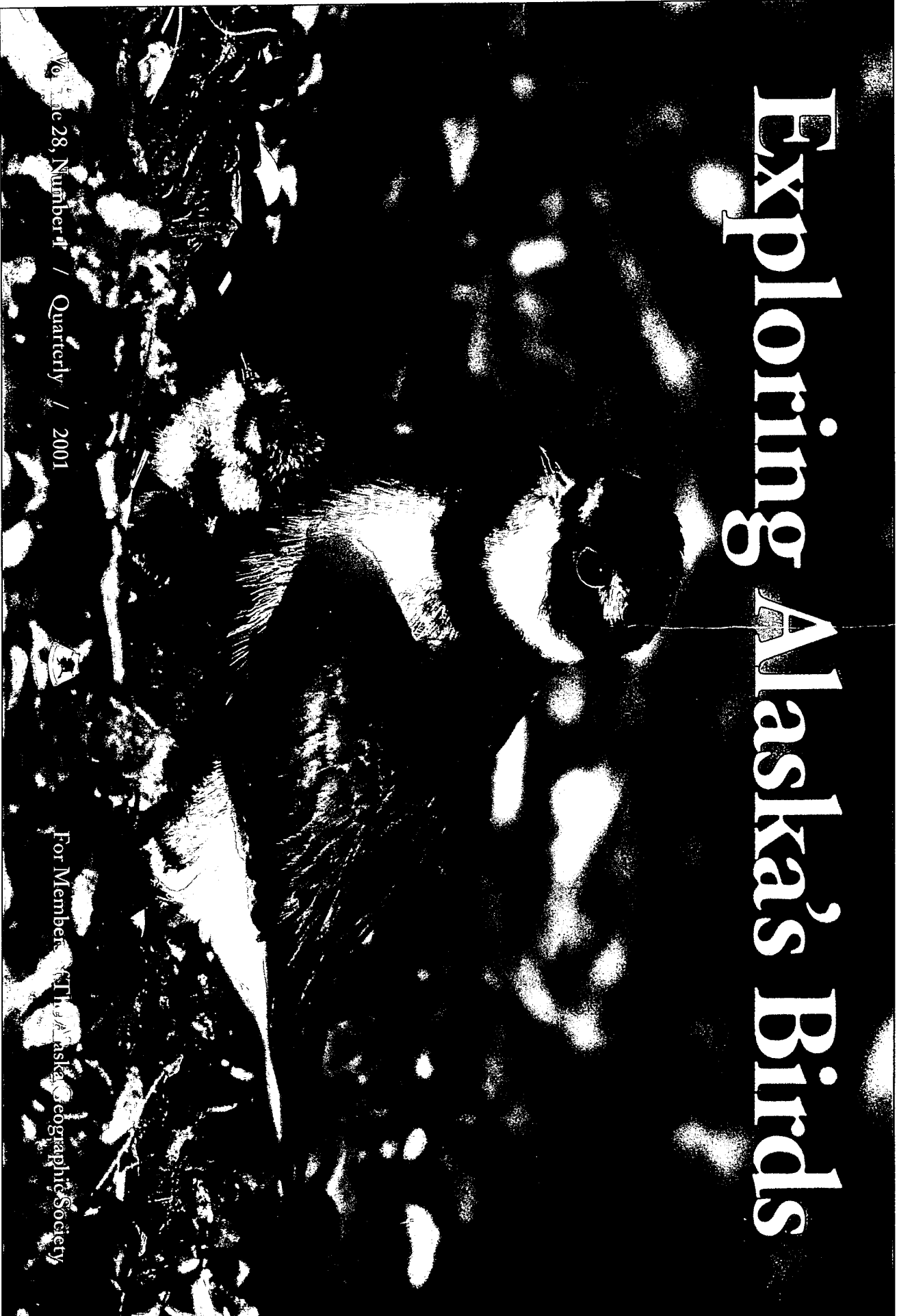


ALASKA GEOGRAPHIC[®]

Exploring Alaska's Birds



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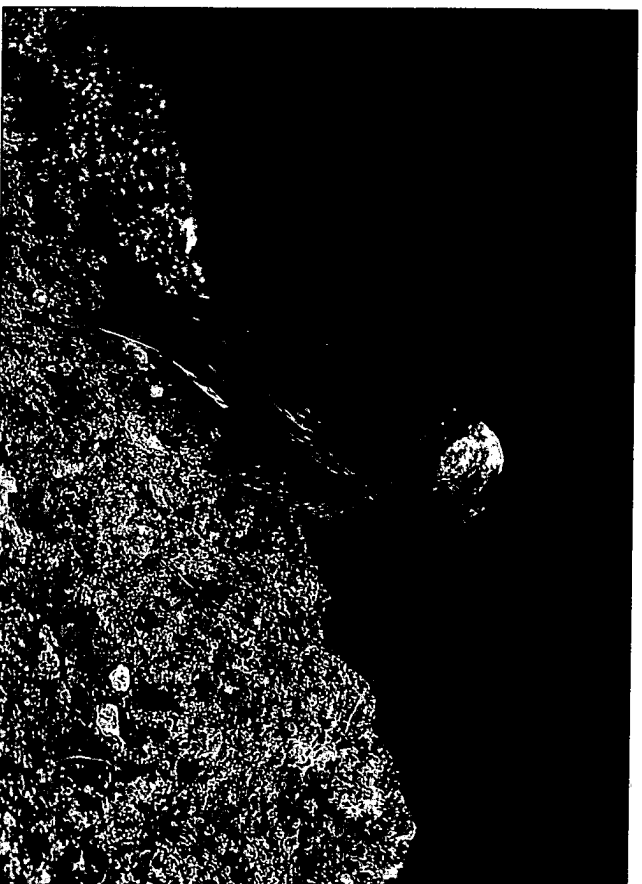
For Members of The Alaska Geographic Society

Migration Pathways

By Brad A. Andres

EDITOR'S NOTE: *Brad A. Andres received his B.S. in Biology at Pennsylvania State University and later earned an M.S. and Ph.D. in Zoology from Ohio State University. He completed his master's and doctoral research in Alaska, where he concentrated on migrant shorebirds of the North Slope and breeding black oystercatchers in Prince William Sound. As a member of the U.S. Fish and Wildlife Service's Nongame Migratory Bird Management unit, he is involved in numerous projects concerning landbirds and shorebirds and helps coordinate monitoring efforts for these species groups in Alaska.*

Looking westward across the Gulf of Alaska from a beach near Yakutat, I am once again amazed by the phenomenal migrations of birds. It's May and tens, even



hundreds, of thousands of birds are winging their way back to Alaska along North America's western coastline. Sandpipers, ducks, hawks, songbirds — right now you can find a representative of almost every type of bird that breeds in the state. Two weeks earlier, I had withstood cold, blustery winds at Gunsight Mountain to observe hundreds of hawks migrating through the Matanuska Valley near Anchorage. Anywhere you go in Alaska between late April and early June, you will be surrounded by hordes of migrant birds. Although Alaska does not support great numbers of species of breeding

birds, no other spot in North America receives birds from as many flyways as does Alaska; in winter, birds that have bred here can be found on every continent. Many people have heard of the fantastic migration story of the arctic tern that breeds in Alaska and travels all the way to Antarctica to spend the winter. However, few realize that many of Alaska's birds migrate across vast distances each spring and fall. Long-distance migration is particularly prevalent among shorebirds and songbirds; some individuals in more than 55 percent of the species in these two groups

This gray-crowned rosy-finch spotted in the Pribilof Islands is one of thousands of songbird species that follow the Pacific Flyway as the seasons turn. (Loren Taft/Alaskan Images)

cross the Tropic of Cancer to spend the winter. Alaska's migratory birds are truly an international resource.

Following the Pacific Coast

There's nothing like seeing a group of 10,000 sandpipers crazily feeding on a mudflat to feel a part of a bird's world. Observing the spring migration of birds along the Pacific coast of Alaska is a great way to get connected. As the name implies, the Pacific Flyway is a migration corridor that lies along the west coast of North America. The coastline guides birds to and from Alaska. One of the most conspicuous bird groups to use this flyway is the shorebirds (plovers, sandpipers, curlews, oystercatchers, snipes, phalaropes, and turnstones). Many of these species form large flocks and concentrate in tidal estuaries during migration. Here they feed on worms, clams, and other invertebrates in mudflats exposed during low tide. After refueling at these "Stop-n-Gos," they are on their way. Because

shorebirds concentrate in large numbers during migration, they are extremely vulnerable to catastrophic environmental disasters like oil spills. A program called the Western Hemisphere Shorebird

BELOW: Feeding on mollusks, crustaceans, and marine worms, the bar-tailed godwit will thrust its long, slightly upturned bill deep into submerged mudflats. The champion non-stop migrant, these godwits fly from Bristol Bay in southwestern Alaska to New Zealand without stopping. (Lon E. Lanber)

RIGHT: Tidal marshes such as the 16-mile-wide Stikine River Delta are prime migratory bird habitat. The mixture of salt water, fresh water, varied plant life, and insects attracts birds of prey, waterbirds, and songbirds. (Don Cornelius)



Reserve Network was launched by the Manomet Bird Observatory in eastern Massachusetts to identify areas where migratory birds concentrate and to work toward conservation of these areas. The program has identified 57 sites in Alaska that support more than 20,000 shorebirds during spring or fall migration.

One of the most abundant shorebirds on the Pacific coast is the western sandpiper. Beginning as far away as Ecuador, this small sandpiper that weighs about one ounce hopscotches along the coast back to its breeding grounds in western Alaska. Along the way, the

sandpiper flies 200 to 300 miles a day between estuaries. Leaving Ecuador, it stops in Panama, Honduras, Mexico, California, and British Columbia. On reaching Alaska, most westerns land at the Copper River Delta. Here in Southcentral Alaska, westerns spend about three days before continuing their migration.

Biologists estimate that between five and eight million shorebirds, mostly western sandpipers, can be found on the Delta's mudflats each spring, making it one of the most important shorebird stopovers in the world.

Not all migratory birds choose

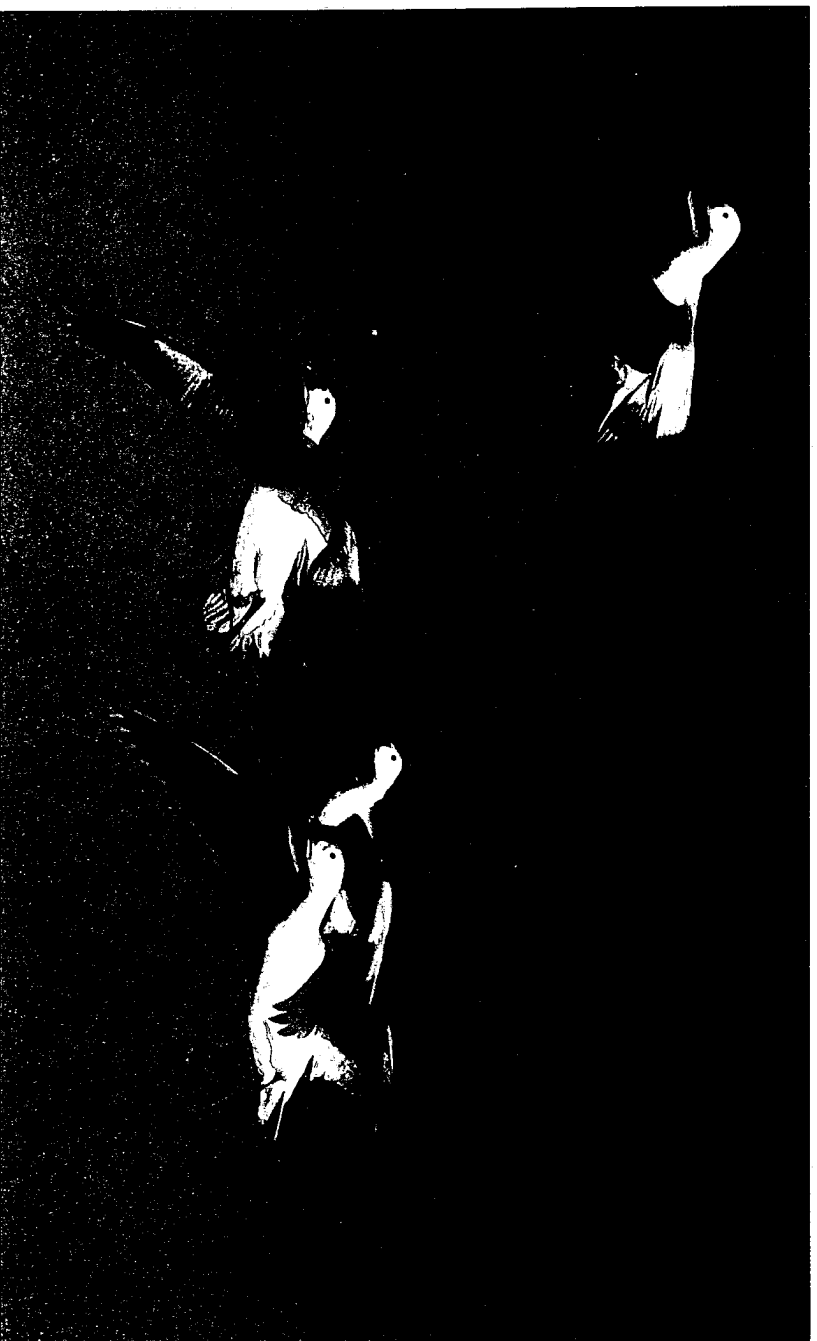


to refuel during their migration. Brant, small geese that breed on the tundra of western and northern Alaska, concentrate in large numbers in the fall at the western end of the Alaska Peninsula. When they have their fill of feeding on eelgrass, a rich estuarine plant, they fly non-stop across the Gulf of Alaska to the Pacific Northwest. Once landing along the coast there, many fly farther south to winter in the lagoons of western Baja California. Brant have no GPS units, compasses, or weather faxes to plan their journey or find their way. Yet year after year they make amazing long-distance, over-water flights. Biologists are only beginning to identify which species and how many individuals undertake long flights across the Gulf of Alaska. As the technology to follow small birds advances, biologists will likely discover that many songbirds embark on such fall migrations.

Waterfowl and shorebirds are not the only groups to use the Pacific Flyway. For six years, I have captured and banded songbirds a mile from the coast at Yakutat. During that period, our team captured more than 13,000 birds. Most of these birds nested somewhere south of the Alaska Range. An exhausted yellow warbler that

Snow geese have been clocked at speeds of up to 50 miles per hour and are found in most regions of Alaska during spring and fall migration. (Tom J. Ulrich)

landed on a fishing boat offshore from Yakutat had been banded five days earlier on the central Alaska Peninsula. The birds we captured were on their way to many different spots to spend the winter: alder flycatchers to Peru; orange-crowned warblers to western Mexico; Lincoln's sparrows to Nicaragua; varied thrushes to Oregon; and golden-crowned sparrows to California. Even the rufous hummingbird, which can be found visiting feeders in Yakutat and weighs one-third ounce — the equivalent of a mere quarter-dollar — travels to the cloud forests of western Mexico to wait out Alaska's winter. Although all these species use the Pacific Flyway, they disembark at different points along the way. Alaska-breeding songbirds can be found in every country in Latin America between Peru and Mexico. They exist in all types of habitats from ornamental trees in city parks to pristine cloud forests. The breadth of their distribution and habitat use in the tropics makes generalizations about the

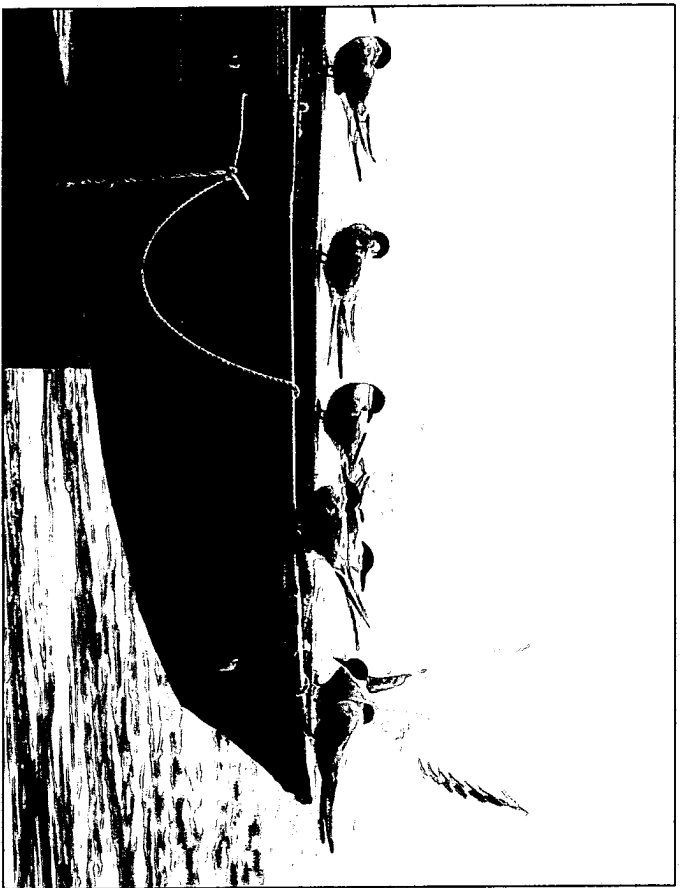


effects of habitat loss difficult, and biologists are only now gaining knowledge about the ecology of these birds on their wintering grounds.

Bending to the East
By 3:25 A.M., I am counting birds along a Breeding Bird Survey route at Lake Louise near Glennallen. For the next four and one-half hours, I will make 50 stops, for three minutes each, to

listen and look for birds — a ritual I perform each June. During the same month, people all over the country are undertaking similar rituals, making the Breeding Bird Survey the most widespread canvass for songbirds on the continent. I enjoy the Lake Louise route because I encounter a fair number of blackpoll warblers, the male of which is a striking black-and-white bird with a solid black cap. One of the things that intrigues me about

blackpolls is their migration strategy. In the fall, blackpolls do not follow the Pacific coast like songbirds at Yakutat but instead traverse the entire length of boreal Canada. Encountering the ocean along the coasts of New England and Maritime Canada, they stack up waiting for favorable weather. With passage of a northwesterly cold front that provides a tail wind, blackpolls take off for South America, eventually making land-



Arctic terns are an international, circumpolar species, nesting in arctic environs in countries from North America to Russia to Finland, then following flyways to Antarctica, a round trip of approximately 20,000 miles. (Tom Soucek)

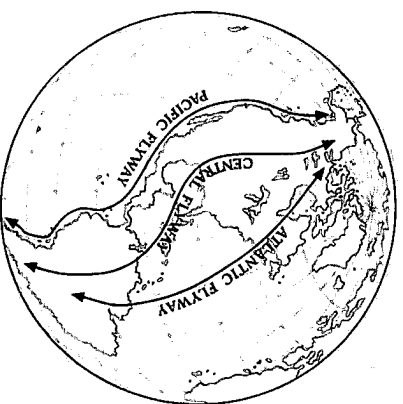
fall in Suriname or Venezuela. Many of these small birds make this incredible journey non-stop, flying continuously for two days or more. Birds are able to store and use high energy fat reserves to make these flights. Migrator birds also take advantage of ideal weather conditions to reduce stress on their bodies. Although this appears to be an unusual migration route, a review of the breeding range of the blackpoll warbler might provide an explanation. At the end of the last ice age, about 10,000 years ago, blackpolls colonized northern North America from

the east. Thus, their convoluted migration route is retracing their radiation across the continent.

Blackpoll warblers are not alone in following a migration path that bends to the east. Many of the songbirds that nest in interior Alaska follow the Rocky Mountains into Mexico and Central America. Some, like the Swainson's thrush, may cross the western Gulf of Mexico and continue to Panama and northern South America; others stop somewhere in the United States. The Smith's longspur, a sparrowlike bird that breeds in tundra along

the Denali Highway and in the Brooks Range, spends the winter in grasslands of eastern Texas, eastern Oklahoma, and western Arkansas. Trailing the Swainson's thrush, the minute Wilson's warbler, one-quarter ounce, ends its journey in Guatemala. Here it shares the forest or shrublands with numerous resident bird species. Numbers of bird species found in tropical countries are much higher than in Alaska or North America. For example, in Panama (which is smaller than Oregon), about 950 species of birds have been recorded, more than has been recorded in all of the United States and Canada. Other species besides blackpoll warblers migrate across large expanses of ocean. As early as 1492, Christopher Columbus noted a large migration of birds over the western Atlantic Ocean during the fall. Among this group of migrants was probably another Alaska-breeding bird, the American golden-plover. The

golden-plover follows the blackpoll eastward and also refuels in wetlands along the Atlantic coast of North America. Like the blackpoll, it takes off from the North American coast and heads toward northern South America. Golden-plovers, however, are not content to remain on the beaches of Suriname or Venezuela. After refueling once again, the plovers continue to the pampas region of southern Brazil, Uruguay, and northern Argentina. Here they are joined by numerous shorebird species from the North Slope of Alaska: Baird's, buff-breasted, pectoral, and stilt sandpipers to name a few. In fact, of the 37 species of shorebirds that regularly breed in Alaska, some individuals of 28 species (76 percent) migrate to South America; many of these shorebird species



(ALASKA GEOGRAPHIC®
map by Kathy Doogan)

breed in the Arctic. To return to Alaska in the spring, shorebirds and songbirds follow a more westerly route through the center of the continent. Their route selection is mainly based on the direction and strength of prevailing winds. Weather and climate play a large role in the development of migration pathways for species and in the decisions of individuals on when to migrate. For example, northward movements of Canada geese are closely tied with decreasing amounts of snow cover at a particular latitude.

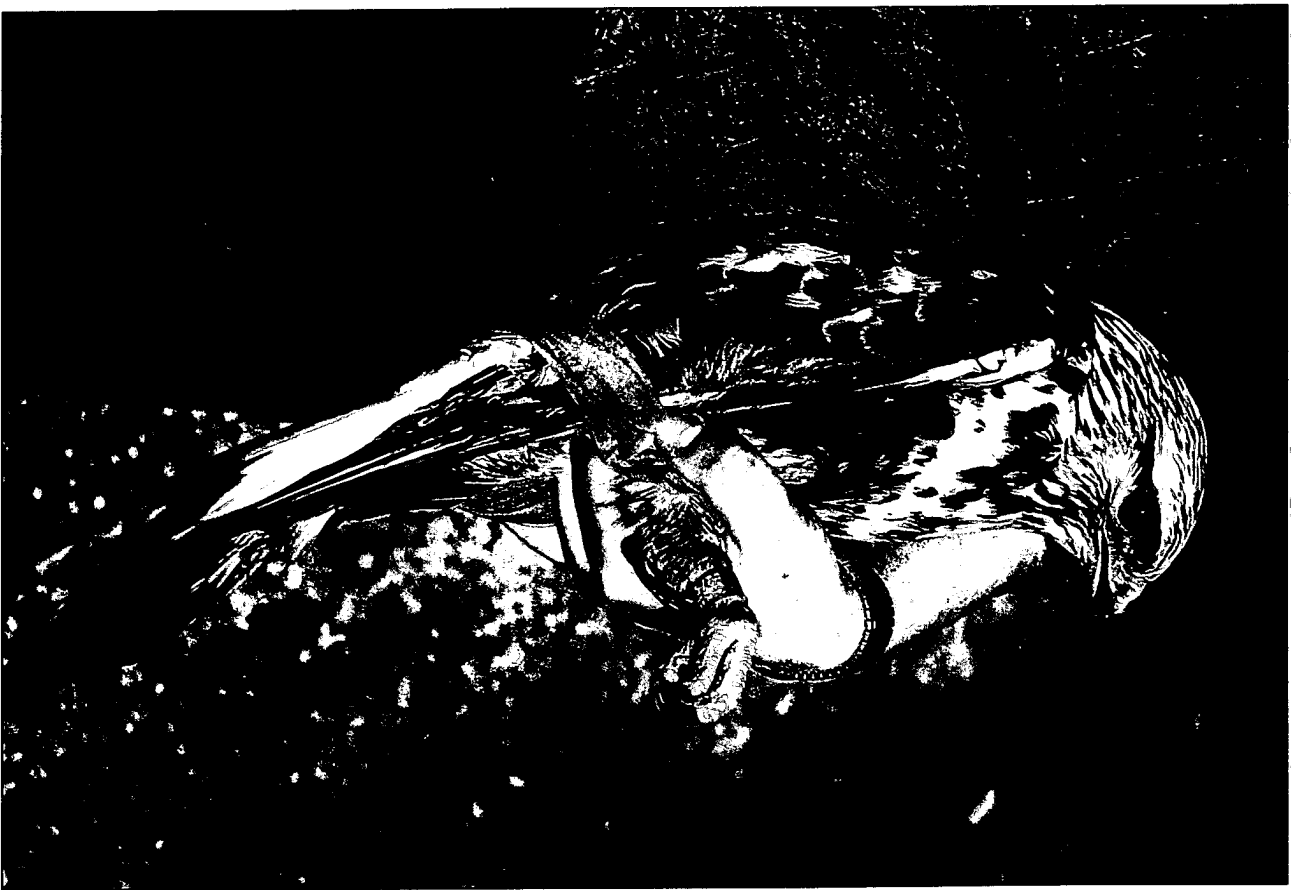
Across the Pacific Ocean

"A little more to the left," says Heather Johnson-Schultz, and I tweak the mist-net array one more time. We have spent the last week on the Colville River Delta, on Alaska's North Slope, trying to perfect ways to capture wary migrant dunlins. Our immediate objective is to lure dunlins into the nets, using repeated calls on a mini-CD, to place small green plastic flags on their legs. Our real purpose is to discover where North Slope-breeding dunlins spend the winter. About twice the size of a western sandpiper, the dunlin breeds on the tundra of western and northern Alaska. Birds breeding on the Yukon-Kuskokwim

Delta follow the western sandpipers south along the Pacific coast, but dunlins nesting on the North Slope cross the Pacific Ocean to winter in estuaries in Japan, Korea, Taiwan, or China. On their wintering grounds, Alaska dunlins mix with Russian dunlins from Sakhalin Island, the Kamchatka Peninsula, and the Chukotka Peninsula. North Slope dunlins likely migrate along the coast of northwestern Alaska, fatten up on the mudflats of the Yukon-Kuskokwim Delta, and then head southwest across the Bering Sea. Because some populations may be declining, we need to sort out which dunlin populations are wintering where. Answering this question requires the cooperation of several countries.

Other species of waterfowl and shorebirds follow the dunlin's example: Northern pintails, ruddy turnstones, and black-bellied plovers can be observed in the wet-

A nylon stocking protects the feathers and gently restrains a trapped ruffed-legged hawk while it is weighed, measured, and banded. This hands-on method of learning about birds gives researchers a clearer understanding than does simple observation from afar. (David Rosenau)



lands of Japan during the winter. Western Alaska has a number of species that breed primarily in Russia. Most of these birds follow migration pathways that take them to wintering areas in Asia. The arctic warbler, a small, greenish, non-descript songbird, flies across the North Pacific to winter in the Philippines. Although the arctic warbler is found across northern Europe and Russia, only birds wintering in the Philippines travel to Alaska to breed. This information will help identify conservation strategies if biologists detect a decrease in the number of singing birds on Breeding Bird Survey routes in western Alaska. Without making these types of links,

scientists would not be able to effectively conserve populations of migratory birds.

I envy the large shorebirds that get to leave Alaska to winter along the beaches of South Pacific islands. I do not envy, however, the long over-water flights they must undertake to get to these warm destinations. When Pacific golden-plovers take off from the Alaska Peninsula, they have nowhere to land until they reach Hawaii, a distance of 2,400 miles. To accomplish such flights, shorebirds need to accumulate fat reserves of 50 to 100 percent of their body weight.

Following a similar pathway, some bristle-thighed curlews leave the Yukon-Kuskokwim Delta

stop in the Hawaiian archipelago. However, many more fly several thousand additional miles to winter in Tahiti. This one-way, non-stop flight can total 5,000 miles. It's a mystery how a bird is able to predict weather patterns across those distances to ensure its survival. Scientific evidence indicates that young birds are not always successful in making the journey and many perish at sea. Because the population of bristle-thighed curlews numbers less than 10,000 individuals, ability to sense these patterns is crucial.

The champion long-distance, non-stop migrant is the bar-tailed godwit. This large, orange shorebird with a distinctly upturned bill breeds across western and northern Alaska. Like Pacific golden-plovers, bar-tailed godwits

congregate during the fall in tidal lagoons of Bristol Bay to pack on fat reserves. When these reserves are stockpiled and winds are favorable, the godwits take off and do not land until they reach New Zealand, 6,500 miles away. This may be the longest non-stop migration of any bird. What makes this feat even more spectacular is the realization that young godwits born in the past summer undertake this journey with no assistance from their parents. Godwits, along with other migrant birds, likely use several tools to navigate across unfamiliar terrain. Research indicates that birds use stars and the sun as compasses and can use the earth's magnetic fields to decide which direction to fly. Many of

Homer school children learn about birds through U.S. Fish and Wildlife Service's Shorebird Sister Schools Program, a cooperative effort among communities to foster habitat conservation and knowledge of migratory birds. (Kevin Hartwell)

Waiting to be fed, fox sparrow chicks stretch their beaks wide. Songbird parents feed their nestlings feverishly in the mornings, taking a break to feed themselves only after the young are satiated. (George Wuerthner)



A mosquito perches on a nesting short-eared owl's beak. The nest, a sparsely lined shallow depression on the ground in an open meadow or near a marsh, is typical habitat for the mosquito, an insect many Alaskans refer to jokingly as "Alaska's state bird." (Don Cornelius)

these navigation skills are innate.

En route, bar-tailed godwits may pass flocks of sooty shearwaters heading north. Shearwaters are burrow-nesting seabirds that spend most of their life on the ocean. In direct contrast to the southward-migrating godwit, the shearwater has concluded its breeding season in New Zealand and is heading north to feed in the rich waters of Alaska during its winter. Unlike godwits, shearwaters have the ability to land and rest on the ocean.

Because many of Alaska's breeding birds travel long distances during migration, they are subject to a variety of perils, from loss of habitat to vagaries of weather.

Conservation of migratory birds clearly requires cooperation across state, international, and hemispheric boundaries. Only then will people be able to enjoy the wonderful return of migratory birds to



Alaska each spring. The fact that some species of Alaska-breeding bird can be found on every continent during the northern winter makes this task daunting.

Nonetheless, governmental and non-governmental agencies need to build strong partnerships for the conservation of migratory birds. Citizens can help too. Activities span the entire range of Alaska's breeding birds, and many organizations throughout the Americas and Asia are furthering migratory and resident bird conservation. •