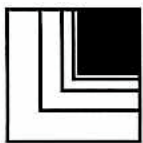


## **APPENDIX 11A**

### **T. FREST SPECIES IDENTIFICATION**





November 16, 2003

Jeff Tupen  
CH2M HILL  
2485 Natomas Park Dr., 6<sup>th</sup> Floor  
Sacramento, CA 95833

Dear Mr. Tupen;

The material recently sent by Chris Green contains two unionid species, as follows:

KRB-1        our site 5816 Klamath River mile 179.2, 9-3-03  
preserved    3 live specimens of *Gonidea angulata*, ranging in age from  
                  about 10 to 50+ years of age  
dead shells    1 MNI *Anodonta californiensis*, long dead and fragmentary adult  
                  4 MNI *Anodonta oregonensis*, ranging from intact to fragmentary,  
                  recent to long-dead young to adults  
                  5 MNI *Gonidea angulata*, ranging from recent to long-dead young to  
                  adults

KRB-2        our site 5817 Klamath River mile 189.8, 9-3-03  
preserved    1 live adult (15-20 years old) *Anodonta oregonensis*  
dead shells    3 recently dead ca. 8-14 year old *Anodonta oregonensis*

A little background may be useful here. Taylor (1981), which summarizes all historical museum records, reports *A. oregonensis* as rather rare in California, only from NE CA: from the lower Klamath above Shasta R.; Upper Klamath and Lost R.; and Middle Fork of the Feather R. We know of only one or 2 additional sites in CA; but the species is more common in OR and WA. We have noted it live recently in the upper Klamath.

*A. californiensis* is reported from 9 CA drainages, while Taylor (1981) states that the species is probably "extinct in most of the central Valley and southern California". "probably most natural populations in the state have been eradicated". One of the historic drainages is the lower Klamath but Shasta River only; so this record is interesting but not completely surprising. We have not seen it live in the lower Klamath.

*Gonidea angulata* was "formerly throughout most of the State", including the lower and upper Klamath River. "Probably extinct in most of the Central Valley and southern California..... Probably eradicated in much or most of original range in California". We have noted it recently live in both the lower and upper Klamath and in the Pit system.

*Margaritinopsis falcata* previously was noted by Taylor (1981) from about 9 major drainages, including the lower Klamath River (including Smith River). Prefers streams with salmonid runs. Some large CA populations remain, e.g. in the Eel River.

Thanks for the opportunity to examine this material!

Sincerely yours,

Terrence J. Frest, Ph.D.