

## REPORT

**Project: Idaho Department of Fish and Game, 2008 fisher (*Martes pennanti*) survey—species identification**

**Date Issued: January 12, 2009**

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We received 89 hair, scat and urine samples collected from the Idaho Department of Fish and Game non-invasive fisher surveys samples in 2008. These samples were submitted to our laboratory during April and May of 2008. We received 86 hair samples, 1 scat, 1 urine and 1 urine/gland secretion for DNA analysis.

We analyzed 89 unknown samples for fisher, wolverine (*Gulo gulo*) and marten (*Martes americana*) with a test at the Control Region of mitochondrial DNA. This test identifies fisher, marten, and wolverine from all other species. Other species do not produce positive results with this test. A negative result (listed as “non mustelid/poor DNA”) means that either the sample had poor quality DNA or it was left by something other than a fisher, marten, or wolverine. We obtained a positive result with the Control Region test for 35 of the samples (39.3%). Three samples were from fisher, four samples were from wolverine and 28 samples were from marten.

The three fisher detected in the non-invasive samples will be analyzed for haplotype, individual and sex. We reported results of individual and gender tests on three of the wolverine samples (see report dated 1/5/09). Wolverine hair sample IDFG-08-R7-FC-01B is currently being analyzed for individual and gender and results will be forthcoming. Ultimately, the wolverine samples will be tested for relatedness and relationships to Jeff Copeland’s Sawtooth Idaho wolverine samples from the 1990’s.

Details for the unknown samples are provided in the following table. We added results to the data spreadsheets provided to us and color-coded the results by shipment.

Name	Sample ID	Type of sample	Date collected	Location collected	GPS Location E	GPS Location N	Species
Diane Evans Mack	IDFG-08-R3M-I-1	Hair	10/23/2007	Green Mountain	0587723	4963598	<b>Wolverine</b> non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-338-1	Hair	1/30/2008	Goose Lake	0568247	4987938	Marten
Diane Evans Mack	IDFG-08-R3M-338-2A	Hair	1/30/2008	Goose Lake	0566632	4989608	Marten
Diane Evans Mack	IDFG-08-R3M-338-2B	Hair	1/30/2008	Goose Lake	0566632	4989608	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-338-4	Hair	1/30/2008	Goose Lake	0565496	4991854	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-338-5	Hair	1/30/2008	Goose Lake	0565837	4993861	Marten
Diane Evans Mack	IDFG-08-R3M-474-3A	Hair	2/9/2008	Paddy Flat	0581617	4961749	Marten
Diane Evans Mack	IDFG-08-R3M-474-3B	Hair	2/9/2008	Paddy Flat	0581617	4961749	Marten
Diane Evans Mack	IDFG-08-R3M-474-4A	Hair	2/9/2008	Paddy Flat	0582408	4961289	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-474-4B	Hair	2/9/2008	Paddy Flat	0582408	4961289	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-474-5	Hair	2/9/2008	Paddy Flat	0583375	4960529	Marten
Diane Evans Mack	IDFG-08-R3M-714-1A	Hair	2/12/2008	Warren	0600403	5012838	Marten
Diane Evans Mack	IDFG-08-R3M-714-1B	Hair	2/12/2008	Warren	0600403	5012838	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-714-2A	Hair	2/12/2008	Warren	0600961	5013392	Marten
Diane Evans Mack	IDFG-08-R3M-714-2B	Hair	2/12/2008	Warren	0600961	5013392	Marten
Diane Evans Mack	IDFG-08-R3M-714-2C	Hair	2/12/2008	Warren	0600961	5013392	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-714-3	Hair	2/12/2008	Warren	0601960	5014169	Marten
Diane Evans Mack	IDFG-08-R3M-714-4	Scat	2/12/2008	Warren	0604857	5012350	Marten non mustelid/poor DNA
Diane Evans Mack	IDFG-08-R3M-628-2A	Hair	2/14/2008	Poverty Flat	0604270	4960006	Marten non mustelid/poor DNA

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Diane Evans Mack	IDFG-08-R3M-628-2B	Hair	2/14/2008	Poverty Flat	0604270	4960006	DNA non mustelid/poor
Diane Evans Mack	IDFG-08-R3M-790-1A	Hair	2/14/2008	Yellowpine	0611477	4978225	DNA Marten
Diane Evans Mack	IDFG-08-R3M-790-1B	Hair	2/14/2008	Yellowpine	0611477	4978225	DNA Marten
Diane Evans Mack	IDFG-08-R3M-790-2A	Hair	2/14/2008	Yellowpine	0615088	4979022	DNA non mustelid/poor
Diane Evans Mack	IDFG-08-R3M-790-2B	Hair	2/14/2008	Yellowpine	0615088	4979022	DNA non mustelid/poor
Diane Evans Mack	IDFG-08-R3M-790-3	Hair	2/14/2008	Yellowpine	0617651	4980045	DNA mustelid/poor
Diane Evans Mack	IDFG-08-R3M-790-4	Hair	2/14/2008	Yellowpine	0616931	4979650	DNA Marten non
Diane Evans Mack	IDFG-08-R3M-266-1	Hair	3/7/2008	East Fork Weiser	0561017	4955301	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-266-2A	Hair	3/7/2008	East Fork Weiser	0560279	4957577	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-266-2B	Hair	3/7/2008	East Fork Weiser	0560279	4957577	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-266-3	Hair	3/7/2008	East Fork Weiser	0559990	4958385	DNA mustelid/poor
Diane Evans Mack	IDFG-08-R3M-BS-4	Hair	2/11/2008	Fisher Creek Saddle	0570211	5000677	<b>Wolverine</b> non
Diane Evans Mack	IDFG-08-R3M-BS-5A	Hair	2/1/2008	Squaw Meadows	0580745	5005095	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-5B	Hair	2/1/2008	Squaw Meadows	0580745	5005095	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-6A	Hair	2/12/2008	Squaw Meadows	0580745	5005095	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-6B	Hair	2/12/2008	Squaw Meadows	0580745	5005095	DNA mustelid/poor
Diane Evans Mack	IDFG-08-R3M-BS-7	Hair	2/29/2008	Lick Creek	0582628	4979904	<b>Wolverine</b> non
Diane Evans Mack	IDFG-08-R3M-BS-8A	Hair	3/14/2008	Warm Lake Summit	0611313	4944365	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-8B	Hair	3/14/2008	Warm Lake Summit	0611313	4944365	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-8C	Hair	3/14/2008	Warm Lake Summit	0611313	4944365	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-9	Hair	3/28/2008	Squaw Meadows #2	0578617	5003402	DNA mustelid/poor non
Diane Evans Mack	IDFG-08-R3M-BS-10	Hair	4/8/2008	Warm Lake Summit	0611313	4944365	DNA mustelid/poor non
Martha Wackenhut	IDFG-08-R5-TC1	Hair	2/15/2008	Smokey Canyon	0487513	4728441	DNA mustelid/poor non
Martha Wackenhut	IDFG-08-R5-TC2	Hair	2/19/2008	Smokey Canyon	0487805	4728846	DNA mustelid/poor

Name	Sample ID	Type of sample	Date collected	Location collected	GPS Location E	GPS Location N	Species
Beth Waterbury	IDFG-08-R7-CC-01A	Hair	3/28/2008	Carmen Creek	45.3141600	113.8028100	DNA Marten non
Beth Waterbury	IDFG-08-R7-CC-02A	Hair	3/28/2008	Carmen Creek	45.3052700	113.8036000	DNA mustelid/poor non
Beth Waterbury	IDFG-08-R7-CC-02B	Hair	3/28/2008	Carmen Creek	45.3052700	113.8036000	DNA mustelid/poor

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Beth Waterbury	IDFG-08-R7-CC-03A	Hair	3/28/2008	Carmen Creek	45.2938400	113.8082900	Marten
Beth Waterbury	IDFG-08-R7-CC-03B	Hair	3/28/2008	Carmen Creek	45.2938400	113.8082900	Marten
Beth Waterbury	IDFG-08-R7-TC-02A	Hair	3/12/2008	Tower Creek	45.3737023	113.8486267	Marten non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-TC-03C	Hair	3/12/2008	Tower Creek	45.3714668	113.8523727	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-TC-01A	Hair	3/28/2008	Tower Creek	45.3763017	113.8741003	Marten
Beth Waterbury	IDFG-08-R7-TC-03A	Hair	3/28/2008	Tower Creek	45.3714668	113.8523727	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-TC-03B	Hair	3/28/2008	Tower Creek	45.3714668	113.8523727	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-TC-04A	Hair	3/28/2008	Tower Creek	45.3694414	113.8566419	non mustelid/poor DNA

Name	Sample_ID	Type of sample	Date collected	Location collected	GPS Location E	GPS Location N	Species
Beth Waterbury	IDFG-08-R7-TC-04B	Hair	3/28/2008	Tower Creek	45.3694414	113.8566419	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-01A	Hair	3/17/2008	Fourth of July Creek	45.3907294	113.8768788	Fisher
Beth Waterbury	IDFG-08-R7-FJ-02A	Hair	3/17/2008	Fourth of July Creek	45.4018708	113.8632559	Fisher
Beth Waterbury	IDFG-08-R7-FJ-03A	Hair	3/17/2008	Fourth of July Creek	45.3829149	113.8903315	Fisher non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-03B	Hair	3/17/2008	Fourth of July Creek	45.3829149	113.8903315	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-02B	Hair	3/17/2008	Fourth of July Creek	45.4018708	113.8632559	Marten non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-02C	Hair	3/17/2008	Fourth of July Creek	45.4018708	113.8632559	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-03C	Hair	4/7/2008	Fourth of July Creek	45.3829149	113.8903315	Marten non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-03D	Hair	4/7/2008	Fourth of July Creek	45.3829149	113.8903315	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-02D	Hair	4/3/2008	Fourth of July Creek	45.4018708	113.8632559	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-01B	Hair	4/3/2008	Fourth of July Creek	45.3907294	113.8768788	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-02E	Hair	4/3/2008	Fourth of July Creek	45.4018708	113.8632559	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-01	Hair	4/3/2008	Fourth of July Creek	45.4138900	113.8588100	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-02	Hair	4/3/2008	Fourth of July Creek	45.4138900	113.8588100	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-FJ-03	Hair	4/3/2008	Fourth of July Creek	45.4138900	113.8588100	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-02A	Hair	3/20/2008	Sheep Creek	45.5072645	113.8768200	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-04A	Hair	3/20/2008	Sheep Creek	45.5014795	113.8998483	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-05A	Hair	3/20/2008	Sheep Creek	45.4986526	113.9137862	Marten non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-02B	Hair	4/7/2008	Sheep Creek	45.5072645	113.8768200	non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-02C	Hair	4/7/2008	Sheep Creek	45.5072645	113.8768200	Marten
Beth Waterbury	IDFG-08-R7-SC-02D	Hair	4/7/2008	Sheep Creek	45.5072645	113.8768200	Marten non mustelid/poor DNA
Beth Waterbury	IDFG-08-R7-SC-01	Urine	4/7/2008	Sheep Creek	45.4987700	113.9120300	non mustelid/poor DNA

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Beth Waterbury	IDFG-08-R7-DC-02A	Hair	3/27/2008	Dahlonge Creek	45.5626211	113.8504437	DNA Marten non mustelid/poor
Beth Waterbury	IDFG-08-R7-DC-02B	Hair	4/15/2008	Dahlonge Creek	45.5626211	113.8504437	DNA non mustelid/poor
Beth Waterbury	IDFG-08-R7-DC-02C	Hair	4/15/2008	Dahlonge Creek	45.5626211	113.8504437	DNA non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-01A	Hair	4/4/2008	Freeman Creek	45.2708420	113.7380038	DNA mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-01B	Hair	4/4/2008	Freeman Creek	45.2708420	113.7380038	<b>Wolverine*</b> non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-02A	Hair	4/4/2008	Freeman Creek	45.2705499	113.7472160	DNA non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-03A	Hair	4/4/2008	Freeman Creek	45.2695255	113.7532983	DNA mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-01C	Hair	4/16/2008	Freeman Creek	45.2708420	113.7380038	Marten
Beth Waterbury	IDFG-08-R7-FC-01D	Hair	4/16/2008	Freeman Creek	45.2708420	113.7380038	Marten
Beth Waterbury	IDFG-08-R7-FC-02B	Hair	4/16/2008	Freeman Creek	45.2705499	113.7472160	Marten non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-03B	Hair	4/16/2008	Freeman Creek	45.2695255	113.7532983	DNA non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-01	Hair	4/4/2008	Freeman Creek	45.2705200	113.7431400	DNA non mustelid/poor
Beth Waterbury	IDFG-08-R7-FC-02	Urine/gland	4/4/2008	Freeman Creek	45.2710200	113.7464000	DNA non mustelid/poor

\*Individual and gender results in progress

Please contact us if you have any questions, we look forward to analyzing samples in the future.