

An Overview of Shorebird Migration in the Eastern Rainwater Basin, Nebraska



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Abstract

The Rainwater Basin (RWB) has received limited attention as an important stopover area for migrant shorebirds because of an absence of basic survey data. Here I present the first comprehensive inventory of shorebird migration for the eastern Rainwater Basin (eRWB). These data document the importance of this region as a stopover site for migrants and will serve as a baseline for future monitoring efforts. During five years of spring and three years of fall surveys that covered a majority of wetlands in the eRWB, an average of 23,700 and 5,581 shorebirds were recorded in spring and fall, respectively. Of 38 species recorded, most numerous in decreasing order were White-rumped Sandpiper, Wilson's Phalarope, Semipalmated Sandpiper, Long-billed Dowitcher, Stilt Sandpiper, and Baird's Sandpiper during spring and Pectoral Sandpiper, Long-billed Dowitcher, Lesser Yellowlegs, Least Sandpiper, and Stilt Sandpiper during fall. The RWB is an important stopover area for these species and it has been estimated that 200,000-300,000 shorebirds stopover in the region each spring. The surveys were conducted at a time when over 90% of the RWB wetlands have been destroyed and the remaining wetlands are degraded. Prior to settlement there were nearly 4,000 individual wetlands totaling up to 100,000 acres. The dramatic reduction in terms of both quantity and diversity of wetland types and the degradation of existing wetlands has severely reduced the capacity of the RWB to provide adequate shorebird habitat. This reduced capacity has had implications not only locally and regionally, but also on international and hemispheric scales.

The RWB is a distinct ecogeographical region where wetlands are dispersed over 10,000 square kilometers. It has been customary for researchers and conservationists to focus on individual wetlands rather than recognize a group of small wetlands as a single entity even though shorebirds likely recognize and utilize a group of dispersed wetlands in the same manner as they would a single, large wetland. No single RWB wetland provides adequate habitat or hosts large numbers of shorebirds regularly since these wetlands are greatly influenced by climate, vegetation, and disturbance and are thereby highly dynamic. Nevertheless, during any particular migration or year there is a high degree of certainty that favorable habitat and large numbers of shorebirds will be found somewhere in the RWB. Individual wetlands that vary in size and type are merely components of a larger entity, a wetland complex. Focusing on individual wetlands essentially penalizes the RWB and similar complexes when considering the criteria set forth by the Western Hemisphere Shorebird Reserve Network for recognition as a site of international importance. However when considered as a single entity, the RWB surpasses these criteria. Furthermore, the region may be of hemispheric importance to the Buff-breasted Sandpiper.



Introduction

Shorebirds (plovers, avocets, stilts, sandpipers, and phalaropes) migrate long distances from wintering areas to breeding sites and back again. During migrations, shorebirds stop to rest, feed and replenish fat reserves needed to continue their journey. Ornithologists are increasingly recognizing the importance of stopover sites and staging areas as being critical components of individual species' life history (Morrison et al. 2004, Schekkerman et al. 2003, Myers 1983). Approximately 35 species of shorebirds migrate annually through the Great Plains between wintering and breeding areas. A few species migrate extreme distances, from southern South America to sub-arctic and arctic areas of North America and even Siberia. For several species, passage through the Great Plains is the principal route used during migration. Great Plains wetlands and wetland complexes are critical for these shorebirds (Myers 1983, Skagen and Knopf 1993) and destruction of important sites may devastate populations (Harrington and Perry 1995). Emphasis has largely been placed on large wetlands that are capable of hosting very large and visually impressive concentrations. Less attention has been given to regions or complexes of small, dispersed wetlands where total shorebird numbers may be similar, but are dispersed over a relatively large geographical area. Wetland complexes may be as important to migrant shorebirds as large wetlands, especially where climate factors may limit favorable shorebird habitat at any one wetland at times. Furthermore, different migratory corridors and regions host very different assemblages of shorebirds (Skagen and Knopf 1993, Skagen et al. 1999). Thus, the importance of a particular wetland or wetland complex will vary for different species.

This monograph presents basic survey data from one group of dispersed wetlands in south-central Nebraska known as the Rainwater Basin (RWB). The RWB is an area of flat and gently rolling loess plains that formerly was a broad expanse of prairie containing numerous shallow playa wetlands. This ecosystem has been converted to an intensely cultivated agricultural region and more than 90% of the former wetlands have been destroyed (Schildman and Hurt 1984) and those remaining are degraded (LaGrange 1997). The information presented herein indicates the RWB is a significant stopover area for shorebirds. Shorebird use in the RWB has never been adequately documented (see Skagen et al. 1999, Skagen and Knopf 1993, Harrington and Perry 1995). This may be largely due to the scattered nature of the individual wetlands. This intrinsic feature precludes concentrations of very large numbers from occurring within small areas, as is found at sites such as Cheyenne Bottoms in central Kansas. In this monograph, I present information on species' abundance and migration chronology in the RWB.

Study Area

The RWB covers approximately 10,000 square kilometers (Kuzila 1994) in south-central Nebraska. Widely scattered throughout the RWB are shallow playa wetlands that are lined with a nearly impervious layer of soil, a clay-pan that prohibits surface water from penetrating the subsoil. The wetlands are not naturally influenced by the water table and the sole source of water is precipitation, hence the name Rainwater Basin (LaGrange 1997).

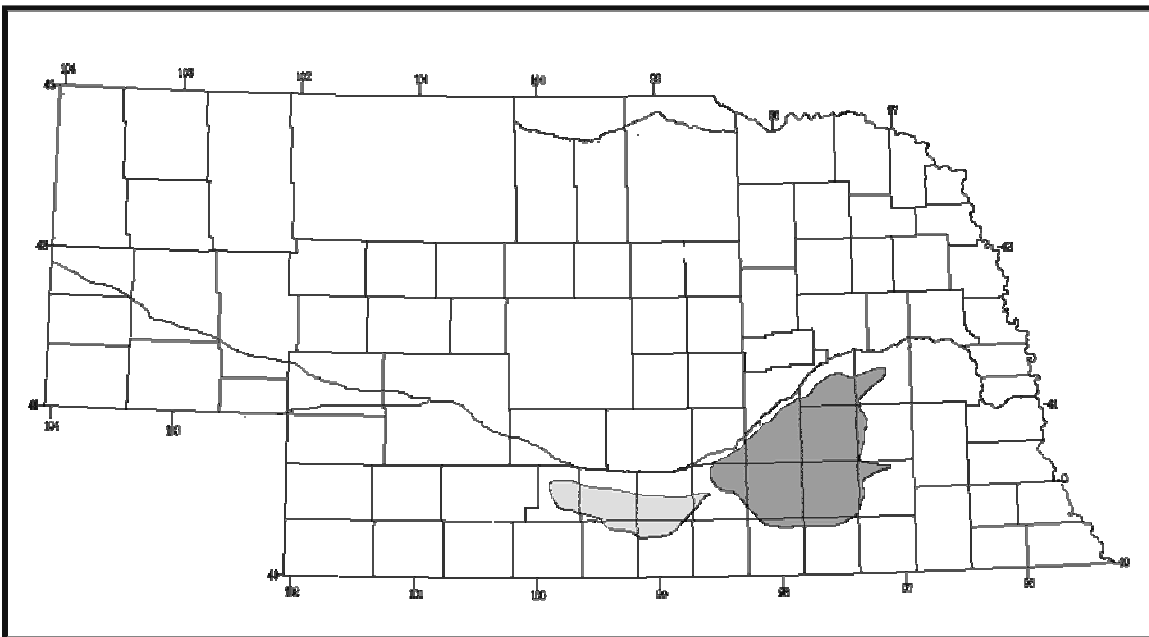


Figure 1. Rainwater Basin. The dark and light shaded areas represent the eastern and western portion of the Rainwater Basin.

Prior to settlement there were roughly 4,000 wetlands totaling 100,000 acres (Schildman and Hurt 1984) and “many of the larger wetlands were semi-permanent and were up to five feet deep” (Farrar 1996a). Most were small and only held water during wet periods.

The continuity of the RWB is broken in what is now Adams County and the overall region can be divided into an “eastern” and “western” portion (see Figure 1). These eastern and western portions are referred to here as the Eastern Rainwater Basin (eRWB) and Western Rainwater Basin (wRWB). The eRWB is the principal focus of this monograph and covers all or portions of thirteen counties: Adams, Butler, Clay, Fillmore, York, Hall, Hamilton, Nuckolls, Polk, Saline, Seward, Thayer, and York. Over 90% of the original RWB wetlands and over 85% of the original wetland acres were found within the eRWB (Schildman and Hurt 1984). Wetlands are dispersed throughout the entire RWB wetland complex in areas where drainage is undeveloped. Wetlands do not occur in portions of the region where a handful of creeks and branches of the Big Blue River flow. Watersheds isolate those areas where wetlands are found from other like areas and thus wetlands occur more or less in groups or clusters.

Perhaps due to the RWB’s indistinct topography and the individual wetlands’ unexceptional characters there is little specific natural history information from the area. In only the most recent decades has the region been recognized as an important ecogeographical region worthy of preservation and study. Current attention comes at a time when virtually the entire RWB ecosystem has been destroyed or altered. The region has become one of the most intensely cultivated areas in Nebraska because the topography and soil fertility are favorable for farming. Virtually all upland habitats have been converted to agricultural use and over 90% of the RWB wetlands have been destroyed (Schildman and Hurt 1984) and the remaining wetlands are degraded (LaGrange 1997). Thus, a detailed account of the pre-settlement landscape and the specific characteristics of the wetlands are not possible due to the absence of both scientific literature and unaltered remnants of the pre-settlement landscape (Kuzila et al. 1991).

Historical information about the RWB is especially sparse. Kuzila (1994) notes the first mention of the presence of wetlands was by early surveyors in the 1850s. T.A. Bidwell (1871) surveyed and outlined the numerous wetlands in York County and referred to such sites as “hay marsh”, “lake marsh”, or “basin”. One of the few early references to the RWB was by Condra (1906) who, in his *Geography of Nebraska*, referred to the region as part of the “Loess Plains” and specifically wrote:

“These are the least eroded parts of the region. They are usually smooth, but here and there are shallow drainage-ways and slight knoll-like elevations. In some places the surface contains shallow, undrained basins filled by the rainfall during wet-weather times. Most of these small lakes dry up entirely during summer. The lakes occur principally in York, Fillmore, Clay and Phelps counties.

The landscape on the Loess Plains is unusually broad, only the curve of the earth hiding distant objects from view. We may ask, are these some of the ‘level lands’ of Nebraska? Yes, citizens often speak of them in that way; but there is very little of what is really level. The land here is smooth and even; it slopes eastward with a grade of from 6 to 10 feet a mile, hence it is not level.”

Little additional work was done throughout the first half of the 20th Century. As late as 1954, botanists J.E. Weaver and W.E. Bruner (1954) included the RWB as part of the larger Loess Plains region. Furthermore, they provide a description of the RWB wetlands in a paper on prairie composition and types from work done in earlier decades. Most striking about the description is the authors’ desire to provide the most basic details.

“This seemingly endless carpet of grass was not uninterrupted. Scattered throughout the nearly level prairie were depressed areas which were occupied by a very different type of vegetation. These varied greatly in size. Many were small, covering only one-fourth of an acre; others were 80 to 160 acres in extent. The largest were sometimes 1 to 3 miles long and 2 to 4 square miles in area. The smaller depressions were only a foot or two below the general soil level but the larger ones were depressed 10 to 15 feet. Depth of accumulated water varied greatly from year to year and spring to autumn. The shallow depression usually became dry by mid or late summer. In larger and deeper ones, water exceeded 3 feet in depth during wet seasons. These fresh water marshes were scattered thickly over the plain.”

The RWB has been distinctly recognized only in recent decades. Chapman et al. (2001) recently recognized the RWB as part of the Central Great Plains ecoregion and referred to the RWB as a sub-region, the Rainwater Basin Plains. More detailed information regarding different facets of the RWB follows below. As can be gleaned from above, Rainwater Basin is a relatively modern term. Geologists and others have, and still do, refer to the region as the “Rainbasin”. Furthermore, the individual palustrine wetlands have been referred to in a number of ways, including: rainwater basins, rainbasins, basins, lagoons, lakes, ponds, marshes, hay marshes, and lakes marshes. Palustrine wetlands are generally defined as being shallow and dominated by vegetation (Cowardin et al. 1979). Today and also

in this work, specific sites are still referred to with any of the various qualifiers mentioned above and no specific meaning or distinction should be attributed to such names.

Geomorphology

Essentially all work on origin and geomorphology has been done only recently, beginning in the mid-1980s with Starks (1984). Starks concluded that many larger basins are elliptical in shape, oriented from southwest to northeast and smaller wetlands are irregularly shaped. In addition, 51 of 120 large basins have a crescent-shaped ridge found on the southeast side of the depression that he referred to as a "lunette". The material found on the lunettes was linked to that found in the depression, suggesting that the predominant wind direction (northwest) carried material from the basin and deposited it on the lunettes. Starks found that some basins were "breached", or in other words drained to an outside watershed, and therefore they no longer held precipitation run-off.

Krueger (1986) collected core samples from a wetland located at Kirkpatrick Basin North Wildlife Management Area in York County. Krueger's findings indicate that the Peoria Loess soil material present was deposited 20,000-30,000 years ago during the Wisconsinan period. The regional source of Peoria Loess is the Platte River (Kuzila 1994). Krueger speculated that the removal of vegetation from an area, even by something as apparently inconsequential as bison activity, was all that was required to begin the process of deflation (removal and deposition of soil by wind) that created the basins and lunettes. Furthermore, Krueger concludes that the prevailing winds were an important factor in shaping and orienting the elliptical basins. Recent work by Kuzila (1988, 1994), Kuzila and Lewis (1993) and Kuzila et al. (1991) provide additional information. Most important, Kuzila (1994) found that the modern landscape and soil layer generally mirrors a previous "paleolandscape" that was deposited prior to the Wisconsinan Period. Thus, modern basins and ridges (lunettes) cover "paleobasins" and "paleoridges". Modern ridges have less relief than the "paleoridges", however.

Vegetation

Erickson and Leslie (1987), and Gilbert (1989) provided recent information on vegetation found in the RWB wetlands. Gilbert summarizes a cline of vegetation types from uplands to the interior of the larger marshes. Gilbert (1989) recognizes five zones in RWB wetlands: Inner Marsh, Persistent Emergents, Outer Marsh, Transition, and Uplands. Modern vegetative composition and coverage of prairie wetlands may be dissimilar to what was present historically due to a variety of influences (Galatowitsch and van der Valk 1994). The only detailed early account summarizing vegetation of RWB wetlands is from Weaver and Bruner (1954) who conducted field work during the early 20th Century. Common names have been added to assist non-botanists. Nomenclature follows the Great Plains Flora Association (1986).

"One of the more abundant species and one which gave the characteristic color tone to the depressions is *Scirpus acutus* [bulrush]. A dark blue to green or even brownish color prevailed where dense stands occurred in places where the water was more or less continuously deep. In shallower water, perhaps only 18 inches deep in spring, *Eleocharis marcrostachya* [spikerush] grew thickly in tufts 12 to 18 inches high. This perennial gave the landscape a very dark blue-green appearance throughout the growing season. In less permanently wet zones, a paludose form of *Persicaria muhlenbergii* [smartweed (*Polygonum* spp.)] and *Lophotocarpus calycinus* [arrowhead (*Sagittaria calycina*)] were conspicuous emerged water plants. Here also *Persicaria longistyla* [Pink Smartweed (*Polygonum bicorne*)], with its conspicuous masses of pink flowers, alternated with *Coreopsis tinctoria* [Plains Coreopsis], which gave a yellow tone to the wet land in late summer. Species of the floating stage, but persisting in very shallow water were various pondweeds (*Potamogeton*), *Marsilea vestita* [Western Water Clover], *Bacopa rotundifolia* (Michx.) Wettst. [Water Hyssop], *Heteranthera peduncularis* [Mud Plantain], and *Alisma subcordatum* [Water Plantain], *Typha angustifolia* [cattail], *Scirpus americanus* [bulrush], and *Eleocharis acicularis* [spikerush], were common. On the outer edges of the larger depressions especially, but scattered irregularly through the shallower ones were larger amounts of *Echinochloa crusgalli* [barnyard grass] and *Hordeum jubatum* [foxtail barley], and, in places, *Phalaris arundinacea* [Reed Canary Grass]. Other species were *Ammannia coccinea* [toothcup], *A. auriculata* [toothcup], *Cyperus acuminatus* [Umbrella Sedge], *Vernonia fasciculata* [Ironweed], *Lippia cuneifolia* [Wedge-leafed Fog-fruit], *Gratiola neglecta* Torr. [Hedge Hyssop], and *Franseria discolor* Nutt [Perennial Bursage]. These plants were subjected to great variations as regards to water content of soil and aeration.

Wheatgrass [*Andropogon* spp.] either in rather pure stands or with an understory of short grasses often borders the deeper depressions and sometimes formed extensive hay meadows. On others, the muddy slopes became clothed with buffalo grass [*Buchloe*

dactyloides] and blue grama [*Bouteloua gracilis*]. All of these grasses during dry years invaded the depressions at least temporarily. On the outer edge, the zone of grass gave way to prairie.”

Weaver (1943) described an apparent seasonal wetland near Carleton, Thayer County, as being dominated by Big Bluestem (*Andropogon gerardii*) and Western Wheatgrass (*Agropyron smithii*). Open prairie covered the uplands, with perhaps limited trees present along major watercourses, especially at the eastern edge of the region where Oak Savanna replaces the eRWB (Bidwell 1871, Kaul and Rolfsmeier 1983). Tallgrass Prairie was present in much of the eRWB and it mixed and eventually was replaced by Mixed-grass Prairie in western sections (Kaul and Rolfsmeier 1983). Dominant grasses included Big Bluestem, Indiangrass (*Sorghastrum nutans*), Little Bluestem (*Andropogon scoparius*), and Western Wheatgrass (Kaul and Rolfsmeier 1983, Weaver 1943, and Weaver and Bruner 1954). The only detailed early description is from Weaver and Bruner (1954):

“On the nearly level land, Little Bluestem usually dominated but it was commonly intermixed with 5 to 15 percent of Big Bluestem. These percentages were ascertained by extensive sampling by meter quadrats more than a quarter of a century ago. Little Bluestem remained dominant over much of the terrain where ordinarily one would expect to find Big Bluestem. Where the land locally was slightly lower and received run-in water, the percentage of Big Bluestem increased accordingly until finally rather pure open stands occurred. Its turning reddish brown and often drying in summer, sometimes over considerable areas, revealed the rather unstable water supply. Many poorly drained uplands supported Big Bluestem where small depressions occurred. Conversely, a slight rise in the topography often resulted in nearly pure Little Bluestem, the bunches becoming more pronounced and more widely spaced.”

Ecology

Variable precipitation produces variable water levels in the wetlands and this dynamic influences vegetation composition. The eRWB averages 56 centimeter (26 inches) of precipitation in western areas to 64 centimeters (30 inches) in eastern sections (Lawson 1977). The presence of water is generally most predictable in spring due to both snowmelt and increased rainfall. During the drier portion of most years, August through December, many wetlands become dry (Condra 1906). Average precipitation data are limited in usefulness since an average year essentially never occurs. Periods of drought are followed by wet cycles. Wetlands can be full of water one year and dry the next. A localized heavy downpour may locally flood wetlands, while others a few miles away remain deprived. Variable water levels preclude vegetative stability in playas (Haukos and Smith 1997). The interior of larger marshes may support stands of hydrophytic vegetation amongst areas of open water several feet deep. The open water may eventually retreat and provide an opportunity for annual plants to quickly sprout and overtake barren moist soil. If given ample time to complete their life cycle, the pioneering annual vegetation may grow several feet high and produce large quantities of seeds that are a valuable food resource to migrant birds. Alternatively, the vegetation may be flooded prematurely from a single storm. The dynamic vegetation component brought about by continual disturbance promotes floral diversity (Haukos and Smith 1997, Denslow 1985) and is an integral component of the ecosystem (van der Valk 1989, Haukos and Smith 2001, Smith and Haukos 2002, Middleton 1999, Murkin et al. 2000).

The RWB is positioned south of the more expansive Prairie Pothole Region of the northern Great Plains and is also somewhat isolated from other prairie wetland complexes. This may be why the RWB became a significant stopover area for migrant birds, primarily in spring, when the presence of water was fairly certain (Condra 1906, Weaver and Bruner 1954). In addition to vegetative food resources, aquatic invertebrates are abundant in the wetlands (Gordon et al. 1990). The dynamic water levels would have been important in continually renewing food sources for migrant birds (van der Valk 1989, Anderson and Smith 1998). Variable water conditions likely translated into variable numbers of both species and individuals of birds that remained to breed in the marshes.

Prior to settlement by European Americans, the overwhelming majority of land area in the RWB was open prairie. The broad expanse of prairie was influenced by disturbance. Several mammalian grazers, including Bison (*Bison bison*), Elk (*Cervus elaphus*) and prairie dogs (*Cynomys* spp.) were also, at one time, important components of the ecosystem. Indeed, several bird species are known to be dependent on or favor conditions found at prairie dog colonies (Askins 2000). Common breeding birds included Swainson's Hawk (*Buteo swainsoni*), Upland Sandpiper (*Batramia longicauda*), Greater Prairie-Chicken (*Tympanuchus cupido*), Western Meadowlark (*Sturnella neglecta*), and occasionally Lark Bunting (*Calamospiza melanocorys*) (Swenk 1925, Tout 1902). Fire was an important, regular event (Lanphere 1937, Liedtke 1937, Campbell 1937). Also present were large swarms of grasshoppers. Accounts by the earliest of settlers lament the destruction reaped by the grasshopper plagues that would arrive in late summer. Swarms would darken the sky and the “vibration of their wings made a roaring sound like an approaching storm” (Campbell 1937). Meeting a swarm head-on was “like meeting a hail storm” (Liedtke 1937). Campbell (1937) noted that the most-destructive grasshoppers were “the Rocky Mountain type” and many others remarked that during infestations they would lay eggs that would hatch the following spring. These eggs were at one time a food source for

migrant birds such as the Eskimo Curlew that preferred to forage on burns (Gill et al. 1998). The Rocky Mountain Grasshopper (*Melanoplus spretus*) is extinct and the Eskimo Curlew appears to be.

Settlement and Development

The change experienced in the RWB during the last 200 years has been dramatic. The area including the RWB was acquired by the United States in 1803 as part of the Louisiana Purchase. At this time, the RWB was still essentially untouched by Europeans. In 1854 Nebraska became a territory and settlement occurred rapidly. Excerpts from the earliest settlers provide a unique perspective. H.N. Logan settled in northeast York County, about 2 miles south of present-day Gresham, in 1871 at a time when other settlers were “scarce and remote” and when “the eye could sweep the entire horizon with scarcely an obstruction” (Campbell 1937). After arriving at a settlement at nightfall, Lizzie Wirt (1937) “saw nothing but a broad expanse of blue sky above the broad expanse of prairie” the following morning. In Clay County, for example, the population was only 54 by 1870 (UNO 2003). By 1880, the population exploded to 11,294 and by 1890 it reached 16,310 (UNO 2003). While numerically impressive, early settlement had little impact on the majority of wetlands (Farrar 1982, 1996a). Prairie and marginal habitats, such as wet meadows, soon began disappearing, however. The values and industriousness of the settlers quickly turned wetlands into farmland. As summarized by Farrar (1982, 1996a), wetland drainage began slowly, was essentially done by hand, and occasionally included large engineering feats such as the digging of the “Troester Tunnel” (Farrar 1996b). The project was a mile-long subterranean excavation done by hand during the winter of 1916 or 1917. Men working underground were successful in draining the wetland at what is now Troester Waterfowl Production Area.

As technology and techniques improved during the middle portion of the 20th Century, more and more wetlands were destroyed or greatly modified. Wetland drainage was also encouraged by the federal government (Farrar 1982). Ditches or tunnels were dug to nearby watersheds and effectively drained and destroyed wetlands. Deep pits were dug to concentrate water at some wetlands, and other wetlands were filled to level land for surface water irrigation. For those wetlands that escaped outright destruction, siltation resulting from run-off from nearby fields has greatly reduced their value to wildlife. During the Dust Bowl years large amounts of wind-blown soil were deposited in the wetlands (Farrar 1996a, Weaver 1943), with perhaps as much as three feet in some basins (Farrar 1996a). Silt carried by run-off from agricultural fields remains a problem that persists today.

By the time M.S. McMurtrey began surveying the wetlands in the state in the 1960s; most of those in the RWB were already destroyed. By comparing his findings to the 1916 soil survey he was able to make the assessment that over 80% of individual wetlands and over 65% of the original wetland acres had been destroyed (McMurtrey et al. 1972). Two decades later in the early 1980s, the Nebraska Game and Parks Commission conducted a follow-up survey and found that the remaining wetlands and wetland acres had been halved (Schildman and Hurt 1984). Table 1 is adapted from Schildman and Hurt (1984) and illustrates the extent of wetland loss in the eRWB. However, estimates from both McMurtrey et al. (1972) and Schildman and Hurt (1984) were conservative (Ted LaGrange, personal communication). The table excludes figures from the wRWB, but similar losses have occurred there. Wetland destruction continued in the years after Schildman and Hurt’s (1984) report and continues at the present time, albeit at a much slower pace.

Table 1. Number of wetlands and acres remaining in eRWB (adapted from Schildman and Hurt 1984)

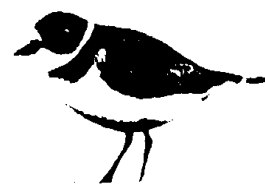
County	Number of Basins			Acres		
	Original	1960s	1981-83	Total original	1960s	1981-3
Adams	97	16	11	2,237	566	353
Butler	327	23	13	3,513	1,116	385
Clay	860	209	112	19,411	10,186	6,446
Fillmore	622	118	61	21,038	5,797	3,003
Hall	18	11	4	801	620	22
Hamilton	290	20	12	7,768	925	480
Nuckolls	44	6	3	977	324	111
Polk	227	33	13	4,173	752	125
Saline	78	6	3	1,285	121	23
Seward	177	14	11	5,316	717	540
Thayer	11	2	2	818	65	57
York	672	105	55	11,494	3,952	2,982
Total	3,423	563	300	78,781	25,141	14,526
Percent Remaining	-	16.44	8.76	-	31.91	18.43

Contemporary Development

The RWB continues to change. The population explosion of the late 1800s was short-lived. In Clay County, the population of 16,310 reached in 1890 was the highest it would ever be. The population has declined in each succeeding decade and in 2000 there were only 7,039 people living in the county (UNO 2003). Only the larger cities, such as Hastings and York, have maintained their population or have grown. The greatest reduction in population has been experienced in rural areas and small towns (UNO 2003). There are continually fewer farmsteads and those that have not been maintained are being cleaned up and the land they occupied put into cultivation. Farming is less varied than previously, facilitated in part by the center-pivot irrigator, and there are fewer acres of pasture and hayfields. The result is a featureless continuum of corn- and soybean fields covering an unremarkable landscape, among which are the remaining wetlands.

Less than 9% of the original individual wetlands remain today (see Table 1), but even this figure understates the human impacts on the RWB since remaining wetlands are degraded and their value to migrant birds and wildlife is reduced. Wetland qualities have been reduced by farming attempts, draining attempts, pesticide and herbicide run-off, increased sedimentation, and the absence of herbivores (Galatowitsch and van der Valk 1994). A wetland basin with increased sedimentation holds proportionally less water and for shorter periods (Luo et al. 1997, Gleason and Euliss 1998). Sedimentation of only "0.5 centimeters caused a 91.7% reduction in seedling emergence" of hydrophytic plants and a "99.7% reduction in total invertebrate emergence" in northern prairie wetlands (Gleason et al. 2003). Siltation and disruption of the disturbance regime may facilitate formerly uncommon or rare plant species to overtake and dominate wetlands, as in the case of hybrid cattail and Reed Canary Grass (Galatowitsch and van der Valk 1994). In a previous excerpt, Weaver and Bruner (1954) noted that Reed Canary Grass occurred only "in places". Presently Reed Canary Grass dominates many wetlands and crowds out other wetland plants. Aside from herbaceous plants, the presence of trees is visible evidence of a highly degraded RWB wetland. The most common tree species include Green Ash (*Fraxinus pennsylvanica*), Cottonwood (*Populus deltoids*), and willow (*Salix* spp.). The presence of trees in prairie wetlands reduces breeding bird species richness (Naugle et al. 1999) and these sites offer very little or no habitat for migrant shorebirds (personal observation). Most wetlands, even those that are owned and managed by government agencies (as Federal Waterfowl Production Areas or State Wildlife Management Areas), are surrounded by agricultural fields and this also has negative effects on wetland quality. Studies from other Great Plains wetland complexes show that run-off from agricultural fields increases sedimentation (Luo et al. 1997), changes plant communities (Smith and Haukos 2002), and decreases invertebrate density (Euliss and Mushet 1999).

The last couple of decades have perhaps been a turning point for the RWB. Because of their importance to migrant waterfowl, the region's wetlands are now recognized locally, nationally and internationally (LaGrange 1997, Gersib et al. 1992). Approximately 90% of the mid-continent population of Greater White-fronted Geese (*Anser albifrons*), 50% of the mid-continent population of Mallards (*Anas platyrhynchos*), and 30% of the continental population of Northern Pintail (*Anas acuta*) stopover in the RWB each spring (Gersib et al. 1989, LaGrange 1997). Some government agencies that promoted wetland destruction are teaming up with private groups such as Ducks Unlimited, The Nature Conservancy and Prairie Plains Resource Institute to purchase and enhance wetlands. The coalition of government agencies, private organizations, and individuals is known as the Rainwater Basin Joint Venture. An objective of the RWB-JV is to restore an additional 25,000 wetland acres and 25,000 upland acres. A growing number of wetlands have been purchased and many have been restored and/or better managed in just the last decade.



History of observers in the Eastern Rainwater Basin

Information on shorebird use of the eRWB is limited. A few individuals, however, are responsible for some valuable information. One very important early observer was Wilson Tout who was born in Sutton in 1876 (Gates 1951). After attending the University of Nebraska he was a schoolteacher in York for several years before moving to North Platte. In 1902 he published a short essay "Ten years without a gun" in the Proceedings of the Nebraska Ornithologists' Union (Tout 1902). While many early ornithologists were also collectors, Tout clearly was not. Tout made numerous visits to the wetland at what is now Kirkpatrick Basin North Wildlife Management Area.

Another important early observer was Albert M. Brooking, who was a collector. His contribution to the knowledge of the early avifauna of the eRWB, as well as that of Nebraska as a whole, is invaluable. In the 1910s, Brooking lived at Inland, very near Inland Lagoon, now known as Harvard Waterfowl Production Area. Many of the specimens and information he collected are from this site, which today is still a very important wetland. Brooking also gathered important information and specimens from other collectors in the area, including William Townsley. Townsley is perhaps the earliest source of information specific to the eRWB. A Civil War combatant, he settled ten miles north of Harvard in Hamilton County in 1871 (Brooking 1933). Brooking passed away in 1946 (Haecker 1946). Most of the Brooking Collection is now housed at the Hastings Municipal Museum.

In 1920, the YMCA of Hastings organized a bird club and A.M. Brooking was the teacher (NOU 1933). The group's first field trip was to Inland Lagoon on 22 May where the group observed Black-bellied Plovers, Sanderlings, Wilson's Phalaropes, and other shorebirds. The classes continued and membership increased to thirty-three in 1923 and in that same year the group officially became known as the Brooking Bird Club. The club and its members were also active in the Nebraska Ornithologists' Union, and many of their sightings were reported in that organization's publications. The club remained active for several decades. Unfortunately, reports began dwindling during the 1950s and continued to drop off in following decades.

From the 1950s up until the early 1990s there is surprisingly little information available, with one notable exception. That exception is Lee Morris, a farmer and birder who still lives amongst a group of basins near Benedict in northern York County. Morris's reports began appearing in the *Nebraska Bird Review* in the 1960s and continue to present day. He is responsible for many important sightings, including a significant contribution to our knowledge of Buff-breasted Sandpiper migration and stopover. Morris is perhaps the only source of regular reports connecting the era of the Brooking Bird Club to the present time. Additional recent sightings were made by a handful of birders that cover Nebraska and visit the eRWB, and include: Stephen J. Dinsmore, Carlos Grandes, Joe Gubanyi, Loren and Babs Padelford, John Sullivan, and Ross Silcock.



Methods

The primary purpose of this monograph is to present data from five years of spring shorebird surveys conducted between 1997 and 2001 and three years of fall surveys conducted between 1998 and 2000. In the following sections, I explain the methods used to survey birds, present the results generally, and then summarize specific results in individual species accounts.

Surveys

The surveys that I conducted will be referred to here as the Jorgensen Shorebird Surveys (JSS). The principal JSS data included are from spring 1997-2001. Limited fall data collected 1998-2000 are also presented. Observations made during other years are included in the species accounts, but are separated from JSS data.

JSS surveys were generally conducted on weekends, so in general five days passed between surveys. Generally, though, most sites were visited only once a week since the same route was generally followed, the route requiring a two-day weekend to complete. On a few occasions, surveys were conducted at other times, but even then at least three days passed after one survey ended until a new one was initiated. The only exceptions are surveys from Harvard WPA, 14 and 16 May 2000, when dramatic turnover (primarily departure) was detected. During each survey period, sites hosting shorebirds were visited once and shorebirds were carefully counted; numbers were rarely estimated. Observations were made with a spotting scope from a vehicle. Time spent at individual sites was determined by how long it was required to obtain an accurate count. On occasions when large numbers were present at a distance, an area would be further surveyed on foot.

A broad inventory of wetlands throughout the region was conducted early each spring to determine conditions, and those sites that did not possess shorebird habitat due to vegetation or drought conditions were not visited during each survey. Following precipitation events, wetlands that were dry were once again visited to assess conditions. The number of sites where favorable shorebird conditions existed was highly variable due to variations in precipitation. Areas covered and locations of important wetlands are depicted in Appendix 1. The data collected suffer from numerous inconsistencies. Drawbacks, shortcomings and intrinsic features of the JSS are listed below:

- Fewer wetlands were surveyed in 1997 than in following years (see Jorgensen 1997).
- In 1998 surveys ended prematurely (16 May) and specific site data were not recorded during that year.
- Many isolated and somewhat ancillary sites were not visited. These include most wetlands in Butler, Polk, Hall, and Saline Counties, and others in what are considered the “core” counties (Clay, Fillmore, York, Hamilton, and Adams). Most (~90%) large and public wetlands were included in the survey. A majority of small, private wetlands in the core counties were also included.
- Often all sites could not be visited in a single day. In general, about three-quarters of the sites were visited in one day (usually Saturday) and the remaining the preceding or following day. Rarely did surveys cover three days. Pectoral Sandpipers, and presumably other species, are known to make interwetland movements within the RWB (Farmer and Parent 1997). This may have led to some “double-counting” of birds, although some bird may have also been missed.
- On occasion, time constraints or inclement weather did not allow a complete survey and sites were excluded. A major snowstorm 11-12 Apr 1997 forced the cancellation of the complete survey the following weekend.
- The majority of sites were surveyed from a vehicle, preventing observation of some birds on wetlands. This likely resulted in undercounts of skulking species, such as Wilson’s Snipe and Pectoral Sandpiper.
- Fall surveys were conducted casually and infrequently. Generally shorebird numbers were recorded at the wetland sites that hosted shorebird concentrations. Typically, substantially less shorebird habitat was available in fall than in spring due to both less water area and more water area covered by vegetation.
- Species that are often found in grasslands or fields, such as Buff-breasted Sandpiper, American Goldenplover, and Upland Sandpiper were generally recorded when they were found, mainly during drives between wetlands. While it would have been ideal to standardize the area of fields visited, this would essentially be impossible given the thousands of acres of such habitat in the region. It is likely that many more individuals of these species were present in the region during each survey period.
- I conducted all surveys and used the same methodology.
- Wetland conditions were highly variable from year to year, and even from week to week, during the survey and thus the amount of shorebird habitat was also variable. Indeed, the number of sites varied greatly from as few as six during mid-May of 2000 to 115 during early Apr 2001. A brief overview of yearly conditions and weather follow.

Rainwater Basin water conditions during JSS

- Spring 1997: Adequate water was present in the preceding winter and early spring. A moderately dry spring translated into slowly receding water levels throughout Apr and May at many wetlands, thus providing good habitat. However, many basins dried up before migration was over.
- Spring 1998: Adequate water levels were present throughout the spring and a moderately wet spring produced average shorebird habitat.
- Spring 1999: Adequate water levels were present throughout the spring and a moderately wet spring produced average shorebird habitat.
- Spring 2000: Drought conditions were persistent prior to and during migration. Only a few larger basins that were filled with pumped water in early spring, for waterfowl, had water and possessed shorebird habitat
- Spring 2001: Heavy snowmelt translated into abundant water in early spring and many small, but temporary, wetlands hosted shorebirds.
- Fall 1998: Only a few sites possessed favorable shorebird habitat, primarily Hansen WPA and Sinninger #Y22.
- Fall 1999: Rather typical fall, with water levels slowly falling at many wetlands and only a few sites with available shorebird habitat. Harvard WPA had very good shorebird habitat late in migration, primarily October.
- Fall 2000: Thunderstorms dropping as much as 5 inches of rain in certain locations 26 June and 3 July created many temporary wetlands that maintained water through early August. By mid- to late fall, little shorebird habitat existed, however.

Species Accounts

The species accounts use the JSS data but also include other available information regarding shorebird occurrence in the eRWB including occurrence reports in the *Nebraska Bird Review*, Swenk (1925), and Sharpe et al. (2001). Nomenclature follows the most recent American Ornithologists' Union Checklist (AOU 1998) and supplements (AOU 2000, 2002, 2003).

Distribution

A brief description of general distribution of the species is outlined. References include Hayman et al. (1986), Paulson (1993), and AOU (1998).

Conservation Status

Relevant conservation designations are outlined. References include the United States Shorebird Conservation Plan (USSCP) (Brown et al. 2001) and the Central Plains/Playa Lakes Regional Shorebird Conservation Plan (CPRSCP) (Fellows et al. 2001).

eRWB Status

The status of individual species in the eRWB. Status qualifiers include:

- Regular: Occurs at least 8 out of every 10 years.
- Casual: More than one record, but not regular.
- Accidental: One record.

Seasonal abundance qualifiers are used only for regular species and include:

- Abundant: Large numbers, generally flocks, found on almost every field trip without much effort.
- Common: Moderate numbers found on almost every field trip without much effort.
- Fairly Common: Small numbers encountered on almost every field trip but with some effort.
- Uncommon: Not seen on every field trip but several are expected during each season with some effort.
- Rare: Generally one record per season. Such species likely occur in very small numbers but require extreme birding effort to find.

Taxonomy

Relevant information regarding the status of different subspecies in the eRWB.

Habitat

Specific habitats where individual species were observed in eRWB.

Seasons

Seasonal abundance is summarized under the respective seasons. Seasons are defined as follows:

Spring: March through early June

Summer: June

Fall: Late June through November

Winter: December through February

For regular migrants the spring section includes a summary graphic that summarizes JSS data. The summary graphic is divided into two major sections: a histogram that represents the migration chronology and a year-by-year summary of migration data. In the histogram, months are abbreviated by initials and divided into four “weeks”. The first week is days 1-7, second week days 8-15, third week days 16-23, and fourth week days 24-30/31. Histogram bars represent the weekly mean number of individuals recorded yearly during the JSS. A year-by-year summary table of JSS migration data contains the information described below.

Explanation of information presented in columns of the year-by-year summary table

- Year: Year in which survey was conducted.
- First: Initial date species was recorded.
- Last: Final date species was recorded.
- Peak: Peak survey total
- Date: Date(s) on which the peak occurred.
- Spring Total: Total of all birds found throughout all surveys.
- Observation Frequency: The denominator is the total number of surveys conducted relevant to this species and the numerator is the number of surveys on which the species was recorded.
- Maximum single-locale counts: The highest single-locale high counts on record; many of these are non-JSS counts.
- Extreme dates: The three earliest and latest dates on record. Extreme dates that fall well outside migration limits or that are undocumented are mentioned in text.
- Maximum eRWB counts: The highest counts for the entire region. These may differ from the top three individual year counts listed in the year-by-year data, since occasionally two high counts have occurred in the same year or high counts were made by different credible observers.

An abbreviated table that lacks a histogram is used in the fall section for a limited number of species. Fall surveys were less consistent, done casually, and only include three years and this format was believed to best suit species where adequate data were obtained.

Citations, style shortcuts, and abbreviations used in text

Many style shortcuts that do not diminish content have been implemented to conserve space. Much information used here comes from field reports in the *Nebraska Bird Review* (NBR). Because much of this information lacks an author, a volume-page citation is given (e.g. NBR 22:49). Many of these reports are limited to date and county and are reported as such (e.g. 10 May 1935 Adams). I have included my observations from the period before or after the formal JSS; these are given no citation. For other reports observers are credited with their initials and observers are listed below (Table 3). I have used the same initials for observers as those in the seasonal field reports of NBR. The format of individual species accounts may also vary. Names of months have been abbreviated to their first three letters. Many other abbreviations have been incorporated in text and are listed below (Table 2). In certain species accounts, as well as above, extended excerpts of the original sources have been included. This is done when the first-hand account is considered important and when any reiteration would diminish the value.



Table 2. Abbreviations used in text

BBA	Breeding Bird Atlas Project 1984-89 (Mollhoff 2001)	NOURC	Nebraska Ornithologists' Union Records Committee
CPRSCP	Central Plains/Playa Lakes Regional Shorebird Conservation Plan	RWB	Rainwater Basin
eRWB	Eastern Rainwater Basin	SL	Sewage Lagoon(s)
HMM	Hastings Municipal Museum	UNSM	University of Nebraska State Museum
JSS	Jorgensen Shorebird Surveys	USFWS	United States Fish and Wildlife Service
MARC	Hruska Meat Animal Research Center, Clay County	USSCP	United States Shorebird Conservation Plan
NWR	National Wildlife Refuge	WMA	Wildlife Management Area (State)
NBR	<i>Nebraska Bird Review</i>	WPA	Waterfowl Production Area (Federal)
NGPC	Nebraska Game and Parks Commission	wRWB	Western Rainwater Basin

Table 3. Observer abbreviations used in Text

AB	Aaron Brees	JS	John Sullivan
BP	Babs Padelford	LM	Lee Morris
CG	Carlos Grande	LP	Loren Padelford
JD	Jeff Drahot	LR	Lanny Randolph
JF	Joe Fontaine	RH	Robin Harding
JGJ	Joel G. Jorgensen	SJD	Stephen J. Dinsmore
JG	Joe Gubanyi	WRS	W. Ross Silcock

Results

General Results

Thirty-nine species of shorebird have been recorded in the eRWB. In addition, the Curlew Sandpiper (*Calidris ferruginea*) has been recorded in the wRWB (Jorgensen and Silcock 1998), bringing the overall total for the entire RWB to 40 shorebird species. I observed 38 species in the eRWB during the JSS, including two species (Ruff

Table 4. General JSS results for spring migration

<u>Year</u>	<u>Earliest Survey</u>	<u>Last Survey</u>	<u># of Surveys</u>	<u># of individuals</u>	<u># of Species</u>
1997	3 April	23 May	7	26,324	32
1998	4 April	16 May	7	20,523	30
1999	20 March	6 June	13	16,944	34
2000	5 March	4 June	15	34,424	33
2001	17 March	3 June	12	20,243	32

and Red Phalarope) that were first recorded in the eRWB during the JSS. Thirty-five species were recorded during spring. Spring data are summarized in Table 4 when an average of 23,692 birds was recorded per year. It should be noted that the number of surveys conducted varied from year to year. The number of shorebirds recorded yearly also varied greatly from year to year and an increase in the number of surveys did not necessarily result in higher yearly totals. For example, even though almost twice as many surveys were conducted in 1999 than in 1997 or 1998, far fewer shorebirds were recorded. Additional surveys in the later years of the JSS were often in March and June when shorebird numbers were relatively low. It is believed that an increased number of surveys during 1997 and 1998 would have significantly increased the number of shorebirds recorded in those years, however. White-rumped Sandpiper, Wilson's Phalarope, Semipalmated Sandpiper, Long-billed Dowitcher, Stilt Sandpiper, and Baird's Sandpiper were the dominant species found during spring (Table 5).

Table 5. Dominant shorebird species in eRWB during spring

<u>Species</u>	<u>Total # recorded</u>	<u>% of total (n=118,458)</u>
White-rumped Sandpiper	26,777	22.6
Wilson's Phalarope	15,523	13.1
Semipalmated Sandpiper	13,905	11.7
Long-billed Dowitcher	12,224	10.3
Stilt Sandpiper	8,992	7.6
Baird's Sandpiper	7,105	6.0

Table 6. Maximum single-locale counts, all shorebirds during spring migration

<u>#</u>	<u>Wetland</u>	<u>Date</u>
6,208	Harvard WPA	14 May 2000
4,525	Freeman Lake	17 May 1997
2,810	North Hultine WPA	3 May 1994
1,880	Sinninger #Y22	30 May 1999
1,715	Harvard WPA	7 May 2000
1,471	Massie WPA	6 May 2000

during the four years that site data were recorded (Table 7). Finally, maximum eRWB counts are summarized (Table 8).

Table 7. Wetlands hosting largest numbers of shorebirds during spring 1997, 1999, 2000, and 2001

<u>Wetland</u>	<u>Total # of shorebirds</u>
Harvard WPA	20,185
Mallard Haven WPA	8,366
Massie WPA	7,147
Sinninger #Y22	6,125
Freeman Lake	5,478

The majority of shorebirds migrate through the eRWB from mid-April through mid-May. Most shorebirds prefer the zone of shoreline habitat characterized by shallow water and wet mud with limited vegetation (Davis and Smith 1998, Dinsmore et al. 1999). When favorable shorebird habitat occurs during peak migration, large concentrations of shorebirds may be found. Below is specific site information including the maximum single-locale shorebird concentrations found during the JSS (Table 6) and those sites that hosted the most shorebirds

Table 8. Maximum eRWB counts, all shorebirds

<u># of shorebirds</u>	<u>Date</u>
10,195	16-17 May 1997
6,939	14 May 2000
6,121	1-3 May 1998
5,755	2-4 May 1997
5,168	8-10 May 1997

Twenty-eight species were recorded during fall. The limited fall data are summarized in Table 9. An average of 5,581 shorebirds was recorded during the three years of fall surveys. Dominant fall shorebird species are listed in Table 10.

Table 9. General JSS results for fall migration

<u>Year</u>	<u>Earliest Survey</u>	<u>Last Survey</u>	<u># of Surveys</u>	<u># of individuals</u>	<u># of Species</u>
Fall 1998	15 August	7 November	11	3,018	26
Fall 1999	17 July	24 October	13	7,797	25
Fall 2000	25 June	4 November	15	5,928	24

Table 10. Dominant shorebird species in eRWB during fall migration

<u>Species</u>	<u>Total # recorded</u>	<u>% of total (n=16,743)</u>
Pectoral Sandpiper	2,380	14.2
Long-billed Dowitcher	2,318	13.8
Lesser Yellowlegs	2,205	13.2
Least Sandpiper	1,450	8.7
Stilt Sandpiper	1,034	6.2

Species Accounts

Black-bellied Plover

Pluvialis squatarola

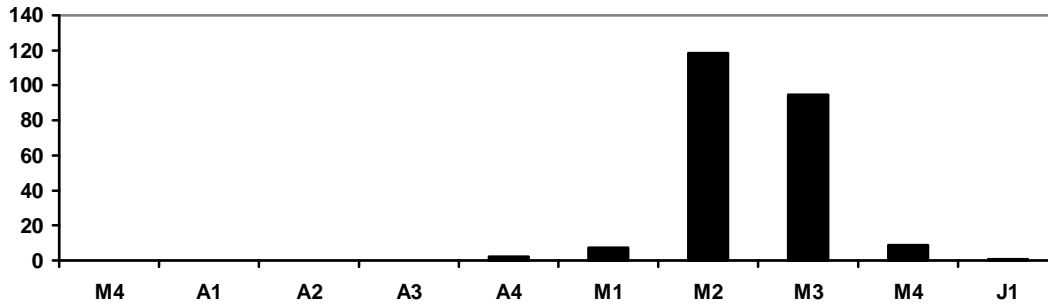
Distribution: Breeds in arctic regions of North America and Eurasia and winters along coastal areas from United States, Europe, and Asia south throughout much of the Southern Hemisphere.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Uncommon to fairly common spring migrant and rare to uncommon fall migrant.

Habitat: Primarily wetlands, but also moist agricultural fields.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	25 Apr	23 May	146	16-18 May	217	5/5
1998	19 Apr	16 May	73	15-16 May	74	2/5
1999	24 Apr	20 May	38	14-15 May	77	5/5
2000	30 Apr	28 May	299	14 May	528	9/9
2001	2 May	2 Jun	98	18-20 May	206	5/5

Maximum single-locale counts: 1) 334 at Harvard WPA 10 May 2000 (SJD, JF) 2) 295 at Harvard WPA 14 May 2000 3) 92 at Harvard WPA 21 May 2000 4) 68 at Theesen Basin 16 May 1996.

Extreme dates: 15 (SJD), 19, 23 (NBR 33:57) Apr <<>> 26, 27, 28 May

Maximum eRWB counts: 334 299 146

The exceptional year of 2000, when 528 were recorded during the JSS, does not include the highest single-locale count for the species, 334, tallied by S. Dinsmore and J. Fontaine at Harvard WPA 10 May 2000. Notable concentrations were also observed in 1996 when 192 were found at a only a few wetlands 17-18 May 1996. Like several other coastal-wintering shorebirds, stopover appear to be brief (< one day) and this species may “jump” over much of the Great Plains. Paulson (1995) remarked “migrants much more common in northern than southern interior, indicating long flights from Gulf Coast or farther south”.

On several occasions Black-bellied Plovers were observed arriving at a wetland, resting, or feeding in close proximity to Short-billed Dowitchers. The only Red Knot spring record consisted of 27 Knots and a half-dozen Black-bellied Plovers at Ayr Lake. The two species remained in a single flock as the group flew around and landed time after time during a rainstorm. Paulson (1993) noted that these three species often migrate together on the West Coast. In Europe, Black-bellied Plovers tend to migrate with Red Knots and Common Greenshanks (*Tringa nebularia*) (Byrkjedal and Thompson 1998). Byrkjedal and Thompson (1998) point out the group of “companion species” is select and doesn’t include smaller species but ones of similar size and presumably flying speed. Perhaps in the eRWB and Great Plains, Black-bellied Plovers migrates only with coastal-wintering congeners. I have not found it in close association with Long-billed Dowitchers.

Fall:

Maximum single-locale counts: 1) 14 juveniles at Harvard WPA 10 Oct 1999 2) 10 juveniles at Kirkpatrick Basin North WMA 27 Sep 1998 3) 8 juveniles at Kirkpatrick Basin North WMA 10 Oct 1998
Extreme dates: 11, 11, 12 Aug <<>> 3 (NBR 31:43), 7, 17 Nov (NBR 4:13)

Adult migrants are considered casual, as there are only three records. On 4 Sep 1933, 5 adults and an immature (likely juvenile) were at Kernan Lagoon (NBR 1:20). Juveniles are more numerous in fall but tend not to arrive until mid- to late Sep. Overall, however, the species is often quite rare in fall; it went unrecorded in 2001 and only a single bird was found in 2000. In contrast, a total of 32 were found during fall of 1999. The late date above is a specimen taken at Hastings Basin 17 Nov 1935.

American Golden-Plover

Pluvialis dominica

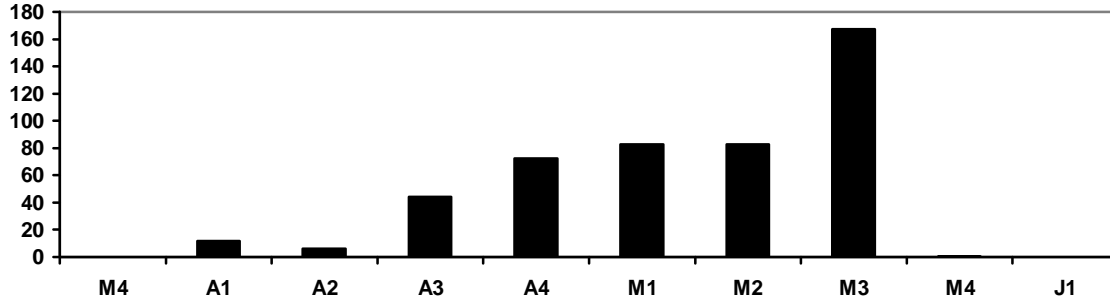
Distribution: Breeds in northern Canada and Alaska and winters in central South America. In North America, principal migration route in spring is through interior and in fall off the east coast.

Conservation Status: A USSCP species of high concern and a CPRSCP priority species

eRWB Status: Fairly common spring and uncommon fall migrant.

Habitat: Mudflats, moist or plowed fields, grassland burns, and recently mowed hayfields in fall.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	789	16-18 May	1,065	5/5
1998	4 Apr	16 May	113	9-10 May	320	7/7
1999	3 Apr	15 May	122	1-2 May	228	7/7
2000	15 Apr	28 May	167	30 Apr	352	11/12
2001	7 Apr	27 May	118	20-22 Apr	289	8/8

Maximum single-locale counts: 1) 273 at Freeman Lake 17 May 1997 2) 206 at Real WPA 17 May 1997 3) 109 0.25 miles north of North Lake Basin WMA 10 May 2003 4) 108 at Mallard Haven WPA 30 Apr 2000 5) 103 0.25 miles west of Freeman Lake 18 May 2003.

Extreme dates: 2, 3, 4 Apr <<>> 23, 27, 28 May Maximum eRWB counts: 789 280 167

In Nebraska greatest abundance is achieved in the eRWB (personal observation). The eRWB appears to be at the western flank of this species' interior migration corridor, as it is largely absent in areas to the west (Sharpe et al. 2001). The primary migration pathway appears to be in states just to the east where larger numbers are found (Skagen et al. 1999, Kent and Dinsmore 1996). Additional extreme dates: 24 May 1953 Hamilton (NBR 21:51) and 5 Jun 1983 Adams (NBR 51:69).

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	5 Sep	18 Nov	29	27 Sep	34	5/10
1999	17 Jul	7 Nov	116	25 Sep	160	8/13
2000	14 Oct	14 Oct	40	14 Oct	40	1/1

Maximum single-locale counts: 1) 83 juveniles at Harvard WPA 25 Sep 1999 2) 52 juveniles at Wetland #F85 28 Oct 2001 3) 40 juveniles at Sinninger #Y22 14 Oct 2001

Extreme dates: 2, 4, 17 Aug <<>> 10, 24 Oct, 18 Nov Maximum eRWB counts: 116 83 40

In addition to the early dates above, an injured adult was at Kissinger Basin WMA 17 Jul-7 Aug 1999. Few adults have been observed in fall, the vast majority of all reports are juveniles during Sep and Oct.

Snowy Plover*Charadrius alexandrinus*

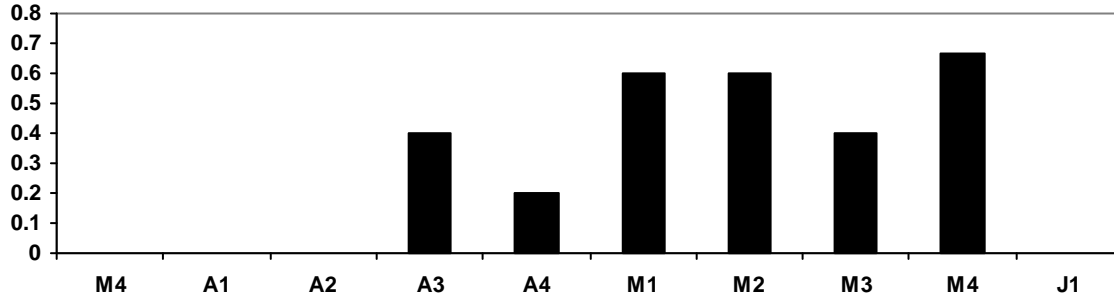
Distribution: Occurs locally on most continents. In North America it breeds principally along Pacific and Gulf coasts and in the southern Great Plains and western interior.

Conservation Status: Considered highly imperiled by the USSCP and also a CPRSCP priority species.

eRWB Status: Rare spring migrant.

Habitat: Wetland mudflats.

Spring:



<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Spring Total</u>	<u>Obs. Frequency</u>
1997	2 May	17 May	2	2-4 & 9-10 May	5	3/3
1998	25 Apr	25 Apr	1	25 Apr	1	1/1
1999	30 May	30 May	1	30 May	1	1/1
2000	22 Apr	28 May	2	22 Apr	5	5/10
2001	-	-	-	-	-	-

Maximum single-locale counts: 1) 2 at Harvard WPA 14 May 2003 (SJD, WRS, AB) 2) All other observations have involved single birds.

Extreme dates: 22, 22, 25 Apr <<>> 17, 21, 28 May Maximum eRWB counts: 2 2 2

All records are from 1995 onward. Records: 1) 22 Apr 2000 Mallard Haven WPA 2) 22 Apr 2000 Massie WPA 3) 25 April 1998 Wetland #C229 4) 27 Apr 1996 Mallard Haven WPA 5) 27 Apr 1996 Harvard WPA 6) 2-4 May 1997 Real WPA 7) 2-4 May 1997 North Harvard Basin 8) 6 May 1995 Ayr Lake (Dinsmore 1996a) 9) 6 May 1995 Kissinger Basin WMA (Dinsmore 1996a) 10) 7-13 May 2000 Massie WPA 11) 8 May 1999 Wilkins WPA (BP, LP) 12) 9-10 May 1997 Hupp WMA 13) 9-10 May 1997 Miller's Pond WPA 14) 2 at Harvard WPA 14 May 2003 (SJD, WRS, AB) 15) 17 May 1997 Sinninger #Y21 16) 21 May 2000 Harvard WPA 17) 28 May 2000 Mallard Haven WPA 18) 30 May 1999 North Harvard Basin.



Semipalmated Plover

Charadrius semipalmatus

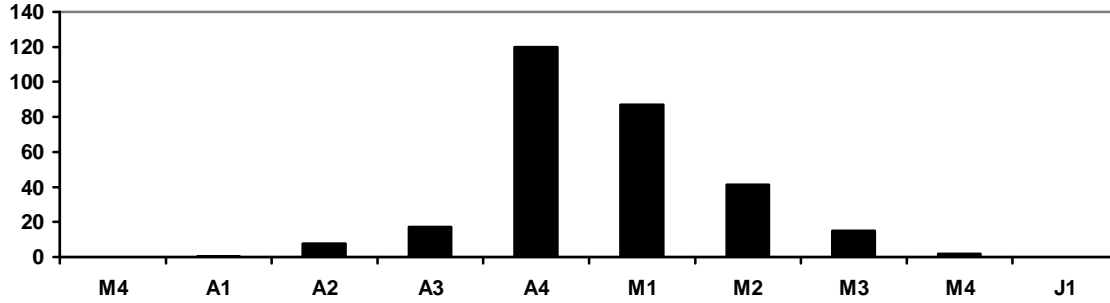
Distribution: Breeds in arctic and sub-arctic regions of North America and winters along coasts from southern United States to southern South America.

Conservation Status: A USSCP species of low concern.

eRWB Status: Fairly common spring and uncommon fall migrant.

Habitat: Primarily wetland mudflats. Also observed on grassland burns and moist agricultural fields.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	115	7-10 May	331	6/6
1998	11 Apr	16 May	210	9-10 May	426	6/6
1999	11 Apr	30 May	41	1-2 May	69	7/9
2000	22 Apr	28 May	169	30 Apr	507	10/11
2001	14 Apr	28 May	43	27-29 Apr	107	7/7

Maximum single-locale counts: 1) 102 at Mallard Haven WPA 30 Apr 2000 2) 81 at Mallard Haven WPA 27 Apr 2000 3) 77 at North Hultine WPA 3 May 1994

Extreme dates: 11, 11, 14 Apr <<>> 28, 28, 30 May Maximum eRWB counts: 210 169 133

Besides the above late dates, a group of 4 were at Spikerush WMA 10 Jun 2003 (JG).

Fall

Maximum single-locale counts: 1) 17 at Wetland #F3 26 Aug 1995 2) 7 at Wetland #Y115 30 Aug 2003 3) 5 at Kissinger Basin WMA 2 Aug 1999

Extreme dates: 16, 17, 22 Jul <<>> 25, 25 Sep, 10 Oct Maximum eRWB counts: 18 9 7

Markedly less common in fall than in spring and stopovers appear to be brief.



Piping Plover*Charadrius melodus*

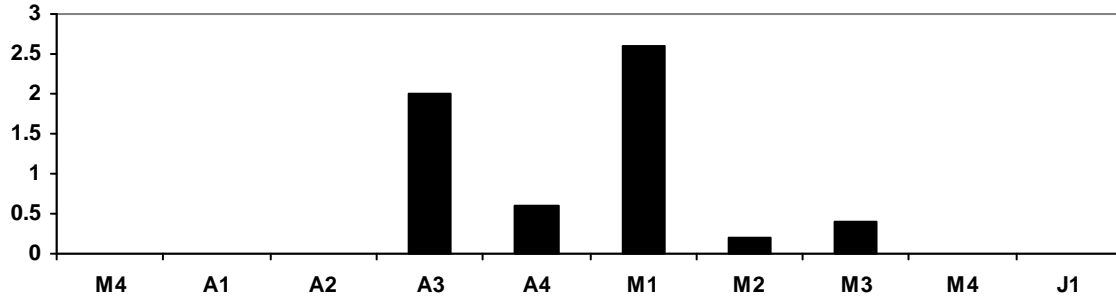
Distribution: Restricted to North America. Breeds in the Great Plains and Midwest and also along the Atlantic Coast. Winters primarily along Gulf and southern Atlantic coasts.

Conservation Status: Federally Endangered. Considered highly imperiled by the USSCP and also a CPRSCP priority species.

eRWB Status: Rare spring migrant.

Habitat: Wetland mudflats.

Spring:



<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Spring Total</u>	<u>Obs. Frequency</u>
1997	2 May	18 May	3	2-4 May	5	2/3
1998	1 May	10 May	7	1-3 May	8	2/2
1999	1 May	7 May	2	6-7 May	3	2/2
2000	22 Apr	30 Apr	3	22 Apr	6	3/3
2001	22 Apr	22 Apr	7	22 Apr	7	1/1

Maximum single-locale counts: 1) 7 at Wetland #C229 22 Apr 2001 2) 5 at Pintail WMA 29 Apr 1995 (SJD) 3) 3 at Ayr Lake 1995 (SJD)

Extreme dates: 21, 22, 22 Apr <<>> 18, 22, 26 May

Maximum eRWB counts: 7, 7, 6 (SJD)

The majority (16) of reports are during the last ten days of Apr and there are only seven records in the first ten days of May and only six for the remainder of that month. Prior to the JSS in 1995, 17 were tallied at seven locales (SJD; NGPC, unpublished data).



Killdeer

Charadrius vociferus

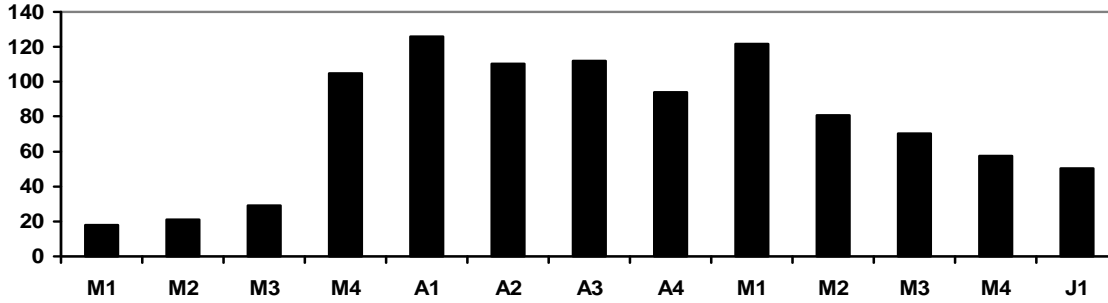
Distribution: Breeds throughout most of North America and winters from southern United States to northern South America.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Common spring and fall migrant and breeder.

Habitat: Wetlands, agricultural fields, hayfields, sod farms, pastures, and grassland burns.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 Apr	-	276	3-4 Apr	791	7/7
1998	4 Apr	-	231	11 Apr	1,021	7/7
1999	20 Mar	-	157	1-2 May	1,130	13/13
2000	5 Mar	-	77	30 Apr	777	15/15
2001	17 Mar	-	117	31 Mar	910	12/12

Maximum single-locale counts: 1) 29 at Harvard WPA 3 Apr 1997 2) 26 at Freeman Lake 3 Apr 1997 3) 22 at Wilkins WPA 17 Apr 1999

Extreme dates: 5, 12, 19 Mar <<>> summers Maximum eRWB counts: 276, 250, 231

Birds counted during May likely involved both local breeders and migrants.

Summer: Currently the only shorebird that breeds in numbers. Nesting was either “confirmed” or “probable” in all BBA blocks (Mollhoff 2001).

Fall:

Maximum single-locale counts: 1) 241 at Sinninger #Y22 24 Oct 1999 2) 231 at Wetland #C20 12 Jul 2003 3) 200 at Harvard WPA 10 Oct 1999

Extreme dates: Summers <<>> 7, 14, 17 Nov Maximum eRWB counts: 1,012 556 445

Post-breeding flocks begin forming by early Jul. Peak movement occurs during late Sep and Oct.

Black-necked Stilt

Himantopus mexicanus

Distribution: Occurs locally on most continents, primarily in tropical regions. In the United States breeds in southern and western regions.

Conservation Status: A USSCP species of low concern.

eRWB Status: Casual spring migrant.

Habitat: Wetlands.

Spring: Seven records: 1) male at Weis WPA 9 May 1998 2) male at Mallard Haven WPA 10 May 2000 3) 12 May 1956 Adams (NBR 24:66) 4) female at Hupp WMA 13-15 May 2000 5) female at Kissinger Basin WMA 20 May 1999 6) female at Wetland #F24 27 May 2002 7) 1-2 at North Lake Basin WMA 2-10 Jun 1997 (+WRS, BP, LP).

American Avocet*Recurvirostra americana*

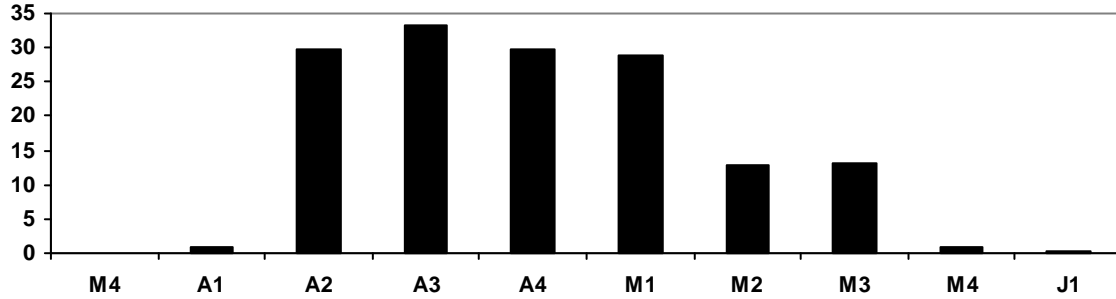
Distribution: Breeds primarily in the Great Plain and western interior of North America and winters in the southern United States and Mexico.

Conservation Status: A USSCP species of moderate concern and also a CPRSCP priority species

eRWB Status: Fairly common spring and uncommon fall migrant, rare during Jun and an accidental breeder.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	79	2-4 May	193	6/6
1998	24 Apr	16 May	117	1-3 May	140	4/4
1999	11 Apr	30 May	104	24-25 Apr	304	9/9
2000	9 Apr	20 May	24	15 Apr	80	7/11
2001	14 Apr	2 Jun	21	20-22 Apr	46	8/8

Maximum single-locale counts: 1) 85 at Ayr Lake 27 Apr 1995 (SJD) 2) 75 at Ayr Lake 24 Apr 1999 3) 70 at Harvard WPA 3 May 1997

Extreme dates: 11, 14, 17 Apr <<>> 1, 1, 2 Jun Maximum eRWB counts: 117 104 99

Summer: There are about a dozen Jun reports, possibly non- or failed breeders from other areas. Nesting was reported as “confirmed” from the Clay Center and Theesen BBA blocks and “possible” from the Harvard and Mallard Haven blocks (Mollhoff 2001) in the 1980s. Lingle (1994) also claims that nesting occurred at Harvard WPA. The above reports are not accompanied by details. Field notes provided by J. Farrar (personal communication) corroborate nesting at Harvard WPA in 1989. Farrar found three nests containing four eggs each at the southeast portion of the wetland on 6 Jun 1989. One nest contained only eggshell fragments 8 Jun and was apparently depredated. C. McCartney reported that eggs had hatched successfully after visiting Harvard WPA 25 Jun 1989, but no other details were provided (Labeledz 1989).

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	30 Aug	7 Nov	5	12 Sep	9	4/9
1999	17 Jul	7 Nov	41	26 Sep	164	11/13
2000	9 Jul	2 Sep	1	17, 22 Jul, 2 Sep	3	3/7

Maximum single-locale counts: 1) 37 at Sinninger #Y22 18 Sep 2001 2) 35 at Harvard WPA 20 Aug 1994 3) 28 at Harvard WPA 10 Oct 1999

Extreme dates: 30 Jun, 9, 17 Jul <<>> 28 Oct, 7, 7 Nov Maximum eRWB counts: 41 35 34

Greater Yellowlegs

Tringa melanoleuca

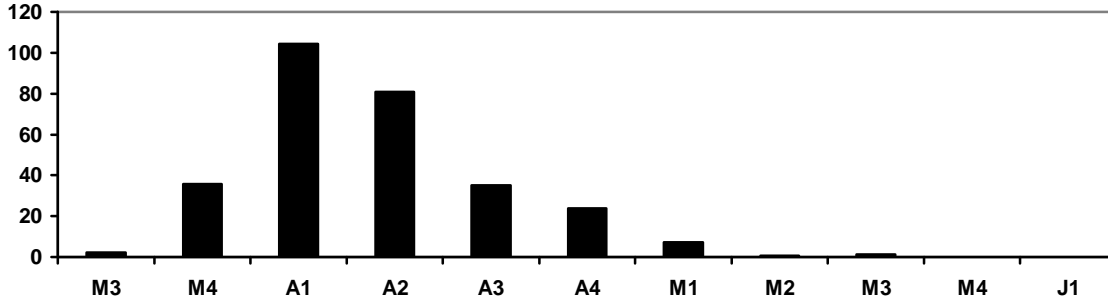
Distribution: Breeds primarily in central and southern Canada and winters from southern United States to southern South America.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Fairly common spring and fall migrant and casual winter visitor.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	88	25-26 Apr	251	7/7
1998	24 Apr	10 May	65	11 Apr	94	6/6
1999	11 Apr	23 May	152	3 Apr	451	9/11
2000	9 Apr	20 May	72	25 Mar	191	11/15
2001	14 Apr	4 May	260	7 Apr	380	6/6

Maximum single-locale counts: 1) 94 at Ayr Lake 3 Apr 1999 2) 85 at Ayr Lake 11 Apr 1999 3) 62 at Hultine WPA 3 Apr 1997 4) 50 at Wilkins WPA 7 Apr 2001

Extreme dates: 12, 19, 20 Mar <<>>> 23, 23, 27 May Maximum eRWB counts: 260 152 113

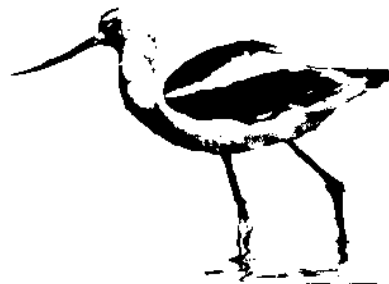
Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	15 Aug	7 Nov	14	22 Aug	66	9/11
1999	17 Jul	14 Nov	50	25 Sep	310	13/13
2000	2 Jul	29 Oct	41	16 Jul	202	15/15

Maximum single-locale counts: 1) 31 at North Hultine WPA 26 Sep 1999 2) 29 at North Hultine WPA 25 Sep 1999 3) 29 at Mallard Haven WPA 10 Oct 1999

Extreme dates: 2, 4, 12 Jul <<>> 7, 9, 14 Nov Maximum eRWB counts: 50 41 41

Winter: Two reports perhaps of the same bird: B. Nelson identified one at Hastings 1 Jan 1962 (NBR 30:54) and another was reported a few days earlier from Adams County 28 Dec 1961 (NBR 30:44).



Lesser Yellowlegs*Tringa flavipes*

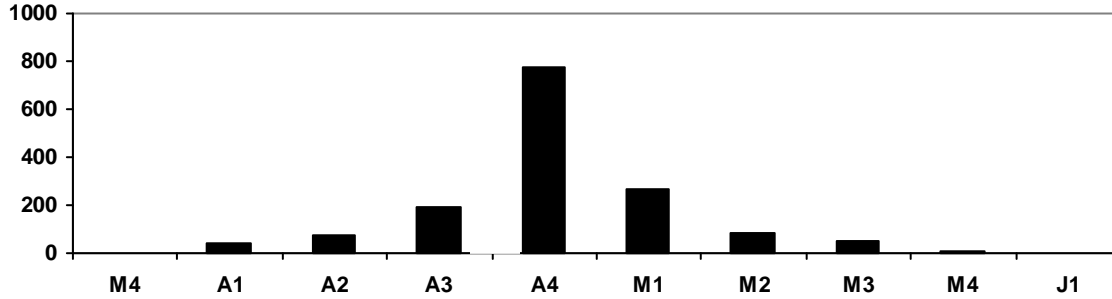
Distribution: Breeds throughout much of Canada and Alaska and winters from southern United States to southern South America.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Common to abundant spring and common fall migrant.

Habitat: Wetlands.

Spring:



<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Spring Total</u>	<u>Obs. Frequency</u>
1997	3 Apr	23 May	898	25-26 Apr	1,487	7/7
1998	4 Apr	16 May	812	24-26 Apr	1,524	7/7
1999	28 Mar	30 May	454	17-18 Apr	1,132	10/11
2000	25 Mar	28 May	97	6 May	473	15/15
2001	31 Apr	2 Jun	1,812	27-29 Apr	2,758	10/10
Maximum single-locale counts: 1) 470 at Wilkins WPA 27 Apr 2001 2) 344 at Freeman Lake 27 Apr 2001 3) 211 at Hansen WPA 25 Apr 1997 4) 201 at Wetland #Y74 27 Apr 2001 4) 189 at Kissinger Basin WMA 25 Apr 1997						
Extreme dates: 19, 25, 28 Mar <<>> 28, 30 May, 2 Jun				Maximum eRWB counts: 1,812 898 812		

Fall:

<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Fall Total</u>	<u>Obs. Frequency</u>
1998	10 Aug	25 Oct	71	15 Aug	211	9/10
1999	17 Jul	24 Oct	109	2 Aug	593	12/12
2000	25 Jun	29 Oct	500	16 Jul	1,401	13/14
Maximum single-locale counts: 1) 641 at Harvard WPA 20 Jul 2001 (Silcock 2001; SJD) 2) 315 at Harvard WPA 14 Jul 2001 3) 193 at Hansen WPA 9 Jul 2000 4) 175 at Mallard Haven WPA 17 Sep 1995						
Extreme dates: 25, 30 Jun, 2 Jul <<>> 24, 25, 29 Oct				Maximum eRWB counts: 641 500 476		

Solitary Sandpiper

Tringa solitaria

Distribution: Breeds throughout much of Canada and Alaska and winters from southern Mexico to southern South America.

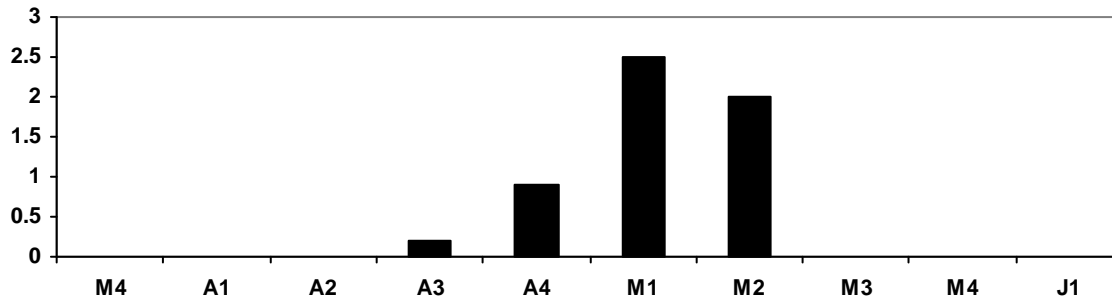
Conservation Status: A USSCP species of high concern.

eRWB Status: Uncommon spring and fairly common fall migrant.

Taxonomy: Brooking collected a specimen of *T.s. cinnamomea* at Inland 12 Aug 1918 (Swenk and Fichter 1942) that is now housed at the UNSM and is specimen ZM6143. I have identified juveniles of both *T.s. solitaria* and *T.s. cinnamomea* in fall.

Habitat: Wetlands, small pools, road ditches and wooded streams.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	25 Apr	10 May	2	2-4 May	4	3/3
1998	1 May	10 May	3	9-10 May	5	2/2
1999	2 May	14 May	1	6-7 May	3	3/3
2000	27 Apr	13 May	2	6 May	4	3/5
2001	22 Apr	13 May	7	3-4 May	14	4/4

Maximum single-locale counts: No more than 2 have been recorded at any one locale

Extreme dates: 19, 22, 25 Apr <<>> 10, 13, 14 May Maximum eRWB counts: 7 3 2

Very few were recorded during the JSS, but it is likely that greater numbers pass through than was recorded. The species' propensity to occur in habitats (wooded streams, road ditches, etc) away from concentrations of other shorebirds likely resulted in undercounts.

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	10 Aug	30 Aug	10	15 Aug	21	4/4
1999	17 Jul	29 Aug	6	2 Sep	26	6/8
2000	2 Jul	2 Sep	39	30 Jul	124	9/10

Maximum single-locale counts: 1) 38 at Wetland #H17 12 Jul 2003 2) 28 at Harvard WPA 28 Jul 2001 3) 12 at Wetland #F19 12 Jul 2003

Extreme dates: 2, 4, 12 Jul <<>> 29, 30 Aug, 2 Sep Maximum eRWB counts: 62, 58, 39



Willet*Catoptrophorus semipalmatus*

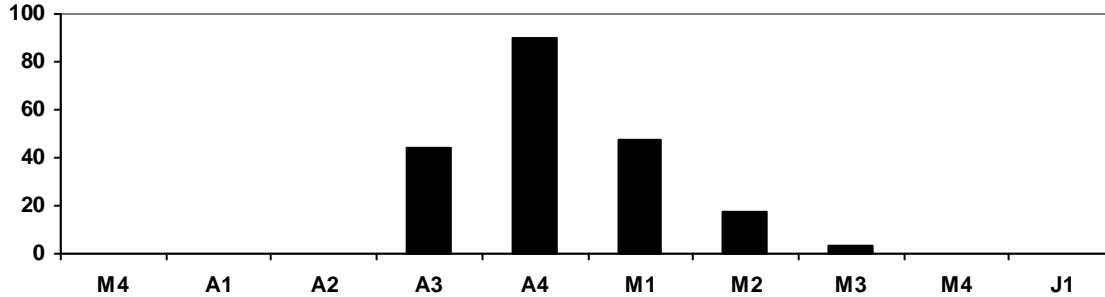
Distribution: Migratory populations of the race *C.s. inornatus* breed in Great Plains and western interior and winter along coastal areas from southern United States to northern South America. Resident populations of the race *C.s. semipalmatus* breed along Gulf and Atlantic Coasts of United States and in the Caribbean.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Fairly common to common spring and rare fall migrant.

Habitat: Wetlands. On one occasion an individual was observed in an agricultural field.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	17 May	153	2-4 May	239	5/5
1998	19 Apr	16 May	70	24-25 Apr	107	5/5
1999	11 Apr	23 May	127	24-25 Apr	221	8/8
2000	22 Apr	28 May	140	22 Apr	357	10/11
2001	20 Apr	4 May	74	20-22 Apr	90	3/3

Maximum single-locale counts: 1) 84 at Massie WPA 30 Apr 2000 2) 79 at Harvard WPA 22 Apr 2000 3) 50 at North Lake Basin WMA 23 Apr 1999 (JG)

Extreme dates: 11, 15, 18 Apr <<>> 27, 27, 28 May Maximum eRWB counts: 153 140 127

Brooking (Notes) collected a male and female at Harvard WPA 28 May 1916. An early report, 2 Apr 1978 Adams (NBR 36:73), is considered a possible error.

Summer: Two Jun report: 3-26 Jun 1937 Adams (NBR 5:60) and 15 Jun 2001 Harvard WPA.

Fall: Seventeen records, thirteen of which are from 1995 onward. Records are clustered in the period 9-21 Jul and 11-17 Aug, likely representing peak movements of adults and juveniles, respectively. Maximum single-locale counts: 8 at Sinninger WPA 14 Aug 1995 (Silcock 1995; BP, LP), an adult and five juveniles at Ayr Lake 2 Aug 1999, and six adults at Wetland #Y115 27 Jul 2003. There are two Sep dates, 2 birds at Mallard Haven WPA 17 Sep 1995 and 26 Sep 1961 Adams (NBR 30:44).



Spotted Sandpiper

Actitis macularia

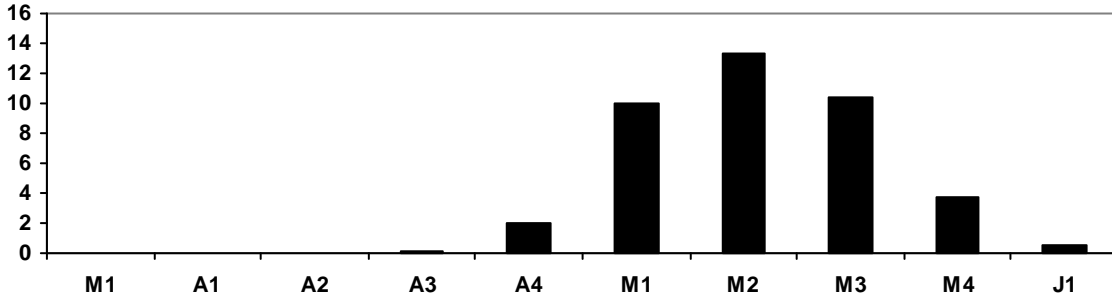
Distribution: Breeds throughout much of the United States and Canada and winters from southern United States through central South America.

Conservation Status: A USSCP species of low concern.

eRWB Status: Fairly common spring and fall migrant and a rare summer visitor.

Habitat: Wetlands.

Spring:



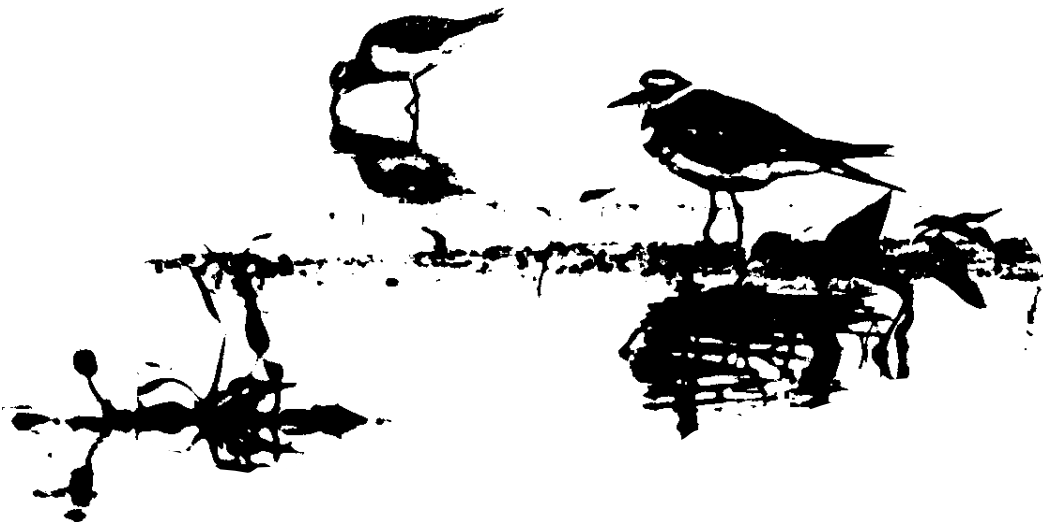
Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	7 May	23 May	18	16-18 May	32	3/3
1998	1 May	16 May	25	9-10 May	35	3/3
1999	1 May	6 Jun	17	1-2 May	63	7/7
2000	22 Apr	28 May	13	7 May	49	9/9
2001	27 Apr	3 Jun	9	26-28 May	28	6/6

Maximum single-locale counts: 1) 7 at Harvard WPA 22 Apr 2000 2) 7 at Wetland #C32 14 May 1999 3) 6 at Harvard WPA 1 May 1999

Extreme dates: 22, 27, 30 Apr <<>> 28 May, 1, 3 Jun Maximum eRWB counts: 25 18 17

Summer: While it may be assumed that this species breeds in the eRWB, it does not regularly breed at wetlands and until contradictory evidence emerges it is best considered only a visitor. Neither Brooking (Notes) nor Tout (1902) mentioned breeding. Nesting was considered “confirmed” in the Benedict and Smartweed BBA blocks and “probable” in the McCool Junction block during the late 1980s (Mollhoff 2001). Details are lacking for these reports, however. Some birds found in summer may be late or early migrants.

Fall: Occurs in small numbers, often singly or in pairs at any one wetland. Extreme dates: 29 Aug, 2, and 11 Sep.



Upland Sandpiper*Bartramia longicauda*

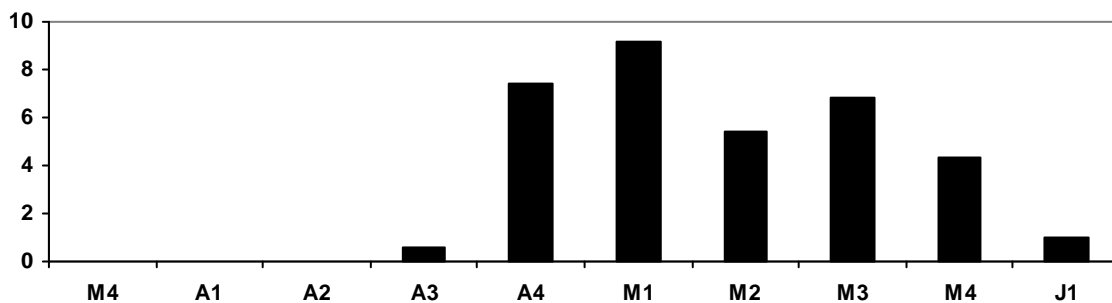
Distribution: Breeds primarily in the Great Plains and Midwest of North America and winters on the Pampas of central and southern South America.

Conservation Status: A USSCP species of high concern and a CPRSCP priority species.

eRWB Status: Uncommon to fairly common spring and fall migrant and summer resident; formerly more common as both a breeder and migrant. During settlement numbers were reduced as a result of excessive market hunting throughout the Midwest and Great Plains (Houston and Bowen 2001, Dinsmore 1994). By the early 1900s the species former abundance was already being lamented in Nebraska. Sandy Griswold, a hunter and reporter for the Omaha World-Herald, reported on a hunting excursion in Fillmore County for this species in late August 1904 and remarked "do you not recall those days, too, when the upland plover used to come here in countless thousands and what sport we had no further away than a pleasant buggy ride?" (Griswold 1904). Habitat alterations brought about by modern farming practices currently limits the amount of favorable breeding habitat (grasslands) and thus the numbers of birds breeding in the region.

Habitat: Primarily grasslands, pastures, hayfields and to a lesser extent agricultural fields. Occasionally observed at wetlands bathing and drinking.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	2 May	-	9	16-18 May	13	3/3
1998	24 Apr	-	14	15-16 May	38	4/4
1999	18 Apr	-	9	6-7 May	25	8/9
2000	22 Apr	-	16	30 Apr	43	9/9
2001	27 Apr	-	17	2-4 May	44	6/6
Maximum single-locale counts: 1) 7 at Harvard WPA 22 Apr 2000 2) 7 at Wetland #C32 14 May 1999 3) 6 at Harvard WPA 1 May 1999						
Extreme dates: 18, 22, 24 April <<>> summers				Maximum eRWB counts: 17 16 14		

Summer: Breeding status not well known, but definitely more numerous formerly. Breeding may only take place at a few larger grassland tracts, such as Harvard WPA and within the MARC. In Jun birds have also been heard or found in largely agricultural areas, such as adjacent to Griess WPA where appropriate grassland habitat appeared to be minimal.

Fall: Formerly an abundant migrant. As Swenk (1925) reports, "Mr. A.M. Brooking says that this bird migrates through the Inland region by the thousands in August and September. He says they arrive in the full of the moon, and leave during the first full moon after arrival". Now much less common and the recent maximum single-locale counts are 118 in an alfalfa field in northern York County 28 Jul 2003 (CG) and 49 in a hayfield near Theesen WPA 12 Aug 2000. Loose flocks often congregate in recently mowed hayfields in fall. Extreme dates: 16, 17, 19 Sep (NBR 30:44).

Eskimo Curlew*Numenius borealis*

Distribution: Breeds, or perhaps correctly stated, bred in arctic regions of Canada and wintered on the Pampas of central and southern South America.

Conservation Status: Considered highly imperiled by the USSCP. Appears to be extinct.

eRWB Status: Formerly a common spring migrant and perhaps an uncommon fall migrant. Accounts of this species former abundance and slaughter are discussed elsewhere (Swenk 1915, Gill et al. 1998, Sharpe et al. 2001). The accuracy of individual accounts based on hindsight and perhaps enriched with nostalgia are debatable. Nonetheless, the curlew was no doubt a numerous spring migrant in much of the central plains and eRWB. Similar to other upland-foraging shorebirds, such as American Golden-plover and Buff-breasted Sandpiper, greatest abundance in Nebraska was likely achieved in the eRWB. This is supported by Swenk (1915) who wrote "the chief feeding grounds of these curlews at the time (1877) were in York, Fillmore, and Hamilton Counties, and their heaviest lines of northward

migration between the 97th and 98th meridian”. The curlew favored burned native prairie in spring and such burns were routine in the eRWB. The plover and the sandpiper also likely preferred burns, and this habitat may have been more important to all three species than were the wetlands of the eRWB.

The demise of the species essentially occurred during a very short period from about 1850-1890 (Gill et al. 1998). William Townsley collected 2, near Harvard, during the fall of 1880 and the birds were “common during the fall migration at that time” (Swenk 1925) and Townsley apparently could have collected many more specimens (Brooking 1933). Townsley collected 2 more 10 Apr 1887 (HMM #2469) and apparently conveyed to Brooking that the “birds were becoming so scarce he thought he had better add a pair to his collection before it was too late” (Brooking 1942). Brooking (1942) also noted that by the late 1880s only the “last straggling flocks” were encountered. In 1911, 2 females were collected in York County (Sharpe et al. 2001). The last accepted record for Nebraska and the eRWB was Brooking’s first sighting when he found a flock of 8 five miles east of Hastings 8 Apr 1926 (Brooking 1942).

Market hunting has long been considered the reason for the fall of this species. While no doubt an important factor, it may not have been the sole reason. Other factors, such as climate and weather changes (Banks 1977), have been hypothesized to have played a role in the decline. Gill et al. (1998) makes the most convincing case that other factors were involved since declines were noted prior to the growth of market hunting and since the species was not able to recover after hunting subsided. Other suggested reasons include large-scale habitat alteration of the Great Plains, suppression of fire, extinction of the Rocky Mountain Grasshopper, and the social behavior of the birds. Interesting is the observation by Sharpe et al. (2001) that the extinction of the once abundant Rocky Mountain Grasshopper was also followed by the withdrawal of the Swallow-tailed Kite (*Elanoides forficatus*) from Nebraska.

Regardless, the Eskimo Curlew is either extinct or nearly so. Observers should be aware of the remote possibility of its occurrence, however, especially when surveying burns. While no doubt regular at one time in the central Platte River Valley, information from Swenk (1915) and Gill et al. (1998) contradicts the claim by Currier et al. (1985) that “their preferred habitat was the native meadows near the Platte River”.

Whimbrel

Numenius phaeopus

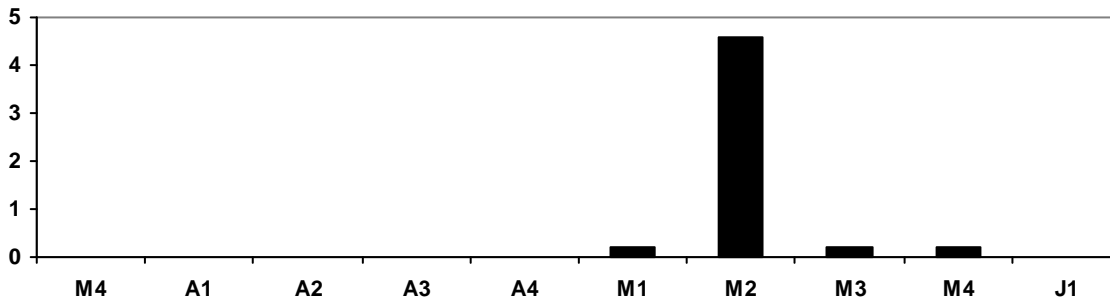
Distribution: Breeds locally on arctic tundra in North America and Eurasia and winters along tropical coasts throughout the world.

Conservation Status: A USSCP species of high concern.

eRWB Status: Rare spring migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	4 May	17 May	1	4 & 17 May	2	2/3
1998	-	-	-	-	-	-
1999	15 May	15 May	11	15 May	11	1/1
2000	13 May	14 May	10	14 May	11	1/1
2001	13 May	27 May	1	13 & 27 May	2	2/3

Maximum single-locale counts: 1) 21 at Theesen Basin 11 May 1935 2) 11 at Harvard WPA 15 May 1999 3) 10 at Harvard WPA 14 May 2000

Extreme dates: 27, 29 Apr, 4 May <<>> 15, 17, 27 May Maximum eRWB counts: 21 11 10

There are eleven records, all but three since 1995. Seven (63%) of the eleven reports and 92% (45 out of 49) of the birds reported have been found in the short period 11-17 May. Records: **1**) 1 at Griess WPA 27 Apr 1995 (Dinsmore 1996b) **2**) 29 Apr 1949 Adams **3**) 1 at Harvard WPA 4 May 1997 (+WRS) **4**) 21, first reported as Long-billed Curlews (see below) but likely this species, were at Theesen Basin 11 May 1935 (NBR 3:95). **5**) 1 was 1.25 miles south of Verona WPA 12 May 2001 **6**) 1 at Massie WPA 13 May 2000 **7**) 1 in York County 13 May 1969 (Morris 1970) **8**) 10 at Harvard WPA 14 May 2000 **9**) 11 at Harvard WPA 15 May 1999 **10**) 1 at Freeman Lake 17 May 1997 **11**) 1 at Harvard WPA 27 May 2001.

Long-billed Curlew*Numenius americanus*

Distribution: Breeds in western North America, primarily the United States, and winters from the Southern United States through most of Mexico.

Conservation Status: A USSCP species of high concern and a CPRSCP priority species.

eRWB Status: Casual spring migrant.

Habitat: Wetlands.

Spring: Despite breeding as close as 200-300 miles northwest of the eRWB in the Sandhills of north-central Nebraska, there are only three records. The most recent was a singleton at Sandpiper WMA 27 Apr 2003. The other two reports are both from Hastings, 7 Apr 1955 (NBR 23:69) and 10 Apr 1935 (Rapp 1952). Both of these are likely correct identifications considering early Apr dates; Long-billed Curlew migrates early in spring. A 1935 sighting was reported as such: "Mr. Brooking reports that Mr. A.J. Leonard, an old hunter, unmistakably identified twenty-one Long-billed Curlews on the lagoon near Glenvil, Clay County on May 11." (NBR 3:95). While the birds were identified as Long-billed Curlews, the observation was at a time when that species' migration is largely over and when migration of Whimbrel is at its peak. Thus these birds are considered to have been most likely Whimbrels.

Hudsonian Godwit*Limosa haemastica*

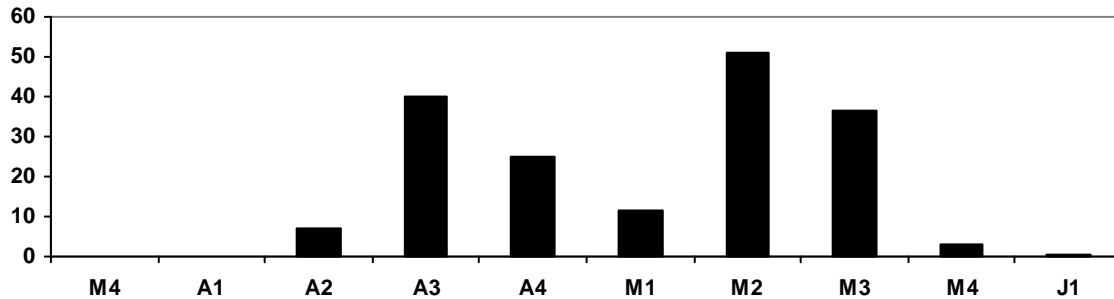
Distribution: Breeds locally on arctic tundra in North America and winters in southern South America. In North America, principal migration route in spring is through interior and in fall off the Atlantic coast.

Conservation Status: A USSCP species of high concern and a CPRSCP priority species.

eRWB Status: Fairly common spring migrant, accidental in fall.

Habitat: Wetlands, occasionally moist agricultural fields.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	122	16-18 May	300	6/6
1998	18 Apr	10 May	93	18-19 Apr	179	4/4
1999	11 Apr	6 Jun	18	24-25 Apr	59	9/10
2000	15 Apr	20 May	47	22 Apr	154	10/10
2001	14 Apr	28 May	109	11-13 May	168	7/7
Maximum single-locale counts: 1) 54 at Sinninger #Y21 16 Apr 1995 2) 48 at Sinninger #Y22 17 May 1997 3) 46 at Kirkpatrick Basin North WMA 26 Apr 1998						
Extreme dates: 11, 14, 14 Apr <<>> 30 May, 5 (Swenk 1925), 6 Jun				Maximum eRWB counts: 122 109 93		

The 5 Jun report mentioned above was 1 collected at Inland in 1916 (Swenk 1925).

Fall: A juvenile at Sinninger #Y22 30 Aug 1998 is the only record.

Marbled Godwit

Limosa fedoa

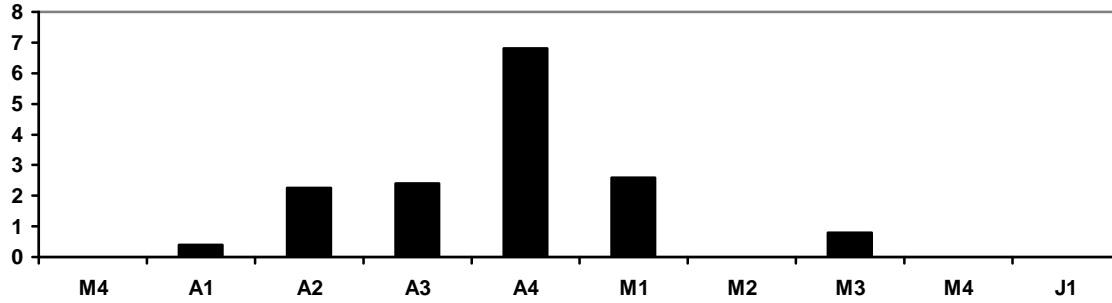
Distribution: Breeds primarily in the northern Great Plains and winters along coastal areas of the southern United States south to Central America.

Conservation Status: A USSCP species of high concern.

eRWB Status: Uncommon spring and casual fall migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	16 May	10	2-4 May	20	4/5
1998	24 Apr	2 May	17	24-26 Apr	18	2/2
1999	17 Apr	7 May	11	6-7 May	22	3/4
2000	22 Apr	14 May	4	22 & 27 Apr	13	4/7
2001	7 Apr	19 May	9	14-15 Apr	13	3/7

Maximum single-locale counts: 1) 78 at Harvard WPA 16 Apr 1995 2) 36 at Sinninger #Y22 16 Apr 1995 3) 17 at Harvard WPA 24 Apr 1998

Extreme dates: 7, 7, 14, Apr <<>> 14, 16, 19 May Maximum eRWB counts: 115 17 11

Arrival in North Dakota is tightly timed in the period 15-22 Apr (Higgins et al. 1979). The species may essentially flyover the eRWB in spring. The above maximum single-locale count occurred following a heavy early-morning thunderstorm and therefore perhaps was an unintended stopover. Additional extreme dates: 18 May 1952 Hastings (NBR 20: 69) and 17 May 1958 Adams (NBR 26: 56).

Fall: Six records: 1) 2 adults at North Hultine WPA 25 Jun 2000 2) 3 juveniles at North Harvard Basin 11 Aug 1996 3) a juvenile at Sinninger #Y22 29 Aug 1997 4) 19 Sep 1961 Adams (NBR 30:44) 5) 11 Sep 1973 Clay (NBR 42:28) 6) 24 Oct 1973 Clay (NBR 42:28).



Ruddy Turnstone*Arenaria interpres*

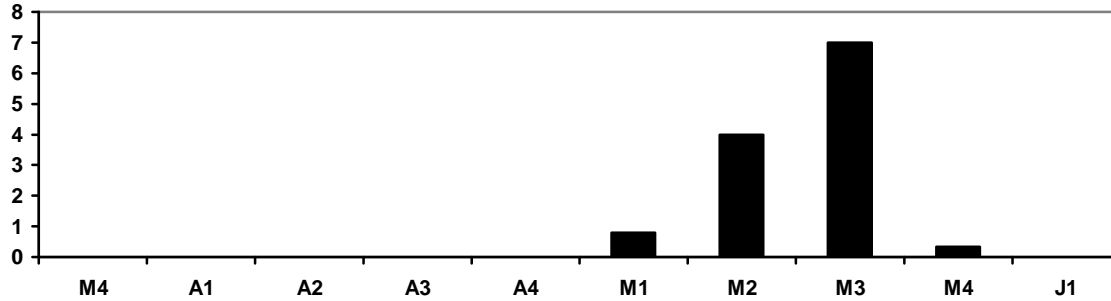
Distribution: Breeds locally in arctic tundra regions in North America and Eurasia and winters along northern mid-latitudes and tropical coasts throughout the world.

Conservation Status: A USSCP species of high concern.

eRWB Status: Rare spring migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	7 May	18 May	35	16-18 May	40	2/2
1998	-	-	-	-	-	-
1999	14 May	14 May	1	14 May	1	1/1
2000	7 May	15 May	11	14 May	16	2/3
2001	12 May	26 May	2	12 May	3	2/3
Maximum single-locale counts: 1) 22 at Sinninger #Y22 17 May 1997 2) "about 20" found by L. Morris in York County 17 May 1984 (NBR 52:56) 3) 11 at Harvard WPA 14 May 2000						
Extreme dates: 7, 7, 9 May <<>> 18, 26, 31 May (WRS, JS)				Maximum eRWB counts: 35 20 11		

**Red Knot***Calidris canutus*

Distribution: Breeds locally in high arctic regions in North America and Eurasia and winters locally along southern European, North American, and tropical coasts.

Conservation Status: A USSCP species of high concern.

eRWB Status: Accidental spring and fall migrant.

Habitat: Wetlands.

Spring: The only record is a flock of 27 at Ayr Lake 20 May 1999 during a rainstorm.

Fall: The only record is an adult at Sinninger #Y22 13 Aug 1995.

Sanderling

Calidris alba

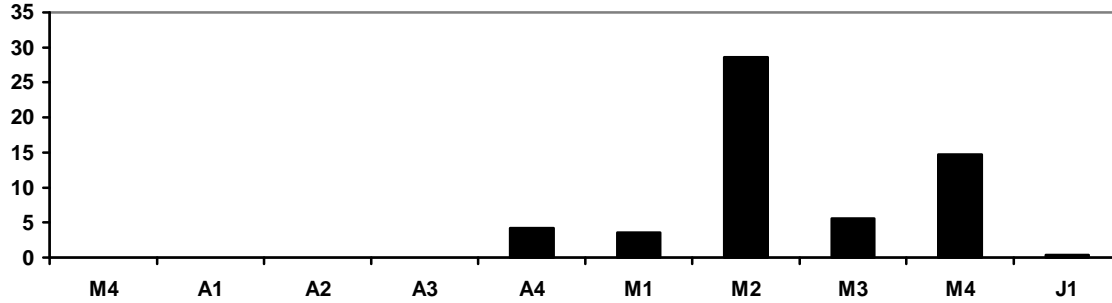
Distribution: Breeds locally in high arctic regions in North America and Eurasia and winters along coastal areas throughout much of the world, except more northerly latitudes.

Conservation Status: A USSCP species of high concern.

eRWB Status: Uncommon spring and casual fall migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 May	23 May	19	7-10 May	24	4/4
1998	15 May	15 May	3	15-16 May	3	1/1
1999	6 May	30 May	15	6-7 May	17	3/4
2000	30 Apr	28 May	81	13 May	187	9/9
2001	26 May	2 Jun	23	26-28 May	24	2/2

Maximum single-locale counts: 1) 81 at Harvard WPA 13 May 2000 2) 24 at Harvard WPA 15 May 2000 3) 21 at Mallard Haven WPA 30 Apr 2000

Extreme dates: 30 Apr, 3, 6 May <<>> 28, 31 May, 2 Jun Maximum eRWB counts: 81 24 21

Like other coastal-wintering shorebirds, may essentially “jump” over much of the southern and central Great Plains and fly to preferred stopover sites in southern Canada (Macwhirter et al. 2002). Numbers found at southern Saskatchewan lakes can reach into the 10,000s (Macwhirter et al. 2002). The small, and variable numbers encountered in the eRWB likely represent birds that do not make non-stop flight. Often birds observed in spring are in some stage of molt and many appear as though they are in mostly basic plumage.

Fall: Three records: **1)** A juvenile at Sinninger #Y22 22 Sep 2001 **2)** A juvenile at Harvard WPA 10 Oct 1999 **3)** a “small flock” at Hastings 12-13 Oct 1934 (NBR 3:36). In fall, Sanderlings are more common at lakes that possess sandy shoreline in Nebraska (Sharpe et al. 2001) indicating that fall migration is more leisurely and birds may be more apt to discriminate among stopover sites.



Semipalmated Sandpiper*Calidris pusilla*

Distribution: Breeds throughout arctic regions of North America and winters along coastal areas of northern and central South America.

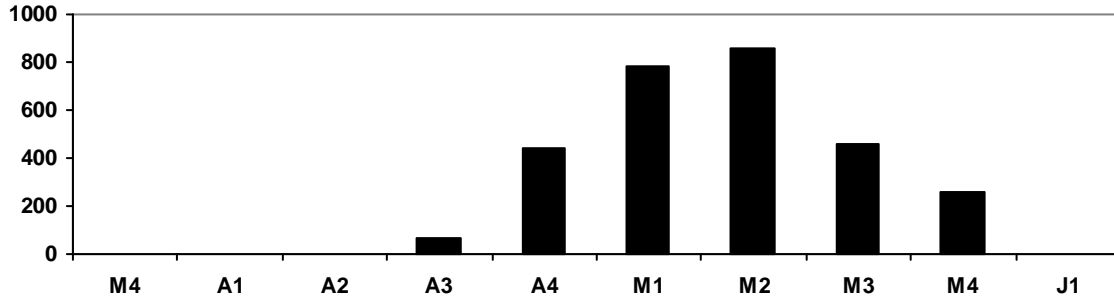
Conservation Status: A USSCP species of moderate concern and a CPRSCP priority species.

eRWB Status: Abundant spring and fairly common fall migrant.

Taxonomy: While there are no subspecies, three populations (eastern, central, and western) are recognized based on increasing bill and wing length from east to west. Both central and western birds, and perhaps occasionally eastern birds, migrate through the eRWB and Nebraska in spring, but in fall only western birds are present (Sharpe et al. 2001). Central and eastern birds migrate further to the east in fall, thus completing an elliptical migration pattern (Gratto-Trevor and Dickson 1994).

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	968	16-18 May	3,398	6/6
1998	18 Apr	16 May	1,354	1-3 May	2,642	5/5
1999	11 Apr	6 Jun	220	1-2 May	933	10/10
2000	15 Apr	4 Jun	1,245	14 May	5,254	13/13
2001	14 Apr	3 Jun	590	26-28 Apr	1,678	8/8

Maximum single-locale counts: 1) 1,100 at Harvard WPA 14 May 2000 2) 1,000 at North Hultine 3 May 1994 3) 800 at County Line WPA 21 May 1997

Extreme dates: 11, 13, 13 Apr <<>> 4, 6, 14 Jun Maximum eRWB counts: 1,354 1,245 1,210

The late date above, 14 June 2003, was a singleton at Heron WPA 2003.

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	10 Aug	5 Sep	27	22 Aug	59	4/5
1999	17 Jul	10 Oct	112	2 Aug	476	9/10
2000	2 Jul	1 Oct	68	30 Jul	204	11/11

Maximum single-locale counts: 1) 150 at Wetland #F3 19-26 Aug 1995 2) 52 at Sinninger #Y22 29 Aug 1997

Extreme dates: 2, 4, 5 Jul <<>> 14 Sep, 1, 10 Oct Maximum eRWB counts: 170 112 72

Juveniles are the most common age-class in fall. Generally gone by late Sep, the late date above was a well identified juvenile near Kirkpatrick Basin North WMA.



Western Sandpiper

Calidris mauri

Distribution: Breeds primarily in northern Alaska and winters along coasts from southern United States to northern South America.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Casual spring and a rare to uncommon fall migrant.

Habitat: Wetlands.

Spring: Western Sandpipers winter on the Pacific, Atlantic, and Gulf Coasts. It is thought that, in general, all populations migrate north along the Pacific Coast in spring, requiring easterly wintering birds to migrate across the southern interior; these migration routes are generally to the south and west of the eRWB. In fall, migration covers much of the interior (Senner and Martinez 1982, Butler et al. 1996). In the eRWB, the Western Sandpiper is scarce in spring, more so than “rare but regular” shorebirds such as Snowy Plover, Ruddy Turnstone, and Red-necked Phalarope. I routinely searched flocks of calidridines for this species and have only six records during the JSS, plus an additional sighting in 1994. My records are as follows: **1)** 1 at Wetland #C132 18 Apr 1998 **2)** 3 at Massie WPA 30 Apr 2000 **3)** 1 at Sinninger #Y22 1 May 1999 **4)** 1 at Wilkins 2 May 2001 **5)** 4 were found in the region 2 May 1998 **6)** 1 at North Hultine 3 May 1994 **7)** 8 were found in the region 3-4 May 1997. Considering that these records fall in the period 18 Apr-4 May, it is interesting that four spring records from Norman, Oklahoma 1961-63 are during a strikingly similar period, 16-27 Apr (Oring and Davis 1966). Thus, it appears that the peak movement of the few individuals that move across the Great Plains in spring may take place during the latter half of Apr.

Other recent records include 2 found by R. Rosche and R. Silcock at Springer WPA 18-20 May 1994 (Silcock and Rosche 1994) and “a bright alternate male” found by S. Dinsmore and J. Fontaine at Mallard Haven WPA 13 May 2000 (Silcock 2000a). While these two records are considered valid since both are from reliable observers, there are a handful of additional earlier reports, primarily from Adams County, that do not possess any identification details. Most of these reports are from later in May and may result from confusion with White-rumped Sandpipers. The plumage of well-marked White-rumped Sandpiper whose reddish tones are particularly bright may appear superficially similar to Westerns. Considering structural difference is useful in limiting confusion. Future reports of Western Sandpiper should be supported by identification details, especially those in mid- to late May.

Fall: Slightly more common in fall, although in the most recent years it has proven to be particularly scarce during this season as well as during spring. My fall records are as follows: **1)** 1 was 3 miles south of Geneva 19 Jul 1997 (WRS, JGJ) **2)** 5 at Theesen Basin 25 Jul 1995 **3)** 3 at Kissinger Basin WMA 1 Aug 1999 **4)** 2 at Wetland #C85 13 Aug 2000 **5)** 4 at Heron WPA 15 Aug 1998 **6)** 35 at Wetland #F3 19-26 Aug 1995 **7)** 4 at Theesen Basin 22 Aug 1999 **8)** 1 at Wetland #F19 26 Aug 2000 **9)** 3 at Krause WPA 29 Aug 1999 **10)** 3 at Hansen WPA 29 Aug 1999 **11)** 1 at Hansen WPA 29 Aug 1997 **12)** 4 at Wetland #S5 3 Sep 1999.

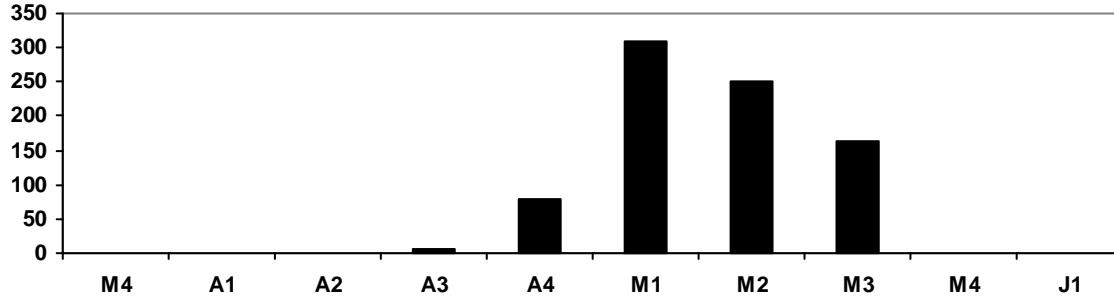
Only three records (19, 25 Jul and 1 Aug) are of adults, the remainder juveniles during the period 13 Aug-3 Sep. Juvenile migration apparently peaks during the latter half of Aug. The counts listed here are insignificant compared to those encountered just to the south in central Kansas. Thousands occur regularly at Cheyenne Bottoms (Senner and Martinez 1982) and several hundred were reported from nearby Quivira NWR in consecutive years (Skagen and Knopf 1994a). Considering this, early information from Brooking via Swenk (1925) is intriguing:

“Mr. A.M. Brooking first encountered the Western Sandpiper at Inland July 10, 1915, when he took a specimen (No. 2780-A) in his collection. Later on during the month on July 1915, he noted these sandpipers on several dates, and considers them a fairly abundant migrant at Inland during that year.

On July 28, Messrs. A.M. Brooking, and J.E. Wallace again encountered Western Sandpipers on the [Harvard WPA] and collected four specimens (No. 2780) for the Brooking collection.

In 1919, Messrs. A.M. Brooking, and J.E. Wallace repeatedly noted Western Sandpipers at the [Harvard WPA] during the greater part of July and August, but no specimens were taken.”

Considering that these reports are generally during Jul, the birds were presumably adults. This information suggest one of two possibilities, either 1) the species will utilize the eRWB in those years when variables of migration and wetland conditions are favorable for stopovers, or 2) the region was formerly a regular stopover site, as are those sites in central Kansas today, but the overwhelming modern reduction of quality habitat has made the eRWB unattractive to Western Sandpipers. Grzybowski (2002) more recently suggested that numbers are declining throughout the central and southern Great Plains in fall based on a diminished number of reports. Finally, R. Silcock observed a juvenile Western Sandpiper with two Dunlins at Hultine WPA on the late date of 28 Oct 1996. On the West Coast, some Western Sandpipers apparently migrate with later-migrating Dunlin (Paulson 1993).

Least Sandpiper*Calidris minutilla***Distribution:** Breeds in taiga regions of North America and winters from southern United States through central South America.**Conservation Status:** A USSCP species of moderate concern and a CPRSCP priority species.**eRWB Status:** Common spring and fairly common fall migrant.**Habitat:** Primarily wetlands, also observed on grassland burns and moist agricultural fields.**Spring:**

Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	18 Apr	23 May	469	16-18 Apr	1,003	5/6
1998	18 Apr	16 May	361	9-10 May	663	5/5
1999	11 Apr	30 May	197	1-2 May	362	8/9
2000	1 Apr	28 May	452	7 May	1,545	12/14
2001	27 Apr	28 May	295	11-13 May	592	5/5

Maximum single-locale counts: 1) 300 at North Hultine WPA 3 May 1994 2) 200 at Massie WPA 6 May 2000 3) 120 at Harvard WPA 14 May 2000

Extreme dates: 1, 1, 2 Apr <<>> 24, 28, 30 May Maximum eRWB counts: 469 452 366

Widespread, but usually not found in large flocks.

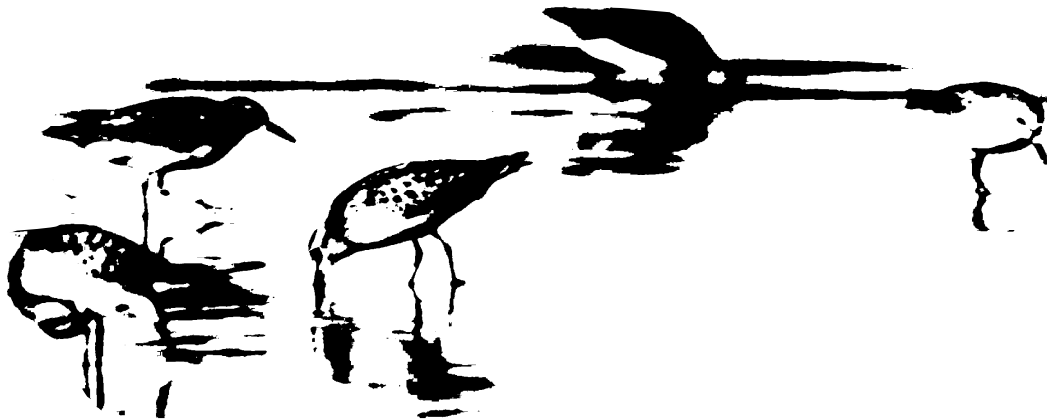
Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	10 Aug	1 Nov	70	22 Aug	270	9/11
1999	17 Jul	7 Nov	133	17 Jul	802	13/13
2000	9 Jul	4 Nov	97	16 Jul	378	13/14

Maximum single-locale counts: 1) 137 at Sinninger #Y22 29 Aug 1997 2) 125 at Wetland #F3 26 Aug 1995 3) 95 at Harvard WPA 10 Oct 1999

Extreme dates: 5, 7, 9 July <<>> 1, 4, 7 Nov Maximum eRWB counts: 159 145 133

Generally occurs in small groups, concentrations greater than 100 are unusual.



White-rumped Sandpiper

Calidris fuscicollis

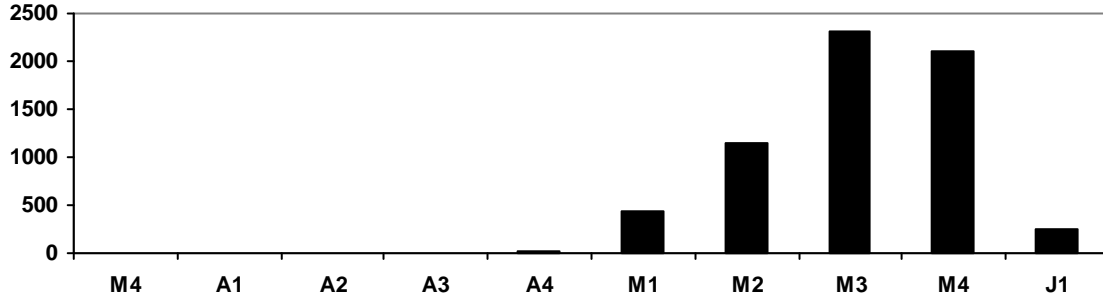
Distribution: Breeds in arctic regions of North America and winters in southern South America. In North America, principal migration route in spring is through interior and in fall off the Atlantic coast.

Conservation Status: A USSCP species of low concern, but a CPRSCP priority species.

eRWB Status: Abundant spring migrant, accidental in fall.

Habitat: Wetlands.

Spring:



<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Spring Total</u>	<u>Obs. Frequency</u>
1997	26 Apr	23 May	5,544	16-18 May	8,983	5/5
1998	24 Apr	16 May	1,725	9-10 May	3,304	4/4
1999	24 Apr	20 Jun	2,816	30 May	4,205	10/10
2000	30 Apr	4 Jun	1,025	14 May	4,787	10/10
2001	2 May	3 Jun	2,738	26-28 May	5,498	5/5

Maximum single-locale counts: 1) 3,600 at Freeman Lake 17 May 1997 2) 1,800 at Sinninger #Y22 30 May 1999 3) 1,350 at Freeman Lake 16 May 1997 4) 1,100 at Harvard WPA 14 May 2000

Extreme dates: 19 (SJD), 24, 24 Apr <<>> 13, 14, 20 Jun Maximum eRWB counts: 5,544 2,816 2,738

Fall: The only documented record is 1 found at Harvard WPA 20 Jul 2001 by S. Dinsmore (Silcock 2001). This individual may have been an early fall migrant or a spring migrant that discontinued its migration. There are other reports, but as Sharpe et al. (2001) pointed out, none are accompanied by details. White-rumped Sandpipers migrate eastward to the Atlantic Coast in fall and are essentially absent from the Great Plains.



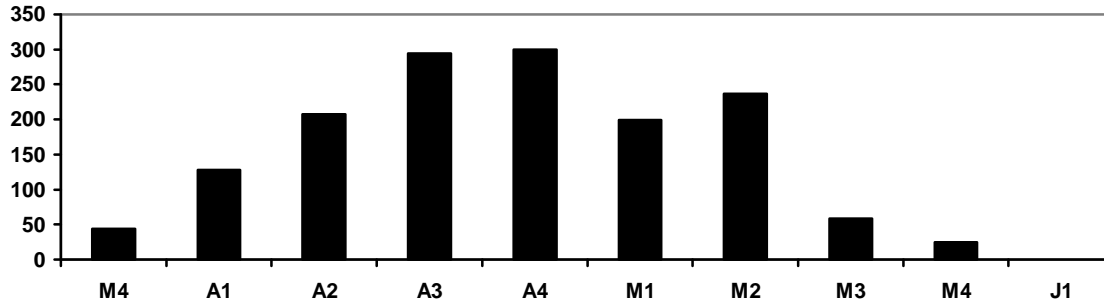
Baird's Sandpiper*Calidris bairdii*

Distribution: Breeds in arctic regions of North America and winters in southern South America. In North America, principal migration route in both spring and fall is through the Great Plains.

Conservation Status: A USSCP species of low concern, but a CPRSCP priority species.

eRWB Status: Common spring and uncommon fall migrant.

Habitat: Primarily wetlands, including dry portions in close proximity to water areas. Also frequents moist agricultural fields and grassland burns.

Spring:

Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 Apr	23 May	299	25-26 Apr	903	7/7
1998	4 Apr	16 May	557	1-3 May	1,619	7/7
1999	28 Mar	6 Jun	587	24-25 Apr	1,701	11/12
2000	12 Mar	28 May	625	14 May	2,001	16/17
2001	31 Mar	26 May	284	20-22 Apr	881	9/9

Maximum single-locale counts: 1) 620 at Harvard WPA 14 May 2000 2) 242 at Wetland #C229 24 Apr 1999 3) 240 at Kirkpatrick Basin North WMA 18 Apr 1999

Extreme dates: 12, 18, 25 Mar <<>> 28, 30 May, 6 Jun Maximum eRWB counts: 625 587 557

The earliest arriving calidridine, typically appearing by the end of Mar. In addition to the extreme dates above, a very late migrant that likely discontinued its migration was near Verona 14 Jun 2003.

Fall:

Maximum single-locale counts: 1) 77 at Theesen Basin 28 Jul 1996 2) 10 at Wetland #C229 7 Aug 1999 3) 7 at Theesen Basin 15 Aug 1999

Extreme dates: 12, 14, 16 Jul <<>> 28 Oct, 7 Nov Maximum eRWB counts: 79 21 14

Numbers are variable in fall, but the species has generally been scarce in recent years. Southbound migrants may largely pass to the west of the eRWB. During Jul 2001, only a single bird was found in the eRWB. In contrast, 5,642 were tallied at Lake McConaughy in western Nebraska 30 Jul of that year (Silcock 2000b). Only 56 were recorded during fall 1999.



Pectoral Sandpiper

Calidris melanotos

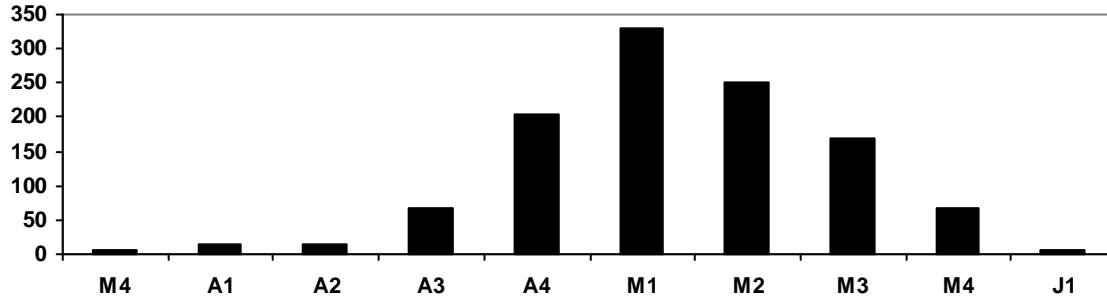
Distribution: Breeds in arctic regions of North America and Siberia and winters in central and southern South America.

Conservation Status: A USSCP species of low concern, but a CPRSCP priority species.

eRWB Status: Common spring and fall migrant.

Habitat: Primarily wetlands, often shallow water areas with scattered, short-growing vegetation where true numbers can be difficult to determine. Also observed in agricultural fields, grassland burns, and occasionally recently-mowed hayfields in fall.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 Apr	23 May	166	16-18 May	573	7/7
1998	11 Apr	16 May	506	1-3 May	1,492	6/6
1999	28 Mar	6 Jun	199	1-2 May	428	11/12
2000	1 Apr	28 May	521	30 Apr	1,065	13/14
2001	7 Apr	3 Jun	160	11-13 May	537	9/9

Maximum single-locale counts: 1) 375 at Mallard Haven WPA 30 Apr 2000 2) 170 at Mallard Haven WPA 27 Apr 2000 3) 100 at County Line WPA 21 May 1997 (LP.BP) 4) 76 at Wilkins WPA 1 May 1999

Extreme dates: 18, 28 Mar, 1 Apr <<>> 4, 6, 12 Jun	Maximum eRWB counts: 526 506 480
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Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	10 Aug	7 Nov	448	15 Aug	730	8/11
1999	17 Jul	7 Nov	188	29 Aug	568	12/13
2000	16 Jul	4 Nov	474	12-13 Aug	1,082	14/14

Maximum single-locale counts: 1) 327 at Wetland #C132 15 Aug 1998 2) 300 at Kissinger Basin WMA 20 Aug 1995 3) 220 North Hultine WPA 12 Aug 2000

Extreme dates: 24, 26 Jun, 12, 16 Jul <<>> 4, 7, 7 Nov	Maximum eRWB counts: 525 474 448
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Jun dates above may have actually been birds that discontinued their northward migration.

Dunlin*Calidris alpina*

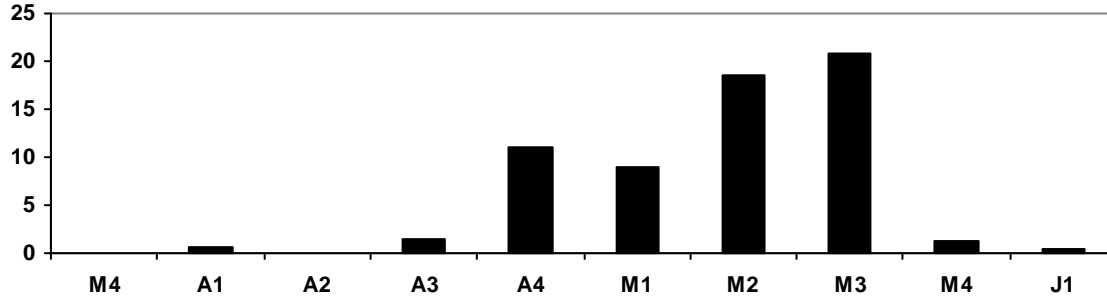
Distribution: Breeds locally in arctic regions of North America and Eurasia and winters along temperate coasts north of the equator.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Uncommon spring and rare fall migrant.

Habitat: Wetlands.

Spring:



<u>Year</u>	<u>First</u>	<u>Last</u>	<u>Peak</u>	<u>Peak Date(s)</u>	<u>Spring Total</u>	<u>Obs. Frequency</u>
1997	3 Apr	23 May	70	16-18 May	159	7/7
1998	11 Apr	16 May	46	9-10 May	53	3/3
1999	28 Mar	30 May	14	23-24 May	30	5/10
2000	1 Apr	28 May	16	7 May	43	6/8
2001	7 Apr	2 Jun	10	11-13 May	30	6/7
Maximum single-locale counts: 1) 36 at Mallard Haven WPA 26 Apr 1997 2) 26 at Mallard Haven WPA 16 May 1996 3) 22 at Freeman Lake 17 May 1997						
Extreme dates: 3, 3, 8 Apr <<>> 31 May (JS), 2 Jun, 2 Jun (NBR 36:7)				Maximum eRWB counts: 70 46 42		

Small numbers, often a few individuals, were generally found in large mixed-species flocks of calidridines. Rarely found in single-species flocks.

Fall: Eleven records, all from 1996 onward, are in the period 5 Oct-7 Nov. Since this species generally migrates late in fall compared to other shorebird species, it generally has not been looked for. However, when it has been searched for in Oct, such as in 1998 and 1999, it was found in low numbers. During other years when favorable habitat was limited, such as 2001 and 2002, it may not occur regularly. Maximum single-locale counts: 16 at Wetland #C81 10 Oct 1998, 8 at Theesen Basin 10 Oct 1998, and 5 at Harvard WPA 7 Nov 1999.

Stilt Sandpiper

Calidris himantopus

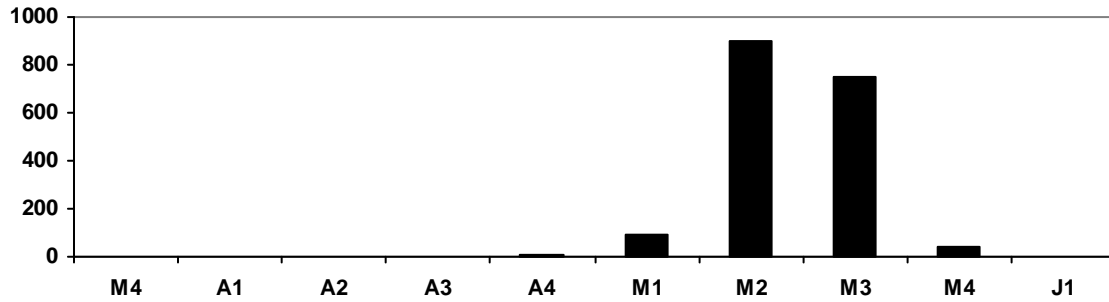
Distribution: Breeds locally in arctic regions of North America and winters primarily in central and southern South America. In North America, principal migration route in both spring and fall is through interior including the Great Plains.

Conservation Status: A USSCP species of moderate concern and a CPRSCP priority species.

eRWB Status: Common to abundant spring and common fall migrant. Brooking's may have overlooked this species since he reported that it was not found regularly or in numbers at Inland (Swenk 1925).

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	25 Apr	23 May	1,119	16-17 May	1,594	5/5
1998	24 Apr	16 May	927	15-16 May	1,058	4/4
1999	24 Apr	30 May	604	20 May	1,128	7/7
2000	27 Apr	4 Jun	2,006	13 May	4,388	11/11
2001	20 Apr	2 Jun	469	18-20 May	824	6/7

Maximum single-locale counts: 1) 1,461 at Harvard WPA 13-14 May 2000 2) 620 at Mallard Haven WPA 16 May 1997 3) 250 at Ayr Lake 17 May 1996

Extreme dates: 24, 24, 25 Apr <<>> 30 May, 2, 4 Jun Maximum eRWB counts: 2,006 1,119 928

There is a very early undocumented report from Hastings 6 Apr 1955 (NBR 23:70) that is considered a likely error.

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	10 Aug	25 Oct	33	30 Aug	84	7/9
1999	17 Jul	24 Oct	91	2 Aug	599	12/12
2000	16 Jul	29 Oct	69	16 Sep	351	13/14

Maximum single-locale counts: 1) 570 at Sinninger #Y22 11 Aug 2001 2) 145 at Sinninger #Y22 16 Aug 2001 3) 144 at Sinninger #Y22 11 Sep 1997 4) 125 at Wetland #F3 26 Aug 1995 5) 115 at Mallard Haven WPA 17 Sep 1995

Extreme dates: 5, 7, 16 Jul <<>> 25, 28, 29 Oct Maximum eRWB counts: 632 301 188

Larger numbers were recorded in non-JSS years and it is likely that proportionally more are present during average falls than the JSS data indicates.



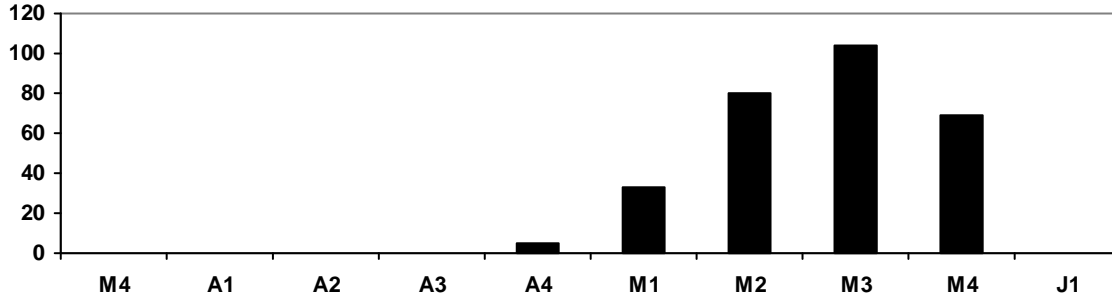
Buff-breasted Sandpiper*Tryngites subruficollis*

Distribution: Breeds in arctic regions of North America and winters on the Pampas of central and southern South America. In North America, principal migration route in both spring and fall is through the Great Plains.

Conservation Status: A USSCP species of high concern and a CPRSCP priority species.

eRWB Status: Fairly common spring and uncommon fall migrant.

Habitat: Agricultural fields, hayfields, and wetlands.

Spring:

Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 May	23 May	169	7-10 May	335	4/4
1998	9 May	16 May	99	15-16 May	166	2/2
1999	1 May	24 May	139	6-7 May	290	5/5
2000	30 Apr	28 May	71	13 May	136	7/9
2001	11 May	28 May	266	26-28 May	459	3/3

Maximum single-locale counts: 1) 312 in a field west of Freeman Lake 17 May 2003 2) 259 in a field north of North Lake Basin WMA 10 May 2003 3) 162 in a field north of Freeman Lake 10 May 1997 4) 116 in a field 3 miles south of Miller's Pond WPA 17 May 1997 5) 94 in a field .5 miles north of Smith WPA 27 May 2001

Extreme dates: 30 Apr, 1, 3 May <<>> 23, 24, 28 May Maximum eRWB counts: 391 343 266

While several other shorebirds are found in greater numbers, perhaps no other species as a whole has as special a relationship with the region in spring as does this one. All evidence suggests that the spring migration corridor is very narrow (Sharpe et al. 2001, Skagen et al. 1999). Moreover, its regularity of occurrence and ease of observation in the eRWB in spring, along with its concomitant absence from much of the plains suggests that the eRWB is a major stopover area for the species. In Nebraska, there are only 5 reports west of the eRWB, and fewer than 20 east of the region. In addition, it is considered "Rare" in Iowa (Kent and Dinsmore 1996) and Andrews and Righter (1992) mention only 2 spring records from Colorado. In Kansas, Thompson and Ely (1989) state the species is "either rare or is just unobserved at it passes through". It is also considered rare in South Dakota (SDOU 1991).

The world population, estimated at only 15,000 (Morrison et al. 2001), is rather low compared to other shorebird species (Morrison et al. 2001). Skagen et al. (1999) compiled maximum counts for individual sites in the mid-continent. Observations were from as many as 3000 sites and include eighteen states and three Canadian Provinces. The eighteen maximum counts assembled by Skagen et al. (1999) ranged from 29 to 700 (mean = 139). The eighteen maximum or single-locale high counts that I recorded since 1997 ranged from 29 to 391 (mean = 94). These limited data suggest the eRWB is a significant stopover area for the species. The JSS averaged 277.2 Buff-breasted Sandpipers each spring of the JSS. Based on the Morrison et al. (2001) population estimate, the JSS recorded an average 1.84% of the world population each spring. This means that a single person, that can be at only one place at one time in a region of 7,000 square kilometers for two days per week during migration, has been able to find nearly 2% of a population of a cryptically-colored bird that prefers to forage in open fields in a region that consists almost entirely of open fields. More important than what is found is what is not and what is found must be a mere fraction of the birds using the region. A person in the region, in the proper habitat, at the right time of year would likely find larger numbers of this species, and indeed that seems to have already been the case. Lee Morris was the first person to report the occurrence of this species in the eRWB. As he explains in his own words (Morris 1978):

Although the Buff-breasted Sandpiper isn't commonly seen in Nebraska by most birders, it is a very common spring visitor in my part of the state, which is York County. They seem to be here every year, and if they are looked for in the right habitat and at the right time of year they can be found in large numbers. Don't look for them near the water; find a field that has been cleared of all vegetation and is being planted to corn with a furrow lister. The birds will flock to the newly-turned soil to feed on the worms turned up. At this time, they are very tame and easily observed; sometimes they hardly get out of the way of the machine making the next furrows. Golden Plovers are also seen with the Buff-breasteds under these same circumstances but aren't nearly as tame. Of

course, if I get off the tractor the Buff-breasteds aren't quite as trusting, either. Buff-breasted are one of the later migrants and, although I have seen them as early as 1 May, the large concentrations usually don't arrive until 10 May or later and they stay until after 20 May for sure. I'm sure they are here longer, but we are usually done planting by then and unless I am planting I don't see them nearly as often. Lots of days there are several hundred in the field I am working in. I don't know how large an area they cover in the state, but I do know from talking to other farmers that they are in this whole area. Most farmers are planting corn at the same time, and if they all have as many Buff-breasteds as I do (and I'm sure they do, from talking to them) there must be an awful lot of them migrating through here. They generally fly in large flocks, like most sandpipers, they all turn and maneuver simultaneously. When feeding in the lister furrows they have the habit of at time holding one wing extended high in the air for several seconds. I suppose this is a courtship action. It is a very rewarding sight to watch large numbers of these birds at close range as they run over the lister ridges while they are feeding. As far, as I recall, I've never seen any Buff-breasted Sandpipers in this area in fall. This doesn't mean they aren't here, but they surely aren't here in the great numbers they are in spring

Hamilton County farmer Byron Nilson claims that he is "never surprised to see it in spring" (Silcock and Jorgensen 1997). Morris (1995) later noted "This spring (1995) we had lots of these birds like we used to a few years ago when we planted later than we usually do now. Corn planting was so much later this year because of the cool, wet spring". Most fields in recent years are planted prior to the species' arrival, but there are usually a few that are not worked until mid-May. None of my observations are from sloping sites where drainage is developed or from level areas associated with watershed valleys. The species exhibits a clear preference for "true RWB topography" and also seems to prefer areas within basin clusters. Wetlands themselves are routinely used, usually in late afternoon when birds can often be observed drinking and bathing. Near dusk, birds usually leave wetland sites; the species may migrate nocturnally (Lancot and Laredo 1994). Early morning is also often a time of high activity. Small flocks, often 5-20 individuals, were often seen flying quickly over the landscape. Some days during the height of migration there can be an absence of birds. This species may have exploited grassland burns that would have been a regular event prior to settlement. The earliest report is one taken near Harvard 16 May 1895 by W. Townsley (Swenk 1925).

During stopovers, birds (males) are often observed performing, what Lancot and Laredo (1994) refer to as the "double-wing courtship embrace". The raising of a single wing, or the "wing-up" display is also commonly observed and this display often appears to be provoked by birds in flight overhead. Perhaps this display attracts arriving birds to congregation sites since flocks are often supplemented with newly arriving individuals and since only a single field is usually used in a larger area. The "tick, tick, tick" vocalization is audible if displaying males performing the double-wing courtship embrace are observed within close proximity. The vocalization most often heard in the eRWB is a call note similar to the call note of the Song Sparrow (*Melospiza melodia*).

Fall:

Maximum single-locale counts: 1) 317 in a hayfield within MARC 30 Jul 2003 (JD) 2) 151 in at hayfield near Goehner 2 Aug 2003 3) 72 in a hayfield in northern York Co 29 Jul 2003 (CG) 4) 45 in a field 2 miles north of Moger WPA 16 Aug 1998 5) 32 in a hayfield near Eckhardt WPA 22 Aug 1998 6) 31 at North Lake Basin WMA 11 Aug 1995

Extreme dates: 25 (Swenk 1925), 27, 28, 28 Jul <<>> 20, 27 Sep	Maximum eRWB counts: 317 283 72
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Currently less common in fall than in spring. The majority of early records are from fall, however. Brooking and his associates took a few specimens 1915-16, but as Swenk (1925) reports

"In 1918, on July 28, Messrs, Brooking, and Wallace again found Buff-breasted Sandpipers plentiful on the Inland Lagoon [Harvard WPA], and collected six specimens on that day. Mr. J.E. Wallace collected another specimen (# 2779 Brooking Collection) at the Inland Lagoon [Harvard WPA] on August 4, 1918. Mr. Brooking writes that during July and August 1919, these sandpipers were common about the Inland Lagoon.Mr. Brooking reports that Mr. Theodore Tickler of south of Inland reported these sandpipers on the Tickler Lagoon during the late summer of 1916,...."

The location of Tickler Lagoon is not known, but it may now be McMurtrey Refuge. Other reports, such as the 8 found at Hastings Basin 1 Aug 1935 (NBR 3: 150), for the period between Brooking activities and the present are few. In fall, birds are usually found either at basins or recently cut hayfields. Often when found at basins, birds frequent areas of short, newly-sprouted vegetation where water has retreated. When basins were more numerous, this may have been a favored and reliable niche for southbound migrants. The species is found with greater regularity in areas to the east and west of the eRWB in fall suggesting that the fall migration route is broader than that in spring.

Ruff*Philomachus pugnax*

Distribution: Breeds primarily in northern Eurasia and winters in southern Asia and Africa.

eRWB Status: Accidental in fall.

Habitat: Wetlands.

Fall: A juvenile male at Kirkpatrick Basin North WMA 27 Sep 1998 is the only record for the eRWB and only the fifth for Nebraska (Brogie 1999).

Short-billed Dowitcher*Limnodromus griseus*

Distribution: Breeds in central Canada and southern Alaska and winters along coasts from the southern United States to northern South America.

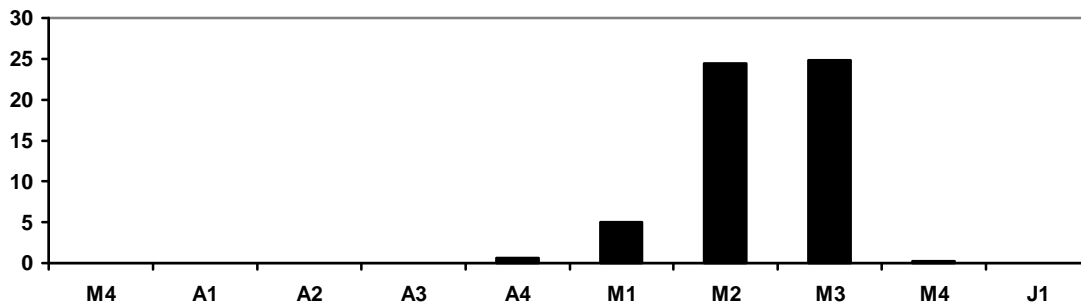
Conservation Status: A USSCP species of high concern.

eRWB Status: Uncommon spring and fall migrant. Jorgensen (1996) considered this species to be a rare migrant throughout Nebraska, but this stance was somewhat conservative considering the most recent information. However, outside the eRWB, it may indeed be a rather rare migrant and it is clearly more numerous in this region than anywhere else in the state (personal observation).

Taxonomy: *L.g. hendersoni* is the race that occurs in Nebraska (Jorgensen 1996). I observed an individual of the eastern subspecies, *L.g. griseus*, at Heron WPA 2 May 1998. This is the only record of this race in Nebraska (Sharpe et al. 2001). The West Coast subspecies, *L.g. caurinus*, may also occur in the eRWB on occasion, although acquiring accurate evidence would be difficult.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	7 May	23 May	95	16-18 May	106	3/3
1998	25 Apr	16 May	10	9-10 May	16	4/4
1999	6 May	23 May	23	20 May	43	4/4
2000	30 Apr	15 May	66	14 May	98	6/6
2001	2 May	19 May	10	11-13 May	12	3/3

Maximum single-locale counts: 1) 34 at Harvard WPA 14 May 2000 2) 32 at Mallard Haven WPA 14 May 2000 3) 31 at Mallard Haven WPA 16 May 1997

Extreme dates: 25, 30 Apr, 2 May <<>> 20, 23, 23 May Maximum eRWB counts: 95 66 23

In spring, generally found in small flocks; dowitchers seen with Black-bellied Plovers are usually this species. Jehl et al. (2001) states "no major spring stopover points reported in central U.S. or Canada. Peak numbers in s. Manitoba approximate only 100". Furthermore, Jehl et al. (2001) suggest that most *L.g. hendersoni* migrate along the Atlantic coast before making a non-stop flight to breeding areas. Thus, concentrations found in the eRWB represent small numbers that migrate through the Great Plains in spring. Early date above (25 Apr 1998) was an individual in basic-plumage that foraged solitarily rather than flock with numerous Long-billed Dowitchers at Wilkins WPA.

Fall: Thirty-one sightings were recorded 1995-2003. The adult and juvenile movements are very well defined. Nineteen (61%) records of adults are in the period 9-28 Jul, and fourteen (73%) of the nineteen are in the period 14-17 Jul. Adult Maximum single-locale counts include 15 at Kissinger Basin WMA 17 Jul 1999, 9 at Wetland #Y26 16 Jul 2000, and 8 at Wetland #Y74 16 Jul 2000. Eighteen days pass from the last record of an adult to the first juvenile record. Twelve records of juveniles are during the period 16 Aug-11 Sep, nine (75%) during the last ten days of Aug. Juvenile maximum single-locale counts include 7 at Wetland #F3 19-26 Aug 1995, 4 at Sinninger #Y22 11 Sep 1997, and 3 at Hansen WPA 29 Aug 1999.

Long-billed Dowitcher

Limnodromus scolopaceus

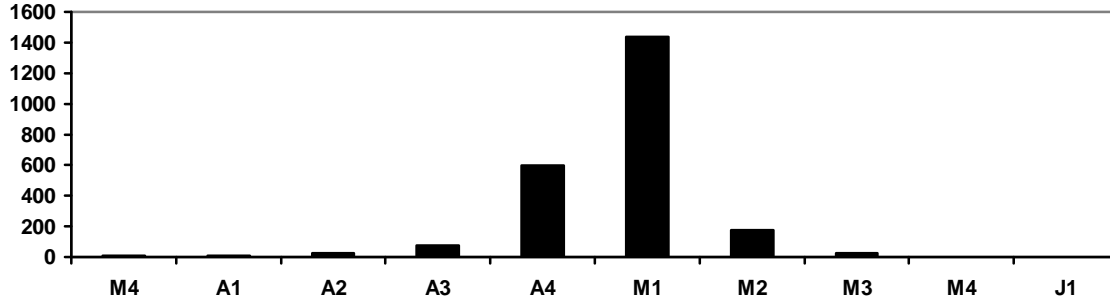
Distribution: Breeds in arctic regions of western Canada, Alaska, and eastern Siberia and winters in southern United States and throughout much of Mexico.

Conservation Status: A USSCP species of low concern, but a CPRSCP priority species..

eRWB Status: Abundant spring and common fall migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 Apr	18 May	2,306	2-4 May	3,100	6/6
1998	4 Apr	16 May	1,152	1-3 May	1,788	7/7
1999	28 Mar	30 May	1,363	1-2 May	2,652	10/11
2000	25 Mar	21 May	834	27 Apr	2,437	14/14
2001	7 Apr	19 May	1,294	2-4 May	2,247	7/7

Maximum single-locale counts: 1) 500 at North Hultine WPA 3 May 1994 2) 350 at Massie WPA 27 Apr 2000 3) 310 at Moger WPA 2 May 1999

Extreme dates: 18, 21, 25 Mar <<>> 21, 23, 30 May Maximum eRWB counts: 2,306 1,363 1,152

Fall:

Year	First	Last	Peak	Peak Date(s)	Fall Total	Obs. Frequency
1998	15 Aug	18 Nov	299	10 Oct	1,027	11/11
1999	25 Jul	7 Nov	381	10 Oct	976	13/13
2000	30 Jul	4 Nov	79	13-14 Oct	315	11/11

Maximum single-locale counts: 1) 168 at Sinninger #Y22 25 Oct 1998 2) 162 at Wetland #C81 10 Oct 1998 3) 136 at Harvard WPA 10 Oct 1999

Extreme dates: 15, 19, 19 Jul <<>> 7, 7, 18 Nov Maximum eRWB counts: 381, 303, 196

Early dates above were birds identified by plumage characters and call notes; the sightings indicate that both species of dowitcher may occur regularly during Jul. Juveniles are more common than adults in fall and all of the maximum single-locale counts above consisted largely of that age group.



Wilson's Snipe*Gallinago delicata*

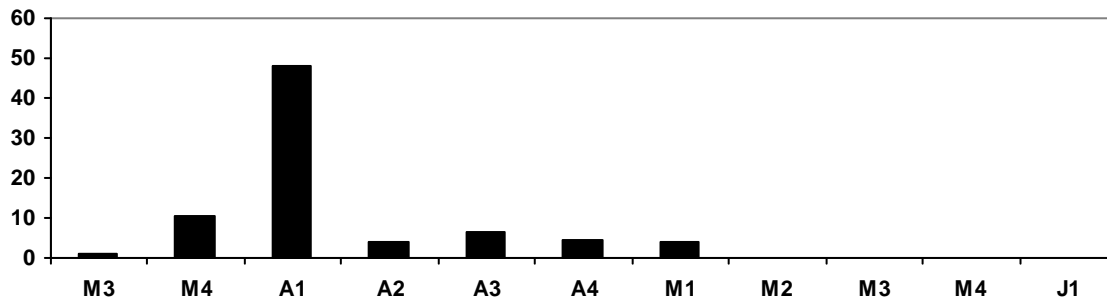
Distribution: Breeds from the northern United States through most of Canada and Alaska and winters from the southern United States south to northern South America.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Fairly common spring and fall migrant, hypothetical in summer. Many were likely overlooked during the JSS due to the species habit of foraging in vegetated areas. Brooking considered it abundant at Inland (Swenk 1925).

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	3 Apr	2 May	130	3-4 Apr	147	4/4
1998	4 Apr	1 May	15	18-19 Apr	24	4/5
1999	20 Mar	7 May	87	3 Apr	129	8/8
2000	25 Mar	7 May	19	1 Apr	58	9/9
2001	31 Mar	28 Apr	2	31 Mar	6	4/5

Maximum single-locale counts: 1) 52 at Sinninger #Y21 3 Apr 1999 2) 38 at Bluewing WMA 4 Apr 1997 3) 19 at Wilkins WPA 3 Apr 1997

Extreme dates: 20, 25 Mar, 3 Apr <<>> 2, 7, 7 May | Maximum eRWB counts: 130 87 26

Additional extreme dates: 5 and 27 May 1974 Adams (NBR 42:71).

Summer: There is the report of this species being "observed" in the Clay Center BBA block (Mollhoff 2001). No date or details are provided, however.

Fall:

30 Jun, 14 Jul, 1 Aug <<< >>> 10, 28 Oct, 7 Nov	
Maximum single-locale counts: 1) 73 at Wetland #C132 13 Sep 1998 2) 51 at Wetland #C85 14 Oct 1993 (NGPC, unpublished data) 3) 18 at Wetland #C132 30 Aug 1998	
Extreme dates: 30 Jun, 14 Jul, 1 Aug <<>> 10, 28 Oct, 7 Nov	Maximum eRWB counts: 75 51 20

Generally less common in fall. Additional extreme dates: 18 Dec 1976 Adams (NBR 35:22) and 16 Dec 1971 Adams (NBR 41:31).

American Woodcock*Scolopax minor*

Distribution: Breeds in woodlands in the eastern United States and southern Canada and winters in southeastern United States.

Conservation Status: A USSCP species of high concern.

eRWB Status: Accidental in spring and fall.

Habitat: Typically a woodland dweller, eRWB observations have been in uncharacteristic habitats.

Spring: A singleton was "just a few yards from the [Eldon and Ruth] Percival's porch" near Sutton 12 Mar 1975 (NBR 43:51).

Fall: A singleton was flushed by L. Morris in York County while harvesting corn and then approached closely before being flushed again 6 Oct 1988 (NBR 57:28).

Wilson’s Phalarope

Phalaropus tricolor

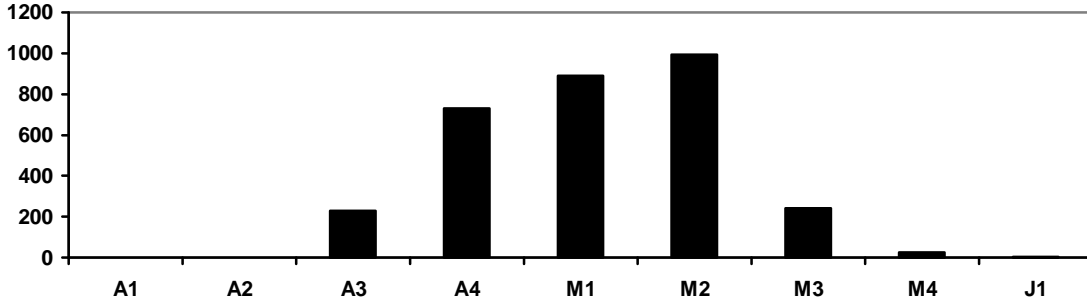
Distribution: Breeds throughout much of central North America and winters in southern South America

Conservation Status: A USSCP species of high concern.

eRWB Status: Common to abundant spring and uncommon to fairly common fall migrant, rare summer visitor and casual breeder, formerly more common in summer.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	25 Apr	23 May	266	2-4 May	798	5/5
1998	24 Apr	16 May	938	24-26 Apr	2,753	5/5
1999	17 Apr	30 May	409	6-7 May	771	8/8
2000	22 Apr	28 May	2,290	13 May	8,826	11/11
2001	20 Apr	3 Jun	779	20-22 Apr	2,375	7/7

Maximum single-locale counts: 1) 1,700 at Harvard WPA 13 & 14 May 2000 2) 1,090 at Harvard WPA 7 May 2000 3) 437 at Massie WPA 30 Apr 2000

Extreme dates: 15, 17, 18 Apr <<>> 28, 30, 31 May Maximum eRWB counts: 2,290 1,649 1,061

Summer: While it is very likely this species was formerly a regular breeder throughout, the only early information, including nesting records, is from Brooking (Swenk 1925):

“Mr. A.M. Brooking reports the Wilson Phalarope as an abundant migrant around the lagoon at Inland and also states that it remains commonly to nest, though the nest is exceedingly hard to find. These birds were present around the lagoon all during the summer of 1915, and on July 6, 1915, Mr. Brooking found a nest with newly hatched young in a clump of swamp grass 30 or 40 feet from the water. No other nests, however, were found. The next season these birds were again present through the summer, or rather the nesting season, acting as if they were breeding in the vicinity of the lagoon. On one occasion the male flew around Mr. Brooking making all kinds of cries, while he searched for a nest that he knew must be in the vicinity, but failed to find it before dark.”

Summer observations are not unusual; but there are only two recent breeding records. Similar to Brooking’s experience, I disturbed four males at Harvard WPA that likely had nests or young nearby 7 & 14 Jul 1996. Each one circled closely overhead and vigorously made nasal “whonk” calls. On 21 Jul 1996, a juvenile was observed with remnant down on the head and neck and was most likely hatched locally. Similarly, another agitated male behaving identical to those at Harvard was observed at Mallard Haven WPA 12 Jul 2003. The above observations all took place at very small wetlands adjacent to large wetlands. R. Silcock observed courtship flying at North Hultine WPA 15 Jun 2001 (Silcock 2001). Nesting was considered “probable” in the Theesen BBA Block and “possible” in the Mallard Haven Block in the 1980s (Mollhoff 2001).

Fall:

Maximum single-locale counts: 1) 46 at Sinninger #Y22 29 Aug 1997 2) 20 at Theesen Basin 30 Jul 1999 3) 10 at Wetland #Y115 2 Aug 2003

Extreme dates: 5, 9, 16 Jul <<< >>> 11, 18 Sep, 21 Oct (NBR 53:10) Maximum eRWB counts: 50 27 16

Markedly less common in fall as small groups, often comprised of mostly juveniles, are found from mid Jul through early Sep. Peak migration is primarily during Aug-early Sep. Most adults migrate to and stage at saline lakes in western North America before making a non-stop flight to wintering areas in western South America (Colwell and Jehl 1994). Late date above is not supported by details. From 1998-2001, no more than 30 were recorded in the eRWB on any one day.

Red-necked Phalarope*Phalaropus lobatus*

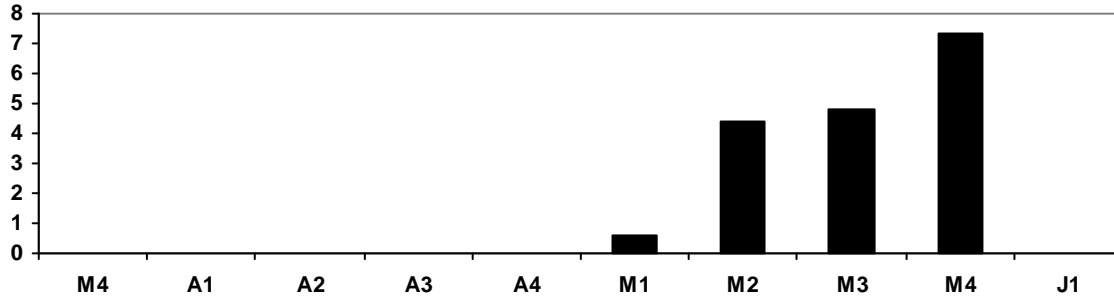
Distribution: Breeds in arctic regions of North America and Eurasia and winters locally at sea.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Rare spring and casual fall migrant.

Habitat: Wetlands.

Spring:



Year	First	Last	Peak	Peak Date(s)	Spring Total	Obs. Frequency
1997	7 May	23 May	8	17 May	20	3/3
1998	-	-	-	-	-	-
1999	6 May	30 May	2	6-7 & 30 May	5	3/5
2000	13 May	21 May	17	13 May	24	3/4
2001	26 May	27 May	20	26-27 May	20	1/1
Maximum single-locale counts: 1) 15 at Hupp WMA 13 May 2000 2) 12 at Mallard Haven WPA 27 May 2001 3) 8 at Miller's Pond WPA 17 May 1997 4) 6 at Harvard WPA 23 May 1997						
Extreme dates: 1, 6, 7 May <<>> 26, 27 30 May				Maximum eRWB counts: 20 17 12		

Besides the JSS, there are only three additional reports, all from Hastings and including an early report, 1 May 1955 (NBR 23:70).

Fall: Six reports, four of which are from 1994 onward. 1) juvenile at Wetland #C20 30 Aug 1998 2) A juvenile at Theesen Basin 10-17 Sep 1994 3) A juvenile at Sinninger #Y22 17 Sep 1994 4) 5 juveniles at Harvard WPA 25 Sep 1999. Two other reports, 26 Aug 1970 Adams (NBR 34:28) and 14 Oct 1972 Adams (NBR 41:32), lack details. There are no records of adults during this season.

Red Phalarope*Phalaropus fulicarius*

Distribution: Breeds in arctic regions of North America and Eurasia and winters locally at sea.

Conservation Status: A USSCP species of moderate concern.

eRWB Status: Accidental in spring and summer.

Habitat: Wetlands.

Spring: The only record is a molting adult at Wilkins WPA 28 Apr 2001

Summer: R. Silcock found a bird in basic-plumage at North Hultine WPA 15 Jun 2001 (Silcock 2001).

Discussion

The physical condition of migrant shorebirds when they arrive on breeding grounds directly affects reproductive success (or failure) (Schekkerman et al. 2003). Therefore, conditions and the availability of favorable habitats and food resources encountered at key migration stopover sites are critical to the entire life cycle of shorebirds (Schekkerman et al. 2003, Myers 1983). The Western Hemisphere Shorebird Reserve Network (WHSRN) identifies and works to conserve key stopover and staging areas used by shorebirds (Harrington and Perry 1985). WHSRN currently identifies three site categories:

- Hemispheric: hosting at least 500,000 shorebirds annually or 30% of a species' flyway population
- International: hosting at least 100,000 shorebirds annually or 15% of a species' flyway population
- Regional: supporting at least 20,000 shorebirds or 5% of a species' flyway population

In the central Great Plains, WHSRN recognizes Cheyenne Bottoms, Kansas as a site of hemispheric importance and Quivira National Wildlife Refuge, Kansas and Salt Plains National Wildlife Refuge, Oklahoma as sites of international importance. Large wetland sites, such as those mentioned above, are capable of hosting and do host large shorebird concentrations within a relatively small area. Habitat conditions at wetlands throughout the Great Plains are influenced by dynamic regional climate factors and localized weather events. Even large sites are susceptible to climate extremes such as drought. For instance, Cheyenne Bottoms has been dry for periods (Castro et al. 1990, Grzybowski 1989). Individual Great Plains wetlands do not reliably provide favorable shorebird habitat during all migrations. Shorebirds react to an ever-changing landscape and opportunistically exploit habitat conditions and food resources (Skagen and Knopf 1993). Thus, a network of sites may be required to provide adequate quality habitat (Skagen and Knopf 1994a, Skagen and Knopf 1993). This includes complexes of small wetlands that are dispersed over a large area. The importance of wetland complexes is difficult to perceive since individual wetlands host proportionally fewer shorebirds. Shorebirds may recognize and use a wetland complex in the same manner as they would a single large wetland (Farmer and Parent 1997), however. Individual species and populations rely upon different networks of sites since different wetlands and wetlands complexes host very different shorebird assemblages (Skagen et al. 1999). Thus, it is important to document shorebird usage at lesser known wetlands and wetland complexes and identify the individual shorebird species that may depend more heavily on these particular areas.

The RWB is one such wetland complex that may be important, but until recently shorebird conservationists and resource managers lacked information that identified how important the wetlands are and to which species. By using data from this study along with that already available, a preliminary assessment can be made. It was estimated by Adrian Farmer as a personal communication in LaGrange (1997) that 200,000-300,000 shorebirds currently use the RWB each spring. This estimate is debatable, but there are no data derived from the JSS that directly supports or challenges that estimate. During the JSS, the overall shorebird numbers recorded varied greatly from year to year and any estimate based on a single or few years data may be greatly affected by extremes (or lack thereof). Nevertheless, Table 11 combines this information with JSS data to estimate the world population of selected species that use the RWB in spring.

Table 11. Percent of estimated world population using the RWB during spring

Species	Species' % of total shorebirds during JSS	# using RWB each spring*	World Population estimate**	% of Population using the RWB in Spring
White-rumped Sandpiper	22.6	45,200 - 67,800	400,000	11.3 - 17.0
Wilson's Phalarope	13.1	26,200 - 39,300	1,500,000	1.7- 2.6
Long-billed Dowitcher	10.3	20,600 - 30,900	500,000	4.1- 6.2
Stilt Sandpiper	7.6	15,200 - 22,800	200,000	7.6 - 11.4
Buff-breasted Sandpiper	0.01	2,335- 3,000	15,000	15.6- 23.4

*Based on 200,000-300,000 estimate (LaGrange 1997)

**Based on Morrison et al. (2001)

Formerly there were nearly 4,000 wetlands totaling close to 100,000 acres in the RWB (Schildman and Hurt 1984). Wetlands were diverse and ranged in size from less than an acre to nearly 1000 acres (Farrar 1982, 1996). Given the number and diversity of wetland types, the former RWB wetland complex would have been a "shifting mosaic" (Skagen and Knopf 1994a) of wetland conditions. Over 90% of RWB wetlands have been destroyed (Schildman and Hurt 1984) and the remaining wetlands are degraded (LaGrange 1997). Furthermore, upland habitats, such as grassland burns resulting from prairie fire, may have also been at one time important to migrant shorebirds, particularly American Golden-plover, Eskimo Curlew, and Buff-breasted Sandpiper. Most upland areas are now agricultural fields.

Researchers are incapable of knowing how reduction and degradation of RWB wetlands since the time of settlement has affected shorebird stopover specifically in the RWB, migration throughout the Great Plains, and

individual species' populations. The logical conclusion is that the dismantling of the RWB ecosystem has negatively impacted shorebirds that migrate through the Great Plains. Attempting to quantify the importance of the RWB to migrant shorebirds based on recently-collected data may yield inaccurate conclusions. It might be compared to measuring the potential horsepower of a 10-cylinder engine when it is only firing on one piston. Nevertheless, based on the LaGrange (1997) estimate and if RWB wetlands are considered a single entity, the RWB currently surpasses the criteria used by WSHRN to identify sites of International importance. The criteria are met even if the LaGrange (1997) estimate is halved. Furthermore, including fall migration in this or any estimate would produce a higher annual figure, which is what the WSHRN determination is based upon.

Data in this document also identifies those species, including those of high conservation concern that may rely more on the RWB rather than other wetlands in the Great Plains. The Central Plains/Playa Lakes Regional Shorebird Conservation Plan (CPRSCP), in which the RWB is included, recognizes sixteen "priority" shorebird species (Fellows et al. 2001). Considering that list, eight species are suggested here to be priority species specifically in the RWB (Table 12). This document provides a baseline for future monitoring efforts of these priority species. Shorebird management efforts in the RWB should pay special attention to these species as well.

Table 12. Suggested priority species in the Rainwater Basin

<u>Species</u>	<u>Justification</u>
American Golden-plover	Primary spring migration corridor encompasses RWB. A USSCP species of high concern and a CPRSCP priority species.
Upland Sandpiper	Formerly a very common breeder, now rare. A USSCP species of high concern and a CPRSCP priority species.
Hudsonian Godwit	Population estimated at only 50,000 (Morrison et al. 2001). Narrow spring migration corridor encompasses RWB. A USSCP species of high concern and a CPRSCP priority species
White-rumped Sandpiper	Large numbers recorded multiple years of JSS during spring. A large proportion of global population may utilize the RWB in spring. A CPRSCP priority species
Stilt Sandpiper	Large numbers recorded in eRWB primarily in spring but also in fall. A USSCP species of moderate concern and a CPRSCP priority species
Long-billed Dowitcher	Large numbers recorded in eRWB primarily in spring but also in fall. A CPRSCP priority species
Buff-breasted Sandpiper	Population estimated at only 15,000 (Morrison et al. 2001). Narrow migration corridor encompasses eRWB and the eRWB may qualify as a site of Hemispheric importance to the species. Current population is only 10% of the target population set forth by USSCP. May be declining further due to several possible reasons including habitat alterations and poisoning from pesticides and/or herbicides (Lanctot et al. 2002). A USSCP species of high concern and a CPRSCP priority species.
Wilson's Phalarope	Large numbers recorded multiple years of JSS during spring. A USSCP species of high concern

Highlighting the importance of the RWB as a stopover site for migrant shorebirds and identifying the abundance and migration chronology of individual shorebird species in the eRWB is an important first step, but resource managers need to know why large numbers of birds come to the RWB during particular periods of the year and also how to restore and "maintain the underlying ecological processes that support the food base for those particular birds" (Elner and Seaman 2003). This is especially true in the greatly-altered RWB ecosystem and also very challenging since primary components of the former ecosystem are no longer present. Given that resources, including federal and state funds, are being used to acquire and restore wetlands these questions should be addressed sooner rather than later. This will not only achieve the maximum benefit with minimal cost, but will also ensure the long-term survival and conservation of all shorebirds that depend on the RWB.



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