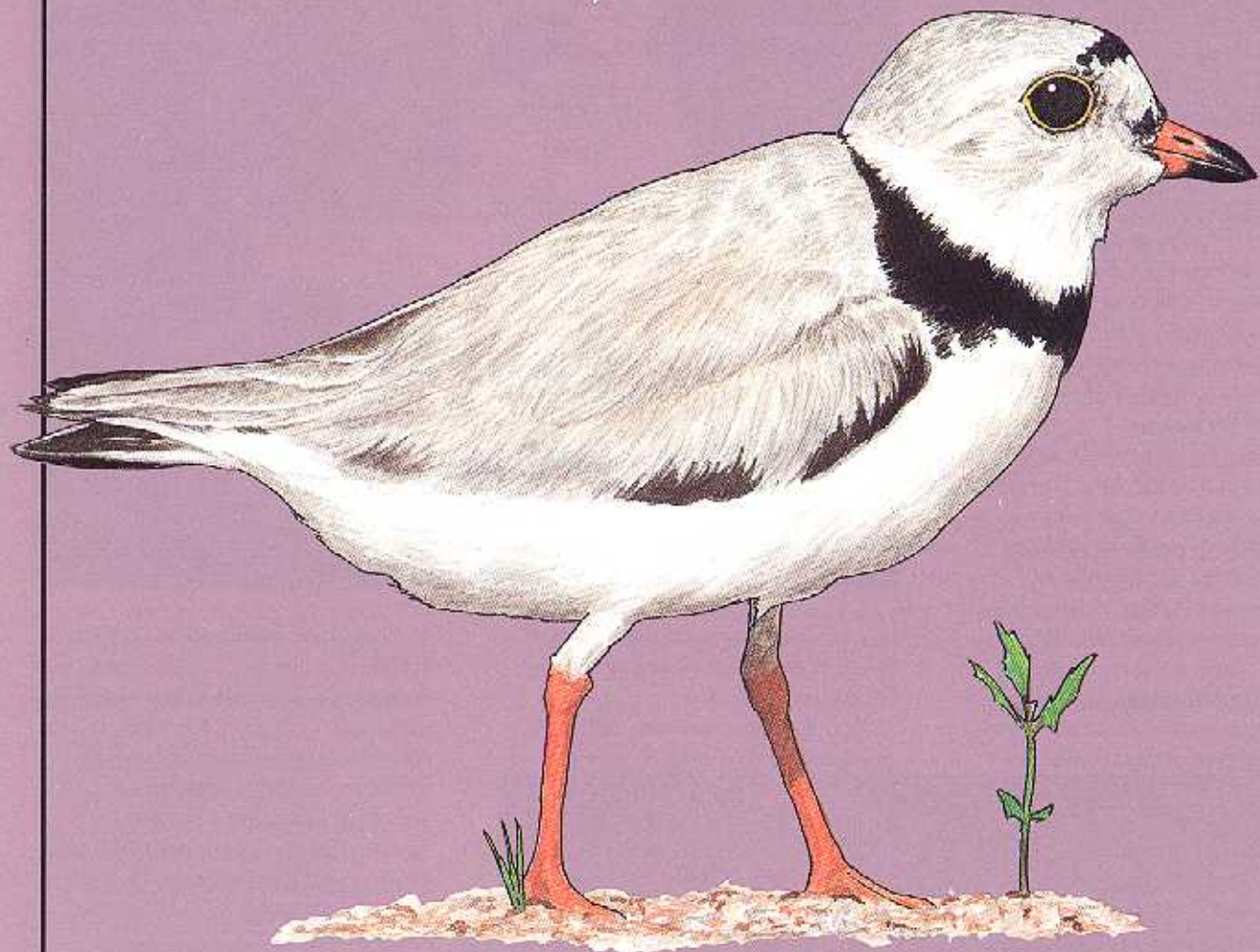


NEBRASKA'S

Threatened and Endangered Species



Piping Plover

NEBRASKA GAME AND PARKS COMMISSION

Piping Plover – A threatened species

Status

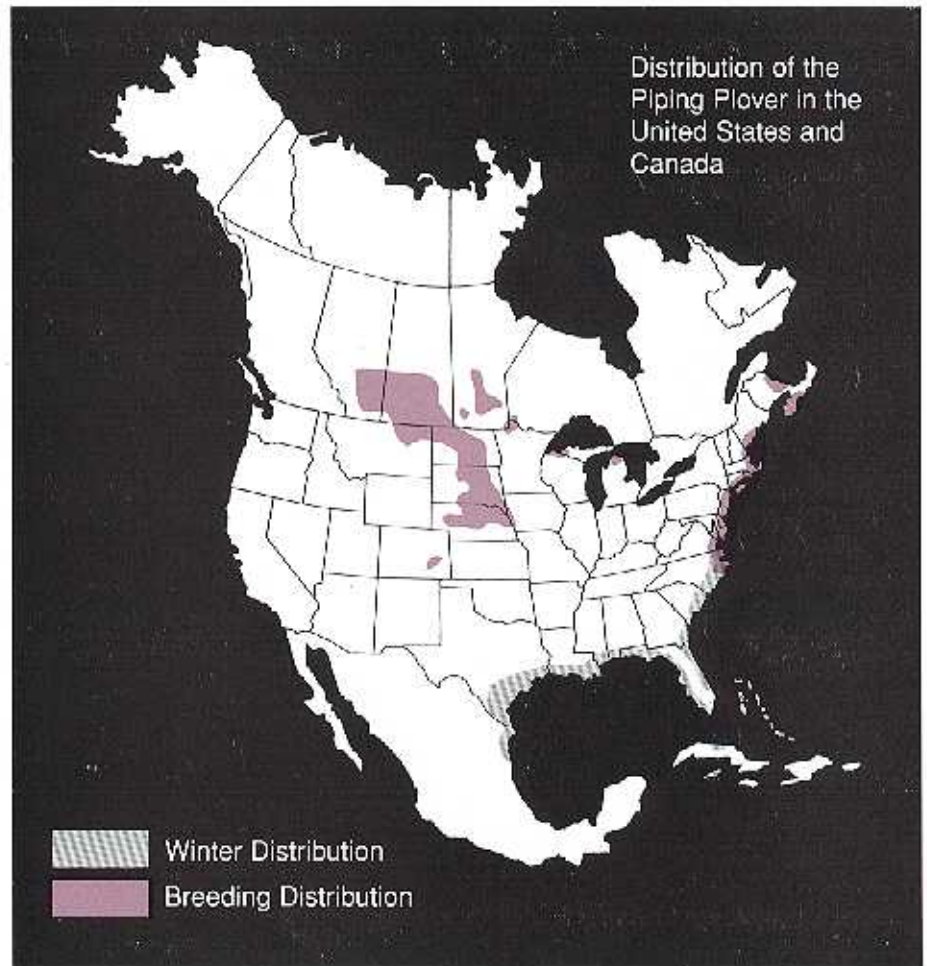
The piping plover (*Charadrius melodus*) is a migratory shorebird that breeds along prairie rivers, alkali lakes and ponds of the northern Great Plains, on sandy beaches along the Great Lakes and on the vast beaches of the Atlantic Coast.

Since 1900, piping plover populations have fluctuated drastically. Uncontrolled market hunting in the early 1900s brought the species close to extinction. Protective legislation helped plover populations recover by 1925. Since then, human encroachment, an increase in the recreational use of sandbars and beaches, the channelization and impoundment of rivers and the resultant modification and destruction of habitat have caused numbers to decline again.

Piping plovers were extirpated from Wisconsin, Illinois, Indiana, Ohio, Pennsylvania and New Hampshire. Plovers no longer nest on the shores of Lake Ontario, and breeding populations are precariously low throughout the Great Lakes region. The gap between the Atlantic and northern Great Plains populations widens as piping plover numbers decline in Manitoba and at Lake of the Woods in Minnesota and Ontario.

The piping plover's historic breeding range in Nebraska included the Missouri and Platte rivers (including parts of the North Platte and South Platte rivers), parts of the Loup rivers and about 75 miles of the Niobrara River. The piping plover can still be found nesting on naturally occurring sandbars along the lower Niobrara, the lower Platte (Columbus to Plattsmouth), the Loup and at a few sites along the Middle Loup.

Artificially created and maintained sandbars along the unchannelized part of the Missouri River and the central Platte River provide limited nesting sites. Breeding also occurs on the shoreline of Lake McConaughy, especially in years when water levels are low, and on sand spoil piles created



by gravel mining operations along the South Platte, Platte, Loup and Elkhorn rivers.

Concern over declining numbers prompted the National Audubon Society to add the piping plover to its list of birds of special concern (Blue List) in 1972. Canada was the first country to officially recognize the plover's plight when it assigned the species threatened status in 1978, later changing its status to endangered.

In 1986, the piping plover gained federal and state protection in the United States and is now listed as endangered in the Great Lakes region and as threatened in the northern Great Plains and on the Atlantic Coast.

A 1991 population survey estimated 2,420 pairs of piping plovers in the United States and Canada. The northern Great Plains and Great Lakes pop-

ulations were estimated at 1,250 and 20 pairs, respectively, while the U.S. Atlantic Coast population was estimated at 1,150 pairs. Currently, Nebraska's breeding population is estimated at 250 to 280 pairs. Recovery plan objectives call for maintaining a population of 465 pairs of plovers in Nebraska for 15 years before the population can be considered recovered.

While information on nesting piping plovers is well documented, the ecology of plovers during migration and on wintering areas is less well understood. The Great Lakes and northern Great Plains birds appear to winter along beaches and sandflats or mudflats from Florida to northern Mexico. Wintering sites for Atlantic birds are less well known, although birds have been seen from Virginia to the Florida Keys. Occasional winter

sightings of piping plovers also have been reported from the Bahamas, Cuba, Jamaica and the West Indies.

Description

"Mourning bird" was a name given to the piping plover in early accounts, probably describing its melodic, forlorn mating call. The piping plover is a small, stocky shorebird sometimes mistaken for the more familiar and common killdeer. The plover is half the size of the killdeer, measuring $6\frac{1}{2}$ to $7\frac{1}{2}$ inches in length, and it has only one narrow black band (sometimes incomplete) across the white breast, unlike the killdeer, which has two. The piping plover has a black stripe across the white forehead, a black-tipped orange bill and bright orange legs. The head, back and wings are pale sandy-brown to gray, providing natural camouflage on the open, sandy areas where they are found. Male birds usually have a darker, more complete breast band, a brighter orange bill and a more pronounced white eyeline than females.

Piping plovers in the Great Plains population tend to be brighter in color and have a more complete breast band than Atlantic birds. Non-breeding piping plovers lose the black bands on the head and breast and the orange color of the bill, but the legs remain orange. Immature piping plovers look similar to non-breeding adults and usually acquire adult plumage the first spring after fledging.

Habits

In spring, piping plovers begin their migration north to breeding areas and arrive in the Great Plains in late April or early May. Soon after arrival, males establish a territory that encompasses wet shoreline for feeding and a dry, sandy, relatively flat area for nesting. The male and female vigorously defend their territory. When a predator threatens a nest or chick, adults frequently try to lead the intruder away by performing a "broken wing act." The adult drags one wing on the ground, flails the other wing in the air and calls pitifully, "woo-up, woo-up," to draw the intruder's attention away from the nest.

Most piping plovers in Nebraska nest in or near colonies of the endangered least tern. This association is thought to be beneficial to plovers, because the terns aggressively defend the entire colony area by mobbing and chasing intruders away. Average nesting colonies in Nebraska consist of five to 10 pairs of least terns and one to three pairs of piping plovers.

Fall migration to wintering areas may begin as early as late June, and by mid-August most piping plovers have left Nebraska.

Reproduction

Piping plovers are considered monogamous (having only one mate), but will readily change mates and territories following nest failure and

between years. Each spring many piping plovers return to their former nesting sites. Males exhibit greater fidelity to a nesting area than do females.

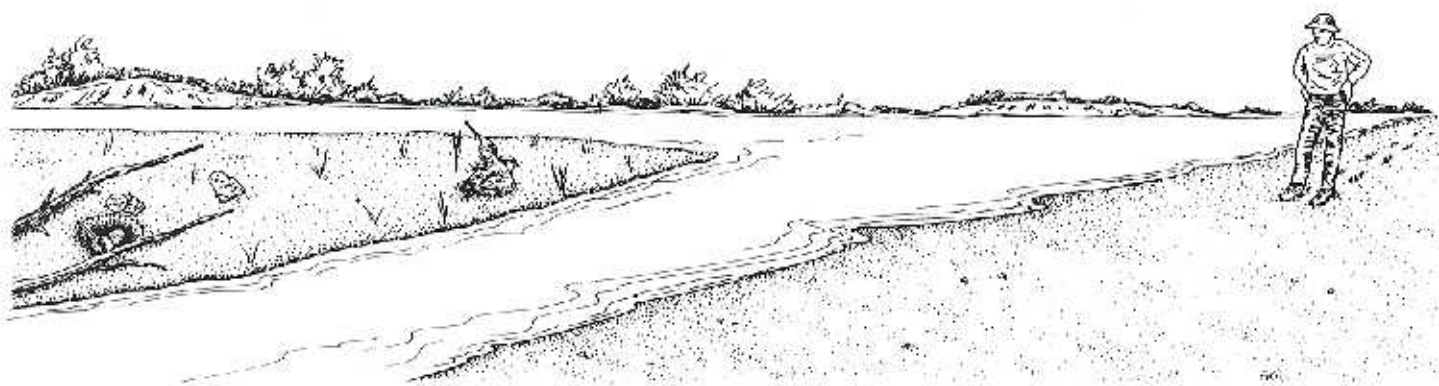
Soon after arrival, males perform elaborate flights above their territories to advertise ownership to rival males and to attract prospective females. The flights are performed five to 35 meters above the ground and can continue for as long as half an hour. Aerial displays are usually accompanied by a series of high-pitched calls interspersed with a series of long, drawn-out, mournful calls.

While scraping shallow, bowl-shaped nest depressions in the sand with their feet, males call vigorously to the female. The female then inspects each scrape and selects one in which to lay her eggs. Piping plovers often line their nest scrapes with uniform small pebbles or grains of sand.

Piping plovers usually lay four olive- to buff-colored eggs evenly marked with fine splotches of black. The eggs are laid every other day until the clutch is complete, and then incubation begins. Both sexes share incubation duties, lasting an average of 26 to 28 days.

In Nebraska, piping plover eggs begin to hatch from late May to mid-June. Nest-mates hatch within four to eight hours of each other. As soon as an egg hatches, the adults carry the broken eggshell away from the nest scrape to avoid detection by predators.

The newly hatched chicks are downy replicas of the adults, sand



colored above and white below. About two hours after hatching, the young leave the nest and are capable of running and swimming. When disturbed, the chicks respond immediately to alarm calls of the adults by lying flat on the ground with their heads down. The chicks' sandy colored plumage makes them difficult to see, even at close range. Piping plover chicks are capable of making short flights at about 20 to 25 days of age.

Female plovers are capable of nesting when they are one year old and have been known to re-nest up to five times in one season if their nests are destroyed. The average life span of a piping plover is thought to be about 3½ years, but some birds have lived up to 14 years.

Food

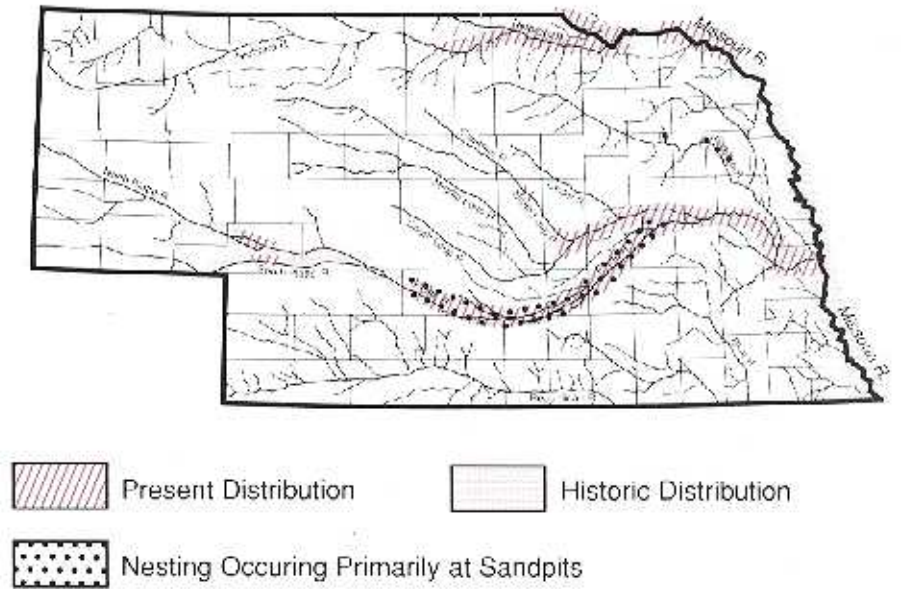
Piping plovers feed primarily on invertebrates found along the water's edge, including marine worms, insects (larvae and adults), crustaceans, mollusks and other small aquatic organisms and their eggs. Plovers are often seen alone or in small groups capturing food during short, rapid runs interspersed with rapid pecks. They sometimes extend one foot slightly forward and vibrate it against the water-saturated sand, bringing invertebrates to the surface.

Habitat

In the northern Great Plains, piping plovers nest on sandbars in major rivers and along unvegetated shorelines of semi-permanent alkaline ponds and lakes. Piping plovers also use a variety of artificially created habitats, including exposed sandy beaches of large lakes and reservoirs, gravel mine spoil piles, dredge islands and flyash deposits at coal-burning powerplants.

In Nebraska, piping plovers nest on barren midstream sandbars in wide channel beds of large rivers. Nesting

Piping Plover Distribution in Nebraska



also occurs on relatively flat, unvegetated spoil piles at sand and gravel mining operations adjacent to river channels and on the wide, sparsely vegetated, sandy beaches of Lake McConaughy.

Nests are located on elevated areas with unvegetated sand, gravel and cobble substrates. Nests are sometimes placed near objects such as small pieces of driftwood, stones or bones. Unobstructed views are essential so adults can readily detect potential threats.

On the wintering grounds, piping plovers spend most of the day feeding and loafing on sandflats or mudflats at the ends of barrier islands, on coastal inlets and bays, on sandy peninsulas and on overwash areas on beaches.

Limiting Factors

Water development throughout the Great Plains has had a significant effect on nesting plovers. The damming and channelization of rivers and the diversion of their water has eliminated hundreds of miles of riverine nesting habitat. Dams and diversions now regulate historic flows that annually scoured succeeding vegeta-

tion from sandbars used for nesting. Sediment is trapped in reservoirs behind dams and can no longer contribute to downstream sandbar formation. Over time, sediment-deficient water passing through dams lowers the riverbed while elevating the sandbars. Vegetation on heightened sandbars is no longer scoured, and the only suitable nesting sandbars are those exposed at low flows. These low-elevation sandbars are routinely subjected to flooding by rainfall and untimely discharges that ultimately wash away any plover nest attempts. Channelization of rivers such as the Missouri simply eliminates all of the plovers' feeding and nesting habitat.

The remaining sandy areas that attract nesting piping plovers may also attract recreationists. Nests are also often unknowingly destroyed and chicks killed. Human presence in nesting areas disrupts courtship, nesting, brooding and foraging activities and exposes eggs and young to weather extremes and predators. On the heels of commercial and recreational development near nesting areas are opportunities for predators such as raccoons, gulls, crows, foxes and domestic pets.

What's the Difference?



Piping Plover

The piping plover is half the size of the killdeer, measuring 6½ to 7½ inches in length. Piping plovers have only one black band across the white breast, and their back color is much lighter than the killdeer's.



Killdeer

Piping plovers that find alternative nesting habitat at sand and gravel mines adjacent to river channels often encounter greater threats. Those sites lack the protection of a flowing water barrier and are easily accessed by humans and terrestrial predators. Activities from mining operations and human disturbance from adjacent housing areas also can limit piping plover nest success. In the short term, sandpits do provide nesting substrate for piping plovers, but eventually plant succession or housing developments render sites unusable.

Piping plover survival can be influenced by environmental contaminants. Studies indicate that selenium and mercury concentrations are high enough in plover eggs to be of concern, and that chlordane and PCBs (polychlorinated biphenyls) also might be present in the piping plover's environment. Furthermore, agricultural chemical runoff into rivers and tributaries can affect the quality of piping plover habitat.

Winter habitat is also threatened by industrial and urban expansion. Winter habitat quality is continually threatened by the possibility of oil or chemical spills along the coast.

Management and Outlook

The United States and Canada have developed recovery plans for the piping plover. Both plans outline and prioritize the steps to recovery.

Nebraska rivers support one of the largest piping plover breeding populations in North America. Annual surveys to locate and census breeding

piping plovers in Nebraska began in 1980 and continue today. In 1991, an international census of the piping plover, one of the first attempts to survey one species of shorebird throughout its entire range, was completed.

Intensive research on habitat selection, habitat availability and reproductive success has been conducted throughout the piping plover's range in Nebraska. River management is underway, particularly along the



Piping plover chicks and eggs are naturally camouflaged, offering them protection from predators.

Missouri and Platte rivers where development pressure is intense. Biologists are helping develop river flow management plans. Securing instream flows, which would maintain suitable piping plover nesting habitat and provide secure nest sites, remains a priority. Efforts to restore, create and protect habitats are also underway. State and federal agencies, private conservation organizations and public-utility groups are involved.

Biologists are working with landowners and gravel mine owners and operators to help alleviate conflicts between the nesting birds and mining activities. Experiments to reduce predation at those vulnerable sites are being conducted.

Steps to increase public awareness include news releases, brochures, posters, volunteer monitor programs and nest site patrols. Some nesting sites and river-access points are posted with signs to alert recreationists of the plover's plight. Because of the conflicts between human recreational use and the nesting and feeding requirements of the piping plover, public support and cooperation with temporary use restrictions and conservation measures is imperative.

Nebraska law requires state agencies to consult with the Nebraska Game and Parks Commission on any proposed action they authorize, fund or carry out. The law ensures that such actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction or modification of habitat.

Piping plovers continue to compete for secure, safe and undisturbed places to winter, nest and raise their young. By understanding their habitat needs, population dynamics and limiting factors, biologists, with public support, hope to ensure that piping plovers remain an integral part of Nebraska's natural diversity.



Piping Plovers use barren, midstream sandbars, like these on the Platte River, for nesting and rearing young.

Piping Plover is one in a series of *Nebraska's Threatened and Endangered Species* brochures published by *NEBRASKA* Along Magazine and the Nebraska Game and Parks Commission with funds from Nebraska's Nongame Wildlife Tax Checkoff. *Piping Plover* was also supported by contributions from the Nebraska Forest Service's Forest Stewardship Program. Text by Nongame Bird Biologist Jeanine Lackey, Nebraska Game and Parks Commission. Photos: Page 5; top left and top right, Jon Farrar; bottom, Gary Lingle; Page 6, Mike Forsberg. Layout, design and illustrations by Randall Bright, November 1995.

Note: New data on the occurrence and distribution of this species are being collected constantly, and some of the information in this publication may be outdated. It should be used for a general understanding of the status of this species in Nebraska and not as the sole source of locational information for any report, project, regional/local planning or environmental impact assessment. For current information on this or other threatened and endangered species, or for additional copies of this publication, contact the Wildlife Division, Nebraska Game and Parks Commission, P.O. Box 30370, Lincoln, NE 68503.



Forest Stewardship Program



Nongame Wildlife Tax Checkoff Fund



Nebraska Game and Parks Commission