

Monitoring Two River Otters

on the

Colorado River

in

Early 1988

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Loose Items Accompanying This Report

Photos: 28 photos in four plastic pages 8"x11".

Scat Specimens: 7 specimens, each in a clear plastic ziplock baggie (one specimen is in a doubled baggie) all sandwich bag size.

While driving along the Colorado River on Highway 128 to work on another project, I saw two river otters swimming upstream beside the rapids at river-mile 76. Thereafter, for an indefinite period I was to:

- (1) When possible, monitor otter activity during any morning active period
- (2) Collect accessible food remains & scat samples
- (3) Search for otter signs along other parts of the river

Since little is known about otter presence in Utah, including on the Colorado River where there has been no documentation of otter presence for a few decades, the overall objective was to obtain any information that might be useful to future studies of Utah otters. Due to this lack of basic information, I collected details on such things as scat and track identification.

The enclosed maps show various river-mile points as circled numbers. Along Hwy 128, which follows the river along the stretch of interest, the map shows points in respect to the highway mileage markers by numbers in parentheses. In the text, river miles will be preceded by "RM", and highway mile marker points by "MM".

Also, a number preceded by "A", e.g. A2, refers to an area of concentrated otter activity. When this is followed by "L", e.g. A2L, it refers to a latrine site.

Otter sightings were made on 10 of 16 field searches during Feb. 2-24. Usually two otters were seen and it became clear that they were the only two present. Feb. 24 was the last day an otter was seen, but their locations were still occasionally revealed by sign thru March 16. Thereafter, no sign was found at A8L, A5L & A1L when checked on March 22 & April 20, nor at A8L when checked on June 9. No otter sign was found at numerous other areas checked from Fish Ford (RM105.7) down to the Potash landing (RM47.3).

The 16 field searches started daily around 0700 to 0730 and usually ended around 1000 to 1100, but an all-day monitor was done on Feb. 15 from 0730 to 1800, when it became too dark to see. The hour with the most otter sightings was 0800-0900, but none of the others from 0700-1100 were covered as often, plus during those other hours I was more often moving by either arriving, leaving, or walking the shoreline looking for tracks or scat.

Otherwise, there was no predictable pattern of morning activity. How much my presence may have caused inactivity is hard to say. At least once (& probably other times) the otters seemed to be aware of me up on the cliff at 200 yards or more, even one or two hours after I had arrived at dawn. Other times at much closer ranges, they sometimes fled and sometimes came closer. The two different sequences of otter photos enclosed were both taken at about 100 yards on calm days. During the first occasion they didn't flee even though I was standing up in the open (but moving slowly); but during the second time the otter fled when it heard the shutter click, even though I was completely hidden behind a boulder. My last sighting was of an upstream otter that saw me from 40 yards while swimming downstream towards my position. When at 30 yards it dove, but to my surprise I followed its bubbles to where it popped up seven feet before me and looking right at me (it immediately dove and went on downstream). There were hints that these different reactions were the results of two different otter personalities.

The Numerous morning sightings clearly show much (but sporadic) winter daytime activity at least to 1100. Using the optimum method of viewing a known otter location from a high cliff viewpoint, the remaining daylight hours were covered only on the all-day monitor of Feb. 15. From 0730 to 1800, activity occurred at the times below. A single time means activity lasted 1 min. or less. Number of otters visible is in parentheses.

Morning		
(1)	0825	=1 min.
(1)	1041	=1
(1)	1042-1045	=3
Total Minutes=5		

Evening		
(1)	1545	=1 min.
(2)	1613-1617	=4
(2)	1622-1624	=2
(1)	1659	=1
(1)	1659-1703	=4
(1)	1731	=1
(1)	1749	=1
(1)	1754-1757	=3
Total Minutes=17		

These short periods may be due to a developed wariness. The best day was the first day I saw them, Feb. 2. In $1\frac{1}{2}$ hours (0735-0850) I saw one or both otters for 1hr & 6min., at which time I left while they were still in sight.

The relationship between the two otters is unknown. They both appeared to be full-grown or close to it, but one appeared to be slightly shorter in length and leaner. No ear tags were visible, but weather and distance may have hindered tags being visible. They did almost everything together or with one closeby in a den, and were never visibly antagonistic toward each other. Once they groomed each other simultaneously with paws and teeth for one minute. Whenever one otter initiated play or travel, or was noticeably more lively, it usually seemed to be the smaller of the two.

A January coldsnap covered much of the river with ice (see Map 1). Apparently just before this the otters were residing around RM69.6, indicated by A8L containing about 30 old scats. During the freezeup they moved upstream and were first seen on Feb. 2 at A1 (RM76.15). Though they were obviously using underwater entrances to beaver holes there, their primary daytime den seemed to be at A2 (RM75.7), where they were usually last seen many mornings; but by Feb. 11 they may have been spending most or all days at an A4 bank den. At this time A2, a cavity on the ground under an ice slab, may have been deteriorating from the warmer day hours (except for A2, A1-A7 all contained beaver dens which the otters used [A7 was assumed to be used]).

While I was absent during Feb. 5-8, the otters took a long excursion, going about $1\frac{1}{2}$ miles both upstream and downstream from A2. Whether or not this was due to a desire to move elsewhere, they steadily moved downstream as the ice cover below A2/4 melted and broke up. They were at A5 (RM75.4) by Feb. 18 and A6 by Feb. 22. My last otter sighting on Feb. 24 (RM75.0) was still only .7 mile below A2. Within four days breakup was complete on the entire river.

After the Feb. 24 sighting, no additional sign was found above A7, but signs were later found downstream. Scats and tracks showed the otters to be at A8L (RM69.6) and nearby (RM69.1 to 70.85) sometime between March 11 & 16. The nature of the findings indicated it was possible that the otters were moving back upstream. However, though additional searches were few and at limited locations, no other sign has been found to date.

Composition & Appearance

Though otters are reported to have eaten birds and mammals, especially sick muskrats, such is the exception, and no mammal or bird parts were found during eye examination of 60 or so scats examined at major latrine sites. All scats containing all fish parts (about 65) or a fish/crayfish combination (about 5) were considered otter scats. Any scat completely of crayfish parts (about 7) were considered as possibly from raccoon, the tracks of which were very common.

Most scats were a dense mass of fishbones and scales, but their firmness varied from a watery gelatinous flat spot to the stereotype cylindrical form, apparently determined by the amount and density of oily liquid accompanying the solids upon deposition. Less (or denser) liquid meant a more cylindrical shape which would be firmer upon deposition but would often become brittle sooner with age. The liquid medium tended to glue all but the firmest scats to rock, and also held the contents together longer as the ratio of medium increased.

The overall color of all fresh scats was oily black or close to it, probably pigmented by the dark tissues of the fish. With more medium present, dark hues of green and brown were discernable. The outer hard parts tended to turn white sooner on the firmer scats, due to the thinner layer of medium wearing away sooner. The orange color of the crayfish's outer shell was very visible even in scats bleached with age.

Although fresh scat on a rock may retain moisture inside and on its bottom for a few days, softening may be caused also by recent rain. Some fresh scats found on Feb. 18 had dried out within a week, with cracks forming early on a thick puddle of a liquid scat (Photo 23), but after a heavy rain at minimum age of 12 days the cracks disappeared and all the scats had the fresh soft gelatinous appearance and color of new scats.

However, rain, and probably freezing/thawing, does tend to degrade the liquid-type scats in two ways.

(1) The medium around the bones settles or disappears, making the bones more sharply defined.

(2) The edges of the hard liquid where it contacts rock, while sharply defined when new, begin to dissolve and become vague.

These effects are visible in the photos taken of the same scats when close to new (Photos 21, 23 & 25) and when about 36-39 days old (Photos 22, 24 & 26). With this effect of moisture and freezing on scat decomposition in mind, it's possible hot and dry weather may retard aging or cause it in other ways.

The figure of 70 analyzed scats is a rough estimate because: scats were at times on top of each other; though boulders with a wide top surface were most often used, the surface still usually slanted and allowed scats to roll, especially old dry ones; scats could have been moved or broken, especially at latrine sites. Of the 70 scats, I roughly divided them into:

Composition & Appearance (cont'd)

- (1) Solid Scats - 40 (57%)
 - a. Includes all 5 (7%) w/some crayfish parts mixed in.
- (2) Watery Scats - 30 (43%)
 - a. All contained fish parts only.

On Feb. 12 at A2L I observed one otter defecate in old snow, and 1½ hours later both otters defecated at the same spot. All three times they were watery scats, and all sunk out of sight within hours. At the same latrine site, upon arriving on two previous mornings, there were additional "spots" that sunk out of sight within hours, even from my cliff viewpoint. Thus, due to this nature of watery scats, many could be missed from a boat more than a few feet away; but at least at latrine sites many tracks might be visible if recently in use and good track conditions exist.

Scat Locations

I defined a latrine site as a single confined area of 5 or more scats. This would suggest that each otter defecated there at least twice, and it would support the idea that the otters purposely returned to that same spot specifically to defecate and might do so again when passing by at later intervals.

Four latrine sites were found. Though all were in the open and at or near the water's edge, only two would have been visible from a boat. Three were on the flat tops of boulders, and one was on snow-covered river ice.

- A1L - A single rock 1' thick, top 2'x3' & level, base was at the water. Visible from the water. Use period: for unknown number of days but probably restricted to sometime after the January freezeup thru 2-27. At a long section of thick willow bank. Photos 17 & 10.
- A2L - On a small 3" rise of snow on flat river ice 3yds in front of the den site called A2 (Photo 15). The den entrance was near the shoreline, & A2L distance from the open current varied from about 10yds at max-ice to about 2yds when last known to be used, 3 days before it broke off on night of Feb. 17/18. Not recognizable as a latrine site from water level. Use period at least 2-8 thru 2-15, no later but probably earlier. Shoreline continuous talus.
- A5L - On 2 abutted flat-topped rocks equaling a top of 6'x4', & 1½'x3½' thick, base at ice level, but 10yds from open water & not visible from it due to slight tilt to shore. Use period about 2-17 thru 2-22. Shore is boulder field mixed w/open sandbanks & scattered oaks & willows. Photo 8.
- A8L - On rock w/top 15'x15', 5' thick at back, flat but strongly tilted & at water at front & very visible from river. Used prbly in Dec., to freezeup in Jan.; then between 3-11 & 3-15. At a long steep bank of dense willows (however many have been cut by beaver). Photo 7.

Scat Locations (cont'd)

Other scats found:

Just above A6 - On 2-29 I found 2 old scats of unknown age 12yds from water in open willow thicket on gentle sand slope; 1 on 5" dia. driftwood log on ground, & the other on the sand 1' from the first. No obvious trail to this spot, & there would be no clues to attract one's attention from the river.

150yds Below A5 - On 2-29, found 3-4 old scats of unknown age, on & blo a small slanted rock 1½' h. 3yds from the water among boulder talus. Not easily seen (& would probably be missed) from the river.

MM12.8 - On 3-2 found 2 very old gray scats of unknown age on rock slab top 2'x1½' & 3" h. (partially in water). Scats small & would psbly be missed on such a small non-prominent rock.

Over A4 - On 3-8 found 1 or 2 old dried-out watery-type scats directly above A4, on bare sand at top edge of 4'h. cutbank covered w/ brush, willows & oaks. Not visible from river.

MM6.05 - On 3-16 found scat (probably fresh) on boulder in water on far shore. Use period probably between 3-14 & 3-16. Visible from river.

MM10.7 - On 3-16 found about 6 scats on w. shore triangular boulder w/top 10'x10'x10' & 2'-4'h.; from opp. shore hill, looked like 5 made during the otters' long excursion between 2-5 & 2-8, & one around date last otter was seen (2-24). Along a rocky/gravelly shoreline w/little vegetation. Not visible from river.

A visit to the triangular boulder at MM10.7 was not made to verify the source of the scats, their number, and their age. However, it is probable they are otter scats and five or more are present, so this boulder is hereafter called "A9L".

Otter tracks were seldom perfect due to the substrate containing irregularities and being of varied firmness and texture. The hind foot web usually was not visible; often only four toes (pads) showed; slippage in mud elongated the toe and ball pads, thus appearing like a raccoon print; the ball pads were often indistinct; tracks would obliterate each other; and gaits would be incomplete. But usually there would be at least one good print, or following a trail would give enough clues to spell "otter".

When the otters themselves were not visible, finding good prints was the most common way of locating recent otter presence, that is on snow that was fairly fresh and on soil surfaces that were wet and not hard. After the snow and ice completely melted and the the surface dried out, it was very difficult to see any tracks. At the same time, almost every patch of beach sand of any size became heavily used by humans; campfire circles appeared everywhere even before all the snow patches were gone. Many otter tracks were found at such beaches before then, but not after.

Raccoon tracks, which were common, created the most problems in identifying the source of prints. On wet but firm mud and sand, the long toes often registered as short pads like an otter's; and, with a ball pad that usually leaves a featureless imprint by nature, the track can look like an indistinct otter track. Then a gait, tail drag, sliding, or a fish head may give the answer.

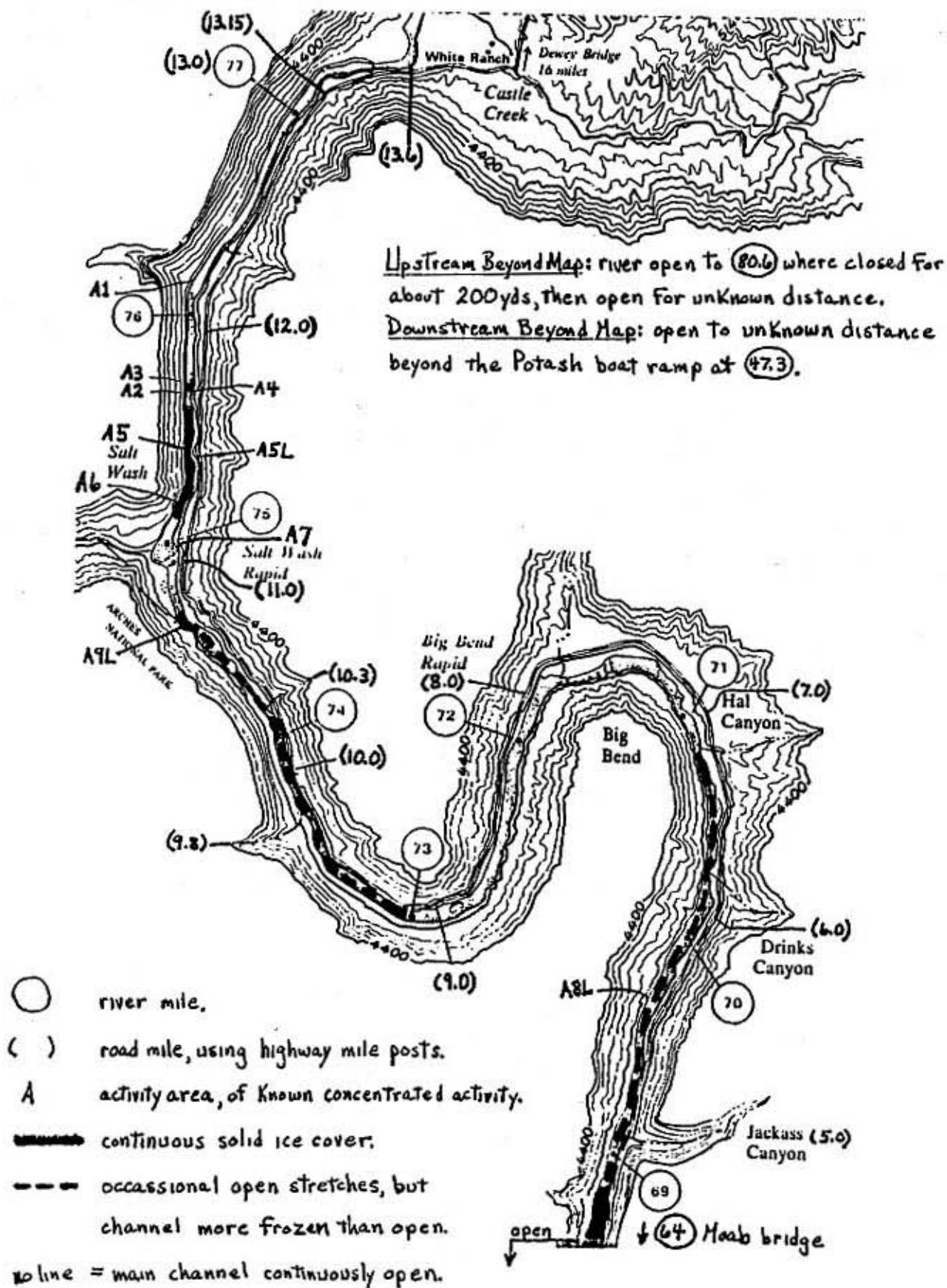
The otters were seen to use sliding as an integral part of travel on ice and hard snow. After 3" of new snow fell on hard snow, hillside slides were abundant at some spots, especially at one area where one slide was about 30' long and another was about 20' long.

No slides or paths on dirt embankments were positively identified as made or being used by otters. However, the abundant beaver paths may have removed the need for the otters to make any. Otter tracks here would seldom be visible due to the heavy use by beavers, which kept the paths hard-packed and would obliterate even their own large tracks with their wet fur, tail, and branch-dragging.

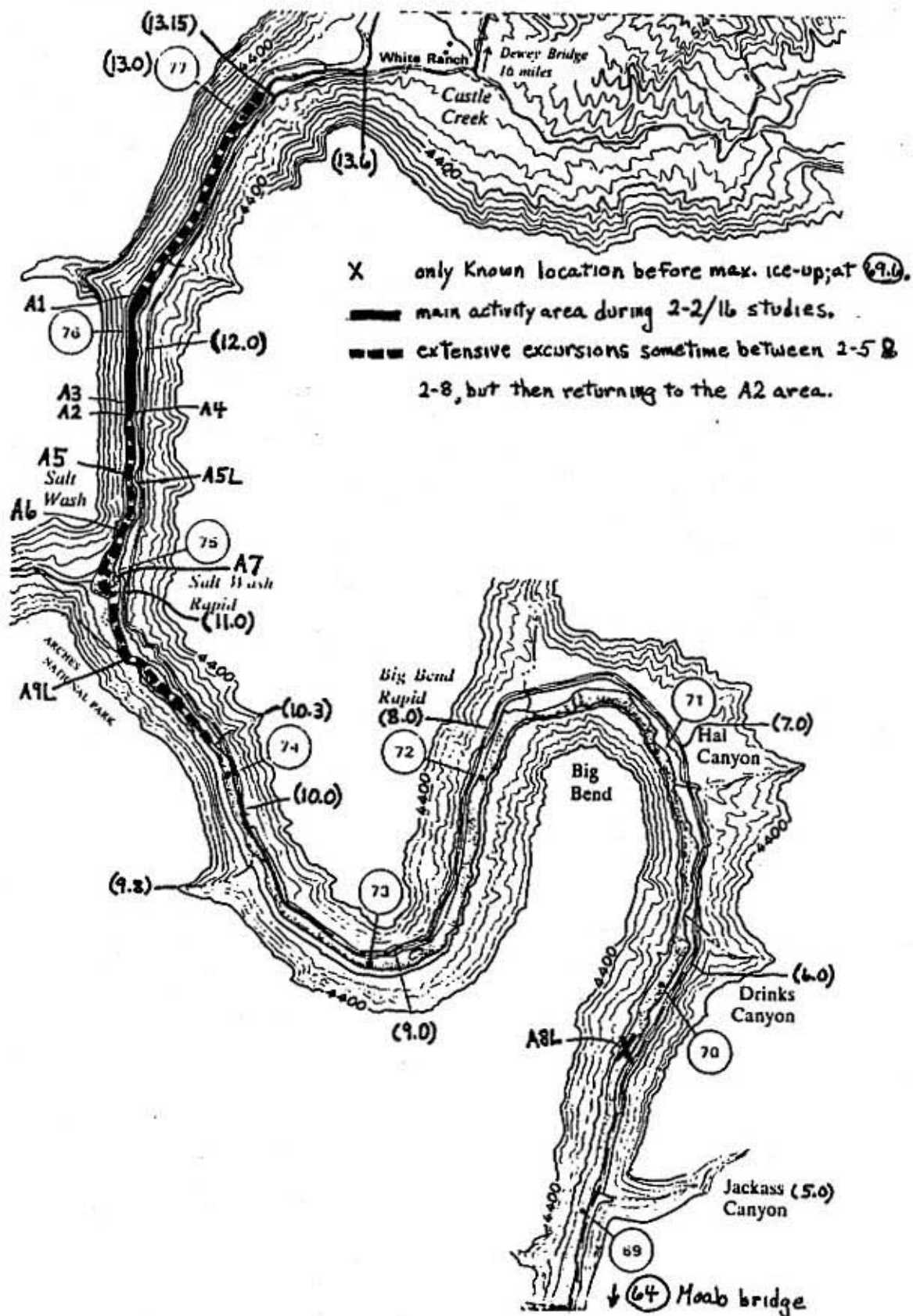
It was impossible to recognize any otter activity in the grassy areas since the grasses were all dead and already commonly matted down by snow and time. Also, no scats were found, nor scent posts of grass tufts recognized, in such areas.

I often observed the otters eating all of a fish; but the head, which was always the last part they reached, would at times not be eaten and would be left on the ice. If I searched for otter sign at dawn, I could occasionally save much time by finding a fish head. This would show me where an otter was immediately, even if out of sight, because shortly after dawn ravens and bald eagles started patrolling the river; they seemed to realize that the otters were a potential fish head supplier. During the first two or three hours of light, usually at least one bird would cruise by each half hour.

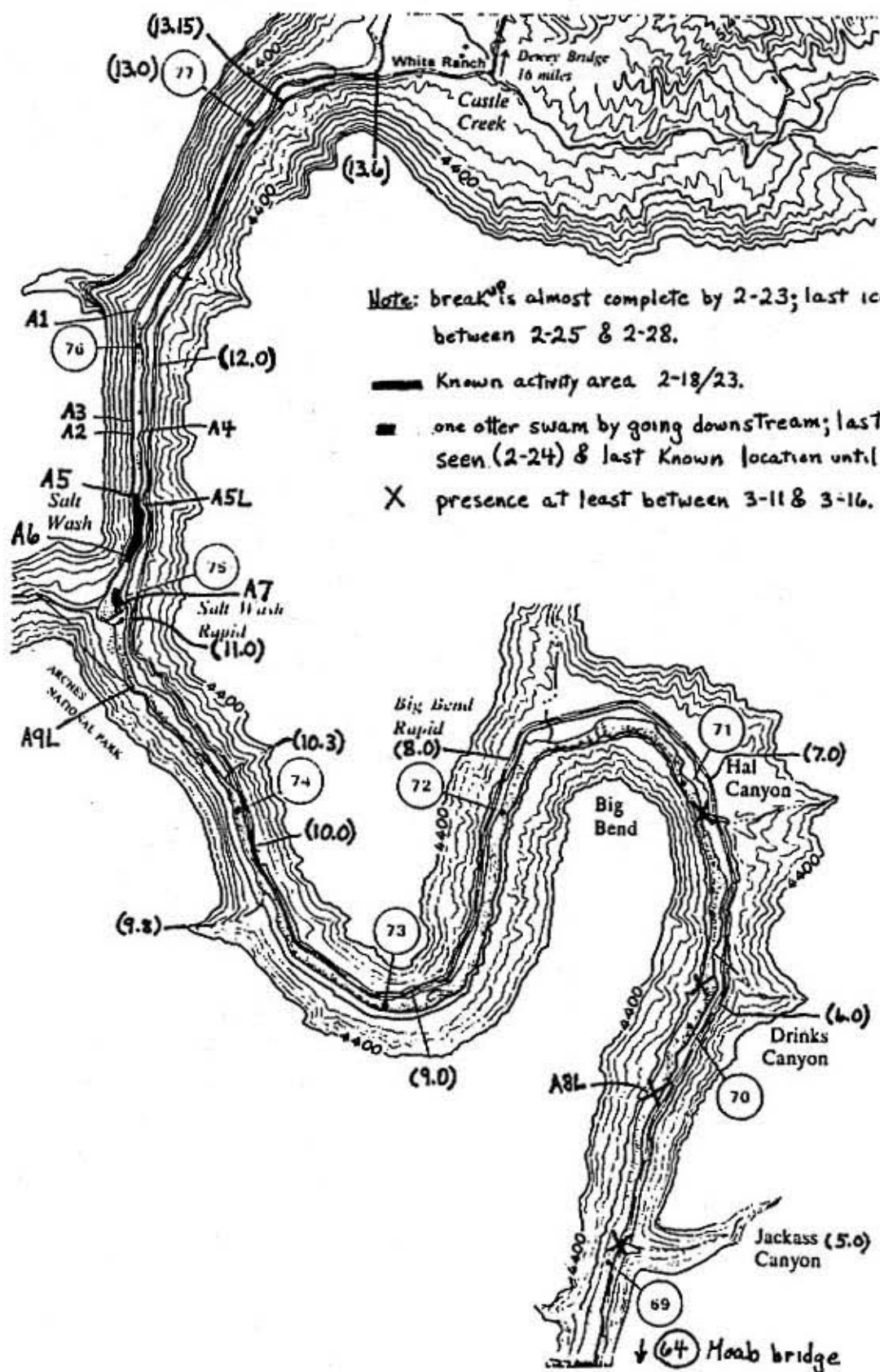
Map 1. Ice Conditions at Max-ice (late Jan./early Feb.)



Map 2. Known Otter Activity Areas thru Feb. 16 (early ice-melt)



Map 3. Known Otter Activity Areas Feb. 17-24 & Mar. 11-16



No. in Sequence	File # (on back)	Date Taken	Explanation
1	1A88	2-3-88	River otter eating fish at A1 area. One of the many shoreline air holes used by the otters is straight back where the tracks head behind the otter. At 0910 w/205mm lens, in fog & solid overcast, w/3" new snow.
2	2A88	2-3-88	Two otters eating fish while laying down at A1.
3	3A88	2-3-88	1 otter walking to where other entered water; A1.
4	4A88	2-3-88	Both otters standing up near their feeding spots; at A1.
5	13B88	2-18-88	A5; otter munching on two fish heads by airhole to A5. At 0900 w/205mm, in overcast at about 100yds.
6	14B88	2-18-88	SAA.
7	11C88	3-11-88	A8L latrine site on horiz. light boulder 15' wide & 5' h. at back.
8	15B88	2-18-88	A5L latrine site on 2 abutting rocks.
9	20A88	2-4-88	View downstream, from opp. A1. 28mm.
10	18A88	2-4-88	A1L & A1 area. 28mm.
11	22A88	2-4-88	A1 area at 1045, w/205mm. Note the snowmelt since photos of the otters here previous morning. This is lower end of A1, where most activity was observed.
12	19A88	2-4-88	A1 area at upper end (up to the large shoreline boulder); photo is a continuation of #10 above.
13	26A88	2-5-88	A2/A2L in center far shore; A4 is in bank on this side. 28mm.
14	27A88	2-5-88	Upstream of A2, to A3 at shoreline water opening; 28mm.
15	24A88	2-5-88	A2, right of bldr under shoreline ice slab; opening is about 5'w.; A2L (not visible) is on small snow mound 3yds bfo A2 entrance. 205mm.
16	21A88	2-4-88	Btwn A3 & the rapids blo A1. 28mm.
17	1C88	2-29-88	A1L. Bldr behind canoe is same one left of otters in #1-4, & can also be seen in #10. Photo shows about 24 scats, old & new.
18	2C88	2-29-88	A1L scats. The old round one, collected as "A1(1)", is 64mm long. The new round one was collected as "A1(2)".
19	3C88	2-29-88	A1L scats. The large dark mass, collected as "A1(3)", is 60mm long thru the center of the long straight section.
20	5C88	2-29-88	A1L scat. Cream-colored scat in one piece, collected as "A1(5)", is 45mm long.
21	17B88	2-18-88	A5L scat; thin-layered watery type w/few fishbones & scales, shiny oily look, deep black, longest axis 59mm; about 2 days old.
22	16C88	3-23-88	SAA at about 36 days old; now a dull black w/the oily sheen almost gone, the few bones show their light color. Thin originally, now age has it flaking off the rock, w/ the long tail missing & other edges clearly deteriorating.

No. in Sequence	File # (on back)	Date Taken	Explanation
23	18888	2-18-88	A5L scat; a thicker watery type, prbly about 5 days old, longest side 95mm. Original appearance & color still discernable, but showing signs of first weathering (cracking, color-fading of solid parts). Liquid sections shiny & brown, solid areas greenish dark gray-brown, no doubt close to its colors at deposition.
24	15C88	3-23-88	SAA at about 39 days old. Liquids clearly shrunken & dissolving (esp. at edges), but still w/flakes of rich brown. Solid areas lightened to a slate-gray & bone colors exposed.
25	19888	2-18-88	A5L scat; a thin watery type w/many bones & scales, about 2 days old. Liquid very shiny but w/little pigment; color a dark gray-green (photo color is off). Bone white not showing. Bottom cluster of bones is 153mm long.
26	14C88	3-23-88	SAA at about 36 days old. Except for the whitish bones, now a medium-dark gray (photo slightly over-exposed), w/much of the liquid portion gone. The white cluster at the lower left is 31 days old.
27	20888	2-18-88	A5L scat, collected as "A5(1)", prbly deposited the night before. Solid, w/ the lower segment 67mm long. Dark green-gray, full of bones & scales. Surface barely dry, inside moist, & the portion touching the rock was attached by a slimy gelatin medium faintly-greenish dark yellow in color.
28	28A88	2-5-88	A2/A2L & the clifftop above. 28mm/

Of the following seven specimens, five are from A1L (photos of four are included in this report), one is from A5L (photo in this report), and one is from 150 yds below A5 almost directly across from A5L (no photo in this report). For each is listed: collection date; location by river mile, Hwy 128 mile marker, coordinates on the Castle Valley 15' quad., & other location details; photo & file numbers; & other pertinent data.

A1(1) - 2-29-88; (RM76.15; MM12.2; CaVly, T24S, R22E, Sec.27, sw $\frac{1}{4}$) from A1L; Photo 18 (File# 2C88).

A1(2) - 2-29-88; (SAA) from A1L; Photo 18 (File# 2C88).

A1(3) - 2-29-88; (SAA) from A1L; Photo 19 (File# 3C88).

A1(4) - 2-29-88; (SAA) from A1L; Photo not included (File# 4C88); a yellowish scat in two pieces initially, w/ the longest piece 45mm (1 $\frac{3}{4}$ ").

A1(5) - 2-29-88; (SAA) from A1L; Photo 20 (File# 5C88).

A5(1) - 2-18-88; (RM75.4; MM11.5; CaVly, T24S, R22E, Sec.33, ne $\frac{1}{4}$) from A5L; Photo 27 (File# 20888).

A5(2) - 2-29-88; (SAA) from 150 yards below A5 same side; from 1 $\frac{1}{2}$ 'h. rock 3 yds from water among boulder talus; 3 or 4 old scats all white (from age) except for orange of crayfish parts which are the majority of the contents (including some mandibles), but a few fish bones are also present; no photo taken.