AMERICAN BIRDS

Fall 1990

A seasonal journal devoted to the birds of the Americas
Published by the National Audubon Society

AMERICAN BIRDS

Fall 1990
Volume 44, No. 3

AMERICAN BIRDS is published five times a year. Editorial and business offices are located at 950 Third Avenue, New York, N.Y. 10022 (212) 546-9191. Subscriptions, all in U.S. $: One year $27.50, Two years $50, Canada and Foreign $32.50, Libraries and Institutions $35. Single copies: Christmas (Bird Count) Issue $15, Spring Issue (Autumn Migration), Summer Issue (Winter Season), Fall Issue (Spring Migration), Winter Issue (Nesting Season) all $5.00 each. Checks and money orders in U.S. $ **only** should be made payable to AMERICAN BIRDS. Second class postage paid at New York, N.Y. and additional Post Offices. Postmaster: Send address changes to AMERICAN BIRDS, 950 Third Avenue, New York, N.Y. 10022, ISSN 0004-7686.

...from the editor's desk

any birds are named after some obvious (and in some cases not so obvious) distinguishing feature like their color (Reddish Egret, Blue Grosbeak), their basic structure (Long-tailed Jaeger, Short-tailed Hawk, Broad-winged Hawk), their size (Least Auklet, Little Gull), their call (Whip-poor-will, Chachalaca), or some aspect of their behavior (flycatcher, dipper, woodpecker, or wagtail). Alternatively, birds are often named after the location at which they were discovered or breed (Manx Shearwater, Cape May Warbler, Arctic Warbler, or Antillean Nighthawk). Some names indicate the bird's supposed or actual preferred habitat (Spruce Grouse, Mangrove Cuckoo, Alder Flycatcher, Canyon Wren). Early ornithologists had a practice of naming new species after themselves or others. Avian eponyms refer to bird names memorializing people. The custom wasn't limited to species' discoverers, but it also became a way of celebrating wives, patrons, daughters, and friends. Today we have a whole series of birds that carry the names of naturalists, artists, doctors, soldiers, sailors, and explorers.

In this issue, John Farrand, always curious about the identity of people with birds named after them, leads off with a fascinating account of Charles Emil Bendire, after whom the Bendire's Thrasher is named. Having read this column, you should be well-armed to take on Kenn Kaufman's and Rick Bowers' "The Practiced Eye," where your ability to distinguish Bendire's Thrasher from Curve-billed Thrasher will be cemented.

Paul Ehrlich reminds us that variability is the indispensable raw material of evolution. After reading his column, be sure to carefully read "Shorebirds and Herring Roe in Prince William Sound, Alaska." Not only is it fascinating from the viewpoint of evolutionary adaptation throughout the Pleistocene and Holocene, but also consider that here we have a cyclical food resource available to meet the enormous energy requirements of migrant and breeding shorebirds analogous to that in the Delaware Bay, in Spring. The findings of this paper have far-reaching public-policy implications because Prince William Sound, like Delaware Bay, faces a continual environmental threat posed by heavy oil tanker traffic.

And now for something completely different! Read Pete Myers' column "Soviet Agriculture, Done the American Way," and write him about it. We set aside an entire column for you, our readers, to respond to Pete's views so take advantage of it.

Will you write me a letter? I'd like the topic to be your feelings on the Keith Hansen illustration accompanying Pete Dunne's column. Do you like it? How would you caption it? Share your thoughts and feelings with me.

Interested in wide-ranging topics like the status of the Thick-billed Vireo in the United States or notes on a vulnerable tropical tern colony in Mexico (including the first Mexican record of the Black Noddy and a summary of the status of the Bridled Tern in Mexico)? We exhaustively cover those topics this autumn through several authoritative authors whose collective experience in the field is renowned.

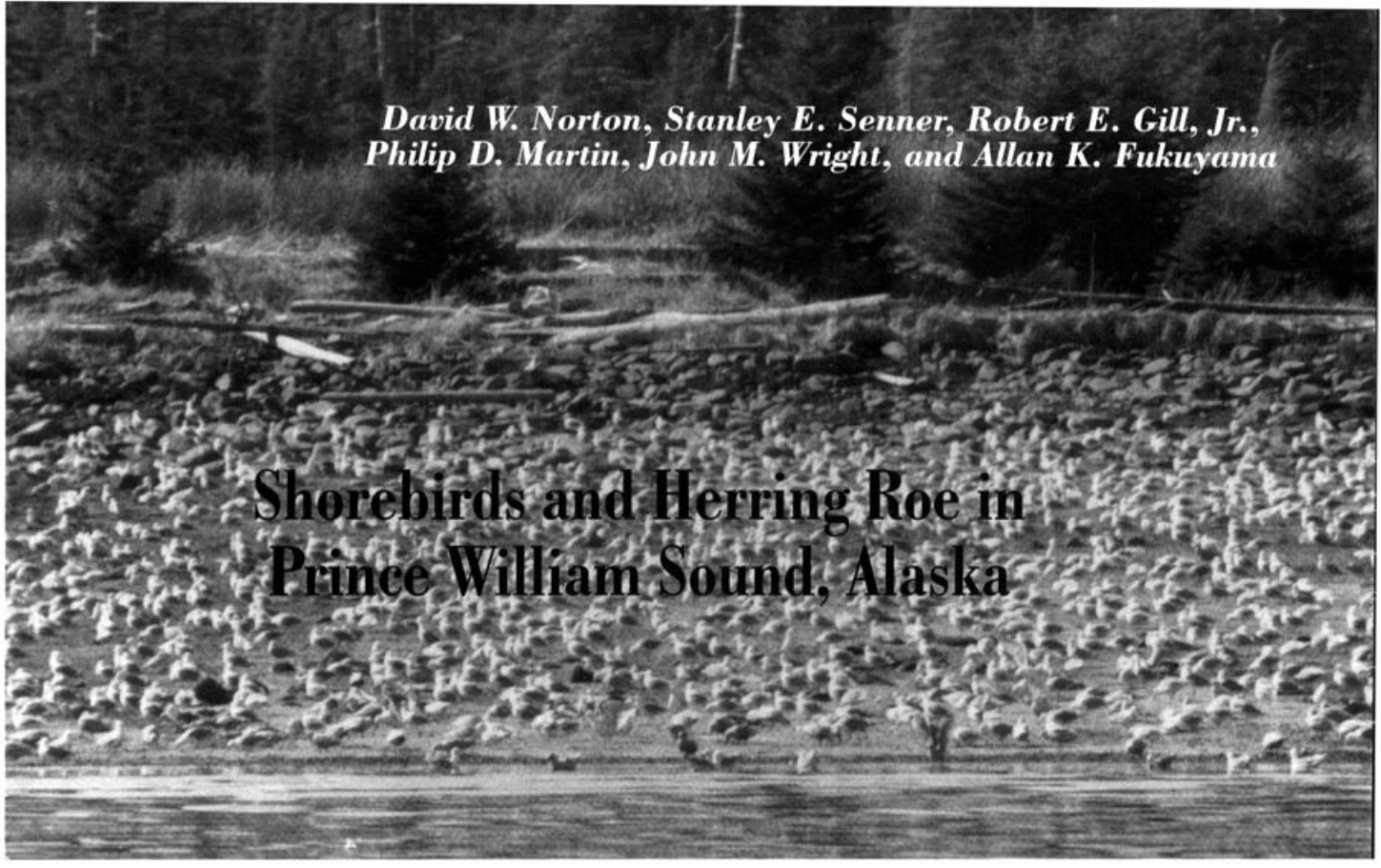
Although we make some very solid attempts to avoid becoming too self-congratulatory, we proudly invite you to read every last one of the articles published in this issue. Assembling, editing, formatting, and generally enhancing them for our readers has been a stimulating and exciting process.

Stay tuned!!

——**S.R.D.**

David W. Norton, Stanley E. Senner, Robert E. Gill, Jr., Philip D. Martin, John M. Wright, and Allan K. Fukuyama

Shorebirds and Herring Roe in Prince William Sound, Alaska



Glaucous-winged Gulls feeding in the intertidal zone on herring roe in Rocky Bay, Montague Island. Photograph/P. D. Martin.

THE MARCH 1989 TANKER SPILL in Alaska's Prince William Sound set in motion many investigations of the short- and long-term effects of the accident upon birdlife. Piatt *et al.* (1990) reviewed the geographic extent of first-year mortality and its variation by taxonomic and functional groups of marine birds. Longer-term sublethal effects of the spill on birds may take years to understand.

Long before its effects on birds and other biota are understood, the spill must be credited with mobilizing a critical mass of trained observers in Prince William Sound, such that alertness was bound to be rewarded by discoveries of previously unrecorded phenomena. As shorebird ecologists, we were rewarded in this fashion: response to the spill allowed us to witness an ecological event that might have remained unreported for a decade or more. It also illustrated sharp contrasts in our knowledge of eastern *versus* western Prince William Sound. On one hand, prior to the oil spill, eastern Prince William Sound and the adjacent Copper River Delta were well documented stopovers for over 20 million spring migrants (Isleib and Kessel 1973; Isleib 1979; Senner 1979). The dynamics, timing, feeding patterns, and energetics of abundant species such as Dunlins (*Calidris alpina pacifica*) and Western Sandpipers (*C. mauri*) had been analyzed quantitatively (Senner 1977; Murphy 1981) on the extensive mudflats of the Copper River Delta and Orca Inlet near Cordova. Use of intertidal resources by large populations of shoreirds and waterfowl in eastern Prince William Sound earned the region special consideration because of its perceived sensitivity to threats such as spilled oil (King and Sanger 1979; Senner and Howe 1984). Although it became clear by the third week following the accident that spilled oil would not impinge on the Copper River Delta or eastern Prince William Sound, international expressions of alarm about the effects of the accident on the well- known Copper River Delta resources continued to be published as late as May 1989 (Dayton 1989).

By contrast with the Copper River Delta and eastern Prince William Sound, little quantitative information on shorebird ecology was available for western Prince William Sound prior to 1989. The intrusion and filling of deep rocky fjords by glacial silt from the Copper River extends only into the eastern corner of Prince William Sound. Thus, steep rocky and pebbly shores and narrower intertidal habitats dominate the rest of Prince William Sound. Knowledge of the shorebird species specializing in these rocky intertidal habitats of western Prince William Sound had been limited primarily to opportunistic observations of species' distributions. Access to any of this coastline requires chartering vessels or aircraft.

By late April 1989, we were engaged in field studies to assess shorebird responses to the spill. A combination of U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and private environmental groups had contributed to the support

Table 1. Chronology of censuses of Surfbirds and Black Turnstones during April–May 1989, Prince William Sound, Alaska.

Date	Location[1]	Method	Numbers	Species[2]	Observers
Apr. 29	SW Montague Island,	Aerial	1,500	SURF	R. Gill
	Hanning, MacLeod Bays	Aerial	1,600	BLTU	R. Gill
Apr. 29	NE Montague Island	Aerial	>10 <100	SURF + BLTU	R. Gill
Apr. 30	Green Island	Boat	200	SURF	P. Martin,
		Boat	2	BLTU	J. Wright
Apr. 30	Rocky Bay	Beach Survey	"Many"	SURF	R. Rosenthal
May 1	Rocky Bay	Aerial	>1,000	(SURF + BLTU)	W. Arvey
May 1	Port Chalmers	Boat	44	SURF	P. Martin,
		Boat	32	BLTU	J. Wright
May 2	Green Island	Boat	170	SURF	P. Martin,
		Boat	80	BLTU	J. Wright
May 2 (PM)	Rocky Bay	Beach Survey	>1,000	SURF	D. Norton,
		Beach Survey	>100	BLTU	R. Gill,
					S. Senner
May 3 (AM)	Rocky Bay	Aerial	9,000	SURF	R. Gill,
					D. Norton,
		Aerial	1,000	BLTU	S. Senner
	Zaikof Bay	Aerial	1,800	SURF	R. Gill,
					D. Norton,
		Aerial	Ø	BLTU	S. Senner
May 3 (PM)	Rocky Bay	Boat	15,000	SURF	P. Martin,
		Boat	5,900	BLTU	J. Wright
May 4	Zaikof Bay	Boat	2,700	SURF	P. Martin,
		Boat	3,500	BLTU	J. Wright
May 4	E. Prince William Sound	Aerial	Ø	SURF	R. Gill,
	(including Sheep Bay)	Aerial	Ø	BLTU	D. Norton
May 5	Rocky Bay	Boat	6,600	SURF	P. Martin,
		Boat	1,700	BLTU	J. Wright
May 5	Stockdale Harbor	Boat	8,600	SURF	P. Martin,
		Boat	3,900	BLTU	J. Wright
	Port Chalmers	Boat	3,500	SURF	P. Martin,
		Boat	4,200	BLTU	J. Wright
May 10	Zaikof Bay	Boat	3,800	SURF	P. Martin,
		Boat	4,150	BLTU	J. Wright
May 10	Rocky Bay	Boat	300	SURF	P. Martin,
		Boat	400	BLTU	J. Wright
May 10	Stockdale Harbor	Boat	600	SURF	P Martin,
		Boat	300	BLTU	J. Wright
May 16	Zaikof Bay	Aerial	1,000	SURF[3]	P. Martin,
		Aerial	Ø	BLTU	J. Wright

[1]See map for locations.
[2]SURF = Surfbird; BLTU = Black Turnstone.
[3]Only flock seen on aerial survey of all of Montague and Green Islands.

and mobilization of these efforts in time to place observers at key points in the expected path of arriving spring migrants. Collectively, we were just beginning to conclude from preliminary data:

1) The influx of migrants at Orca Inlet was earlier in 1989, by some five to seven days, than had been observed at this indicator location during several seasons in the 1970s (Senner *et al.* 1981);

2) Despite this early arrival, significant numbers of either Surfbirds (*Aphriza virgata*) or Black Turnstones (*Arenaria melanocephala*) had only been seen from the air, in the two southernmost embayments on Montague Island on April 29 (Table 1). These two Beringian species share a preference for rocky intertidal shorelines that was expected to place migrants at significant risk of encountering oiled shorelines in central and western Prince William Sound. (Beringian here refers to taxonomic groups whose present geographic distributions are either confined to, or suggest a past affinity with, unglaciated regions of Alaska and Siberia. These regions were connected by land during glacial maxima of the Pleistocene, but were isolated by continental ice sheets from faunal exchange with the rest of the North American continent.)

On April 30 and May 1, we learned from two biologists who were independently monitoring the Prince William Sound spawning of Pacific herring (*Clupea harengus pallasi*) that a heavy concentration of herring roe on northern Montague Island seemed to be attracting a spectacular concentration of birds to that location. W. D. Arvey (Alaska Department of Fish and Game, pers. comm.) reported extensive flocks of gulls, and also "smaller, whitish birds" at Rocky Bay during an aerial survey. R. J. Rosenthal reported videotaping what he believed were Surfbirds feeding on herring roe at Rocky Bay on May 1.

We acted to verify these reports by securing the first available float-equipped charter aircraft, and on the evening of May 2 landed in Rocky Bay. The specific landing location was based on the most dramatic concentrations of gulls observed from the air on

approaching Rocky Bay.

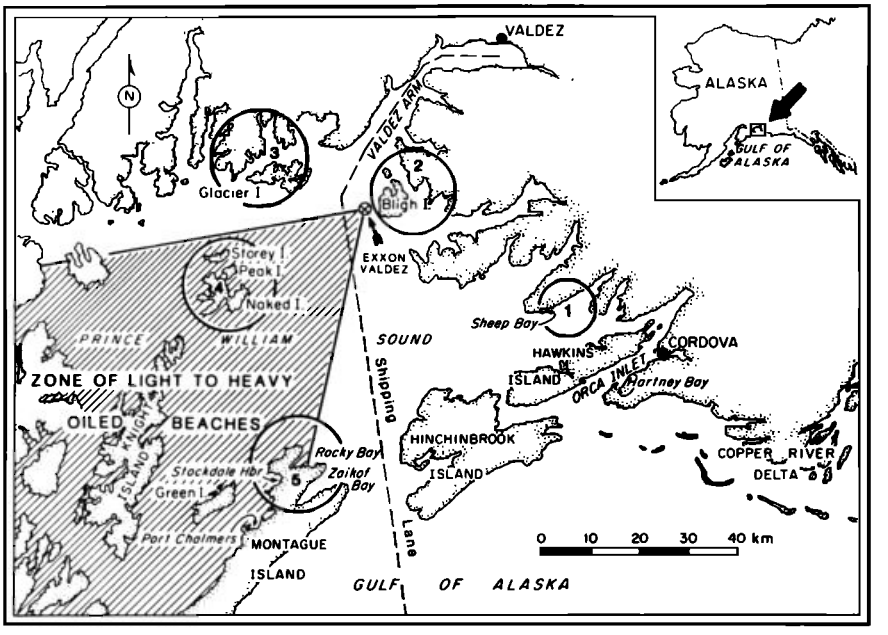
Once ashore, we found thousands of Surfbirds and Black Turnstones mingling with tens of thousands of Glaucous-winged Gulls (*Larus glaucescens*) and smaller numbers of other species of gulls and waterfowl. At and below high-tide line, large quantities of herring roe were concentrated by wind and wave action. Below high-tide line, tidal pools were filled with herring eggs unattached to kelp or any other substrate. In places, such pure herring roe had accumulated to depths of 0.5 meter ("knee-depth"). Gulls were loafing at, and probably feeding on, this massive resource. Surfbirds and Black Turnstones were feeding on herring roe at water's edge in the intertidal zone, but were selecting eggs still attached to kelp fronds or to rocks rather than loose eggs. The first of a series of specimens of these shorebirds were shot, their stomach contents immediately preserved in buffered formalin, and it was confirmed that Surfbirds and Black Turnstones were feeding primarily, but not exclusively, on herring roe.

Gill and Norton in knee-deep pool of unattached eggs of the Pacific herring, Rocky Bay, Montague Island. Photograph/ S. E. Senner.

As darkness fell and the tide advanced, groups of Surfbirds and Black Turnstones continually disengaged from the shoreline and flew alongshore in apparently random directions. On the morning of May 3, we conducted an aerial survey of Rocky Bay and counted 9,000 Surfbirds and 1,000 Black Turnstones. In Zaikof Bay, where herring roe appeared less abundant, we counted 1,800 Surfbirds in the intertidal zone (Table 1).

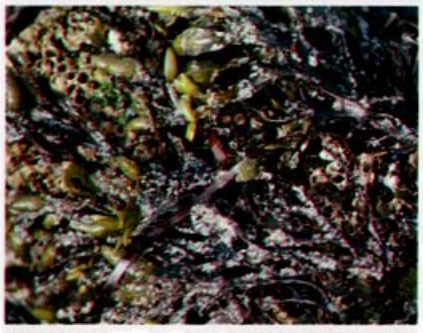
Scientists aboard the M/V *Curlew* had the vessel sail around from Green Island on May 3 and during a boat-based census of Rocky Bay that evening counted 15,000 Surfbirds and 5,900 Black Turnstones. Similar total numbers were recorded on May 5 at Zaikof Bay, Port Chalmers, and Stockdale Harbor (Table 1). We made an additional aerial survey from Cordova northward along the eastern Prince William Sound coast on May 4. This survey persuaded us that no concentrations of shorebirds were then at the earliest Prince William Sound spawning sites used by herring in 1989, such as Sheep Bay. Observers on the *Curlew* carried out all further collecting, censusing, and observations of feeding behavior at northern Montague Island and Green Island stations for the remainder of the work in 1989.

To avoid over-deduction from one season's results, we surveyed northern Montague Island again in early May of 1990. Although our 1990 data await analysis, we found that similar numbers of Surfbirds and Black Turnstones returned in a similar time span (late



Study region in eastern and central Prince William Sound, Alaska, April-May 1989. Numbered circles indicate foci of herring spawning in 1989; these foci and inclusive dates of observed spawning are 1) Sheep Bay: March 23-28; 2) Bligh Island: March 27–April 10; 3) Glacier Island: April 7-15; 4) Naked Island April 13-20; 5) northern Montague Island: April 19-29. Locations of herring spawning provided by Alaska Department of Fish and Game. Zone of light to heavy beach oiling is based on maps provided by the Alaska Department of Environmental Conservation.

Mixed flock of Surfbirds and Black Turnstones, northern Montague Island, May 1989. Photograph/P. D. Martin.



Herring roe attached to kelp, Rocky Bay, Montague Island. Photograph/J. M. Wright.

April to May 10) to northern Montague Island. Moreover, the birds' fine-scale distributions reflected patterns in abundance and scarcity of herring spawn. Black Turnstones and especially Surfbirds tracked differences in patterns of roe deposition compared to the previous season. In 1990 herring roe was not seen detached from its substrate or deposited in supratidal windrows. All birds, including gulls, thus depended on low tide for feeding opportunities. A newly conspicuous component of the gull assemblage in 1990 was the Bonaparte's Gull (*Larus philadelphia*).

The extreme variability in numbers of shorebirds we counted in 1989 (Table 1) deserves some comment:

> Tendencies by these birds to "commute" back and forth between bays (particularly at high tide) may explain some of the variability among counts (Table 1). Detectability of the shorebirds varied also with tide, weather conditions, and the platform from which we were counting them.

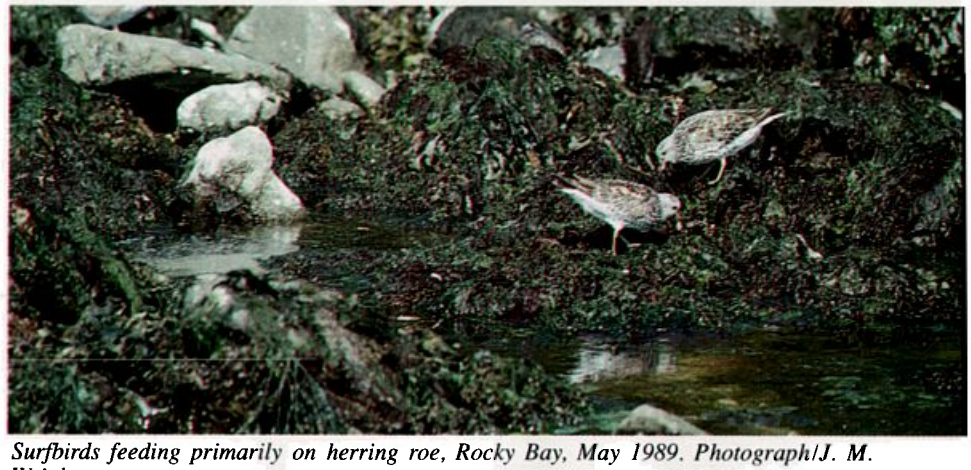
Turnover, or the balance between birds arriving in the region and those leaving to head north and westward out of the system, is likely to be another process that explains excursions in numbers of birds observed. We suspect that the sex ratios in populations stopping in this system shift from male-dominated to female-dominated over time, as has been found for other species that have conservative breeding strategies (*cf.* Senner *et al.* 1981). Turnover would make these preliminary "snapshot" counts significant underestimates of the total shorebird use of intertidal resources in the region.

Without invoking turnover rates, the data nevertheless suggest that no fewer than about 18,000 Surfbirds and 10,000 Black Turnstones used northern Montague Island at peak numbers on May 2–4 . These numbers must represent significant fractions of their respective world species populations.

Black Turnstones breed locally in western Alaska from the northern side of the Alaska Peninsula to southern Kotzebue Sound (A.O.U. 1983). Based on ground and aerial surveys over these breeding grounds Gill and Handel (unpubl. field notes) estimate the total species population at 40–50,000 breeding-age birds. Isleib and Kessel (1973:81) report that in migration, "several 10,000s, possibly 100,000s" of Black Turnstones use the north Gulf Coast–Prince William Sound region. A single continent maximum of 3,560 was recorded at a winter roost site in Comox, British Columbia, during a Christmas Bird Count (Heilbrun *et al.* 1983).

Although there are no comparable estimates of total Surfbird population size, we know of no evidence that it is larger than that of Black Turnstones. Mattocks (1986:515) reported a "very large gathering of 850+" on Vancouver Island in May. Isleib and Kessel (1973:80) estimate that "a few, probably several 10,000s" use the north Gulf Coast-Prince William Sound region during migration. Surfbirds nest above treeline in alpine habitats of central Alaska and adjacent Yukon Territory (A.O.U. 1983). Frisch (1978:401) described the Surfbird as "by no means uncommon" in its Ogilvie Mountain breeding habitats in the Yukon Territory.

Isleib and Kessel (1973) cite the Montague and Green Island region as concentration areas for Surfbirds and Black Turnstones, but to our knowledge, direct feeding by shorebirds on herring roe has only been reported in the ornithological literature as a limited, or incidental, late-winter activity by Black Turnstones (Grass 1973).



Surfbirds feeding primarily on herring roe, Rocky Bay, May 1989. Photograph/J. M. Wright.

Herring roe on intertidal algae, Rocky Bay, May 3 1990. Photograph/D. W. Norton.

Small samples (8 Surfbirds, 9 Black Turnstones) collected in Rocky Bay on May 2 and 3 confirmed that these birds were regularly feeding on herring roe All specimens contained roe, as well as mussels (*Mytilus edulis*), barnacles (Order Balanomorpha; *Semibalanus* sp, *Balanus* sp.), and up to five or six species of gastropod mollusks. Relative quantities of herring eggs and invertebrates in these stomach samples varied. Surfbirds and Black Turnstones were also seen feeding on roe in Zaikof Bay and Stockdale Harbor, as well as preying on mussels (Surfbirds) and barnacles (Black Turnstones).

Roe of the Pacific herring is commonly attached to subtidal and intertidal fronds of kelp and other "seaweeds" (*Fucus, Zostera, Laminaria, Rhodomela, Phyllospadix*) but eggs are broadcast during spawning such that many and varied substrates have been reported (Hart 1973:97). In Prince William Sound, spawning is an

annual phenomenon that varies yearly in timing, specific locations used, and volume. The seasonal progression of adult fish and subsequent spawning in Prince William Sound generally follows the same counterclockwise pattern as the oceanographic circulation, beginning in late March in eastern Prince William Sound, and concluding in late April to early May in southern and southwestern Prince William Sound regions such as northern Montague Island (E. Biggs, J. Brady, Alaska Department of Fish and Game, pers. comm.). Despite annual variability in strength and timing of the spawning, northern Montague Island in most years accounts for a significant fraction of the total estimated volume of spawning in Prince William Sound. The 1989 contribution of Montague Island was 25 percent of the Prince William Sound total.

Once spawned, herring eggs are probably available to predators for about two weeks annually. Reviews of the biology of Pacific herring by Hart (1973) and Barber (unpubl. ms.) state that individual herring eggs hatch between 12 and 22 days after they are spawned, depending on local water temperatures.

Detached, windrowed herring eggs attracted no feeding by Black Turnstones or Surfbirds in our 1989 observations, but may indirectly fine-tune the movements of these shorebirds. Airborne flocks of less fastidious species, such as Glaucous-winged Gulls, were visible to us at distances of at least five kilometers from the focus of their attention on windrowed spawn. We suspect that gull flocks could be cues to intertidal feeding opportunities nearby.

Rocky Bay and Zaikof Bay were officially declared to be lightly oiled from the 1989 spill (Alaska Department of Environmental Conservation; NOAA, various documents.) We found widely scattered spots of tar (the viscosity of honey) on rocks in the intertidal zone. Rocky Bay eventually was found to have some patches of oiled intertidal and supratidal habitats (Norton, pers. obs. Sept. 1989; R. Rosenthal, pers. comm. 1989). The oil spill, however, essentially missed the intertidal zones of northeastern Montague Island.

The northern end of Montague Island may provide critical rocky intertidal habitat for Surfbirds and Black Turnstones. Senner and Howe (1984) propose that determination of critical habitat for shorebirds involve assessments of:

(1) proportion of a population using a particular area—its numerical importance; (2) how an area is used—its functional significance; and (3) how a population will be affected if a particular habitat is degraded.

For Montague Island, our results suggest that significant fractions of two species' populations use a restricted habitat over a short period of time. Functionally, the region is used for feeding and resting just prior to departure directly to subarctic and arctic nesting grounds. Historically, the events of 1989 were a near-miss: a shift of 10-15 kilometers eastward in the main trajectory of the spilled crude oil could have resulted in a direct hit (meaning heavy oiling of the intertidal zone) of Rocky Bay. Birds could have been oiled. At a minimum, oiling would have threatened access to a rich source of food just before breeding. Such sources of food enable shorebirds to stockpile fat as energy for the completion of migration, and to tide them over during the first days of uncertain feeding conditions and high energy demands at their nesting grounds. Handel (1982) reported early arrival dates of May 1 for Black Turnstones on breeding grounds, and Frisch (1978), May 16 for Surfbirds. Site fidelity to breeding and wintering grounds by the Black Turnstone has been noted by Gill *et al.* (1983). Shorebirds also generally seem to be conservative in using traditional stopover sites in migration (*e.g.*, Senner and Howe 1984).

Group of Bonaparte's Gulls, Rocky Bay, May 3, 1990. Photograph/D. W. Norton.

Nesting Surfbird in alpine habitat, Eagle Summit, Alaska, June 3, 1986. Photograph/J. M. Wright.

Our Montague Island findings in 1989 and 1990 are analogous to the relationship between shorebirds and horseshoe crab (*Limulus polyphemus*) eggs on the New Jersey shore of Delaware Bay (Myers 1986, Castro 1988). There, large fractions of Atlantic-Arctic populations of Sanderlings (*Calidris alba*) and Ruddy Turnstones (*Arenaria interpres*), and the eastern population of Red Knots (*Calidris canutus rufa*) feed on an abundance of horseshoe crab eggs deposited on shore. Although the substrate for horseshoe crab eggs is sand rather than vegetation on rocky or pebbly shores, these eastern shorebirds, like their Pacific counterparts, forego masses of eggs on the surface to eat still-viable eggs buried in the sand. Finally, Delaware Bay and Prince William Sound share a similar environmental threat in sustaining heavy traffic by oil tankers.

Documentation that herring roe in Prince William Sound is used by some shorebirds during spring migration suggests some ecological questions for long-term investigation. Future field investigations will be needed to deter-

Continued on page 508

American Birds presents..."Take Them Along"

The only **travel mug** you'll ever need—it's lightweight, break resistant (microwave safe), with plastic lid specially designed for safe handling and drinking while in motion. Yet the mug won't move when it sits in place on its rubber-grip base. $6

Practical comfort: our **nylon oxford hip pack**, with double zipper for easy access, and fully adjustable webbed waist strap. 7¾″ across x 3½″ deep, it is water repellant. Perfect for small guidebooks, notepads, pencils and sandwiches, in the field; or for your wallet and car keys as you jog...or for anywhere on the go. $11

The **3-in-1 Soft-Lite flashlight** belongs in every household. Use it as a torch in your home or outdoors and camping; or as an emergency flashing light signaling hazard warning. A neat compact 10½″ long x 1¾″ wide design, this is a real working tool. 3 D-batteries not included. $10

Indispensable, wherever you go, whatever you do. Take *American Birds* along...the practical flashlight, the thousand-uses tote bag, the fun-in-the-sun cap, the well balanced travel mug, and the on-the-move hip pack. These products are offered to you for ease and enjoyment whether at home or romping about. All items available only in colors photographed; costs include postage and handling.

That great **never-have-enough cap**. Cotton twill, with sturdy visor, makes this cap ideal for sun and rain protection. One size fits all adults with adjustable band in back—always fun to wear, always comfortable. $10

(opposite side)

Wood block "birders" design by Beth Krommes on one side and *American Birds* on opposite side adorn this attractive **canvas tote bag**. It features a water resistant interior, with accommodating flat bottom, durable webbed handles; it measures 15″ wide x 13″ high x 6″ deep. Take it along: in the field, on the road, for shopping, laundry, office work, toting toys...on and on. $17

NAME_____

ADDRESS_____

CITY_____

STATE_____ ZIP_____

Please send your order with payment to:

AMERICAN BIRDS
"Take Them Along"
950 Third Avenue
New York, NY 10022

Allow 3 weeks for delivery.

Please send me the following *American Birds* Take Them Along items:

_____Tote bag(s)
_____Hip Pack(s)
_____Cap(s)
_____Flashlight(s)
_____Travel Mug(s)

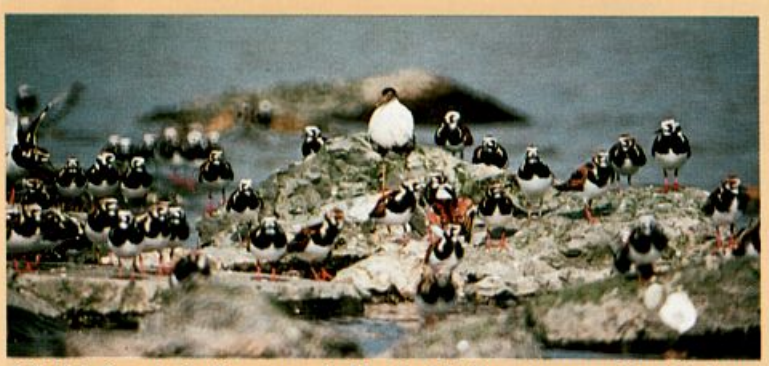
I have enclosed a check ☐ or money order ☐ made payable to AMERICAN BIRDS for a total of $_____.

Pacific Loon, mostly in alternate (breeding) plumage, on Lake Tawakoni, Raines Co., Texas, May 4, 1990. Generally considered rare in Texas, the species showed up in numbers there this season. Photograph/George Harmon.

White-faced Ibis at Oak Hammock Marsh, Manitoba, May 3, 1990. First definite record for the province. This species showed up widely north and east of its usual range in spring 1990. Photograph/Rudolf F. Koes.

Buff-breasted Sandpiper at Edwards Air Force Base, California, June 3, 1990. First spring record for southern California. Photograph/Matt T. Heindel.

Adult Harris' Sparrow at Wallaceburg, Ontario, May 15, 1990. East of the normal range for spring migrants. Photograph/James N. Flynn.



A "white" male Ruff surrounded by Ruddy Turnstones at Port Mahon, Delaware, May 8, 1990. Photograph/A. P. Ednie.

The northern Gulf Coast was invaded by Shiny Cowbirds in late April and May, with at least 43 birds in Alabama, for a first state record. This male was at Fort Morgan, Alabama, on May 4, 1990. Photograph/Greg W. Lasley.

MARKETPLACE

ACCOMMODATIONS

BIRDS OF SOUTH EASTERN AUSTRALIA. Stay at GIPSY POINT LODGE where guided outings are conducted using launch and 4 W D into remote areas of CROAJINGALONG NATIONAL PARK. Over 280 bird species sighted here. First class country-style accommodations. Contact Alan Robertson, Gipsy Point, VIC, 3891 Australia (051)58 8205.

AUSTRALIA HOLIDAY in tropical rainforest in comfort and enjoy daily tours guided by resident ornithologist. Maximum numbers, seven, often just by you! Brochure from Cassowary House, Kuranda 4872, Australia.

BIRD HOUSES

HOUSES, PLATFORMS, BOXES, SHELVES/26 NESTING SITES. Each designed for particular bird. Also winter roosts. Informative catalog. Visa/Mastercard. Wildlife Studio AB, 7 Patten Road, Bedford, NH 03102. (603) 668-8979.

OFFERS

WILDLIFE NOTE CARDS on recycled paper. Free samples.
Orr Enterprises, Box 1717, Dept. AB, Monrovia, CA 91017.

OPTICAL EQUIPMENT

OPTICS HEADQUARTERS FOR BIRDERS SINCE 1960. Offering selection advice. 24-hour shipping, deep discounts on 10 most popular brands. Plus: tripods, special cases, shoulder and window mounts, harnesses, tripod and camera adapters, and more. Literature and prices on request. BIRDING, P.O. Box 4405E, Halfmoon, NY 12065.

BINOCULAR CASES CUSTOM MADE. Padded, Cordura outside, guaranteed to fit. Holds snugly to your body. Write MAIN STREET CASE COMPANY, Box 81, Victor, Idaho 83455. (208) 787-2909.

aus JENA BINOCULARS (GERMANY)—Experience the ultimate in BRILLIANCE AND CLARITY! Europe's largest manufacturer of Premium Quality Binoculars. Consumer and dealer inquiries invited. EUROPTIK, LTD, Box 319-B, Dunmore, PA 18509. (717-347-6049).

BINOCULARS FOR BIRDERS $12.95 plus $1.95 S&H, or send SASE for FREE information. **Avian Press**, P.O. Box 56068, Madison, WI 53705-9368.

REAL ESTATE

Needed—environmentally concerned buyer for 15 acres of prime Colorado mountain property near Twin Lakes. Includes ½ mile Colo. 82 frontage on Independence Pass, 36 miles east of Aspen. Surrounded by national forest land. Property forms natural boundary of elk wintering, calving area. Must sell. $45,000. Terms negotiable. Corrine Diemer, Box 523, Twin Lakes, CO 81251. (719) 486-1590.

THREE YEAR OLD COLONIAL waterfront property in bird sanctuary. 3 bedrooms and huge master bedroom, 3 baths, living room, efficient kitchen and modern appliances, family room and dining room. Finished 1 car garage; central air conditioning and heat throughout house and garage. Maryland. $160,000. Owner (301) 641-6735.

STAMPS

BIRDS, FLOWERS, ANIMALS on postage stamps from many countries. 50 diff. $1.00. All three $2.65. GEORGE FORD, P.O. Box 5203-A, Gulfport, FL 33737.

TRAVEL

BIRDING IN COSTA RICA. 850 species including: Quetzal, Black Guan, Fiery-billed Aracari, Scarlet Macaw, Coppery-headed Emerald, Yellow-billed Cotinga, Wrenthrush, Volcano Junco. Professional birder guides. For tour information: T.J. Lewis, COSTA RICA EXPEDITIONS, P.O. Box 145450, Coral Gables, FL 33114. FAX no. (506) 57-1665.

COSTA RICA RAINFOREST, 900m Guided tours with Resident birder Transportation, S.J. to Ranch to S.J. Delicious Meals; Hot Water Showers, Spacious Rooms, and Horseback Riding. All above included from $390.00/week RANCHO NATURALISTA, Apdo. 364-1002, San Jose, Costa Rica Ph.506/39-8036

PAKISTAN—Himalayas & Tribal homestays/**CHINA**—**Himalayas**-overland, camping, camels/**Ethiopia**—Wildlife, Ancient tribes. Caper Box 2789, Beverly Hills, CA 90213.

TEXAS SPRING BIRDING March 1991. **TRINIDAD** and **CHURCHILL** July 1991. **ONTARIO** weekend birding workshops. Flora and Fauna Field Tours, 232 Bellair Dr., Bolton. Ont. Can. L7E 1Z7; (416) 857-2235, (416) 823-5542.

EXPERIENCE THE AMAZON and untouched rainforest, over 400 species of birds, small groups, experienced guides. Call or write Bush Masters, 3117 Elm Avenue, Brookfield, IL 60513, (708) 387-9265.

MARKETPLACE Rates
Advertise your product or service in our MARKETPLACE. Rates are: $1.15/word for one insertion; 90¢/word for 2 to 4 insertions; 60¢/word for 5 insertions. Send payment with copy. Copy deadlines are: Spring issue: March 1; Summer issue: May 1; Fall issue: July 15; CBC issue: August 1; Winter issue: October 15. Send to: *American Birds*, MARKETPLACE, 950 Third Ave., New York, NY 10022.

CONTENTS

FALL 1990, VOLUME 44, NUMBER 3

Front cover photograph: Red-shouldered Hawk *(Buteo lineatus)*. Photograph/Ralph D. Curtin.

Back cover photograph: Sora *(Porzana carolina)*. Photograph/Sam Fried.

The Spring Season
March 1–May 31, 1990

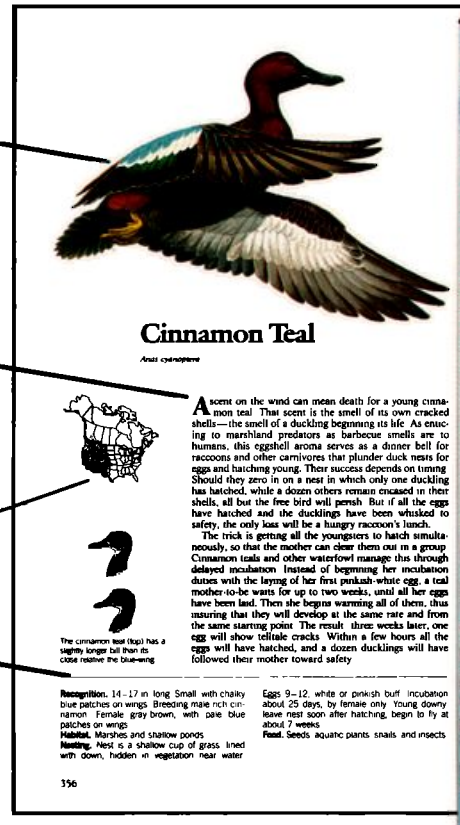
SEE THEM ON THE WING. SPOT THEM IN THE WILD. MEET THEM IN THIS BOOK.

PAINTINGS BY WORLD-FAMOUS NATURE ARTISTS MEET EXACT STANDARDS FOR IDENTIFICATION

ENTERTAINING AND AUTHORITATIVE ESSAYS

SEASONAL RANGE MAPS

DETAILS ON RECOGNITION, HABITAT, NESTING & FOOD



Cinnamon Teal

Anas cyanoptera

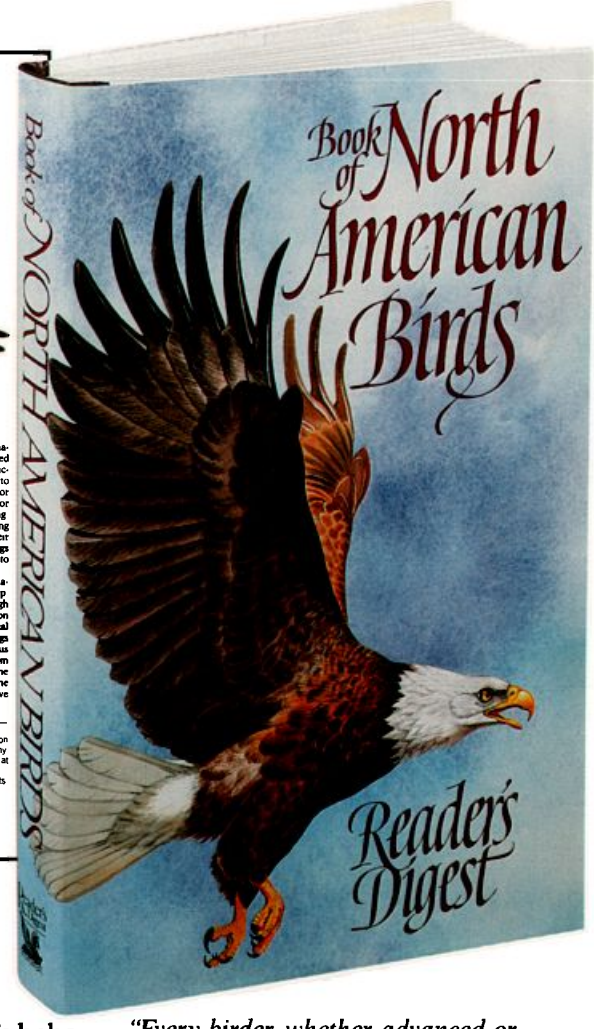
A scent on the wind can mean death for a young cinnamon teal. That scent is the smell of its own cracked shells—the smell of a duckling beginning its life. As enticing to marshland predators as barbecue smells are to humans, this eggshell aroma serves as a dinner bell for raccoons and other carnivores that plunder duck nests for eggs and hatching young. Their success depends on timing. Should they zero in on a nest in which only one duckling has hatched, while a dozen others remain encased in their shells, all but the free bird will perish. But if all the eggs have hatched and the ducklings have been whisked to safety, the only loss will be a hungry raccoon's lunch.

The trick is getting all the youngsters to hatch simultaneously, so that the mother can clear them out in a group. Cinnamon teals and other waterfowl manage this through delayed incubation. Instead of beginning her incubation duties with the laying of her first pinkish-white egg, a teal mother-to-be waits for up to two weeks, until all her eggs have been laid. Then she begins warming all of them, thus insuring that they will develop at the same rate and from the same starting point. The result: three weeks later, one egg will show telltale cracks. Within a few hours all the eggs will have hatched, and a dozen ducklings will have followed their mother toward safety.

The cinnamon teal (top) has a slightly longer bill than its close relative the blue-wing

Recognition. 14–17 in. long. Small with chalky blue patches on wings. Breeding male rich cinnamon. Female gray brown, with pale blue patches on wings.
Habitat. Marshes and shallow ponds.
Nesting. Nest is a shallow cup of grass lined with down, hidden in vegetation near water. Eggs 9–12, white or pinkish buff. Incubation about 25 days, by female only. Young downy, leave nest soon after hatching, begin to fly at about 7 weeks.
Food. Seeds, aquatic plants, snails and insects.

356



BOOK OF NORTH AMERICAN BIRDS is a handsome, superbly illustrated reference volume, filled with original paintings that capture the unique personalities of America's wild birds. Each painting is accompanied by a fascinating essay that explores a key aspect of a bird's behavior, appearance, or lifestyle—or simply evokes the delight of glimpsing it in the wild.

With meticulous concern for beauty *and* for features crucial to identification, world-class nature artists have created nearly 600 large portraits of birds in their true colors, breathtakingly close-up, pursuing everyday life. Line drawings highlight points of interest about each species, and a color coded range map shows where it can be found.

"You will find this collection of attractive bird portraits and lively essays an informative supplement to your favorite field guide."
—Roger Tory Peterson

"A winner: attractive, informative, unique, thorough... If you have only one bird book in your library, this should be it."—Thomas D. Nicholson, Director Emeritus, American Museum of Natural History

"Every birder, whether advanced or beginner, will want to own this handsome and versatile book."
—Les Line, Editor of *Audubon* magazine

At all bookstores
or call 1-800-733-3000
for credit card orders

Reader's Digest