

From: [Grizzle, Betty](#)
To: [Ed Turner](#)
Subject: Clarifications
Date: Tuesday, February 7, 2017 11:35:27 AM
Attachments: [20170206 CFWO Mapped Dens with Copeland 7yr Snow MODIS Results.xlsx](#)

Hi Ed - I sent our excel table (the one created yesterday, with snow years added - attached here since I added an explanation to first column) to Audrey. She has several questions, as listed below. Do you have some time to go over this with me?
Thanks.

Could you explain the table you sent?

1) I assume the date column is the date of the observation, I.e., the date the den was discovered??? Some of the dates are in June and July, so they do not represent natal or even maternal dens. Is that correct? So are they included on your den map? Which dens in the table are on the den map?

2) There does not appear to be any dens from Inman's study in the table or on the map. Why is that?
Is this table only dens contributed by Jeff?

3) There are 15 entries in the table that show a date in the 2000-2006 period; all but 2 are from Jeff's work and all of these are from Glacier Park, an area that is suppose to retain snow in the future according to McKelvey et al. 2011.

4) I am skeptical about the identification of some of the dens in the table as den sites. What was your requirement for inclusion?

5) What are columns N and O?

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Common_Nam

WOLVERINE

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Directions

IN A TRIBUTARY OF WEST TARGHEE CREEK. HEINEMEYER'S REPORT PROVIDES A MAP SHOWING THE GENERAL LO
IN A TRIBUTARY OF WEST TARGHEE CREEK. HEINEMEYER'S REPORT PROVIDES A MAP SHOWING THE GENERAL LO

4.3 KM SE OF THE TOWN OF BEAR DANCE LOCATION UNCERTAINTY = 800M

VICINITY OF MOUNT BARCROFT, IN THE WHITE MOUNTAINS. PRESUMED EXTANT 1 MILE

TIPSOO PEAK APPROX. 0.7MI NW OF TIPSOO PEAK

GLACIER PARK DENS FROM THE 2000'S

GLACIER PARK DENS FROM THE 2000'S

GLACIER PARK DENS FROM THE 2000'S

GLACIER PARK DENS FROM THE 2000'S

SOUTH SIDE OF VANDEVER MOUNTAIN. PRESUMED EXTANT 1/5 MILE

SACAGAWEA PEAK, SADDLE NW OF PEAK LOCATION UNCERTAINTY100M

N OF MT SILLIMAN (ALSO MAPPED AT TWIN LAKES). PRESUMED EXTANT 1 MILE

IDAHO SAWTOOTH DENS FROM THE 1990'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

GLACIER PARK DENS FROM THE 2000'S

GLACIER PARK DENS FROM THE 2000'S

GLACIER PARK DENS FROM THE 2000'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

GLACIER PARK DENS FROM THE 2000'S

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GLACIER PARK DENS FROM THE 2000'S

LOCATION UNCERTAINTY 1/4 MILE (QUARTER SECTION)

JUST NW OF TOEJAM LAKE, STANISLAUS NATIONAL FOREST. PRESUMED EXTANT 1/10 MILE

IDAHO SAWTOOTH DENS FROM THE 1990'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

IDAHO SAWTOOTH DENS FROM THE 1990'S

0.3 KM SW OF RUMBLE CREEK LAKE LOCATION UNCERTAINTY100M

LOCATION UNCERTAINTY 1/4 MILE (QUARTER SECTION)

GLACIER PARK DENS FROM THE 2000'S

KIMBERLY HEINEMEYER
KIMBERLY HEINEMEYER
WOODS, D.
NONE LISTED
FARRELL, TERRY, RAY DAVIS AND BILL WOODS.
JEFF COPELAND
JEFF COPELAND
JEFF COPELAND
JEFF COPELAND
NONE LISTED
BESS, JIM
NONE LISTED
JEFF COPELAND
JEFF COPELAND
JEFF COPELAND
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JEFF COPELAND
JEFF COPELAND
JEFF COPELAND
FITKIN, S/WDFW
NONE LISTED
JEFF COPELAND
JEFF COPELAND
JEFF COPELAND
JOHNSON, KURT
STREAM, L/WDFW; MILLER, P/WDFW
JEFF COPELAND

BIOLOGIST, RESEARCHER OR TAXA EXPERT
BIOLOGIST, RESEARCHER OR TAXA EXPERT
NONE LISTED
NONE LISTED
NONE LISTED
RESEARCHER
RESEARCHER
RESEARCHER
RESEARCHER
NONE LISTED
NONE LISTED
NONE LISTED
RESEARCHER
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NONE LISTED
NONE LISTED
RESEARCHER
RESEARCHER
RESEARCHER
NONE LISTED
NONE LISTED
RESEARCHER

Verificati	Source_Age	DEN FWS_SOURCE
TRUSTED	NONE LISTED	1 IFWIS_JULY2016_WOLVERINE
VISUAL	NONE LISTED	1 IFWIS_JULY2016_WOLVERINE
VISUAL	NONE LISTED	1 MT_NHP_SO_20160706
VISUAL	NONE LISTED	1 CNDDDB_WOLVERINE_CENTROIDS
VISUAL	NONE LISTED	1 ORBIC_INDEPENDENT_20161107
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
VISUAL	NONE LISTED	1 CNDDDB_WOLVERINE_CENTROIDS
VISUAL	NONE LISTED	1 MT_NHP_SO_20160706
VISUAL	NONE LISTED	1 CNDDDB_WOLVERINE_CENTROIDS
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84
VERIFIED METHOD AIR	WDFW SURVEY	1 WA_DFW_PHS_201605
VISUAL	NONE LISTED	1 CNDDDB_WOLVERINE_CENTROIDS
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
FIELD WORK	JEFF COPELAND	1 IDAHO_DENS_WGS84
VISUAL	NONE LISTED	1 MT_NHP_SO_20160706
VERIFIED METHOD UNKNOWN	WDFW SURVEY	1 WA_DFW_PHS_201605
FIELD WORK	JEFF COPELAND	1 GLACIER_DENS_84

FWS_DATE	DEN_TYPE	STRUCTURE	TOTAL_DETE	FWS_YEAR	FWS_
633	-9 NONE LISTED	NONE LISTED		-9	-9 -9
634	-9 NONE LISTED	NONE LISTED		-9	-9 -9
1218	19930628 NONE LISTED	NONE LISTED		1	1993 1990
62	19770000 NONE LISTED	NONE LISTED		-9	1977 1970
169	19970308 NONE LISTED	NONE LISTED		-9	1997 1990
1	20030400 NATAL	LOG COMPLEX		-9	2003 2000
2	20030500 MATERNAL	LOG COMPLEX		-9	2003 2000
13	20060500 MATERNAL	LOG COMPLEX		-9	2006 2000
12	20060500 NATAL	LOG COMPLEX		-9	2006 2000
147	19180918 NONE LISTED	NONE LISTED		-9	1918 1910
1596	19910715 NONE LISTED	NONE LISTED		1	1991 1990
51	19090910 NONE LISTED	NONE LISTED		-9	1909 1900
3	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
6	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
8	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
14	20070500 NATAL	BOULDER/LOG		-9	2007 2000
9	20060400 UNCONFIRME	LOG COMPLEX		-9	2006 2000
10	20060300 UNCONFIRME	UNK		-9	2006 2000
5	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
4	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
11	20060400 UNCONFIRME	UNK		-9	2006 2000
7	20050400 MATERNAL	SPIDER TREE		-9	2005 2000
6	20050300 NATAL	SPIDER TREE		-9	2005 2000
3	20040400 NATAL	LOG COMPLEX		-9	2004 2000
4	20040400 MATERNAL	DOWN LOG		-9	2004 2000
5	20040500 MATERNAL	LOG/BOULDEF		-9	2004 2000
105	20020302 NONE LISTED	NONE LISTED		-9	2002 2000
162	19960713 NONE LISTED	NONE LISTED		-9	1996 1990
2	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
1	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
7	19900000 NONE LISTED	NONE LISTED		-9	1990 1990
1355	20020615 NONE LISTED	NONE LISTED		1	2002 2000
8	19920611 NONE LISTED	NONE LISTED		-9	1992 1990
8	20050500 MATERNAL	SPIDER TREE		-9	2005 2000

Comments_A

THE OBSERVERS REPORTED THAT THIS LOCATION IS LIKELY A REPRODUCTIVE DEN, AS EVIDENCED BY THE EXTENS
AT LEAST 3 DENS IN THE AREA, WITH ONE DEN HAVING A HIGH PROBABILITY OF HOUSING KITS, WHILE OTHER SIT
GROUP TYPE: SINGLE REPRODUCTIVE STATUS: UNKNOWN OBSERVATION COMMENTS: VIEW SCALE AT DATA EN
TWO OBSERVED TOGETHER, APPROXIMATELY 1.1 KM NORTH OF BARCROFT; ONE ANIMAL WAS SLIGHTLY SMALLER
VISUAL SIGHTING OF WOLVERINE TRACKS, CONFIRMED BY JEFF COPELAND, IDFG. POTENTIAL DEN SITE. DOCUMENTED
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
SIGN OBSERVED., IN 1937 GRINNELL AND OTHERS
WOLVERINE SPOTTED RUNNING FROM A DEN SITE. DEN LOCATED UNDER KRUMMHOLZ SPRUCE ON ALPINE TUNDRA
OBSERVATION 10 SEP 1909. MVZ SPECIMEN (#30049) COLLECTED 8 AUG 1919 BY E.W. MCDONALD., IN 1937 GRINNELL
IDAHO SAWTOOTH DENS FROM THE 1990'S
IDAHO SAWTOOTH DENS FROM THE 1990'S
IDAHO SAWTOOTH DENS FROM THE 1990'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
IDAHO SAWTOOTH DENS FROM THE 1990'S
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GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
GLACIER PARK DENS FROM THE 2000'S
WOLVERINE NATAL DEN OBSERVED DURING AERIAL WOLVERINE DEN SURVEY. WOLVERINE TRACKS LOCATED AND
ON 13 JULY 1996, ONE MATURE ADULT WAS OBSERVED AT THE BASE OF A SILVER PINE, NEAR A LARGE DUGOUT ,
IDAHO SAWTOOTH DENS FROM THE 1990'S
IDAHO SAWTOOTH DENS FROM THE 1990'S
IDAHO SAWTOOTH DENS FROM THE 1990'S
ACTIVITY: MOVING GROUP TYPE: SINGLE REPRODUCTIVE STATUS: UNKNOWN OBSERVATION COMMENTS: VIEW
WOLVERINE DEN LOCATED NEAR AMERICAN LAKE ON EAST FACING SLOPE SOUTH OF CLIFF LINE. DEN LOCATED IN
GLACIER PARK DENS FROM THE 2000'S

CFWO Den Sites_viewed with GoogleEarth for any Snow_Cover_Note_CFWO interpretation of landscape

No snow imagery May, snow June 8, 2013, in drainage flanked by steep ridge, rocks and sage

No snow imagery May, snow June 8, 2013, in drainage flanked by steep ridge, rocks and sage

No snow imagery, edge of dense tree low angle slope looks to be historically forested, 580' east of timber road

Snow in vicinity, loc approx so could be in snow patch May 17, 2013, Dryer White Mtns slope w/ what looks to be

No snow cover imagery for May, snow cover on July 6, 2014, base of small Avy path

No snow imagery, slight clearing in dense tree slope, east flank of large slope valley

No snow imagery, slight clearing in dense tree slope with some boulders, east flank of large slope valley

No snow imagery, dense tree drainage, in cirque of Falling Leaf Lake

No snow imagery, dense tree drainage, in cirque of Falling Leaf Lake

Snow cover May 30, 2013, Sierra large steep bowl slope could slide, but no true Avy path

Snow May 31, 2011, on apron of chute east flank of Hardscrabble Ridge

Snow cover May 30, 2013, Sierra slope with unconsolidated smaller and large slab rocks

No snow imagery in May, Snow Oct 25, 2013, den in sparse sloped tree drainage area between small lakes

No snow imagery in May, Snow Oct 25, 2013 flank of slope with small past slides, den small rocks

No snow imagery, treed flank of basin slope, with past slides adjacent

No snow imagery May, snow in vicinity Aug 2015, On steep rock terrace / cliff of Grinnell Glacier

No snow imagery, slope historically prone to slide but no clear Avy chute, in trees as of May 2015, prior years tree

No snow imagery, Avy apron with unconsolidated boulders 15' in size or larger

No snow imagery in May, Snow Oct 25, 2013 flank of bowl with Avy past slides, den in boulders

No snow imagery on slope above small drainage with sparse tree cover and small rocks

Snow May 30, 2015, Extreme steep hard rock face access seems unlikely

Snow May 30, 2015, treed slopes of Cataract Creek Meadow

Snow May 30, 2015, treed slopes of Cataract Creek Meadow

Snow patches in vicinity May 30, 2015, treed and rock slopes of Haystack Hump, Logan Pass

Snow patches in vicinity May 30, 2015, treed and rock slopes of Haystack Hump, Logan Pass

Snow patches in vicinity May 30, 2015, treed and rock slopes of Haystack Hump, Logan Pass

No snow cover imagery, very rocky slope at apron of Avy Chute

No snow cover imagery, on typical eastern Sierra slope with what looks to be some unconsolidated rock

No snow imagery in May, Snow Oct 25, 2013, sloped meadow type drainage above lake and below trees and Avy

No snow imagery in May, Snow Oct 25, 2013, steep ridge above Horseshoe Lk, sparse trees and builders

No snow imagery, sparse treed slope above small lake, with old slides further up peak

No snow imagery May, Snow in vicinity June 5, 2016, on steep cliff face terrace accessible from above west of Up

No snow cover imagery for May, snow cover on July 10, 2012, on slope

Snow May 30, 2015, treed slopes of Cataract Creek Meadow

Copeland results_Num_Snow_Y

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