

**Project Update
Tule Greater White-fronted Geese
July 2015**

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Capture and marking

In September, 2014, 68 Tule geese were captured and 30 were marked with VHF radio collars at Summer Lake Wildlife Management Area (WMA), Oregon.

Telemetry and mark:resight surveys

Searches for all 62 available (radios believed to be functioning; 2011=2, 2012=10, 2013=20, 2014=30) radio-collared birds were conducted from the fall through spring via ground and aerial telemetry in the Summer Lake Basin (ODFW), Klamath Basin (USFWS), Sacramento Valley (CDFG), and the Suisun Marsh (CDFG, USFWS). Radios from early years reached their life expectancy during this fall and winter; a total of 34 were detected at least once. In addition, three sampling periods for developing an indirect estimate of population size occurred in October, November, and late December/early January. The first two sampling periods were unsuccessful given the weather conditions.

Radio-marked geese availability

Year Marked	Total Marked (Sept only)	Available for Winter	Available for AK(survive hunt season)	Detected AK	Detected Fall #2
2003	48	47	38	33	34
2004	26	23	17	14	12
2005	25	25	25	23	23
2006	51	44	39	31	33
2007	32	32	26	17	21
2008	24	24	20	13	9
2009	30	30	26	24	18
2010	32	31	30 (Feb 18)	25	22
2011	17	16	14 (Feb 17)	16	13
2012	21	21	21	15	11
2013	26	26	17	14	12
2014	30	30	23	17	

Radio-marked birds from 2008 had the lowest detections in fall #2 compared to all other years. The second lowest year was 2004 and that low number can be contributed to radio failure. Four birds were detected on mortality mode in fall 2009, of which only 3 were retrieved (Summer Lake Basin, Lower Klamath NWR and Tule Lake NWR). Deaths or collar loss more than likely occurred in spring given the detection history and water conditions. Of the 13 birds detected in Alaska, 6 were either detected only once in the Sacramento Valley (SV) or disappeared after detections in Alaska. The majority of birds marked in 2008 were female (n=21).

Winter Distribution

Radio-marked geese used the traditional areas in the Sacramento Valley (Sacramento Complex NWRs) including flooded rice fields and private duck clubs adjacent to Sacramento, Delevan and Colusa NWRs as well as Suisun Marsh. Thirteen radio-marked Tule geese were detected in the Suisun Marsh; from November to March. Telemetry

searches in the Klamath Basin occurred mostly in late winter and early spring because weather prohibited aerial telemetry. A small number of Tule geese are suspected of wintering in the Klamath Basin based on past years data. The highest number of radio detections occurred on Delevan NWR in the SV. Most radios were also heard off-refuge in the rice later in the season.

Migration Timing and departure of geese

Fall- The first detection of a radio at Summer Lake occurred on 3 September; however most fall arriving birds did not occur until October. In the SV the first radio-marked bird was detected on 21 September. The earliest known departure from Summer Lake occurred 3 September, when one bird were last heard at Summer Lake and detected in the SV 29 September. The last birds to leave Summer Lake was 21 December (n=3) and arriving in the SV from 5 January to 12 January. In addition, there was a 2014 marked bird that wintered at Summer Lake. This was the first bird detected wintering at Summer Lake. The last detection was 9 April. This season was the second longest duration detected at Summer Lake; the longest was the 2012/13 season when 4 birds remained until 28 December.

Spring- The earliest detected arrivals to the Klamath Basin (n=2) occurred 13 February while the earliest detected arrivals to Summer Lake (n=3) occurred 14 February.

Detections as of May and known mortalities of radio-marked geese

As of 15 June, 42 radios have been detected after the hunt season (2012=8, 2013=9, 2014=25). Additional searches are anticipated in Alaska.

A total of 21 recoveries were reported as shot or found dead as of June 15, 2015 including 14 band-only recoveries.

	Youth Hunt	Reported Shot/Found Dead During Hunt Season	Other Mortality	Total Mortalities
<i>Alaska</i>				0
<i>Alberta</i>				0
<i>Washington</i>				0
<i>Summer Lake, OR</i>		1	1 (band only)	2
<i>Klamath Basin, CA</i>			2 (1 band only)	2
<i>Sacramento Valley, CA</i>		13 (9 band only)		13
<i>Adin, CA</i>			1	1
<i>Suisun Marsh, CA</i>		3 (band only)		3

Check Station measurement summary

Since 1999 CDFW check station staff has been measuring bills of whitefronts geese killed on public hunting areas in the wintering range of Tule geese. In 2014-15, 1,952* whitefronts geese were harvested on these areas (up from 1,514). Of these, 1,337 bills were measured. Using the established bill measurement criteria, 68 adult Tule geese were killed on the public hunting areas in the Tule goose winter range, down 10% from the 75 killed in 2013-14. The range of adult Tule geese in this effort since 1999 has ranged from a low of 13 (2005-06) to a high of 86 (2000-01).

Alaska Detections

A total of 47 radios were presumably available for detection in Alaska during the summer of 2015. Alaska Department of Fish and Game conducted one aerial telemetry flight (May) with 27 radio-collared birds detected. Additional surveys will be conducted at Innoko and the YK Delta.

Preliminary Population Estimate

The process used to estimate the population changed in 2014 from using NOREMARK to a ratio estimator similar to the Aleutian Canada Goose estimate. Rather than rely on the number of marked to unmarked birds observed, the estimate is using the ratio from each sampling occasion. The low estimate in 2014 is attributed to very few resights because of stormy weather for the entire observation period. This estimate is not considered valid for management purposes. The current 3-year average is 11,160. The following is a summary of population estimates using the ratio estimator approach:

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Sac Valley	17,659	11,866	8,657	18,688	11,757	8,607	11,348	13,123	11,457	12,807	9,229	3,801
All Periods												
95% CI	3,857- 31,462	5,940- 17,792	3,557- 13,756	11,045- 26,331	7,342- 16,172	1,887- 15,327	6,325- 16,370	4,788- 21,458	7,038- 15,875	5,935- 19,678	4,201- 14,256	1,782- 5,819

Trapping and marking plans for 2015

Forty radio collars have been purchased by CDFW and ODFW and are planned to be deployed in September 2015 at Summer Lake Wildlife Management Area (WMA), Oregon.

Telemetry and mark:resight surveys

Searches will continue in 2015/16 for radio-collared birds in the Summer Lake Basin (ODFW), Klamath Basin (USFWS), Sacramento Valley (SV), and the Suisun Marsh (CDFW, USFWS). Revised sampling periods will be developed along with new SOPs.

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