Red-necked Phalarope

Phalaropus lobatus

Class: Aves
Order: Charadriiformes

Review Status: Peer-reviewed **Version Date:** 05 March 2019

Conservation Status

NatureServe:	*Agency:*		
G Rank: G4G5	ADF&G:	IUCN: Least Concern	Audubon AK: Watch
S Rank: S4S5B	USFWS:	BLM:	

Final Rank

Conservation category: **II. Red**

high status and either high biological vulnerability or high action need

Category	Range	Score
Status	-20 to 20	6
Biological	-50 to 50	-33
Action	-40 to 40	12

Higher numerical scores denote greater concern

Status - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing). **Score**

Population Trend in Alaska (-10 to 10) 6

Suspected to be decreasing. Although few data are available for Alaska, surrounding populations in Arctic Canada and populations elsewhere in North America appear to be declining (Bart et al. 2007; COSEWIC 2014).

Distribution Trend in Alaska (-10 to 10) 0

Unknown.

Status Total: 6

Biological - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable). **Score**

Population Size in Alaska (-10 to 10) -10

1.25 million individuals are estimated to breed in Alaska (ASG 2019).

Range Size in Alaska (-10 to 10) -10

Widely distributed throughout much of northern and western Alaska's coastal and interior regions, south to the Kenai Peninsula and west to the Aleutian Islands (Rubega et al. 2000). Also documented on several Bering Sea Islands. Overwintering range is largely unknown, but outside Alaska. Breeding range is >400,000 sq. km.

Population Concentration in Alaska (-10 to 10) -10

Although high densities have been reported (Isleib and Kessel 1973; Andres et al. 2012b), most observations report singles, pairs, or small flocks (Gill et al. 1981; Gill and Tibbitts 1999; Andres and Browne 1998; Bart et al. 2012; McCaffery et al. 2012). Given population size, we estimate that the number of concentration sites is >250.

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) -5

Can breed at 1 year old (Schamel and Tracy 1991; Rubega et al. 2000).

Number of Young (-5 to 5) 1

Lays 3 to 4 eggs per clutch (Sandercock 1997; Weiser et al. 2018a; 2018b). Weiser et al. (2018a) reported mean clutch sizes of 3.83 ± 0.45 (SD). A second clutch may be laid if the first one fails or if sex ratios are male-biased (Schamel et al. 2004b).

Ecological Specialization in Alaska

Dietary (-5 to 5) 0

Few data available. Feeds primarily on aquatic invertebrates, especially adult and larval flies and beetles (Rubega et al. 2000). On staging grounds and during migration, diet can be comprised of either freshwater invertebrates or marine-based prey such as copepods, molluscs, and crustaceans (Rubega et al. 2000). Dietary preferences are poorly studied and we therefore rank this question as Unknown.

Habitat (-5 to 5) 1

Red-necked phalaropes are closely associated with freshwater during breeding (Murphy 1981; Rodrigues 1994; Savage et al. 2018). They breed both near the coast and further inland, inhabiting wetland tundra (e.g. marshes, wet meadows) or drier sites (e.g. upland tundra, mossy or grassy mounds) near ponds and lakes (Isleib and Kessel 1973; Murphy 1981; Gill et al. 1981; Petersen et al. 1991; Liebezeit et al. 2011). During migration, this species is found in intertidal habitats such as gravel bars, mud flats, salt marshes, and river deltas (Isleib and Kessel 1973; Gill et al. 1981; Gill and Tibbitts 1999; Taylor et al. 2011) or in wetlands, ponds, and lakes further inland (Rubega et al. 2000).

Biological Total: -33

Action - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs). **Score**

Management Plans and Regulations in Alaska (-10 to 10) -10

Protected under the Migratory Bird Treaty Act (MBTA 1918). Subsistence harvest is permitted, but subject to closed seasons (AMBCC 2018).

Knowledge of Distribution and Habitat in Alaska (-10 to 10) 2

Breeding distribution and habitat associations are well-known for coastal areas in northern and western Alaska (references in Habitat section), but little is known about its distribution further inland or offshore (Day 2006; Johnson et al. 2007a). Crucially, migration routes and wintering range outside of Alaska are almost entirely unknown.

Knowledge of Population Trends in Alaska (-10 to 10) 10

There is currently no monitoring program in place in Alaska that can provide data on population trends. Recent efforts such as PRISM surveys in western and northern Alaska are promising (Bart et al. 2012; McCaffery et al. 2012), but this program is still in its infancy and multi-year data are not

available.

Knowledge of Factors Limiting Populations in Alaska (-10 to 10) 10

Several studies in Alaska have considered the breeding biology of red-necked phalaropes (Schamel and Tracy 1991; Sandercock 1997; Schamel et al. 2004a; 2004b; English et al. 2014; Kwon et al. 2018). However, little is known about the factors that affect population dynamics and causes for population declines elsewhere in its range are unknown (Hunnewell et al. 2016; Wong et al. 2018). Potential factors affecting reproductive success include predation (Liebezeit et al. 2009; English et al. 2017), proximity to infrastructure (Liebezeit et al. 2009), and weather (Troy 1996; Liebezeit et al. 2014; Nisbet and Veit 2015; Ely et al. 2018; Kwon et al. 2018; Weiser et al. 2018b). Annual variations in sea ice extent may affect foraging distribution in offshore waters (Hunt et al. 2018). Additional data are needed to investigate mortality factors including rates of harvest and incidental take (Naves 2015; Naves et al. 2019), collisions with power lines, ingestion of plastic at sea, and oiling (Day 1980; COSEWIC 2014; Drever et al. 2018).

Action Total: 12

Supplemental Information - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

Harvest:	Unknown
Seasonal Occurrence:	Breeding
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	<10%
% Global Population in Alaska:	25-74%
Peripheral:	No

References

Andres, B. A., and B. T. Browne. 1998. Spring migration of shorebirds on the Yakutat Forelands, Alaska. The Wilson Bulletin 110(3):326–331.

Andres, B. A., J. A. Johnson, S. C. Brown, and R. B. Lanctot. 2012b. Shorebirds breed in unusually high densities in the Teshekpuk Lake Special Area, Alaska. Arctic 65(4):411–420. DOI: 10.14430/arctic4239

Alaska Shorebird Group (ASG). 2019. Alaska Shorebird Conservation Plan, Version III. Alaska Shorebird Group, Anchorage, AK, USA. Available online: https://www.fws.gov/alaska/mbsp/mbm/shorebirds/plans.htm

Bart, J., S. Brown, B. Harrington, and R. I. Guy Morrison. 2007. Survey trends of North American shorebirds: Population declines or shifting distributions? Journal of Avian Biology 38(1):73–82. DOI: 10.1111/j.2007.0908-8857.03698.x

Bart, J., S. Brown, B. A. Andres, R. Platte, and A. Manning. 2012. North Slope of Alaska. Pages 37-96 in J. Bart and V. Johnston, eds. Arctic shorebirds in North America: A decade of monitoring. Studies in Avian Biology No. 44, University of California Press, Berkeley, CA, USA.

COSEWIC. 2014. COSEWIC assessment and status report on the red-necked phalarope Phalaropus lobatus in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, ON, CAN. Available online: https://www.registrelep-sararegistry.gc.ca/

Day, R. H. 1980. The occurrence and characteristics of plastic pollution in Alaska's marine birds. MSc thesis, University of Alaska, Fairbanks, AK, USA.

Day, R. H. 2006. Seabirds in the northern Gulf of Alaska and adjacent waters, October to May. Western Birds 37(4):190–214.

Drever, M. C., J. F. Provencher, P. D. O'Hara, L. Wilson, V. Bowes, and C. M. Bergman. 2018. Are ocean conditions and plastic debris resulting in a 'double whammy' for marine birds? Marine Pollution Bulletin 133:684–692. DOI:

10.1016/j.marpolbul.2018.06.028

Ely, C. R., B. J. McCaffery, and R. E. Gill. 2018a. Shorebirds adjust spring arrival schedules with variable environmental conditions: Four decades of assessment on the Yukon–Kuskokwim Delta, Alaska. Pages 296–311 in W. D. Shuford, R. E. Gill, and C. M. Handel, eds. Trends and traditions: avifaunal change in western North America, Studies of Western birds 3. Western Field Ornithologists, Camarillo, CA, USA. DOI: 10.21199/SWB3.16

English, W. B., D. Schamel, D. M. Tracy, D. F. Westneat, and D. B. Lank. 2014. Sex ratio varies with egg investment in the red-necked phalarope (Phalaropus lobatus). Behavioral Ecology and Sociobiology 68(12):1939–1949. DOI: 10.1007/s00265-014-1800-1

English, W. B., E. Kwon, B. K. Sandercock, and D. B. Lank. 2017. Effects of predator exclosures on nest survival of red-necked phalaropes. Wader Study 124(1):26–32. DOI: 10.18194/ws.00064

Gill, R. E., Jr., and T. L. Tibbitts. 1999. Seasonal shorebird use of intertidal habitats in Cook Inlet, Alaska. Final report MMS 99-0012. U. S. Department of the Interior, U.S. Geological Survey, Biological Resources Division and OCS Study, Anchorage, AK, USA.

Gill, R. E., Jr., M. R. Petersen, and P. D. Jorgensen. 1981. Birds of the northcentral Alaska Peninsula, 1976-1980. Arctic 34(4):286–306. DOI: 10.14430/arctic2532

Hunnewell, R. W., A. W. Diamond, and S. C. Brown. 2016. Estimating the migratory stopover abundance of phalaropes in the outer Bay of Fundy, Canada. Avian Conservation and Ecology 11(2):11. DOI: 10.5751/ACE-00926-110211

Isleib, M. E., and B. Kessel. 1973. Birds of the north Gulf Coast- Prince William Sound region, Alaska. Biological Papers of the University of Alaska no. 14. University of Alaska Fairbanks, AK, USA.

Johnson, J. A., R. B. Lanctot, B. A. Andres, J. R. Bart, S. C. Brown. S. J. Kendall, and D. C. Payer. 2007a. Distribution of breeding shorebirds on the Arctic Coastal Plain of Alaska. Arctic 60(3):277-293. DOI: 10.14430/arctic220

Kwon, E., W. B. English, E. L. Weiser, S. E. Franks, D. J. Hodkinson, D. B. Lank, and B. K. Sandercock. 2018. Delayed egg-laying and shortened incubation duration of Arctic-breeding shorebirds coincide with climate cooling. Ecology and Evolution 8(2):1339–1351. DOI: 10.1002/ece3.3733

Liebezeit, J. R., S. J. Kendall, S. Brown, C. B. Johnson, P. Martin, T. L. McDonald, ..., and S. Zack. 2009. Influence of human development and predators on nest survival of tundra birds, Arctic Coastal Plain, Alaska. Ecological Applications 19(6):1628–1644. DOI: 10.1890/08-1661.1

Liebezeit, J. R., G. C. White, and S. Zack. 2011. Breeding ecology of birds at Teshekpuk Lake: A key habitat site on the Arctic Coastal Plain of Alaska. Arctic 64(1):32–44. DOI: 10.14430/arctic4078

Liebezeit, J. R., K. E. B. Gurney, M. Budde, S. Zack, and D. Ward. 2014. Phenological advancement in arctic bird species: Relative importance of snow melt and ecological factors. Polar Biology 37(9):1309–1320. DOI: 10.1007/s00300-014-1522-x

Migratory Bird Treaty Act (MBTA). 1918. U.S. Code Title 16 §§ 703-712 Migratory Bird Treaty Act.

McCaffery, B. J., J. Bart, C. Wightman, and D. J. Krueper. 2012. Shorebird surveys in western Alaska. Pages 19-36 in J. Bart and V. Johnston, eds. Arctic shorebirds in North America: A decade of monitoring. Studies in Avian Biology No. 44, University of California Press, Berkeley, CA, USA.

Murphy, S. M. 1981. Habitat use by migrating and breeding shorebirds on the eastern Copper River Delta, Alaska. MSc thesis, University of Alaska Fairbanks, AK, USA.

Naves, L. C. 2015. Alaska subsistence bird harvest, 2004-2014 data book. Special Publication No. 2015-05, Alaska Department of Fish and Game, Division of Subsistence, Anchorage, AK, USA.

Naves, L. C., J. M. Keating, T. L. Tibbitts, and D. R. Ruthrauff. 2019. Shorebird subsistence harvest and indigenous knowledge in Alaska: Informing harvest management and engaging users in shorebird conservation. The Condor 121(2):duz023. DOI: 10.1093/condor/duz023

Nisbet, I. C. T., and R. R. Veit. 2015. An explanation for the population crash of red-necked phalaropes Phalaropus lobatus staging in the Bay of Fundy in the 1980s. Marine Ornithology 43:119–121. Available online: http://www.marineornithology.org/PDF/43_1/43_1_119-121.pdf

Petersen, M. R., D. N. Weir, and M. H. Dick. 1991. Birds of the Kilbuck and Ahklun Mountain region, Alaska. North American Fauna 76:1-158.

Rodrigues, R. 1994. Microhabitat variables influencing nest-site selection by tundra birds. Ecological Applications 4(1):110–116. DOI: 10.2307/1942120

Rubega, M. A., D. Schamel, and D. M. Tracy. 2000. Red-necked Phalarope (Phalaropus lobatus), version 2.0. In Poole, A. F., and F. B. Gill, eds. The Birds of North America, Cornell Lab of Ornithology, Ithaca, NY, USA. DOI: 10.2173/bna.538

Sandercock, B. 1997b. Factors affecting the breeding demography of Western Sandpipers, Calidris mauri, and Semipalmated Sandpipers, Calidris pusilla, at Nome, Alaska. Unpubl. PhD Thesis, Simon Fraser University, Canada.

Savage, S., T. L. Tibbitts, K. Sesser, and R. S. A. Kaler. 2018. Inventory of lowland-breeding birds on the Alaska Peninsula. Journal of Fish and Wildlife Management 9(2): 637-658. DOI: 10.3996/082017-JFWM-070

Schamel, D., and D. M. Tracy. 1991. Breeding site fidelity and natal philopatry in the sex role-reversed red and red-necked phalaropes. Journal of Field Ornithology 62(3):390-398.

Schamel, D., D. M. Tracy, D. B. Lank, and D. F. Westneat. 2004a. Mate guarding, copulation strategies and paternity in the sex-role reversed, socially polyandrous red-necked phalarope Phalaropus lobatus. Behavioral Ecology and Sociobiology 57(2):110–118. DOI: 10.1007/s00265-004-0825-2

Schamel, D., D. M. Tracy, and D. B. Lank. 2004b. Male mate choice, male availability and egg production as limitations on polyandry in the red-necked phalarope. Animal Behaviour 67(5):847–853. DOI: 10.1016/j.anbehav.2003.04.014

Taylor, A. R., R. B. Lanctot, A. N. Powell, S. J. Kendall, and D. A. Nigro. 2011. Residence time and movements of postbreeding shorebirds on the northern coast of Alaska. The Condor 113(4):779–794. DOI: 10.1525/cond.2011.100083

Troy, D. M. 1996. Population dynamics of breeding shorebirds in Arctic Alaska. International Wader Studies 8:15–27.

Weiser, E. L., S. C. Brown, R. B. Lanctot, H. R. Gates, K. F. Abraham, R. L. Bentzen, ..., and B. K. Sandercock. 2018a. Life-history tradeoffs revealed by seasonal declines in reproductive traits of Arctic-breeding shorebirds. Journal of Avian Biology 49(2):e01531. DOI: 10.1111/jav.01531

Weiser, E. L., S. C. Brown, R. B. Lanctot, H. R. Gates, K. F. Abraham, R. L. Bentzen, …, B. K. Sandercock. 2018b. Effects of environmental conditions on reproductive effort and nest success of Arctic-breeding shorebirds. Ibis 160(3):608–623. DOI: 10.1111/ibi.12571

Wong, S. N. P., R. A. Ronconi, and C. Gjerdrum. 2018. Autumn at-sea distribution and abundance of phalaropes Phalaropus and other seabirds in the Lower Bay of Fundy, Canada. Marine Ornithology 46:1–10.

Alaska Center for Conservation Science
Alaska Natural Heritage Program
University of Alaska Anchorage
Anchorage, AK