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Upland sandpiper. (Paul A. Johnsgard)

The Secretive Shorebirds: Nebraska's Phantom Migrants

By Paul A. Johnsgard

The state of Nebraska has some ecological and landscape attributes that have placed it at the center of a vast, invisible aerial pathway known to biologists as the Central Flyway. To the west, the Rocky Mountains

provide the western boundaries of a broad north-south corridor formed by the Great Plains, while to the east the Missouri River Valley offers similarly conspicuous landmark guidelines for north- or south-bound birds. Nebraska's Platte River and thousands of other mostly small Nebraska wetlands are situated roughly halfway between the Gulf Coast and the transition zone between the northern Great Plains and the vast Canadian coniferous forests, the last geographic barrier to arctic-bound breeders. The Platte Valley thus represents the geographic "waistline" of a north-south pathway that is an important oasis of and foraging in the middle of one of the great avian migratory routes of North America, especially for cranes, waterfowl and shorebirds. Because of unique geographic location and abundant wetlands, the central Platte Valley and nearby regions attract countless numbers of nearly 100 migrating wetland species to it every spring, most famously the waterfowl and sandhill crane.

The spring migration of geese and ducks through Nebraska is well documented; it involves nearly 10 million birds and includes nearly 30 species. The migration is centered in the central Platte Valley, and is concentrated during a few weeks in March, usually peaking a week or two earlier than that of sandhill cranes. Also like cranes, the constant overhead calls of Canada, cackling, greater white-fronted, Ross's and snow geese can't easily be ignored, and the endless streams of shifting flight patterns projected against the sky aren't likely to be overlooked by even casual observers.

When I arrived in Nebraska in 1961, the astonishing spring migration of a half-million sandhill cranes to the central Platte Valley was a phenomenon then known only to the local residents. I luckily learned of it during that first year and, like the cranes, have since been irresistibly drawn back to the Platte every year. Only now, a half-century later and after having written several books describing the sandhill cranes and their intimate connections with the Platte Valley, has this spectacle has begun to receive the worldwide attention that I believe it deserves.

Much less apparent and well known is Nebraska's role in the spring and fall migrations of shorebirds such as sandpipers, plovers, curlews and godwits. These migrations are inconspicuous, in part because of the fact that most long-distance shorebird flights occur at night. Shorebirds also never migrate in the enormous flocks that are so typical of geese and cranes, and their flights are usually unaccompanied by loud calls. Yet, they are massive if nearly invisible migrations, involving over 30 species and an estimated 200,000–300,000 birds. Many of the species travel from South American wintering grounds, and about half of them are bound for arctic tundra breeding grounds of Canada and Alaska. While resting and feeding between flights, the birds scatter across Nebraska's smaller and shallower wetlands, from the undulating loess plains of Rainwater Basin between the Platte and Republican rivers, across the wet meadows of the

Platte Valley, to the thousands of remote Sand Hills wetlands nestled between the Platte and Niobrara rivers.

Nebraska's wetlands are a small but important part of an intercontinental series of important stepping- stones used by shorebirds on their migrations. Some locations are especially valuable for certain species but may be little used by others. For example, the otherwise undistinguished agricultural fields and wetlands centered in Seward and Fillmore counties are probably the buff-breasted sandpiper's single most important spring stopover area between its Argentine wintering sites and its high-arctic nesting grounds. Not far to the south, the shallow marshes of Cheyenne Bottoms Wildlife Area in central Kansas supports nearly half of North America's total shorebird population, including more than 90 percent of the white-rumped, Baird's and stilt sandpipers, long-billed dowitchers and Wilson's phalaropes surveyed during spring in central and eastern North America. To the north the glaciated potholes and sloughs of the Dakotas and southern Canada provide the major stopping points on the spring flights of many northern prairie or arctic-nesting species.

The migration pathway of each shorebird species is mostly dependent on the distribution of crucial stopover wetlands, of which the shallow, clay-bottom wetland playas ("lagoons") in the Rainwater Basin are particularly important. There the birds rest for a few days, foraging continuously during the daylight hours on invertebrates that they find by pecking, probing and sieving actions, depending on the species' bill shape and length. Short- and stout-billed plovers such as killdeers typically run and peck at surface foods, using their large eyes and keen vision, while species with progressively longer bills such as sandpipers, dowitchers and snipes typically probe in shallow water and mud, using only their sensitive bill tips to detect food. Phalaropes swim about on the surface in dizzying circles, using the turbulence thus produced to bring tiny edible items to the surface that can be easily grasped with their delicate bills. The long bills of curlews are bent gracefully downwards, facilitating efficient probing in sand while keeping the head nearly horizontal; that of the female are noticeably longer and more decurved than the male's. The upturned bill of avocets is adapted to making scythe-like sweeps across the water surface, the upward curvature of the bill allowing for a maximum surface area of water to be intercepted. This remarkable diversity in bill shapes, bill lengths and foraging behaviors is testimony to the powers of natural selection in fitting many potentially competing species into a maximum number of nonoverlapping foraging adaptations.

Collectively, the spring shorebird migration extends from late February or early March, with the arrival of killdeers, to early June, when the last of the arctic-bound species finally depart. Based on studies by Joel Jorgensen in the eastern Rainwater Basin, the peak of the shorebird migration there occurred in the second week of May (in eight of 33 species),

A female Wilson's phalarope. (Paul A. Johnsgard)

during his 1997-2001 study. Based on a half-century (the 1930s to 1980s) of migration reports from across Nebraska by members of the Nebraska Ornithologists' Union, I determined that 10 out of 34 shorebird species exhibited a migration peak (median arrival dates) during the first week of May. Ten more exhibited peaks during the second week of May , indicating that the first half of May to be the best time for finding shorebirds. By early to mid-May Nebraska's wetlands are warm enough so that invertebrate life is abundant, and the birds are able to store sufficient energy to carry them still farther north.

Not all the shorebirds arriving in Nebraska have still farther to go. Many of the killdeers arriving about the middle of March quickly scatter across all the state's meadows and grasslands, sometimes even nesting in parks or golf courses of larger towns. Killdeers are easily the most recognized of our shorebirds, and those nesting here are likely to have wintered in Central America, or even as far south as Venezuela. American avocets and black-necked stilts similarly arrive in western Nebraska during late April or early May, from coastal lowlands of Mexico in the case of the avocets. The stilts might have traveled from as far south as South America, where this species is widespread. Wilson's phalaropes also overwinter on inland wetlands from Mexico southward but are late migrants. Huge flocks of phalaropes migrate through the more alkaline wetlands of the Sand Hills during early May, where many stop to nest. Avocets and stilts also prefer alkaline wetlands for breeding, so all are likely to be found using the same ponds, which are often rich in brine fly larvae, brine shrimp and other salt-tolerant invertebrates.

Ruddy turnstones, sanderlings and red knots, all fairly rare spring migrants, stop here only briefly on their headlong rush northward to nest on high arctic tundras as far away as northern Ellesmere Island, the north-

ernmost land mass in North America. Of these, the sanderling winters the farthest south, often to southern Chile and Argentina, and sometimes even to Tierra del Fuego, roughly 10,000 miles from its northernmost nesting grounds. All of this flying and navigational power is packed into a bird weighing only slightly more than 2 ounces!

Some of our migrant shorebirds are more common in spring than fall, or vice versa. For example, the white-rumped sandpiper is one of Nebraska's most abundant spring sandpipers, but during fall these birds swing east to the Atlantic coast and are very rare in Nebraska. Similar, somewhat elliptical migrations occur in the American golden-plover, Hudsonian godwit, sanderling and semipalmated sandpiper. However, the western sandpiper's major spring migration route occurs along the Pacific Coast, and the birds are likely to migrate through the Great Plains only during their fall migration.

Persons wanting to see the spring shorebird migration in Nebraska have many choices. In the western Rainwater Basin the broad and shallow marshlands of Funk Wildlife Management Area (two miles north of Funk) often attract great numbers of shorebirds, as do several other sites. Joel Jorgensen reported that he saw the largest numbers of spring shorebirds in the eastern Rainwater Basin at three waterfowl production areas: Harvard (three miles west of Harvard), Mallard Haven (two miles northwest of Shickley) and Massie (2.5 miles southeast of Clay Center). All of these are playa wetlands, which soon become entirely dry during years of low winter precipitation, whereas during very wet years the roads leading to the wetlands may be so soft as to make them impassible.

In the western Sand Hills, Crescent Lake National Wildlife Refuge (25 miles north of Oshkosh) is a prime place for shorebird-watching. At times thousands of Wilson's phalaropes and American avocets may be seen on some of the refuge's more alkaline wetlands, such as Border Lake. In the northern Sand Hills, Valentine National Wildlife Refuge 20 miles south of Valentine probably offers the best regional viewing opportunities. Least and Baird's sandpipers are notably common there during spring.

Of all Nebraska's commonly nesting shorebirds, the species that perhaps migrates the farthest from its wintering areas is the upland sandpiper. It typically arrives in early May, after wintering in the pampas grasslands of Argentina, nearly 5,000 miles away. In a sense it lives in a world of constant spring and summer, leaving the pampas at the end of each southern hemisphere summer to be greeted upon its arrival in Nebraska by yet another beautiful spring. Like the equally welcome calls of the longbilled curlew, the upland sandpiper's territorial and courtship calls provide Nebraska ranchers with tangible proof that each long winter is finally over.

These and other Nebraska shorebirds are fragile treasures whose destinies largely depend upon the preservation of wetlands that are scattered

from northern Canada to southern South America. An important link in this pathway, Nebraska is one of a few places left in America where a person can stand, surrounded by native grasses and graced above by an unobstructed blue sky, while the distant whistles and bubbling calls of a upland sandpiper sends shivers down the spine or a long-billed curlew can be seen standing majestically silhouetted against a grassy horizon. These are indeed living treasures worth protecting, especially by conserving our remaining wetlands.

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Dr. Paul A. Johnsgard is a retired University of Nebraska professor. His most recent (in-press) book is titled "Sandhill and Whooping Cranes: Ancient Voices over America's Wetlands" (University of Nebraska Press). Many of his other publications are available at http://digitalcommons.unl.edu/johnsgard/ .

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