

DATE June 5, 2012**PROJECT No.** 11-1151-0104**TO** Graham Buck
Ontario Ministry of Natural Resources, Guelph District**CC** Al Murray-OMNR Guelph District, Ian Hagman-OMNR Guelph District, Al Hearne-City of Guelph,
Gerry Armstrong (Victoria Wood), Nancy Shoemaker (BSRD)**FROM** Nicholle Smith**EMAIL** nsmith@golder.com**VICTORIA WOOD - DALLAN LANDS, CLAIR ROAD, GUELPH
2012 SALAMANDER SAMPLING RESULTS AND ANALYSIS – WILDLIFE SCIENTIFIC COLLECTOR'S
AUTHORIZATION #1067328, PERMIT GU-B-001-12 ISSUED UNDER S. 17(2)(B) OF THE ENDANGERED
SPECIES ACT****Introduction**

Golder Associates Ltd. (Golder) was retained by Victoria Wood to complete ecological surveys on their property located on Part of Lot 11, Concession 8 in the City of Guelph. This site has been studied by both Stantec Consulting Ltd. and Golder for a number of years, including field data collection beginning in 2006 which was summarized in the Environmental Impact Statement submitted by Stantec in October 2007. Salamander surveys have occurred following this submission, up to and including 2012.

Results of the 2011 salamander survey were submitted to the Ontario Ministry of Natural Resources (OMNR) on June 9, 2011. Response to this submission, dated July 13, 2011 summarized that "...the Dallan property provides suitable breeding sites but has very little deciduous of mixed forest habitat." OMNR examined adjacent properties for suitable habitat and found that both mixed and deciduous forests had been documented on the sites adjacent to the Dallan lands, however. As the previous surveys focussed on egg mass surveys, OMNR requested that minnow trapping surveys be completed in the spring of 2012 to confirm that absence of Jefferson salamanders or Jefferson dominant complexes on the site. It was determined by OMNR that the most suitable habitat on the site was limited to Pond "C". Therefore, trapping would be limited to this pond.

Communications with OMNR continued through the fall of 2011, when Golder submitted an application for a Scientific Collectors' Permit and sought approval of our Animal Care Protocol for the proposed 2012 sampling activities. Upon receipt of permit approval from OMNR, field data collection was scheduled to commence in the spring of 2012.

Background

The purpose of this technical memorandum is to summarize the results of the sampling efforts completed in 2012. During the second site visit (trap set), Graham Buck, Species at Risk Biologist, Guelph District, accompanied the Golder biologists on the site. It was determined during this site visit that additional effort



beyond Pond "C" was required to determine that absence of Jefferson or Jefferson dominant polypiods (complexes) on the site. Three additional ponds were added to the sampling program, increasing the sampling effort to four locations, with multiple traps set at each location. The location of the four ponds can be found on Figure 1.

Methodology

Golder prepared an animal care protocol for Jefferson Salamanders which was submitted to the OMNR's Animal Care Committee (protocol number #12-268) and approved. Attached is a copy of our approved protocols (Appendix 1). These protocols outline the detailed sampling and handling methods.

Unbaited minnow traps were used during the survey to capture adult salamanders. The density of traps was approximately one trap per 15-20m of pond shoreline. The fourth pond that was suggested for sampling by OMNR did not contain sufficient water for trap placement and would have been in contravention of the permits; therefore, this final location was omitted. This resulted in the following numbers of traps at the three ponds of interest:

Table 1: Trapping Locations

Pond Name	Number of Traps
Pond "C"	10
Kettle Pond	2
Pond "W1"	4

Typically, this type of amphibian sampling would commence during the last week of March and extend to the last week of April, contingent upon weather conditions, snow cover and day and night temperatures. The spring of 2012 was somewhat of an anomaly, with unseasonably high temperatures at the beginning of March and low snow and ice cover. To address the early movement potential for amphibians, sampling event times were advanced to mid-March and commenced on April 10, 2012. At this time breeding evidence for salamanders had been documented in vernal pools in other locations with the same weather/temperature conditions as this site.

The OMNR recommended a minimum of 5 trap nights, on non-consecutive days, over three weeks and at least once per week, with additional nights of sampling dependent upon suitable weather conditions. Trapping events occurred as shown in Table 2. Traps were set on suitable evenings, just after dusk (approximately 9:00 pm, and retrieved the following morning by 9:00 am. This ensured that the traps were set for a maximum of 12 hours, as per OMNR guidelines. Only square-hole minnow traps were used in this survey to capture adult salamanders. The traps were set along the margin of the pond, tying them to shore via a stacked or to an overhanging branch. The density of traps was based on the OMNR recommendation of one trap per 15 to 20 meters of pond shoreline.

Table 2: Trapping Effort and Results

Pond	Trapping Set/ Retrieve #1	Trapping Set/ Retrieve #2	Trapping Set/ Retrieve #3	Trapping Set/Retrieve #4	Trapping Set/ Retrieve #5	Trapping Set/ Retrieve #6
Pond "C"	March 19 (18:30 to 19:50) March 20 (07:30 to 08:30)	March 21 (19:30 to 19:40) (G. Buck – MNR) March 22 (07:43 to 9:00)	March 25 (19:25 to 19:48) March 26 (07:14 to 07:31)	March 28 (19:11 to 19:26) March 29 (07:20 to 07:30)	April 4 (19:38 to 20:02) April 5 (07:31 to 07:43)	April 9 (19:19 to 19:37) April 10 (07:24 to 07:39)
Kettle Pond	n/a	n/a	March 25 (19:18 to 19:20) March 26 (07:34 to 07:36)	March 28 (19:24 to 19:26) March 29 (07:29 to 07:31)	April 4 (19:58 to 19:59) April 5 (07:45 to 07:46)	April 9 (19:41 to 19:43) April 10 (07:24 to 07:27)
Pond "W1"	n/a	n/a	March 25 (18:47 to 18:54) March 26 (07:21 to 07:26)	March 28 (19:10 to 19:17) March 29 (07:20 to 07:25)	April 4 (19:42 to 19:47) April 5 (07:35 to 07:39)	April 9 (19:23 to 29:31) April 10 (07:25 to 07:32)

Results

Through considerable trapping effort in the three ponds on the site which contained suitable habitat for breeding amphibians, focusing on *Ambystoma* sp., trapping success was limited to Pond "C". Salamander species were captured during the first two sampling events. Tail clips were taken from the species trapped that had the potential to be Jefferson salamanders or Jefferson hybrids. The samples were submitted to Dr. James Bogart, University of Guelph, for genetic analysis, the results of which are described in the following section. The following table outlines the date and location of the species captured in Pond "C".

Table 3: Genetic Analysis of Tail Samples

Date	Trap Number	Number of Species	Species
March 20, 2012 (07:40)	DAL 02 (Pond C)	2	Blue-spotted/Jefferson Hybrid
March 20, 2012 (07:31)	DAL 10 (Pond C)	1	Blue Spotted/Jefferson Hybrid
March 22, 2012 (07:43)	DAL 10 (Pond C)	1	Blue Spotted/Jefferson Hybrid
March 22, 2012 (07:46)	DAL 08 (Pond C)	1	Wood frog
March 22, 2012 (07:49)	DAL 06 (Pond C)	1	Blue spotted/Jefferson Hybrid (suspected recapture from 20 th —tail had been clipped recently)
March 22, 2012 (07:51)	DAL 04 (Pond C)	1	Eastern-spotted newt
March 26, 2012 (07:25)	DAL 08 (Pond C)	1	Eastern-spotted newt
March 29, 2012 (07:28)	DAL 08 (Pond C)	1	Eastern-spotted newt
April 10, 2012 (07:29)	DAL 03 (Pond C)	1	Eastern-spotted newt

Tail clip samples were taken from all of the species suspected to be Blue-spotted, Jefferson or Blue-spotted/Jefferson hybrids. The results of the lab analysis concluded that all of the samples, except one, were Blue-spotted/Jefferson hybrids: Blue-spotted dominant (*Ambystoma laterale jeffersonianum*). The last sample was a pure Blue-spotted (*Ambystoma laterale*). Dr. Bogart concluded that all of the hybrids were clones of each other, stating that "Your samples are interesting because all of the LJJ's share the same genotype (a clone)" which indicates very little genetic diversity in the pond.

Summary

The spring 2012 sampling program for salamanders at the site was conducted according to the guidelines that both Golder and OMNR (Graham Buck – SAR biologist, Guelph District) confirmed were appropriate for the site during the March 21, 2012 site visit. As per on site discussions, additional locations (pools) and additional traps sets were included during the sampling events. The procedures presented in the *Permit for Species Protection and Recovery* issued under the *Endangered Species Act, 2007* (Permit GU-B-001-12) and *Wildlife Scientific Collectors Authorization* (Permit #1067328) were followed with care on the site. Methodologies did not deviate from those outlined in the permits and considerable effort was expended in an effort to thoroughly sample all potential salamander breeding habitat on the site. As discussed above, few species were captured showing poor genetic diversity. No specimens of Jefferson salamander or Jefferson-dominant hybrids were documented on the site.

Previous submissions from Golder for this location have suggested that the site does not provide primary habitat for Jefferson salamander or Jefferson-dominant hybrids. The results of the extensive sampling conducted this spring support this analysis. It has been recognized that sites located to the east and south of the Dallan site do provide habitat for Jefferson and Jefferson-dominant hybrids. These locations support deciduous and mixed deciduous forests that are more suitable upland habitat for these species. The Dallan site contains only small components of suitable upland habitat for this species. The low collection numbers in the traps also indicates that overall habitat use on the site by all species of salamanders is low, especially as specimens were recaptured during the sampling period.

The location where the salamanders were documented, Pond "C", is located in an area of the site that is not proposed for development. Pond "C" is located approximately 50 metres inside of the limits of a Natural Heritage Feature (coniferous plantation and deciduous forest). This NH feature has an additional minimum 10 metre "no touch" buffer to any lands proposed for development. While Pond "C" provides suitable habitat for breeding amphibians, it does not provide habitat for species of salamander protected under the ESA (2007). The proposed buffers are sufficient to protect that features and functions of the pond.

Please do not hesitate to contact the undersigned if you have any questions or concerns.



Nicholle Smith B.A., EMPD
Terrestrial Ecologist



Kevin Trimble B.Sc.
Senior Ecologist - Principal

NS/KT/ch



LEGEND


2012 Salamander Sampling Location



REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2006.4
 Imagery: Bing Maps © 2009 Microsoft Corporation and its data suppliers
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2008
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17



PROJECT		VICTORIA WOODS DALLAN LANDS	
TITLE		2012 SALAMANDER SAMPLING LOCATION	
 Golder Associates Mississauga, Ontario	PROJECT NO. 11-1151-0104	SCALE AS SHOWN	REV.
	DESIGN GW 18 Apr. 2011	FIGURE: 1	
	GIS BC 24 May. 2012		
	CHECK NS 24 May. 2012		
REVIEW NS 24 May. 2012			