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INSTITUTE FOR FISHERIES RESEARCH
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ANALYSES OF 37 COLLECTIONS OF OTTER SCATS COLLECTED
DURING THE WINTER OF 1935-1936, IN THE LOWER MICHIGAN PENINSULA

by

Milton B. Trautman

The following comments are based upon the analysis of recognizable remains of animals and plants that were found in 37 collections of otter scats collected by members of the Game Division and the Division of Field Administration.

(1) It is obvious that otters from the various localities where the scats were collected had fed upon different types of food; probably on food which was most easily procurable at that time and place. Those scats collected along Perry and Big creeks and the Au Sable River, were composed primarily of trout and unidentifiable remains of other fishes, while those from the upper South Branch of the Thunder Bay River were composed chiefly of crayfish and sunfish (or bass) remains, together with other unidentifiable fish (not trout) scales and bones.

(2) Only a fragmentary portion of a fish's total skeleton was present in the scats and it was therefore impossible to estimate how many individual fish of one species had been eaten by any particular otter.

(3) The individual bones of the smaller fish were usually more entire than were the bones of larger fish, resulting in more positive identification of these smaller individuals. It is logical that this should be so inasmuch as bones of smaller fish could be swallowed more readily (perhaps accidentally) by the otter, whereas in stripping the flesh from larger fish the bones could be avoided.

(4) The amount of an individual fish's remains in a scat did not correspond to the size of the fish. In fact, it appeared that more bones, per fish, from the smaller fishes were swallowed. Apparently the small rib bones and smaller vertebrae of small fishes could not be separated by the otter as readily as could the larger bones of the larger fishes.

(5) Some evidence was obtained indicating that a larger proportion of the chitinous skeleton of a crayfish was eaten, than was the bony skeleton of a fish.

(6) As there was no relationship between the size of the fish and the amount of the remains of that fish in the scat and no relationship between the size and number of fish and crayfish, no quantitative analysis can be made. That is, we were unable to estimate, by an examination of the scats, how many individual fish or crayfishes were eaten and how much of each captured fish or crayfish was consumed.

(7) Nothing could be learned from the remains as to condition of the animals eaten; whether, for instance, the captured fish were active and healthy or whether they had been weakened before capture by spawning, disease or effects of winter.

(8) It is not known whether the remains of Dytiscid beetles (diving beetles), found in two of the scat collections, were eaten accidentally or intentionally. They may have been eaten originally by trout.

(9) In a few scat collections there were found the remains of some (berry?) seeds and what appeared to be berry pulp and skins.

(10) The bits of grass eaten appeared to have been taken accidentally by the otter.

(11) The collections of scats examined were entirely too few in number and from too few localities to enable us to draw definite conclusions as to the food of the otter in winter.

INSTITUTE FOR FISHERIES RESEARCH

By: Milton B. Trautman
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ANALYSIS OF OTTER SCATS COLLECTED BY VERNE DOCKHAM

Coll. No.	Locality	Date	Fish		Crayfish		Unrecognizable Debris or Other Material		Total Vol. in cc			
			Vol. in cc	%	Vol. in cc	%	Vol. in cc	%				
564	T27N,R4E, Flat Lake	12/10/35	A few trout scales (5 to 8" trout) and ribs of small fish	3	16.7			Leaves and bits of grass	15	00	33	
565	Perry Creek, Sec. 9, T26N, R3E	1/8/36	One vertebra and a few scales from a 8 to 11" pike, also remnants of bones, probably from the same fish.	9	95.7	Slight trace	.4	4.3		0	00	9.4
566	Perry Creek, Sec. 9, T26N, R3E	12/12/35		4	27.6		4	27.6	Fragments of Dytiscid beetles and other unrecognizable remains	6.5	44.8	14.5
567	Flat Lake, T27N,R4E	12/10/35		0	00		24	92.3	Seeds (berries?) and other debris	2	7.7	26
568	Big Creek, Sec. 12, T26N,R1E	1/8/36	Fragments of jaw and scales of trout, very small, unrecognizable bones	29	93.5		0	00		2	6.5	31
569	Flat Lake T27N,R4E	12/22/35		0	00		26	100		0	00	26
570	Flat Lake, T27N,R4E	12/22/35	Small portion of a trout jaw; the fish was possibly 10" long; a few unidentifiable rib bones	.5	15.6		24	75.0	Seeds and remnants of berries? from some plant	3	9.4	27.5

Coll. No.	Locality	Date	Fish		Crayfish		Unrecognizable Debris or Other Material			Total Vol. in cc	
			Vol. in cc	%	Vol. in cc	%	Vol. in cc	%			
571	Perry Creek, Sec. 9, T26N, R3E	12/12/35	A few unrecognizable ribs of a small fish	.5	20.0	18	72.0	A few remains of Dytiscid beetles and a few blades of grass	2	8.0	20.5
572	Mio District			0	00	17	94.4	Unrecognizable	1	5.6	18
573	Big Creek, Sec. 13, T26N, R1E	2/22/36	Portion of a jaw of a 5 to 7" trout, fragmentary small fish remains	10	33.3+	10	33.3+	Debris	10	33.3+	30
574	Big Creek, Sec. 24, T26N, R1E	2/22/36	Portion of a jaw of a 5 to 7" trout, ribs of small fish, probably the trout	20	70.1	8	28.1	1 Gammarus	.5	1.8	28.5
575	Big Creek, Sec. 13, T26N, R1E	3/21/36	Jaw bones of at least 2 5 to 9" trout, and many small ribs and other unrecognizable fish bones	23	88.5	3	11.5		0	00	26
576	Big Creek, Sec. 12, T26N, R1E	3/21/36	Trout scales and vertebra indicating a fish or fishes 7 to 11" in length; also unrecognizable fish ribs.	20	62.5	10	31.2	1 piece of grass and some unrecognizable debris	2	6.3	32
577	Big Creek, Sec. 12, T26N, R1E	2/21/36	A few scales and jaw bones of a 4 to 6" trout, also unidentifiable remains of a fish	16	66.7	7	29.2		1	4.1	24
578	AuSable River, Sec. 12, T26N, R3E	2/28/36	A few scales and vertebra of a 5 to 9" trout; other fish remains, possibly of some trout	14	58.3	7	29.5	Debris	3	12.5	24
579	Big Creek, Sec. 13, T26N, R1E	2/21/36	Partial jaw remains of one trout, possibly two. Trout 5 to 7" in length. Small fragmentary fish bones, probably trout.	40	85.1	4	8.5	Debris	3	6.4	47

Coll. No.	Locality	Date	Fish		Crayfish		Unrecognizable Debris or Other Material			Total Vol. in cc
			Vol. in cc	%	Vol. in cc	%	Vol. in cc	%		
580	AuSable River, T26N,R1E	11/35	40	23.5	70	41.2	Virtually all extraneous debris, not included in total			170
581	AuSable River, T26N,R3E	11/2/35	2	2.2	90	97.8	0 00			92
582	Big Creek, T26N, R1E	11/1/35	4	6.3	55	85.9	Some extraneous debris			64
583	Perry Creek, T26N,R3E	11/2/35	1	.1	At least 210	99.9	0 00			211
					l of the many crayfish was <u>Cambarus virilis</u>					
584	Mio Pond, T26N,R2E	10/28/35	15	30	35	70	Extraneous debris not included in total			50

ANALYSIS OF OTTER SCATS COLLECTED BY F. C. GILLET

Coll. No.	Locality	Date	Fish		Crayfish		Unrecognizable Debris or Other Material		Total
			Vol. in cc	%	Vol. in cc	%	Vol. in cc	%	Vol. in cc
585	Ford River, Sec. 34, T43N, R28W	1/31/35	8	100	0	00	0	00	8
586	Black River, west of Hubbard Lake, Sec. 8, T27N, R7E, Alcona County	12/31/35	.3	.1	235	99.9	0	00	235.3

ANALYSIS OF OTTER SCATS COLLECTED BY A. M. STEBLER

587	Upper south branch of the Thunder Bay River, Sec. 11 & 14, T29N, R4E	3/4/36	8	23.5	26	76.5	0	00	34	
588	Same as for No. 587	3/4/36	0	00	60	100	$\frac{1}{2}$ " grass blade	0	00	60
589	Same as for No. 587	3/4/36	0	00	65	100		0	00	65
590	Same as for No. 587	3/4/36	0	00	34	100		0	00	34
591	Same as for No. 587	3/4/36	0	00	65	100		0	00	65
592	Same as for No. 587	3/4/36	0	00	46	100		0	00	46
593	Same as for No. 587	3/4/36	.3	.5	60	99.5		0	00	60.3
594	Same as for No. 587	3/4/36	0	00	85	100		0	00	85
595	Same as for No. 587	3/4/36	0	00	58	100		0	00	58

Coll. No.	Locality	Date	Fish		Crayfish		Unrecognizable Debris or Other Material		Total Vol. in cc		
			Vol. in cc	%	Vol. in cc	%	Vol. in cc	%			
596	Same as for No. 587	3/4/36	Scales and vertebra of a pike probably between 15 and 22" in length	14	99.3	.1	.7	0	00	14.1	
597	Same as for No. 587	3/4/36	Fragmentary bones of a small fish most probably under 6" in length	.5	2.1	24	97.9	0	00	24.5	
598	Same as for No. 587	3/4/36	Scales of a sunfish, probably less than 6" in length. Scales of a pike, probably between 15 and 22" in length; fragmentary bones	33	73.3	12	26.7	0	00	45	
599	Same as for No. 587	3/4/36	Trace of small bones of a fish, probably less than 6" long.	1	2	48	98	$\frac{1}{2}$ " grass blade	0	00	49
600	Same as for No. 587	3/4/36	Many scales and a few recognizable bones of a pike, probably from 15 to 25" long. (A large number of broken scats)	12	2.8	430	97.2	0	00	442	