

AMPHIBIAN SURVEYS
IN
BANFF NATIONAL PARK
and adjacent areas
2001

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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 2001. It also includes some observations by Brenda and Dwayne Lepitzki as well as a number of records of the park's only known snake species - Wandering Garter Snake (*Thamnophis elegans*) - which, with one interesting exception from Carrot Lake, were all from the Cave & Basin area as reported by the Lepitzkis. 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, 1994, McIvor and McIvor, 1995, McIvor and McIvor, 1996, McIvor and McIvor 1997, McIvor and McIvor, 1998, McIvor and McIvor, 1999, McIvor and McIvor 2000). 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. No new sites were visited during the breeding season although a juvenile wood frog was found in late summer at Silverton Pond. This, along with several other potential breeding sites will be checked next year. Unfortunately, not enough time was available to visit sites in the Lake Louise area, the Icefields Parkway north of Bow Pass, or even the Yamnuska early in the season.

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 earliest records for 2001 were of wood frogs calling on April 24 at Muleshoe Flats, east of Goose Pond and south of the railway tracks. This was one day later than the previous year. The first wood frog egg masses were found on April 27 at Goose Pond.

The first adult long-toed salamanders were seen on April 27 in West Pond at Amphibian World where eggs were found on May 3. We did not observe any spotted frog activity until much later in the year. This may reflect our choice of sites to visit although we have found evidence of their breeding in Osprey Pond and the Lake of the Sticks area in past years but not this time. The first boreal toad egg strings were found in Vernal Pool on May 10 but 4 days later the pool was completely dry. At Sunshine Wetlands, a number of boreal toad egg strings were found on May 17.

The latest records for the year came from Moose Meadow Ponds on September 23 where we found 5 young spotted frogs and 3 young boreal toads. All were along the south edge of the South Channel within one to three metres of the water. At only 15 mm. in length, the toadlets were smaller than some we had seen 10 days earlier at Carrot Lake.

One of the most noteworthy aspects of the year was the effect of relatively warm, dry weather conditions on some of the wetlands where amphibian breeding activity occurs. In places - e.g. Vernal Pool, Lakeside Pond, North Old Dump, Muleshoe Flats Pond #1 - the breeding ponds dried out before eggs could hatch or before

metamorphosis allowed young animals to leave the water. In others - e.g. Osprey Pond where long-toed salamander tadpoles were struggling to stay alive in two tiny, muddy puddles that contained the only water left in the pond on August 5, and Summit Pond where there were small boreal toad tadpoles on June 24 but that was dry on August 12 - we don't know for sure whether any young managed to survive. By the end of the summer, some wetlands - e.g. Sunshine Wetlands on September 18 - were at the lowest levels we have seen since we started visiting them. Implications for subsequent years if the dry period continues, are unclear.

It is possible that as higher air temperatures produce higher water temperatures, the processes of hatching and metamorphosis are accelerated somewhat. This may offset, to some degree, the more rapid drying of ponds that is caused by the same weather conditions. However, it is clear that in those wetlands most vulnerable to drought, for young amphibians, the line between survival and death by desiccation is thin indeed.

The surprisingly long life span of amphibians, given their small size, appears to be an evolutionary hedge against uncertainty in terms of annual conditions for successful breeding; but if recent drought becomes prolonged, it is possible some populations in relatively isolated sites may disappear over time. The potential for such events is not known, as is the possibility of eventual re-colonization. Whether current effects are temporary and local or part of a much larger-scale change related to global warming is a question that will be answered only through long term monitoring. We are pleased that Parks Canada has begun an amphibian monitoring program that includes assessing the state of selected breeding ponds. We sincerely hope this program will be continued and expanded.

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AMPHIBIAN SURVEYS IN BANFF NATIONAL PARK AND ADJACENT AREAS, 2001

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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 (UTM: PG092678) located south of the TCH, west of Carrot Creek. It is a large pond with beaver channels.
Wolfwillow Wetland (UTM: PG075690) located west of Carrot Lake. A series of channels and pools between Carrot Lake and CP tracks.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/06/08	15:30	23	19/0/1	BOTO	2	many		2	<u>Carrot Lake.</u> Found 2 fresh BOTO egg strings along the N edge near the N/W corner of lake. Found many hatchlings and small tadpoles on W edge of the N/W corner. Heard at least 2 calling where the fresh eggs were found.	M&DM
01/07/07	13:00	25	25/1/1	BOTO		3000+			<u>Carrot Lake.</u> Found tadpoles where strings had been. No legs showing. Size from small to large.	M&DM
01/08/21	15:00		22/4/0	BOTO			16		<u>Carrot Lake.</u> Tadpoles found in same area where tadpoles were.	MM
01/09/13	13:00		22/0/1	BOTO			7		<u>Carrot Lake.</u> Tadpoles seen on damp ground at E end and S side of Carrot Lake	M&DM
01/07/07	14:00		25/1/1	BOTO		500+			<u>Wolfwillow Wetland.</u> Found tadpoles at N end of pool on N side of track. Size from small to large.	M&DM

LAKE MINNEWANKA LOOP

LOCATION: 2-JACK LAKE AREA.

SITE DESCRIPTION: the "pipe traps" (UTM: PG045757) boxes (3) over water line north of the Lakeside Campground. One on either side of Minnewanka road and a third near 2-Jack Lake.

Black Pond (UTM: PG045758) small pool on west side of road and between road and 2-Jack Lake Campground.

Lakeside Pond. (UTM: PG046758) pond full of emerging vegetation on east on side of road, north end of 2 Jack Lakeside Campground.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/05/03				LTSA				3	"pipe trap" All found in E side trap.	MM
01/04/27									<u>Black Pond.</u> Dry.	M&DM
01/04/27	14:00	4.5	19/2/1						<u>Lakeside Pond.</u> Pond half frozen, open at N end, frost line near the surface.	M&DM
01/05/03	17:00	11	13/3/1	WOFR			Few		<u>Lakeside Pond.</u> Heard a few, saw 1. Water levels low. No egg masses.	M&DM
01/05/09	8:00		07-/1	WOFR	4				<u>Lakeside Pond.</u> Water levels dropping. Egg masses: 1 of 2, 1 of 2	MM
01/05/16	8:15		1/1/7	WOFR	8				<u>Lakeside Pond.</u> Pond is almost dry, small area of very shallow water had egg masses on the surface of matted vegetation.	MM
01/05/18	14:20		10/3/2	WOFR	dead				<u>Lakeside Pond.</u> Found 10 egg masses dried up. The embryos had just started to elongate. No standing water or pools left.	M&DM

LOCATION: Quiet Pond (UTM: PG035745).
SITE DESCRIPTION: small pond south east of Bankhead.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/05/18	15:00	9	10/2/2	WOFR	5+				West of Quiet Pond. Only water left in the small pools, water about 8 cm. deep. Found 5 egg masses at bottom, covered in sediments. Saw 4 more that were high and dry. Found on E side of wetland 1 of 2 and 1 of 1 that had also dried up (picture of 1).	M&DM
01/05/18	16:20	10	10/2/2	WOFR LTSA	14 9				In Quiet Pond found WOFR egg masses at S end in fairly deep water: 1 of 1, 1 of 1, 1 of 12 (all starting to elongate). LTSA egg masses all found in one area on N side (elongated, a few dead embryos).	M&DM

LOCATION: North Old Dump Wetland (UTM: PG038742).
SITE DESCRIPTION: shallow pond choked full of reeds and sedges, north of road through old dump site on Lake Minnewanka road loop.
Vernal Pool (UTM: PG039741) Small pool east of North Old Dump Wetland.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/04/27	14:10	14	19/2/1						North Old Dump. Area mostly open, water shallow, frost line below the surface of muck at bottom.	M&DM
01/05/03	17:30	13	13/2/1	WOFR	20			16+	North Old Dump. Heard many, saw 16. Found 1 of 20 fresh e.m. and 1 pair in amplexus near cluster.	M&DM
01/05/18	17:00	8	10/2/2	WOFR LTSA	90+ 5				North Old Dump. Water as deep as 20 cm. left in some pools on E side. A lot of new egg masses: 1 of 1, 1 of 1, 1 of 2, 1 of 11, 1 of 5, 1 of 2, 1 of 7, 1 of 1, 1 of 1, 1 of 8, 1 of 3, 1 of 1, 1 of 1, (all quite fresh), 1 of 19 (fresh and with a few dead embryos), 1 of 1, 1 of 1, 1 of 3, (50% dead, rest starting to elongate) 1 of 1, 1 of 2, 1 of 1, 1 of 1, (elongating) 1 of 1, 1 of 1 (mostly dead) The original egg masses found near the surface with 10% dead eggs, the rest as hatchlings.	M&DM
01/05/09	21:40		5/0/0	BOTO				few	Vernal Pool. Heard from a very shallow pool. Could hear WOFR calling from North Old Dump.	DM
01/05/10	8:30	5	3/0/0	BOTO	2				Vernal Pool. 2 fresh strings in deepest part of small pool.	MM
01/05/14									Vernal Pool. Pond dry, eggs dried up.	MM

VERMILION LAKES AREA

LOCATION: Cave & Basin Area. (UTM: NG985695).

SITE DESCRIPTION: marsh complex fed by a sulphur spring.

Sundance Pond (UTM: NG987697) located between Warner's stables and the Cave & Basin berm.

Middle Springs (UTM: NG989899) located below Sulphur Mountain Upper Hot Springs and above Middle Springs housing development.

Healy Fireroad Pond (UTM: NG956683) small pond along the Healy fireroad east of Brewster Creek trail junction.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/06/21	10:30	32		BOTO				1	Cave & Basin. Seen in the upper spring.	D&BL
01/05/10	15:30	14	12/2/1	WOFR	11				Sundance Pond. Seen at W end of pond and around a point on E side. Eggs fresh, mostly covered with silt (pond silty possibly as a result of wind which made it difficult to see eggs). Water depth about 20 cm.	M&DM
01/05/22	12:15	33	16/0/2	BOTO				1	Middle Springs. Seen in water in Lower Middle Springs.	D&BL
01/05/25	13:20		-/1/1	BOTO				1	Middle Springs. Seen in culvert at Lower Middle Springs.	D&BL
01/06/20	11:00	28		BOTO				1	Middle Springs. Large female toad in shallow water, near wall in the Upper Middle Springs West Cave.	D&BL
01/05/09	a-noon			WOFR				many	Healy Fireroad Pond. Many WOFR heard singing vigorously. Stopped as we got near.	D&BL

LOCATION: Norquay Pond. (UTM: NG991715).

SITE DESCRIPTION: pond located just east of Norquay Interchange on north side of TCH. The pond is choked with reeds and sedges.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/05/03	18:30								Water extremely low. Channel dry in sections. Nothing seen.	M&DM

LOCATION: Vermilion Lakes complex.

SITE DESCRIPTION: Major wetland forming 3 lakes in BNP west of town of Banff and south of TCH.

Rathole (UTM: NG96998), west of VL2

Fingers (UTM: NG954695), south of CP Rail and south of VL3

VL2 & VL3: area between VL2 & VL3

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/08/16	13:50		30/1/1	WOFR			1		VL2 & VL3. Seen about 6 m. from water, in wet sedges along dry streambed. Size: 4 cm.	D&BL
01/08/16	12:55		30/1/1	BOTO			4		VL2 & VL3. Saw 2 10 m. from water in sedge and mud and 2 in dry streambed. Size: 2 cm.	D&BL
01/08/16	13:17		30/1/1	WOFR			7		Rathole. Seen in N/E section, in sedges about 1 m. from wet mud in streambed. Size: 4 cm. Pond dry.	D&BL
01/06/06	13:20	14	15/1/2	WOFR	4	Few			Fingers. Saw at least 4 old egg masses. Spotted a few tadpoles in dark water.	M&DM

SUNSHINE WETLANDS

LOCATION: Sunshine Wetlands. (UTM: NG908682).
SITE DESCRIPTION: calcaerous ponds just west of Sunshine turn-off, on north side and beside the TCH.
Pond #1 & West (UTM: NG907682).
Pond #2 (UTM: NG907683).
Pond #3 (UTM: NG908686).
Pond #4 (Ochre Pond) (UTM: NG907685).
Ochre Minor (UTM: NG907686).

DATE	TIME	H2O °C	T/W/S	SPECIES	egg mass	larvae	young	adult	NOTES	seen by
01/05/17	14:30 - 17:00	14.5	12/2/11	WOFR BOTO	1 5			3	Pond #1. WOFR egg mass: fresh, found on W side. BOTO adults seen in different areas around the pool. The point at S end closest to TCH is dry for the first time.	M&DM
01/07/06	12:00 - 15:15	22	23/2/11	WOFR BOTO		40+ 8000+	19 juv.	1	Pond #1. Pond shallower. WOFR tadpoles concentrating. Juv. BOTO 20-40mm. long. BOTO tadpoles all around pond, 50% with hind legs.	MM
01/05/17	14:30 - 17:00	21 19	12/2/11	WOFR BOTO	5 1				West of Pond #1. WOFR egg masses: all single, all fresh. BOTO string beginning to hatch. Less water than usual in these ponds.	M&DM
01/05/17	14:30 - 17:00	18.5	12/2/11	BOTO	4				Pond #2. BOTO strings found in E bay area and one on W side.	M&DM
01/07/06	12:00 - 15:15	22	23/2/11	WOFR BOTO		40+ 300+	2 juv.	1	Pond #2. BOTO tadpoles: 50% with hind legs, one seen with all legs.	M&DM
01/09/18	a-noon		17/1/2						Pond #2. Pond about half its original size, dried out into 2 separate pools.	MM
01/05/17	14:30 - 17:00	17	12/2/11	BOTO	3		3	2	Pond #3. Saw 3 small toadlets on E side. Had to have wintered as toadlets. Found a pair in amplexus on N side (unusual site for them). Found 3 strings on W side.	M&DM
01/07/06	12:00 - 15:15	22	23/2/11	WOFR BOTO		200+ 1000+	2 juv.	2	Pond #3. Most tadpoles were on west side.	MM
01/09/18	a-noon		17/1/2						Pond #3. Pond dry except for a small shallow pool in N/W corner.	MM
01/05/17	14:30 - 17:00	15	12/2/11	WOFR LTSA	30 25				Pond #4 (Ochre Pond). WOFR egg masses: 1 of 1 (fresh), 1 of 1 (hatchlings), 1 of 1 (hatchlings), a few dead embryos, 1 of 10 (hatchlings), 1 of 1 (hatchlings), 1 of 16 (hatchlings, quite a few dead embryos), LTSA eggs with elongating embryos, mostly found on W side as usual. Found 1 dead WOFR adult.	M&DM
01/07/06	12:00 - 15:15	23	23/2/11	WOFR BOTO LTSA		500+ 50+	1 juv.	1	Pond #4 (Ochre Pond). LTSA larvae from small to large size. One predator (insect larvae) seen with one larvae.	MM
01/09/18	a-noon		17/1/2						Pond #4 (Ochre Pond). Pond dry.	MM
01/05/17	14:30 - 17:00	14	12/2/11	WOFR BOTO	10			1	Ochre Minor. WOFR egg masses: fresh egg masses: 1 of 1, 1 of 1, elongating embryos: 1 of 1, 1 of 1, elongating embryos + hatchlings, 1 of 2, 1 of 1, 1 of 1	M&DM
01/07/06	12:00 - 15:15	22	23/2/11	WOFR		500+			Ochre Minor.	MM
01/09/18	a-noon								Ochre Minor. Pond dry.	MM

LOCATION: TCH WEST

SITE DESCRIPTION:

WL-7 (Boto Pond) (km. 36.8 -37.5) (UTM: NG834749) large gravel pit with pond at east end of disturbed area. Has drainage channel to the Bow River on north side. Stump Pond and West End Pond are at the west end of that complex.

DATE	TIME	H2O °C	T/W/S	SPECIES	egg mass	larvae	young	adult	NOTES	seen by
01/06/03	12:15	12	12/1/2	BOTO	2				<u>WL-7 (Boto Pond)</u> . One fresh egg string and one string with hatchlings on S side and at E end	MM
01/06/03	11:30	11	12/1/2	WOFR	1				<u>WL-7 (West End Pond)</u> . Egg mass with hatchlings.	MM

BOW VALLEY PARKWAY

LOCATION: BVP Wetland.

SITE DESCRIPTION: series of ponds on North (UTM: NG937694) and South side (NG936693) of CP tracks at the start of the Bow Valley Parkway. Cory Pond (UTM: NG934693) is located west of South Ponds on south side of CP tracks.

DATE	TIME	H2O °C	T/W/S	SPECIES	egg mass	larvae	young	adult	NOTES	seen by
01/05/22	13:50	16.5	23/1/0	WOFR LTSA	7 29			2+	<u>North Pond</u> . Water shallow and silty. WOFR eggs found mostly in water 8 cm. deep. Eggs covered with silt. All egg masses were single clusters, at dot stage or barely elongating, located all over pond. LTSA eggs also fresh. Heard 2 WOFR.	M&DM
01/05/22	15:30	17.5	23/1/0	WOFR LTSA	1 5			1	<u>South Ponds</u> . Water very low (barely 2 puddles at E end). Water also silty. Saw the silted eggs near the surface. Heard 1 WOFR.	M&DM
01/05/22	15:30								<u>Cory Pond</u> . Pond dry.	M&DM

LOCATION: Muleshoe Area

SITE DESCRIPTION: series of wetlands, ponds that are described as from east to west:

- Hole-in-the-Wall Pond** (UTM: NG897696) backwater of the Bow located just east of Muleshoe pond and on south side of railway tracks.
- Antler Pond** (UTM: NG894697) backwater of the Bow located just east of Muleshoe pond and on south side of railway tracks, and west of Hole-in-the-Wall Pond.
- Muleshoe Pond** (UTM: NG895702) large pond, river meander cut off by railway tracks.
- Primrose Pond** (UTM: NG891704), a beaver pond complex on south side of railways track and at south end of Pond #3.
- Pond #1** (UTM: NG892705) small wetland (choked with reeds) just west of Trans Alta fenced area, on north and beside CP tracks.
- Pond #3** (UTM: NG891705) opposite Pond #1, below and on south side of track - channel that runs along track and south to Primrose Pond.
- Channels West** (UTM: NG890705) running parallel and on both side of the railway tracks from Pond 2 to Goose Pond.
- Goose Pond** (UTM: NG891706) 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
01/07/28			20/1/2	WOFR				1	Antler Pond. Seen in small rill between Antler Pond and Hole-in-the-Wall Pond to the east.	M&DM
01/09/14	15:30		25/0/0	BOFO			9		Muleshoe Area. Saw 6 toadlets along edge of channel or backwater S of tracks W of Muleshoe Pond. 3 more seen at edge of pond, S of tracks and across from Muleshoe Pond.	MM
01/04/27	16:30	20	19/2/1	WOFR	20			120+	Goose Pond. Found egg masses all together in S/W corner of shallow pond: 1 of 15, 1 of 3, 1 of 2.	M&DM
01/14/24	16:30		14/2/2	WOFR				12	Pond #1. Nothing seen or heard. Frost line deep in muck.	M&DM
01/04/27	15:45	19	19/2/1	WOFR				12+	Pond #1. Water very shallow (12 - 20 cm). Saw and heard 12 WOFR. A few more calling up the channels.	M&DM
01/05/08	17:00	18	15/1/1	WOFR	149				Pond #1. Water shallower since last survey. Egg masses in shallow water: 1 of 30, 1 of 46, 1 of 7, 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 24 (almost dried-up), 1 of 21, 1 of 6, 1 of 2, 1 of 1, 1 of 1, 1 of 1.	M&DM
01/06/11									Pond #1. Almost completely dry.	MM
01/04/27	16:05		19/2/1	WOFR				12+	Pond #3. More water than in Pond #1. Saw 12 and heard a few more up the channels.	M&DM
01/05/08	17:15	17	15/1/1	WOFR LTSA	29 8			5+	Pond #3. Heard and saw 5 WOFR egg masses: 1 of 1, 1 of 1, 1 of 1, 1 of 1, 1 of 5, 1 of 1. LTSA egg masses in deeper water in a very small pool.	M&DM
01/04/27	16:05		19/2/1	WOFR				some	Primrose Pond. Pond mostly frozen. Water levels low. Open water at S end where WOFR heard.	M&DM
01/04/24	16:30		14/2/2	WOFR				3	Channels West. Heard 3 WOFR calling in channels running parallel to tracks.	M&DM
01/04/27	20		19/2/1	WOFR				6	Channels West. Heard WOFR at several places along the channels on S side of tracks opposite Goose Pond. Nothing seen or heard in pools nearby and the water level in them was high.	M&DM

LOCATION: Stunted Spruce Pond (UTM: NG889713).

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
01/05/06	15:40			WOFR					Heard a few.	M&DM
01/05/08	16:00	14	15/1/1	WOFR LTSA	28 49			26+	Heard many WOFR, in 3 groups, on N side. Saw 26. Fresh egg masses: 1 of 5, 1 of 3, 1 of 6 (at E end and on N side) 1 of 1, 1 of 1, 1 of 12 (at W end, middle of pool, and on N side), attached to horsetail, submerged sticks, grass blades. Saw 2 WOFR in amplexus near a cluster of 12 egg masses. Female was in the process of depositing eggs.	M&DM

LOCATION: Ranger Creek Willow Flats. (UTM: NG872733).

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 (UTM: NG873727) 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
01/05/06	15:35								Slush on the surface. Nothing heard.	M&DM
01/05/21	14:15		14/1/2	WOFR				some	Few heard. Tentative calls.	M&DM

LOCATION: Hillsdale Area

SITE DESCRIPTION: Hillsdale Wetland: (UTM: NG848758) series of calcareous pools located northwest of Hillsdale Meadows.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/06/03	14:15	12	12/1/2	BOTO	1	250+			<u>Hillsdale Wetland</u> . Found one BOTO string in larger pool covered with silt. Found small tadpoles in smaller pool.	MM

LOCATION: Frog Hollow (UTM: NG834755).

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
01/05/06	15:30								Pool open. Nothing heard from parkway.	M&DM
01/05/13	17:00			WOFR				Few	Heard faint calls.	M&DM

LOCATION: Lizard Lake (UTM: NG830757).

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
01/07/31	a-noon	19	19/1/2	WOFR		1		6	Found tadpole in shallow water at E end. Adults hopped in from shore.	M&DM

LOCATION: Moose Meadow Wetland. (UTM: NG795785).
SITE DESCRIPTION: series of ponds just west of Johnston Creek in a rehabilitated site (old gravel pit) between CP tracks and river.
South Channel: natural channel relatively undisturbed on south side of disturbed area.
Moose Meadow Pools (UTM NG802783) 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
01/09/23	a-noon		23/0/0	SPFR BOTO			5 3		South Channel. SPFR froglets approx. 30 mm. in size. Toadlets approx. 15 mm. long. Seen on S. side of channel along the damp shoreline, 1 - 3 m. from water.	M&DM
01/05/06		13 (N) 16 (S)	10/2/1	WOFR LTSA	28			2+	Moose Meadow Pools. Heard WOFR in each pool. Found LTSA egg masses: 12 in N pool, 16 in S pool.	M&DM
01/05/13	16:40	17 (N) 19 (S)	16/2/2	WOFR LTSA BOTO	28			2 1	Moose Meadow Pools. Heard 1 WOFR in each pool. Saw 1 BOTO in S pool. LTSA eggs seen last survey are elongating.	M&DM
01/05/21	13:45		14/1/2	LTSA					Moose Meadow Pools. LTSA eggs elongating.	M&DM
01/05/31	15:30		20/1/1	LTSA		few			Moose Meadow Pools. LTSA larvae seen at bottom of S pool. Only a few remaining inside eggs.	M&DM
01/06/19	16:30		22/1/1	WOFR LTSA		12+		1	Moose Meadow Pools. Saw LTSA larvae in S pool. Larger now. None seen in N pool. WOFR adult seen beside a small pool S of S pool.	M&DM

LOCATION: Castle Junction Area.
SITE DESCRIPTION:

Silverton Pond (UTM: NG773811) pond located 2 km. north of Silver City and east of Silverton Creek.
Curve Pond (UTM: NG78784) located west of trail to Twin Lakes.
Boom Lake Trailhead (UTM: NG683777) 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
01/08/26	14:30	17	23/0/1	WOFR			1 juv.		Silverton Pond. Found at edge of pond. (Picture)	M&DM
01/06/16	14:00 - 15:00	2 14	9/1/2	WOFR			1		Curve Pond. Found the adult in a fill close to Bottomless Pond (water 2°). The juvenile was in the shallow N end of Curve Pond (water 14°). Surveyed the entire shoreline. Too late for egg masses, hatchlings and tadpoles?	M&DM
01/05/31	15:15		19/1/1	BOTO	6				Boom Lake Trailhead. Strings with hatchlings.	M&DM

LOCATION: Bow Valley Parkway west of Castle Junction.
Site Description:

Castle Cliffs Wetland (UTM: NNG748807) located 1 km. west of Castle Junction, on north side of Parkway.
Island Lake (UTM: NG617934) located approximately 1 km. north of BVP, just east of Outlet Creek.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/06/03	13:30	8	12/1/2	WOFR LTSA	9 23				Castle Cliffs Wetland. WOFR egg masses: 1 of 6, 1 of 1, 1 of 1, 1 of 1, (all elongating and some hatchlings). LTSA eggs: fresh with a few dead embryos)	MM
01/07/23	12:00 - 15:00	24	24/1/1	WOFR BOTO		20+		4 1	Island Lake. Saw 2 WOFR adult near outlet and 1 BOTO on lakeshore near outlet. Found 2 WOFR adult and tadpoles with hind legs showing in a small pond on S side of lake.	M&DM

ICEFIELDS PARKWAY

LOCATION: Icefields Parkway.

Bow Summit Pond (UTM: NH350298) located on east side of Bow Summit, beside old abandoned road. Elevation 2070 m.

Num-ti-Jah Pools (UTM: NH370253) located just across the lakeshore trail from Bow Lake.

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/06/24	10:00		15/2/1	BOTO		some			<u>Bow Summit Pond.</u>	M&DM
01/08/12									<u>Bow Summit Pond.</u> Pond completely dry.	M&DM
01/07/18	10:00		9/1/2	BOTO		100+			<u>Num-ti-Jah Pools.</u> Small tadpoles found in one of the pools near foot bridge along lakeshore.	MM

Other sightings in Banff National Park

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/08/04	15:00		22/1/1	BOTO			1 juv.		One juvenile 30mm. long seen in damp grassy edge of river below mouth of Wolverine Creek.	MM

AREAS IN KOOTENAY, YOHO, JASPER NATIONAL PARKS

LOCATION: Kootenay National Park.

SITE DESCRIPTION:

Simpson Mineral Lick (UTM: NG733496) located 1.2 km. north of Simpson River Trailhead, on east side of Kootenay Parkway.

Simpson South (UTM: NG733496) approximately 400 m. north of Simpson River Trailhead, on west side of parkway and on the other side of a low ridge with culvert separating it from Simpson North.

Kootenay Pond (UTM: NG674380)

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/05/06		14.5	10/1/1						<u>Simpson Mineral Lick.</u> Nothing seen or heard. Water levels normal.	M&DM
01/05/13	16:00	22		SPFR BOTO	3 1				<u>Simpson Mineral Lick.</u> Found SPFR egg masses (elongating, few hatchlings) and BOTO string (silted) in main pool. Nothing in other pools.	M&DM
01/05/31	14:15		18/1/1	SPFR BOTO	3 3	2			<u>Simpson Mineral Lick.</u> Found SPFR tadpoles & hatchlings around BOTO string in main pool. Still nothing in other pools.	M&DM
01/05/06		12	10/1/1						<u>Simpson South.</u> Water extremely shallow. One small puddle left at S end.	M&DM
01/05/31	14:00		18/1/1	SPFR	3	1			<u>Simpson South.</u> Water had come up to the brim. Found 3 disintegrated egg masses and 1 tadpole.	M&DM
01/05/04	12:00		12/0/1	LTSA			13	1	<u>Kootenay Pond.</u> Found under logs. Picture of a juvenile. Water levels low. Ice still under the ground surface.	M&DM

AREAS IN THE BOW VALLEY EAST OF BANFF NATIONAL PARK

LOCATION: Yamnuska Natural Area.
SITE DESCRIPTION: at the base of Mt. Yamnuska and Mt. Loder north of Seebe.
Crescent Lake: (UTM: PG323625).
Great Swamp (UTM: PG331631)
Muir Pond: (UTM: PG332645).

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/08/11	a-noon		27/1/0	WOFR			21	4	Crescent Lake. Froglets and adults seen at W end. Small pond at W end had dirtied up.	M&DM
01/08/11	a-noon		27/1/0	SPFR			1	2	Great Swamp. Seen in the fill crossing the swamp and the juv. was seen where the fill runs through a wooded area. Picture of adult in water.	M&DM
01/05/26	15:15		24/1/1	SPFR				1	Muir Pond.	MM

Other sighting in Peter Lougheed Provincial Park

DATE	TIME	H2O °C	T/W/S	SPECIE	egg mass	larvae	young	adult	NOTES	seen by
01/07/24	11:00	12/1/8		BOTO		50+			Elk Pass (PG363063) Tadpoles were in a small pool near the creek, near the trail, 1.5 km. below the pass.	M&DM

REPTILE RECORDS

DATE	TIME	H2O °C	T/W/S	SPECIES	young	adult	NOTES	seen by
01/01/05	13:30		-2/-/-	WGSN		1	Cave & Basin. Outflow west above boardwalk - on top of snow - killed - short-tailed weasel present and left. Snake 82.25 cm. long.	D&BL
01/01/05	14:35		0/0/0	WGSN		1	Cave & Basin. Resting under the Basin outflow pipe. Size greater than 45 cm.	D&BL
01/03/29				WGSN			Cave & Basin. 4 separate shed snake skins found at lower C & B cave origin, Cave Outflow East Flats, and Basin outflow.	D&BL
01/04/25	13:25 13:40 13:40	31		WGSN		3	Cave & Basin. One found at Cave spring outflow west - size 60 cm. long plus a shed skin, both in water. One at 'snake corner' beginning of boardwalk area. Size: 30 cm. long. One coiled on grass, dull colour, wide body, stubby tail.	D&BL
01/05/23	06:30		6/1/1	WGSN		1	Cave & Basin. Found coiled on access road by cave outflow east.	D&BL
01/05/23			20/1/3	WGSN		1	Cave & Basin. Found sunning on ground at 'snake corner'. Size: 30-45 cm. long.	D&BL
01/05/23			20/1/3	WGSN			Cave & Basin. Cave outflow east. Found one dead dried up snake below pipe. Size: 30 cm. long.	D&BL
01/05/23	13:40		20/1/3	WGSN		1	Cave & Basin. Basin outflow stream - a snake 30 cm. long on grass and one big shed skin.	D&BL
01/06/21	12:30			WGSN		4	Cave & Basin. Snake corner - a snake entering corner hole. 1 large (90cm.) coiled on ground, 2 snakes (60 cm.) resting on ground.	D&BL
01/06/21	13:25			WGSN		1	Cave & Basin. Basin outflow - moving towards marsh - 60 cm. long.	D&BL
01/06/21	a-noon			WGSN		1	Cave & Basin. Seen on path near horse bridge east - moving to water under the bridge - 30 cm. long.	D&BL
01/07/18				WGSN			Cave & Basin. Cave outflow west below pipe - one shed skin 1.5 to 2" wide.	D&BL
01/07/18	14:30	27	15/-/2	WGSN	1		Cave & Basin. Basin outflow stream - one small snake lying along bank in the water.	D&BL
01/08/15	12:30			WGSN	1		Cave & Basin. Cave outflow west - one small (20cm.) snake on ground moving fast.	D&BL
01/08/15				WGSN			Cave & Basin. Cave outflow east, basin outflow stream, upper and lower spring outflow - 4 shed skins.	D&BL
01/08/15	14:20	32		WGSN	1		Cave & Basin. Upper and lower springs outflow, outlet pool - snake (20 cm.) resting on sunny bank.	D&BL
01/08/21	15:00		22/2/1	WGSN		1	Carrot Lake. Seen in grassy/reedy area at N/W corner of lake. Size: 45 cm. long, slender. Might have been feeding on toadlets?	MM
01/09/13	13:10			WGSN		3	Cave & Basin. Snake corner - all 30 cm. long - resting on ground at corner.	D&BL
01/09/13	14:40	31	21/-/-	WGSN	1		Cave & Basin. Basin outflow stream - small (20 cm.) hanging from vegetation over the stream.	D&BL
01/09/13				WGSN			Cave & Basin. Cave outflow west - 2 shed skins one of which very large, other one very wide found below falls.	D&BL
01/11/20				WGSN			Cave outflow east pipe and flats: 2 more shed skins.	D&BL
01/11/20				WGSN			Cave & Basin. Basin outflow stream - one snake in leaf litter, not active - 20 cm. long.	D&BL
01/12/04				WGSN			Cave & Basin. Cave outflow east - base of falls - one shed skin in water.	D&BL