

AMPHIBIAN SURVEYS
IN
BANFF NATIONAL PARK
and adjacent areas

2004

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February, 2005

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Summary and Recommendations

This report contains a compilation of our observations of amphibians in Banff National Park – and nearby areas - in 2004. . It also includes some observations by Brenda and Dwayne Lepitzki as well as records of the park's only known snake species – Wandering Garter Snake (*Thamnophis elegans*) – that were all from the Cave & Basin area as reported by the Lepitzkis in a separate attachment, plus two of our sightings from Carrot Lake. It represents the continuation of surveys begun in 1992 which are intended to provide a better understanding of the distribution of amphibians in this part of the Rocky Mountains. (See McIvor and McIvor, annual reports from 1994 to 2003.) These observations include random/opportunistic sightings but primarily are from surveys conducted for the specific purpose of collecting information about amphibians.

Early in the season there was an attempt to locate adult frogs and toads by the sound of their calling at breeding sites. Later efforts involved more concerted searches for egg masses, larvae and young-of-the-year. A variety of wetlands - marshes, ponds, lakes, backwaters of the Bow and other rivers - were surveyed in afternoons or evenings, some on several occasions. Some areas we have visited in past years were checked less frequently or not at all this year because other people were monitoring them.

Two small sites were visited for the first time: Junco Wetland on the lower slopes of Castle Mountain and Prism Springs Wetland, south of the Bow Valley Parkway east of Johnston Creek. Evidence of boreal (Western) toad breeding was found at both places and the presence of 3 adult wood frogs at Prism Springs suggests some potential for this species to breed there as well. In addition, water levels were low enough early in the year to allow us to check the south east corner of Backswamp where we heard boreal toads singing and found egg masses of wood frogs and spotted frogs. Later, on another visit, we found boreal toad tadpoles. Upper Castle Cliffs Wetland was re-visited for the first time in several years, with new records of breeding for wood frogs and long-toed salamanders supplementing previous confirmation of boreal toad breeding.

Other observations of interest include: an adult wood frog at Hidden Cliffs Wetland and another at Upper Hidden Cliffs Wetland although no evidence of this species breeding has been found at either site; at least 100 long-toed salamander egg masses were in the large pond at Upper Hidden Cliffs on May 27 but by the time of a return visit on July 2 the pond was completely dry; at Summit Pond, which was largely ice-covered at mid-day on June 4, we watched an adult boreal toad climb out of a small area of open water to sit on the ice, basking in the sun for two or three minutes; at the same pond on June 23, we saw several boreal toad tadpoles swim close to the outlet and float down the small stream to an uncertain fate; on July 13 near Carrot Lake we found spurred gentian (*Halenia deflexa*) in bloom, the first time we have seen this plant species in the park; we saw one Western red damsel (*Amphiagrion abbreviatum*) on June 18 and two on July 30 at Trackers Wetland as well as two at Moose Meadow Wetland on August 6; and of the two wandering garter snakes we saw at Carrot Lake on July 13, one was small, (approximately 25 cm. in length) suggesting the probability of breeding in the area.

Direct evidence of breeding in the form of egg masses, larvae, or metamorphosed young was found for all 4 species of amphibian known to occur in Banff National Park. The first activity we detected was in Goose Pond at Muleshoe Flats where 2 wood frogs were calling on April 9. This is six days earlier than the year before which to that point was the earliest date we had recorded amphibians in the spring. We found wood frog egg masses on April 12 at Goose Pond and Amphibian World Main Pond.

The first long-toed salamander eggs were in Moose Meadow Pools on April 26, 5 days later than last year. But April 29, when we found 10 boreal toad egg strings at Sunshine Wetlands was 19 days earlier than our first record for this species last year, also at Sunshine Wetlands. The following evening we found 21 spotted frog egg masses at Backswamp.

As usual, boreal toads were the subjects of late season observations. There were 11 toadlets near the northwest corner of Carrot Lake on September 5 and 1 toadlet at Amphibian World Main Pond on September 26. (NOTE: we have not reported any amphibians we saw when we were with the Lepitzkis at their study sites.) The last record for the year was an adult boreal toad on October 2 at Sunshine Wetlands.

Some of the wetlands that have been drying and shrinking in the droughty conditions of recent years may have been replenished to some extent by the rainy weather of late summer. However other factors including winter snowpack and precipitation amounts in the spring will play a role in determining water levels at the breeding ponds in the coming season. One of the purposes of long term monitoring will be to record changing environmental conditions and attempt to evaluate their effects on amphibian population.

We applaud the initiation of a monitoring program two years ago by Parks Canada. And we are very impressed by the intention to conduct amphibian research for at least ten years with the project that began this past year at several wetlands in the Fairholme Environmentally Sensitive Site and some control areas. We strongly encourage Parks Canada to sustain this important work with adequate resources over the long term.

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Abbreviations used in this report for amphibians (as per Macdonald, C., W.E. Roberts, D.M. Ealey, *The Vertebrate Species of Alberta*, Alberta Naturalist, Vol. 23, No. 3, Federation of Alberta Naturalists)

- TISA tiger salamander (*Ambystoma tigrinum*, Green)
- LTSA long-toed salamander (*Ambystoma macrodactylum*, Baird)
- BOTO boreal toad (also known as western toad) (*Bufo boreas boreas*, Baird and Girard)
- BCFR boreal chorus frog (*Pseudacris triseriata maculata*, Agassiz)
- WOFR wood frog (*Rana sylvatica*, Le Conte)
- SPFR spotted frog (*Rana pretiosa*, Baird and Girard), reclassified as Columbia Spotted Frog (*Rana luteiventris*), Green et al. 1997
- WGSN wandering garter snake (*Thamnophis elegans vagrans*, Baird and Girard)

CODES FOR WIND SPEED AND SKY CONDITIONS

Temperature, wind and sky conditions (T.W.S.) are indicated using numbers: Temperature in degrees Celsius; wind speed according to the Beaufort Scale; and sky conditions using Weather Bureau code numbers as is done for Breeding Bird Surveys.

WIND SPEED CODES:

Beaufort #'s	Wind Speed in miles/hr.	Indicators of Wind Speed
0	Less than 1	Smoke rises vertically
1	1 to 3	Wind direction shown by smoke drift.
2	4 to 7	Wind felt on face; leaves rustle.
3	8 to 12	Leaves, small twigs in constant motion; light flag extended.
4	13 to 18	Raises dust and loose paper; small branches are moved.
5	19 to 24	Small trees in leaf sway; crested wavelets on inland waters.

SKY CONDITION CODES:

- 0 - Clear or a few clouds
- 1 - Partly cloudy (scattered) or variable sky
- 2 - Cloudy (broken) or overcast
- 4 - Fog or smoke
- 5 - Drizzle
- 7 - Snow
- 8 - Showers

AREAS IN BANFF NATIONAL PARK

LOCATION: Carrot Creek Area and east.

SITE DESCRIPTION: Carrot Lake (GPS: UTME: 608864 - UTMN: 5668841) located south of the TCH, west of Carrot Creek. It is a large pond with beaver channels.

Wolfwillow Wetland (GPS: UTME: 607563 – UTMN: 5669211) located west of Carrot Lake. A series of channels and pools between Carrot Lake and CP tracks.

Carrot Creek Sulphur Spring (UTME 610411 – UTMN: 5670481) located north of Hidden Pond, above a drainage running northwest.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/06/24	1200	19	14/1/1	BOTO		1200+	1 juv.		Carrot Lake. Tadpoles from small to med. to large, in N/W corner. Juv. approx. 30 mm. Seen at edge of lake at W end.	MM
04/07/13	1145	22	22/0/1	BOTO WGSN		500+	1	1	Carrot Lake. BOTO tads in N/W corner, all along the S edge of bay, size large, showing small hind legs. WGSN: one – 45 cm. long seen on N side at base of rock fall, one – 25 cm. long seen in shallow water on S side of bay in amongst tadpoles (picture)	M&DM
04/07/16	1300		26/1/1	WGSN				1	Carrot Lake. Size: 25 – 30 cm long. Seen along channel at W end, 3 m. from edge of channel, 150 m. upstream of N/W corner of lake.	M&DM
04/08/02			22/0/0	BOTO			13		Carrot Lake. Toadlets small, found in N/W corner.	MM
04/09/05	1200	15	15/2/1	BOTO			11		Carrot Lake. Toadlets found at edge of N/W bay along peninsula. Saw 2 (for the first time) on the S side of peninsula and 1 100 m. up the channel.	M&DM B&DL
04/07/13	1330	17	20/0/1	WOFR BOTO		400+		1	Wolfwillow Wetland. WOFR adult seen near spring on W bank of channel, half way to Bow River. BOTO tads. small to very small in usual area.	M&DM
04/08/19	1300	5 18.5 (W)	20/3/2	WOFR				5	Carrot Creek Sulphur Spring. WOFR seen around pond. On the way in 1 juv. WOFR seen near dirt track in middle of old landfill east of Carrot Creek. On way out 1 adult seen near small creek in poplar woods 1/2 km. west of Carrot Creek.	M&DM B&DL

LAKE MINNEWANKA LOOP

LOCATION: 2-JACK LAKE AREA.

SITE DESCRIPTION: Pipe Traps (UTME: 604600 – UTMN: 5675700) boxes (3) over water line north of the Lakeside Campground. One on either side of Minnewanka road and a third near 2-Jack Lake.

Lakeside Pond, (UTME: 604621 – UTMN: 5676112) pond full of emerging vegetation on east side of road, near north end of 2 Jack Lakeside Campground.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/08	1515		6/2/2	LTSA				2	Pipe Trap. A bit of ice in trap. One LTSA smaller than other	MM
04/05/21	0800		3/1/2	LTSA				5	Pipe Trap. Small (juv.) in main trap. Nothing in the others	MM
04/04/22	1530	17	13/1/1						Lakeside Pond. One small pool of water at S end. Nothing found.	M&DM
04/05/06	1300		7/1/1						Lakeside Pond. Wetland covered in snow (had 6" overnight). Checked the shoreline of Two-Jack Lake just E of pond. Nothing found.	M&DM

LOCATION: Quiet Pond (GPS: UTME: 599499 – UTMN: 5669696).

SITE DESCRIPTION: small pond south east of Bankhead.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/06/05	1210	15 19	20/0/1	WOFR		50+			S/W of Quiet Pond. Small to very small tads. Temp. in east pool: 19°, in W pool: 15°.	MM
04/06/05	1300	18	19/0/1	WOFR	4			2	Pool E of Quiet Pond. WOFR egg masses; 1 fresh, 2 with hatchlings and 1 with many dead embryos.	MM

LOCATION: North Old Dump Wetland (UTME: 603723 – UTMN: 5674419).

SITE DESCRIPTION: shallow pond choked full of reeds and sedges, north of road through old dump site on Lake Minnewanka road loop.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/22	1600	12	13/1/1	WOFR	20			2	North Old Dump. Tentative calls. Egg masses: 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 3, 1 of 13 Found in small pools (11 cm. deep.) Most of wetlands is dry, some water on E side.	M&DM

LOCATION: Amphibian World.

SITE DESCRIPTION: West Pond (UTME: 603606 – UTMN: 5673888). Main Pond (UTME: 603840 – UTMN: 5674021). East Pond (UTME: 604136 – UTMN: 5674076) shallow sedge marsh below the old dump site south of Lake Minnewanka Loop (also called South Old Dump Wetland).

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/12	1630	12 18	18/1/1	WOFR	29			70+	Main Pond. Heard and seen on N side. Egg masses: 1 of 29 (fresh) water 7.5 cm. deep.	MM
04/04/28	1715		11/2/1	WOFR BOTO				many 6+	WOFR: Heard calling in Main Pond and West Pond. BOTO heard at E end of Main Pond. Did not check for egg masses.	MM
04/05/06	1430	14	7/1/1	WOFR LTSA	69 16				West Pond. WOFR egg masses: 1 of 1 (fresh), 1 of 1 (elong., some dead), 1 of 1 (fresh), 1 of 1 (half elong., half dead), 1 of 28 (at usual site, disintegrated with hatchlings, very active), 1 of 1 (all dead), 1 of 1 (all dead), 1 of 1 (all dead), 1 of 1 (dead), 1 of 1 (dead), 1 of 1 (dead), 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 1 (previous 5 mostly dead, few hatchlings), 1 of 16 (quiet a few hatchlings), 1 of 1 (mostly dead), 1 of 1 (half dead, half hatchlings). LTSA egg masses: most with embryos elongating, 4 mostly dead.	M&DM
04/05/06	1530	17	7/1/1	WOFR BOTO	2	many		3+ several	Main Pond. WOFR heard in amongst reeds. Many small tads around egg masses reported on April 12, very active, some dispersing. 1 of 2 in same stage farther E on N side. BOTO heard in area of cattails and on S side behind same area. Predation on WOFR tadpoles by leeches and a fishing spider.	M&DM
04/05/06	1630- 1650		7/2/1						East Pond. Nothing seen or heard.	M&DM
04/08/16	1530		23/3/1	BOTO			2		Main Pond. Toadlets	MM
04/09/26	1315		14/1/1	BOTO			1		Main Pond. Toadlet seen on N side.	MM

LOCATION: Osprey Pond (UTME: 604488 – UTMN: 5673730).

SITE DESCRIPTION: located east of Amphibian World and north of surge tower, west of re-located Osprey nest.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/17	1430 – 1515	10	8/1/1	WOFR	36			25+	Heard and seen. 20+ on W side, 5+ on E side. WOFR e.m. on W side: 1 of 1, 1 of 1, 1 of 34. Water 10-12.5 dm. deep at egg site.	MM
04/04/24	1700	11	6/2/2	WOFR	56			2	Heard one. Egg masses: 1 of 37, 1 of 18, 1 of 1 (all fresh), new since previous visit on April 17.	M&DM B&DL

LOCATION: Johnson Lake Area (UTM: PG057725).

SITE DESCRIPTION: Lake of the Sticks North Pond (UTME: 605700 – UTMN: 5673300),

Lake of the Sticks South Pond (UTME: 605745 – UTMN: 5673889) are old shallow beaver ponds north of Beaver Pond.

Cold Pond (UTM: 605789 – UTMN: 5673616) pond southwest (over ridge) of Lake of the Sticks South. Part of drainage that feeds the Beaver Pond.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/24	1600								Lake of the Sticks North. Dry	M&DM B&DL
04/04/24	1600								Lake of the Sticks South. Nearly dry.	M&DM B&DL
04/04/24	1615	8	8/2/2	WOFR	52			6+	Cold Pond. WOFR seen and heard, one pair in amplexus. Egg masses: 1 of 50 (fresh, 1 of 2 (fresh) on N side, in same area as adults.	M&DM B&DL

VERMILION LAKES AREA

LOCATION: Vermilion Lakes complex. Major wetland forming 3 lakes in BNP west of town of Banff and south of TCH.

SITE DESCRIPTION: VL2 (2nd. Vermilion Lake) (UTME: 597523 – UTMN: 5670719).

VL3 (3rd. Vermilion Lake) (UTME: 595223 – UTMN: 5670119).

VL3 West (UTME: 595223 – UTMN: 5670019), wetland west of VL3, includes beaver pond and smaller ponds.

Fenland Trail (UTME: 598750 – UTMN: 5671280) located east of First Vermilion Lake.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/30	2020		12/-/-						Fenland Trail. Listen near the pond in middle of marshy area. Nothing heard.	B&DL
04/04/30	2000		12/-/-	WOFR BOTO				few few	VL2. Calling from spring below road W of beaver pond.	B&DL
04/05/01	1600		22/3/0	WOFR	5			1	VL2. WOFR calling occasionally, egg masses on N side, attached to carex vegetation.	B&DL
04/06/22	0515		11/0/2	BOTO				1	VL2. Small adult near spring-fed pond W of beaver pond.	M&DM
04/05/01	1600		22/3/0	BOTO				few	VL2 & VL3. BOTO calling from channel between VL2 & VL3.	B&DL
04/07/14	0820		17/1/0	SPFR ? FR				1 2	VL3. Cool spring. SPFR on top of vegetation mat at west end of ditch west of spring. 2 other frogs jumped in water. Unable to identify.	B&DL
04/06/22	0600		11/0/2	BOTO				1	VL3 West. Small adult seen E of beaver dam and W of VL3.	M&DM

LOCATION: Cave & Basin Area. (GPS: UTME: 596501 – UTMN: 5669636).

SITE DESCRIPTION: marsh complex fed by sulphur springs.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/06/04	0600			BOTO				1	Cave & Basin. Large adult seen by outflow stream of the upper spring. Seen by a University of Manitoba researcher.	
04/06/15	1320	31	11/1/2	BOTO				1	Cave & Basin. Seen in water at the basin outflow below horsebridge. Large – 8 cm.	B&DL
04/06/16	1005		12/0/0	BOTO				1	Cave & Basin. Seen in basin outflow, in water under horsebridge.	B&DL
04/06/21	0825		15/1/0	BOTO				1	Cave & Basin. Seen resting at edge of concrete stairs next to the building	B&DL
04/07/13	1340			?FR				1	Cave & Basin. Cave outflow east, march exit. Jumped in water as we approached. Unable to find it in water to identify it.	B&DL
04/08/10	1040	32	12/0/0	BOTO				1	Cave & Basin. Upper spring. Large. Seen at edge of water, crawled under boardwalk.	B&DL
04/08/10	1325		21/1/0	WOFR				1	Cave & Basin. Basin outflow horsebridge. Seen sitting on vegetation next to water.	B&DL
04/08/10	1325	32	22/0/0	BOTO				1	Cave & Basin. Upper & Lower outflow east. Large. Sitting on sticks just above water below pipe, moved away slowly.	B&DL

SUNSHINE WETLANDS

LOCATION: Sunshine Wetlands

SITE DESCRIPTION: calcaerous ponds just west of Sunshine turn-off, on north side and beside the TCH.

Pond #1 (GPS: UTME: 590698 – UTMN: 5668431)

West of Pond #1 (GPS: UTME: 590649 – UTMN: 5668471).

Pond #2 (GPS: UTME: 590748 – UTMN: 5668484).

Pond #3 (GPS: UTME: 590801 – UTMN: 5668586)

Pond #4 (Ochre Pond) (GPS: UTME: 590786 – UTMN: 5668621).

Ochre Minor (GPS: UTME: 590786 – UTMN: 5668629)

Backswamp (GPS: UTME: 590663 – UTMN: 5668822), extensive wetland on south side and adjacent to Bow River, immediately west of Sunshine Wetlands.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/29	1445	14	15/0/1	WOFR BOTO	22 3			4+ 3+	Pond #1. WOFR: seen 1, heard 4+. WOFR egg masses: 1 of 1, 1 of 3, 1 of 2, 1 of 3, 1 of 1, 1 of 1 (all fresh and in NE corner), 1 of 2, 1 of 9 (all fresh and in NW side. BOTO seen and heard. Egg strings: 3 fresh in S bay.	M&DM
04/04/230	1830			BOTO	1				Pond #1. New string in W bay.	M&DM
04/08/01	1330 – 1600	19	17/2/1	WOFR BOTO			3 5	1 1	Pond #1. Froglets and toadlets.	MM
04/04/29	1740	22	15/0/1	WOFR BOTO	3			1 2	West of Pond #1. WOFR heard S of pool where BOTO egg strings were. BOTO adults seen near fresh string.	M&DM
04/06/12	1130	13	10/1/2	BOTO		100+			West of Pond #1. Many small to large tadpoles. (picture)	M&DM
04/04/29	1515	20	15/0/1	WOFR BOTO	1 1				Pond #2. WOFR egg mass fresh found on N side. Egg string fresh found in E bay.	M&DM

Sunshine Wetland continued...

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/08/01	1330 – 1600	22		WOFR BOTO			8 1	3 1	Pond #2. Froglets and toadlet.	MM
04/04/29	1525	19	15/0/1	WOFR BOTO LTSA	16 3 5			1	Pond #3. WOFR heard. WOFR egg masses: 1 of 5 (picture), 1 of 4 on N side, 1 of 4, 1 of 1, 1 of 1, 1 of 1 in N/W corner, all fresh. BOTO strings: 2 on S side, 1 on W side, all fresh. LTSA egg masses: at N end, 1 short with embryos elong., 3 fresh on twigs at bottom, 1 near WOFR e. m. fresh but sifted.	M&DM
04/08/01	1330 – 1600	19		WOFR BOTO BOTO			28 6 1	4 1	Pond #3. Froglets and toadlets and 1 juv. BOTO	MM
04/10/02	1415 – 1545		17/1/0	BOTO				1	Pond #3. Seen at edge of woods on W side.	MM
04/04/29	1600	15	15/0/1	WOFR LTSA	41 14			2 1	Pond #4 (Ochre Pond). WOFR adults seen. Egg masses on S side, 1 of 7 (slightly enlarged eggs, algae covered), 1 of 1 (same), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 1 (older), 1 of 12 (fresh), 1 of 2 (fresh), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 5 (older), 1 of 4 (fresh), 1 of 1 (fresh), 1 of 1 (fresh). LTSA egg masses on W side and N side, one elongating, rest fresh. One large adult seen swimming at bottom of pond.	M&DM
04/08/01	1600	20	17/2/1	WOFR			1		Pond #4 (Ochre Pond). Froglet.	MM
04/04/29	1610	13							Ochre Minor. Nothing.	M&DM
04/04/29	1620 – 1700		15/0/1	WOFR BOTO SPFR				many many 1	Backswamp. Walked channel to S/E corner. Surrounded with sounds of WOFR and BOTO. Water shallow along shoreline. At least 20+ BOTO seen. Saw vocal sac inflated on some. Crow eating a frog or toad. One SPFR heard farther west and on S side.	M&DM
04/04/30	1830 – 2000	18	17/1/0	WOFR BOTO SPFR	4 21			many many	Backswamp. Returned with Alex Taylor to video activity. No luck. Found 3 SPFR egg masses where BOTO were calling, and 18 more near same area (many embryos elongating). WOFR egg masses: 3 (fresh) and 1 of 1 (elong), found near SPFR egg masses.	M&DM
04/06/12	1230 – 1500	15	11/0/5	?FR BOTO		1 100+			Backswamp. One unidentified frog tadpole. BOTO tads (small to medium) in S/E corner. water 3-6 cm. deep.	M&DM

BOW VALLEY PARKWAYLOCATION: **BVP Wetland.**

SITE DESCRIPTION:

Cory Pond (GPS: UTM E: 592901 – UTM N: 5669346) located approximately half a km. west of South Pond on south of CP tracks.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/26									Cory Creek running at 1755. It had just started, filling deep pools on S side of parkway.	M&DM

LOCATION: Muleshoe Area**SITE DESCRIPTION:** west and east of Muleshoe - series of wetlands, ponds that are described as from east to west:Hole-in-the-Wall Pond (GPS: UTME: 589560 – UTMN: 5670212), an old channel of the Bow River located just east of Muleshoe pond and on south side of railway tracks.Pond #1 (GPS: UTME: 589094 – UTMN: 5670779) small wetland (choked with reeds) just west of Trans Alta fenced area, on north end beside CP tracks.Pond #2 (GPS: UTME: 588917 – UTMN: 5670920) small pools (1 square) between "Goose Pond" and Pond #1.Pond #4 (UTME: 588923 – UTMN: 5670819) located west of Pond #3, on south side of track.Goose Pond (GPS: UTME: 588900 – UTMN: 5671231) west of Muleshoe - floating bog north of CP track (just east of Stunted Spruce).

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/08/16	1530		23/3/1	BOTO			1 toadlet		<u>Hole-in-the-Wall Pond</u> . Toadlet small (15 mm) in NW corner of pond.	MM
04/08/13	1400 – 1515		29/1/0	BOTO			2 toadlet	2	<u>Muleshoe Riverside</u> . Toadlets 20 - 25 mm. long, seen on W side of backwater.	MM
04/04/09	1615	14	11/1/1	WOFR				2+	<u>Goose Pond</u> . Heard from CP tracks.	M&DM
04/04/12	1530	14	17/1/1	WOFR	1			35+	<u>Goose Pond</u> . Seen and heard on W side and N end. Egg mass on W side.	MM
04/04/20	1630		11/1/1	WOFR				some	<u>Goose Pond</u> . Heard some calling while checking Pond #1.	MM
04/04/09	1630	11							<u>Pond #1</u> . Water levels low. Nothing seen or heard.	M&DM
04/04/20	1630	11	11/1/1	WOFR	13				<u>Pond #1</u> . Egg masses seen on E side. Water 17.5 cm. deep.	MM
04/04/12				WOFR				1	<u>Pond #2</u> . Heard.	MM
04/04/12				WOFR				1	<u>Pond #4</u> . Heard.	MM

LOCATION: Stunted Spruce Pond (GPS: UTME: 588827 – UTMN: 5671613).**SITE DESCRIPTION:** small pond (wetland) west of Muleshoe on south side of Bow Valley Parkway - boggy area with stunted trees around pond.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/20	1615	9	11/1/1						Nothing seen or heard	MM
04/04/26	1750		20/1/0	WOFR				few	Heard.	M&DM
04/05/07	1600 – 1650	11	15/0/1	WOFR LTSA	13 77				WOFR egg masses found on N side: 1 of 1 (fresh), 1 of 1 (with hatchlings), 1 of 4, 1 of 2, 1 of 1 (all with hatchlings), 1 of 1 (fresh), 1 of 1 (fresh), 1 of 1 (slightly elong.). On S side: 1 of 1 with hatchlings. LTSA all on N side, mostly elongating, 1 with hatchlings, 5 fresh.	M&DM

LOCATION: Ranger Creek Willow Flats, (GPS: UTME: 587232 – UTMN: 5673394).**SITE DESCRIPTION:** flooded willow stand located 1 km. west of Skull Creek, below pull-off on south side of Bow Valley Parkway (BVP).Ranger Creek Beaver Pond (UTME: 587223 – UTMN: 5672919) large pond formed by recent beaver dam at south end of willow flat.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/26	1735	15	20/1/0	WOFR BOTO				1 1	Tentative WOFR call on N side. BOTO heard from near dam at S end.	M&DM
04/05/18	1115 1630		14/1/1	WOFR BOTO				2 2	Stopped at 1115 and heard WOFR at W end. Stopped at 1630 and heard WOFR again and BOTO at W end.	M&DM

LOCATION: Frog Hollow (GPS: UTME: 583222 – UTMN: 5676037).

SITE DESCRIPTION: small "kettle" pond east of Lizard Lake and south side of Bow Valley Parkway.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/04/26	1730		20/1/0	WOFR				many	Heard from Parkway. Large snowbank remains on S side.	M&DM

LOCATION: Lizard Lake (GPS: UTME: 582796 – UTMN: 5676009).

SITE DESCRIPTION: pond located in deep gully along the Bow Valley Parkway. Also known as Pilot Pond.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/04	1530 – 1700	12	11/2/2 11/1/5	WOFR LTSA	2	63		1	WOFR seen on N side (picture). WOFR egg masses: 2 on S side (1 at NW end, 1 at NE end). LTSA egg masses: 23 on N side, 40 at W end, all fresh, a few dead embryos.	M&DM

LOCATION: Prism Springs Wetland. (GPS: UTME: 581988 – UTMN: 5676526).

SITE DESCRIPTION: Prism Springs Wetland located south of Bow Valley Parkway between Lizard Lake and Johnson Creek, next to powerline.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/08/05	1530		19/0/2	WOFR BOTO		35+	62	3	Prism Springs Wetland. Toadlets: small to tiny. BOTO tadpoles: most with all legs, some with hinds legs only.	MM

LOCATION: Hidden Cliffs Wetland.

SITE DESCRIPTION: Hidden Cliffs Wetland (GPS: UTME: 581666 – UTMN: 5677530) located east of Johnston Canyon, small calcareous ponds above a cliff band.

Upper Hidden Cliffs Wetland (UTME: 581756 -5677636) located above Hidden Cliffs Wetland on a higher bench, a large wetland with calcareous pools at west end and deep pond at east end

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/07/02	1230	18	19/1/1	WOFR				1	Hidden Cliffs Wetland. Seen on S side 4 m. from small shallow pool.	M&DM B&DL
04/05/27	1230 – 1400	8	13/2/2	LTSA	100+			2	Upper Hidden Cliffs Wetland. Water shallow. Egg masses on N side. 3 empty eggs, 100+ embryos lightly elongated, large groups of egg masses toward E end. Adults found under logs at E end. (picture).	M&DM
04/07/02	1330 – 1430	26	21/1/1	WOFR BOTO		50+		1	Upper Hidden Cliffs Wetland. WOFR in wet area near N side. BOTO tadpoles in small pool (2 m. diam.) near S Side, water depth 2 to 7.5 cm. Large pond at E end completely dry. Looked for LTSA under a few logs. None found.	M&DM B&DL

LOCATION: Moose Meadow Wetland.**SITE DESCRIPTION:** series of ponds just west of Johnston Creek in a rehabilitated site (old gravel pit) between CP tracks and river.**South Channel;** (GPS: UTME: 579321 – UTMN: 5677835) natural channel relatively undisturbed on south side of disturbed area.**Moose Meadow Pools** (GPS: UTME: 580073 – UTMN: 5678616) small pools located at northern edge of the meadow, south of Bow Valley Parkway.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/08/06	1130 – 1515	22	17/0/1 19/0/1	WOFR SPFR ? FR BOTO		2 24+ 1	28 6 45	2	South Channel. WOFR & SPFR froglets. One WOFR froglet had one hind leg missing. SPFR tadpoles: 1 with all legs, 1 with hind legs only. Large unknown frog tadpoles. 45 BOTO toadlets. BOTO tadpole: hind legs showing.	M&DM
04/04/09	1415	8 7	16/1/1						Moose Meadow Pools. Nothing seen or heard. 8° in N pool, 7° in S pool.	MM
04/04/26	1715	16 17	20/1/0	WOFR LTSA	4 9				Moose Meadow Pools. North Pool: 16°, WOFR egg masses: 1 of 3, 1 of 1, all fresh. LTSA egg masses also in North Pool. South Pool; 17°.	M&DM
04/05/27	1540 – 1550	10	14/1/2	WOFR LTSA	several	few			Moose Meadow Pools. In North Pool. Tiny WOFR tadpoles. LTSA egg masses had a few larvae emerging, some swimming freely. South Pool dry.	M&DM

LOCATION: Castle Junction Area.**SITE DESCRIPTION: Strider Pond** (GPS: UTME: 571702 – UTMN: 5678703) located north of Vista Lake, high above Altrude Creek.**Boom Lake** (GPS: UTME: 564538 – UTMN: 5679238) at the outlet of the lake.**Boom Lake Trailhead** (GPS: UTME: 568257 – UTMN: 5677854) small pools located on east side of Kootenay Parkway across from Boom Lake Parking Lot.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/07	1400 – 1500	11	10/1/2	WOFR	17				Strider Pond. On S side: 1 of 1, 1 of 1, 1 of 1, 1 of 1 (all fresh), 1 of 1 (slightly elong.), 1 of 1 (same). On N side: 1 of 1, 1 of 2, 1 of 1 (all fresh), 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 1 (all elongating), found a distance from shore in water 20 cm. deep.	M&DM
04/07/09	1430	11	12/2/2	BOTO				1	Boom Lake. Large adult seen at edge of outlet stream.	M&DM
04/05/03				BOTO	2				Boom Lake Trailhead. Fresh egg strings.	M&DM

LOCATION: Bow Valley Parkway west of Castle Junction.**SITE DESCRIPTION: Upper Castle Cliffs Wetland** (UTME: 575429 – UTMN: 5681312) located several hundred metres upslope, north of Castle Cliffs viewpoint.**Junco Wetland** (GPS: UTME: 575154 – UTMN: 5681611) located east of Trackers Wetland.**Trackers Wetland** (GPS: UTME: 574871 – UTMN: 5681822) located west and upslope from Castle Cliffs Wetland on N side of Bow Valley parkway, near viewpoint.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/07/30	1600	25	24/2/1	WOFR BOTO LTSA		5+ 400+ 3	25+ 25+		Upper Castle Cliffs Wetland. WOFR: some froglets with tail not resorbed. BOTO: some toadlets with tail not resorbed; many tadpoles with no legs showing. LTSA larvae: large, one came to surface for a gulp of air (close to metamorphose) (pictures). All seen in shallow pool.	M&DM
04/06/18	1545	23	16/1/1	BOTO		400+	1		Trackers Wetland. Picture of toadlet. Small tadpoles.	M&DM
04/07/30	1445	22	22/2/1	BOTO		9	1		Trackers Wetland. Tadpoles hard to find in bottom muck, only one showing hind legs.	M&DM
04/06/18	1400	22	16/1/1	BOTO		100+			Junco Wetland. Tadpoles small to medium size, found in one small pool (diam. 2 m.) picture.	M&DM
04/07/30	1530	22	22/2/1	BOTO		2			Junco Wetland. Tadpoles small. Hard to see them in bottom muck.	M&DM

LAKE LOUISE AREA

LOCATION: Lake Louise Area and west

SITE DESCRIPTION: Kingfisher Lake (GPS: UTME: 558172 – UTMN: 5695790) located just east of Lake Louise on the north side and close to TCH.

Divide Ponds (UTME: 554739 – UTMN: 5697293) South Pond (UTM: NG547974 North Pond) located on highway 1A west of Lake Louise approx. 1.5 km. from road junction.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/14	1315	10	10/1/1	WOFR	4			3+	<u>Kingfisher Lake</u> . Adults vocal, in SW corner and 1 in middle of W side. Egg masses: in SW corner, 1 of 1, 1 of 1, 1 of 1 (all fresh), 1 of 1 (slightly elongated)	M&DM
04/05/14	1550	8	4/1/2						<u>Divide Ponds. North Pond</u> . Walked around pond. Nothing seen or heard.	M&DM

ICEFIELDS PARKWAY

LOCATION: Icefields Parkway (from south to north).

SITE DESCRIPTION: Tiny Herbert Lake (GPS: UTME: 554651 – UTMN: 5699766) located south of Little Herbert Lake, on east side and beside Icefields Parkway.

Crowberry Pond (GPS: UTME: 553999 – UTMN: 5700968) located over a ridge on west side of Herbert Lake.

Num-Ti-Jah Pools – East Pool (GPS: UTME: 537043 – UTMN: 5725358)

West Pool (GPS: UTME: 536904 – UTMN: 5725335) both located just across the lakeshore trail from Bow Lake.

Top-of-the-Bow Wetland (GPS: UTME: 536194 – UTMN: 5727898) located south of Gravel Pool and on the south side of creek running across Icefields Parkway.

Bow Summit Pond (GPS: UTME: 534971 – UTMN: 5730164) located on east side of Bow Summit, beside old abandoned road. Elevation 2070 m.

Sunset Pond (GPS: UTME: 506259 – UTMN: 5768632) located beside parking lot for Sunset Pass trail.

Sunset West (GPS: UTME: 506233 – UTMN: 5768628) located opposite Sunset Pond on west side of Icefields Parkway. Depressions (puddles) on old dirt track.

Asphodel Pond (GPS: UTME: 503321 – UTMN: 5771811) located 11 km. north of Rampart Creek Campground, on east side of Icefields Parkway.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/14	1515 – 1530	8	5/1/2	WOFR LTSA	6 1				<u>Tiny Herbert Lake</u> . WOFR egg masses on E side and mid-area, 1 of 1, 1 of 3, 1 of 1, 1 of 1 (all slightly elongating and near surface). LTSA egg mass: fresh, found in same area as WOFR egg masses.	M&DM
04/05/14	1440 – 1450	7	5/2/2	LTSA	4				<u>Crowberry Pond</u> . Egg masses all fresh, on E side. Checked only a small area on E side of pond.	M&DM
04/06/23	1200	17	16/2/0	BOTO		100+			<u>Num-ti-Jah Pools. East Pool</u> . Small tadpoles scattered all over pool. None in W pool.	M&DM
04/07/15	820	8	8/1/0	BOTO		250+			<u>Num-ti-Jah Pools. East Pool</u> . Medium size.	MM
04/06/23	1100	17	16/0/0	BOTO		1000+			<u>Top-of-the-Bow Wetland</u> . Small tadpoles in mid area along shallow edge.	M&DM
04/06/04	1300	8	15/1/1 24/1/1	BOTO				3+	<u>Bow Summit Pond</u> . One heard and seen (picture). Climbed on the ice covering the pond except for around the edges. Returned at 1700 and heard 3 in middle of pond. Ice mostly melted by then.	M&DM
04/06/23	1030	15	15/0/0 17/0/0	BOTO		1000+			<u>Bow Summit Pond</u> . Small tadpoles seen along N shore of channel, some floated down the outlet stream, some along E side shoreline. Water lower than on June 4.	M&DM
04/06/04	1600		20/1/1						<u>Sunset Pond</u> . Nothing found.	M&DM
04/06/04	1600	26	20/1/1	BOTO	1				<u>Sunset West</u> . BOTO string with 50% hatchlings found in wet area west of dirt road.	M&DM
04/06/04	1620	28	20/1/1	BOTO	3	some			<u>Asphodel Pond</u> . 2 strings with hatchlings, one covered in green algae, found in pool to south. One older string with hatchlings and tadpoles in pool farther east of running stream (has fish in it).	M&DM

AREAS IN KOOTENAY NATIONAL PARK

LOCATION: Kootenay National Park.

SITE DESCRIPTION: Simpson Mineral Lick (UTME: 573223 – UTMN: 5649819) located 1.2 km. north of Simpson River Trailhead, on east side of Kootenay Parkway.

Simpson South (UTME: 573223 – UTMN: 5649819) approximately 400 m. north of Simpson River Trailhead, on the west side of Parkway and on the other side of a low ridge with culvert separating it from Simpson North.

Kootenay Lodge Ponds (UTM:) located south of Kootenay Lodge, at end of old road.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/03	1545	16	18/1/1	SPFR	4				Kootenay Lodge Pond 1. Egg masses: 1 fresh, 3 with hatchlings	M&DM & others
04/05/03	1545	16	18/1/1	SPFR BOTO LTSA	2 3 7+				Kootenay Lodge Pond 2. SPFR egg masses: 1 fresh, 1 older, floating. BOTO egg strings: all fresh, one very short. LTSA egg masses: all fresh.	M&DM & others
04/04/26	1530	23	20/1/0						Simpson Mineral Lick. Main Pond. Water low. Nothing seen or heard.	M&DM
04/05/03	1500	19.5	18/1/1	SPFR BOTO	3 3			2	Simpson Mineral Lick. Main Pond. SPFR egg masses: 1 fresh, 2 with hatchlings. BOTO strings fresh. BOTO pair in amplexus in middle of pond. East Pond nearly dry. Checked all pools.	M&DM & others
04/04/26	1530	21	20/1/0						Simpson South. Water low. Nothing seen or heard.	M&DM
04/05/03	1430	16	18/1/1	SPFR LTSA	1 12+				Simpson South. SPFR egg mass was seen by Joanne Williams on April 30 on E side. Still fresh. LTSA egg masses: mostly fresh, a couple with embryos elongating, all on W side, one egg mass dead on E side. All were attached to base of sedge clumps.	M&DM & others

LOCATION: Yamnuska Natural Area.

SITE DESCRIPTION: at the base of Mt. Yamnuska and Mt Loder north of Seebe.

Old Beaver Pond; (UTME: 633323 – UTMN: 5663719).

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
04/05/29	1145		14/2/1	SPFR LTSA	1			2	Old Beaver Pond. SPFR seen on W side of pond in narrow beaver channel. LTSA egg mass: long, almost hatched, seen on S side of pond, Our first record of LTSA in Yamnuska.	MM

Table 1. Presence of amphibians in specific sites visited in Banff National Park, 1992-2004 (in alphabetical order)

UTME	UTMN	UTM	Specific sites	Area	BOTO			WOFR			SPFR			LTSA		
					A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L
562123	5692419	NG617934	Allium Pond	Bow Valley P. West	X											
		NG666758	Altrude Lakes	Castle Junction	X	X										
		NG671765	Altrude Lakes Area	Castle Junction	X	X	X									
603840	5674021	PG040738	Amphibian World, Main P	Minnewanka Loop	X	X		X	X	X						
603605	5673888		Amphibian World, West P	Minnewanka Loop	X	X		X	X	X				X		X
604136	5674076		Amphibian World, East P	Minnewanka Loop	X		X									
		NG894697	Antler Pond	Muleshoe				X								
503321	5771811	NH039709	Asphodel Pond	Icefields Parkway		X	X									
593198	5669718	NG937694	BVP North Pond	BVP Wetland				X		X				X		X
593286	5669579	NG936693	BVP South Pond	BVP Wetland				X	X	X						X
590663	5668822	NG907688	Backswamp	Sunshine Wetland	X	X	X	X		X		X		X		
579689	5677696	NG795785	Barenaked Pond	Moose Meadow Wtld		X					X	X				
		PG062727	Beaver Pond	Johnson Lake				X			X					
		PG139187	Belgium Lake	Upper Spray	X		X									
604479	5676244	PG045759	Black Pond	Minnewanka Loop												X
556123	5697719	NG562975	Blackpoll Ponds	Lake Louise									X			
564538	5679239	NG643791	Boom Lake	Castle Junction	X	X	X									
568257	5677854	NG683777	Boom Lake Trailhead	Castle Junction		X	X									
539606	5722873	NH395228	Bow Lake Outlet	Icefields Parkway	X	X	X									
534971	5730164	NH350298	Bow Summit Pond	Icefields Parkway	X	X	X									
		PG116671	Busy Pond	Carrot Creek				X	X	X						X
610411	5670481		Carrot Ck. Sulphur Spring	Carrot Creek	X	X		X	X	X						
608864	5668641	PG092678	Carrot Lake	Carrot Creek	X	X	X	X								
596323	5692119	PG964919	Cascade Beaver Pond	Cascade	X	X	X				X		X			
574889	5680858	NG748807	Castle Cliffs Wetland	B.V. Parkway					X	X						X
598501	5669636	NG985695	Cave & Basin	Cave & Basin	X			X	X		X					
588915	5677079	NG890705	Channels West	Muleshoe				X								
605789	5673616	PG057732	Cold Pond	Johnson Lake				X	X	X			X			X
575212	5679434	NG752792	Copper Lake	Castle Junction				X	X	X						
592901	5669346	NG934693	Cory Pond	B.V. Parkway												X
559303	5695774	NG595954	Cranberry Pond	B.V. Parkway							X					
553999	5700968	NH542007	Crowberry Pond	Icefields Parkway												X
572723	5678619	NG728784	Curve Pond	Castle Junction				X		X			X			
611423	5667019	PG115672	Cutline Pond	Carrot Creek				X		X						X
603150	5669819	PG031696	Devil's Cauldron	Banff Golf Course										X		
		NG546973	Divide Ponds (S)	Lake Louise							X	X	X			
612493	5666961		East Boundary Pond	Carrot Creek				X								X
594223	5669019	NG943688	5-Mile Riverbend	Bow River	X			X								
593290	5668958	NG933687	5-Mile Wetland Pond 1	5 m. W. of Banff				X								
598750	5671280	NG987709	Fenland Trail	Vermilion Lakes				X		X						

* A = adult, Y = young, E-L = eggs, larvae (tadpoles), X = Present. (does not include random sightings of amphibians away from breeding sites)

Table 1. Presence of amphibians in specific sites visited in Banff National Park, 1992-2004 (in alphabetical order) continued...

UTME	UTMN	UTM	Specific sites	Area	BOTO			WOFR			SPFR			LTSA		
					A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L
595281	5669873	NG954695	Fingers	Vermilion Lakes						X						X
571102	5681128	NG713808	Floating Pond	West of Castle Jct.							X	X	X			
583222	5676037	NG834755	Frog Hollow	B.V. Parkway	X			X		X						X
554623	5713219	NH547130	Glacier Lake	Sask. Crossing	X											
558223	5687219	NG583870	Goldeneye Pond	Lake Louise	X						X					
588900	5671231	NG891706	Goose Pond	Muleshoe				X		X						
536137	5728324	NH356288	Gravel Pool	Icefields Parkway	X		X									
553976	5699955		Griz 59 Pond	Lake Louise						X						
		NG971696	Hayfield Channel	Vermilion Lakes						X						
597183	5669914	NG973696	Hayfield Pond	Vermilion Lakes	X			X	X	X			X			
595609	5668552	NG956683	Healy Fireroad Pond	Cave & Basin				X								
591473	5668544	NG919680	Healy Pit Wetland S/W	Sunshine Wetland	X	X	X	X	X	X						
591474	5668708		Healy Pit Wetland N/W	Sunshine Wetland												X
591644	5668892		Healy Pit Wetland N/E	Sunshine Wetland			X	X						X		
554120	5701254	NH541011	Herbert Lake	Icefields Parkway				X								
		PG028806	Hermit Ponds	Cascade Valley			X									
581666	5677530		Hidden Cliff Wetland	B.V. Parkway				X								
		PG101690	Hidden Pond	Carrot Creek				X					X	X	X	
584723	5676019	NG848758	Hillsdale Wetland	B.V. Parkway			X									X
589550	5670212		Hole-in-the-Wall Pond	Muleshoe		X	X									
		NG992699	Horse Bams	Cave & Basin				X								
		PG124673	Horse Pond	Carrot Creek	X	X	X	X	X	X						X
604404	5678657	PG047785	Horsetail Wetland	L. Minnewanka			X									
584823	5677520	NG847773	Ishbel Wetland	B.V. Parkway	X	X	X								X	
561531	5694115	NG617934	Island Lake	B.V. Parkway	X			X	X	X						
		PG057725	Johnson Lake	Johnson Lake				X			X		X			
575154	5681611		Junco Wetland	BVP w. of Castle			X									
558172	5695790	NG583957	Kingfisher Lake	Lake Louise				X		X						
605700	5673300	PG057734	Lake of the Sticks (N)	Johnson Lake	X			X	X	X			X			
605745	5673889	PG057733	Lake of the Sticks (S)	Johnson Lake	X		X	X	X	X	X		X			X
604521	5676112	PG046758	Lakeside Pond	Minnewanka Loop				X		X			X			X
609123	5668019	PG097684	Lily Pond	Carrot Creek				X	X	X						
		NH674040	Little Baker Lake	Skoki	X											
554423	5700319	NH545001	Little Herbert Lake	Icefields Parkway				X								
582796	5676009	NG830757	Lizard Lake	B.V. Parkway				X		X			X			X
550474	5702575		Lost Lake	Lake Louise	X											
601149	5668503		Lower Spray River	Lower Spray			X									
		PG033383	Marvel Lake	Upper Spray										X	X	
		NG989689	Middle Springs	Cave & Basin	X											
580073	5678616	NG802783	Moose Meadow Pools	B.V. Parkway	X			X		X	X		?			X

* A = adult, Y = young, E-L = eggs, larvae (tadpoles), X = Present. (does not include random sightings of amphibians away from breeding sites)

Table 1. Presence of amphibians in specific sites visited in Banff National Park, 1992-2004 (in alphabetical order) continued...

UTME	UTMN	UTM	Specific sites	Area	BOTO			WOFR			SPFR			L TSA		
					A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L
557823	5688619	NG579884	Moraine Creek Wetland	Lake Louise		X	X				X		X			
			Muleshoe Area	Muleshoe		X										
589486	5670481	NG895702	Muleshoe Pond	Muleshoe	X	X	X	X						X		X
589413	5670366		Muleshoe Riverside	Muleshoe	X	X										
599341	5671896	NG991715	Norquay Pond	Vermilion Lakes										X		X
599308	5671869		Norquay Channel	Vermilion Lakes												X
603723	5674419	PG038742	North Old Dump	Minnewanka Loop				X		X				X		X
537043	5725357	NH370253	Nurm-Ti-Jah Pools East	Icefields Parkway		X	X									
536903	5725334	NH370253	Nurm-Ti-Jah Pools West	Icefields Parkway			X									
590757	5668629	NG907686	Ochre Minor	Sunshine Wetland	X			X	X	X						X
558848	5695420	NG589952	Old Rock Pond	B.V. Parkway				X								
610023	5668519	PG101683	Openside Pond	Carrot Creek				X		X						X
604468	5673730	PG048735	Osprey Pond	Minnewanka Loop	X	X		X	X	X	X	X	X	X		X
552457	5702123		Pine Point Wetland	Lake Louise	X		X	X	X		X		X			
604600	5675700	PG045757	Pipe Traps	Minnewanka Loop										X	X	
589094	5670779	NG892705	Pond #1	Muleshoe				X		X						X
588917	5670920	NG892706	Pond #2	Muleshoe				X		X						
589017	5670796	NG891705	Pond #3	Muleshoe				X	X	X						X
588923	5670819	NG890706	Pond #4	Muleshoe				X		X						
590698	5668430	NG907682	Pond #1	Sunshine Wetland	X	X	X	X	X	X						X
590748	5668484	NG907683	Pond #2	Sunshine Wetland	X	X	X	X	X	X						
590801	5668586	NG908685	Pond #3	Sunshine Wetland	X	X	X	X	X	X			X			X
590786	5668621	NG907685	Pond #4 (Ochre)	Sunshine Wetland	X	X		X	X	X			X	X		X
583155	5675652	NG830755	Powerline Pond	B.V. Parkway	X					X						X
588900	5670716	NG891704	Primrose Pond	Muleshoe	X			X		X						
581988	5676526		Prism Pond	B.V. Parkway		X	X	X								
599499	5669596	PG035745	Quiet Pond	Minnewanka Loop		X		X	X	X						X
			Quiet Pond, S/W	Minnewanka Loop	X					X						
			Quiet Pond, (East of)	Minnewanka Loop				X		X						
596623	5669219	NG963692	Rainy Bay	Cave & Basin		X										
509123	5765319	NH092651	Ramparts Backwater	Icefields Parkway			X									
555542	5690224	NG558989	Ramshorn Pond	Icefields Parkway				X	X							X
587223	5672919	NG873727	Ranger Ck. B. Pond	B.V. Parkway	X											
587232	5673394	NG872733	Ranger Ck.W.Flats	B.V. Parkway	X			X		X						X
596748	5670084	NG968698	Rathole	Vermilion Lakes	X	X	X	X	X	X						
605423	5669919	PG055697	Ravens' Point Wetland	Tunnel Mountain				X								
557929	5696397	NG581962	Red-tail Pond	Lake Louise				X	X	X						
549038	5699683		Ross Pond	Lake Louise									?			
610923	5667319	PG110669	Rundview Pond	Carrot Creek				X		X						X

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Table 1. Presence of amphibians in specific sites visited in Banff National Park, 1992-2004 (In alphabetical order) continued...

UTME	UTMN	UTM	Specific sites	Area	BOTO			WOFR			SPFR			LTSA		
					A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L
529123	5738419	NH292382	Silverhorn Pond, Lower	Icefields Parkway			X									
		NG773811	Silverton Pond	Castle Junction					X							
574653	5679170		Smith Lake Lower Pond	Castle Junction				X	X							
574734	5678797	NG750780	Smith Lake Upper Pond	Castle Junction				X	X	X	X	X	X			
567590	5683794		Solitary Pond	West of Castle Jct.	X		X	X	X			X				
598308	5670305	NG983701	Sora Pond	Vermilion Lakes	X			X		X						X
579321	5677835	NG795785	South Channel	Moose Meadow Wet.	X	X	X	X	X	X	X	X	X			
562723	5691910	NG629919	Split Level Pond Lower	B.V. Parkway				X	X	X						
562631	5691853	NG628918	Split Level Pond Upper	B.V. Parkway				X	X							
571702	5678703	NG715783	Strider Pond	Castle Junction				X		X						
588827	5671613	NG889713	Stunted Spruce Pond	B.V. Parkway	X			X	X	X						X
598819	5669941	NG987697	Sundance Pond	Cave & Basin area				X		X						X
506259	5768632	NH063684	Sunset Pond	Icefields Parkway			X									
506233	5768628	NH063684	Sunset West	Icefields Parkway			X									
595046	5669670		Tall Willow Wetland	Vermilion Lakes						X						X
566814	5684324		Taylor Pond	Lake Louise				X	X	X						
596530	5670016	NG965697	Teardrop Pond	Vermilion Lakes				X		X						
554651	5699756	NG547898	Tiny Herbert Lake	Icefields Parkway				X		X						X
536194	5727897		Top-of-the-Bow Wetland	Icefields Parkway	X	X	X									
574871	5681822	NG745817	Trackers Wetland	B.V. Parkway			X	X								
579347	5677856	NG795776	Turquoise Pond	Moose Meadow Wet.			X		X							
575429	5681312	NG754810	Upper Castle Cliffs Wetl.	B.V. Parkway			X	X		X	X					X
581756	5677636		Upper Hiddlen Cliffs Wetl	B.V. Parkway			X	X	X					X		X
		PG130228	Upper Spray Wetland	Upper Spray	X		?					X		?		
598523	5670419	NG984705	VL-1	Vermilion Lakes	X	X		X	X							
597523	5670719	NG976705	VL-2	Vermilion Lakes	X			X	X							
596964	5670268		VL-2 & VL-3	Vermilion Lakes		X										
595623	5670119	NG957699	VL-3	Vermilion Lakes	X			X			X					
595223	5670019	NG953698	VL-3 West	Vermilion Lakes	X	X		X								
603823	5674319	PG039741	Vernal Pool	Minnewanka Loop	X		X	X	X	X						
568417	5676957	NG685767	Vista Lake	Castle Jct. Area	X		X									
		NG882701	WL-4	TCH - west				X		X						X
		NG865723	WL-6	TCH - west				X		X						
583395	5675231	NG834749	WL-7 (Boto Pond)	TCH - west	X	X	X	X		X						
583324	5675339		WL-7 (West End Pond)	TCH - west					X	X						
520723	5758719	NH208585	Warden Lake Area	Icefields Parkway	X	X	X									
555723	5684919		Wenkchemna Pool	Moraine Lake			X									
		NH503006	West Boundary Ponds	TCH - west									X			
590648	5668471		West of Pond #1	Sunshine Wetland	X		X	X		X						

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Table 1. Presence of amphibians in specific sites visited in Banff National Park, 1992-2004 (in alphabetical order) continued...

555423	5700719	NH555005	Whitehorn Lake	Lake Louise			X	X		X			X			X
607563	5669211	PG075690	Wolfwillow Wetland	Carrot Creek	X		X		X							
611223	5667019	PG113668	Zapped Pond	Carrot Creek				X		X						X

* A = adult, Y = young, E-L = eggs, larvae (tadpoles), X = Present. (does not include random sightings of amphibians away from breeding sites)

Table 2. Wetlands identified in Banff National Park where amphibians have yet to be found.

BJ Pond, Big Cut Pond, Bath Pond, Castle Bridge Wetland, Castle Pond, Damned Pond, Deep Pit, East Gate Wetland, Echo Pond, 5-Mile Wetland Pond 2, 5-Mile Wetland Pond 3 Green Pond, Heron Pond, Lower Duthill, McNair Pond, Missing Lake, Moose Meadow Beaver Pond, Sera Pond, Silverhorn Pond, TCH 54.5, TCH 60, TCH 60.3, TCH 61, TCH Wetland, 2 Culvert Pond, West Pond (west of Cave & Basin),
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Table 3. Presence of amphibians in specific sites visited in Kootenay National Park 1992-2004 (in alphabetical order)

UTME	UTMN	UTM	Specific sites	BOTO			WOFR			SPFR			LTSA			
				A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L	
			*													
		NG663754	Kerr Ponds		X	X										
			Kootenay Lodge Ponds			X						X				X
		NG674380	Kootenay Pond										X	X		
559171	5667460		Numa Pool East			X										
559133	5667437		Numa Pool West			X										X
		NG?	Rescue Pond													X
		NG733496	Simpson Mineral L.	X	X	X						X				X
			Simpson Pool & Channel													X
		NG732494	Simpson North	X		X										X
		NG733496	Simpson South	X						X	X	X	X	X		X
			Violet Pond									X				

* A = adult, Y = young, E-L = eggs, larvae (tadpoles), X = Present. (does not include random sightings of amphibians away from breeding sites)

Table 4. Presence of amphibians in specific sites in Canmore, Bow Valley Provincial Park, Yamnuska, Peter Lougheed Provincial Park and Kananaskis Country 1992-2004 (in alphabetical order).

UTME	UTMN	UTM	Specific sites	Area	BOTO			WOFR			SPFR			BCFR			LTSA			TISA		
					A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L	A	Y	E-L
			Bow V. S. Borrow Pit	B.V. P.P.				X		X				X								
		PG160363	Butler Pond	K-Country							X	X	X									
		PG129596	Canmore Creek	Canmore		X	X													X		
		PG358591	Chilver Lake	B.V.P.P.	X			X		X				X								
632623	5662519	PG327623	Coyote Lake	Yam.				X		X												
		PG323625	Crescent Lake	Yam.				X	X													X
634123	5664119	PG342639	Duck Pond	Yam.										X								
		PG353063	Elk Pass	P.L.P.P.			X															
			Elbow River	K-Country			X															
		PG358612	Flowing Waters	B.V.P.P.				X														
		PG331631	Great Swamp	Yam.				X			X	X										
		PG328624	Hilltop Pond	Yam.				X		X												
		PG334632	Little Stony Pond	Yam.				X														
634323	5664519	PG344643	Loony Pond	Yam.						?			?									
		PG322593	Many Springs	B.V.P.P.	X																	
			Meadow Lake	Yam.				X														
		PG335598	Middle Lake	B.V.P.P.				X						X								
		PG332645	Muir Pond	Yam.				X			X			X								
		PG339645	New Beaver Pond	Yam.	X			X			X		X									
633323	5663719	PG334635	Old Beaver Pond	Yam.				X			X	X										X
		PG137597	Quarry Lake	Canmore	X		X	X		X							X	X	X			
		PG343648	Roadside Pool	Yam.										X								
			Rundle Canal Pond	Canmore			X															X
		PG345614	Salamander Ponds	B.V.P.P.	X		X	X		X				X			X	X	X			
		PG333632	Stony Meadow Pond	Yam.				X		X	X		X									
			Weigh Station Pond	W. of Cal.										X								
		PG339636	Willow Pond	Yam.				X		X	X		X	X		?						
633923	5664019	PG340638	Yellowleg Pond	Yam.				X		X	X		X									
		PG337634	Yellowleg West	Yam.				X	?	X	X	?	X									

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Table 5. Definite breeding sites in areas visited inside Banff National Park, 1992-2004 (presence of eggs &/or larvae &/or young).

<p>Boreal Toad (total:64 sites)</p>	<p>Altrude Lakes, Altrude Lakes Area, Asphodel Pond, Amphibian World, Backswamp, Barenaked Pond, Belgium Lake, Boom Lake, Boom Lake Trailhead, Bow Lake Outlet, Bow Summit Pond, Carrot Creek Sulphur Spring, Carrot Lake, Cascade Beaver Pond, Gravel Pool, Healy Pit Wetland, Hermit Ponds, Healy Pit Wetland, Hillsdale Wetland, Hole-in-the-Wall Pond, Horse Pond, Horsetail Wetland, Ishbel Wetland, Junco Wetland, Lake of the Sticks South, Lower Spray River, Moraine Creek Wetland, Muleshoe Area, Muleshoe Pond, Muleshoe Riverside, Num-Ti-Jah Pools, Osprey Pond, Pine Point Wetland, Prism Springs Wetland, Quiet Pond, Rainy Bay, Ramparts Backwater, Rathole, Silverhorn Pond (lower), Solitary Pond, South Channel (Moose Meadows), Sunset Pond, Sunset West, Sunshine Wetland: Pond #1 & West, Pond#2, Pond#3, Pond#4 (Ochre Pond), Top-of-the-Bow Wetland, Trackers Wetland, Turquoise Pond, Upper Castle Cliffs Wetland, Upper Hidden Cliffs Wetland, VL-1, VL2 & VL3, VL3 West, Vernal Pool, Vista Lake, WL-7 (Boto Pond), Warden Lake Area, Wenkchemna Pool, Whitehorn Lake, Wolfwillow Wetland.</p>
<p>Wood Frog (total:78 sites)</p>	<p>Amphibian World, Backswamp, Bow Valley Parkway North Pond, Bow Valley Parkway South Pond, Busy Pond, Carrot Creek Sulphur Spring, Castle Cliffs Wetland, Cave & Basin, Cold Pond, Copper Lake, Curve Pond, Cutline Pond, Fenland Trail, Fingers, Frog Hollow, Goose Pond, Griz 59 Pond, Hayfield Channel, Hayfield Pond, Healy Pit Wetland, Horse Pond, Island Lake, Kingfisher Lake, Lake of the Sticks North, Lake of the Sticks South, Lakeside Pond, Lily Pond, Lizard Lake, Moose Meadow Pools, Muleshoe: Pond #1, Pond #2, Pond #3 & Pond #4, North Old Dump, Ochre Minor, Openside Pond, Osprey Pond, Pine Point Wetland, Sunshine Wetland: Pond #1 & West, Pond #2, Pond#3, Pond #4, Powerline Pond, Primrose Pond, Quiet Pond, Quiet Pond West, Quiet Pond East, Ramshorn Pond, Ranger Creek Willow Flats, Rathole, Red-tail Pond, Rundlevieview Pond, Silvertown Pond, Smith Lake Area, Solitary Pond, Sora Pond, South Channel (Moose Meadows), Strider Pond, Sundance Pond, Lower Split Level Pond, Upper Split Level Pond, Stunted Spruce Pond, Tall Willow Wetland, Taylor Pond, Teardrop Pond, Tiny Herbert Lake, Upper Castle Cliffs Wetland, VL1, VL2, Vernal Pool, WL-4, WL-6, WL-7 (Boto Pond), WL-7 (West End Pond), Whitehorn Lake, Wolfwillow Wetland, Zapped Pond.</p>
<p>Spotted Frog (total:20 sites)</p>	<p>Backswamp, Blackpoll Ponds, Cascade Beaver Pond, Cold Pond, Curve Pond, Divide Ponds South, Floating Pond, Hayfield Pond, Lake of the Sticks North, Lake of the Sticks South, Moraine Creek Wetland, Osprey Pond, Pine Point Wetland, Smith Lake Area, Solitary Pond, South Channel (Moose Meadows), Sunshine Wetland: Pond #3, Pond #4 (Ochre), West Boundary Ponds, Whitehorn Lake.</p>
<p>Long-toed Salamander (total:49 sites)</p>	<p>Amphibian World, BVP North Pond, BVP South Pond, Black Pond, Busy Pond, Castle Cliffs Wetland, Cold Pond, Cory Pond, Crowberry Pond, Cutline Pond, Devil's Cauldron, East Boundary Pond, Fingers, Frog Hollow, Healy Pit Wetland, Hidden Pond, Hillsdale Wetland, Horse Pond, Ishbel Pond, Lakeside Pond, Lake of the Sticks South, Lizard Lake, Marvel Lake, Moose Meadow Pools, Muleshoe Pond, Norquay Pond, North Old Dump, Osprey Pond, Openside Pond, Muleshoe area: Pond #1, Pond #3. Ochre Minor, Powerline Pond, Quiet Pond, Ramshorn Pond, Ranger Creek Willow Flats, Rundlevieview Pond, Sora Pond, Stunted Spruce Pond, Sundance Pond, Sunshine Wetland: Pond #3, Pond #4 (Ochre Pond), Tall Willow Wetland, Tiny Herbert Lake, Upper Castle Cliffs Wetland, Upper Hidden Cliffs Wetland, WL-4, Whitehorn Lake, Zapped Pond.</p>

Table 6. Probable breeding sites in areas visited inside Banff National Park, 1992-2004 (adults present during breeding season, frogs and toads vocalizing).

<p>Boreal Toad (total:20 sites)</p>	<p>Allium Pond, Cave & Basin, 5-Mile Riverbend, Frog Hollow, Glacier Lake, Goldeneye Pond, Hayfield Pond, Island Lake, Lake of the Sticks North, Little Baker Lake, Lost Lake, Middle Springs, Ochre Minor, Primrose Pond, Quiet Pond West, Ranger Creek Beaver Pond, Ranger Creek Willow Flats, Sora Pond, Stunted Spruce Pond, Upper Spray Wetland.</p>
<p>Wood Frog (total:22 sites)</p>	<p>Antler Pond, Beaver Pond at Johnson Lake, Carrot Lake, East Boundary Pond, 5-Mile Riverbend, 5-Mile Wetland, Herbert Lake, Healy Fireroad Pond, Hidden Cliffs Wetland, Hidden Pond, Horse Barns, Johnson Lake, Little Herbert Lake, Moose Meadow Pools, Muleshoe Pond, Old Rock Pond, Prism Springs Wetland, Raven's Point Wetland, Turquoise Pond, Upper Hidden Cliffs Wetland, VL-3 West, VL-3.</p>
<p>Spotted Frog (total:7 sites)</p>	<p>Beaver Pond at Johnson Lake, Cave & Basin, Goldeneye Pond, Johnson Lake, Sora Pond, Upper Spray Wetland, VL-3.</p>

Table 7. Definite breeding sites in areas visited in Jasper and Kootenay National Parks, 1992-2004 (presence of eggs &/or larvae &/or young).

Boreal Toad	Kerr Ponds, Kootenay Lodge Ponds, Numa Pools, Simpson Mineral Lick, Simpson North.
Spotted Frog	Kootenay Lodge Ponds, Simpson Mineral Lick, Simpson South, Violet Pond.
Long-toed Salamander	Horseshoe Lake, Kootenay Lodge Ponds, Kootenay Pond, Numa Pools, Rescue Pond, Simpson Mineral Lick, Simpson North, Simpson Pool & Channel, Simpson South.

Table 8. Definite breeding sites in areas visited in the Bow Valley east of Banff National Park and areas in Kananaskis Valley, 1992-2004 (presence of eggs &/or larvae &/or young).

Boreal Toad	Chilver Lake, Elbow River, Elk Pass, Salamander Ponds, Quarry Lake.
Wood Frog	Bow Valley South Borrow Pit, Canmore Creek, Coyote Lake, Crescent Lake, Hilltop Pond, Quarry Lake, Salamander Ponds, Stony Meadow Pond, Willow Pond, Yellowleg Pond, Yellowleg West.
Spotted Frog	Buller Pond, Great Swamp, New Beaver Pond (Yamnuska), Old Beaver Pond, Stony Meadow Pond, Willow Pond, Yellowleg Pond, Yellowleg West.
Long-toed Salamander	Quarry Lake, Salamander Ponds.
Tiger Salamander	Crescent Lake.

Table 9. Probable breeding sites in areas visited in the Bow Valley east of Banff National Park and areas in Kananaskis Valley 1992-2004 (adults present during breeding season, frogs and toads vocalizing).

Boreal Toad	Many Springs, New Beaver Pond (Yamnuska).
Boreal Chorus Frog	Bow Valley South Borrow Pit, Middle Lake, Chilver Lake, Duck Pond, Muir Pond, Roadside Pool, Salamander Ponds, Weigh Station, Willow Pond.
Wood Frog	Beaver Ponds near CP tracks, Chilver Lake, Flowing Waters, Little Stony Pond, Meadow Lake, Middle Lake, Muir Pond, New Beaver Pond (Yamnuska), Old Beaver Pond (Yamnuska), Sheep River.
Spotted Frog	Muir Pond.
Long-toed Salamander	Old Beaver Pond (Yamnuska).

Location	UTM	Date dd/mm/yr	Time	H ₂ O t°C	T/W/S °C/codes	Spp. Code	# Young	# Adults	Comments	Photo #
Cave Outflow East, upstream of marsh (BW1)	598501E 5669636N +/- 5.5m	19/04/04	13:28		13/5/7	WGSN		1	50cm long, moving quickly downstream in water, disappeared under vegetation, photo	
Snake Stroll, by trees	598437E 5669599N +/- 4.2m	21/04/04	10:10		7/2/0	WGSN		2	Both 40-50 cm long, resting in sunny patch on ground, about 0.5m apart, both moved when photos taken.	
Snake Stroll, between timbers	598437E 5669599N +/- 4.2m	22/04/04	09:43		11/1/0	WGSN		3	One head only looking out from between timbers, one 40 50 cm long lying along timber, one closer to corner in veg. under trees, began moving toward other two, moving head sideways and back quickly. All in sunny patch. Photos	
Snake Stroll, by trees	598437E 5669599N +/- 4.2m	23/04/04	10:15		12/4/1	WGSN		2	Both 50-60 cm long, resting in leaves & veg. in sunny patch, photos	7429 (1st) 7430 (2nd)
Basin Outflow, origin, west bank	598427E 5669624N +/- 4.1m	23/04/04	10:15	~32	12/4/1	WGSN		1	50 cm long, resting along bank and in water, moved away when people walked by	7426
Snake Corner, under tree	598462E 5669600N +/- 7.3m	24/04/04	10:45		7/4-5/2	WGSN		2	40-50 cm long, resting in leaves and veg, coiled, about 10 cm apart, photos	7433 (both) 7436 (1st) 7438 & 7440 (2nd)
Snake Corner, under tree	598462E 5669600N +/- 7.3m	25/04/04	11:20		12/4/1	WGSN		1	40-50 cm long, moving slowly to corner, went into hole, lots of people walking by, came out of hole when people past and moved upslope, photos	7471, 7472, 7473
Snake Corner, "back door"	598462E 5669600N +/- 7.3m	26/04/04	11:47		17/2/0	WGSN		1	40-50 cm long, moving slowly from hole upslope to veg. under trees	
Snake Corner, under tree		27/04/04	10:58		15/4/2	WGSN		1	Mid-size snake moving slowly under leaves downslope, jerking head and flicking tongue	7486, 7487, 7488
Snake Corner, under tree		29/04/04	11:24		10/0/2	WGSN		1	50 cm long, resting on ground pointing towards corner	7507, 7508
Snake Stroll, by trees		01/05/04	11:40		17/1/0	WGSN		2	80 cm long, body diameter 4-5 cm, resting motionless partly in sun 2 nd snake in crack between timbers, only part of body visible, moved into crack when approached, no photo	7509, 7511

Location	UTM	Date dd/mm/yr	Time	H ₂ O t°C	T/W/S °C/codes	Spp. Code	# Young	# Adults	Comments	Photo #
Cave Outflow East		13/07/04	10:30	33	18/1/0	WGSN		1	30-40 cm, next to pipe, moved away when we approached	
Cave Outflow East		13/07/04	10:50		20/1/0	WGSN		1	30-50 cm, opposite falls, coiled motionless in sunny patch in veg.	
Cave Outflow East		13/07/04	11:00		21/1/0	WGSN		1	medium size, coiled in grass then moved toward horsebridge 2	
Basin Outflow, above first corner		13/07/04	12:58	33	21/0/2	WGSN		2	30-50 cm long, and 30 cm long, both in water about 1 m apart, both moved onto bank from water	
Basin Outflow, below 2 nd corner		13/07/04	13:00		21/0/2	WGSN	1		"Shoelace" under 20 cm, in veg., moved towards water as we moved by	
Basin Outflow, between Temp 2 & Temp 3		13/07/04	13:05		21/0/2	WGSN		1	Big, about 5 m below Temp 2, coiled in veg at edge of stream near willow branches, moved away slowly	
Basin Outflow, between Temp 2 & Temp 3		13/07/04	13:07		21/0/2	WGSN		1	Big, about 8 m. below Temp 2, coiled in veg under willow next to water (not same individual as above),	
Snake Corner		15/07/04	8:25		15/1/0	WGSN		1	30-40 cm, stretched out in veg next to timbers, resting	8665
Cave Outflow East, Base of Falls		25/07/04	8:45		-	WGSN		-	1 big snake skin in water	
Snake Stroll		25/07/04	8:50		-	WGSN		-	1 big snake skin on ground	
Cave Outflow East, Base of Falls		28/07/04	9:25		13/0/0	WGSN		1	30-40 cm, in water below boardwalk, swam to veg on island then under big rock	
Snake Stroll		01/08/04	10:00		20/2/2	WGSN		2	both >30cm, resting in veg	? 7176, 7177 (possibly 9176, 9177?)
Start of Snake Stroll		06/08/04	9:26		17/1/1	WGSN		1	resting in veg in sunny patch, next to path	
Cave Outflow East		06/08/04	9:40	32	17/1/1	WGSN	1		"Shoelace" under 20 cm, motionless in water pointing upstream between Base of Falls and BW1	9204
Snake Stroll, under trees		09/08/04	11:50		17/1/1	WGSN		1	30 cm, motionless, stretched out on ground	9247

Location	UTM	Date dd/mm/yr	Time	H ₂ O t°C	T/W/S °C/codes	Spp. Code	# Young	# Adults	Comments	Photo #
Basin Outflow		30/11/04	13:34		-/-	WGSN		1	20-30 cm, dead on bank above outflow pipe, partly coiled under evergreen branch, no external marks of predation (bite, etc.)	
Basin Outflow		19/12/04	12:49	33	-1/3/2	WGSN		1	30 cm, in water downstream of log on bank, swam over to bank	