

CHARACTER ANALYSIS SHEET

Species Salmo clarkii virginalis

Locality Rio Seco, Trinchero Ranch, Colo.

UMMZ 177257 Coll. by _____

Date of Coll. _____ ^{Conversions} Measurements by C. F. Reid Date April 22, 1960

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	Measurements in thousands of standard length						
	1	2	3	4	5	6	7
Standard L	169 ¹⁵⁹²	133 ¹²⁵²	106 ¹²⁴³	219 ¹⁴⁵⁷	190 ¹⁵²⁶	109 ¹²¹⁷	104 ¹²⁶²
Body D	255	263	245	256	258	257	250
Head L	255	271	264	260	258	275	269
Head D	160	188	170	174	174	174	173
Head W							
Least interorbital bony W	65	60	-	69	68		
Occiput to snout tip	178	188	189	169	174	202	192
Snout L	53	-	-	55	58	-	-
Orbit L	59	-	-	55	63	-	-
Upper Jaw L	136	143	141	137	147	138	144
Dorsal origin to snout tip	491	519	509	494	505	504	500
Depressed dorsal to	172						
insertion of adipose	172	-	-	-	-	-	-
Dorsal origin to anal o	160						
Dorsal fin basal L	160	150	160	151	158	138	144
Dorsal fin depressed L	237	256	255	228	237	229	231
Adipose fin depressed L	89	105	104	96	100	92	96
Caudal peduncle D	118	120	113	110	116	119	115
Caudal peduncle L	172	165	169	165	168	165	173

Species Salmo clarkii virginalisLocality Rio Seco, Trincherro Ranch, Colo.

Field No. _____ Coll. by _____

Date of Coll. _____ ^{Summaries} ~~Measurements~~ by C. F. Reid Date April 27, 1960

Jar No. _____ No. of Jars _____ No. of Spec _____ Specimen No. _____

	N	Range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L							
Body D	12	245-264	255.0				
Head L	12	255-293	266.8				
Head D	12	160-188	175.1				
Head W							
Least interorbital bony W	9	58-69	64.7				
Occiput to snout tip	12	169-203	186.9				
Snout L	8	51-68	56.6				
Orbit L	8	55-78	65.4				
Upper Jaw L	12	136-155	144.4				
Dorsal origin to snout tip	12	491-536	508.3				
Depressed dorsal to							
scales ^{origin} insertion of adipose to l/l.	7	27-30	28.3				
Dorsal origin to anal o							
Dorsal fin basal L	12	138-160	151.2				
Dorsal fin depressed L	12	219-256	237.0				
Adipose fin depressed L	12	86-107	96.9				
Caudal peduncle D	12	106-120	115.1				
Caudal peduncle L	12	159-173	167.4				
Vertebrae	12	61-63	61.9				
First arch gill rakers (upper)	12	7-8	7.3				
(lower)	12	11-13	12.1				
(total)	12	18-21	19.4				
Prebranchial teeth	12	0-6	3.0				
Branchiostegal rays (right)	12	9-11	9.9				
(left)	12	9-11	10.2				
Dorsal fin rays	12	14-15	14.6				
Pelvic fin rays	12	8-9	8.9				
Scales in lateral line	12	109-123	117.8				
Scales above lateral line	11	38-44	40.5				
2 rows above	11	152-182	166.1				


CHARACTER ANALYSIS SHEET

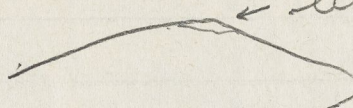
Page 1 of 1 pages

Species Salmo clarkii virginialis
 Locality Colo., Rio Seco, Trinchero Ranch
 UMMZ 177257 Coll. by Tanner, Seaman, Walsh
 Date of Coll. VIII: 20:58 Measurements by Behnke Date 3-23-60
 Jar No. _____ No. of Jars _____ No. of Spec. 7 Specimen No. _____

	1	2	3	4	5	6	7
Standard L	169	133	106	219	190	109	104
Body D	43	35	26	56	49	28	26
Head L	43	36	28	57	49	30	28
Head D	27	25	18	38	33	19	18
Head W							
Least interorbital bony W	11	8	—	15	13	—	—
Occiput to snout tip	30	25	20	37	33	22	20
Snout L	9	—	—	12	11	—	—
Orbit L	10	—	—	12	12	—	—
Upper Jaw L	23	19	15	30	28	15	15
Dorsal origin to snout tip	83	69	54	108	96	55	52
Depressed dorsal to							
Scales insertion ^{origin} of adipose to d.l.	29	28	27	28	30	28	28
Dorsal origin to anal o							
Dorsal fin basal L	27	20	17	33	30	15	15
Dorsal fin depressed L	40	34	27	50	45	25	24
Adipose fin depressed L	15	14	11	21	19	10	10
Caudal peduncle D	20	16	12	24	22	13	12
Caudal peduncle L	29	22	18	36	32	18	18
Vertebrae							
First arch gill rakers (upper)	8	7	7	8	7	7	7
(lower)	13	11	12	12	12	12	12
(total)	21	18	19	20	19	19	19
Basibranchial teeth	6	4	3	5	4	0	2
Branchiostegal rays (right)	10	9	11	10	10	9	10
(left)	10	9	11	10	10	10	10
Pectoral fin rays	15	14	14	15	15	14	14
Pelvic fin rays	9	8	9	9	9	9	9
Scales in lateral line	116	120	109	116	119	119	118
Scales above lateral line	41	38	41	44	42	39	—
2 rows above	174	163	158	175	169	152	—

These trout are like Indian Ch.

- adipose  - rimmed w/ black

← like tipped dorsal -


Same as UMMZ 177257

5-6 mi, ENE of San Luis,
Co. Stillo Co.

CHARACTER ANALYSIS SHEET

Page ___ of ___ pages

Species Salmo clarkii virginalis
 Locality Colo., Rio Seco (little dry river) Trinchero Ranch
 UMMZ ~~Field~~ No. to CAS no # Coll. by Tanner, Seaman, Walsh
 Date of Coll. VIII:20:58 Measurements by Behrke Date 3:5:60
 Jar No. ___ No. of Jars ___ No. of Spec. 5 Specimen No. ___

	1	2	3	4	5
Standard L	123	151	137	103	189
Body D	31	37	36	26	50
Head L	36	39	36	28	50
Head D	22	26	23	19	35
Head W					
Least interorbital bony W	8	9	8	7	13
Occiput to snout tip	25	27	26	20	35
Snout L	7	8	7	7	11
Orbit L	9	10	9	8	12
Upper Jaw L	19	22	19	16	29
Dorsal origin to snout tip	64	81	69	52	97
Depressed dorsal to insertion of adipose					
Dorsal origin to anal o					
Dorsal fin basal L	19	23	19	16	29
Dorsal fin depressed L	30	35	30	25	44
Adipose fin depressed L	12	13	13	11	18
Caudal peduncle D	13	18	16	12	21
Caudal peduncle L	21	24	23	17	32
Vertebrae	see back				
First arch gill rakers (upper)	7	7	8	8	7
(lower)	12	12	13	12	12
(total)	19	19	21	20	19
Basibranchial teeth	0	5	6	0	1
Branchiostegal rays (right)	10	10	10	10	10
(left)	10	11	10	10	11
Pectoral fin rays	15	14	15	15	15
Pelvic fin rays	9	9	9	9	9
Scales in lateral line	120	121	118	115	123
Scales above lateral line	40	41	40	39	40
	161	158	165	170	182

These trout seem to be indistinguishable from the Indian Cr. trout.

* 5 has 4 spots on anal fin.

- all show light tipped dorsal & black-rimmed adipose.

- 4 of 5 have 15 pectoral rays

- 2 of 5 have no basibranchial teeth

- Vert. counts - all Rio Sero trout.

63, 62, 63, 61, 62, 62, 61, 62,

62, 62, 62, 61

62.0

+

no? - what expedition?

check Cope -
- Yarrow

Little Colo, Trout

2 Specimens Rio Puerco → Rio Grande

* 17074 - catalogue: Aug. 1874,

W.G. Shedd N=10 original * 128,

- label in bottle Aug. 1875

N=2 - one w/ 2 tiny, blunt, basibranchial protuberances

one, smooth - Culca - 37, 40

171 mm. s.h. - D. depressed 36 40-168-25

166 " " " " 36 42-184-²⁹⁻³⁰

rabers $\frac{6}{11} (\frac{1}{5})$ $\frac{7}{12} (\frac{2}{3})$ $\frac{9}{10}$ - cutt-like -

might be plumitrus - apache

* vert, 61, 61

- log says 1874 -

UNIVERSITY MUSEUMS
THE UNIVERSITY OF MICHIGAN
ANN ARBOR, MICHIGAN, U. S. A.
48104

MUSEUM OF ZOOLOGY

September 27, 1967

Dr. Robert J. Behnke
Colorado Cooperative Fishery Unit
Colorado State University
Fort Collins, Colorado 80521

Dear Bob:

Thank you very much for sending me a copy of your letter of September 15 to Clark Hubbs giving a summary of current knowledge of chromosome counts in the genus Salmo. I am surprised that no count has yet been made of the Gila trout.

Perhaps you know that Dr. Franklin L. Roberts (Department of Zoology, University of Maine) is also making chromosome counts of clupeiform fishes and, I understand, is including some species of Salmo.

Regarding the two specimens labeled Salmo pleuriticus (USNM 17074) from Puerco River, New Mexico, I think it is highly unlikely that these fish came from the Puerco River that is tributary to the Little Colorado.

Checking Cope and Yarrow (1875: 695), I find listed for original number 128, Salmo pleuriticus, the locality "Rio Taos, N. Mex.", collected by W. G. Shedd. So now you have an additional locality. What do the specimens tell you as to which drainage they pertain?

Sincerely,

Bob

Robert R. Miller
Curator of Fishes

RRM:mw

RECEIVED
BSF & W-REG. 2

OCT 2 1967

F M S
COLORADO COOP.

BASIN: Rio Grande (Salmo clarki virginalis)
~~Salar~~

VERTEBRATE NUMBERS

COLLECTION SITE	N	58	59	60	61	62	63	64	MEAN
Rio Chiquito 6/66 5/66	14			6	6	2			60.9
	17 18			7	8	2			60.9
Rio Grande, N. Mex., Sandoval Co.	6			1	4		1		61.1
				3	35		1		61.33
				not clear					61.1
Indian Creek (Tularosa Basin)	11			1	1	2	2	0	60.7
11/26/66 recount					1	7	3		62.2
Nov. 9, 67	2				1	1			61.5
Indian Crk. - Costilla Co. & Rio Seco (San Luis Valley) 1960 Trinchera Ranch	12 } 30 18 }			combine {		9 } 3 } 6 }	7 } 9 } 16 }	2 } 3 } 5 }	61.8
Rio Grande del Norte coll. Jordan 1889 + S.W. 5092 fine spotted	6				1	4	1		62.0
Trinchera Ranch - 1967									
S. Fork Trinchera Crk.	10			2	2	3	3		61.6
main Fork Trinchera Crk.	6			1	2	3			61.5
Trinchera Crk.	15				7	6	2		61.5
Bear Crk.	6				3	3			61.5
				3	14	15	5		61.6
Rio Puerco - 1874					2				61.0

61
30
5
193
6/26/66
63
3
62
7
43
4
61
18
8
4
24
2
20

Species Salmo stomias

Locality Moraine Park Colo.

Field No. 7327 Coll. by

Date of Coll. Measurements by RAB Date 4-24-58

Jar No. No. of Jars No. of Spec. 34 Specimen No.

Measurements in thousandsth of standard length

Standard L		157	152	137	115		
Body D		255	223 4	233 4	217	244	
Head L	255	254	256 7	248 ✓	252 ✓		
Head D		178	177	175	182		
Head W		140	125	117	130		
Least interorbital bony W		70	66 ✓	66 ✓	61 ✓		
Occiput to snout tip		165	164	160	174		
Snout L		57	59	58	52		
Orbit L		70	66	73	70		
Upper Jaw L		140	137 2	124 ✓	130 ✓		
Dorsal origin to snout tip	497	458	486 7	474 ✓	478 ✓		
Depressed dorsal to insertion of adipose		165	145	168	130		
Dorsal origin to anal o		343	342	335	336		
Dorsal fin basal L		140	131	139	139		
Dorsal fin depressed L	✓	223	210 1	226 ✓	235 ✓		
Adipose fin depressed L	✓	76	79	80 ✓	87 ✓		
Caudal peduncle D	✓	108	99	102 ✓	96 ✓		
Caudal peduncle L	✓	178	177 8	175 ✓	182 3		

CHARACTER ANALYSIS SHEET

Species Salmo clarki virginalis

Locality Rio Grande, Del Norte, Colo.

Field No. 1-3, #8239 1 #5092 Coll. by _____

Date of Coll. 1889 ^{Calculations} Measurements by C.F. Reid Date Oct. 8, 1959

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____
 N Range Mean S.D.² S.D. C.D. SEM

	N	Range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L	3						
✓ Body D		236-273	253.7				
✓ Head L		239-248	244.3				
Head D		164-173	168.7				
Head W							
Least interorbital bony W		60-61	60.7				
Occiput to snout tip							
Snout L							
Orbit L		65-67	66.3				
✓ Upper Jaw L		123-127	124.7				
✓ Dorsal origin to snout tip		497-503	501.0				
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L							
✓ Dorsal fin depressed L		194-207	201.7				
✓ Adipose fin depressed L		73-84	77.3				
✓ Caudal peduncle D		97-105	101.0				
✓ Caudal peduncle L	4	169-179	174.7				
✓ Vertebrae	7	61-63	62.0				
First arch gillrakers (upper)	4						
(lower)							
(total)		19-22	20.0				
✓ Basibranchial teeth		1-9	4.5				
✓ Branchiostegal rays (right)		9-10	9.8				
(left)		9-10	9.8				
✓ Pectoral fin rays		14-15	14.5				
Pelvic fin rays							
✓ Scales in lateral line	4	118-123	119.5				
✓ Scales above lateral line	3	35-40	38.3				

#1-3 Rio Grande del Norte, Colo, #8239 coll. 1889 - #5

#4 - Utah Lake 64129, 667 - C14 - 4129 #2

5 - Utah Lake C14 4130 #1 (redone) #7 Utah Lake C14 - #100

#6 1429
-100

CHARACTER ANALYSIS SHEET

Page 1 of 2 pages.

Species Salmo clarki ~~utah~~ ^{virginalis}

Locality #6 - Ramo P. Pecos Utah - 8194 (S. d. Mesa) #4

CALAC

Field No. _____ Coll. by _____

Date of Coll. _____ Measurements by _____ W Date _____

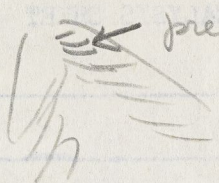
Jar No. _____ No. of Jars virginalis No. of Spec. Specimen No. Utah

	1	2	3	4	50K	60K	7
Standard L	201	179	89	340	290	small	270
Body D /	55	45		77			
Head L /	48	44		85			
Head D	34	31		55			
Head W	26	23		35			
Least interorbital bony W	12	11		16			
Occiput to snout tip	34	29		51			
Snout L	11	10		18			
Orbit L	13	12		18			
Upper Jaw L /	25	22	22	48			
Dorsal origin to snout tip	101	90		169			
Depressed dorsal to insertion of adipose	38	33		55			
Dorsal origin to anal o.	73	61		113			
Dorsal fin basal L	26	23		35			
Dorsal fin depressed L	41	37		58			
Adipose fin depressed L	15	15		23			
Caudal peduncle D	21	18		37			
Caudal peduncle L	34	32		59			
Vertebrae	62	62	61, 62, 63, 64	63	62		65
First arch gill rakers (upper)	8	7	7	7	8	8	7
(lower)	12	12	12	12	12	11	10
(total)	20	19	19	19	20	19	17
Basibranchial teeth	9	4	1	6	11		9
Branchiostegal rays (right)	10	9	10	10	11	12	12
(left)	10	10	10	10	12	12	13
Pectoral fin rays	15	15	14	15	15	14	14
Pelvic fin rays	9	9	9	9	10	9	10
Scales in lateral line	119	123	118	127	125	118	129
Scales above lateral line	approx. 40	35		34	32		

#1-3 - Rio Grande - odd type

branchiostegal

pre branchiostegal rays



- Jordanii -

resembles typical young coastal at throat.

least scales - 114

low scales count - 17

CHARACTER ANALYSIS SHEET

Species Salmo clarki ^{virginialis} ~~utah~~

Locality Rio Grande de Norte, Colo.

(check on correct * at Cal. Acad.) & get other data

Field No. 8239 Coll. by _____

Date of Coll. _____ Measurements by _____ Date _____

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

virginialis

utah

Standard L	201	179	89	290	small	270
Body D	273 28	252				
Head L	239 24	246				
Head D	169 17	173				
Head W	129 80	128 129				
Least interorbital bony W	60	61				
Occiput to snout tip	169 170	166 162				
Snout L	55	56				
Orbit L	65	67				
Upper Jaw L	124 125	123				
Dorsal origin to snout tip	503 505	504 503				
Depressed dorsal to insertion of adipose	189 190	184				
Dorsal origin to anal o	364 365	341				
Dorsal fin basal L	129 130	128 129				
Dorsal fin depressed L	204 205	207				
Adipose fin depressed L	76	84				
Caudal peduncle D	105	101				
Caudal peduncle L	169 170	179				
Vertebrae						
First arch gill rakers (upper)						
(lower)						
(total)						
Basibranchial teeth						
Branchiostegal rays (right)						
(left)						
Pectoral fin rays						
Pelvic fin rays						
Scales in lateral line						
Scales above lateral line						

spotting like macdonaldi

(prob - specimen depicted in Jordan 1884 Explor. Colo., etc.)

CHARACTER ANALYSIS SHEET

Page 1 of 1 pages.

Species S. c. spilunus (virginalis)

Locality Del Norte Rio Grande, Colo.

Field No. 5092 Coll. by ?

Date of Coll. ? old Measurements by R. Rehnke Date 4-18-58

Jar No. 1 No. of Jars 1 No. of Spec. 1 Specimen No.

Standard L	165				
Body D	39				
Head L	41				
Head D	27				
Head W	20				
Least interorbital bony W	10				
Occiput to snout tip	27				
Snout L	9				
Orbit L	11				
Upper Jaw L	21				
Dorsal origin to snout tip	82				
Depressed dorsal to insertion of adipose	28				
Dorsal origin to anal o.	56				
Dorsal fin basal L	21				
Dorsal fin depressed L	32				
Adipose fin depressed L	12				
Caudal peduncle D	16				
Caudal peduncle L	29				
Vertebrae	62				
First arch gill rakers (upper)	8				
(lower)	14				
(total)	22				
Basibranchial teeth	4				
Branchiostegal rays (right)	10				
(left)	9				
Pectoral fin rays	14				
Pelvic fin rays	9				
Scales in lateral line	118				
Scales above lateral line	40				

CHARACTER ANALYSIS SHEET

Page 1 of 1 pages.

Species S. c. spilurus (virgenalis)
 Locality del Norte Rio Grande, Colo.
 Field No. Stanford 5092 Coll. by ?
 Date of Coll. old Measurements by R Behrke Date 4-18-58
 Jar No. 1 No. of Jars 1 No. of Spec. 1 Specimen No.

measurements in thousands of standard lengths

Standard L	165				
Body D	236				
Head L	248				
Head D	164				
Head W	121				
Least interorbital bony W	61				
Occiput to snout tip	164				
Snout L	55				
Orbit L	67				
Upper Jaw L	127				
Dorsal origin to snout tip	497				
Depressed dorsal to insertion of adipose	170				
Dorsal origin to anal o	339				
Dorsal fin basal L	127				
Dorsal fin depressed L	194				
Adipose fin depressed L	73				
Caudal peduncle D	97				
Caudal peduncle L	176				
Vertebrae					
First arch gill rakers (upper)					
(lower)					
(total)					
Basibranchial teeth					
Branchiostegal rays (right)					
(left)					
Pectoral fin rays					
Pelvic fin rays					
Scales in lateral line					
Scales above lateral line					

CHARACTER ANALYSIS SHEET

Species Salmo stamias

Locality Various, Colorado

Field No. _____ Coll. by _____

Date of Coll. _____ ^{Calculations} Measurements by C. F. Reid Date Oct. 8, 1959

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	N	range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L							
✓ Body D	14	204-264	241.3				
✓ Head L	15	232-260	245.6				
Head D	14	153-182	168.6				
Head W							
✓ Least interorbital bony W	14	59-80	65.6				
Occiput to snout tip	14	150-174	159.7				
Snout L	14	47-59	52.9				
Orbit L	14	58-73	63.9				
✓ Upper Jaw L	15	119-149	129.3	63.525	7.970		2.058
✓ Dorsal origin to snout tip	14	470-497	483.9				
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L							
✓ Dorsal fin depressed L	14	198-235	213.4	183.326	13.539		3.618
✓ Adipose fin depressed L	14	55-87	72.1				
✓ Caudal peduncle D	14	96-109	102.4	14.557	3.815		1.020
✓ Caudal peduncle L	14	170-188	178.1	12.457	4.411		1.179
✓ Vertebrae	18	59-63	61.5	0.971	0.985		0.232
First arch gillrakers (upper)							
(lower)							
(total)	15	16-22	19.4	1.971	1.404		0.363
✓ Basibranchial teeth	15	0-14	6.7				
✓ Branchiostegal rays (right)	15	9-11	10.2	0.457	0.676		0.175
(left)	15	9-11	10.4	0.686	0.828		0.214
✓ Pectoral finrays	14	13-16	14.7				
Pelvic fin rays							
✓ Scales in lateral line	14	111-134	120.2				
✓ Scales above lateral line	14	39-49	45.1	9.365	3.060		0.818

- large, sparse spotting much more profuse caudally
& on caudal itself

+ Stanford Collection

CHARACTER ANALYSIS SHEET

Big Thompson R.
X-RAT # 1
STANFORD-14

Species Salmo stonias Page 1 of 1 pages.

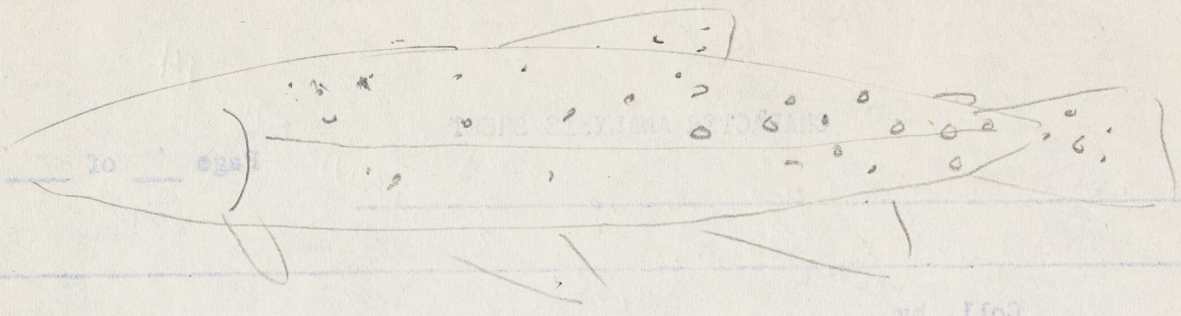
Locality Moraine Park, Colo.

Mus. Field No. 7327 Coll. by RFB

Date of Coll. ?-old Measurements by RFB Date 4-27-58

Jar No. _____ No. of Jars _____ No. of Spec. 34 Specimen No. _____

	1927	1927	3	4
Standard L	157	152	137	115
Body D	46?	34	32	28
Head L	40	39	34	29
Head D	28	27	24	21
Head W	22	19	16	15
Least interorbital bony W	11	10	9	7
Occiput to snout tip	26	25	22	20
Snout L	9	9	8	6
Gilt L	11	10	10	8
Upper Jaw L	22	20	17	15
Dorsal origin to snout tip	78	74	65	55
Depressed dorsal to insertion of adipose	26	22	23	15
Dorsal origin to anal o.	54	52	46	38
Dorsal fin basal L	22	20	19	16
Dorsal fin depressed L	35	32	31	27
Adipose fin depressed L	12	12	11	10
Caudal peduncle D	17	15	14	11
Caudal peduncle L	28	27	24	21
Vertebrae	63	62	62	63
First arch gill rakers (upper)	8	6	8	7
(lower)	12	10	11	11
(total)	20	16	19	18
Basibranchial teeth	0	0	0	1
Branchiostegal rays (right)	10	9	9	10
(left)	10	9	9	9
Pectoral fin rays	15	15	14	13
Pelvic fin rays	9	9	9	8
Scales in lateral line	117	114	111	113
Scales above lateral line	43	43	44	41



= rainbow & cutthroat hybrid
 probably not from Jordan's 1889
 trip (he doesn't list any
 collection from Moraine Park)
 He did collect Boulder Cr. above Boulder

0
 8
 2
 2
 12
 2
 12
 6
 11
 9
 11
 14
 14
 1
 10

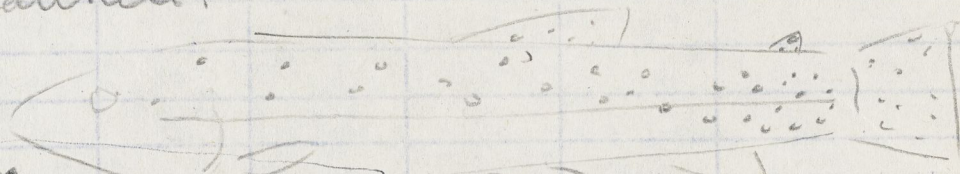
specimens 4-7

Ind. Mus. # 5249

× ray
8

collected 1889 by Jordan Everman Fisher
& Davis - Twin Lakes, Interlaken Colo.

- few large spots mostly on caudal
peduncle.



4 = #646 {jaw tag}

5 = #627

6 = 626

7 = 602

generally stomaia basi branchial teeth
borne on a single row

CHARACTER ANALYSIS SHEET

Species Salmo clarki stomias

Locality Red Canyon, Colo., Jackson Co.
N. Platte

Field No. _____ Coll. by _____

Date of Coll. _____ Measurements by C.F. Reid Date 13 Dec. 1959

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	N	Range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L	14	119-182	149				
Body D	14	228-256	238.0				
Head L		241-289	260.4				
Head D		158-189	169.2				
Head W							
Least interorbital bony W		53-74	66.6				
Occiput to snout tip		169-196	183.6				
Snout L		53-68	59.5				
Orbit L		60-78	71.8				
Upper Jaw L		126-167	140.0				
Dorsal origin to snout tip		474-519	499.7				
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L		126-152	137.9				
Dorsal fin depressed L		216-241	228.3				
Adipose fin depressed L		86-115	97.1				
Caudal peduncle D		106-117	110.9				
Caudal peduncle L	v	151-185	165.5				
Vertebrae	20	59-61	59.95				
First arch gill rakers (upper)	20	7-8	7.3				
(lower)		11-14	12.4				
(total)		18-22	19.6	1.0842	1.041		.233
Basibranchial teeth		0-13	3.2				
Branchiostegal rays (right)		10-12	11.2				
(left)		10-12	11.6				
Pectoral fin rays		15-17	15.8				
Pelvic fin rays	v	9-10	9.6				
Scales in lateral line	13	116-123	119.1				
Scales above lateral line	11	40-49	44.0				
2 rows above	13	172-194	184.5				

CHARACTER ANALYSIS SHEET

Page 1 of pages

- hybrid Golden cut + rainbow

N. Platte basin

Species Salmo clarkii stonisi
 Locality Colo., Red Canyon branch of Roaring Fork R., Jackson Co.
 UMMZ Field No. 160719 Coll. by W.P. & Dorothy Knoch
 Date of Coll. VIII:23:50 Measurements by Behrke Date 12-2-59
 Jar No. No. of Jars No. of Spec. 20 Specimen No.

	1	2	3	4	5	6	7
Standard L	162	164	166	129	171	141	180
Body D	38	39	38	31	39	35	46
Head L	45	45	40	35	44	35	52
Head D	28	28	27	22	28	23	33
Head W							
Least interorbital bony W	12	12	10	9	12	9	13
Occiput to snout tip	30	31	28	25	30	25	34
Snout L	10	10	9	8	10	8	12
Orbit L	12	12	10	10	12	10	13
Upper Jaw L	25	25	21	19	23	18	30
Dorsal origin to snout tip	82	83	82	67	85	68	93
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L	21	22	21	18	23	21	26
Dorsal fin depressed L	37	37	37	28	41	33	42
Adipose fin depressed L	17	16	16	13	17	13	20
Caudal peduncle D	18	18	18	15	20	15	20
Caudal peduncle L	28	26	27	21	28	25	31
Vertebrae → not in count order	59	60	59	61	60	59	60
First arch gill rakers (upper)	8	7	7	8	7	8	7
(lower)	13	11	12	12	12	13	12
(total)	21	18	19	20	19	21	19
Basibranchial teeth	0 ^{w/kerat} _{over}	9	4 sockets	6	13	0	0
Branchiostegal rays (right)	12	11	12	10	10	11	12
(left)	12	11	12	12	10	11	12
Pectoral fin rays	15	15	16	17	16	16	17
Pelvic fin rays	9	9	10	10	9	10	9
Scales in lateral line	116	121	119	118	120	123	121
Scales above lateral line	/	45	46	47	41	/	49
2 rows above middle	184	187	188	175	193	192	175
		185		173	188		

specimen
- fish not preserved as well as UMMZ 170949 (stomias)

so color comparison difficult. - large, round

spots on caudal peduncle as in typical stomias and
[only on 5 large spec. not on others
post. 1/2 anal fin spotted] ... ~~ant.~~ ant. body

spotted both above and below lat. line, evenly

distributed, few spots on head - none on

belly, but these spots are smaller than in

typical stomias.

*3 - post. border of anal fin dark, but no
distinct spots.

generally no spots on top of head (some times few
specks between eyes) - but all have about 3-5 ^{small} spots
on check & opercle

CHARACTER ANALYSIS SHEET

Species Salmo clarki stomias

Locality Red Canyon, Colo.

Field No. _____ Coll. by _____

Date of Coll. _____ ^{Conversions} Measurements by C. F. Reid Date 13 Dec. 1959

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

1 2 3 4 5 6
Measurements in thousands of standard length 7

	1	2	3	4	5	6	7
Standard L	162 ¹⁶¹⁷	164 ¹⁶¹⁰	166 ¹⁶⁰²	129 ¹⁷⁷⁵	171 ¹⁵⁸⁵	141 ¹⁷⁰⁹	180 ¹⁵⁵⁶
Body D	234	238	229	240	228	248	256
Head L	278	274	241	271	257	248	289
Head D	173	171	163	170	164	163	183
Head W	74						
Least interorbital bony W	74	73	60	70	70	64	72
Occiput to snout tip	185	189	169	194	176	177	189
Snout L	62	61	54	62	58	57	67
Orbit L	74	73	60	78	70	71	72
Upper Jaw L	154	152	126	147	135	128	167
Basal origin to snout tip	506	506	494	519	497	482	517
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L	130	134	126	140	135	149	145
Dorsal fin depressed L	228	226	223	217	240	234	234
Adipose fin depressed L	105	98	96	101	99	92	111
Caudal peduncle D	111	110	108	116	117	106	111
Caudal peduncle L	173	159	163	163	164	177	172

CHARACTER ANALYSIS SHEET

Page 2 of pages

Species *Salmo clarkii stoniis*

Locality Colony -

VMMZ
Field No. 160719 Coll. by Knoch

Date of Coll. VIII:23:50 Measurements by Behrke Date 12-3-59

Jar No. No. of Jars No. of Spec. 20 Specimen No.

	8	9	10	11	12	13	14 ^{over}
Standard L	119	148	152	158	133	128	131
Body D	28	36	37	37	31	31	30
Head L	30	41	40	40	32	33	32
Head D	19	28	27	26	21	22	21
Head W							
Least interorbital bony W	7	11	11	11	8	8	7
Occiput to snout tip	22	29	28	29	23	24	24
Snout L	7	10	9	9	7	7	8
Orbit L	9	11	11	11	9	10	9
Upper Jaw L	15	22	21	22	17	18	17
Dorsal origin to snout tip	60	75	76	78	63	64	65
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L	17	20	23	24	17	17	17
Dorsal fin depressed L	28	32	36	38	29	29	29
Adipose fin depressed L	11	14	13	16	12	13	12
Caudal peduncle D	13	17	17	17	15	14	14
Caudal peduncle L	22	24	23	24	22	20	23
Vertebrae	61	59	60	61	61	59	60
First arch gill rakers (upper)	7	7	8	7	7	7	7
(lower)	13	13	13	12	13	12	13
(total)	20	20	21	19	20	19	20
Basibranchial teeth	0	6	3	4	1	0	3
Branchiostegal rays (right)	12	11	11	10	11	12	11
(left)	12	12	12	11	12	12	11
Pectoral fin rays	17	16	16	15	15	17	15
Pelvic fin rays	10	9	9	9	9	10	10
Scales in lateral line	120	116	120	118	118	118	118
Scales above lateral line	42	42	43	47	40	42	42
	172	185	185	194	190	190	179
		175	190				190

mill -

spotting on anal variable some only have one or

two spots.

	<u>S.L</u>	<u>gillraker</u>	<u>pectoral</u>	<u>pelvic</u>	<u>branchiosty</u>	<u>basibranch</u>
15	86mm	8/14=22	16	10	11-11	2
16	96	7/12=19	16	10	12-12	4
17	93	7/11=18	15	10	12-12	2
18	90	7/12=19	15-	10	11-11	1
19	87	8/11=19	15	10	11-11	2
20	83	7/13=20	16	10	12-12	3

vert

60

61

60

59

60

60

*Cal. Acad.

X RAY #6 = 3x4 + 4 small ones

CHARACTER ANALYSIS SHEET

Species Salmo c. stonias

Page 1 of 1 pages.

Locality _____

Field No. _____ Coll. by _____

Date of Coll. _____ Measurements by R. J. B. Date 4-24-58

Jar No. _____ No. of Jars _____ No. of Spec. Arkw²³ 12 Specimen No. _____

	Best / Coll	Twin LK-S	3	4	5
Standard L	128	215	183	129	
Body D	31		46	34	
Head L	32	56	44	32	
Head D	21		31	23	
Head W	16		23	17	
Least interorbital bony W	8		12	9	
Occiput to snout tip	21		29	21	
Snout L	6		10	6	
Orbit L	9		11	9	
Upper Jaw L	16	32	24	16	
Dorsal origin to snout tip	62		89	62	
Depressed dorsal to insertion of adipose	20		34	19	
Dorsal origin to anal o.	42		66	47	
Dorsal fin basal L	18		25	19	
Dorsal fin depressed L	29		37	30	
Adipose fin depressed L	11		10	10	
Caudal peduncle D	13		20	13	
Caudal peduncle L	22		33	23	
Vertebrae	59	/	61	61	+ 60 + 62 + 61 + 61
First arch gill rakers (upper)	7	8	9	8	
(lower)	12	12	13	13	
(total)	19	20	22	21	
Basibranchial teeth	0	8	2	12	
Branchiostegal rays (right)	10	10	11	11	
(left)	11	11	11	11	
Pectoral fin rays	15	/	15	15	
Pelvic fin rays	9	9	9	9	
Scales in lateral line	116	/	124	120	
Scales above lateral line	44	/	46	49	
	195	/	213	198	
	29	/	31	30	

#1 Bear Cr, Morrison Colo. # 8228

Jordan & Evermann 1889

- evenly spotted, slightly smaller spots than Stanfords moraine Park (4) spots on dorsal and caudal. 1 or 2 on anal - none on pectorals pelvic

#2 - Twin Lakes Colo. # 8319 - ~~at~~ Jordan 1889

very poor condition. (mummified)

8 basibranchials 6 of them extremely small (partly disintegrated)

#384 - Arkansas R., Leadville Colo. Col. Acad

#6 (XRAY)

Jordan & Everman 1889 8247

good condition typical stonias spotted

- few smaller spots ant. - more numerous & larger spots post. - above & below d. l. on caudal peduncle. - on dorsal, caudal & adipose none on P. v. or a. - none on head

Species Salmo c. stornias

Locality _____

Field No. _____ Coll. by _____

Date of Coll. _____ Measurements by R. J. B Date 4-24-58

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

Measurements in thousands of standard length

Standard L		128	215	183	129		
Body D	✓	242		251	264		
Head L	✓	250	260	240	248		
Head D		164		169	178		
Head W		125		126	131		
Least interorbital bony W	✓	62		66	70		
Occiput to snout tip		164		158	163		
Snout L		47		55	47		
Orbit L		70		60	70		
Upper Jaw L	✓	125	149	131	124		
Dorsal origin to snout tip	✓	484		486	480		
Depressed dorsal to insertion of adipose		156		186	147		
Dorsal origin to anal o		336		360	364		
Dorsal fin basal L		141		137	147		
Dorsal fin depressed L	✓	226		202	233	2	
Adipose fin depressed L	✓	86		55	78		
Caudal peduncle D	✓	102		109	101		
Caudal peduncle L	✓	172		180	178		

CHARACTER ANALYSIS SHEET

Species Salmo clarkii stonied
 Locality Col., Albion Ck.
 UMMZ Field No. 170949 Coll. by Tanner, et al.
 Date of Coll. XI:16:55 Measurements by Behrke Date 12-1-59
 Jar No. _____ No. of Jars _____ No. of Spec. 9 Specimen No. _____

	8 ⁽¹⁾	9 ⁽⁹⁾			
Standard L	103	172			
Body D	23				
Head L	2				
Head D	13				
Head W					
Least interorbital bony W					
Occiput to snout tip					
Snout L					
Orbit L					
Upper Jaw L					
Dorsal origin to snout tip					
Depressed dorsal to insertion of adipose					
Dorsal origin to anal o					
Dorsal fin basal L					
Dorsal fin depressed L					
Adipose fin depressed L					
Caudal peduncle D	11				
Caudal peduncle L					
Vertebrae	60	60			
First arch gill rakers (upper)	7	7			
(lower)	12	12			
(total)	19	19	too small		
Basibranchial teeth	present	0	don't include in range x	x	
Branchiostegal rays (right)	9	10			
(left)	9	11			
Pectoral fin rays	14	15			
Pelvic fin rays	9	9			
Scales in lateral line	121	116			
Scales above lateral line	44	46			
2 rows above	188	189			
	195	186			

*1 Colo., Pingree Park, Aug. 17, 1932 - C. P. Gilbert coll. - Brigham Young Univ. *11787

not included VIII-2-61

CHARACTER ANALYSIS SHEET

Page ___ of ___ pages

Species Salmo c. stonius

Locality _____

Field No. _____ Coll. by _____

Date of Coll. _____ Measurements by _____ Date July 1961

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

1 same as 2 ♂

Standard L	170	179				
Body D						
Head L						
Head D						
Head W						
Least interorbital bony W						
Occiput to snout tip						
Snout L						
Orbit L						
Upper Jaw L						
Dorsal origin to snout tip	80	84				
Depressed dorsal to ^{scales} insertion of adipose to P.O.	30	32				
Dorsal origin to anal o						
Dorsal fin basal L						
Dorsal fin depressed L						
Adipose fin depressed L						
Caudal peduncle D						
Caudal peduncle L						
Vertebrae						
First arch gill rakers (upper)	8	8				
(lower)	10	12				
(total)	18	20				
Basibranchial teeth	1 tiny	6 small				
Branchiostegal rays (right)	10	10				
(left)	11	10				
Pectoral fin rays	13	14				
Pelvic fin rays	9					
Scales in lateral line	123					
Scales above lateral line	48	47				
2 rows above	213	196				

Typical stomia - large spots - (2 spots)
5-6 mm (largest)

Pybolic Caeca
Colo. Basin

Stillwater Crk. - Brian Kunnian

47, 44, 44, 53, 40, 56, 55, 53, 58, 52, 42, 46, 42

47, 49, 42, 52

S. Hk. Wheatfield Crk., San Juan system., San Juan Co.

N. Mex. Oct. 17, 67: 36, 37, 35, 41, 32, 43, 36, 39, 33,

41, 39, 36, 34, 41, 36, 39, 37.

Uinta Ind. Res. Utah. - Baldes: 41, 33, 40, 29

Pole Crk. - Peterson: 32, 35, 35, 31, 43, 42

Bonneville Basin

Utah ? = Trib. Little Cottonwood Crk. → Jordan Crk.

29, 27, 35, 34, 35, 31, 32, 39, 31, 31, 31, 29, 33, 31, 29, 35

37, 40, 35, 32, 43, 27, 23, 38

Pyloric Caeca

Greenbacks?

Albion Crk. ~~III~~: 14:63

29, 32, 37, 31, 31, 36, 36, 31, 33, 31, 27

~~III~~: 29:63 (between St. & Silver Crk.) -

31, 37, 40, 35, 35, 34, 38, 35, 36, 30, 34

Albion ~~III~~: 6:63

29, 41, 38, 35, 36, 35, 25, 27

~~III~~: 3:64 - 31, 29, 40, 33, 31, 42, 36, 36

~~III~~: 30:64 34, 29, 32, 34, 46, 33, 33, 32, 34

Big Thompson, Frost Canyon - Aug. 29, 67:

39, 29, 33, 39, 33, 37, 35, 46, 35, 29, 40, 32, 38, 34

July 66: 39, 35, 31, 39, 33, 40, + 40, 39, 38

Aug. 10, 64: 36, 34, 38, 40, 38, 42

Trap Crk. 35, 39, 31, 41, 35, 33, 33, 37

Bennet Crk. - 32, 37, 35, 36, 36, 34, 37

Coral Crk. - 43, 33, 32, 38, 39, 36, 48, 40, 35, 38, 45
40, 38, 49, 34, 33

Hague Crk. - 37, 40, 35, 32, 43, 27, 23, 38

stomies + hybrids

BASIN: East Slope - South PLATTE (page 1)

COLLECTION SITE	N	VERTEBRATE NUMBERS								MEAN
		58	59	60	61	62	63	64		
Big Thompson 1967 (Rock Creek Lake)	31 3		1	15	15	1				60.6 - 60.2
MORRAINE PARK 1889	4					2	2			62.5
BEAR CREEK 1889	1		1							59.0 -
ALBION CREEK 1887, 1963, 1963, 1964	39	1	6	22	9	1				60.1 -
Black Hollow 1963, 1967, 1964	42		1	14	16	10	1			61.9
S. FORK LITTLE Poudre ABOVE PINNACLES	4			2	1	1				60.6 -
ROARING CREEK 1963 6/12/64	48			12	29	7				60.9
N. Boulder CREEK 8/21/64 8/15/63 7/10/64 8/19/63 8/24/63	56		6	25	22	3				60.4 -
Hague CREEK (Poudre TRIBUTARY)	7				2	4	1			61.9
CORRAL CREEK 8/15/66 7/29/67	13 9				3	9	1			61.8 61.8
TRAP CREEK 8/29/66, 7/29/67 7/29/67	10 24 5		1 3	9 5	4 5	11	1			60.8 61.1
NEOTA CREEK 9/11/66 6/30/67	7 10 17				3 3 2	2 2 7	2 1			61.9 61.8 61.3
BONNETT CREEK 6/6/67	7				6	7	4	3		62.4

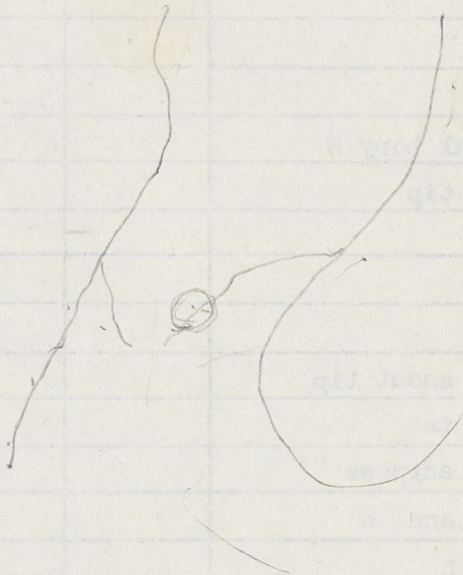
VIII-3-61

CHARACTER ANALYSIS SHEET

Page ___ of ___ pages

Species Salmo clarkii stonias
 Locality Headwaters Big Thompson R. Col.
 Field No. _____ Coll. by _____
 Date of Coll. _____ Measurements by _____ Date _____
 Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	N	Range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L	20	112-178	146				
Body D							
Head L							
Head D							
Head W							
Least interorbital bony W							
Occiput to snout tip							
Snout L							
Orbit L							
Upper Jaw L							
Dorsal origin to snout tip							
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L							
Dorsal fin depressed L							
Adipose fin depressed L							
Caudal peduncle D							
Caudal peduncle L							
Vertebrae ^{N=15} \bar{x} 59-62 60.8		59, 61, 62, 61, 62, 60, 61, 61, 60, 61, 61, 61, 61, 60, 61					
First arch gill rakers (upper)							
(lower)							
(total)	20	18-21	19.1				
Basibranchial teeth	20 (19)	^{1 no teeth} 1-10	7.1				
Branchiostegal rays (right)		9-12					
(left)							
Dorsal fin rays		18	2				
Pelvic fin rays	20	9	10				
Scales in lateral line							
² Scales above lateral line	19	177-215	199.8				
	11	43-51	47.5				
<i>Caeca</i>	20	22-40	31.4				



<u>Yuktha</u>	59	60	61	62	$\frac{N}{15}$	$\frac{\bar{X}}{60.7}$
	1	4	8	2		

$$15 \overline{) 40}^3$$

1111-3-61

CHARACTER ANALYSIS SHEET

Page 1 of ___ pages

Species Salmo clarkii stonias
 Locality Colo., Big Thompson R. - headwaters, elev. 10,000
 Field No. _____ Coll. by Davis & Gish
 Date of Coll. VI:19:59 Measurements by Behrke Date 3-30-60
 Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	1	2	3	4	5	6	7
Standard L	145	134	178	172	165	176	146
Body D							
Head L	38	35					
Head D							
Head W							
Least interorbital bony W							
Occiput to snout tip							
Snout L							
Orbit L							
Upper Jaw L	22	19					
Dorsal origin to snout tip	76	65					
Depressed dorsal to scales ^{origin} insertion of adipose to l.c.	30	31	27				
Dorsal origin to anal o							
Dorsal fin basal L	24	19					
Dorsal fin depressed L	37	32					
Adipose fin depressed L	14	14					
Caudal peduncle D							
Caudal peduncle L	22	22					
Vertebrae	see	back					
First arch gill rakers (upper)	7	7	8	7	7	7	7
(lower)	13	11	11	12	11	13	11
(total)	20	18	19	19	18	20	18
Basibranchial teeth "single rows"	10	7 ⁰	4	9	6	8	1
Branchiostegal rays (right)	11	11	9	11	11		
(left)	11	11	9	12	12		
Pectoral fin rays	14	15					
Pelvic fin rays	9	10	9	9	9	9	9
Scales in lateral line	117	116					
Scales above lateral line	47	43	44	/	/	/	
2 rows above carca	2-13	190	199	/	197	201 ₃₀	215 ₂₆

0 - Gill rakers on hypobranchial segment of 2nd
 arch full of teeth as in Independence bk. -
 (superficial resemblance) - Ind. No. hypobranchial teeth
 are not gill rakers. -

vertebrae counts

59, 61, 62, 61, 62, 60, 62, 61, 61, 60,
 61, 61, 60, 60, 61

59	60	61	62
1	4	7	3
			13

$\bar{x} = 60.8$ $N = 15$
 $15 \overline{) 1212}$

call
 22, 26, 31, 29, 24

CHARACTER ANALYSIS SHEET

SPECIES: Salmo clackii Tomias

LOCALITY: Big Thompson R., Colo.

FIELD NO. _____ COLLECTED BY: _____

DATE OF COLLECTION: _____ MEASUREMENTS BY: _____ DATE: _____

JAR NO. _____ NO. OF JARS: _____ NO. OF SPECIMENS: _____ SPECIMEN NO. _____

	8	9	10	11	12	13	14
Standard L	124	163	150	158	112	158	149
Body D							
Head L							
Least interorbital bony W							
Occiput to snout tip							
Snout L							
Orbit L							
Upper Jaw L							
Dorsal origin to snout tip							
Dorsal fin basal L							
Dorsal fin depressed L							
Adipose fin depressed L							
Caudal peduncle D							
Caudal peduncle L							
Vertebrae							
First arch gill rakers (upper)	7	7	7	7	7	7	8
(lower)	12	14	11	11	11	12	13
(TOTAL)	19	21	18	18	18	19	21
Branchiostegal rays (right)							
(Left)							
Pectoral fin rays							
Pelvic fin rays	9	9	9	9	9	9	9
Scales in lateral line							
Scales above lateral line	47	51			49	50	
Scales 2 rows above lateral line	196	203	191	196	210	200	212
Scales, adipose to lateral line	31	30				31	
Pelvic caeca	26	40	34	33	32	36	41
<i>basibranchial</i>	4	5	8	5	8	9	9

all w/
well developed post. rakers
on first arch.

CHARACTER ANALYSIS SHEET

SPECIES: S. c. stonias

LOCALITY: Colo. - Big Thompson R.

FIELD NO. _____ COLLECTED BY: _____

DATE OF COLLECTION: _____ MEASUREMENTS BY: _____ DATE: _____

JAR NO. _____ NO. OF JARS: _____ NO. OF SPECIMENS: _____ SPECIMEN NO. _____

	15	16	17	18	19	20
Standard L	156	125	118	140	126	117
Body D						
Head L						
Least interorbital bony W						
Occiput to snout tip						
Snout L						
Orbit L						
Upper Jaw L						
Dorsal origin to snout tip						
Dorsal fin basal L						
Dorsal fin depressed L						
Adipose fin depressed L						
Caudal peduncle D						
Caudal peduncle L						
Vertebrae						
First arch gill rakers (upper)	8	8	7	8	8	7
(lower)	11	11	12	12	12	12
(TOTAL)	19	19	19	20	20	19
Branchiostegal rays (right)						
(Left)						
Pectoral fin rays						
Pelvic fin rays	9	9	10	9	9	9
Scales in lateral line						
Scales above lateral line	48	48	47	49		
Scales 2 rows above lateral line	209	177	186	201	195	206
Scales, adipose to lateral line	30	32		31		32
Pelvic caeca	32	33	25	35	32	31
Teeth	9	7	7	0	10	8 <small>not in straight row</small>

CHARACTER ANALYSIS SHEET

Page 1 of 1 pages

Species Salmo macdonaldi type

Locality Twin Lakes, Colo.

Field No. _____ Coll. by _____

Date of Coll. _____ ^{Calculations} Measurements by C. F. Reid Date Oct. 8, 1959

Jar No. _____ No. of Jars _____ No. of Spec. _____ Specimen No. _____

	N	range	Mean	S.D. ²	S.D.	C.D.	SEM
Standard L							
✓ Body D	1	214	214.0				
✓ Head L	2	250-255	252.5				
Head D							
Head W							
✓ Least interorbital bony W	2	58-61	59.5				
Occiput to snout tip							
Snout L							
Orbit L							
✓ Upper Jaw L	2	134	134.0				
✓ Dorsal origin to snout tip	2	493-500	496.5				
Depressed dorsal to insertion of adipose							
Dorsal origin to anal o							
Dorsal fin basal L							
✓ Dorsal fin depressed L	2	201-206	203.5				
✓ Adipose fin depressed L	2	55-63	59.0				
✓ Caudal peduncle D	1	85	85.0				
✓ Caudal peduncle L	2	166-183	174.5				
✓ Vertebrae	2	60-61	60.5				
First arch gill rakers (upper)							
(lower)							
(total)	2	21-22	21.5				
✓ Basibranchial teeth	2	15-16	15.5				
✓ Branchiostegal rays (right)	2	9-10	9.5				
(left)	2	9-10	9.5				
✓ Pectoral fin rays	2	15-16	15.5				
Pelvic fin rays							
✓ Scales in lateral line	2	121-122	121.5				
✓ Scales above lateral line	2	38-46	42.0				

Small, profuse

Spotting one on
less two on other.

Stanford # 512

X RAT
13

CHARACTER ANALYSIS SHEET

Page 1 of 1 pages.

Species Salmo macdonaldi type

Locality Twin Lakes Colo.

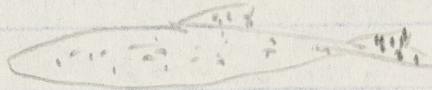
Field No. _____ Coll. by _____

Date of Coll. Pancient Measurements by RSTB Date 2-28-58

Jar No. _____ No. of Jars _____ No. of Spec. 2 Specimen No. _____

Standard L	223	164			
Body D	223	35			
Head L	57	41			
Head D	36	26			
Head W	25	18			
Least interorbital bony W	18	10			
Occiput to snout tip	35	27			
Snout L	12	9			
Snout D	14	11			
Upper Jaw L	30	22			
Dorsal origin to snout tip	110	82			
Depressed dorsal to insertion of adipose	35	25			
Dorsal origin to anal o.	71	65			
Dorsal fin basal L	29	21			
Dorsal fin depressed L	46	33			
Adipose fin depressed L	14	19			
Caudal peduncle D	37	14			
Caudal peduncle L	37	30			
Vertebrae	61	60			
First arch gill rakers (upper)	8	8			
(lower)	13	13			
(total)	21	22			
Basibranchial teeth	max 15 min 5	max 16 min 5 small			
Branchiostegal rays (right)	10	9			
(left)	10	9			
Pectoral fin rays	16	15			
Pelvic fin rays	9	9			
Scales in lateral line	app 124	122			
Scales above lateral line	46	38 app.			
	182				

Spotted profusely, small spots - dorsal, caudal
 (very abundant) and adipose, (more on p. v, r. a.)
 very few on head, above & below l. l.



smaller specimens not so heavily spotted
 and more concentrated above l. l.

4000 1113
 1450
 135
 105
 105
 112
 41457
 116

CHARACTER ANALYSIS SHEET

Page 1 of 1 pages.

Species Salmo gairdneri type

Locality Twain Lakes Colo.

Field No. _____ Coll. by _____

Date of Coll. March 2 Measurements by RJB Date 2-28-58

Jar No. _____ No. of Jars _____ No. of Spec. 2 Specimen No. _____

length in thousandths of std length.

Standard L	223	164			
Body D		2134			
Head L	255	250			
Head D	161	158			
Head W	112	109			
Least interorbital bony W	58	61			
Occiput to snout tip	157	164			
Snout L	54	55			
Orbit L	63	67			
Upper Jaw L	134	134			
Dorsal origin to snout tip	493	500			
Depressed dorsal to insertion of adipose	157	152			
Dorsal origin to anal o	318	396			
Dorsal fin basal L	130	128			
Dorsal fin depressed L	206	201			
Adipose fin depressed L	63	55			
Caudal peduncle D		85			
Caudal peduncle L	166	183			
Vertebrae					
First arch gill rakers (upper)					
(lower)					
(total)					
Basibranchial teeth					
Branchiostegal rays (right)					
(left)					
Pectoral fin rays					
Pelvic fin rays					
Scales in lateral line					
Scales above lateral line					