

ECOLOGICAL STUDY OF RIVER OTTERS IN GRAND TETON NATIONAL PARK

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Introduction

The primary goals of the study are to obtain information on the distribution, density, movements, activity patterns and behavior of otters on the Snake River from Jackson Lake Dam to Moose. Most observations were concentrated along the 3.5 mile section from the dam to and including the Oxbow. This report covers field work during the periods of March 7-17 and August 11 - September 25. No otters were seen in March but they were observed for 28 hours during 88 hours afield in August and September. Additionally, Mr. John Turner of Triangle-X Float Trips and Mr. Dick Barker of Barker-Ewing Float Trips were most cooperative in obtaining sightings of otters made on the river by their parties between Deadman Bar #2 and Moose.

Distribution and Density

The incentive for visiting the study area in March was to compare winter behavior with summer behavior as observed briefly in 1980 and 1981 and to learn about movements and activities of otters through the indirect evidence of tracks in the snow. Unfortunately, the trip was not very productive, neither otters nor their tracks being seen in the vicinity of the Oxbow in spite of repeated surveys. On the other hand, Mrs. Jackie Gilmore and I did find the fresh tracks of a party of 3 otters at the mouth of the Buffalo Fork. These were followed for approximately a mile up this large tributary of the Snake and shed some light on otter behavior. On the snow-covered ice the route of travel was directly from one stretch of open water to the next and the gait consisted typically of a series of 3 or 4 lopes alternating with a belly-glide about 8 or 9 feet long. As noted by Park (1971), otters will apparently make deliberate detours from the route of travel, simply for the purpose of tobogganing down a slope. At one spot, 2 animals had climbed a slope, only to glide back down to their starting point. The longest chute thus formed was 31 feet.

In August and September the study area was inhabited almost exclusively by a family consisting of 2 adults and 3 subadults. This group was seen here on 12 days and was assumed to represent a single family although none had identifying marks. At least 2 other families used the Oxbow part of the study area briefly, one simultaneously. On August 23 a 6-otter family was noted at Cattlemen's Bridge and in the Oxbow while occupied by "Family V" and on September 19 a 3-otter family occupied the Oxbow while Family V was absent. Although Family V was the most thoroughly monitored unit, it is certain that they left the study

area for days at a time, a conclusion based on repeated failures to locate them, even using a team of observers.

Density of otters from the Oxbow to Deadman Bar #2 (approximately 13 river miles) is not known as it was seldom traversed by me or by float trips. Five otters, possibly Family V, were seen September 1 just upriver from Disney Channel by 2 boatmen of Triangle-X Ranch. By contrast, there were 13 otter sightings in August and September along the 9-mile stretch from Deadman Bar #2 to Moose. Twelve of these were on the southern 4 miles (Beaver X to Moose) and 6 of the sightings were of 4 otters, possibly a single family. The concentration of sightings in the southern half of this stretch invites comparison of habitat features there with those on the northern half.

Activity Schedule and Movements

According to a recent study by Melquist, et al. (1981), otters are equally active by day and night. However, they appeared to be more diurnal than nocturnal on the study area. This is not supported by any positive evidence and a NPS ranger told me he observed otters active at 10 p.m. of a moonlight night earlier in the season. Regular nocturnal patrols would be required to reach a firm conclusion. Nevertheless, some indirect evidence supports the diurnality supposition. On 3 occasions otters were at known dens sites when it became too dark to continue observing. The following mornings, they were seen to emerge from the same sites.

As indicated by the activity data in Table 1, otters show a strong peak of activity in the morning, followed by an afternoon lull. A second, but weaker peak in activity occurs in the evening. The relative sizes of the peaks shown in the table are probably somewhat distorted due to non-uniformity in my observation hours but when account is taken of this and of the fact that some patrols occurred at every hour of the day, the essential pattern is unchanged. Otters were never observed from 2 to 6 p.m.

The 2 main activities of otters were feeding and wrestling. The only items I saw them eating were Utah suckers and Utah chubs (and possibly some Mountain whitefish), which they caught with ease. After an initial token resistance, an otter shared its catch with the other family members. Brief rest periods were occasionally noted, members of the group touching or being partly draped over one another. Longer rest periods presumably occur under cover in mid-afternoons.

I was not able to monitor the movements of a group for an entire day but Family V was followed for shorter periods on 12 days, Family VI and Family III were followed for 3 and 3.5 hours, respectively. The mean rate of travel was 0.4 miles per hour, surprisingly slow for an animal which obviously has the potential for much faster travel and which has been clocked at 15 to 18 miles per hour (Park, 1971). The low average rate is a strong reflection of the many interludes spent feeding or playing at a given site; when an otter is actually on the move, I estimate it travels at 5 or 6 miles per hour.

Table 1. Activity patterns of otters observed from Jackson Lake Dam to just below the Oxbow, August 18 - September 19, 1982.

Number of activity observations

| | | | | | | | | | | | | | | | |
|------|---|---|------|----|----|----|---|------|---|---|---|---|---|---|---|
| 1 | 6 | 9 | 10 | 9 | 6 | 5 | 2 | 0 | 0 | 0 | 0 | 1 | 6 | 1 | |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| a.m. | | | Time | | | | | p.m. | | | | | | | |

Observations of Family V strongly suggest that otters exhibit a pattern of "rotation" of sites. For example, the group was not encountered during my first 6 days afield, but was observed for 8 of the following 10 days. I was absent the next 6 days but observed the group again for the first 4 days after my return. They were not seen during the next 18 days in spite of vigilant patrolling. Presumably the family had moved on to a different portion of its home range.

Social Behavior

A person observing otters in the field cannot fail to be impressed by the cohesiveness of the family as a unit. By late summer the young of the year are so large it is difficult to distinguish them from the adults. Yet all members of the group appear to stay in the immediate vicinity of, if not in actual contact with, each other. Vocalizations play an important role. The 2 most frequently noted were: 1) a repetitive, low-intensity call used in short-range communication and 2) an occasional, high-intensity call used in long-range communication. The first vocalization, the so-called "chuckle", was given almost continuously among family members when they appeared contented and seemed to aid in keeping them in contact with each other. Its volume is so low that an observer will not even hear it unless he is quite close to the animals. A recording of this call from a captive otter in California had a frequency range from 0.3 to 1.0 kHz. The individual notes had a mean duration of 0.11 second and were given in bursts of 3 or 4 at a mean rate of 7.5 per second. The second vocalization I dubbed the "lost call" and was given by an individual that had become separated from the rest of the family and is a loud, bird-like chirp. In mid-morning of August 21, Family V left the river at the old Research Station to explore a small, heavily-overgrown tributary feeding in from the north. One otter, apparently thinking the rest of its family had somehow returned to the river without it, came back and swam out to the deep water where it gave the "lost call" for several minutes. The rest of the family soon rejoined it and they all engaged in what could only be described as some kind of "reunion ceremony", no doubt complete with chuckle vocalizing that I was too distant to be able to hear! Similar episodes were observed twice subsequently. The calls recorded that day had a frequency of 3.25 to 3.50 kHz, a mean duration of 0.25 second and a mean rate of slightly less than 3 per second. They are loud enough to be heard by human from a distance of 0.5 mile.

I was curious to learn how otters of one family would react to those of another one. The sole opportunity to observe this facet of social behavior presented itself on the morning of August 23 at Cattlemen's Bridge where a friend and I observed Families V and VI for over an hour. Each family maintained its own integrity. The otters of one group appeared mildly curious about those of the other one and occasionally swam up to them. No hostility or territorial behavior was evident. Frequent chuckle vocalizations were heard. No intermingling or actual contact occurred between members of the 2 families and shortly after 11, Family VI proceeded down river to the Oxbow. It was observed there again 12 days later.

Another behavior that may aid in the cohesion of a group is the ritual of urination. This consists of one otter urinating at a given site, followed

immediately by other members of the group. A distinctive posture is assumed in the act: the back is slightly arched, the tail held out horizontally and undulated back and forth in a serpentine fashion while the hind legs tread in alternate steps.

Interspecific Relationships

Otters in the study area were quite tolerant of humans and this habituation is a tremendous asset to field observers. The usual rule was for otters to carry on their activities on the opposite bank from where humans, usually fishermen, were located. Family V occupied a gravel bar at the old Research Station for 1.5 hours on August 24 while as many as 13 people, including crying and shouting children, were stationed directly across the river, approximately 100 feet away. On August 21 Mrs. Gilmore and I were able to approach to within 30 feet of otters by careful and deliberate movements. They were aware of our presence but appeared wary rather than frightened. I frequently noted that people in canoes could drift closer to otters than they could have approached on foot. On September 19 my daughter and I were able to photograph them from a canoe at a distance of only 20 feet. The closest approach I saw occurred on August 22 when otters crawled out on the rocks at the base of Jackson Lake Dam, no farther than 5 feet from where fishermen were standing. They were probably looking for scraps of fish.

Several other vertebrates seemed acutely aware of otters as a source of fish scraps. The most consistent were magpies which often congregated within 3 or 4 feet of feeding otters, lurking along the sidelines in a way reminiscent of Western gulls hovering over feeding sea otters. Great blue herons occasionally flew to within 8 feet of feeding otters but appeared less bold than magpies. Once a mature bald eagle flew to perch directly over feeding otters and peered down at them but was not seen to scavenge.

One morning I was watching otters feeding on the gravel shore about 1/3 mile downriver from the dam and noticed a coyote slowly approaching from a bank above them. Suddenly it dashed down the bank directly towards the otters, all 5 of which took to the water without delay. The coyote grabbed a large chunk of fish and bolted away with it. The otters then returned unconcernedly to feed on the remains. A tourist told me she saw 5 otters defend their catch from a coyote later the same day at the old Research Station.

Beavers usually ignored and were ignored by otters although beaver lodges are focal points of otter activity. However, on August 24 a beaver was observed to deliberately harass Family V and went so far as to pursue them into a cove and then evict them from it. The otters showed not the slightest inclination to stand their ground.

Literature Cited

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