Shorebirds of Conservation Concern in the United States of America — 2016

U.S. Shorebird Conservation Plan Partnership. 2016. U.S. Shorebirds of Conservation Concern — 2016. http://www.shorebirdplan.org/science/assessment-conservation-status-shorebirds/>

For comments or questions, please contact Brad Andres, National Coordinator, U.S. Shorebird Conservation Partnership, U.S. Fish and Wildlife Service, Division of Migratory Bird Management, brad_andres@fws.gov.

BACKGROUND

The most recent assessments of the conservation status of shorebirds that occur regularly in the USA were conducted by the U.S. Shorebird Conservation Plan (USSCP) partners in 2004 and the U.S. Fish and Wildlife Service as part of the 2008 Birds of Conservation Concern (BCC). To contribute to the revision of the Birds of Conservation Concern and recent update of the "Watch List" (Rosenberg *et al.* 2014), USSCP partners undertook a re-assessment of the conservation status of shorebirds occurring regularly in the USA. The current assessment incorporates: 1) new information on shorebird population sizes and trends, 2) a GIS computation of breeding and nonbreeding range sizes, 3) a revised threats assessment, and 4) climate change vulnerability. A major change from past conservation assessments is the adoption of the Partners in Flight (PIF) assessment scoring criteria to evaluate shorebird populations. The PIF process was adopted to create a more unified approach to conservation assessment of landbirds, shorebirds, and waterbirds.

ASSESSMENT CRITERIA

Elements and criteria developed by Partners in Flight (Panjabi *et al.* 2012, Rosenberg *et al.* 2016) were used to assess shorebird populations. Although the five main assessment elements remain the same as those used in previous shorebird assessments, the scoring criteria differ. Scores (from 1 to 5) and their criteria are presented below for each assessment element. Shorebird populations were assessed and scored at three levels: 1) entire, global populations; 2) populations occurring (generally breeding) in Canada and the USA; and 3) specific, recognizable subspecies or populations occurring in the USA or Canada. Species level taxonomy follows the American Ornithologists' Union Checklist of North American Birds (1998) and supplements through the 57th in 2016. Designation of shorebird subspecies and populations follow the recommendations of Brown *et al.* (2000) and those reported in Andres *et al.* (2012). A species, subspecies, or population is referred to as a taxon or taxa.

POPULATION SIZE (PS)

Andres *et al.* (2012) was used as the primary source of data for scoring USA/Canada shorebird population sizes, although some newer information was consulted. Global populations were scored based on data compiled by Wetlands International (2012). When minimums and

maximums were reported, the midpoint was used to score the population. Population sizes were assessed and scored at the global, USA/Canada (occasionally including the Caribbean, Russia, and Mexico), and subspecies/population levels.

Score	Criterion
1	≥50,000,000 individuals
2	<50,000,000 and ≥5,000,000 individuals
3	<5,000,000 and ≥500,000 individuals
4	<500,000 and ≥50,000 individuals
5	<50,000 individuals

Breeding Distribution (BD) and Nonbreeding Distribution (ND)

Breeding and non-breeding distribution range sizes were calculated from BirdLife International and NatureServe maps (2012) in AcrMap[®] 10.1 using the Eckert IV projection. Two-dimensional polygons were used for all ranges. Range sizes were assessed and scored at the global, USA/Canada, and subspecies/population levels. The maximum value of either DB or ND (Dmax) is used for decisions on assigning conservation concern categories.

Score	Criterion
1	\geq 4,000,000 km ²
2	\geq 1,000,000 and <4,000,000 km ²
3	\geq 300,000 and <1,000,000 km ²
4	\geq 80,000 and $<$ 300,000 km ²
5	$<80,000 \text{ km}^2$

Breeding Threats (TB) and Nonbreeding Threats (TN)

The complete set of threats identified by Salafsky *et al.* (2008) was narrowed and combined for relevancy to shorebirds and scored based on their combined severity and scope within shorebird breeding and nonbreeding (including migration) ranges. Threats were assessed and scored only at the USA/Canada and subspecies/population levels. The maximum value of either TB or TN (Tmax) is used for decisions on assigning conservation concern categories.

Score	Criterion
1	will not impair the population in the future
2	will slightly to moderately degrade the population but are localized in scope
3	will seriously degrade or eliminate the population over some portion of its range
4	will moderately degrade the population over most of its range
5	will seriously degrade or eliminate the population over much of its range

POPULATION TREND (PT)

The long-term (30-year) qualitative or quantitative population trend generally reported in Andres *et al.* (2012) was used in this assessment. Reliable, quantitative information on trends is lacking for many shorebirds, and Breeding Bird Survey, on which the Partners in Flight assessment relies on for many species, provides information for only a few shorebird species. Accordingly, a more qualitative set of criteria was used to score population trend. Trends were assessed and scored at the USA/Canada and subspecies/population levels.

Score	Criterion
1	substantial increase
2	small increase or increase suspected
3	stable or unknown
4	moderate decrease or decrease suspected
5	substantial decrease

CLIMATE CHANGE VULNERABILITY

Galbraith *et al.* (2014) used six climate change related factors to evaluate the vulnerability of USA/Canada shorebirds: 1) changes in breeding habitat, 2) changes in migration habitat, 3) changes in wintering habitat, 4) dependence on ecological synchronicities, 5) migration distance, and 6) habitat specialization. Numerical scores were extracted from Galbraith *et al.* (2014) and expanded to cover all taxa in this assessment. Total scores in their system ranged from -14 (major habitat gains) to 30 (major effects on all factors).

CONSERVATION CATEGORIES

The following combinations of assessment elements, based primarily on Panjabi *et al.* (2012) and revised for the update of the Partners in Flight Landbird Conservation Plan (Rosenburg *et al.* 2016) were used to assign shorebird taxa to categories of conservation concern. A shorebird is included on the overall Watch List 2016 if:

```
MxS \ge 14 or MxS = 13 and PT = 5, where MxS is the maximum score of either CCS(B) or CCS(N), CCS(B) is Combined Continental Score (Breeding) = PS + BD + TB + PT, and CCS(N) is Combined Continental Score (Nonbreeding) = PS + ND + TN + PT.
```

For a species with a broad global distribution, the USA/Canada population is included if it met the criteria above. If only a single subspecies or population met the criteria above, it is designated as a "taxa below species" on the Watch List 2016 and is included here. Within the Watch List 2016, species were grouped into Red and Yellow Lists. Criteria for the Red List follow the definition below, and the Yellow List was divided into two groups: one of taxa with steep declines and elevated threats, and the other of taxa with small populations and ranges. The revised U.S. Fish and Wildlife Service's Birds of Conservation Concern (BCC) includes shorebird taxa on the Red and Yellow Watch List at either the National (species or North

American population) or Regional levels (subspecies or distinct populations). Herein, North America refers to Canada and the USA. Taxa listed under the U. S. Endangered Species Act are not included on the BBC list or are sport-hunted species (e.g. American Woodcock); ESA-listed shorebird taxa are presented separately. Criteria for levels of conservation concern follow.

ESA-LISTED

A shorebird taxon that is listed under the ESA. Recovery plans are, or are being, developed and actions are being implemented. Includes one species (Eskimo Curlew) that is likely extinct.

GREATEST CONCERN

A shorebird taxon that meets the following Watch List 2016 criteria for the Red List:

 $MxS \ge 17$, or MxS = 16 and $(PT + Tmax) \ge 9$.

HIGH CONCERN

A shorebird taxon that meets the following Watch List 2016 criteria for the Yellow List:

MxS = 16 and (PT + Tmax) < 9, or MxS = 14 or 15, or MxS = 13 and PT = 5.

The Yellow Watch List is further divided in two groups.

1) Steep declines and elevated threats, which meet the following: (Tmax + PT) > (PS + Dmax), or (Tmax + PT) = (PS + Dmax) and PT = 5.

2) Small populations and ranges, which meet the following criteria:

(Tmax + PT) < (PS + Dmax), or (Tmax + PT) = (PS + Dmax) and PT < 5.

MODERATE CONCERN

Taxa not meeting the Watch List 2016 criteria but had a climate change vulnerability score of >20 from Galbraith *et al.* (2014) were considered to be of moderate conservation concern. Taxa not meeting the Watch List 2016 but had substantial population declines (PT = 5) were also considered of moderate conservation concern.

LEAST CONCERN

A shorebird taxon that is not listed under the ESA, does not meet the criteria for Watch List 2016, or is of moderate conservation concern.

ASSESSMENT RESULTS

Seventy-four shorebird taxa occurring regularly in the USA were evaluated; three North American shorebird taxa that breed in the northeastern Canadian Arctic and winter in Europe were excluded: Common Ringed Plover (*Charadrius hiaticula psammodroma* [Canada breeding], Ruddy Turnstone (*Arenaria interpres interpres* [Canada breeding], and Red Knot (*Calidris canutus islandica* [Canada breeding]). To present the most parsimonious list of shorebirds of conservation concern, some taxa within a species were pooled by similar scores at the major concern level (e.g., High Conservation Concern), but differences among subspecies or populations on their Yellow List criteria are indicated in Appendix 1. As a result, conservation concern levels were generated for 57 shorebird species, subspecies, or populations. Of these, seven taxa of five species are listed under the ESA and 17 global species and nine USA/Canada populations met Watch List 2016 criteria. At the species or North American population level, the list of 24 Watch List 2016 shorebirds is a slight 8% increase over the 22 shorebirds listed on the 2007 Watch List (Butcher *et al.* 2007). An additional five taxa below the species or USA/Canada population level also met Watch List 2016 criteria.

In addition to taxa listed under the ESA, seven taxa are considered of the Highest Conservation Concern (Red List), and 19 taxa are considered of High Concern (Yellow List) because of either steep declines and elevated threats or small populations and ranges. These Yellow List categories can be useful for developing actions for shorebirds of High Concern. Excluding the sport-hunted American Woodcock, 20 shorebird taxa are considered as a Bird of Conservation Concern at the National level, and five shorebird taxa met regional criteria; 21 shorebird taxa were included in last BCC (U.S. Fish and Wildlife Service 2008). Ten taxa of Moderate Conservation Concern included those with elevated vulnerability to effects of climate change (8 taxa) or were common shorebirds in decline (2 taxa). Only 16 shorebird taxa (28% of 57 taxa) are considered of Least Conservation Concern.

Twenty-nine taxa were considered as either "Highly Imperiled" or of "High Concern" in the last conservation assessment by the U.S. Shorebird Conservation Plan partners in 2004, and 31 taxa are ESA-listed, of Greatest Conservation Concern, or of High Conservation Concern in 2016. In general, the conservation landscape has not improved much for shorebirds during the last decade.

Below are listed all assessed shorebird taxa by level of conservation concern. Scientific names and details are provided in Appendix 1. The Birds of Conservation Concern taxa (Greatest and High Conservation Concern) are listed at the National level unless indicated as Regional^(R). The American Woodcock is not included on the BCC list.

SHOREBIRDS OF CONSERVATION CONCERN – 2016 LIST

ESA-listed

Black-necked Stilt (knudseni) Snowy Plover (nivosus [Pacific Coast]) Piping Plover Eskimo Curlew Red Knot (rufa)

Greatest Concern (BCC)

American Oystercatcher (North America breeding *palliatus*)
Snowy Plover (*nivosus* [Interior/Gulf Coast] and *tenuirostris*)
Wilson's Plover (North America breeding *wilsonia*)
Mountain Plover
Bristle-thighed Curlew
Bar-tailed Godwit (*baueri*)
Red Knot (*roselaari*)

High Concern (BCC)

Black Oystercatcher

American Golden-Plover

Pacific Golden-Plover (Alaska breeding population) R

Whimbrel (Alaska and Canada breeding population)

Long-billed Curlew

Hudsonian Godwit

Marbled Godwit

Ruddy Turnstone (morinella)^R

Black Turnstone

Dunlin (arcticola and hudsonia) R

Rock Sandpiper (ptilocnemis) R

Purple Sandpiper (Canada breeding maritima and belcheri)

Buff-breasted Sandpiper

Pectoral Sandpiper

Semipalmated Sandpiper

Short-billed Dowitcher

(American Woodcock)

Willet

Lesser Yellowlegs

Moderate Concern

American Avocet

Black-bellied Plover (Alaska breeding *squatarola* and *cynosurae*)

Killdeer

Ruddy Turnstone (Alaska breeding *interpres*)

Surfbird

Sanderling (Western Hemisphere population)

Dunlin (pacifica)

Western Sandpiper

Long-billed Dowitcher

Red-necked Phalarope (Alaska and Canada breeding population)

Red Phalarope (Alaska and Canada breeding population)

Least Concern

Black-necked Stilt (North America breeding mexicanus)

Semipalmated Plover

Upland Sandpiper

Sharp-tailed Sandpiper (Alaska migrant population)

Stilt Sandpiper

Rock Sandpiper (cousei and tschuktschorum)

Baird's Sandpiper

Least Sandpiper

White-rumped Sandpiper

Wilson's Snipe

Spotted Sandpiper

Solitary Sandpiper

Wandering Tattler

Greater Yellowlegs

Wilson's Phalarope

ACKNOWLEDGEMENTS

S. Brown, R. Clay, N. Douglass, C. Hickey, W. Hunter, D. Krementz, C. Lott, B. McCaffery, A. Mini and the Lower Mississippi Valley Joint Venture Science Committee, D. Pashley, K. Rosenberg, F. Sanders, S. Schweitzer, L. Tudor, W. Vermillion, T. Will, and B. Winn all contributed to this assessment.

LITERATURE CITED

- American Ornithologists' Union. 1998. Check-list of North American birds, 7th ed. American Ornithologists' Union, Washington, D.C., USA (includes supplements through the 55th in 2014). http://checklist.aou.org/
- Andres, B.A., P.A. Smith, R.I.G. Morrison, C.L. Gratto-Trevor, S.C. Brown, and C.A. Friis. 2012. Population estimates of North American shorebirds, 2012. Wader Study Group Bulletin 119: 178–194.
- BirdLife International and NatureServe. 2012. Bird species distribution maps of the world. BirdLife International, Cambridge, UK and NatureServe, Arlington, USA. (GIS files)
- Brown, S., C. Hickey, B. Gill, L. Gorman, C. Gratto-Trevor, S. Haig, B. Harrington, C. Hunter, G. Morrison, G. Page, P. Sanzenbacher, S. Skagen, and N. Warnock. 2000. National shorebird conservation assessment: Shorebird conservation status, conservation units, population estimates, population targets, and species prioritization. Manomet Center for Conservation Sciences, Manomet, MA, USA. http://www.shorebirdplan.org/science/assessment-conservation-status-shorebirds/>
- Butcher, G.S., D.K. Niven, A.O. Panjabi, D.N. Pashley, and K.V. Rosenberg. 2007. WatchList: The 2007 WatchList for United States birds. American Birds 61:18–25.
- Galbraith H., D.W. DesRochers, S. Brown, and J.M. Reed. 2014. Predicting vulnerabilities of North American shorebirds to climate change. PLoS ONE 9(9):e108899.
- Panjabi, A.O., P.J. Blancher, R. Dettmers, and K. V. Rosenberg. The Partners in Flight handbook on species assessment, version 2012. Partners in Flight Technical Series No. 3, Rocky Mountain Bird Observatory, Fort Collins, CO, USA. http://www.rmbo.org/pubs/downloads/Handbook2012.pdf>
- Rosenberg, K.V., J.A. Kennedy, R. Dettmers, R.P. Ford, D. Reynolds, C.J. Beardmore, P.J. Blancher, R.E. Bogart, G.S. Butcher, A. Camfield, D.W. Demarest, W.E. Easton, B. Keller, A. Mini, A.O. Panjabi, D.N. Pashley, T.D. Rich, J.M. Ruth, H. Stabins, J. Stanton, and T. Will. 2016. Partners in Flight Landbird Conservation Plan: 2016 Revision for Canada and Continental United States. Partners in Flight Science Committee.
- Rosenberg, K.V., D. Pashley, B. Andres, P. J. Blancher, G.S. Butcher, W.C. Hunter, D. Mehlman, A.O. Panjabi, M. Parr, G. Wallace, and D. Wiedenfeld. 2014. The State of the Birds 2014 Watch List. North American Bird Conservation Initiative, U.S. Committee, Washington, D.C., USA. http://www.stateofthebirds.org/extinctions/watchlist.pdf

- Salafsky, N., D. Salzer, A.J. Stattersfield, C. Hilton-Taylor, R. Neugarten, S.H.M. Butchart, B. Collen, N. Cox, L.L. Master, S. O'Connor, and D. Wilkie. 2008. A standard lexicon for biodiversity conservation: Unified classifications of threats and actions. Conservation Biology 22:897–911.
- U.S. Shorebird Conservation Plan. 2004. High Priority Shorebirds 2004. http://www.shorebirdplan.org/science/assessment-conservation-status-shorebirds/
- Wetlands International. 2012. Waterbird population estimates, 5th ed. Wetlands International, Wageningen, The Netherlands. http://wpe.wetlands.org/

Appendix 1. The conservation status of shorebird species, subspecies, and populations occurring regularly in the USA – 2016. Categories for the U. S. Shorebird Conservation Plan (USSCP) include: listed under the U. S. Endangered Species Act (ESA); greatest conservation concern (GCC), the Red Watch List; high conservation concern (HCC, the Yellow Watch List) because of high threats and population declines (TD) or small populations or ranges (PR); moderate conservation concern, because of high climate change vulnerability (C) or common species in steep decline (D); and least conservation concern (LCC). The U. S. Fish and Wildlife Service's Birds of Conservation Concern 2016 consists of the Red and Yellow Watch Lists (GCC + HCC) and applies to species and populations at the national (NAT) or regional (REG) scales. Populations are indicated as being listed under Canada's Species At Risk Act (SARA) and Mexico's Endangered Species Law (NOM; Norma Oficial Mexicana 059-2010).

		USSCP						
Common name	Scientific name	ESA	GCC	нсс	MCC	LCC	BCC	Population or subspecies
Black-necked Stilt	Himantopus mexicanus					X		North America breeding mexicanus subspecies
Black-necked Stilt	Himantopus mexicanus	X						Hawaiian knudseni subspecies
American Avocet	Recurvirostra americana				С			Global
American Oystercatcher	Haematopus palliatus		X				NAT	North America breeding <i>palliatus</i> subspecies; global species high concern
Black Oystercatcher	Haematopus bachmani			PR			NAT	Global; a small number of Mexico breeders; NOM
Black-bellied Plover	Pluvialis squatarola				С			Alaska breeding squatarola and cynosurae subspecies
American Golden-Plover	Pluvialis dominica			TD			NAT	Global
Pacific Golden-Plover	Pluvialis fulva			PR			REG	Alaska breeding population
		X						Pacific Coast <i>nivosus</i> subspecies; includes Mexico breeders; NOM
Snowy Plover	Charadrius nivosus		X				NAT	Interior USA/Mexico and Gulf of Mexico nivosus subspecies (NOM); Caribbean tenuirostris subspecies
Wilson's Plover	Charadrius wilsonia		X				NAT	North America breeding wilsonia subspecies; global species of high concern
Semipalmated Plover	Charadrius semipalmatus					X		Global; a small number of Russia breeders
		USSCP						

Common name	Scientific name	ESA	GCC	нсс	MCC	LCC	BCC	Population or subspecies
Piping Plover	Charadrius melodus	X						Global (<i>melodus</i> , <i>circumcinctus</i> [Great Lakes breeding], <i>circumcinctus</i> [Great Plains breeding] subspecies/populations); SARA
Killdeer	Charadrius vociferous				D			North America and Mexico breeding vociferous subspecies
Mountain Plover	Charadrius montanus		X				NAT	Global; Mexico breeders; SARA; NOM
Upland Sandpiper	Batramia longicauda					X		Global
Eskimo Curlew	Numenius borealis	X						Presumed extinct; SARA
Whimbrel	Numenius phaeopus			TD			NAT	Alaska and Canada breeding populations; declines in Canada breeding population
Bristle-thighed Curlew	Numenius tahitiensis		X				NAT	Global
Long-billed Curlew	Numenius americanus			TD			NAT	Global; SARA
Hudsonian Godwit	Limosa haemastica			PR			NAT	Global (Alaska and Canada breeding populations)
Bar-tailed Godwit	Limosa lapponica		X				NAT	baueri subspecies
Marbled Godwit	Limosa fedoa			TD			NAT	Global (<i>fedoa</i> (Great Plains breeding subspecies, small populations of <i>fedoa</i> (James Bay breeding) and <i>beringiae</i> subspecies)
D. 44. T	A				С			Alaska breeding interpres subspecies
Ruddy Turnstone	Arenaria interpres			TD			REG	morinella subspecies
Black Turnstone	Arenaria melancephala			PR			NAT	Global
Red Knot	Calidris canutus	X						rufa subspecies; SARA
Keu Kilot	Canaris canutus		X				NAT	roselaari subspecies; SARA; NOM
Surfbird	Calidris virgata				C			Global
Sharp-tailed Sandpiper	Calidris acuminata					X		Alaska migrant juvenile population
Sanderling	Calidris alba				С			Western Hemisphere population
Stilt Sandpiper	Calidris himantopus					X		Global
Dunlin	Calidris alpina			TD			REG	arcticola subspecies; small population of hudsonia subspecies
					C			pacifica subspecies
								Landing agesbesses

	Scientific name	USSCP						
Common name		ESA	GCC	нсс	MCC	LCC	ВСС	Population or subspecies
				PR			REG	ptilocnemis subspecies
Rock Sandpiper	Calidris ptilocnemis					X		cousei and tschuktschorum (including Russia breeders) subspecies
Purple Sandpiper	Calidris maritima			PR			NAT	Canada breeding <i>maritima</i> and <i>belcheri</i> subspecies (wintering in Canada and the USA)
Baird's Sandpiper	Calidris bairdii					X		Global; a small number of Russia breeders
Least Sandpiper	Calidris minutilla					X		Global
White-rumped Sandpiper	Calidris fuscicollis					X		Global
Buff-breasted Sandpiper	Calidris subruficollis			TD			NAT	Global; a small number of Russia breeders
Pectoral Sandpiper	Calidris melanotos			TD			NAT	Global; includes Russia breeders
Semipalmated Sandpiper	Calidris pusilla			TD			NAT	Global (Eastern. Central, and Western populations); most concern for Eastern population
Western Sandpiper	Calidris mauri				C			Global; includes Russia breeders
Short-billed Dowitcher	Linmodromus griseus			TD			NAT	Global (<i>griseus</i> and <i>hendersoni</i> subspecies, small population of <i>caurinus</i> subspecies)
Long-billed Dowitcher	Limnodromus scolopaceus				C			Global; a small number of Russia breeders
Wilson's Snipe	Gallinago delicata					X		Global
American Woodcock	Scolopax minor			TD				Global (Eastern and Central populations)
Spotted Sandpiper	Actitis macularius					X		Global
Solitary Sandpiper	Tringa solitaria					X		Global (solitaria and cinnamomea subspecies)
Wandering Tattler	Tringa incana					X		Global; a small number of Russia breeders
Greater Yellowlegs	Tringa melanoleuca					X		Global
Willet	Tringa semipalmata			TD			NAT	Global (semipalmata and inornata subspecies)
Lesser Yellowlegs	Tringa flavipes			TD			NAT	Global
Wilson's Phalarope	Phalaropus tricolor					X		Global
Red-necked Phalarope	Phalaropus lobatus				D			Alaska and Canada breeding population; declines in eastern Canada
Red Phalarope	Phalaropus fulicarius				D			Alaska and Canada breeding population