

ADF&G Wildlife Health and Disease Surveillance Program
Preliminary *Mycoplasma ovipneumoniae* (M. ovi) testing results in wildlife
September 23, 2020

ADF&G's Wildlife Health and Disease Surveillance Program (WHDS) is providing these preliminary *Mycoplasma ovipneumoniae* (M. ovi) testing results in wildlife, due to requests from stakeholders who are interested in providing input to the Department of Environmental Conservation on their proposal to requiring domestic goat and sheep M. ovi testing prior to animal importation. The data summary is only for PCR testing for M. ovi (versus serology).

This data summary is based on preliminary data that are still being reviewed to ensure they are accurate and correct. The summary is therefore subject to change with additional information. These summaries include data that are drawn from multiple sources.

These data show population level exposure to M. ovi but are not appropriate as measures of prevalence of M. ovi within a population. The sampling methods were not designed to provide population prevalence. For example, most Dall's sheep tested were full-curl rams harvested by hunters which does not provide information about ewes or lambs. The sensitivity and specificity of the various tests being used is also unknown and likely differs. Further, certain tests were only run on a selection of samples after they were found to be positive on one of the other tests. Confidence in population exposure is enhanced when results are repeated on multiple tests and labs.

These are only the M. ovi nasal swab test results from ADF&G's WHDS Program and do not include results from other tissues. There is a research project being conducted by ADF&G with M. ovi testing in Dall's sheep in the Chugach and Talkeetna mountains that will be reported on separately.

Dall's Sheep *M. ovi* Sampling Data Summary

Table 1: Summary of Dall's sheep *M. ovi* testing by range area (i.e., population) with the number of animals tested, the number of animals for which *M. ovi* was detected on at least one test, the different labs that detected *M. ovi* on at least one test, and the number of different types of PCR tests that had at least one *M. ovi* detection for a Dall's sheep in that range area. Note Individuals that were sampled multiple times are listed only once under the earliest year tested. Some labs run multiple types of PCR tests, and some samples were tested using more than one PCR test. Lab abbreviations: WADDL = Washington Animal Disease Diagnostic Laboratory, Pullman, WA; USDA = Animal Disease Research Unit, United States Dept. of Agriculture, Agricultural Research Service, Pullman, WA; CSU-VDL = Colorado State University Veterinary Diagnostic Laboratory, Fort Collins, CO; WSVL = Wyoming State Veterinary Laboratory, Laramie, WY.

Range Area	# of animals tested	# of animals with <i>M. ovi</i> detection	Labs with <i>M. ovi</i> detections	# of types of PCR tests with <i>M. ovi</i> detections
Alaska Range East	234	17	WADDL, USDA, CSU-VDL	6
Alaska Range West	78	1	USDA	1
Brooks Range East	95	3	USDA	1
Brooks Range West	1	0	-	-
Chugach Mountains	91	3	USDA	1
Kenai Mountains	12	0	-	-
Talkeetna, Chulitna, Watana Mountains	57	6	WADDL, USDA	4
Tanana Hills-White Mountains	28	2	USDA	1
Wrangell Mountains	230	18	WADDL, USDA	2
Ogilvie Mountains	2	0	-	-

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Table 2: Summary of Dall's sheep *M. ovi* testing by PCR test and lab with the number of animals tested and the number of *M. ovi* detections with each PCR test. Some animals were tested using more than one PCR test. Lab abbreviations: WADDL = Washington Animal Disease Diagnostic Laboratory, Pullman, WA; USDA = Animal Disease Research Unit, United States Dept. of Agriculture, Agricultural Research Service, Pullman, WA; CSU-VDL = Colorado State University Veterinary Diagnostic Laboratory, Fort Collins, CO; WSVL = Wyoming State Veterinary Laboratory, Laramie, WY.

Lab	PCR Test	# tested	# <i>M. ovi</i> detections
WADDL	M.ovi specific PCR	555	11
	Universal Mycoplasma w/sequencing to identify detections	243	3
USDA	LM40 w/sequencing to identify detections	495	41
	IGS w/sequencing to identify detections	228	4
	LM-MGSO w/sequencing to identify detections	25	3
CSU-VDL	LM w/sequencing to identify detections	2	2
WSVL	M. ovi specific PCR	12	0
	LM w/sequencing to identify detections	12	0

Table 3: Number of Dall's sheep tested for *M. ovi* and number of *M.ovi* detections by year.

Year	# individuals tested	# of <i>M. ovi</i> detections
2017	129	13
2018	366	27
2019	333	10

Table 4: Source of sampling for Dall's sheep by year. Hunter harvested are animals that were nasal swabbed during horn sealing. Nasal swabs are typically taken when ADF&G captures of animals occur for management or research purposes or when a non-hunt mortality is found.

Year	# tested from hunter harvest	# tested from captures	# tested from non-hunt mortalities
2017	128	0	1
2018	337	28	1
2019	329	0	4

Caribou *M. ovi* Sampling Data Summary

Table 1: Summary of caribou *M. ovi* testing by herd (i.e., population) with the number of animals tested, the number of animals for which *M. ovi* was detected on at least one test, the different labs that detected *M. ovi* on at least one test, and the number of different types of PCR tests that had at least one *M. ovi* detection for a caribou in that herd. Note Individuals that were sampled multiple times are listed only once under the earliest year tested. Some labs run multiple types of PCR tests, and some samples were tested using more than one PCR test. Lab abbreviations: WADDL = Washington Animal Disease Diagnostic Laboratory, Pullman, WA; USDA = Animal Disease Research Unit, United States Dept. of Agriculture, Agricultural Research Service, Pullman, WA; WSVL = Wyoming State Veterinary Laboratory, Laramie, WY; Abbotsford = Animal Health Centre; Abbotsford, BC, Canada.

Caribou Herd	# of animals tested	# of animals with <i>M. ovi</i> detection	Labs with <i>M. ovi</i> detections	# of types of PCR tests with <i>M. ovi</i> detections
Fortymile	256	27	WADDL, USDA, WSVL, Abbotsford	8
Central Arctic	154	10	WADDL, USDA	3
Chisana	5	0	-	-
Delta	7	0	-	-
Galena Mountain Herd	2	0	-	-
Hodzana Caribou Herd	4	0	-	-
Macomb	13	1	USDA	1
Mulchatna Caribou Herd	55	5	USDA	1
Mentasta	21	0	-	-
Northern Alaska Peninsula	12	0	-	-
Nelchina	74	9	WADDL, USDA	5
Teshekpuk	242	22	WADDL, USDA	3
Western Arctic	80	2	WADDL, USDA	3
White Mountain	16	2	USDA	1
Wolf Mountain	3	0	-	-

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Table 2: Summary of caribou *M. ovi* testing by PCR test and lab with the number of animals tested and the number of *M. ovi* detections with each PCR test. Some animals were tested using more than one PCR test. Lab abbreviations: WADDL = Washington Animal Disease Diagnostic Laboratory, Pullman, WA; USDA = Animal Disease Research Unit, United States Dept. of Agriculture, Agricultural Research Service, Pullman, WA; WSVL = Wyoming State Veterinary Laboratory, Laramie, WY; Abbotsford = Animal Health Centre; Abbotsford, BC, Canada.

Lab	PCR Test	# tested	# <i>M. ovi</i> detections
WADDL	<i>M. ovi</i> specific PCR	356	23
	Universal Mycoplasma w/sequencing to identify detections	180	10
USDA	LM40 w/sequencing to identify detections	757	74
	IGS w/sequencing to identify detections	148	31
	LM-MGSO w/sequencing to identify detections	22	14
WSVL	<i>M. ovi</i> specific PCR	21	2
	LM w/sequencing to identify detections	21	1
Abbotsford	GPO	14	1

Table 3: Number of caribou tested for *M. ovi* and number of *M. ovi* detections by year.

Year	# individuals tested	# of <i>M. ovi</i> detections
Archived nasal swabs from 2007-2016	332	15
2017	90	3
2018	337	58
2019	180	3

Table 4: Source of sampling for caribou by year. Hunter harvested are animals that were swabbed with hunter's cooperation. Nasal swabs are typically taken when ADF&G captures of animals occur for management or research purposes or when a non-hunt mortality is found.

Year	# tested from hunter harvest	# tested from captures	# tested from non-hunt mortalities
Archived nasal swabs from 2007-2016	0	327	6
2017	0	84	6
2018	116	193	28
2019	3	171	6