Bartramia longicauda - (Bechstein, 1812)
Upland Sandpiper

Spanish Common Names: Zarapito Ganga, Batitú
French Common Names: Maubèche des champs
Other Common Names: Maçarico-do-Campo
Unique Identifier: ELEMENT_GLOBAL.2.102059
Element Code: ABNNF06010
Informal Taxonomy: Animals, Vertebrates - Birds - Shorebirds

Kingdom	Phylum	Class	Order	Family	Genus
Animalia	Craniata	Aves	Charadriiformes	Scolopacidae	Bartramia

Genus Size: A - Monotypic genus

Check this box to expand all report sections: ☐

Concept Reference

Concept Reference: American Ornithologists' Union (AOU). 1998. Check-list of North American birds. Seventh edition. American Ornithologists' Union, Washington, DC. 829 pp.
Concept Reference Code: B98AOU01NAUS
Name Used in Concept Reference: *Bartramia longicauda*

Conservation Status

NatureServe Status

Global Status: G5
Global Status Last Reviewed: 04Nov2002
Global Status Last Changed: 25Nov1996
Rounded Global Status: G5 - Secure
Reasons:
Still numerous with the core of its range in the central and northern Great Plains, but has suffered major historical declines as a result of over-hunting and habitat loss and degradation, both on its breeding and wintering grounds. More recently, Breeding Bird Survey data indicate a 20 per cent decline from 1980-2000, across all regions.
Nation: United States
National Status: N5B
Nation: Canada
National Status:N5B (21Aug2000)

United States	(S3), Montana (S4B), Nebraska (S5), New Hampshire (S1), New Jersey (S1B), New Mexico (S4N), New York (S3B), North Carolina (SNA), North Dakota (SNRB), Ohio (S2), Oklahoma (SNR), Oregon (S1B), Pennsylvania (S1S2B), Rhode Island (S1B,S1N), South Carolina (SNA), South Dakota (S5B), Tennessee (SNA), Texas (S3B,S4N), Vermont (S2S3B,S3N), Virginia (S1B), Washington (SHB), West Virginia (SHB,S1N), Wisconsin (S2B), Wyoming (S3B)
Canada	Alberta (S3), British Columbia (S1S2B), Manitoba (S3S4B), New Brunswick (S1B), Northwest Territories (SNRB), Nova Scotia (S1B), Ontario (S4B), Prince Edward Island (S1B), Quebec (S4), Saskatchewan (S5B,S5M), Yukon Territory (S4B)

Other Statuses

IUCN Red List Category: LC - Least concern

NatureServe Conservation Status Factors

Global Abundance: 100,000 to >1,000,000 individuals
Global Abundance Comments: Recent population estimates for an entire state are available only for North Dakota: 198,167 in 1993 (Igl and Johnson 1997, L. D. Igl and D. H. Johnson pers. comm., cited in Houston and Bowen 2001). If North Dakota contains about 19 per cent of the continental populations (Wells and Rosenberg 1999, cited in Houston and Bowen 2001), the continental population can be extrapolated to 1,142,000 (Houston and Bowen 2001). However, Morrison et al. (2001) estimated the population in North America at only 350,000 individuals, although the confidence interval on this estimate is quite large.

Estimated Number of Element Occurrences:81 to >300

Global Short Term Trend: Declining (decline of 10-30%)
Global Short Term Trend Comments: Breeding Bird Surveys show a rangewide decline averaging 1.1 per cent per year over 21 years, 1980-2000 (statistically significant at alpha
MIDWEST: Extensive plowing and cultivation and the cumulative effects of growth have destroyed much of the habitat (Osborne and Peterson 1984, DeGraaf and Rudis 1986).

NORTHEAST: Over much of its former range, where old field habitats are maturing or being replaced, the sandpiper is slowly declining, stable at low levels, or absent (Tate and Tate 1982, Tate 1986). As a summer resident, nearly extirpated from Rhode Island and Delaware. Upstate New York, where many farmlands remain intact, is the only locality within the Northeast supporting fairly widespread resident populations (Paxton et al. 1988). In Delaware, New Jersey, Connecticut, and Massachusetts the largest breeding densities are now restricted to airports.

Global Long Term Trend: Large to substantial decline (decline of 50-90%)
Global Long Term Trend Comments: Numbers declined dramatically beginning about 1870 as a result of unrestricted market hunting, then later as a result of plowing of the native prairie (Houston and Bowen 2001). Prior to settlement, considered 'abundant' or 'very abundant' from Michigan west to Colorado, and from Nebraska north to Alberta (Houston 1999). In southwestern Minnesota, "present everywhere" in 1893, but "largely gone" by 1899 (Roberts 1936).

Initially increased with clearing in the eastern U.S., but declined steadily in last century as a result of reforestation and urbanization (Houston and Bowen 2001). For example, in Maryland it was "a fairly common breeder from 1895 through 1958" but rare by 1984, coincident with "a loss of extensive upland hayfields, an increase in row crop agriculture, and urbanization" (Smith 1996, cited in Houston and Bowen 2001).

On the wintering grounds in Argentina, Barrows (1884, cited in Houston and Bowen 2001) found "thousands ...in a very few acres" but a century later, White (1988) recorded only 80 in a one-month survey of three most promising provinces. J. P. Myers (pers. comm., in Houston and Bowen 2001) did not see a single Upland Sandpiper during a recent 2-year investigation of wintering shorebirds in Peru and Argentina.

In contrast, Breeding Bird Surveys indicated a survey-wide increase averaging 3 per cent/year for the 14 years, 1966-1979 (Sauer et al. 2001).

Global Protection Needs: Protect large tracts (ideally 200+ hectares) of suitable habitat. Given the precarious status in the Northeast, all possible efforts should be made to maintain and enhance opportunities for success at

sites where breeding continues (Plage 1988).

Degree of Threat: Moderate and imminent threat
Threat Scope: Moderate
Threat Severity: Moderate
Threat Immediacy: High
Threats: HUNTING: Initial declines were due largely to market hunting, beginning about 1870 and continuing until well into the 1920s (Houston and Bowen 2001); it was "destroyed by the hundreds of thousands" and "nearly extirpated from the land" (Forbush and May 1939).

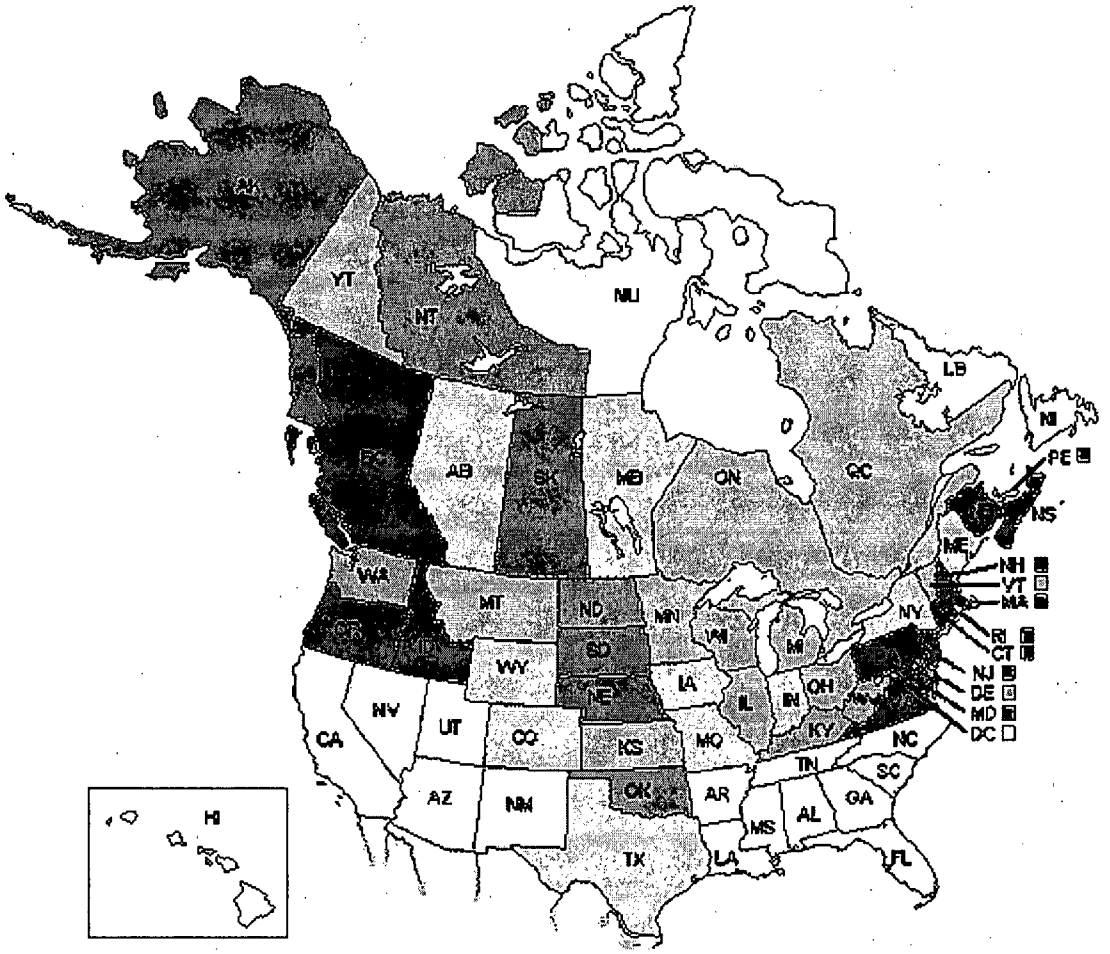
HABITAT LOSS/DEGRADATION: Later declines associated with plowing of natural grasslands (Houston and Bowen 2001). At present, loss, degradation, and fragmentation of habitat due to increased urbanization, changes in farming practices and natural forest succession pose the most serious threats to populations. Frequent disturbance of pastures and hayfields (cut too often to allow breeding) is a problem in some areas. Extensive row-cropping and early crop-cutting probably pose threats to breeders (Byrd and Johnston 1991). Some western populations may have declined due to overgrazing. Much of the wintering habitat has been usurped by agriculture (Ehrlich et al. 1992).

PESTICIDES: May be threatened by pesticides, especially those used to kill grasshoppers on wintering grounds. Many Swainson's Hawks have been killed in Argentina through ingestion of monocrotophos in grasshoppers, although there have been no confirmed deaths of Upland Sandpipers (Goldstein et al. 1996, Houston and Bowen 2001).

PREDATION: Eggs and chicks are vulnerable to predation by coyotes (*Canis latrans*), badgers (*Taxidea taxus*) (Herman et al. 1984), raccoons (*Procyon lotor*) (Kirsch and Higgins 1976), mink (*Mustela vison*), skunks (*Mephitis mephitis*) (Buss and Hawkins 1939), domestic dogs, cats, and humans. American crows (*Corvus brachyrhynchos*) (Buss and Hawkins 1939), golden eagles (*Aquila chrysaetos*), northern goshawks (*Accipiter gentilis*) sharp-shinned hawks (*A. striatus)* (Buss 1951), Cooper's hawks (*A. cooperii*), northern harriers (*Circus cyaneus*) (Herman et al. 1984), American kestrels (*Falco sparverius*) (White and Melvin 1985) and snowy owls (*Nyctea scandiaca*) (N. Smith, pers. comm.) represent avian threats to adults, eggs and young. Livestock trampling and mowing cause damage to nests and eggs (Ailes 1980; J. Carter, pers. obs.).

Distribution

U.S. States and Canadian Provinces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State/Province Conservation Status

- SX: Presumed Extirpated
- SH: Possibly Extirpated
- S1: Critically Imperiled
- S2: Imperiled
- S3: Vulnerable
- S4: Apparently Secure
- S5: Secure
- Not Ranked/Under Review (SNR/SU)

Conservation Status Not Applicable (SNA)

- Exotic
- Hybrid without Conservation Value

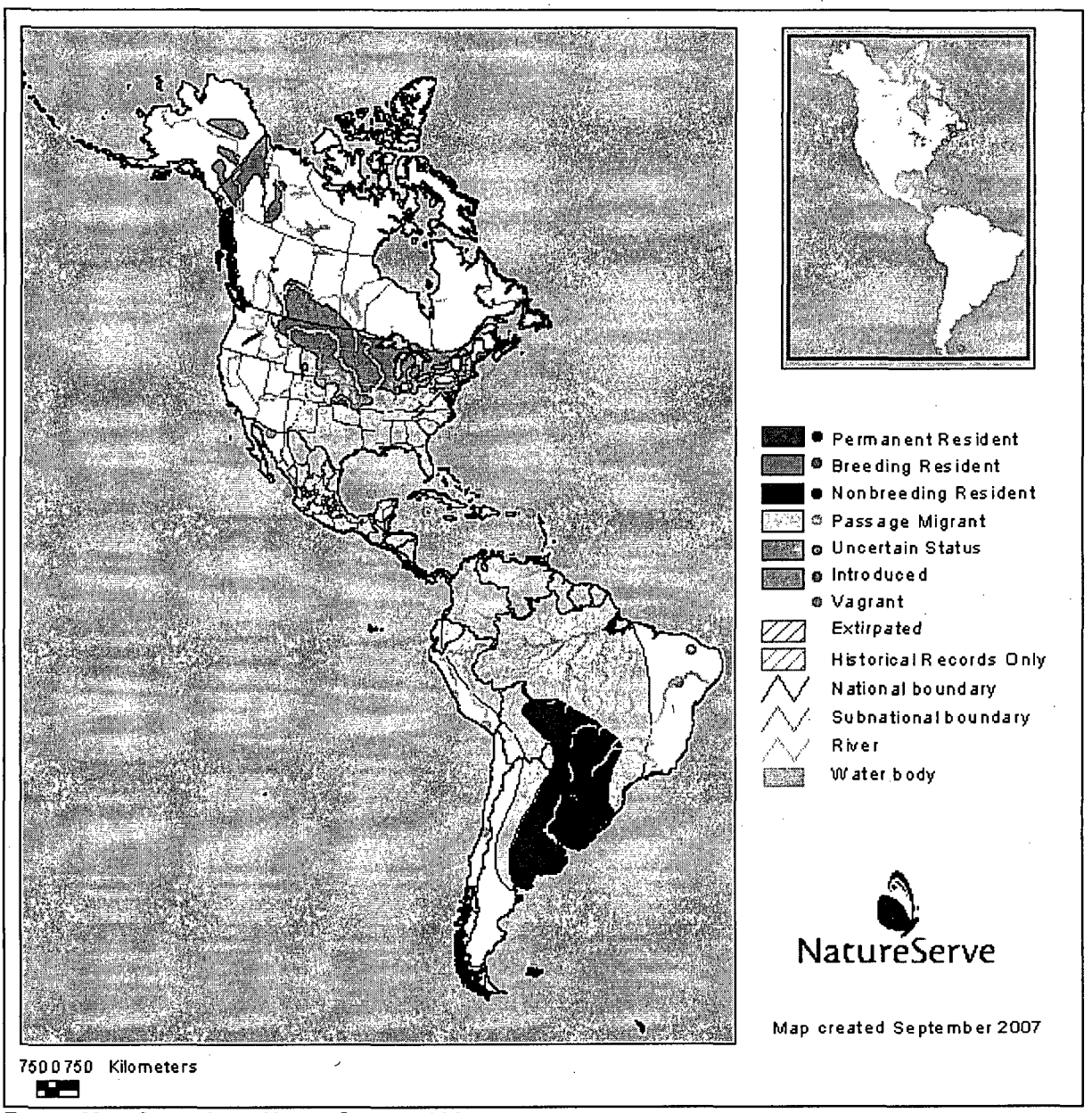
NOTE: The maps for birds represent the breeding status by state and province. In some jurisdictions, the subnational statuses for common species have not been assessed and the status is shown as not-assessed (SNR). In some jurisdictions, the subnational status refers to the status as a non-breeder; these errors will be corrected in future versions of these maps. A species is not shown in a jurisdiction if it is not known to breed in the jurisdiction or if it occurs only accidentally or casually in the jurisdiction. Thus, the species may occur in a jurisdiction as a seasonal non-breeding resident or as a migratory transient but this will not be indicated on these maps. See other maps on this web site that depict the Western Hemisphere ranges of these species at all seasons of the year.

Endemism: occurs (regularly, as a native taxon) in multiple nations

U.S. & Canada State/Province Distribution	
United States	AK, AL, AR, CA, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI, WV, WY
Canada	AB, BC, MB, NB, NS, NT, ON, PE, QC, SK, YT

Range Map

Note: Range depicted for New World only. The scale of the maps may cause narrow coastal ranges or ranges on small islands not to appear. Not all vagrant or small disjunct occurrences are depicted. For migratory birds, some individuals occur outside of the passage migrant range depicted. A shapefile of this map is available for download at **www.natureserve.org/getData/animalData.jsp.**



Range Map Compilers: NatureServe, 2002

Global Range: >2,500,000 square km (greater than 1,000,000 square miles)

Global Range Comments: BREEDING: Contiguous portion of breeding range extends from southern Alberta east of Rocky Mountains; across southern Canada to southern Ontario (isolated populations in Thunder Bay and Rainy River areas) and southern Quebec (isolated populations in Lake St.-Jean lowlands and in Abitibi region); south to Montana, northeastern Colorado, northern Oklahoma, western Missouri, Illinois, Indiana, Pennsylvania, central New York, and Vermont. Also extends south through portions of Maryland to extreme northern Virginia and the mountains of West Virginia, and is spottily distributed along Atlantic Coast from Canadian Maritime Provinces south to Delaware. Largely absent from central south Michigan, northeastern Indiana, and northwestern Ohio, and from portions of north and east Pennsylvania, southeastern New York, and the Adirondack Mountains. Disjunct populations in the west: north-central Alaska, Yukon, southwestern Northwest Territories, northeastern British Columbia, Oregon, and western Idaho (summarized in Houston and Bowen 2001).

NON-BREEDING: South America east of Andes, from Suriname and northern Brazil south to central Argentina and Uruguay (AOU 1983, Houston and Bowen 2001); the largest concentrations occur in Argentina and Uruguay (White 1988). Casual or accidental in Greenland, Iceland, the British Isles and continental Europe, Azores, and Australia (Houston and Bowen 2001).

WI	Bayfield (55007), Brown (55009), Burnett (55013), Dane (55025), Door (55029), Douglas (55031), Florence (55037), Green (55045), Iowa (55049), Jefferson (55055), Kenosha (55059), Kewaunee (55061), Lafayette (55065), Manitowoc (55071), Marinette (55075), Monroe (55081), Ozaukee (55089), Portage (55097), Racine (55101), Sauk (55111), Vernon (55123)
WY	Campbell (56005), Crook (56011), Goshen (56015), Natrona (56025), Niobrara (56027), Park (56029), Platte (56031), Sheridan (56033)

	Kickapoo (07070006), Upper Wapsipinicon (07080102), Flint-Henderson (07080104), Crawfish (07090002), Pecatonica (07090003), Sugar (07090004), Lower Rock (07090005), Kishwaukee (07090006), Green (07090007), Des Moines Headwaters (07100001), Upper Des Moines (07100002), East Fork Des Moines (07100003), Middle Des Moines (07100004), North Raccoon (07100006), Lake Red Rock (07100008), Bear-Wyaconda (07110001), North Fork Salt (07110005), Kankakee (07120001), Iroquois (07120002), Chicago (07120003), Des Plaines (07120004), Upper Illinois (07120005), Upper Fox (07120006), Lower Fox (07120007), Lower Illinois-Senachwine Lake (07130001), Vermilion (07130002), Lower Illinois-Lake Chautauqua (07130003), Mackinaw (07130004), Spoon (07130005), Upper Sangamon (07130006), Lower Illinois (07130011), Big Muddy (07140106), Upper Kaskaskia (07140201)
09	Bois De Sioux (09020101), Mustinka (09020102), Otter Tail (09020103), Upper Red (09020104), Buffalo (09020106), Elm-Marsh (09020107), Eastern Wild Rice (09020108), Sandhill-Wilson (09020301), Red Lakes (09020302), Red Lake (09020303), Thief (09020304), Clearwater (09020305), Grand Marais-Red (09020306), Snake (09020309), Lower Red (09020311), Two Rivers (09020312), Roseau (09020314), Rainy Lake (09030003)
10	Clarks Fork Yellowstone (10070006), Upper Tongue (10090101), Upper Powder (10090202), Lance (10120104), Hat (10120108), Upper Belle Fourche (10120201), Upper Heart (10130202), Lower Heart (10130203), Lower Big Sioux (10170203), Rock (10170204), Middle North Platte-Casper (10180007), Glendo Reservoir (10180008), Horse (10180012), Little Sioux (10230003), Upper Grand (10280101), Thompson (10280102), Lower Grand (10280103), Little Osage (10290103), Marmaton (10290104), Harry S. Missouri (10290105), Sac (10290106), Pomme De Terre (10290107), South Grand (10290108), Lake of the Ozarks (10290109), Lower Missouri-Moreau (10300102), Lamine (10300103)
11	Spring (11070207)
17	Upper Coeur D'alene (17010301), St. Joe (17010304), Upper Spokane (17010305), Upper Malheur (17050116), Payette (17050122), North Fork Payette (17050123), Upper Grande Ronde (17060104), North Fork John Day (17070202), Upper Crooked (17070304), Silvies (17120002)
18	Sprague (18010202)

Ecology & Life History

Basic Description: A medium-sized shorebird.

General Description: Ranges from 27.9-32.5 cm in size and is the most terrestrial of North American shorebirds. The sexes are outwardly alike; females average slightly larger than males (Forbush 1925, Prater et al. 1977). Breeding adults are overall scaly-brown in appearance above with a long slender neck, small rounded head, and relatively long tail. The upper neck is buff-streaked brown with sharply defined V-shaped markings becoming more barred on the lower breast and flanks. The throat and abdomen are white. The eye is large with a dark iris. The bill is short, slightly decurved and dusky at the tip. The tail feathers are barred, dark brown with outer tertials pale orange-brown basally, tipped with white. Legs and feet are yellow-grey (Forbush 1925, Roberts 1955, Prater et al. 1977). Adults captured at the nest may be sexed by wing chord and tail length. This method of sex determination is estimated to be 88.3% accurate for mated pairs (Peterson 1983).

Downy young are a fine, mixed pattern of black, white and buff yellowish-brown above. A black stripe runs from the base of the bill over the top of the head. There is a band of buff or yellowish-brown across the upper breast. The sides of the head, chin and underparts are generally white (Forbush 1925).

Juveniles resemble adults, but the upperparts are darker and scalier with the buffy color of the neck, breast and wings much deeper and the streaks of the foreneck and breast less distinct. The wing coverts have clear buffy edges and dark submarginal lines. The scapulars are uniformly dark with narrow, defined buff-white fringes. The tail feathers are notched with pale buff. Following the first prenuptial molt the young become indistinguishable from adults (Forbush 1925, Hayman et al. 1986).

Winter plumage is similar to that of the breeding adult, but paler (Forbush 1925).

VOCALIZATIONS: The unique vocalizations include a rapid, liquid "quip-ip-ip-ip" series of alarm notes and a penetrating "whip-whee-ee-you" windy whistle (Johnsgard 1981).

NESTS: The nest is a shallow depression in the ground approximately 10-13 cm in diameter and five cm deep, lined with pieces of dry grass (Bent 1929). Nests are usually well hidden, frequently by vegetation that hangs over the nest hiding it from above (Johnsgard 1981). The eggs are cinnamon to pale olive-buff or greenish-white in

color, spotted with brown and underlaying spots of ecru or pale grey. Clutch size is normally four eggs, sometimes three, and rarely five (Bent 1929).

Diagnostic Characteristics: The behavioral habit of momentarily holding wings straight up when alighting (Forbush 1925) and the distinctive calls are diagnostic (Johnsgard 1981).

Reproduction Comments: Courtship is exhibited in spectacular soaring displays while ascending in great circles high into the sky accompanied by a long, drawn-out "whip-whee-ee-you" whistle, and in low over-the-ground flight on stiff, quivering wings (Buss and Hawkins 1939). On the ground, the male will sometimes approach the female, raising his tail and running towards her while giving a short, guttural whistle (Ailes 1976). This pre-copulatory behavior is sometimes followed by mating.

Initial nesting activity, which is thought to be somewhat synchronous (Higgins and Kirsch 1975), begins two to three weeks after spring arrival in breeding areas, from mid-April to early May (Forbush 1925, Buss and Hawkins 1939, Ailes 1980). The maximum period between the earliest initiated nests and the latest hatched nests in North Dakota (Higgins and Kirsch 1975), Wisconsin (Ailes 1980), and Massachusetts (White and Melvin 1985) ranged from eight to ten weeks. Some late nesting, or renesting, due to early nest failure may occur (Ailes 1980).

Clutch size is normally four eggs, sometimes three, and rarely five (Bent 1929). Eggs layed mostly May-June (late April to early June in Virginia). Incubate eggs an average of 24 days (Higgins and Kirsch 1975), with extremes of 21-28 days reported by some investigators (Johnsgard 1981). Both sexes incubate. Chicks are precocial and leave the nest within 24 hours after hatching (Ailes 1980). Broods are tended by one (Ailes 1980) or both adults (Buss 1951) until the young attain adult weight and are capable of flight at 30-34 days (Buss and Hawkins 1939, Ailes 1980). Ailes (1980) reported that adults with young in Wisconsin utilized brood-rearing fields within a short distance of the nesting site for several weeks following hatching. In contrast, Buss (1951) found that adults with young in the Yukon Territory required a large home range, up to 3.2 km in diameter. Family groups tend to stay together at least until postbreeding migration.

Estimates of nesting success in Northern Plains states range from 63% (Lindmeier 1960) to 100% (Lokemoen and Duebbert 1974). Using the Mayfield (1961) method to determine seasonal nest success rates, Buhnerkempe and Westemeier (1988) calculated nest success in Jasper County, Illinois to be 48%.

The time elapsed between arrival and departure from breeding areas has been observed to be as brief as 100 days (Higgins and Kirsch 1975) and as long as 165 days (Buss and Hawkins 1939). Higgins and Kirsch (1975) correlated the average, frost-free period with dates of first nest initiation and final departure from breeding areas in North Dakota and Wisconsin, and suggested that some breeding ground activities may be directly or indirectly related to temperature at northern latitudes. Buss (1951) correlated the timing of fall migration in the Yukon with decreasing numbers of available insects.

Data obtained from marked birds in Kansas suggest that upland sandpipers first breed when they are one year old (D. Bowen, pers. comm.). The natural longevity is not known. The longest known survival of a banded bird is five years (Clapp et al. 1982).

Ecology Comments
Tend to be loosely colonial while breeding (Bowen 1976), often occupying the same nesting fields in successive years (Buss and Hawkins 1939, Ailes 1980). Density varies from 0.6-6.1 ha/nest in loosely spaced "colonies" (Harrison 1979). Nest territories are generally grouped and consist of a nesting site, plus a loafing and feeding area near or adjacent to the nest territory which is shared communally (Buss and Hawkins 1939). In the central portion of the range in North Dakota, breeding densities of up to 20 pairs/mi squared (2.59/km squared) have been recorded (Stewart and Kantrud 1972). Limited studies on home ranges of breeding birds; in Wisconsin, one female occupied 85.6 hectares and one male occupied only 8.5 hectares (Ailes and Toepfer 1977). Studies by Bowen (1976) and Ailes (1980) suggest that adults may exhibit some degree of site faithfulness, although Ailes (1980) found that none of the 61 young he banded returned to their natal grounds the following year. In nonbreeding season, solitary or in small scattered groups.

Non-Migrant: N

Locally Migrant: N

Long Distance Migrant: Y

Mobility and Migration Comments: Arrives in northern breeding areas in April-May, departs by September (Bent 1929). Peak spring migration through the U.S. mid-Atlantic states occurs in April. Rare spring and fall migrant in Puerto Rico (Raffaele 1983).

Palustrine Habitat(s): Bog/fen

Terrestrial Habitat(s): Cropland/hedgerow, Grassland/herbaceous, Old field

Habitat Comments: BREEDING: Restricted primarily to extensive, open tracts of short grassland habitat. Nest in native prairie, dry meadows, pastures, domestic hayfields, short-grass savanna, plowed fields, along highway rights-of-way and on airfields, and (in the north) peatlands and scattered woodlands near timberline (Forbush 1925, Higgins et al. 1969, AOU 1983, Osborne and Peterson 1984, Godfrey 1986). Nesting is also known to occur in dry patches of wet meadows (Stewart 1975, Herman et al. 1984) and in blueberry (VACCINIUM spp.) barrens (J. Albright, pers. comm.). A survey of nesting habitats in Wisconsin (White 1983) suggests that upland sandpipers favor a level topography with a minimum of tall vegetation edges and proportionately high acreages of agricultural crops which duplicate prairie grasslands in terms of structure.

Preferred habitat includes large areas of short grass for feeding and courtship with interspersed or adjacent taller grasses for nesting and brood cover; in the northeastern U.S., airfields currently provide the majority of suitable habitat, though grazed pastures and grassy fields also are used (Carter 1992). Nests on ground among grasses; sometimes along prairie sloughs (Terres 1980).

The quality of a particular habitat is best indicated by the total number of birds present during May and June. Observations by Buss and Hawkins (1939) suggest a delicate distinction between acceptable and unacceptable sites. A slight change in an accepted field may cause it to become unacceptable, i.e., heavy or early grazing, standing water, burning, and manuring may reduce or exclude nesting from fields accepted the previous year. Abandoned fields with invading shrubs and trees may sometimes exclude upland sandpipers (Laughlin and Kibbe 1985), although at a site in Massachusetts, they nest in fields with scattered shrubs and one to two m tall pine trees (PINUS spp.) (White and Melvin 1985).

Airports and airfields offer excellent habitat for breeding colonies, providing level expanses of short grass fields attractive to upland sandpipers. Nesting surveys in the mid-1980s in Ohio (Osborne and Peterson 1984) and in Massachusetts (White and Melvin 1985) showed that airport habitats in these states were utilized over all other habitats with respect to the number of sites and number of individuals per site. The short grassy strips along runways and taxiways are used for feeding, loafing, nesting, brood-rearing and pre-migratory flocking. Upland sandpipers are believed to pose little threat to aircraft at airports because of their small size, typical behavioral patterns, and tendency to remain mostly on the ground. Flight is usually low and direct (White and Melvin 1985).

Vegetation height is an important factor in the selection of nesting sites (Kirsch and Higgins 1976). Nesting studies by Ailes (1980) in Wisconsin recorded 54% of nests in cover between 25-40 cm in height, not exceeding 70 cm at the time of egg hatching. In North Dakota nesters were found in cover between 15.5-30.8 cm in height, and appeared to avoid cover over 61.5 cm (Kirsch and Higgins 1976). White and Melvin (1985) reported that vegetation surrounding six active nests located on a Massachusetts airfield ranged from 8.0-25.0 cm in height.

Agricultural land use patterns and farming practices influence the choice of nesting sites. In central Wisconsin, Ailes (1980) found that idle fields and hayfields accounted for the majority of nesting habitats. Nesting studies in North and South Dakota indicated the majority of nests were in ungrazed grasslands of medium density with abundant ground litter (Higgins et al. 1969). A five-year survey (1969-74) of intensively cultivated areas in the prairie pothole region of east-central North Dakota recorded 57% of nests in untilled habitats, which comprised only 7% of the total study area (Higgins 1975). In Illinois, Buhnerkempe and Westemeir (1988) reported that sandpipers selected stands of grass and forbs for nesting and avoided fields of uniform grass and legumes.

In North Dakota, Kirsch and Higgins (1976) recorded their lowest mean nest densities in annually tilled croplands and their highest mean nest densities in native grasslands the second season after a prescribed burn. Seeded grass/legume mixtures generally grew too tall and dense. Kirsch and Higgins (1976) found that the majority of North Dakota nests were located in either thin, uniform vegetative cover or in scattered clumps of fairly dense cover characterized by standing stubble fields, moderately grazed pastures, mowed areas with heavy regrowth, brush clumps with some understory vegetation, and undisturbed vegetation on poor soils. Residual vegetation from the previous growing seasons accounted for 25% of the cover at 54% of sandpiper nests.

Upland sandpipers use grassy fields of low vegetation height for feeding and brood rearing. Ailes (1980) observed 66% of adults with young in Wisconsin in grazed pastures, 13% in ungrazed pastures, and 11% in hayfields. Ailes (1980) found a large percentage of adults with young in Wisconsin in heavily grazed fields with vegetation ranging from zero to ten cm in height. Buhnerkempe and Westemeir (1988) reported that, in Illinois, they selected brood habitats of wheat stubble fields, recently hayed legumes, old redtop meadows (AGROSTIS spp.), and moderately grazed pastures. A South Dakota grasslands management study showed habitat use (nesting was not documented) to be highest in recently burned fields with short, open, new growth and no litter or old growth (Huber and Steuter 1984).

Upland sandpipers accept a variety of native and introduced grasses (Buss and Hawkins 1939). Timothy

(PHLEUM spp.), bluegrass (POA spp.), needlegrass (STIPA spp.), bluestem (ANDROPOGON spp.), quackgrass (AGROPYRON spp.), Junegrass (KOELERA spp.), and bromegrass (BROMUS spp.) are among the grasses associated with nesting fields (Buss and Hawkins 1939, Meanley 1943, Buss 1951, Higgins et al. 1969, Kirsch and Higgins 1976, Ailes 1980).

NON-BREEDING: Very rarely in migration along shores and mudflats (AOU 1983). On wintering grounds in South America, have been observed in pastures of remote estancias (Wetmore 1927), harvested and burnt-over canefields, football fields, airfields (Haverschmidt 1966), and on sandy beaches where the vegetation is open or recently burned (Spanns 1978).

Changes in land use and agricultural practices may be critical to the limited numbers (White 1988). In the province of Cordoba, Argentina, where the greatest numbers have been reported to date, native espinal (scrub trees) have been converted to dairy farms planted in pasture and alfalfa. Upland sandpipers possibly prefer the drier climate and planted grasses to historically utilized wetter, native grasslands found farther south and southeast (White 1988).

Adult Food Habits: Invertivore

Immature Food Habits: Invertivore

Food Comments: Feed almost exclusively on insects, especially grasshoppers and crickets (Orthoptera), weevils (Coleoptera), and other small invertebrates gathered from or close to the ground (Terres 1980). Occasional seeds of weeds, grasses and waste grains, including wheat, are also consumed (McAtee and Beal 1912, Forbush 1925, Ehrlich et al. 1992). Obtains food from ground.

Adult Phenology: Circadian

Immature Phenology: Circadian

Length: 31 centimeters

Weight: 190 grams

Economic Attributes

Economic Comments: Poses little threat to aircraft at airports; tends to stay on the ground, flies low.

Management Summary

Stewardship Overview: Breed sparingly in grasslands and fields throughout the Northeast. Preferred habitat consists of short grass areas for feeding and courtship interspersed with tall grasses for nesting and brood cover. In many northeastern states, airfields currently provide the majority of suitable habitat, although grazed pastures and grassy fields are also used as nesting areas. Changes in farming practices, development, and reforestation are responsible for the steady decline in the Northeast, averaging 0.80% annually over the last decade. Enhancement and protection of grassland habitats should result in population growth, although factors during migration and wintering in South America may also limit populations. Annual censuses of breeding areas are necessary to provide information on long-term trends (Carter 1992).

Restoration Potential: The ability to adapt to certain agricultural crops and other human-made landscapes (White 1983) and recent continental population trend indicate favorable recovery potential if appropriate habitat is available. Lack of suitable nesting and brood-rearing habitat appear to be the major factors limiting the population in the Northeast (Carter 1992). For agricultural lands restoration, recommendations include planting native warm-season bunch grasses in large fields or combining existing fallow fields to provide a habitat mosaic (Jones and Vickery 1997). Owing to the decline of both native and non-native grasslands, particularly in eastern portions of the range, airports (if adequately managed) could play an important role in producing stable densities of upland sandpipers and other grassland avifauna (Osborne and Peterson 1984).

Preserve Selection & Design Considerations: Require a relatively large home range for successful breeding which provides extensive feeding and loafing areas nearby. Many apparently ideal habitats within the breeding range are too small to be acceptable (Buss 1951). Proposed changes in land use or farming practices in established breeding areas should be reviewed for compatibility with nesting and brood-rearing requirements. Breeding locations sufficiently large enough to support viable populations should be preserved from development (Carter 1992). Recommended minimum grassland size is 150 acres (Jones and Vickery 1997). In the Northeast,

the approximately 300-acre Lewis-Dickens Farm area on Block Island, off the Rhode Island coast, has historically supported two pairs during the breeding season (C. Raithel, pers. comm.).

Optimal breeding habitat contains a mixture of short grass areas for feeding and courtship, interspersed with taller grasses and forbs for nesting and brood cover (Kirsch and Higgins 1976, Ailes 1980). The height and density of grasses in nesting and feeding areas should permit adults and chicks to move through the vegetation easily. An upland sandpiper summering area is of good quality if it meets the physical and biotic needs described under Habitat, is located in idle or very lightly used cover (Higgins et. al. 1969), and remains undisturbed during the nesting phase of the breeding cycle.

Management for on public lands can partially compensate for loss and deterioration of habitat on private land (Kirsch and Higgins 1976). Publicly-owned natural prairies should be managed to preserve their original status (Tester and Marshall 1962).

Management Requirements: Prescribed burning, grazing, or mowing can be used to provide essential nesting conditions, but these activities can be detrimental if conducted inappropriately (Carter 1992). In grazed pastures, cattle should be restricted from nesting areas from May through mid-July (this could be accomplished through fencing of individual nests). Fields of domestic grasses should be short (15-20 cm) in spring, and haying operations should be curtailed until mid-July. At airfields, grasses should be maintained at 20-30 cm tall in areas not directly adjacent runways or taxiways, and mowing of these areas should not be conducted from May through mid-July. Mow nesting fields every 1-3 years, to provide grass 6-8 inches tall at time of spring arrival (Jones and Vickery 1997). Burn every 5-10 years after September 1 or before May 1; only part of large units should be burned in any year (Jones and Vickery 1997).

Periodic treatment by fire, light grazing, and mowing to remove cover on designated areas may be desirable for the long-term maintenance of suitable habitat and to maintain grasslands in the best ecological condition (Kirsch and Higgins 1976, Kirsch et al. 1978). The frequency of treatments needed to maintain high-quality vegetation will vary over the geographic range and with differences in the successional stage of the vegetation. Seeded grasses, like native grasses, require treatment to maintain plant vigor and retard succession (Kirsch 1974).

BURNING: To maintain native mixed-grasslands in prime condition for nesting, Kirsch and Higgins (1976) recommend rotational burning at three-year intervals. If burning is not possible, grasslands should remain undisturbed. Recent grassland management studies by Higgins (1986) in North Dakota suggest that, when averaged over the following three to four growing seasons, fall burns may enhance nest success more than spring burns. Kirsch (1974) reported gross increases in insect life, especially grasshoppers (Orthoptera), on burned grasslands in North Dakota. Similarly, Queal (1973) noted a greater variety of small insects on burned grasslands in Kansas. Grasslands managed by fire need periods of rest to allow vegetation regrowth and some residual cover accumulation. Northern grasslands should not be burned at intervals of less than two years (Higgins 1986).

GRAZING: In grazed pastures cattle should optimally be restricted from nesting fields during the egg-laying and incubation periods, 1 May - 15 July. Alternatively nests can be protected from trampling by constructing a fence around the nest site. Only the upland sandpiper's tolerance to disturbance and reluctance to desert makes this management technique possible. In Wisconsin low stakes or "tepees" were used to exclude animals but they were found to attract cattle as rubbing posts, thus inviting nest destruction (Buss and Hawkins 1939). Annual grazing of native grasses may not be a suitable management method to control vegetational succession. In Wisconsin, light to moderate grazing did not control encroachment of woody species in natural grasslands. Heavy, prolonged grazing, on the other hand, can lead to destruction of desirable components of prairie vegetation (Tester and Marshall 1962).

HAY FIELDS: Grasses in nesting fields should be short at the time of spring arrival, from 15-20 cm in height (K. Higgins, pers. comm.). All haying operations in nesting fields should be curtailed until after chicks have hatched in mid-July. Fence posts, used by upland sandpipers for display, can be erected where none are available (K. Higgins, pers. comm.). An education campaign can help protect nesting sites and keep human-induced mortality of nests and chicks to an absolute minimum.

AIRFIELDS: At airfields grasses should be maintained at a height of 20-30 cm over portions of the airfield not directly adjacent to runways or taxiways. Mowing of these areas should be restricted during the nesting and brood-rearing period, 1 May-31 July, to reduce the potential for nest destruction and mortality of incubating adults or flightless young. Maintenance of taller grass on portions of the airfield not directly adjacent to runways provides nesting habitat for upland sandpipers, discourages large concentrations of social flocking birds, such as blackbirds and gulls, and reduces mowing costs. Instituting a "watch policy" for grounds maintenance personnel helps to minimize destruction of nests and chicks encountered during mowing operations (White and Melvin 1985).

Monitoring Requirements: Annual censuses of known or traditional breeding locations are necessary to provide information on long-term population trends, to promote protection of breeding sites, and to assess the effectiveness of active management programs.

Censuses of adult populations can be taken within one to two weeks of arrival in breeding areas, before the

majority of nest territories become established. A field occupied by sandpipers prior to the nesting season usually will have one or more nesting sites nearby. To confirm nesting, fields can be searched on foot, with two or more individuals walking slowly abreast at a distance of six to eight ft (1.8-2.4 m), depending on the density of cover. Biologists at the Northern Prairie Wildlife Research Center in North Dakota have effectively used a cable-chain device stretched between two vehicles to systematically search for shorebird and duck nests over extensive croplands, grasslands, and areas of mixed grass/brush vegetation (Higgins et al. 1969, 1977). Possible disadvantages of this technique are that trails left by vehicles may provide mammalian predators with travel lanes through dense cover (Higgins et al. 1969), and that vehicles may inflict damage to nests of other species. While flushing does not cause nest desertion (Buss and Hawkins 1939), workers should take precautions to reduce the risk of predation induced by human scent at nest sites. Nest searches should not be conducted during cold or wet weather when the incubation of eggs and the brooding of young are most critical.

Searching for nests over a large area is very labor-intensive, and alternate survey techniques can be used. Mobbing, agitated calling, and broken-wing distraction displays can indicators of the presence of nests or chicks. Surveys to determine the number of fledged young can also be used to measure productivity. These should generally be conducted no later than mid-July, before local populations begin to fluctuate with the arrival of transient birds from farther north. In central Illinois, upland sandpipers have been known to begin fall migration as early as 9 July (Buss and Hawkins 1939).

Important census data include date, number of individuals or breeding pairs present, number and density of nests, and number of eggs or hatched young. Observations of habitat use and descriptive data taken at nest sites might include date, number and activity of birds, height of vegetation, dominant plant species, percentage of dead vegetation or litter, and land use (Kirsch and Higgins 1976, Ailes 1980).

Biological Research Needs:

Population/Occurrence Delineation

Group Name: SHOREBIRDS

Use Class: Breeding

Subtype(s): Breeding Site, Feeding Area

Minimum Criteria for an Occurrence: Evidence of historical breeding, or current and likely recurring breeding, at a given location, minimally a reliable observation of one or more breeding pairs in appropriate habitat. Be cautious about creating EOs for observations that may represent single breeding events outside the normal breeding distribution.

Mapping Guidance: Breeding occurrences include nesting areas as well as foraging areas of nesting adults and broods. Because separations are based on nesting areas, the foraging areas of different occurrences may overlap if nesting birds are traveling to distant places to feed.

Separation Barriers: None.

Separation Distance for Unsuitable Habitat: 5 km

Separation Distance for Suitable Habitat: 5 km

Separation Justification: Separation distance pertains specifically to nesting areas, not to locations of dispersed foraging individuals. For example, nesting areas separated by a gap of more than 5 km are different occurrences, regardless of the foraging locations of individuals from those nesting areas.

The separation distance is an arbitrary value; it is impractical to attempt to delineate shorebird occurrences on the basis of dispersal patterns or metapopulation dynamics. Foraging ranges of some nesting shorebird species (see following) may suggest use of a larger separation distance, but this likely would result in occurrences that are too large and less effective for conservation planning.

Separation distance based on larger 'typical' breeding home ranges with diameters of 1.5 to 3 kilometers. Semipalmated Plovers have breeding home ranges up to 3 square kilometers, i.e. a diameter of just under 2 kilometers (Nol and Blanken 1999). Red-necked Phalaropes have a core home range of 1-3 hectares, but occasionally travel 1.5 kilometers to feed (Rubega et al. 2000). Stilt Sandpipers can forage up to 8 kilometers from nest (Jehl 1973). Mountain Plovers have an average home range of 56.6 hectares (Knopf 1996) but broods typically move 1-2 kilometers shortly after hatching (Knopf and Rupert 1996).

Territories: Common Snipe, 6.4-28.6 hectares (Mueller 1999); Long-billed Dowitcher, 100-300 meter diameter (Johnsgard 1981); golden-plovers, average 10-59 hectares (Johnson and Connors 1996); Long-billed Curlew, 6-20 hectares (Johnsgard 1981).

Nesting densities: Black-bellied Plover, 0.3-2.3 pairs per square kilometer (44 ha per pair at latter density; Hussell and Page 1976, Parmelee et al. 1967); Marbled Godwit, maximum density 1 pair/32 hectares (Stewart and Kantrud 1972).

Foraging distances: Greater and Lesser Yellowlegs, up to 13 kilometers from nest (Elphick and Tibbits 1998, Tibbits and Moskoff 1999).

Inferred Minimum Extent of Habitat Use (when actual extent is unknown): 1.5 km
Inferred Minimum Extent Justification: Based on a smaller 'typical' home ranges (see Separation Justification).
Date: 25Mar2004
Author: Hammerson, G., and S. Cannings

Use Class: Migratory stopover
Subtype(s): Foraging concentration area, Roost
Minimum Criteria for an Occurrence: Evidence of recurring presence of migrating flocks (including historical); and potential recurring presence at a given location, minimally a reliable observation of 25 birds in appropriate habitat (minimum can be reduced in the case of rarer species). Occurrences should be locations where the species is resident for some time during the appropriate season; it is preferable to have observations documenting presence over at least 7 days annually. Be cautious about creating EOs for observations that may represent single events.
Separation Barriers: None.
Separation Distance for Unsuitable Habitat: 5 km
Separation Distance for Suitable Habitat: 5 km
Separation Justification: Separation distance somewhat arbitrary; set at 5 kilometers to define occurrences of managable size for conservation purposes. Occurrences defined primarily on the basis of areas supporting concentrations of foraging or roosting birds, rather than on the basis of distinct populations.
Date: 15Apr2002
Author: Cannings, S.

Use Class: Nonbreeding
Subtype(s): Roost, Winter Feeding Area
Minimum Criteria for an Occurrence: Evidence of recurring presence of wintering flocks (including historical); and potential recurring presence at a given location, minimally a reliable observation of 25 birds in appropriate habitat. Occurrences should be locations where the species is resident for some time during the appropriate season; it is preferable to have observations documenting presence over at least 20 days annually. Be cautious about creating EOs for observations that may represent single events.
Separation Barriers: None.
Separation Distance for Unsuitable Habitat: 5 km
Separation Distance for Suitable Habitat: 5 km
Separation Justification: Separation distance somewhat arbitrary; set at 5 kilometers to define occurrences of managable size for conservation purposes. Occurrences defined primarily on the basis of areas supporting concentrations of foraging or roosting birds, rather than on the basis of distinct populations.
Date: 25Mar2004
Author: S. Cannings

Population/Occurrence Viability Not yet assessed

U.S. Invasive Species Impact Rank (I-Rank)

Authors/Contributors

NatureServe Conservation Status Factors Edition Date: 04Nov2002
NatureServe Conservation Status Factors Author: Cannings, S.
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