

# **Aquatic Spring Snail Survey and Habitat Analysis**

## **PROJECT LEAD**

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**Umatilla National Forest**

**Abstract:**

The Columbia dusksnail has a very sporadic distribution in the central and eastern Columbia Gorge, in Washington and Oregon. The area surveyed for the Columbia Dusky Snail on the Umatilla National Forest included drainages that flow directly into the Columbia River. These drainages include the Umatilla, Walla Walla, and Tucannon rivers and Willow Creek. In addition, two drainages that flow into the lower John Day River were surveyed. The survey focused on undeveloped springs and small spring fed streams. Seventy one sites in the five drainages were surveyed. The Columbia dusksnail was not found at any of these locations, though aquatic springs snails were found that indicated good water quality.

**Introduction:**

The Columbia dusksnail (*Lyogyrus sp.1*) has a very sporadic distribution in the central and eastern Columbia Gorge, in Washington and Oregon. As of August 1996, this species was known from about 15 sites along the Columbia River Gorge. This species is ranked G2, S2. This species of snail is part of the region 6 survey and manage program that was converted to the sensitive species list in 2004. Initial surveys for this species were conducted on the Umatilla National Forest in the fall of 2004. In 2004, thirty seven named springs were surveyed over the Umatilla National Forest and this species was not found. These named springs tended to be developed springs. The goal of this project was to expand on this previous survey and include undeveloped springs and small spring fed streams to determine if spring development may have impacted the distribution of this snail. The Columbia dusky snail occurs in cold, well oxygenated springs and spring outflows on soft substrates in shallow, slow-flowing areas where it feeds on decaying organic particles). It co-occurs with *Pristinicola hemphilli* and *Juga* (*Oreobasis*) spp., which are typically found in small, cold, pristine springs. Current threats to this species include logging, fires, grazing and spring development. Data collected during these surveys would identify areas where management activities could be altered to maintain habitat quality.

**Study Area:**

The area surveyed for the Columbia Dusky Snail included drainages that flow directly into the Columbia River within the Umatilla National Forest. These drainages include the Umatilla, Walla Walla, and Tucannon rivers and Willow Creek. In addition, two drainages that flow into the lower John Day River were surveyed (Figure 1). Surveys focused on undeveloped perennial springs found on 7.5 minute USGS quadrangle maps.

## Focus of snail surveys on the Umatilla National Forest

\*Shaded areas are drainages that flow north to the Columbia River

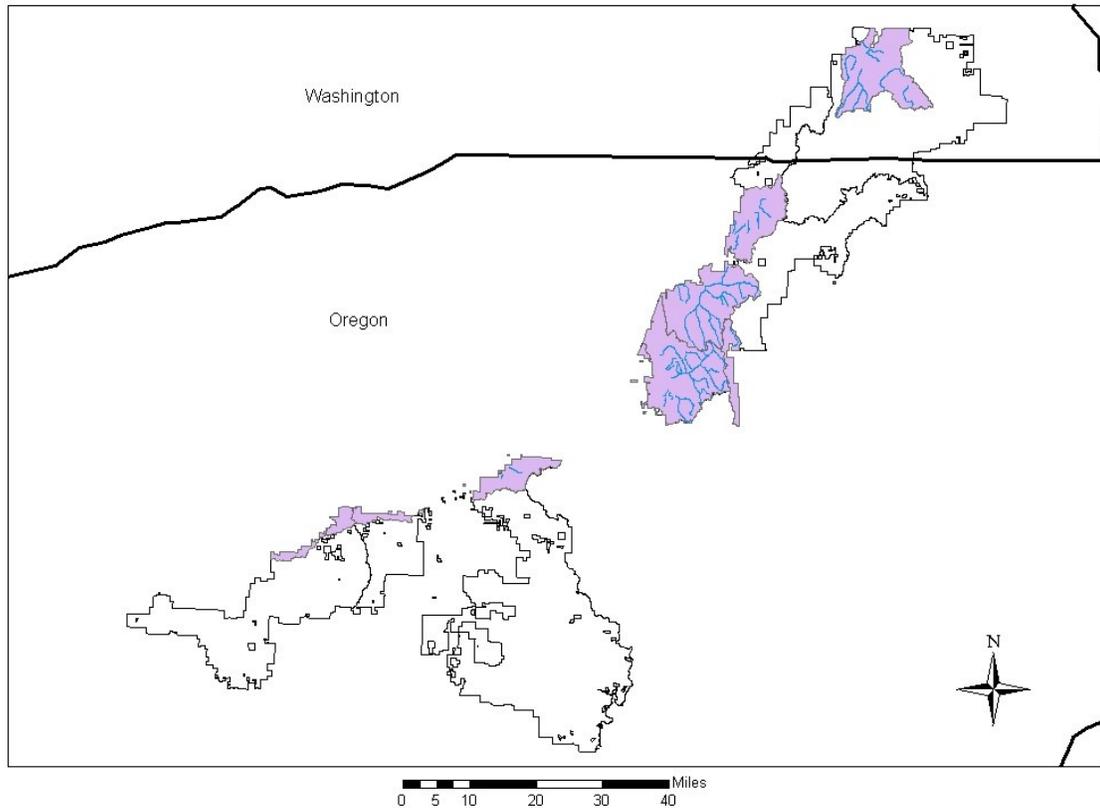


Figure 1. Drainages surveyed for the Columbia dusksnail.

### **Methods:**

Springs and small spring fed streams having perennial flow were initially identified from 7.5 minute USGS quadrangle map. Criteria for selecting a spring to be surveyed were based on fast, well oxygenated flow with rock or cobble substrates. Any perennial springs or small streams with suitable habitat discovered during field visits were surveyed for Columbia dusksnails.

**Collection Methods:** As adults are found only in the late summer and fall collections of snails occurred in August and September. Collection methods varied according to substrate type. In coarse substrate areas such as cobble-boulder bars, mollusks were either hand collected or brushed from individual stones into a tray or sieve. Pieces of wood small enough to be removed from the springs by hand were visually inspected for snails before placing the wood back into the spring. Shallow areas with rooted aquatic macrophyte vegetation were sampled using a small dip net or handfuls of vegetation were removed by hand. Vegetation was then placed in a bucket with water, and vigorously shaken to dislodge mollusks. Surveyors spent at least an hour at each site sampling for snails.

Any mollusks found were separated from sediment and debris and transferred to a labeled container kept in a cold environment and returned to the office for further handling. Mollusks were then be relaxed using menthol crystals, preserved in alcohol and shipped to a snail expert with the BLM for further identification.

Snail identification data was then entered into an existing aquatic database (NRIS fauna) that allowed mapping of the spring locations and species lists associated with those locations. Data from developed and undeveloped springs was compared to determine if there is a difference in species composition.

**Results:**

Seventy one total sites were surveyed. Of those sites thirty four were found to be perennial. Snails were found at twenty six of those perennial sites. No snails collected were identified as the Columbia duskysnail. See table below for snail identifications and locations.

Site ID	Legal Description	Date Surveyed	Species	Notes
Denning Spring	T3S R33E Sec 20	7/11/2006 and 8/30/2006	<i>Pristinicola hemphilli</i>	Surveyed throughout spring
Denning Spring	T3S R33E Sec 20	7/11/2006	<i>Vespericola sp.</i>	Surveyed throughout spring
Wheeler Spring	T7S R24E Sec 10	8/28/2006	<i>Pristinicola hemphilli</i>	Surveyed at both the head and mouth of Wheeler spring
Mouth of Big Wall	T8S R25E Sec 6 SE NW	8/28/2006	<i>Pristinicola hemphilli</i>	
Unknown trib.	T7N R37E Sec13	9/13/2006	<i>Pristinicola hemphilli</i>	
Chicken Spring	T4S R29E Sec29 NW NE	9/6/2006	<i>Pristinicola hemphilli</i>	
Unknown trib to Pearson	T3S R33E Sec 8	7/11/2006	<i>Pristinicola hemphilli</i>	
Crawford Spring	T7S R24E Sec 12	8/29/2006	<i>Pristinicola hemphilli</i>	
Happy Home Spring	T4S R33E Sec 29 NW SE1/4	8/31/2006	<i>Pristinicola hemphilli</i>	
Lower Wheeler	T7S R24E Sec10	8/28/2006	<i>Pristinicola hemphilli</i>	
Wall Creek	T7S R27E Sec 32 NW NW	6/17/2006	<i>Anodonta oregonensis</i>	Mussels found in spring fed pools – healthy population
Unknown trib.	T4S R29E Sec24	9/6/2006	<i>Pristinicola hemphilli</i>	

Klondike Spring	T3S R33E Sec 9	7/11/2006	<i>Pristinicola hemphilli</i>	
Klondike Spring	T3S R33E Sec 9	7/11/2006	Menetus sp.	
Unknown trib to Bulley	T4S R29E Sec 17 NE SE	8/31/2006	<i>Pristinicola hemphilli</i>	
Unnamed spring 5730 rd	T4S R29E Sec 17 SW NW	7/12/2006	<i>Pristinicola hemphilli</i>	
Unknown spring	T3N R37E Sec22	8/9/2006	<i>Pristinicola hemphilli</i>	
Unknown Trib.	T7N R36E Sec22 NE SE	9/13/2006	<i>Pristinicola hemphilli</i>	
Unknown Trib	T7N R36E Sec22 NE NE	9/13/2006	<i>Pristinicola hemphilli</i>	
Mouth of Big Wall	T8S R25E Sec6 SE NW	8/28/2006	<i>Euconulus fulvus</i>	Common terrestrial snail
Unnamed trib off 5730	T4S R28E Sec 29	7/13/2006	<i>Pristinicola hemphilli</i>	
NF Umatilla Wilderness	T3N R37E Sec22 SE NW	8/9/2006	<i>Pristinicola hemphilli</i>	
Unknown trib.	T7S R24E Sec 10 NE NW	8/7/2006	<i>Pristinicola hemphilli</i>	
Unknown trib to Big Wall	T7S R26E Sec6 SE SW	8/8/2006	<i>Pristinicola hemphilli</i>	

**Discussion:**

Though no Columbia dusksnails were found during these surveys, the species of snails that were found in both developed and undeveloped springs were indicative of good water quality. It appears that habitat quality was sufficient to support Columbia dusksnails as these snails are often found in conjunction with *Pristinicola hemphilli*. The absence of Columbia dusksnails in the number of springs surveyed would then indicate that drainages on the Umatilla National Forest are not likely within the range of this species or it is extremely rare.