

changing seasons

Fall Migration, August 1–November 30, 1997

Nora, El Niño, and Strays from Far Afield



Not your typical Arizona scene: one Least Storm-Petrel (the smaller bird) and three Black Storm-Petrels on Lake Havasu, on the Arizona–California border, in late September 1997. The passage of hurricane *Nora* brought hundreds of storm-petrels into the interior of the southwest, for the first time in more than twenty years. Photograph/Bill Grossi

MICHAEL A. PATTEN*

No other scientific endeavor is so influenced by non-professionals as is ornithology. Birders and field ornithologists contribute the bulk of information on patterns of vagrancy, scarce winter and breeding records, unusual numbers, and odd occurrences. The stage was set again last fall for birders to gather ever more of this important data, and gather it they did. And dare I say it, but even negative data can be good data. Most regions chimed in with a similar mantra this fall: it was slow, there were few migrants, and the weather was oh so pleasant, meaning there was little in the way of storm activity to bring in the birds. However, in addition to a smattering of spectacular vagrants and a powerful El Niño condition looming on the horizon, there was one notable exception to the dearth of eventful storms.

TROPICAL STORM NORA

For the first time in 21 years, a tropical storm made landfall in the southwestern United States. As with Tropical Storm *Kathleen* in 1976 (see Kaufman 1977), Tropical Storm *Nora* brought with her a slew of

pelagic species to the Salton Sea and the lower Colorado River Valley in late September 1997 (table, opposite page). With the addition of the Black-vented Shearwater (I consider the claimed Ashy Storm-Petrel to be hypothetical), there have now been nine species of Procellariiformes recorded in the Sonoran Desert of the interior Southwest! Perhaps even more of interest is that the other eight species have occurred without the aid of tropical storms (Patten and Minnich 1997), including the Laysan Albatross (8 records), Cook's Petrel (4), Wedge-tailed Shearwater (1), Buller's Shearwater (1), Sooty Shearwater (9), Leach's Storm-Petrel (1), Black Storm-Petrel (1), and Least Storm-Petrel (1). All of these records fall between the tail end of April and mid-October, concomitant with the annual southerly monsoon flows through the Gulf of California and with increases in sea surface temperatures off southwestern Mexico that create a more uniform habitat between that area and the normally much warmer waters of the Gulf of California (Patten and Minnich 1997). Furthermore, each of the species involved occurs regularly in these waters during the summer months. With *Nora's* fallout, only four of the 13 species of Procellariiformes that regularly occur in the Gulf of California (Pink-footed Shearwater, Townsend's Shearwater, Audubon's

*Department of Biology, University of California, Riverside, California 92521

Shearwater, and Wedge-rumped Storm-Petrel) have yet to be recorded in the Sonoran Desert.

Non-procellariiform wonders brought in by *Nora* included California's second interior record of the Red-billed Tropicbird. The first such record was of a bird downed in Morongo Valley by Tropical Storm *Kathleen*. This season's bird suffered a similar fate, as it was picked up along a roadside at Palo Verde on the Colorado River. What must have been a spectacular sight was the 21 frigatebirds (undoubtedly Magnificents) moving northeast over Telegraph Pass east of Yuma, ahead of the approaching storm's fury. Not surprisingly, this was by far the largest flock ever recorded in Arizona, and was bettered only by the 22 Magnificent Frigatebirds at the north end of the Salton Sea July 29, 1979 (*Am. Birds* 33:989) among the largest flocks ever recorded in the southwestern United States.

	KATHLEEN	NORA
Black-vented Shearwater	—	2
Leach's Storm-Petrel	1	2
Black Storm-Petrel	1?	100
Least Storm-Petrel	3,000	500
Red-billed Tropicbird	1	1

WANDERING HUMMINGBIRDS

When a Xantus's Hummingbird attempted nesting in residential Ventura in southern California during early 1988 (Hainebach 1992) it was front-page news, not only because it was a first for the United States, but because nobody would have predicted that this endemic to southern Baja California would ever turn up outside of its peninsular home. With this November's discovery of a Xantus's Hummingbird outside of Vancouver, British Columbia (see Toochin 1998), the southern California record seems almost trivial by comparison. Despite the harsh Canadian winter, this hardy bird was still present as of early March 1998.

So what does one make of this record? In general, hummingbirds are treated as naturally occurring vagrants without a second thought, and this treatment is probably reasonable. After all, the Xantus's Hummingbird in British Columbia is not the first bizarre hummingbird record for this continent. How about an adult male Costa's Hummingbird spending the fall in Anchorage, Alaska (Gibson and Kessel 1992)? What about Magnificent Hummingbirds in Minnesota (Eckhardt 1987, Winker and Warner 1991), an Anna's Hummingbird in Saskatchewan (this issue), or an Allen's Hummingbird in Delaware (this issue)? Or better yet, a Green Violet-ear at Thunder Bay, Ontario (Escott 1992)?

Yet despite what seems an obvious penchant for trochilids to wander far from their homes, it is wise to at least consider the possibility of escaped birds. Hummingbirds are becoming increasingly common in captivity as zoos devote more and more space to displaying the "wonders of the Neotropical rainforests" or the like. Obviously, hummingbirds are never pinioned, so any that get out are gone. Most captive hummingbirds are showy species, such as the Ruby-topaz Hummingbird and the *Amazilia* Hummingbird, the latter of which appears to be the most common captive hummer. These species are not likely to be confused with anything that may actually occur in the United States or Canada. But this statement is not true for the Sparkling Violet-ear, a species endemic to the Andes that is quite similar in plumage to the Green Violet-ear. If one of the several at the San Diego Wild Animal Park in California were to sneak out of its aviary, how many of us would identify it as a Green Violet-ear without a worry? More "mundane" species are kept as well: I have seen Magnificent, Broad-billed, Costa's, and even Black-chinned

hummingbirds in aviaries at various zoological gardens. So, whereas I confess to being among those that tend to treat all out-of-range hummingbirds as naturally occurring, given what I have witnessed in the past few years I find myself more concerned about this matter than I used to be.

BROWN BIRDS IN THE EAST

A Brown-chested Martin photographed and subsequently collected on June 12, 1983, at Monomoy Island, Massachusetts (Petersen et al 1986), was astounding. This species ranges throughout much of northern South America east of the Andes, and was not on anyone's long list to make it to the United States. A repeat performance by this species was staged at Cape May, New Jersey, in 1997, with one studied and photographed November 6–15 before it apparently succumbed to the cold weather. Unlike the essentially sedentary Xantus's Hummingbird, the Brown-chested Martin is one of many South American passerines that undergoes austral migration (Zimmer 1938, Chesser 1994). Given two records of this martin, several records of the Variegated Flycatcher, the ever-burgeoning count of Fork-tailed Flycatchers, and an 1890 specimen of the Southern Martin (see Eisenmann and Haverschmidt 1970), observers in the East could do worse than scanning swallow flocks and hunting down flycatchers for additional South American species that may occasionally make the leap to our continent.

Certainly the equal of the Xantus's Hummingbird and Brown-chested Martin in terms of distance from its normal range was the Brown Shrike (an adult no less) found in Halifax, Nova Scotia, November 22 to December 1. With only four records from Alaska and two from California (American Birding Association 1996), this species is truly a rarity on a continental scale. This species is a scarce vagrant even in Europe, where only a couple have ever been recorded. Because of the clockwise wind patterns across the North Atlantic, vagrants of North American birds are much more numerous in the Western Palearctic than their counterparts are in eastern North America (Elkins 1979). Thus, this species had even longer odds for reaching Nova Scotia. Of course, perhaps it did not come from the western part of its range at all. Southeastern Canada is famous for hauling in vagrants from western North America, and has hosted a few species (admittedly quite dissimilar to shrikes) that are Asian (e.g., Black-tailed Gull, Slaty-backed Gull, Siberian Rubythroat). Indeed, I suggest that this shrike headed across the continent after summering in northern Alaska or northeastern Siberia, for just as the winds favor our birds reaching Europe, winds in the North Pacific favor Siberian/Asian species reaching North America. The laundry list of such birds that have reached the West Coast, particularly California, makes this point well enough, and the three (and perhaps five!) additional Dusky Warblers found in California this fall serve only to strengthen this point.

BLUE ROSS'S GEESE

Only 20 short years ago the evidence of blue-morph Ross's Geese was thrust upon the ornithological community (*Am. Birds* 30:761, McLandress and McLandress 1979). The vast majority of records at that time were from the Central Valley and Klamath Basin of California, with a couple of sightings from Saskatchewan. This form has now been recorded throughout much of the range of the Ross's Goose, and seems to be increasing in frequency. For example, Quebec recorded two more this winter and has now logged 19 since 1986.

One of the mechanisms proposed for the seemingly sudden appearance of this morph was interbreeding with Lesser Snow Geese, the subspecies of the Snow Goose that includes the common and

familiar “Blue Goose.” Credence to this postulate was provided on October 29 when a family group of white geese was observed near Starr, Maryland, that consisted of an adult Ross’s Goose and a blue-morph adult that was an apparent hybrid Ross’s × Snow Goose accompanied by three white and one blue immatures. These immatures were said to be “indistinguishable” in size from the adult Ross’s Goose, and had an extremely similar shape to their bills. Although circumstantial, observations such as these certainly do suggest that occasional hybridization between these geese has introduced the blue allele into the Ross’s Goose population.

LOITERING, PASSING THROUGH, AND MOVING IN

Two of the major themes this season were (1) the remarkable number of passerines that lingered far later than usual throughout the continent (but especially east of the Continental Divide) and (2) the large number of loons and grebes that moved through the central and eastern regions and parts of the western interior. Whether or not either of these phenomena was related to El Niño is anyone’s guess (see below), but at least the former appeared to be directly related to the unseasonably mild weather experienced throughout much of the continent. Recent studies have shown that there is a strong genetic component to migratory tendencies, such that the direction and distance traveled by a species or population is largely innate (see Berthold 1993). Nevertheless, there is also a substantial environmental component to migratory behavior, with birds tending to show facultative movement at the onset of cold or wet weather (Terrill and Ohmart 1984). Thus, it perhaps comes as no surprise that extended periods of mild weather throughout the Great Plains, New England, the Great Lakes states, and northern Intermountain Region, etc., would yield a diverse array of records of birds staying weeks or even months past their normal departure dates. Mild weather is reflected also in the apparent migration itself. After all, if birds experience few storm fronts, they tend to pass through quickly and relatively unimpeded. It is ironic that the worse it is for migratory birds, the better it is for birders to see them.

The second of these phenomena is hard to explain, but the fact remains that large numbers of Red-throated and Pacific loons and Horned and Red-necked grebes moved through the Great Lakes, North Atlantic Coast, and elsewhere east of the Great Plains, with Red-necked Grebes also appearing in surprising numbers in various locations in the interior West. Seasonal totals at some locations boggle the mind, such as 18,115 Red-throated Loons moving west past Hamlin Beach, Lake Ontario, New York, and 15,094 Red-necked Grebes heading south at Whitefish Point, Lake Superior, Michigan. Other notable totals were 204 Red-throated Loons at Presque Isle, Pennsylvania (where the seasonal average is a mere eight!), and 688 Horned Grebes in Hot Springs County, Arkansas, on November 29. And to top it off, Pacific Loons were found in nearly every state (often multiple in each) in the Western Great Lakes and Middlewestern Prairie regions.

A third general trend was evident only relative to a year earlier: wholly unlike the previous fall, there was little if any invasion of winter finches and other montane species into most western regions. However, a “modest invasion” of winter finches was reported in the Hudson-Delaware and Appalachian regions. There were a few other notable movements, primarily the large flight of Red-breasted Nuthatches into the Northeast and Southeast and the nearly unparalleled incursion of White-winged Crossbills into the Pacific Northwest, with good numbers of the latter also found from New England south through Delaware, accompanied by a number of Common Redpolls and Pine Grosbeaks

OTHER NOTABLE FLIGHTS

A disparate group of wood-warbler species was recorded in above average numbers in northern California during the fall (Virginia’s, Lucy’s, Chestnut-sided, Magnolia, Black-throated Blue, and Prairie warblers, and Northern Waterthrush), leading Roberson, Bailey, and Singer to assert that “there is a project somewhere in these data to hypothesize the reason that this set of warblers was more widely seen” I could not resist at least a stab at their challenge. Unlike their boreal forest counterparts (e.g., the Tennessee, Cape May, Blackburnian, and Black-throated Green warblers), each of the species they mentioned is well-adapted to second growth habitats and other areas with similar physiognomy. This sort of habitat has increased as a result of human modification of the landscape, providing more breeding habitat for species able to make use of it (and concomitantly to the detriment of species requiring primary forest). Furthermore, the all too real threat of global warming could also favor species that rely on hardwood forests, a habitat that is expected to increase, again at the expense of boreal forests and its collection of breeding species (see Rodenhouse [1992] for a simulation study of the effects of global warming on the Black-throated Blue Warbler and its hardwood forest habitat). Thus, perhaps an increased amount of second growth/suburbia and global warming have positively influenced the population sizes of these deceptively similar species of wood-warbler.

Amidst the controversial and at times vitriolic debates to remove the Peregrine Falcon from the federal Endangered Species List, this species staged an impressive migration through the East, and particularly along the Atlantic Coast. This strong showing of Peregrines coincided with an equally noteworthy movement of its smaller cousin, the Merlin. Exceptional numbers of both of these species were recorded as far south as Florida; for example, 430 Peregrine Falcons and 70 Merlins were tallied at Guana River State Park in the brief window of September 27 through October 14. Perhaps the tireless conservation efforts to protect raptors are finally paying some modest dividends.

Lastly, despite the flashy vagrants I discussed above (and another below), my vote for the most remarkable record of the season was the “Rock Dove” found on August 7 at Sainte-Anne-des-Monts, Quebec. Before you skip to the next paragraph wondering what on Earth could be interesting about a non-native bird, consider that this individual was in fact a racing pigeon that had been released in France on July 11, and that clearly had overshot its targeted landing site at Northumberland, England. . . .

OUR DATA IS ONLY AS GOOD AS . . .

Three items caught my eye this past fall, and they share a common theme in being superb cautionary remarks about field identification of difficult groups of birds: (a) Grzybowski’s (Southern Great Plains) wise and oft-times unheeded admonitions about the pitfalls of Empidonax identification, (b) Benesh and Rosenberg’s (Arizona) fine comments about the still-fragmentary knowledge of identifying members of the recently split Solitary Vireo complex, and (c) Bannon and David’s (Quebec) thoughtful summary of the truly underappreciated range of variation within Slate-colored, Oregon, and other subspecies and subspecies groups collectively included under the Dark-eyed Junco umbrella. Observers would do well to consider these points of view. All too often there is too much emphasis placed on identifying every bird we encounter, and that is especially tempting with birds like small flycatchers. We must be willing to accept that we cannot identify all that we see. But a more insidious problem is our general lack of appreciation of geographic variation. Proper field identification of many forms of the Dark-eyed Junco is actually

more straightforward, and is equally meaningful, than is identification of many Empidonax flycatchers. Yet because the juncos are currently treated as mere subspecies, they do not receive an equal level of attention. The recent split of the Solitary Vireo into three full species is a fine example to the dangers of ignoring subspecific variation. Suddenly, birders are faced with teasing apart subtle differences in a bird that for years has always fit neatly into a particular box. Worse yet, how much data has been lost over the years because most observers simply recorded a "Solitary Vireo" in their notes?

EL NIÑO AND BIRD MOVEMENTS

By the end of 1997, one could not get past a television newscast without hearing about the impending devastation from El Niño that awaited us all. The ceaseless ominous portents no doubt etched El Niño deep within our collective subconscious, and no doubt will deeply color how we view the events of the season. Unfortunately, what we can actually say about the event and its effects on bird movements, whether seabirds or landbirds, is sorely limited.

Part of the problem stems from our fundamental lack of understanding of just what constitutes an El Niño in the first place. In simple terms, any persistent (6–18 months) anomalous warm water appearing in the coastal and equatorial waters off Peru and Ecuador is termed the El Niño-Southern Oscillation (Philander 1990). However, the defining event in the eastern tropical Pacific is merely one aspect of a phenomenon that occurs on a massive scale, affecting the tropical Pacific as far west as Asia and the atmosphere across the globe. Making the situation even more complex is the strong recent evidence that unusual warming in the tropical Pacific Ocean in the 1990s appears to have a different genesis than did warmings in the 1970s and 1980s (Latif et al. 1997, Zhang et al. 1998). And this warming may not even be that unusual, given that it has been observed nine times in the past 30 years (Diaz and Kiladis 1992), four of which have been in this decade.

Sadly, although we still know precious little about El Niño, we know even less about the effects of El Niño conditions on biological systems. There is clear evidence that populations of fish, marine mammals, and seabirds can be devastated directly by these warm-water events (Barber and Chavez 1983, Glynn 1988), with some seabird breeding colonies suffering complete collapse (Schreiber and Schreiber 1984). Effects over longer periods or wider geographic areas is understood tenuously if at all, and we have only suggestive evidence about effects felt in terrestrial systems (e.g., Jaksic et al. 1997). Just how an El Niño-Southern Oscillation influences numbers and movements of terrestrial birds is something for which there is only circumstantial evidence linking these events to lower numbers of Neotropical migrants (Hall et al. 1988). In short, we have evidence of breeding seabirds being negatively affected by El Niño events, but we know almost nothing about how an El Niño affects bird movements.

I do not mean to present an overly pessimistic view of what we can learn about bird movements in relation to El Niño; instead, I mean only to emphasize that El Niño events are not a panacea that allows us to explain all things odd in those years. Still, plausible predictions can be made about how these events affect movements in some species, and these predictions can be supported by data gathered in a single season. For example, because the higher than average sea temperature tend to substantially reduce fish and other prey items in affected areas (Barber and Chavez 1983), a reasonable prediction would be that birds dependent on these resources would disperse farther than usual away from the influences of tropical waters. Such was demonstrably the case this fall when huge numbers of

Brown Pelicans reached British Columbia and Washington, and unprecedented numbers of Heermann's Gulls and Elegant Terns reached the latter area. No doubt other birds will be similarly tied to the impressive northward pushes of these subtropical seabirds. By contrast, who can say if the astounding numbers (in the thousands) of Fork-tailed Storm-Petrels in Puget Sound were related to the El Niño? Because their breeding range is far from the tropical Pacific, there is no immediate reason to think these events were related.

Perhaps foremost among what may prove to be controversial bird records potentially associated with this season's massive El Niño event was the Band-tailed Gull at the mouth of the Tijuana River in extreme southwestern California from August 3 until the end of the year. There has yet to be a fully-embraced record of this species in the United States. Indeed, three records for western Panama (Ridgely and Gwynne 1989:152) are the northernmost generally considered to involve birds of unquestioned natural occurrence. Thus, it is difficult to know what to think of an adult Band-tailed Gull in California.

Beyond our fundamental lack of understanding of El Niño, part of this thorny problem seems to be a bias against records of southerly gulls, whereas records of northerly ones are generally fully-embraced. How many among us have ever questioned the provenance of a Slaty-backed, Ivory, or Ross's gull that made a showing far from its home? Even the Black-tailed Gulls appearing from coast to coast and from Canada and New England to Mexico (see this issue, Lucas 1997, Garrett and Molina 1998) are generally accepted without too much concern. Such has not been the case for the likes of the Swallow-tailed Gull in California (Heindel and Garrett 1995), the Gray Gull in Louisiana (*Am. Birds* 42:277), and various Band-tailed Gulls in Florida (American Birding Association 1996:87). The bias may have arisen from a simple truth: birds whose ranges are farther from the equator are generally much more migratory and/or dispersive than birds whose ranges are at or near the equator. Thus, whereas each of these species may possess the same physical abilities to disperse great distances, they are not equals with regard to their likelihood to disperse great distances. Still, I have no doubt that there will be conviction among some that this bird's appearance in California was a direct result of El Niño.

Given the high caliber of North American field ornithologists, I await in earnest the upcoming data on bird distribution and abundance gathered during the winter of 1997/1998. Fifteen years have passed since we witnessed an El Niño of this magnitude, so anything we can learn about its effect on birds is worthwhile. Still, monitoring the population biology and ecological response of any species or group of species typically requires years of carefully gathered data and with that a healthy dose of patience. As much as it may seem that a pattern observed this fall (or winter) must be the result of El Niño, we would all do well to bear in mind that we are working with a single event, and thus a single data point. Any correlation we find at this stage, positive or negative, will be perfect by default. But data gathered by active field ornithologists this season, in past seasons, and in future seasons will undoubtedly tell us much about the long-term biological effects of El Niño and other climatic phenomena in the years to come. Science as a whole will thus benefit from the cadre of birders and field ornithologists in ways that other fields of endeavor can only envy.

LITERATURE CITED

- American Birding Association. 1996. *ABA checklist: Birds of the continental United States and Canada*. 5th Edition. American Birding Association, Colorado Springs.
- Barber, R. T., and F. P. Chavez. 1983. Biological consequences of El Niño. *Science* 222 1203–1210

CHANGING SEASONS

- Berthold, P. 1993. *Bird migration: A general survey*. Oxford University Press, New York.
- Chesser, R. T. 1994. Migration in South America: An overview of the austral system. *Bird Conservation International* 4:91-107.
- Diaz, H. F., and G. N. Kiladis. 1992. Atmospheric teleconnections associated with the extreme phases of the Southern Oscillation. Pp. 7-28, in Diaz, H. F., and U. Markgraf, eds. *El Niño: Historical and paleoclimatic aspects of the Southern Oscillation*. Cambridge University Press, New York.
- Eckhardt, F. 1987. Magnificent Hummingbird in Boyd, Lac Qui Parle County. *Loon* 59:145-146.
- Eisenmann, E., and F. Haverschmidt. 1970. Northward migration to Surinam of South American martins (*Progne*). *Condor* 72:368-369.
- Elkins, N. 1979. Nearctic landbirds in Britain and Ireland: A meteorological analysis. *British Birds* 72:417-433.
- Escott, N. 1992. Green Violet-ear: First for Canada. *Ontario Birds* 10:86-89.
- Garrett, K. L., and K. C. Molina. 1998. First record of the Black-tailed Gull for Mexico. *Western Birds* 29:49-54.
- Gibson, D. D., and B. Kessel. 1992. Seventy-four new avian taxa documented in Alaska 1976-1991. *Condor* 94:454-467.
- Glynn, P. W. 1988. El Niño-Southern Oscillation 1982-1983: Nearshore population, community, and ecosystem responses. *Annual Review of Ecology and Systematics* 19:309-345.
- Hainebach, K. 1992. First records of Xantus' Hummingbird in California. *Western Birds* 23:133-136.
- Hall, G. A., H. L. Gibbs, P. R. Grant, L. W. Botsford, and G. S. Butcher. 1988. Effects of El Niño-Southern Oscillation (ENSO) on terrestrial birds. *Acta Internatl. Congr. Ornithol.* 19:1759-1769.
- Heindel, M. T., and K. L. Garrett. 1995. Sixteenth report of the California Bird Records Committee. *Western Birds* 26:1-33.
- Jaksic, F. M., S. I. Silva, P. L. Meserve, and J. R. Gutiérrez. 1997. A long-term study of vertebrate predator responses to an El Niño (ENSO) disturbance in western South America. *Oikos* 78:341-354.
- Kaufman, K. 1977. The changing seasons: An intimate look at Kathleen and other avian phenomena of autumn, 1976. *American Birds* 31:142-152.
- Latif, M., R. Kleeman, and C. Eckert. 1997. Greenhouse warming, decadal variability, or El Niño? An attempt to understand the anomalous 1990s. *Journal of Climatology* 10:2221-2239.
- Lucas, Z. 1997. A Black-tailed Gull on Sable Island, Nova Scotia. *Birders' Journal* 6:205-207.
- McLandress, M. R., and I. McLandress. 1979. Blue-phase Ross' Geese and other blue-phase geese in western North America. *Auk* 96:544-550.
- Patten, M. A., and R. A. Minnich. 1997. Procellariiformes occurrence at the Salton Sea and Sonoran Desert. *Southwestern Naturalist* 42:302-311.
- Petersen, W. R., B. J. Nikula, and D. W. Holt. 1986. First record of Brown-chested Martin for North America. *American Birds* 40:192-193.
- Philander, S. G. 1990. *El Niño, La Niña, and the Southern Oscillation*. Academic Press, San Diego.
- Ridgely, R., and J. A. Gwynne, Jr. 1989. *A Guide to the Birds of Panama, with Costa Rica, Nicaragua, and Honduras*. 2nd edition. Princeton University Press, Princeton, N.J.
- Rodenhouse, N. L. 1992. Potential effects of climatic change on a Neotropical migrant landbird. *Conservation Biology* 6:263-272.
- Schreiber, R. W., and E. A. Schreiber. 1984. Central Pacific seabirds and the El Niño Southern Oscillation: 1982 and 1983 perspectives. *Science* 225:713-716.
- Terrill, S. B., and R. D. Ohmart. 1984. Facultative extension of fall migration by Yellow-rumped Warblers (*Dendroica coronata*). *Auk* 101:427-438.
- Toochin, R. 1998. A Xantus's Hummingbird in British Columbia: A first Canadian record. *Birders' Journal* 6:293-297.
- Winker, K., and D. W. Warner. 1991. Notes on the distributions of some Minnesota birds. *Loon* 63:168-170.
- Zhang, R.-H., L. W. Rothstein, and A. J. Busalacchi. 1998. Origin of upper-ocean warming and El Niño change on decadal scales in the tropical Pacific Ocean. *Nature* 391:879-883.
- Zimmer, J. T. 1938. Notes on migrations of South American birds. *Auk* 55:405-410.



Better Birdwatching CD-ROMs™

Better Birdwatching in Colorado, Volumes 1 & 2, and the Colorado Birding Hotspots Map, all on one CD for only \$39.99.

Range maps and 360 photos, 135 videos, 105 sounds and 74 quizzes covering 185 species (Loons-Murrelets). Interactive map has 213 photos and 40 videos of premier birding spots in Colorado. Works on Windows® & Macintosh®.

Send \$41.99 (\$2 shipping) to:

Joseph A. LaFleur
616 1/2 W. Olive St.

Fort Collins, CO 80521

* Guided bird
hikes available
(970)221-9619

1-888-414-AVES(2837)

<http://members.aol.com/birdcdroms>

!ESCAPE TO COSTA RICA!

Come visit **Las Ventanas de Osa Wildlife Refuge** in unspoiled coastal rain forest on Pacific southwest coast. Over 350 bird species recorded in the area. Max.12 guests; good food and wines; freshwater swimming pool, nature trails and guides. All rooms twin beds, fan, bath and 110 vac. Book early to avoid disappointment!

Enquiries & Reservations:

Las Ventanas de Osa Wildlife Refuge,
PO Box 24262,

Ft Lauderdale. FL 33307. USA.

Tel:(305) 561-7750 or 1-800-561-7751



WE LOVE BIRDERS IN BEAUTIFUL CLEAR LAKE, TEXAS

Nestled between Houston and Galveston off I-45 and Hwy. 146

BIRD WATCHING SITES

Armand Bayou Nature Center

Largest urban wildlife preserve in the U S
Enjoy migratory birds in the central flyway

Lake Nassau

McHale Bird Watching Park on Galveston Bay

Bay Area Park

Challenger Park and many more sites

WONDERFUL HOTELS, MOTELS, RESTAURANTS AND ATTRACTIONS.

CALL: 1-800-844-LAKE FOR INFORMATION

Theme of the lesson: Changing seasons. Learning objectives(s) that this lesson is contributing to. 2.S3 pronounce familiar words and expressions intelligibly. 2.R3 recognise and identify some familiar sight words from local environment. Lesson objectives. Learners will be able to: name four seasons. recognise short basic instructions. identify objects. Changing Seasons was a short story written by Timothy Zahn that appeared in two parts: Guardian of the People in Star Wars Insider 76, and People of the Guardian in Star Wars Insider 77. It was also included in a Czech-language anthology Setkání v mlze. The story takes place in c. 22 BBY, and has Obi-Wan Kenobi and Anakin Skywalker temporarily stranded on the planet Dagro occupied by Separatist forces. With Anakin Skywalker held behind, Obi-Wan Kenobi had gone ahead to scout the planet Dagro to check In Changing Seasons, readers learn about the changes that occur with each season. The lengths of day and night, as well as the cycle of plant growth and the change in temperatures, are explained by a young narrator. Engaging illustrations supplement the text. Book Resources.