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19370101	RB	UN	UNKNOWN	8,000	0.0			00316PARK
CAMERON	PARKSVILLE	19370101	RB	EE	PINANTAN	70,000	0.0		LCH	00316PARK
CAMERON	PARKSVILLE	19380101	RB	FG	PINANTAN	15,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19390101	RB	FG	PINANTAN	5,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19400101	RB	FG	PINANTAN	9,400	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19410101	RB	FG	PINANTAN	3,400	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19420101	RB	FG	KNOUFF	3,500	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19430101	RB	FG	KNOUFF	2,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19440101	RB	FG	PINANTAN	4,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19450101	RB	FG	KNOUFF	9,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19460101	RB	FG	KNOUFF	8,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19470101	RB	FG	KNOUFF	5,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19480101	RB	FG	KNOUFF	7,000	0.0		QBH	00316PARK
CAMERON	PARKSVILLE	19490101	RB	FG	PINANTAN	5,000	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19500101	RB	FG	PAUL	7,000	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19510101	RB	FG	PETERHOPE	20,000	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19520101	CT	FG		5,200	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19520101	RB	FG	PENNASK	20,000	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19530101	RB	FR	SFH	15,000	0.0		PPH	00316PARK
CAMERON	PARKSVILLE	19560101	ST	FG	TACOMA	10,000	15.0		PPH	00316PARK
CAMERON	PARKSVILLE	19680101	RB	YE	MCLEARY	17,360	30.0		FVH	00316PARK
CAMERON	PARKSVILLE	19780101	RB	UN	OYAMA	21,760	18.0		FVH	00316PARK
CAMERON	PARKSVILLE	19780101	RB	UN	OYAMA	13,240	18.0		FVH	00316PARK
CAMERON	PARKSVILLE	19790101	RB	UN	BADGER	20,000	18.0		FVH	00316PARK
CAMERON	PARKSVILLE	19800601	RB	UN	PENNASK	20,000	14.0		FVH	00316PARK
CAMERON	PARKSVILLE	19810501	RB	UN	NRT PREMIER	20,000	4.2		FVH	00316PARK
CAMERON	PARKSVILLE	19870401	RB	UN	TUNKWA	15,000	8.5		FVH	00316PARK
CAMERON	PARKSVILLE	19871030	ST	PA	QUALICUM	13,271	7.6		BIGQ	00316PARK
CAMERON	PARKSVILLE	19890417	CT	YE	TAYLOR	10,000	44.1	RM	VIH	00316PARK
CAMERON	PARKSVILLE	19890606	RB	YE	TUNKWA	10,000	8.3		VIH	00316PARK
CAMERON	PARKSVILLE	19891025	ST	PA	QUALICUM	10,542	6.8		BIGQ	00316PARK
CAMERON	PARKSVILLE	19900405	CT	YE	TAYLOR	10,000	23.3		FVH	00316PARK
CAMERON	PARKSVILLE	19900417	RB	YE	BADGER	10,000	18.7		FVH	00316PARK
CAMERON	PARKSVILLE	19910325	CT	YE	TAYLOR	10,000	20.6		FVH	00316PARK
CAMERON	PARKSVILLE	19910422	RB	YE	BADGER	10,000	14.7		FVH	00316PARK
CAMERON	PARKSVILLE	19910617	RB	YE	BADGER	2,988	15.6		VIH	00316PARK
CAMERON	PARKSVILLE	19920506	CT	YE	TAYLOR	8,868	39.7		VIH	00316PARK
CAMERON	PARKSVILLE	19920508	CT	YE	TAYLOR	1,132	53.0		VIH	00316PARK
CAMERON	PARKSVILLE	19920515	RB	YE	TUNKWA	10,000	17.2		VIH	00316PARK
CAMERON	PARKSVILLE	19930407	CT	YE	TAYLOR	10,000	19.9		VIH	00316PARK
CAMERON	PARKSVILLE	19930513	RB	YE	TUNKWA	10,000	20.7		VIH	00316PARK
CAMERON	PARKSVILLE	19940309	CT	YE	TAYLOR	10,000	37.9		VITH	00316PARK
CAMERON	PARKSVILLE	19940513	RB	YE	PENNASK	8,708	20.7		VITH	00316PARK
CAMERON	PARKSVILLE	19940513	RB	YE	PENNASK	1,293	20.5		VITH	00316PARK
CAMERON	PARKSVILLE	19950310	CT	YE	TAYLOR	10,000	34.8		VITH	00316PARK
CAMERON	PARKSVILLE	19950505	RB	YE	PENNASK	10,000	16.6		VITH	00316PARK
CAMERON	PARKSVILLE	19960322	CT	YE	TAYLOR	10,000	34.0		VITH	00316PARK
CAMERON	PARKSVILLE	19960516	RB	YE	PENNASK	10,000	15.0		VITH	00316PARK
CAMERON	PARKSVILLE	19970324	CT	YE	TAYLOR	10,000	46.1		VITH	00316PARK
CAMERON	PARKSVILLE	19970429	RB	YE	BADGER TUNKWA	10,000	25.4		VITH	00316PARK
CAMERON	PARKSVILLE	19980316	CT	YE	TAYLOR	10,000	44.0		VITH	00316PARK
CAMERON	PARKSVILLE	19980515	RB	YE	TZENZAICUT	4,968	33.0		VITH	00316PARK
CAMERON	PARKSVILLE	19980605	RB	YE	BLACKWATER DR	5,030	23.0		VITH	00316PARK
CAMERON	PARKSVILLE	19990317	CT	YE	TAYLOR	10,000	41.1		VITH	00316PARK
CAMERON	PARKSVILLE	19990413	RB	YE	BLACKWATER	10,000	25.6		VITH	00316PARK
CAMERON	PARKSVILLE	19990716	RB	YE	TZENZAICUT	1,268	44.1		VITH	00316PARK
CAMERON	PARKSVILLE	20000327	CT	YE	TAYLOR	10,000	47.4		VITH	00316PARK
CAMERON	PARKSVILLE	20000413	RB	YE	BADGER TUNKWA	2,922	26.2		VITH	00316PARK
CAMERON	PARKSVILLE	20000509	RB	YE	TZENZAICUT	10,000	32.0		VITH	00316PARK
CAMERON	PARKSVILLE	20010321	CT	YE	TAYLOR	10,000	35.9		VITH	00316PARK
CAMERON	PARKSVILLE	20010430	RB	YE	BADGER TUNKWA	10,000	30.7		VITH	00316PARK
CAMERON	PARKSVILLE	20020315	CT	YE	TAYLOR	10,000	38.5		VITH	00316PARK

Appendix B – Temperature-Oxygen Data

Locality:	Cameron Lake
Date:	October 15, 2003
Bottom Depth	44.5 m
Secchi Depth	14.3 m
Weather:	100% overcast, rain, moderate E'ly wind

Depth (m)	O_2 (mg/L)	Temperature (^oC)
Surface	10.4	13.3
1.0	10.3	13.3
2.0	10.3	13.3
3.0	10.4	13.3
4.0	10.3	13.3
5.0	10.3	13.3
6.0	10.3	13.3
7.0	10.3	13.3
8.0	10.3	13.3
9.0	10.3	13.3
10.0	10.3	13.3
11.0	10.3	13.3
12.0	10.3	13.3
13.0	10.3	13.3
14.0	10.3	13.3
15.0	10.2	13.3

Appendix C – Net Set Information and Catch Record

Floating Gill Net #1 (1.5” panel added to offshore end of gillnet)

Parameter	Floating Gill Net #1 (1.5" add. Panel)
Date Set :	7-Oct-03
Time Set :	15:30
Date Lifted :	8-Oct-03
Time Lifted :	10:45
Shallow End Depth (m) :	0.3
Shallow End Substrate :	Fine Organic Substrate + Gravel
Deep End Depth (m) :	25
Deep End Substrate :	Fine Organic Substrate + Sand
Max. Depth Along Net (m) :	25

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics						Sample	Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
1	RB	24.2	202	M	MT	No	3+	Scale			Black Insects		1/2	
2	RB	23.3	166	M	IMM	No	2+						1/2	
3	RB	23.5	178	F	MG	No	2+						Empty	
4	RB	19.5	106	F	IMM	No	2+						3/4	
5	RB	21.2	114	M	IMM	No	2+						3/4	
6	RB	20.1	108	F	IMM	No	2+						1/4	
7	RB	20.6	110	M	IMM	No	2+						Empty	
8	RB	19.5	96	M	IMM	No	2+				Digested Insects		Full	
9	RB	19.4	88	F	IMM	No	2+						3/4	
10	RB	19.4	104	F	IMM	No	2+						1/2	
11	RB	17.8	64	F	IMM	No	1+						Empty	
12	RB	16.8	60	M	MG	No	1+						1/2	
13	RB	17.5	72	M	IMM	No	1+				Digested Insects		Full	
14	RB	17.4	66	F	IMM	No	1+						Empty	
15	RB	15.8	56	F	IMM	No	1+						1/2	
16	RB	16.9	64	F	IMM	No	1+						1/2	
17	RB	14.6	34	F	IMM	No	1+						1/2	
18	RB	16.7	64	M	MG	No	1+						1/4	
19	RB	16.4	66	M	MT	No	1+						1/4	
20	RB	17.1	68	F	IMM	No	1+				Digested Insects		Full	
21	RB	13.0	22	M	IMM	No	1+	Scale					1/2	
22	RB	11.3	20	M	MG	No	1+						1/2	
23	RB	11.1	16	F	IMM	No	1+						Empty	
24	RB	10.7	16	F	IMM	No	1+	Scale					3/4	
25	BT	53.0	2060	F	MT		6+	Scale					Empty	Eggs almost ripe
26	CT	40.5	748	M	IMM		4+	Scale				Digested Fish	3/4	
27	CT	26.6	204	F	MG		3+	Scale					Empty	
28	CT	18.0	58	F	IMM		1+						Empty	
29	CT	19.1	72	M	IMM		2+					Digested Fish	1/4	
30	CT	18.0	58	M	MT		1+						1/4	
31	CT	14.3	30	M	IMM		1+						3/4	
32	CT	14.9	34	M	IMM		1+						1/4	
33	CT	13.2	24	M	IMM		1+				Black Insects		Full	
34	CT	11.8	20	F	IMM		1+	Scale					1/4	
35	CT	12.4	20	F	IMM		1+						Empty	
36	PS	9.3	8											
37	PS	9.8	12											
38	PS	10.7	14											
39	PS	11.9	18											
40	PS	9.2	10											

Floating Gill Net #1 (1.5” panel added to offshore end of gillnet) Continued

Parameter	Floating Gill Net #1 (1.5" add. Panel)
Date Set :	7-Oct-03
Time Set :	15:30
Date Lifted :	8-Oct-03
Time Lifted :	10:45
Shallow End Depth (m) :	0.3
Shallow End Substrate :	Fine Organic Substrate + Gravel
Deep End Depth (m) :	25
Deep End Substrate :	Fine Organic Substrate + Sand
Max. Depth Along Net (m) :	25

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
41	PS	9.4	10											
42	PS	9.9	12											
43	PS	10.4	12											
44	PS	9.0	8											
45	PS	9.3	10											
46	PS	8.9	10											

Appendix B – Net Set Information and Catch Record Continued

Sinking Gill Net #1 (1.5” panel added to offshore end of gillnet)

Parameter	Sinking Gill Net #1 (1.5" add. Panel)
Date Set :	7-Oct-03
Time Set :	14:40
Date Lifted :	8-Oct-03
Time Lifted :	10:30
Shallow End Depth (m) :	0.4
Shallow End Substrate :	Gravel + Rock
Deep End Depth (m) :	7.8
Deep End Substrate :	Fine Organic Substrate + Sand
Max. Depth Along Net (m) :	7.8

Netting record key

RB - rainbow trout	IMM - immature	LM - left maxillary
CT - cutthroat trout	MG - maturing	RM - right maxillary
BT - brown trout	MT - mature	AD - adipose
DV - Dolly Varden	R - ripe	
KOK - kokanee salmon	SP - spent	
PS - prickly sculpin		

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
1	RB	30.8	358	M	MG	No	3+	Scale					Empty	
2	RB	28.8	294	F	MG	No	3+	Scale					Empty	
3	RB	23.5	154	F	MG	No	2+	Scale			Dragonfly Nymphs		1/4	
4	RB	21.9	142	F	IMM	No	2+	Scale					1/4	
5	RB	18.8	80	M	MG	No	2+				Disgested Insects		1/4	
6	RB	19.2	94	M	MT	No	2+		Small Snails				1/4	
7	RB	20.3	88	M	IMM	LM	1+	Scale			Black Ant		1/2	
8	RB	17.2	58	F	IMM	No	1+						1/4	Digested Matter
9	RB	19.7	80	F	IMM	RM	2+				Dragonfly Nymphs		1/2	
10	RB	19.2	72	F	IMM	No	2+	Scale			Digested Insects		1/2	
11	RB	18.4	48	F	IMM	?	1+	Scale			Digested Insects		3/4	Head partially eaten
12	RB	16.5	48	F	IMM	RM	1+		Caddis				1/2	Needles
13	RB	17.3	66	F	IMM	No	1+	Scale	Caddis				3/4	Stick Matter
14	RB	17.9	58	F	IMM	RM	1+				Digested Insects		1/2	
15	RB	15.3	54	M	MT	No	1+	Scale					Empty	
16	RB	16.8	52	F	IMM	?	1+						1/2	Partially eaten
17	RB	16.2	42	M	MG	RM	1+	Scale			Small Black Insects		1/2	
18	RB	14.6	34	F	IMM	No	1+		Chironomids				3/4	
19	RB	14.5	34	F	IMM	No	1+	Scale					1/2	
20	RB	12.1	20	F	IMM	?	1+						Empty	Partially eaten
21	RB	12.0	22	F	IMM	No	1+	Scale					Empty	
22	CT	23.2	148	F	IMM	No	2+	Scale				Sculpin	Full	
23	CT	24.0	142	M	IMM	No	2+	Scale					Empty	
24	CT	23.9	134	M	IMM	No	2+					Stickleback	1/4	
25	CT	22.5	124	M	IMM	No	2+	Scale				Digested Fish	1/4	
26	CT	23.8	104	F	IMM	No	2+						Empty	
27	CT	20.1	94	F	IMM	No	2+					Stickleback	3/4	
28	CT	21.1	104	F	IMM	No	2+	Scale				Digested Fish	1/4	
29	CT	19.0	66	F	IMM	No	1+	Scale					Empty	
30	CT	20.1	84	F	IMM	No	2+	Scale				Digested Fish	1/2	
31	CT	18.7	66	F	IMM	No	1+					Stickleback	3/4	
32	CT	18.0	60	M	IMM	No	1+	Scale					Empty	
33	CT	19.4	74	F	IMM	No	2+						Empty	
34	CT	18.4	58	M	IMM	No	1+						Empty	
35	CT	20.1	80	M	IMM	No	2+					Stickleback	1/2	Partially eaten
36	CT	18.5	30	F	IMM	No	1+					Digested Fish	1/2	
37	CT	19.0	58	M	IMM	No	1+						Empty	
38	CT	18.0	54	F	IMM	No	1+						Empty	
39	CT	18.2	52	M	IMM	No	1+						1/4	Digested Matter
40	CT	14.5	32	F	IMM	No	1+						Empty	

Appendix B – Net Set Information and Catch Record Continued

Sinking Gill Net #1 (1.5” panel added to offshore end of gillnet) Continued

Parameter	Sinking Gill Net #1 (1.5" add. Panel)
Date Set :	7-Oct-03
Time Set :	14:40
Date Lifted :	8-Oct-03
Time Lifted :	10:30
Shallow End Depth (m) :	0.4
Shallow End Substrate :	Gravel + Rock
Deep End Depth (m) :	7.8
Deep End Substrate :	Fine Organic Substrate + Sand
Max. Depth Along Net (m) :	7.8

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics						Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
41	CT	15.1	32	F	IMM		1+						Empty	
42	CT	14.3	28	F	IMM		1+					Stickleback	1/2	
43	CT	15.0	36	F	IMM		1+	Scale				Digested Fish	1/4	
44	CT	14.8	30	F	IMM		1+						Empty	
45	CT	14.2	30	M	IMM		1+	Scale					Empty	
46	CT	13.3	24	M	IMM		1+	Scale					Empty	Fishing Hook
47	CT	13.6	26	F	IMM		1+				Digested Insect		1/2	
48	CT	13.5	22	F	IMM		1+						Empty	
49	CT	12.8	20	M	IMM		1+	Scale					Empty	
50	BT	65.0	3950	M	MT		6+	Scale				Digested Fish	1/4	
51	BT	30.9	350	M	MT		3+	Scale					Empty	
52	BT	22.2	120	M	IMM		2+	Scale					Empty	
53	BT	21.8	120	F	IMM		2+	Scale					Empty	
54	BT	20.3	92	M	IMM		2+	Scale					Empty	
55	PS	15.1	48											
56	PS	12.6	28											
57	PS	9.6	10											
58	PS	14.2	34											
59	PS	12.9	28											
60	PS	12.8	24											
61	PS	11	16											
62	PS	10.1	12											
63	PS	10.1	12											
64	PS	9	10											
65	PS	9.7	10											
66	PS	10.7	16											
67	PS	9.4	10											
68	PS	9.9	12											
69	PS	9.6	8											
70	PS	9.8	12											
71	PS	9.5	10											
72	PS	9.9	10											
73	PS	9	8											
74	PS	8.8	6											
75	Crayfish	?	?											

Appendix B – Net Set Information and Catch Record Continued

Floating Gill Net #2 (No additional panels added)

Parameter	Floating Gill Net #2 (no add. Panels)
Date Set :	7-Oct-03
Time Set :	16:51
Date Lifted :	8-Oct-03
Time Lifted :	13:45
Shallow End Depth (m) :	0.1
Shallow End Substrate :	Gravel
Deep End Depth (m) :	20
Deep End Substrate :	Fine Organic Substrate
Max. Depth Along Net (m) :	20

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
1	RB	29.5	288	F	IMM	No	3+						1/2	
2	RB	29.3	296	F	MG	No	3+						Empty	
3	RB	29.6	270	F	MG	No	3+						1/2	
4	RB	25.0	196	F	MG	No	3+						1/2	
5	RB	27.0	240	F	MG	No	3+						1/4	
6	RB	25.2	210	M	MT	No	3+						3/4	
7	RB	25.5	202	F	MG	No	3+						1/2	
8	RB	23.3	156	M	MG	No	2+						1/4	
9	RB	23.7	172	F	MG	No	2+						1/2	
10	RB	22.7	140	F	MG	No	2+						1/2	
11	RB	22.0	148	F	IMM	No	2+						1/2	
12	RB	20.5	108	M	IMM	No	2+						1/2	
13	RB	17.7	80	M	MT	No	2+						1/4	
14	RB	18.9	96	M	MT	No	2+						1/2	
15	RB	18.2	84	M	IMM	No	2+						3/4	
16	RB	21.4	134	M	MG	No	2+						3/4	
17	RB	24.0	160	M	IMM	No	2+						1/4	
18	RB	20.1	90	M	IMM	No	2+						1/2	
19	RB	22.4	140	F	IMM	No	2+						1/4	
20	RB	24.4	170	F	MG	No	2+						Empty	
21	RB	21.8	128	F	MG	No	2+						3/4	
22	RB	22.4	150	F	IMM	No	2+						1/2	
23	RB	22.1	128	F	IMM	No	2+						1/4	
24	RB	21.1	118	M	IMM	No	2+						1/2	
25	RB	19.6	98	M	IMM	No	2+						1/4	
26	RB	18.1	82	F	IMM	No	2+						1/4	
27	RB	19.8	108	F	MG	No	2+						1/2	
28	RB	17.9	78	M	MG	No	1+						1/2	
29	RB	17.3	70	F	IMM	No	1+						1/4	
30	RB	20.2	102	M	MG	No	2+						1/2	
31	RB	15.5	40	F	IMM	No	1+						Empty	Partially eaten
32	RB	15	46	M	IMM	No	1+						Empty	
33	RB	18.1	82	M	MG	No	2+						Empty	
34	RB	21	118	M	IMM	No	2+						3/4	
35	RB	15.1	52	F	IMM	No	1+						1/2	
36	RB	16.4	46	M	MG	RM	1+						3/4	
37	RB	19.4	90	F	MG	No	2+						1/2	
38	RB	15.9	52	M	IMM	No	1+						Empty	
39	RB	16.8	48	M	MG	RM	1+						Empty	
40	RB	13.8	26	F	IMM	No	1+						1/4	

Appendix B – Net Set Information and Catch Record Continued

Floating Gill Net #2 (No additional panels added) Continued

Parameter	Floating Gill Net #2 (no add. Panels)
Date Set :	7-Oct-03
Time Set :	16:51
Date Lifted :	8-Oct-03
Time Lifted :	13:45
Shallow End Depth (m) :	0.1
Shallow End Substrate :	Gravel
Deep End Depth (m) :	20
Deep End Substrate :	Fine Organic Substrate
Max. Depth Along Net (m) :	20

Netting record key

RB - rainbow trout	IMM - immature	LM - left maxillary
CT - cutthroat trout	MG - maturing	RM - right maxillary
BT - brown trout	MT - mature	AD - adipose
DV - Dolly Varden	R - ripe	
KOK - kokanee salmon	SP - spent	
PS - prickly sculpin		

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
41	RB	19.8	76	F	IMM	LM	2+						Empty	
42	RB	16.2	56	F	IMM	No	1+						t	
43	RB	18.1	84	F	MG	No	2+						1/4	
44	RB	13.2	32	M	IMM	No	1+						1/4	
45	RB	13.0	24	F	IMM	No	1+						1/2	
46	RB	14.0	28	M	IMM	No	1+						Empty	
47	RB	11.6	22	M	MT	No	1+						1/2	
48	RB	10.1	14	F	IMM	No	1+						Empty	
49	RB	11.1	16	F	IMM	No	1+						1/2	
50	RB	10.4	14	?	IMM	No	1+						1/2	
51	KOK	16.2	48	M	MG		2+	Scale					1/2	
52	PS	14.5	38											
53	PS	12.8	26											
54	PS	9.0	10											
55	PS	9.0	8											
56	PS	10.1	12											
57	PS	8.8	8											
58	PS	9.5	10											
59	PS	9.2	8											
60	PS	9.5	10											

Appendix B – Net Set Information and Catch Record Continued

Sinking Gill Net #2 (No additional panels added)

Parameter	Sinking gill net #2 (no add. Panels)
Date Set :	7-Oct-03
Time Set :	16:40
Date Lifted :	8-Oct-03
Time Lifted :	13:30
Shallow End Depth (m) :	0.1
Shallow End Substrate :	Gravel
Deep End Depth (m) :	10
Deep End Substrate :	Fine Organic Substrate
Max. Depth Along Net (m) :	10

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
1	RB	31.0	400	F	MT	No	3+	Scale	Caddisfly				1/4	Sticks, needles
2	RB	28.4	274	M	MT	No	3+		Chironomids		Beetles		Full	
3	RB	27.8	220	F	MT	No	3+	Scale			Ants		Full	
4	RB	23.2	154	M	MT	No	2+						Empty	
5	RB	19.7	82	M	IMM	LM	1+						Empty	
6	RB	17.7	78	M	IMM	No	1+						1/2	
7	RB	16.8	52	F	IMM	No	1+						Empty	
8	RB	16.1	54	M	IMM	No	1+						1/2	
9	RB	18.0	48	M	IMM	No	1+						Empty	Partialy eaten
10	RB	15.3	36	M	IMM	RM	1+						1/2	
11	RB	15.0	36	F	IMM	RM	1+						1/4	
12	RB	13.7	36	F	IMM	No	1+						3/4	
13	RB	13.1	34	M	IMM	No	1+						1/2	
14	RB	14.0	30	F	IMM	No	1+						1/2	
15	RB	10.5	16	M	IMM	No	1+						1/2	
16	RB	11.0	18	F	IMM	No	1+	Scale					1/4	
17	RB	13.1	24	?	IMM	No	1+						?	Partialy eaten
18	RB	10.4	14	F	IMM	No	1+						1/2	
19	RB	13.7	28	F	IMM	No	1+						1/2	
20	RB	10.3	14	M	IMM	No	1+						1/2	
21	RB	12.8	20	F	IMM	No	1+						1/4	
22	RB	10.7	18	M	IMM	No	1+						1/2	
23	RB	10.5	16	M	IMM	No	1+						1/4	
24	RB	10.9	16	M	IMM	No	1+						1/2	
25	RB	11.8	20	M	IMM	No	1+						3/4	
26	RB	10.2	16	F	IMM	No	1+						1/2	
27	RB	10.2	14	M	IMM	No	1+						Empty	
28	RB	?	?	?	?	?							?	Fish mostly eaten
29	CT	23.3	146	F	IMM	No	2+					Digested fish	1/2	
30	CT	14.9	34	M	IMM	No	1+						1/2	
31	CT	14.4	30	M	IMM	No	1+						3/4	
32	BT	60.2	3450	M	MT		6+	Scale				Digested fish	1/4	
33	BT	64.5	3425	M	MT		6+	Scale					1/4	Many worms
34	BT	23.1	126	M	MG		2+	Scale					Empty	
35	PS	13.7	28											
36	PS	10	14											
37	PS	10.4	12											
38	PS	10	14											
39	PS	9.9	10											
40	PS	9.3	10											

Appendix B – Net Set Information and Catch Record Continued

Sinking Gill Net #2 (No additional panels added) Continued

Parameter	Sinking gill net #2 (no add. Panels)
Date Set :	7-Oct-03
Time Set :	16:40
Date Lifted :	8-Oct-03
Time Lifted :	13:30
Shallow End Depth (m) :	0.1
Shallow End Substrate :	Gravel
Deep End Depth (m) :	10
Deep End Substrate :	Fine Organic Substrate
Max. Depth Along Net (m) :	10

Netting record key

RB	- rainbow trout	IMM	- immature	LM	- left maxillary
CT	- cutthroat trout	MG	- maturing	RM	- right maxillary
BT	- brown trout	MT	- mature	AD	- adipose
DV	- Dolly Varden	R	- ripe		
KOK	- kokanee salmon	SP	- spent		
PS	- prickly sculpin				

		Fish Characteristics							Stomach Contents					
#	Species	Fork Length (cm)	Weight (g)	Sex	Maturity	Mark	Age	Sample Type	Bottom Organisms	Plankton	Terrestrial	Fish	Volume (full)	Comments
41	PS	12.6	24											
42	PS	12.0	18											
43	PS	9.5	10											
44	PS	10.3	10											
45	PS	9.8	12											
46	PS	8.6	8											
47	Crayfish	?	?	?	?									

Appendix D – Photos

Picture 1. Looking E from the Centre of the lake.

Picture 2. Looking W from the Centre of the lake.

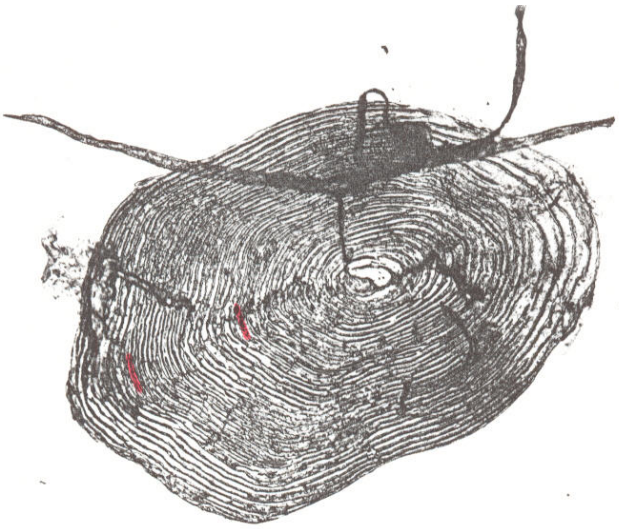
Picture 3. Floating gill net #1 (extra panel) catch.

Picture 4. Sinking gill net #1 (extra panel) catch.

Picture 5. Floating gill net #2 (no extra panel) catch.

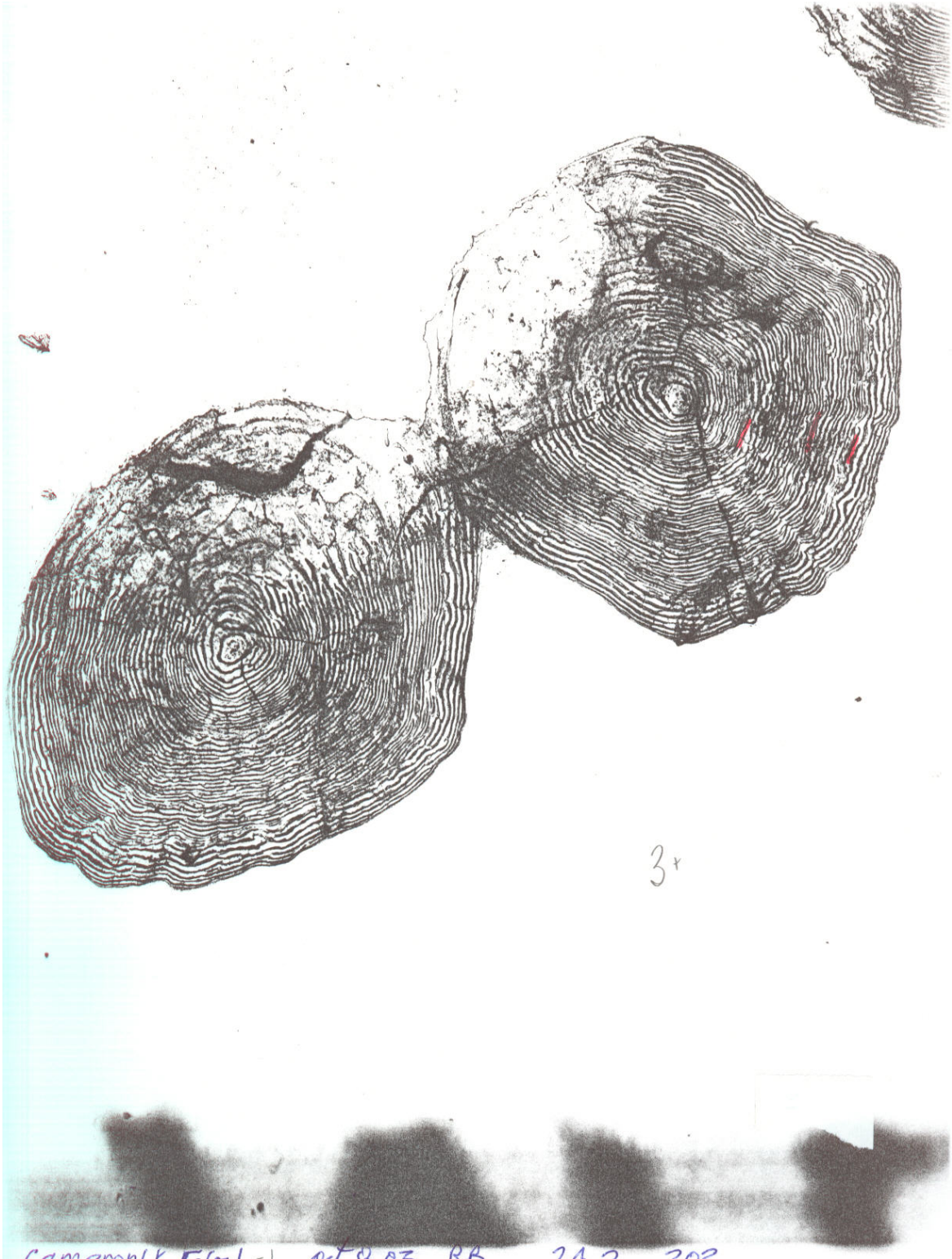
Picture 6. Sinking gill net #2 (no extra panel) catch.

Appendix E – Scale Readings

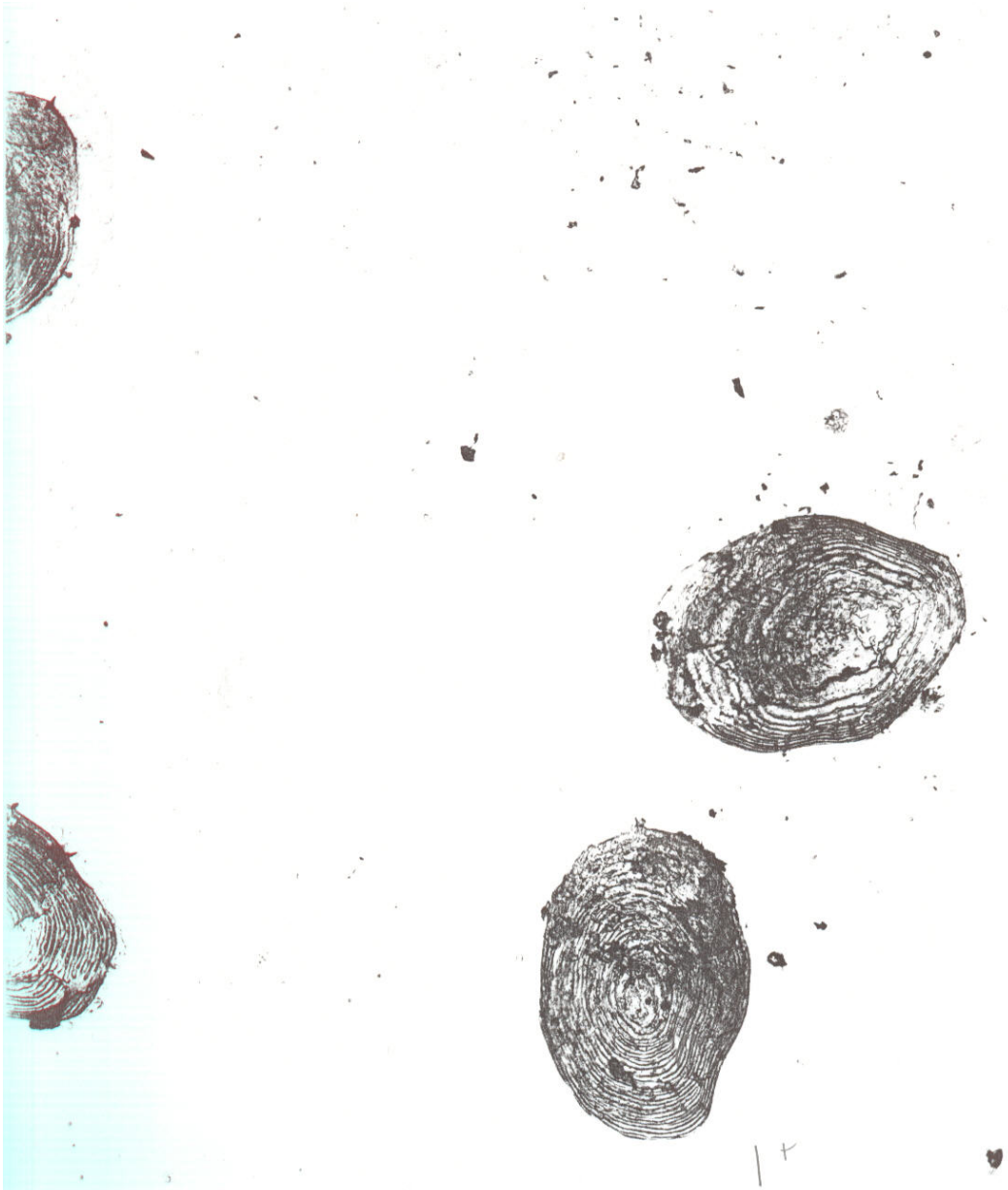


2+

cameron LK SG 2 3/4 oct 8,03 BT 23.1 126



CameronLk. EG1-1 Oct 8,03 RB 24.2 202

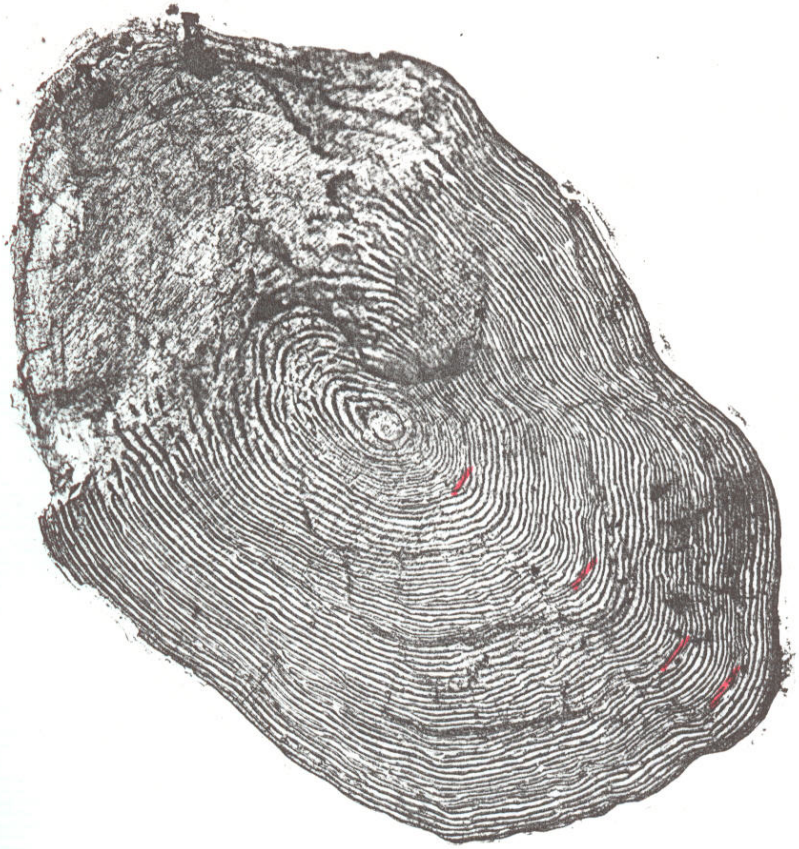


Cameron LK FG1-21 Oct 8, 03 RB 13.0 22

Cameron Lk. FG-1 24 Oct 8, 03 RB 10.7 16

6+

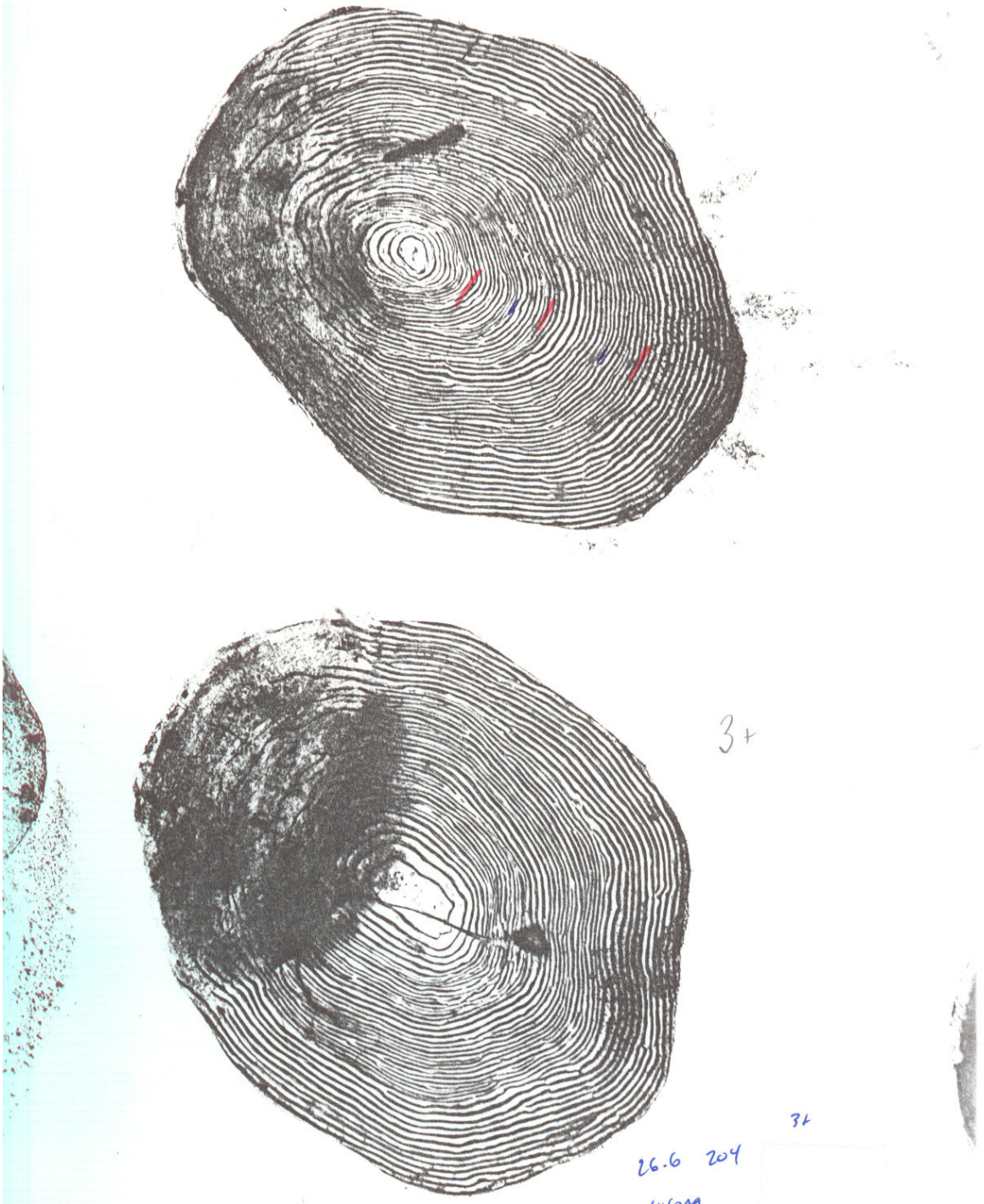
Cameron Lk. FG 185 Oct 8,03 BT 53.0 2060



46.5 748 47

wrong lengths weight

Cameron LK. FG 126 Oct 8,03 CT 26.6 204



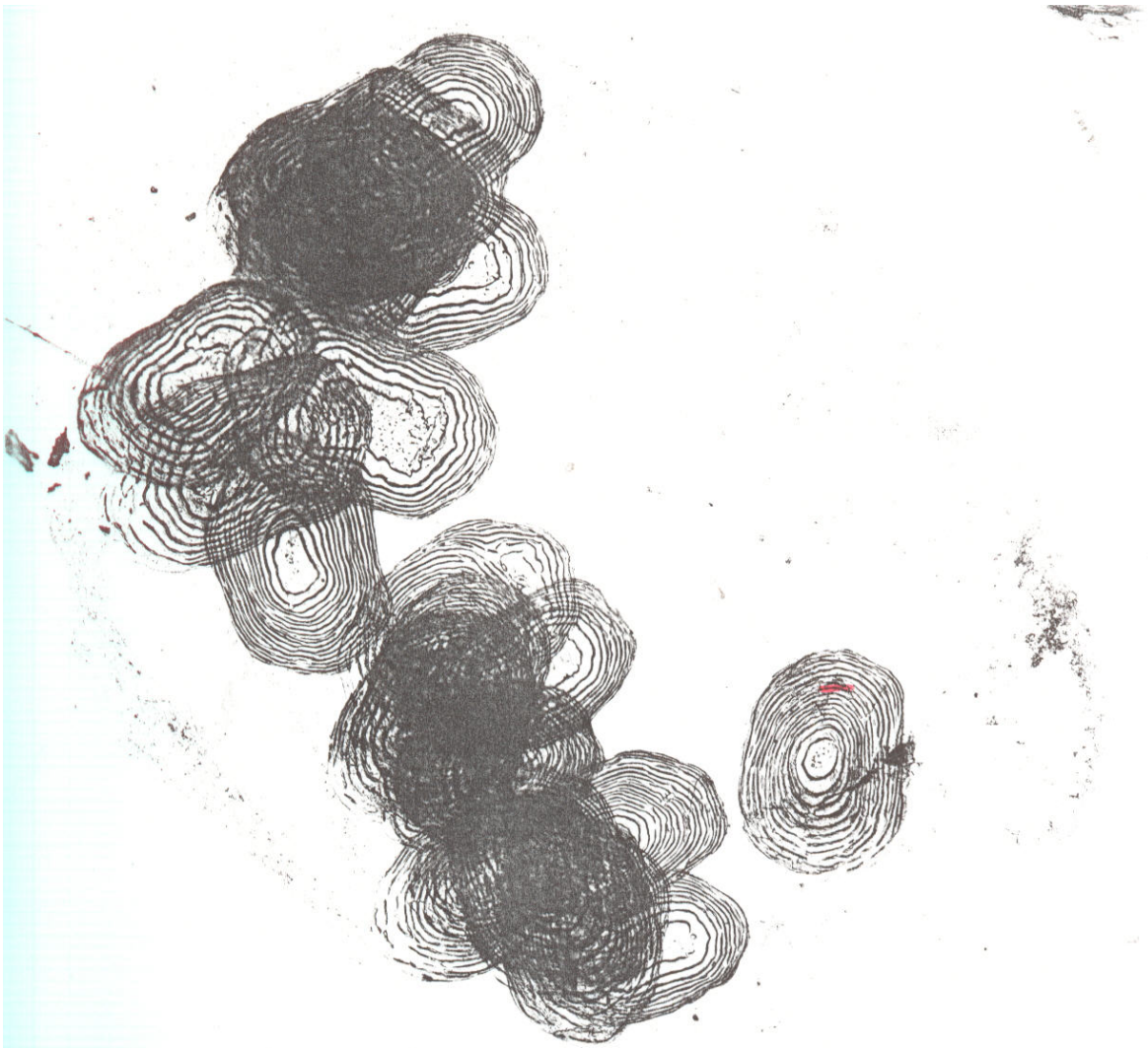
3+

3+

26.6 204

WIOM

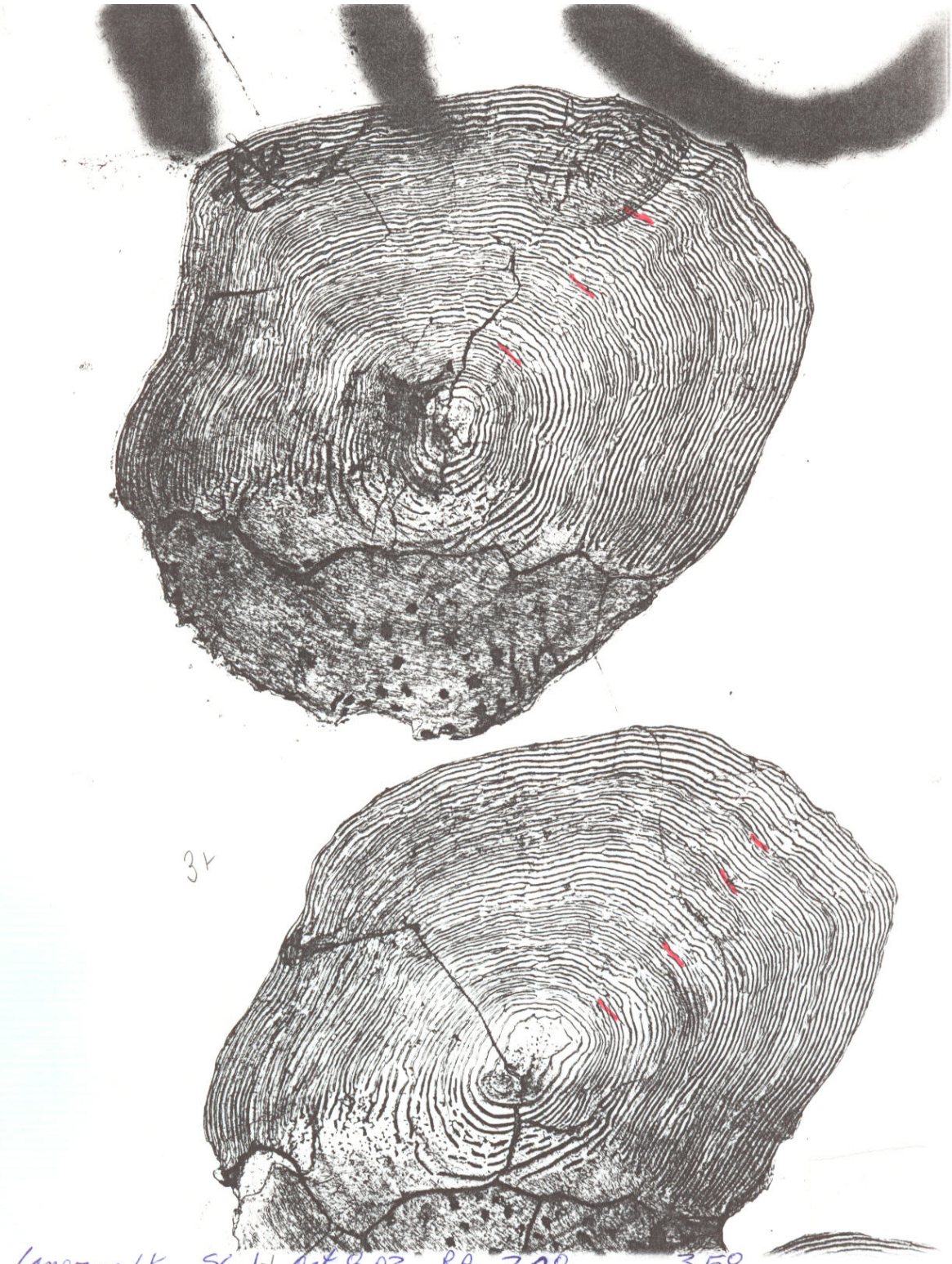
cameron Lk. Fb 121 oct8,03 CT 40.5 748



Cameron Lk. FG 134 oct 8/03 CT 11.8 20

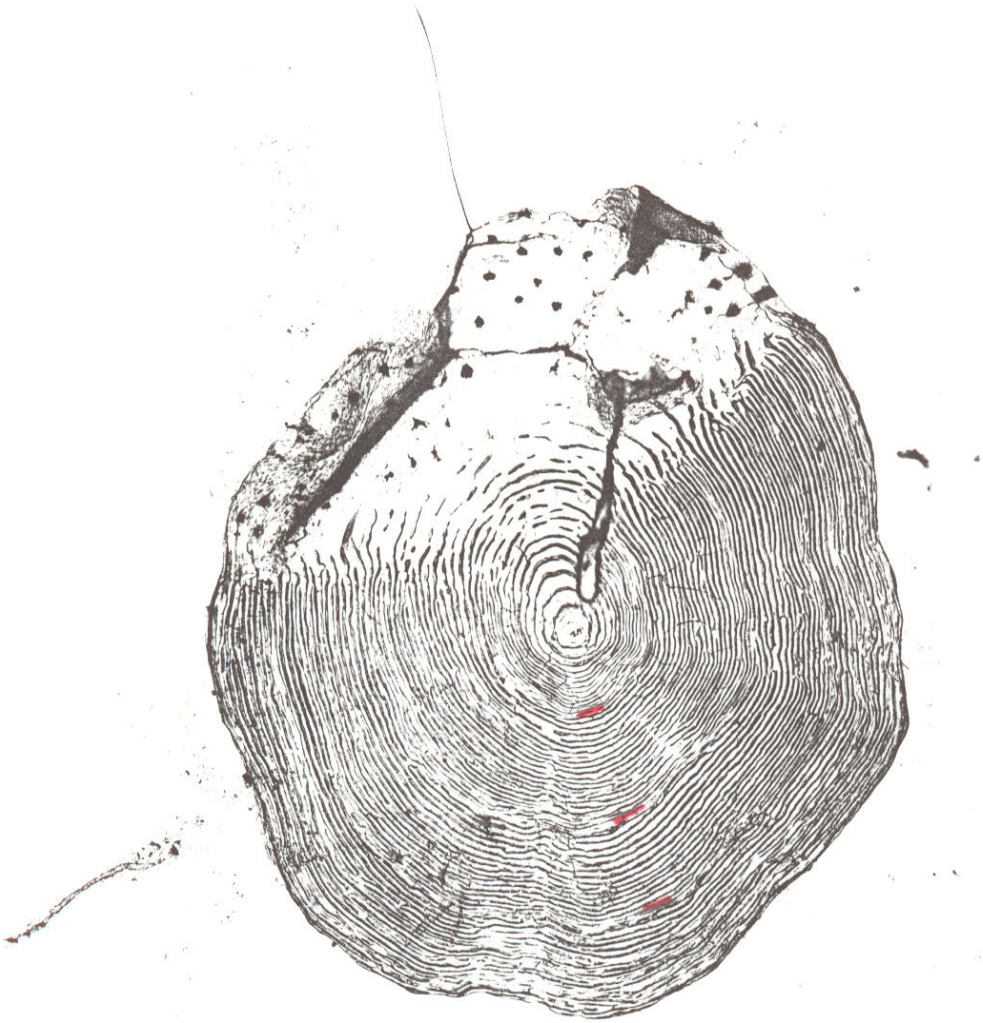
2x

Cameron LK FGZ 51 oct 8,03 Kok 16.2 48



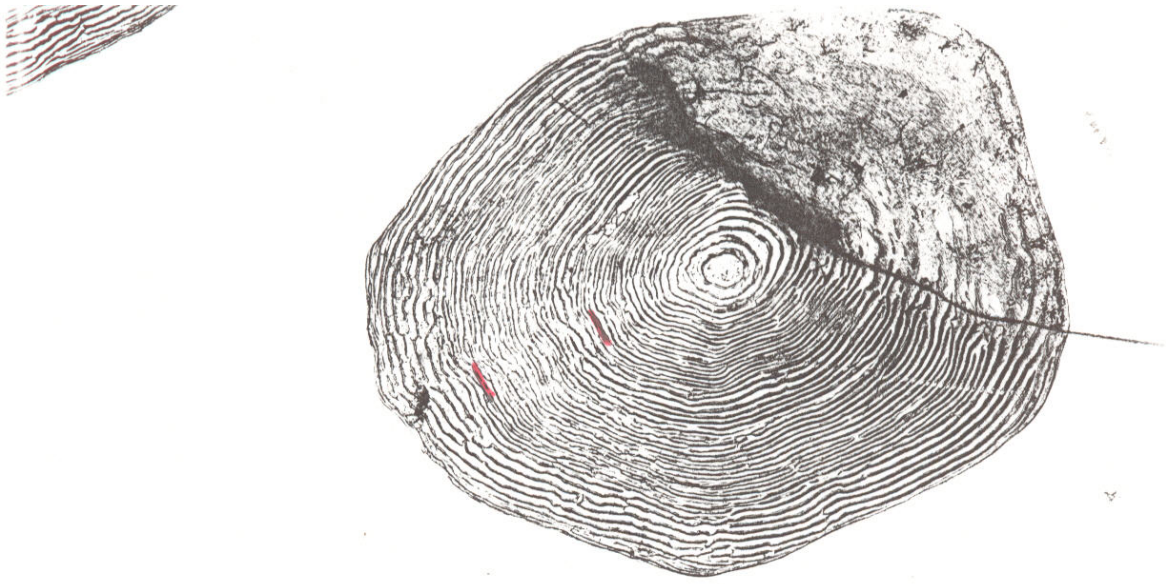
3r

Laneron LK SG 1-1 Oct 8,03 RB 308. 358



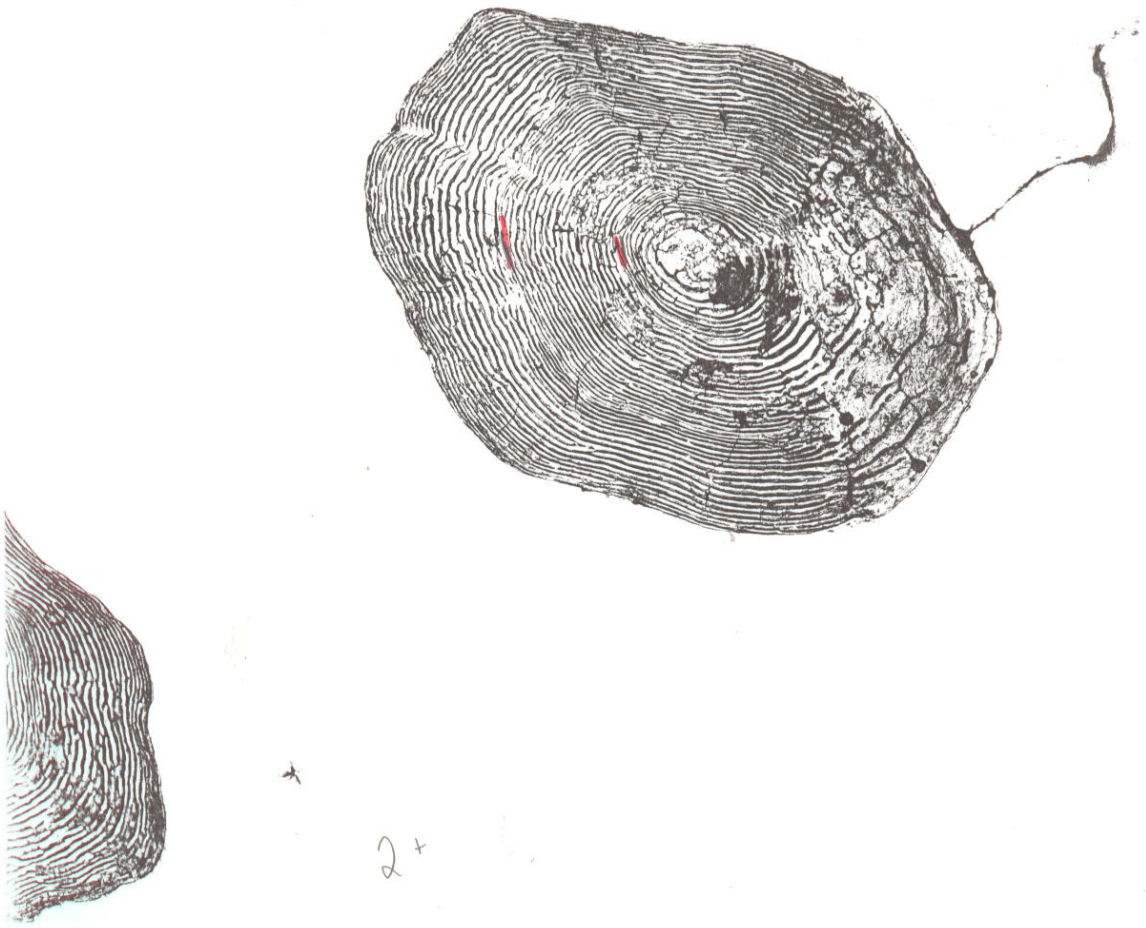
3+

Cameron LK SG1-2 oct 8,03 RB 28.8 294



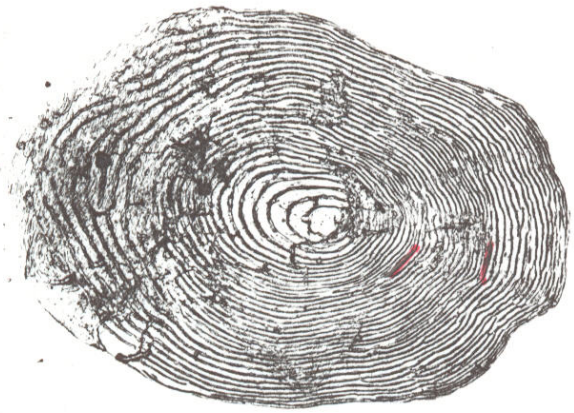
2+

Cameron LK SG-13 oct 8/03 RB 23.5 154



cameron Lk. SG1-4 Oct 8, 03 RB 21.9 142

Cameron LK. SG 1-1 oct8,03 RB 20.3 88



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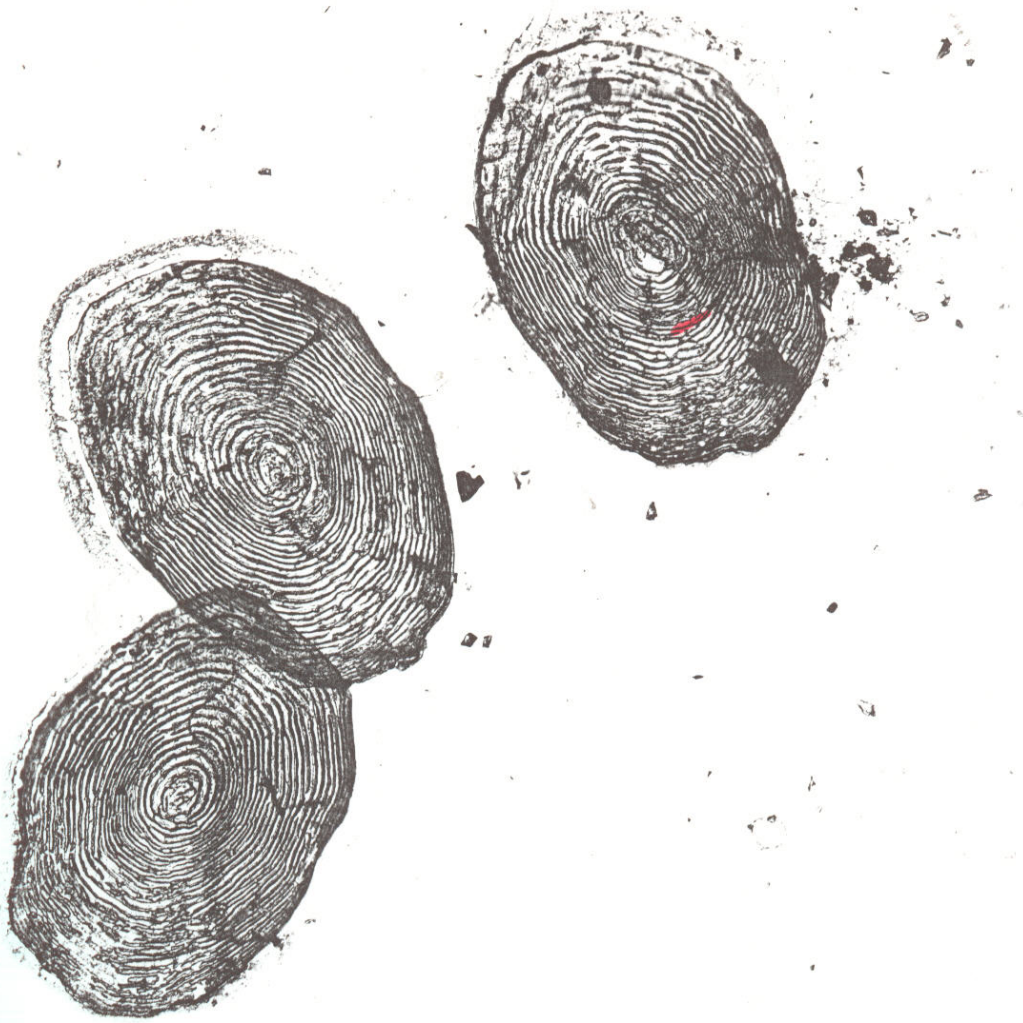
Cameron LK SG. 1-10 oct8,03 RB 19.2 72



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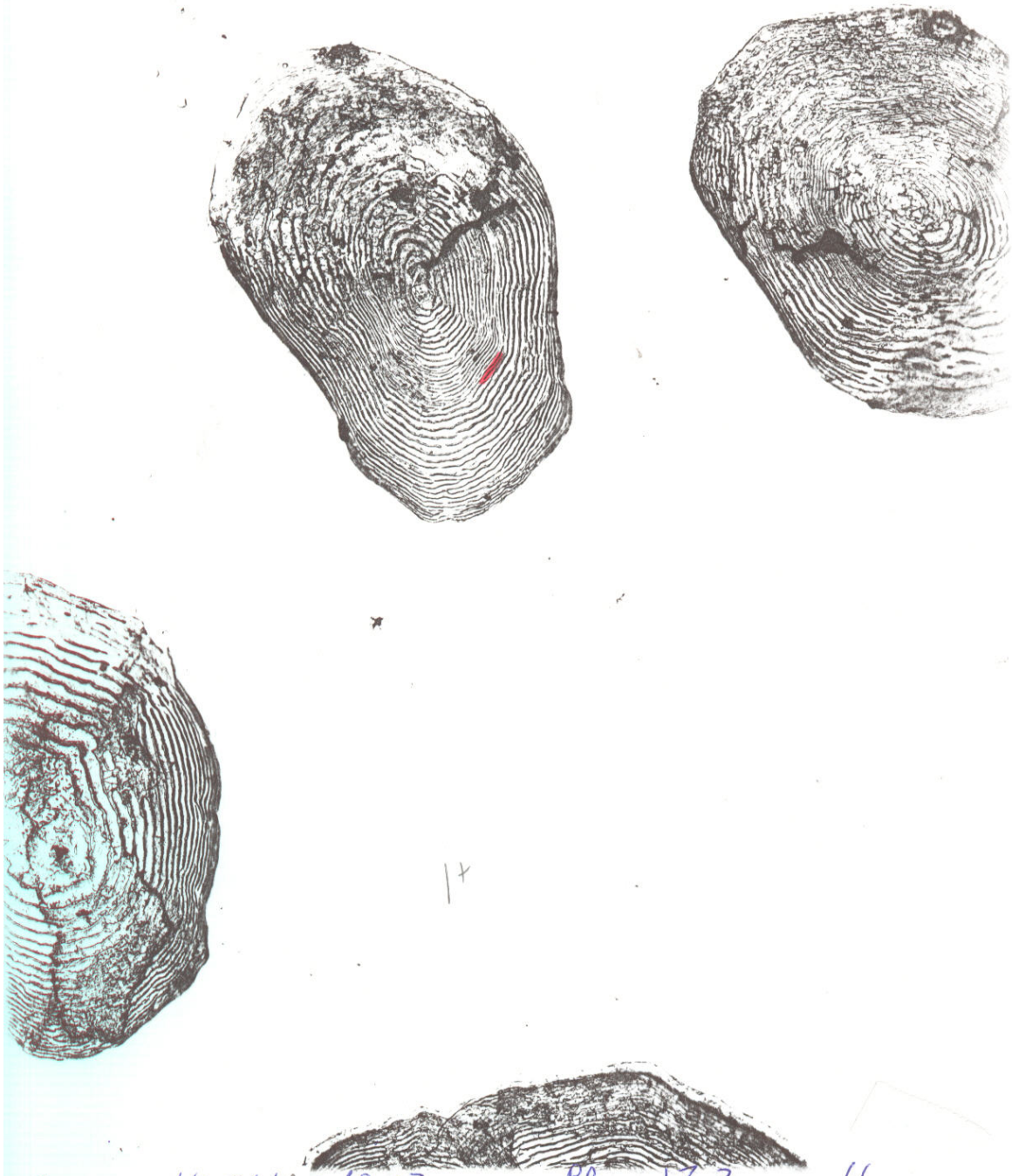
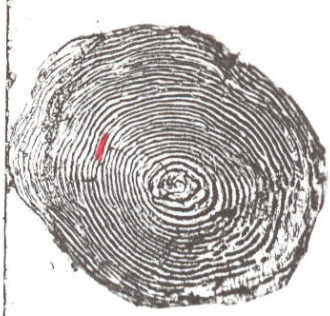


Cameron LK SG1-13 Oct8,03 RB 17.3 66

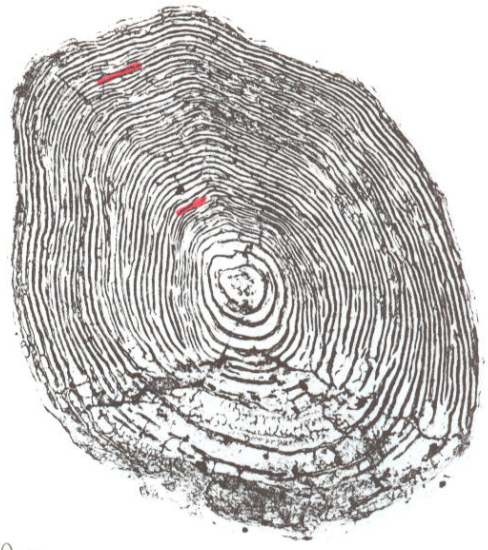
Cameron LK SG1-15 oct8.03 RB 15.3 54



Cameron LK SG1-17 Oct 8,03 RB 16.2 42

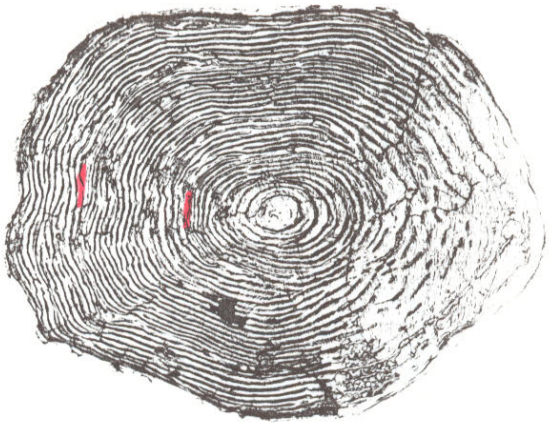
Cameron Lk. 561-19 oct 8,03 RB 14.5 84

CameronLK. SG 1-21 oct8/03 RB 12.0 22



2+

Cameron Lk. SG1 22 Oct 8, 03 CT 23.2 148 ~~12.4~~



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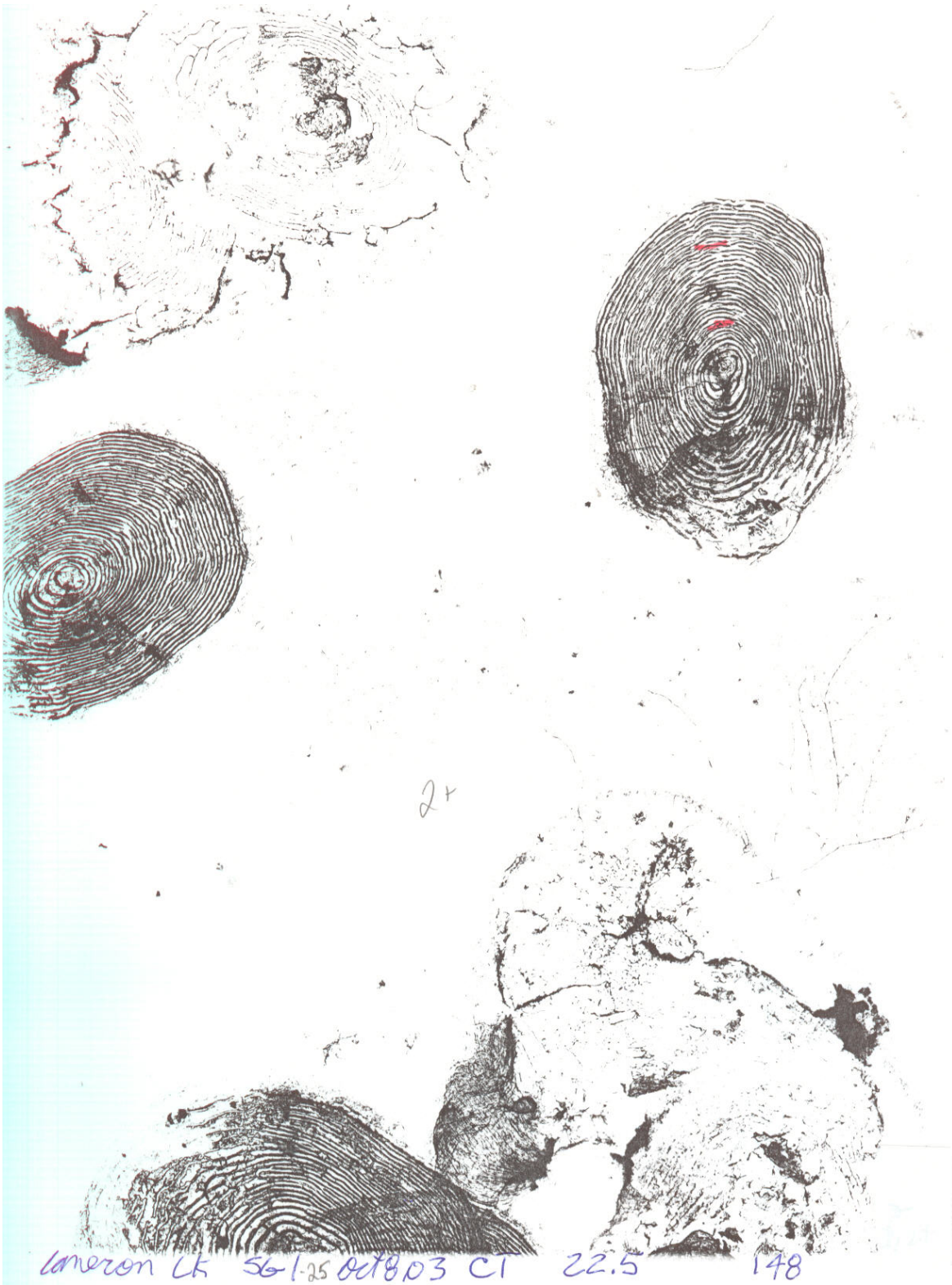

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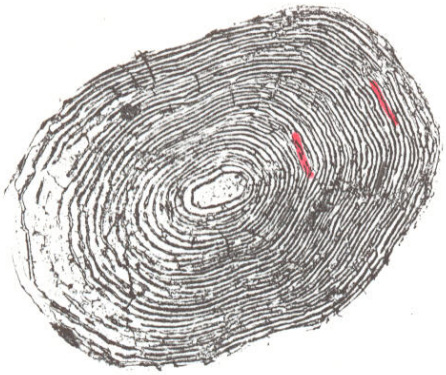

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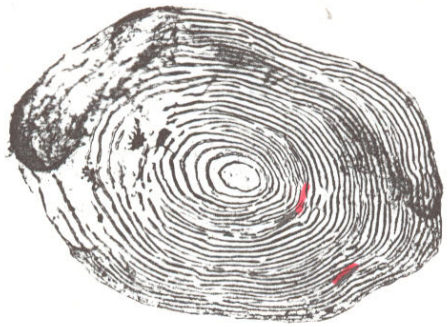
camcONLK SG-128 oct8,03 CT 21.1 104

cameron LK SG 1-29 oct 8,03 CT 19.0 66



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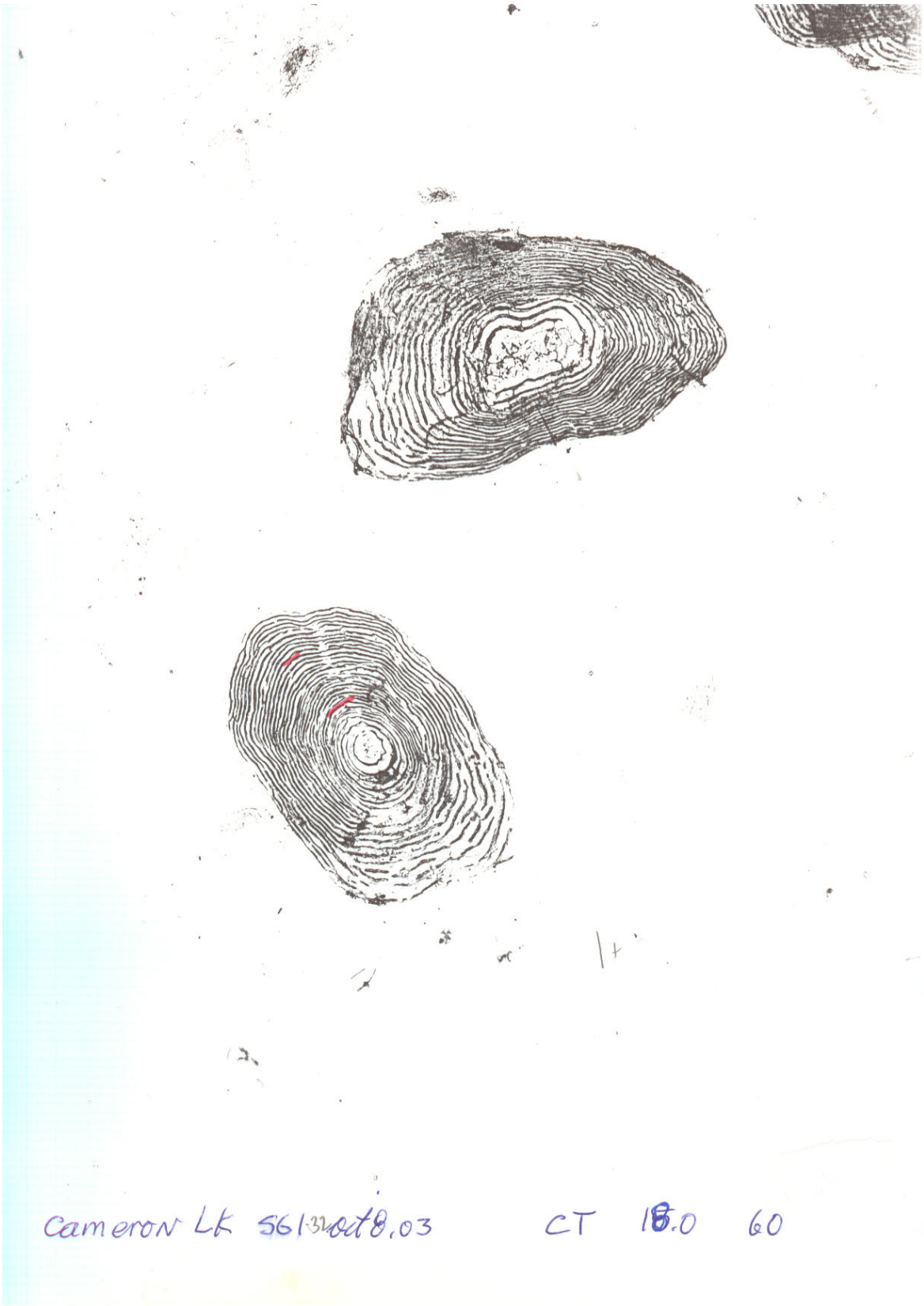
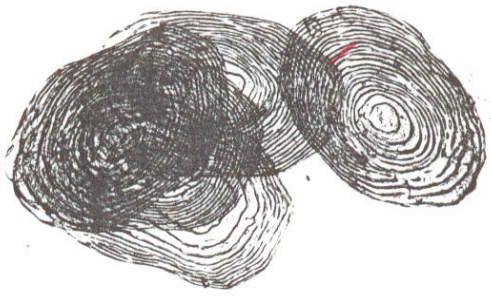
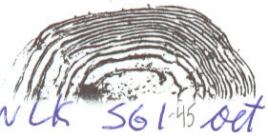


Cameron LK 56/32 Oct 8, 03 CT 18.0 60

cameron LK SG 143 oct 8, 03 CT 15.0 36





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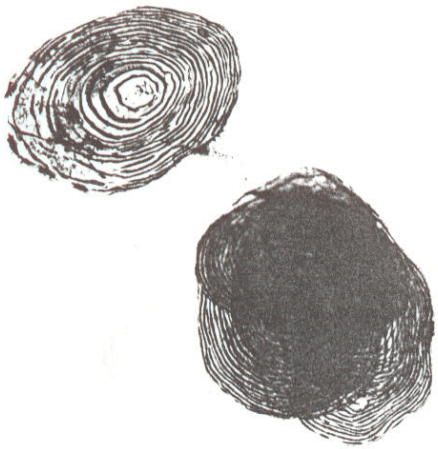
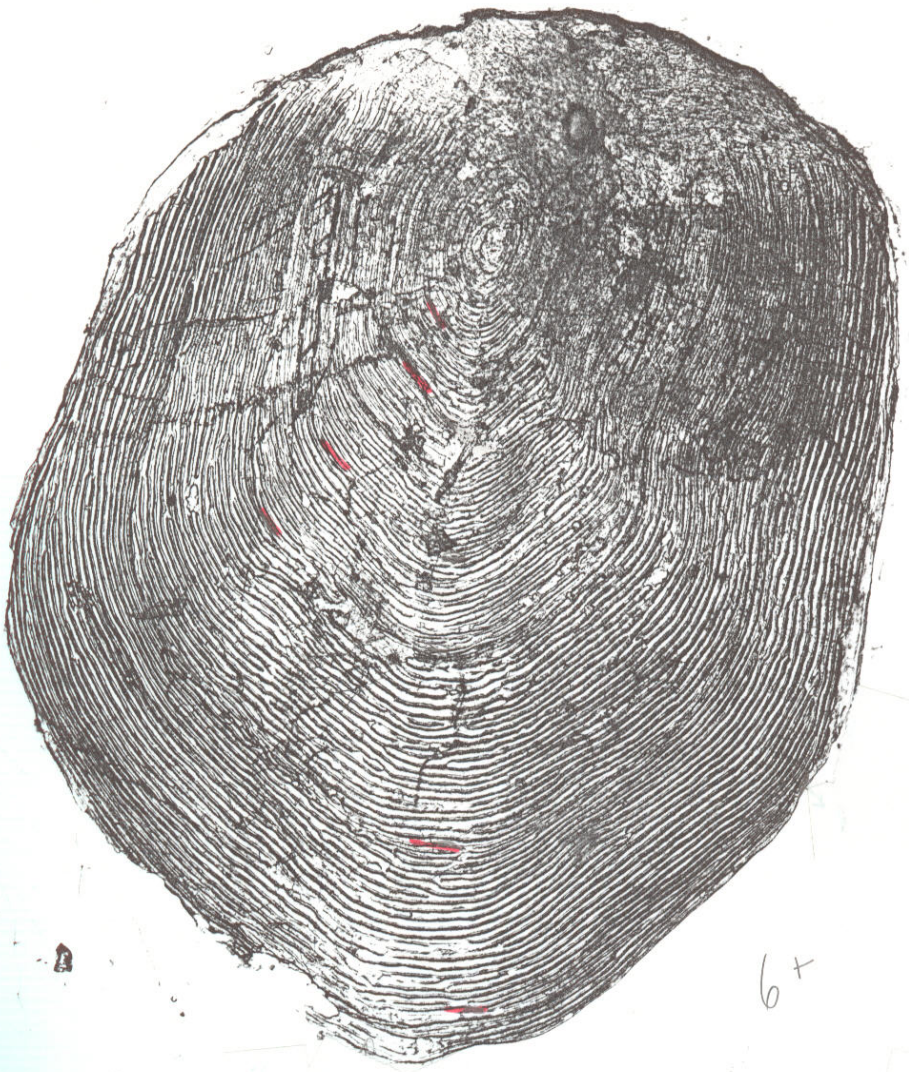
Cameron Ck SG-1-46 Oct 8,03 CT 13.3 24



Cameron Lk SG 149 oct 8,03 CT 12:8 20



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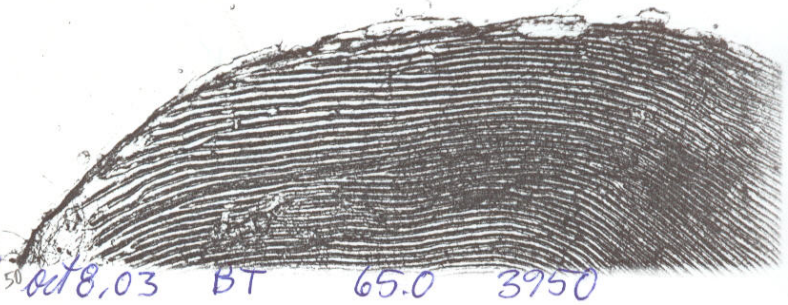
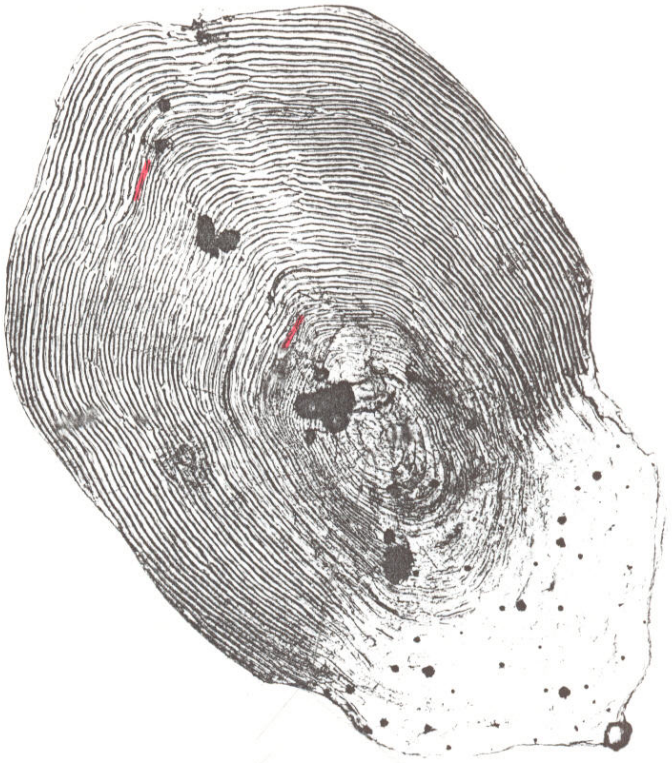


CameronLK SG 1.50 Oct 8,03 BT 65.0 3950



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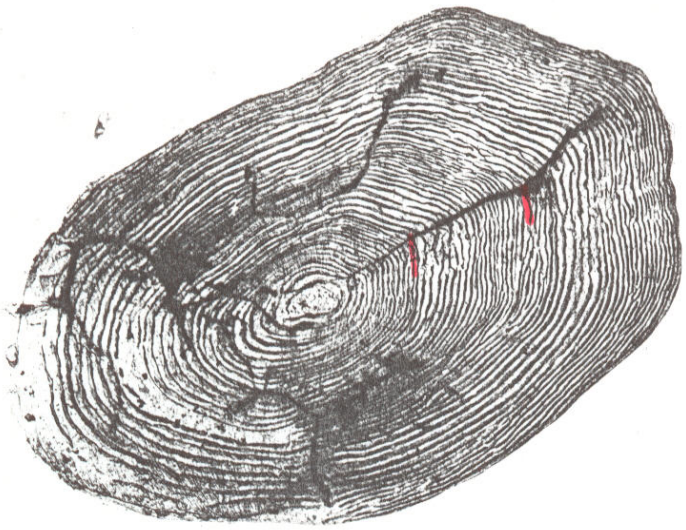


3+

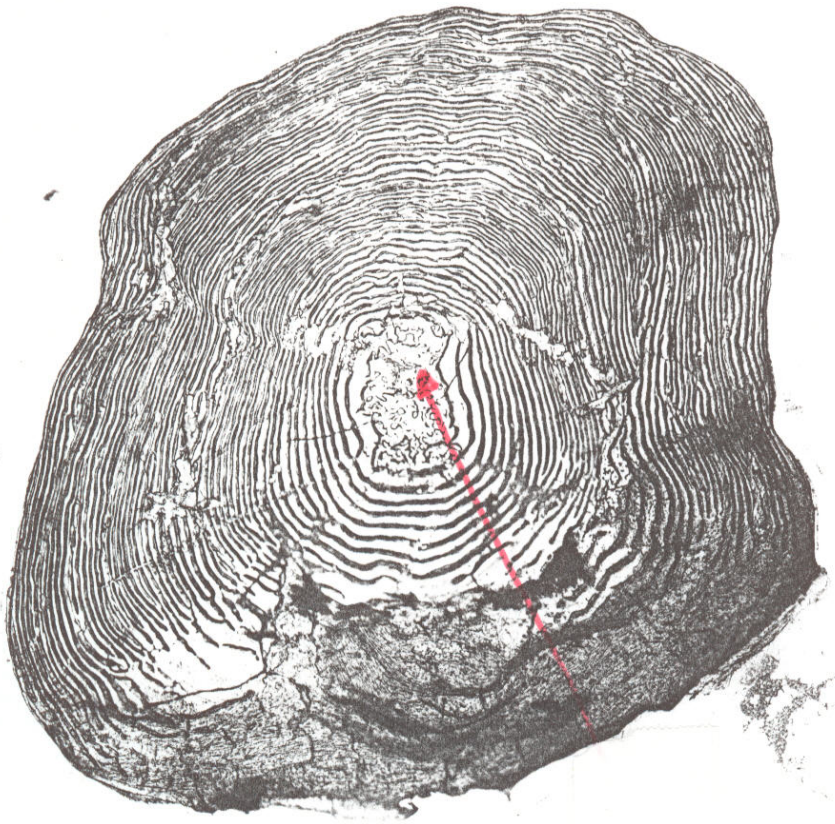
Cameron LK SG1 Scott 8,03 BT 22.2 120

2+

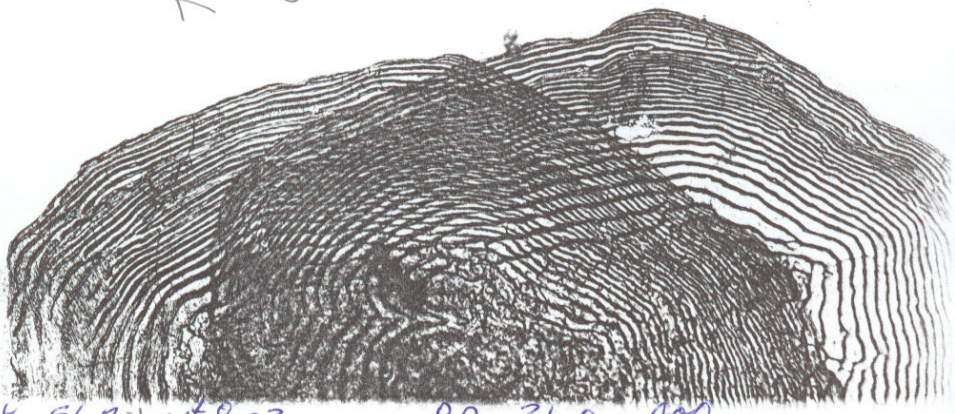
Cameron LK sd BT 53 oct 8,03 BT 21.8 120

2+

Cameron LK SG 154 Oct 8,03 BT 20.3 92



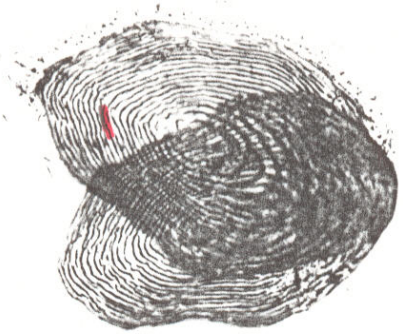
R 3+



Cameron LH 562-1 oct 8,03 RB 31.0 400

3+

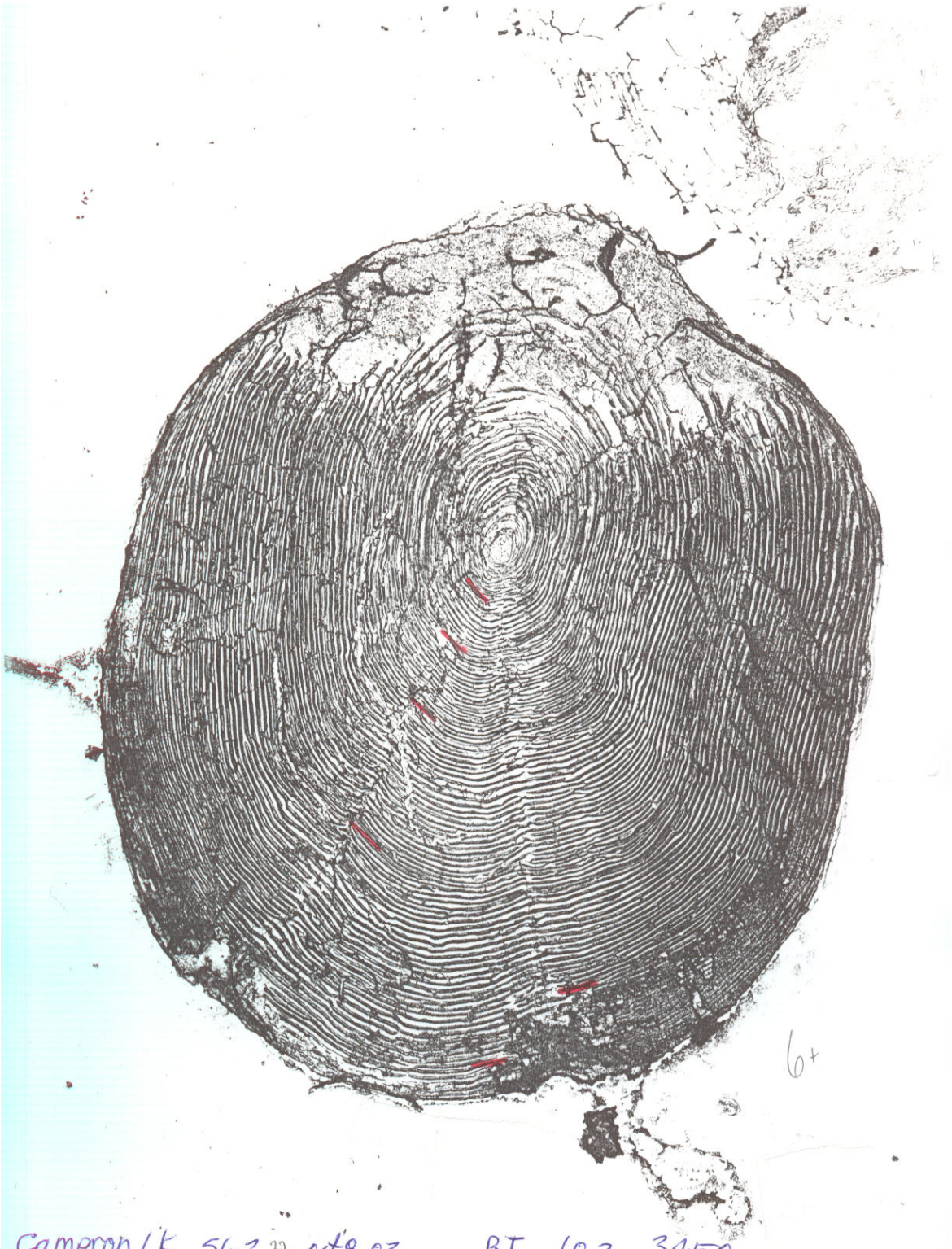
Cameron LK. SG2 3 oct 8,03 RB 27.8 220



L

1+

Cameron LK SG 21b oct 8,03 RB 11.0 18



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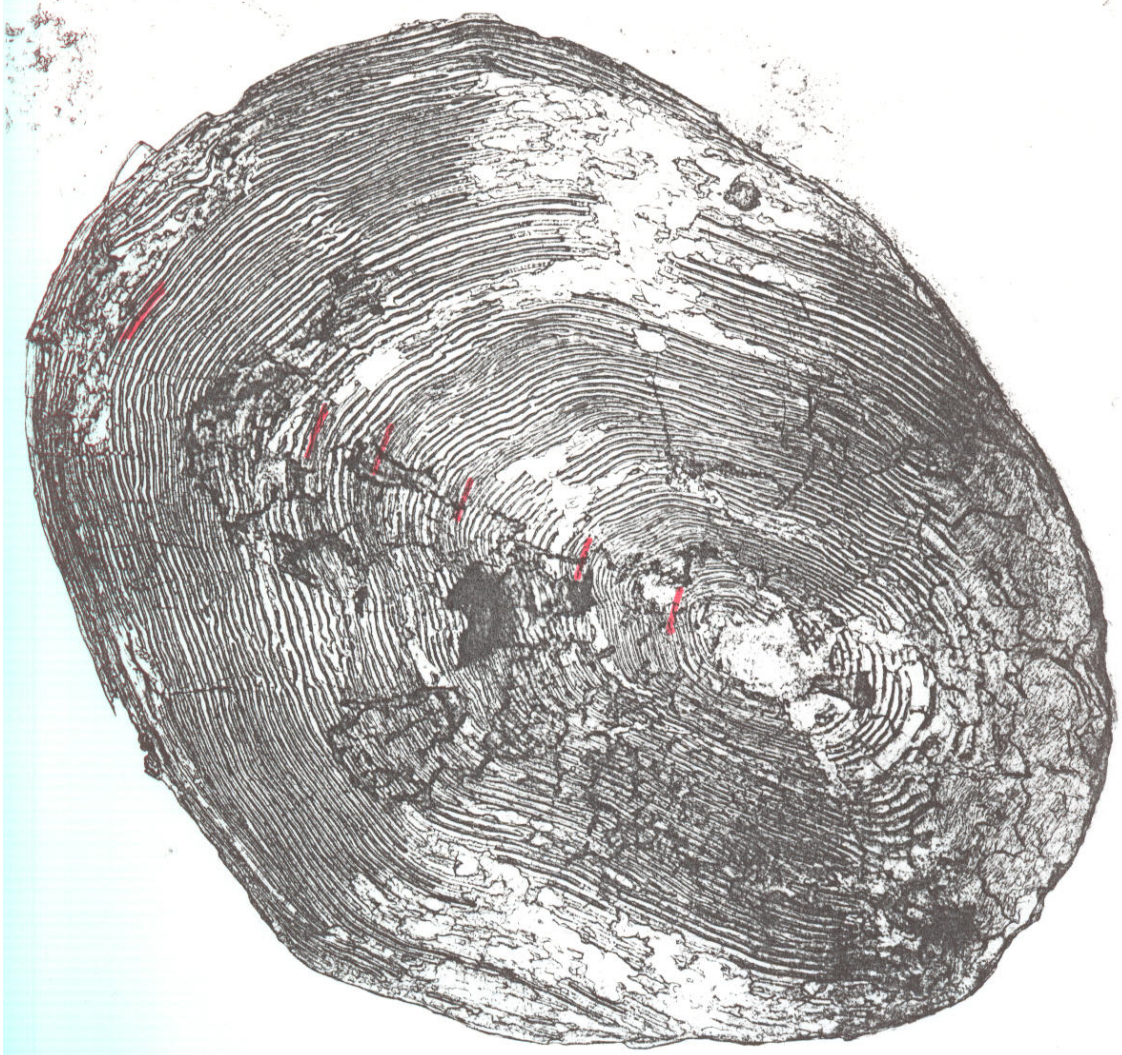

6+

Cameron Lk. SG 23 Oct 8,03 BT 64.5 3425