

Memorandum

To : Files

Date : October 17, 1991

From : **Department of Fish and Game**

Bill Cox

Subject: Green Valley Creek, Sonoma County

On October 15, 1991 I electro-fished three sites on Green Valley Creek with Doug Gore of Trout Unlimited. Doug had arranged the access to the sites with , the landowners. All the sampling sites were upstream of the confluence of Atascadero Creek, the major tributary of Green Valley Creek. Flow was very low. At Site 1 (see the attached map) only a series of widely separated pools remained, there was no observable flow. At the upstream end of Site 1 there was a small flow observed in Purrington Creek where it entered Green Valley Creek. This flow was no more than 0.1 CFS. At Sites 2 and 3 there was less distance between the isolated pools, but there was still no surface flow.

At Site 1 the bed of the stream was about 20 feet wide with no significant amount of woody growth or debris. The banks were well vegetated with large alder. The channel, from Purrington Creek downstream to Green Valley Road, had the appearance of having been channelized about 20 years ago, and having been maintained more recently, perhaps four to six years ago. Channelization and maintenance would have been by the Sonoma County Water Agency. Site 1, particularly the downstream end of it, has a very low gradient and appears to be a sediment deposition area. The substrate is sand or fine, sandy gravel. Only a few small areas have gravel suitable for spawning, and these are marginal at best. There are few structural elements in the creek to provide nursery habitat for salmonids except for a few slightly undercut banks associated with alder roots. The isolated pools remaining in Site 1 are all shallow, with the deepest being only about 18 inches. The average pool depth was about 6 inches.

The fish population at Site 1 was dominated by sculpin and stickleback. There were surprisingly few roach, possibly due to the heavy shade and cool water (58 F). Not many lamprey ammocoetes were seen, but they were probably abundant in the sandy bottom. The small number of steelhead reflects the limited habitat, but is also probably an artifact of the four years of drought. In more "normal" years with higher summer flow, steelhead would probably make up a higher percentage of the fish population. The small bluegill were a surprise as they would not normally be found in a small stream. The bluegill are probably not reproducing in the stream, but are being introduced from one of the many farm ponds in the drainage.

Length frequency distributions and the totals for the fish caught are included in the attached tables. Sites 2 and 3 are combined because of an error in the

GREEN VALLEY CREEK
LAMP MEKER QUAD



recording of the data.

Twenty-five California freshwater shrimp were found in Site 1. They were all associated with the exposed roots of undercut alders. While the shrimp can readily be collected while electro-fishing, they are difficult to see and the sampling efficiency is probably very low. The collection of the shrimp is only any indication of their presence in the sampling area and not an indication of their abundance. Shrimp habitat at this site was minimal as the pools were very shallow, the root undercuts were few and very shallow, and there was very little overhanging vegetation.

The landowners at Site 1 were Ruth Priest on the west side of the creek and Pamela Harrington on the east side. Access was through the Harrington property off Green Valley Road just to the east of the creek.

Just upstream of Site 1, immediately below the confluence of Purrington Creek, a large water diversion was observed on the right bank of the stream. This diversion apparently is used to irrigate the vineyards of Warren Dutton.

Site 2 showed no sign of any past channelization. The channel is narrower and more deeply incised than at Site 1. There is a thick riparian growth with a good tree canopy shading the stream. Site 2 has a large amount of large woody debris in the stream bed causing the formation of some deep pools and providing what appears to be good habitat for salmonid fishes. Associated with the deep pools were deep undercuts below the roots of large, mature trees. The gravel is more coarse than at Site 1 and appears to be suitable for salmonid spawning. At the time of the survey, the channel bottom had a thick layer of alder and bay leaves.

Given the amount of apparently good habitat, the fish population was very small. In many apparently good pools, no fish could be found. Sculpin were still the most abundant fish in this reach of stream. Virtually all the juvenile steelhead found at Site 2 were age 1+. The presence of the larger steelhead reflects the larger habitat areas provided by the large woody debris and deep undercuts.

More bluegill were found at Site 2, and, in addition, some green sunfish were found.

A few California freshwater shrimp were found. Interestingly, these shrimp were not found in association with either undercuts or overhanging vegetation, they were found among a thick layer of alder leaves on the bottom of an isolated pool. There were some deeply undercut tree roots, but little overhanging vegetation. Habitat was better than at Site 1.

The landowner at Site 2 is Fred Allen.

Site 3 is a deeply incised section of stream with a moderate canopy of riparian trees that has been reduced by the construction of a road along the west bank. There are substantial areas where the stream has no canopy, but the high surrounding hills provide fair afternoon shade. The channel bottom has a heavy growth of herbaceous vegetation and some pools were completely covered with duck weed. The bed of the stream is gravel and small cobble. The pools were all shallow with an average depth of about 6 inches.

Except for a few sculpin and stickleback, the fish population was dominated by juvenile steelhead. No bluegill or green sunfish were found at this site.

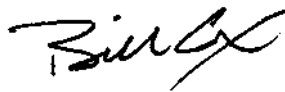
A few California freshwater shrimp were found at Site 3. The pools at this site were very shallow, the few undercut tree roots were also very shallow, but there was more overhanging vegetation than at Sites 1 and 2.

The landowner at Site 3 is Orrin Thiessen. During the survey, I talked with Mr. Thiessen. He mentioned a pond on his property which drained into Green Valley Creek downstream of Site 3. This pond may be the source of the bluegill and green sunfish seen at the other sampling sites. There are other farm ponds in the drainage which could also be possible sources for those fish.

A stream survey conducted in 1969 also found green sunfish in the stream, but only downstream of the confluence of Atascadero Creek. Squawfish were also found in 1969 below Atascadero Creek. Coho salmon have been reported from Green Valley Creek. I found none during this survey. No coho were found in 1969 either, but the fish sampling effort in 1969 was probably only visual observation and would not necessarily have distinguished coho from steelhead.

Overall, in the areas sampled the riparian habitat was good with sufficient canopy to provide a good level of shade on the water. Substrate quality seemed to be a significant problem with a high percentage of fines. The input of fines is probably increasing as much of the watershed is being converted to vineyard.

Low summer flow was a major problem during this survey. The flow was certainly at an unusually low level due to the four years of drought which the area has experienced, but the high sediment level in the stream may be causing a higher percentage of the flow to go underground. There may also be more diversions from the stream or its underflow than there were in the past because of more intensive agricultural development.



Bill Cox
Associate Fishery Biologist

GREEN VALLEY CREEK, TRIBUTARY TO RUSSIAN RIVER, SONOMA
ELECTRO-FISHING SURVEY, OCTOBER 15, 1991

SITE 1

	SH	SCL	RCH	BG
<40				
40 - 49		7		
50 - 59				
60 - 69	3	9		2
70 - 79	9	23	1	1
80 - 89	7	8	2	1
90 - 99	2	5		
100 - 109	1	7	2	
110 - 119	1	1	1	
120 - 129	1			
130 - 139	1			
140 - 149	3	1		
150 - 159	1			
160 - 169				
170 - 179	1			
180 - 189				
190 - 199				
200 - 209	1			
210 - 219				
220 +				
Number measured	31	61	6	4
Number not measured	0	22	0	0
Total captured	31	83	6	4

Many more sculpin, particularly ones smaller than 33 mm were seen, but not captured

Many stickleback were seen but not captured.

Many lamprey ammocoetes were seen but not captured.

Nine California freshwater shrimp were captured.

SH = Steelhead trout

SCL = Sculpin

RCH = Western Roach

BG = Bluegill

GREEN VALLEY CREEK, TRIBUTARY TO RUSSIAN RIVER, SONOMA
 ELECTRO-FISHING SURVEY, OCTOBER 15, 1991
 SITES 2 and 3

	SH	SCL	BG	GSF
<40				
40 - 49		1		
50 - 59	1			
60 - 69	11			
70 - 79	6	2	2	
80 - 89		6		3
90 - 99		2		
100 - 109	1			
110 - 119	2			
120 - 129	1			1
130 - 139	2			
140 - 149	2			
150 - 159				
160 - 169	1			
170 - 179	2			
180 - 189				
190 - 199				
200 - 209				
210 - 219				
220 +				
Number measured	29	11	2	4
Number not measured	0	38	0	0
Total captured	29	49	2	4

Many more sculpin, particularly ones smaller than 35 mm were seen, but not captured.

Many stickleback were seen but not captured.

Many lamprey ammocoetes were seen but not captured.

Twenty-five California freshwater shrimp were captured.

SH = Steelhead trout

SCL = Sculpin

BG = Bluegill

GSF = Green sunfish