

# **Taseko Prosperity Gold-Copper Project**

## **Appendix 5-6-D**

# Appendix 5-6-D Prosperity Mine 2006 Amphibian Survey Field Report

## D.1 Methods

Amphibian surveys were conducted between June 13–23, 2006 and July 24–August 2, 2006 using a combination of time-constrained searches and systematic surveys as recommended by the BC Resources Inventory Committee (RIC 1998) and Olson et al. (1997). The survey areas included the proposed mine site, transmission line corridor, and access road development areas.

Visual surveys were conducted by combining systematic searches with time-constrained searches along shorelines of selected wetlands and streams for a minimum of 30 person minutes per survey. Surveys were conducted by a minimum of two people per survey. Due to time constraints and the low return for effort experience that Madrone encountered during their surveys (Madrone 1999), minnow traps and pitfall arrays were not used for this study. When possible, amphibians observed during the surveys were captured to confirm identifications. Animals were weighed and measured when time and circumstances permitted, then released at the same location immediately afterwards.

Amphibian survey sites for this study were selected based on locations for amphibian detections reported by Madrone, and to cover areas that had not been previously surveyed (i.e., along the transmission line corridor and access road). Both wetlands and streams were selected to cover a range of wetland types and habitats.

The percentage of sites where amphibians were detected was calculated for each of the project component areas by dividing the number of wetlands where amphibians were detected during surveys by the number of total wetlands surveyed in that particular area. Similarly, for each project component area, the total number of individuals observed (per species) was divided by the number of wetlands that were surveyed<sup>1</sup>.

In addition, all surveyors noted incidental observations of amphibians and reptiles, including GPS location, when encountered anywhere in the project area. This information supplemented data collected during standardized amphibian surveys.

## D.2 Results

A total of 66 wetland sites were surveyed using standardized survey procedures. Fifty-six of these were new sites. An additional 25 sites were assessed but not surveyed due to unsuitable habitat conditions (e.g., dry/non-existent, no shoreline or emergent vegetation, too fast flowing). Seven of the 17 Madrone sites within the mine site footprint<sup>2</sup> were considered suitable for re-survey. The other 10 sites were not considered suitable for re-survey as no wetlands were found at these locations. This may be the result of changing water levels since previous surveys, or, more likely, due to accuracy differences in determining location coordinates between the present and the late 1990s. In these situations, nearby wetlands considered to have suitable amphibian habitat were selected as new survey sites.

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<sup>1</sup> This included sites where incidental observations were recorded

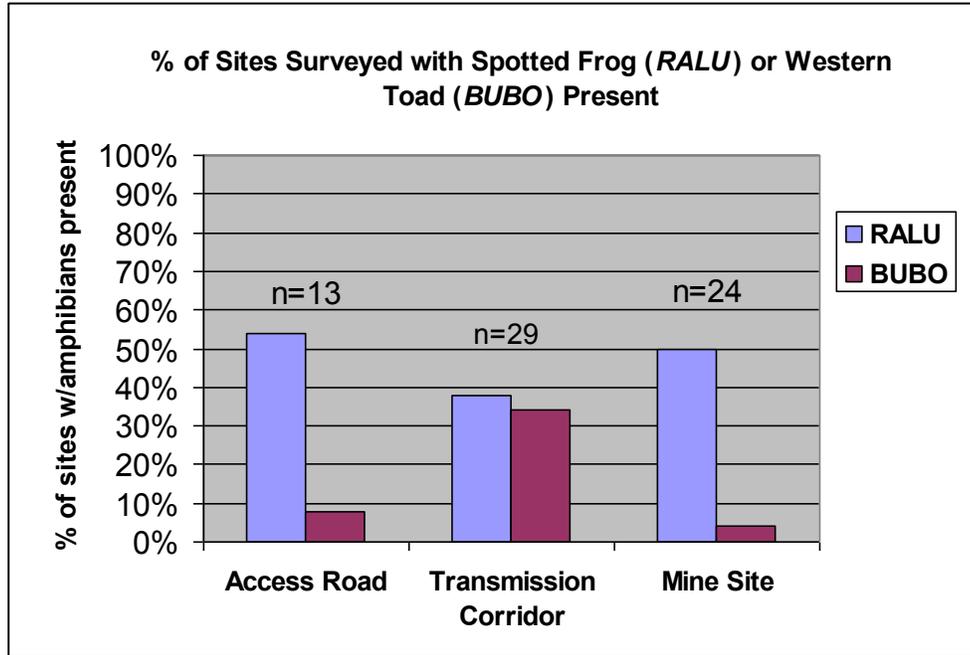
<sup>2</sup> Two sites outside the mine site footprint were not considered for re-survey

A total of 153 Columbia spotted frogs (74% of total), 91 western toads (21% of total), 26 long-toed salamanders (15% of total), one Pacific treefrog (unconfirmed), one unidentified frog, and one common garter snake were recorded (Table D-1). These numbers only pertain to individuals that were captured and measured (adults, metamorphosed individuals, and in some cases, larvae) and are considered an underestimation of the number of individuals actually occurring in the surveyed areas. Not all amphibians observed were captured due to time constraints, nor were efforts made to record all individuals at a site if the species was found to be relatively abundant in a wetland. Remnant egg masses were also observed, but are not included in the numbers given above. Similarly, count data for larvae (particularly western toads) could only be estimated (in some cases in the thousands), and are not included in these data. A treefrog vocalization was noted by vegetation survey crews and is unconfirmed, as the species is not known to occur in the area (Matsuda et al. 2006).

**Table D-1      Number of Amphibians and Reptiles Observed in the Project Component Areas**

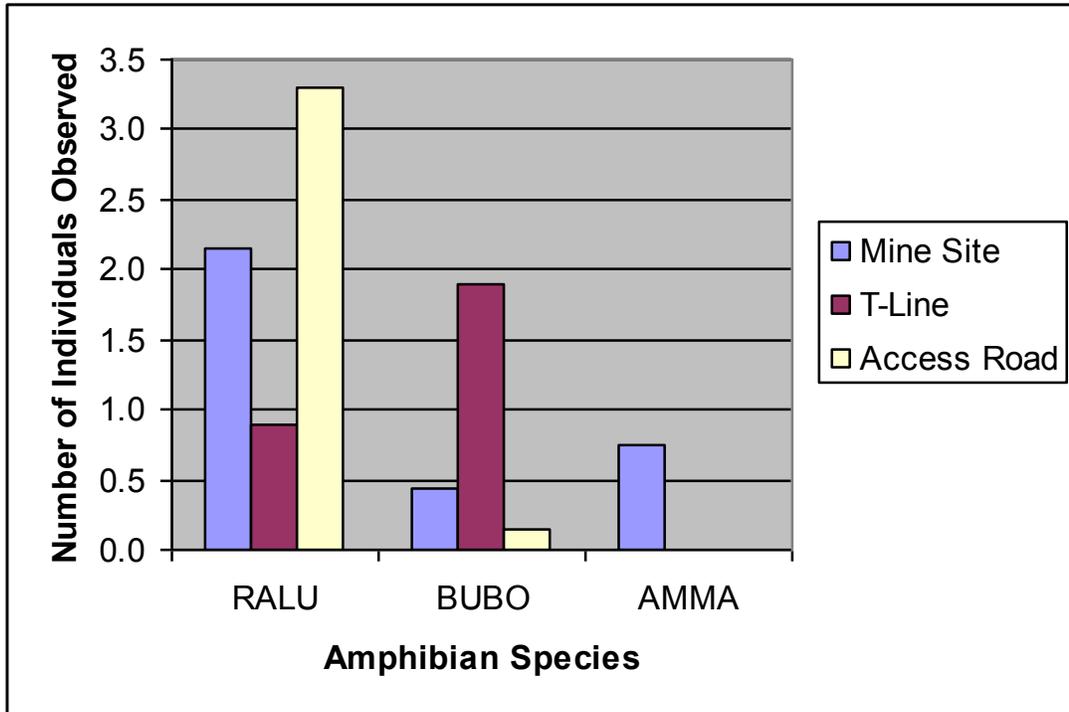
Common Name	Scientific Name	Mine Site*	Transmission Line Corridor*	Access Road*
Columbia spotted frog	<i>Rana luteiventris</i>	75	35	43
Western toad	<i>Bufo boreas</i>	15	74	2
Long-toed salamander	<i>Ambystoma macrodactylum</i>	26	-	-
Pacific treefrog	<i>Hyla regilla</i>	1	-	-
Unknown frog	-	1	-	-
Common garter snake	<i>Thamnophis sirtalis</i>	-	-	1
<b>NOTE:</b>				
* Includes incidental observations but does not include egg masses and estimates of larval aggregations				

Thirty-eight sites were found to have either Columbia spotted frogs or western toads present. The Columbia spotted frog was present at 7 of the 13 sites surveyed along the access road, 10 of the 29 sites along the transmission line corridor, and 12 of the 24 sites in the mine site (Figure D-1). The western toad was present at 1 of the 13 sites surveyed along the access road, 10 of the 29 sites along the transmission line corridor, and only 1 of the 24 sites surveyed in the mine site (Figure D-1). These totals do not include wetlands or other areas in which amphibians were encountered incidentally.



**Figure D-1 Percentage of Sites where Frogs were Detected in each of the Project Component Areas**

The mine site had the greatest number of amphibians recorded, as well as the highest diversity among the three project component areas (Figure D-2), even though more wetlands were surveyed in the transmission line corridor. Overall, the access road had the fewest numbers of amphibians observed, but it also had the lowest number of wetlands surveyed.



**Figure D-2 Number of Individuals (per species) Recorded per Site in Project Component Areas (includes incidental observations and larvae that were captured and measured)**

### D.3 References

- Madrone Consultants Ltd. (Madrone). 1999. Prosperity Project Wildlife Data Report 1997-1999. Draft. 122 pp.
- Matsuda, B.M., D.M. Green, and P.T. Gregory. 2006. Amphibians and Reptiles of British Columbia. Royal BC Museum Handbook. Royal BC Museum, Victoria, BC. 266 pp.
- Olson, D.H., W.P. Leonard, and R.B. Bury. 1997. Sampling Amphibians in Lentic Habitats. Northwest Fauna Number 4. Society for Northwestern Vertebrate Biology, Olympia, WA. 134 pp.
- Resources Inventory Committee (RIC). 1998. Inventory Methods for Pond-breeding Amphibians and Painted Turtle. Standards for Components of British Columbia's Biodiversity No. 37. Version 2.0. March 13, 1998. BC Ministry of Environment, Lands and Parks, Resources Inventory Branch, Victoria, BC.