

PACIFIC FLYWAY COUNCIL

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Recommendation 17—Revised population objective for Rocky Mountain Population trumpeter swans

Recommendation

The Pacific Flyway Council (Council) adopts the revised population objective for Rocky Mountain Population (RMP) trumpeter swans to inform population status given discontinuation of the North American Trumpeter Swan Survey (NATSS).

Justification

This revision provides an updated population objective for RMP trumpeter swans. An updated objective was necessary because the existing population objective in the Pacific Flyway Council management plan for this population is no longer relevant. The current management plan relies on the NATSS to assess population status. This was a cooperative, range-wide survey conducted at 5-year intervals by federal, state, provincial, and private cooperators across the northern U.S. and Canada during 1968–2015 to monitor status of trumpeter swans in North America (Groves 2017). The NATSS included counts of RMP trumpeter swans to include both the Canada and U.S. breeding segments; however, this survey was formally discontinued in 2019.

An Informational Note was presented to Council in February 2020 (Note 2) outlining how discontinuation of the NATSS will hamper the ability of the Pacific Flyway Council and others to monitor and manage RMP trumpeter swans. Trumpeter swans are exposed to limited take in the Pacific Flyway via legal harvest in three states (i.e., Montana, Nevada, and Idaho). While the annual U.S. Fall Trumpeter Swan Survey (FTSS) is an operational survey with consistent methodology, it only provides an index of abundance for the U.S. breeding segment of RMP trumpeter swans. Consequently, a reliable index of the Canada breeding segment is needed.

The Subcommittee worked extensively with the USFWS Migratory Bird Program to explore alternative methods to monitor RMP trumpeter swan population abundance and trends. The Waterfowl Breeding Population and Habitat Survey (WBPBS) is annually conducted and can provide a reliable and cost-effective method to obtain a baseline assessment of RMP trumpeter swan population status in Canada. This method will provide a revised population objective for RMP trumpeter swans.

The WBPBS and NATSS have different spatial coverages and estimation procedures; therefore, abundance estimates are not directly comparable between surveys. However, the WBPBS provides an index to relative abundance with no additional survey time or costs. Trumpeter swan abundance indices from the WBPBS will use all existing data from the WBPBS (beginning in 2000) with truncated spatial coverage to include breeding trumpeter swans and exclude tundra

swans to the extent possible. More specifically, the WBPBS trumpeter swan indices will be an index of breeding trumpeter swans (i.e., nesting adults and subadults in May), in Canada, derived using the following criteria (Dooley 2025).

- 1) Use an index of breeding swans (vs. total swans, which also includes swans in flocks) to reduce inclusion of tundra swans; specifically, $2 \times \text{ singles} + 2 \times \text{ number of pairs}$.
- 2) Use WBPBS strata from southern Alberta to central Northwest Territories (i.e., strata 15, 16, 17, 18, 20, 26, 27, 28, 29, 75, 76, 77; Figure 1 in Dooley 2025).
 - a. Northern portions of Northwest Territories (strata 13 and 14) will not be included to reduce inclusion of tundra swans.
 - b. Montana strata (41 and 42) will not be included because portions of those strata occur outside the breeding delineation of RMP trumpeter swans.
- 3) Using a visibility correction factor of 1.

Dooley (2025) summarized swan densities and stratum abundance estimates from WBPBS data during 2000–2024. Average relative abundance was 6,262 swans and ranged from 2,068 in 2000 to 11,439 in 2019 (Table 1). Abundance of breeding swans has increased since 2000. The log-linear trend estimate (annual percent change) was 4.9% (95% CI = 3.3–6.5%). Estimates of breeding swans for most individual strata similarly showed an increasing or stable trend, and the majority of swans were observed in strata 15, 16, 17, 76, and 77 (Figure 1). While the WBPBS does not cover the full RMP trumpeter swan range, it does provide an index for birds that summer in Canada.

The NATSS and WBPBS have similar trends with low levels occurring in the early 2000s and show continued population growth since. These low population levels observed in the early 2000s represent a minimum population threshold which will be used to establish a baseline for the current metric and should relative abundance using the WBPBS index decrease below 3,000 swans in the Canada segment, Council will work with partners to investigate the reason for decline and evaluate population status from all sources of information including the possibility of conducting a population specific survey. This population threshold is slightly greater than the lowest WBPBS estimate, and an appropriate value to trigger a management response.

The RMP Trumpeter Swan Subcommittee will continue to monitor results of the WBPBS and report findings and recommendations to Council for review and possible action.

Figure 1. Waterfowl Breeding Population and Habitat Survey indices of breeding swans (2 x singles + 2 x number of pairs) within strata 15–18, 20, 26–29, and 75–77 during 2000–2024. Shown are individual strata indices (multi-colored lines) and total indices (all strata combined; black). The log-linear trend estimate (annual percent change) of the total indices is shown in the top left corner (+4.9%).

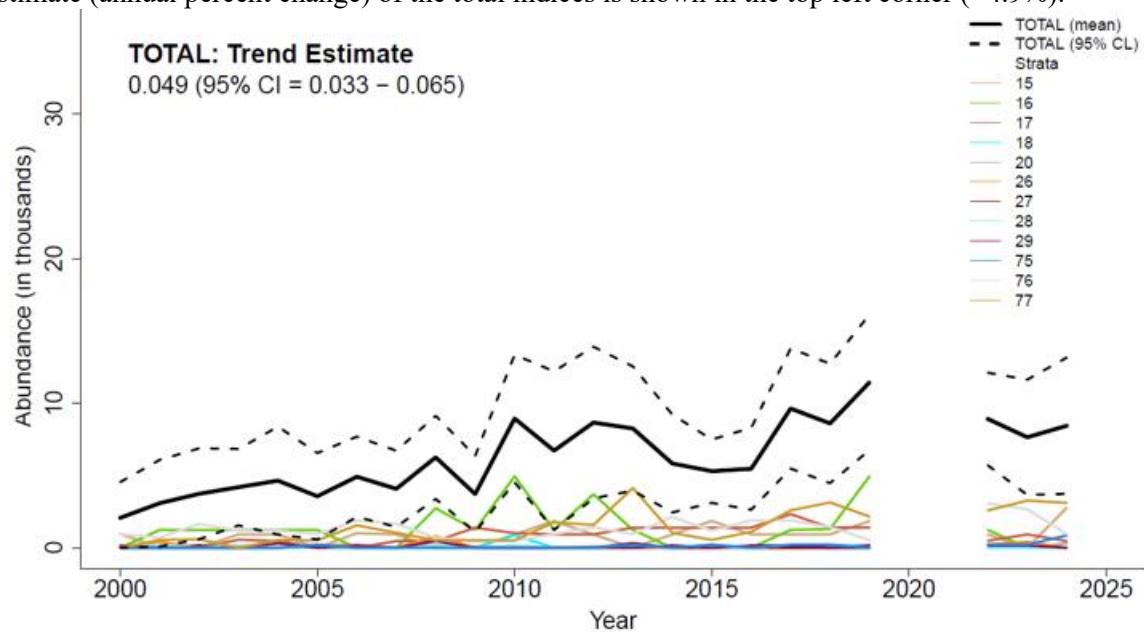


Table 1. Waterfowl Breeding Population and Habitat Survey indices of breeding swans (2 x singles + 2 x number of pairs) within strata 15–18, 20, 26–29, and 75–77 during 2000–2024. Included are the estimate, standard error (SE), and 95% lower and upper confidence intervals (LCI and UCI).

Year	Estimate	SE	95% LCI	95% UCI
2000	2,068	1,263	0	4,542
2001	3,082	1,528	88	6,076
2002	3,731	1,603	590	6,872
2003	4,191	1,347	1,550	6,832
2004	4,641	1,903	911	8,371
2005	3,563	1,524	576	6,549
2006	4,912	1,414	2,140	7,684
2007	4,075	1,343	1,444	6,707
2008	6,252	1,468	3,376	9,129
2009	3,716	1,342	1,086	6,347
2010	8,937	2,249	4,529	13,346
2011	6,717	2,798	1,233	12,200
2012	8,658	2,674	3,416	13,899
2013	8,246	2,190	3,954	12,539
2014	5,825	1,725	2,443	9,206
2015	5,298	1,117	3,108	7,488
2016	5,461	1,443	2,632	8,289
2017	9,627	2,119	5,473	13,781
2018	8,599	2,105	4,472	12,725
2019	11,439	2,390	6,755	16,123
2020			No Survey	
2021				
2022	8,906	1,633	5,706	12,106
2023	7,639	2,034	3,653	11,626
2024	8,436	2,403	3,727	13,146

References

Dooley, J. L. 2025. Waterfowl Breeding Population and Habitat Survey indices of breeding swans in Alberta and South-central Northwest Territories, 2000-2024. Unpublished document, presented to the Pacific Flyway Study Committee.

Groves, D. J. 2017. The 2015 North American trumpeter swan survey. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Juneau, AK. Unpublished report.

Addendum to Revise the Population Objective for Rocky Mountain Population Trumpeter Swans – September 10, 2025

This addendum provides a revised population objective for Rocky Mountain Population trumpeter swans. A revised objective was necessary because the existing population monitoring program in the Pacific Flyway Council management plan for this population no longer exists. The current management plan recommends the North American Trumpeter Swan Survey (NATSS) to assess population status, but this survey was discontinued in 2020. However, the Waterfowl Breeding Population and Habitat Survey (WBPHS) is still conducted annually. While the spatial coverage of the WBPHS is different than the NATSS, analyses indicated abundance and trend estimates for RMP trumpeter swans were relatively similar (Dooley 2019).

For the Rocky Mountain Population of trumpeter swans

Maintain relative abundance of at least 3,000 RMP trumpeter swans in the Canada breeding segment using an index from the Waterfowl Breeding Population and Habitat Survey (WBPHS) (to include strata from southern Alberta to Central Northwest Territories).

Adoption

Pacific Flyway Study Committee
September 10, 2025



Jason Jones, Chair

Pacific Flyway Council
September 12, 2025



Blair Stringham, Chair

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