Buff-breasted Sandpiper (*Tryngites subruficollis*)

Vulnerability: **Moderately Vulnerable** Confidence: Moderate

The Buff-breasted Sandpiper is known for its dramatic lekking displays and breeds near arctic coastlines from central Alaska into Canada (Lanctot and Laredo 1994). This species nests in a variety of habitats ranging from dry sedge tussock tundra to wet sedge-graminoid meadows and strangmoor (Lanctot and Laredo 1994). Buff-breasted Sandpipers typically forage in areas of dry, elevated tundra with sparse vegetation primarily consuming terrestrial arthropods (Lanctot and Laredo 1994). This species is one of the few shorebirds that do not show a seasonal shift toward lowland, wet sites during brood-rearing (Jones 1980, R. Lanctot, unpublished data). Buff-breasted Sandpipers spend winters on the pampas of South America. Current population estimate in North America is 30-56,000 with a declining trend (Lanctot et al. 2010, Morrison et al. 2006).


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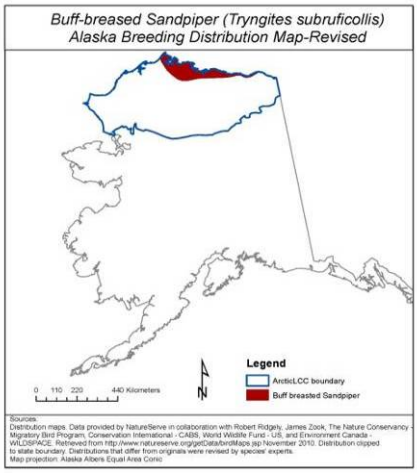
Range: We modified the NatureServe range map to more closely match the more restricted and coastally oriented breeding range depicted in the Birds of North America account (Lanctot and Laredo 1994) and as described in more recent assessments (Johnson et al. 2007; Bart et al. 2012). Within its range, this species is sparsely distributed (R. Lanctot, pers. comm.).

Sea Level Rise: Because this species' range is restricted to coastal areas in Arctic Alaska, they were ranked as being slightly vulnerable to both sea-level rise and to limitations in expansion of their range northward.

Physiological Hydro Niche: Because Buff-breasted Sandpipers use wet tundra habitats to some degree for nesting, foraging, and brood-rearing (though less than many other shorebirds) they were ranked as "neutral-to-increased" vulnerability in the "physiological hydrologic niche" category (see table). Current annual moisture balance predictions suggest negligible increases in drying for the foreseeable future (TWS and SNAP). Thus moisture balance, as an exposure factor (most influential on the "hydrological niche" sensitivity category), was not heavily weighted in the assessment. However, historical hydrological niche was ranked as "greatly increased" as they have historically experienced low variation in average precipitation across their relatively small Alaska breeding range, suggesting sensitivity to increased variation.



Disturbance Regime: Climate-mediated disturbances, namely thermokarst, could both create and destroy lake habitats through both ice wedge degradation and draining of thaw lakes (Martin et al. 2009). Increased fire frequency could reduce habitat suitability required by the species for nesting, although for the purpose of this assessment fires were considered to have only localized effects.

Interactions with Other Species: Climate change may reduce the amplitude of lemming cycles (Ims and Fuglei 2005) and thus could expose this species to greater nest predation pressure if lemmings become less available as alternative prey.

Genetic Variation: Shorebird species are believed to have low genetic variation (Baker and Stauch 1988) making them potentially more vulnerable to certain climate-mediated events in the near future (e.g. disease outbreaks).

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Vulnerability Factors	D	SD	N	SI	I	GI	Unknown or N/A
B1. Sea level rise				*			
B2a. Natural barriers			*	*			
B2b. Anthropogenic barriers			*				
B3. Human response to CC			*				
C1. Dispersal/Movement			*				
C2ai. Historical thermal niche (GIS)			*				
C2aii. Physiological thermal niche			*				
C2bi. Historical hydro niche (GIS)						*	
C2bii. Physiological hydro niche			*	*	*		
C2c. Disturbance regime			*	*			
C2d. Ice & Snow habitats			*				
C3. Physical habitat restrictions		*					
C4a. Biotic habitat dependence			*				
C4b. Dietary versatility			*				
C4d. Biotic dispersal dependence			*				
C4e. Interactions with other species			*	*			
C5a. Genetic variation				*			*
C5b. Genetic bottlenecks							*
C6. Phenological response		*	*	*			*
D1. CC-related distribution response							*

D=Decrease vulnerability, SD=Somewhat decrease vulnerability, N=Neutral effect, SI=Slightly increase vulnerability, I=Increase vulnerability,GI=Greatly increase vulnerability.

Phenological Response: There is evidence suggesting some shorebirds are able to track changes associated with a warming climate at least in terms of nest initiation (J. Liebezeit and S. Zack, unpublished data; D. Ward, pers. comm.). However, it is unknown if they can synchronize timing to shifting schedules of organisms they rely on (e.g. invertebrate prey).

In summary, this species' combination of potential sources of vulnerability provided a ranking of "moderately vulnerable".

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