

SENSITIVE HABITAT INVENTORY MAPPING OF THE LOWER RYDER CREEK WATERSHED



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Executive Summary

Over a three week period Taara Environmental mapped 15.3 kilometres of water courses in the lower Ryder Creek Watershed using select features of the Sensitive Habitat Inventory Mapping (SHIM) protocol. The mapping resulted in the identification of several kilometres of previously unmapped water courses, as well as numerous ponds and wetlands. The majority of the newly mapped water courses were considered to be non-fish bearing (generally intermittent or ephemeral streams), with the exception of constructed rearing channels and ponds.

Mapping of the study area was not complete. Many of the smaller ephemeral and intermittent streams that were not considered to be fish bearing were not mapped due to time limitations. As well, due to safety concerns only a limited amount of time was spent mapping Ryder Creek north of the Chilliwack Fish and Game Protective Association gun range.

Incidental mapping of the endangered (SARA Schedule 1 species) Oregon forestsnail (*Allogona townsendiana*) proved to be a valuable addition to the project. Many of the mapped locations of this species were previously unknown.

Purpose

The purpose of this project was to increase the accuracy and knowledge of water courses in the lower Ryder Creek Watershed. The project focused on private property and fish bearing streams with less attention given to crown land and non-fish bearing streams.

Study Area

The project study area was located within the Chilliwack River Valley. It was defined as the portion of the Ryder Creek Watershed located within Electoral Area E of the Fraser Valley Regional District (FVRD). The headwaters of the watershed that are located within the City of Chilliwack were not mapped.

The Watershed Alliance of Chilliwack (1997) describes the watershed as:

“The Ryder Creek Watershed is located south of Chilliwack, with its headwaters in the Ryder Lake Uplands, Mount Tom, and Lookout Ridge. Ryder Creek is about 3.5 kilometres long with a watershed area of about 7km² (1995). Watercourses flow south, entering the Chilliwack River, southwest of Auchenway Road. The lower reaches of Ryder and Wingfield Creeks provide important spawning and rearing habitat for coho, chum, and pink salmon. Rainbow and cutthroat trout also inhabit the watershed.”

Due to the limited amount of field time the entire study area was not be mapped. Figure 1 shows the approximate area that was mapped (approximately 125 hectares).

Figure 1. Project Study Area

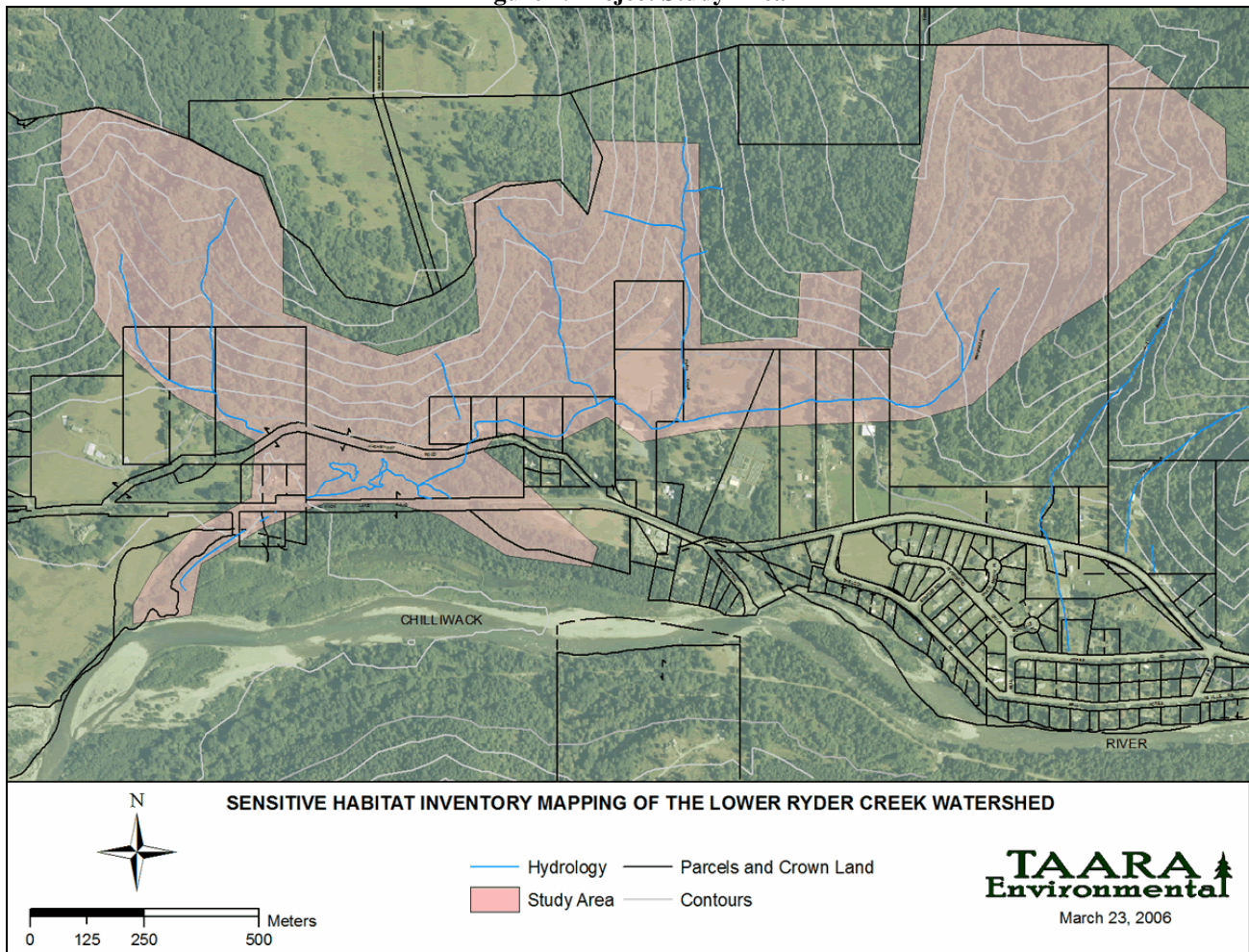


Figure 1 shows the study area and base layers provided by the FVRD including the existing water courses. It is assumed that most of the water courses shown on this map were from air photo interpretation and they do not appear to be complete (e.g. Ryder Creek does not extend north to Ryder Lake on the map, but other maps clearly show the entire creek).

Methodology

Mapping was carried out from March 1st to March 22nd of 2006. Field work was performed by Ryan Durand and Michelle Scott of Taara Environmental, while data processing and editing was done by Ryan Durand.

Due to the limited field time and the end use of the data, two mapping methodologies were used. For all streams considered to be fish bearing, mapping was conducted using select features of the Sensitive Habitat Inventory Mapping (SHIM) protocol (Mason and Knight, 2001). Photographs were taken of each segment and all mapped features (e.g.

obstructions, modifications, etc.). See Appendix 1 for a description of the data dictionary used for fish bearing streams.

The second method was utilized for non-fish bearing streams. These streams were mapped, but no descriptive data were collected. The resulting polylines, therefore, contain only basic descriptions. As well, photographs were not taken and special features (such as obstructions and modifications) were not mapped.

Mapping was performed using a Trimble Geoexplorer ProXR (provided by the FVRD). Data were corrected in real time and edited using ESRI ArcMap 9.1. Base data were provided by the FVRD. All maps were projected in NAD 83, UTM 10.

The project included a total of 190 person hours of field work, 30 hours of post data processing, and several hours of project planning.

Results

A 15.3 kilometres of streams were mapped during the course of the project (Figure 2). Of these, five kilometres were assessed using select features of the SHIM methodology as they were considered to be fish bearing. The remaining ten kilometres of streams that were mapped were primarily intermittent or ephemeral streams with the exception of several of the larger tributaries. The larger tributaries that were not mapped with the SHIM methodology, but did have permanent water flows, may have non-salmonid resident fish populations (fish sampling to confirm species or presence was not part of the project).

Specific attributes regarding the mapped streams (such as erosion or obstruction to fish passage) can be found by examining the GIS¹. Wingfield Creek and several of the larger unnamed tributaries were mapped to the Electoral Area E / City of Chilliwack boundary. Therefore the end of the creeks on the following maps and the GIS do not necessarily represent the actual end of the water course. Due to access and safety issues, mapping was not completed for Ryder Creek north of the gun range.

In addition, recently constructed rearing channels and ponds were mapped within Thompson Regional Park and the Lovely Pond area, and several others that were built on private property.

¹ The GIS can be obtained from the Fraser Valley Regional District or the Community Mapping Network.

Figure 2. Mapped Streams, Wetlands, and Ponds

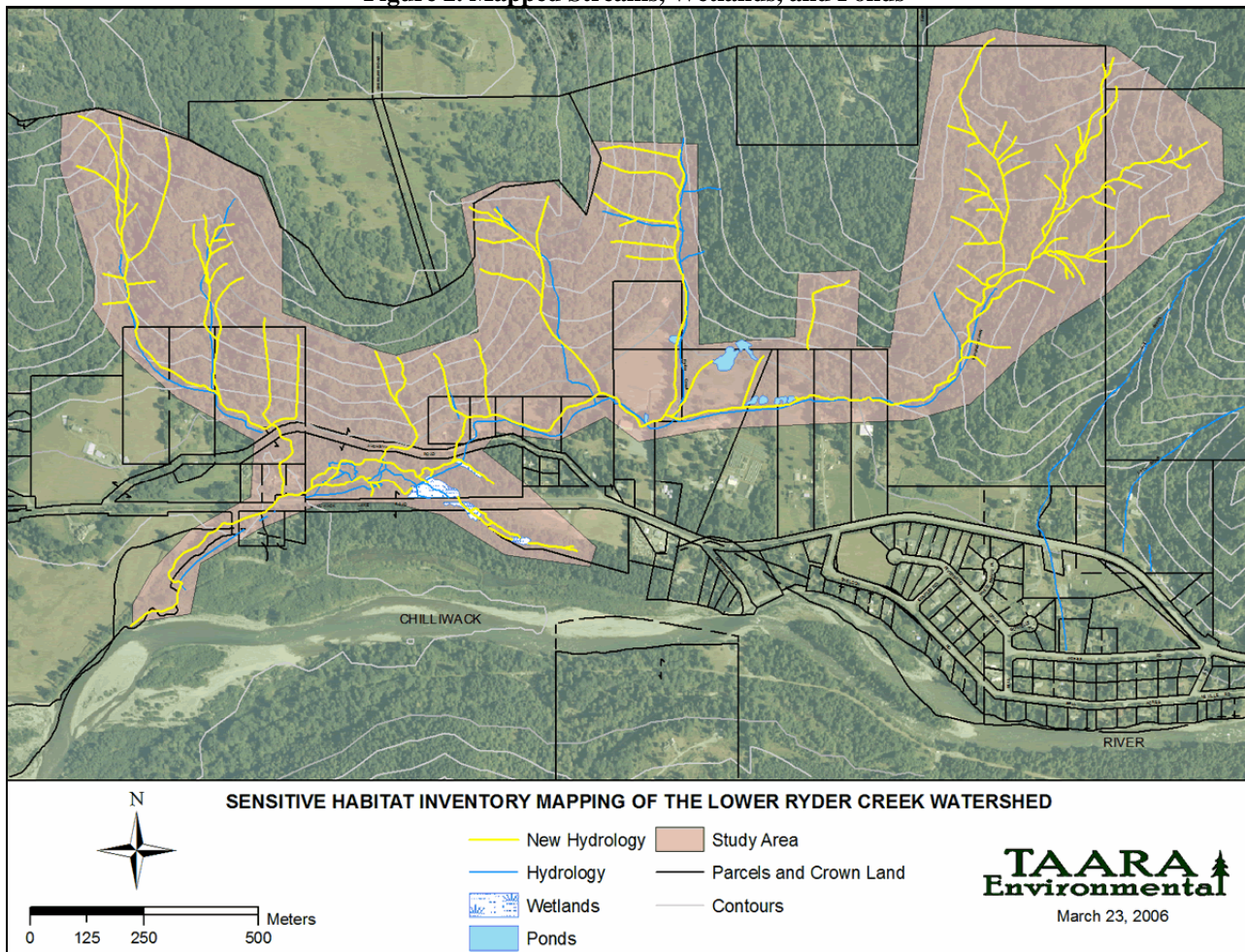


Figure 2 shows the study area after the completion of the project. Mapped features include creeks and streams, wetlands, and ponds. Additional mapped features are not represented on this map and can be viewed on the associated GIS.

Specific mention should be given to the abundance of recent and old slumps, landslides and debris flows that were observed in the study area. Many of the smaller tributaries flowed through large recent landslides. Of particular concern was a large slide on a tributary of Wingfield Creek (Figure 3) located about 400m upstream from the last private parcel and a large slide located on an un-named tributary of Ryder Creek directly upstream from a private residence (second to last main tributary to the west on Figure 2). Both slides occurred directly in or adjacent to the water course. A significant amount of sediments continue to enter the water courses from the slides. As well, both slides were directly upstream from domestic water intakes.

Figure 3. Recent Slide on a Tributary of Wingfield Creek.



Figure 3 shows a recent slide on a tributary of Wingfield Creek. The slide extended approximately 75m upslope. A small stream flowed along the length of the slide and directly into Wingfield Creek.

Although not part of the study, a significant number endangered (SARA Schedule 1 species) Oregon forestsnails (*Allogona townsendiana*) were observed and mapped at 38 locations within the study area. The occurrences were primarily in the less disturbed (or less recently disturbed) crown land portions of the study area. This species is known to occur within the Chilliwack River Valley, but the majority of the areas in which it was mapped were previously unknown.

Figure 4. Live *Allogona townsendiana* from Wingfield Creek



Figure 4 shows a typical *Allogona townsendiana*. This particular specimen was the only live snail located within the study area. The remainder of the mapped occurrences consisted of whole or broken shells.

Figure 5. Occurrences of *Allogona townsendiana*

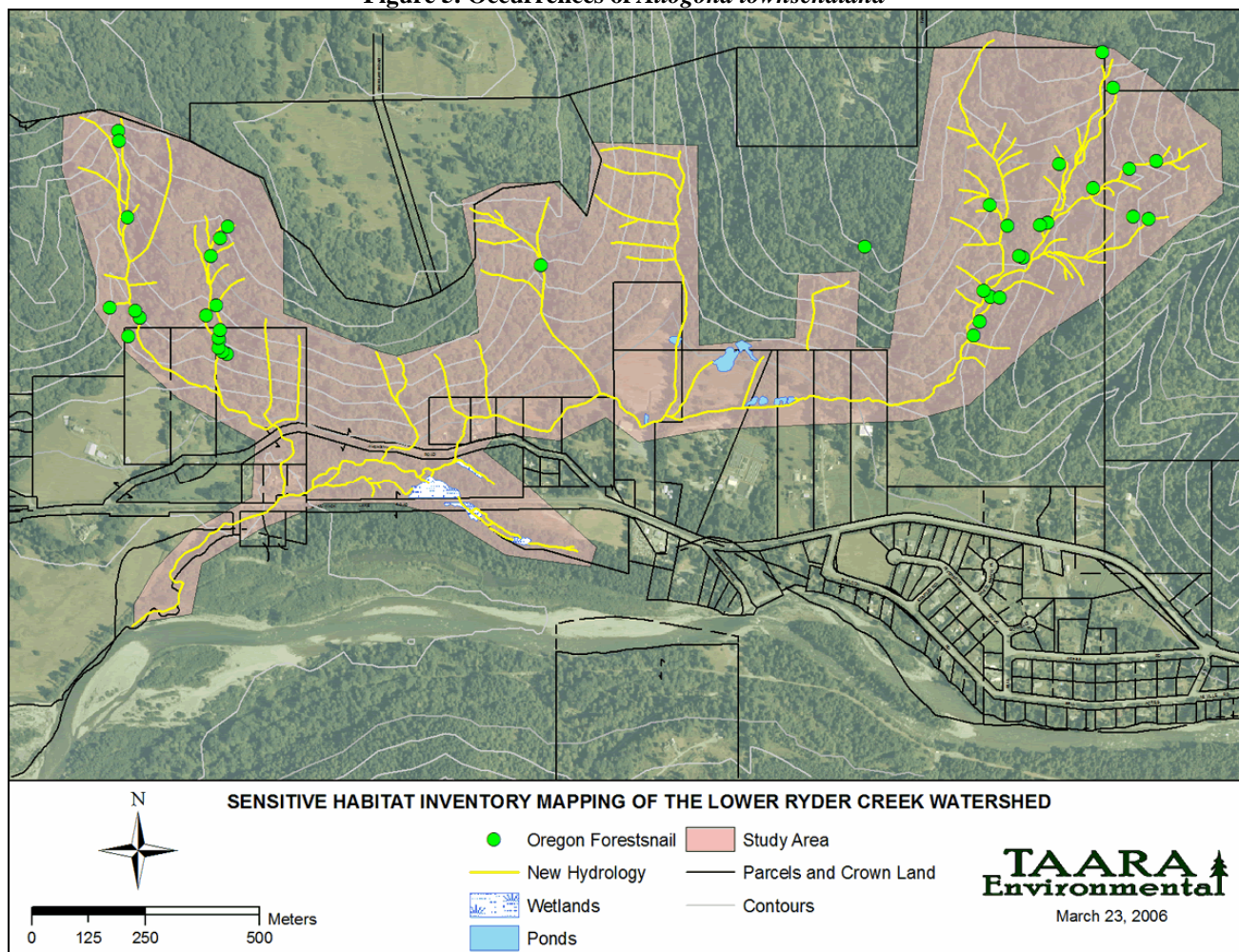


Figure 5 shows the 38 mapped occurrences of the endangered *Allogona townsendiana* that were identified within the study area.

References

Mason, B., and R. Knight. 2001. Sensitive Habitat Inventory and Mapping. Community Mapping Network, Vancouver, British Columbia. 315pp + viii. M. Johannes, Editor.
<http://www.shim.bc.ca>

Watershed Alliance of Chilliwack. 1997. A profile of the natural features, human uses, and states of the Elk Creek and Ryder Creek Watersheds.

Appendix

Appendix 1. SHIM Data Dictionary

The following sections of the normal SHIM Data Dictionary were used for this project:

- Segments
 - Stream reference
 - Segment Class
 - Segment Character
 - Substrate
 - Channel
 - Instream Cover
 - Left Bank Riparian
 - Right Bank Riparian
 - Flora & Fauna
- Culvert
- Obstruction
- Modification
- Discharge
- Waterbody
- Wetland

Note that not all of the options of each feature were used in this project. In particular, cross sections and riparian bands were omitted. See the attribute tables on the project GIS for specific data collected and the SHIM manual for descriptions of the mapped features.