Vol. 41 No. 1 January 2007

Colorado Birds

The Colorado Field Ornithologists' Quarterly

Remembering John Prather

Nocturnal Migration in Colorado

Shorebirds in the South Platte Drainage

Colorado Field Ornithologists
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Front cover: Snow Bunting, November 19, 2006. Found at Prewitt Reservoir by David Leatherman. *Photo by Joey Kellner*

LETTER FROM THE EDITOR

Nathan Pieplow

Dear Readers,

I am honored to present to you the fortieth anniversary issue of this journal.

Believe it or not, it was in the early months of 1967 that CFO members received their first issue of *The Colorado Field Ornithologist*, as it was called then—a booklet of the same dimensions as today's issue, but only twenty pages thick, the black-and-white cover decorated by Terry Vaughan's line drawing of two Clark's Nutcrackers flying past the snag of a stunted krummholz pine.

Now, forty years, fifteen editors and three name changes later, *Colorado Birds* looks very different indeed. I have taken great pleasure in spreading out my entire editor's run of the journal in chronological order on the floor, one hundred forty-five issues in all, to marvel at four decades' worth of the history of Colorado birds and birders. Through all its variations in dimensions, page numbers, paper types, colors, cover designs, typefaces and topics, this publication has gotten better with nearly every successive issue. It makes me proud to say that I am the sixteenth editor of Colorado Birds, and to be honest, it daunts me a little that I have to meet the challenge of continuing improvement.

The entire birding community owes a tremendous debt of gratitude to our outgoing editor, Doug Faulkner. Doug, who is retiring in order to welcome his second child into the world, has poured an incredible amount of time into this journal, which has heretofore been almost a one-man show—Doug by himself was responsible for soliciting articles, editing them, sending them out for peer review, matching them with photos, editing those photos, laying out the entire issue in a graphic design program, sending it off to the printers, retrieving the proofs, checking for errors, correcting them, and sending it all off to the printers again—every ninety days. Doug's tenure of five years and twenty-one issues ranks as the longest in CFO history—testimony to his dedication and fortitude in the face of the enormous toll that this volunteer position takes on its occupants.

It is with relief that I report that this editorship is no longer so lonely a job. The same people who helped Doug produce the journal in the past are still with us: Hugh Kingery still edits our *Field Notes*, Peter Gent still compiles *News from the Field* reports from autumn and

winter, and the indefatigable Raymond Davis still mails out every issue. But in addition, some new faces have come aboard staff, many of them in new positions. Glenn Walbek fills the new and much-needed post of Photo Editor; he has made it his goal to put more and better bird images into the journal, to better showcase the work of Colorado's many fine bird photographers and artists. In this issue Tony Leukering initiates a new regular column called *In the Scope*, which will deal with identification issues of Colorado birds (see page 59). Bill Schmoker will take charge of the new column called *Across the Board*, in which we profile some of our state's most dedicated birders, the members of CFO's board of directors, starting with Bill himself (see page 11). And Andrew Spencer has joined the crew of News from the Field editors, helping me compile reports for spring and summer. By pooling the efforts of this talented group, we hope to increase both the quantity and quality of articles and artwork in every issue of this journal.

Many things are new in this fortieth anniversary issue of *Colorado Birds*.

In addition, by now you cannot have missed the journal's new design, which is the brainchild of Debbie Marshall of Marshall Desktop Publishing. Debbie will also be doing the layout for each issue, perhaps the single biggest job that has been taken off the shoulders of the editor. Her involvement brings a new level of professionalism to our look and to our construction.

The last people who need to be recognized for their efforts are the CFO board of directors, whose support and commitment, both moral and financial, are the key ingredient without which none of these improvements could have been realized. Rachel Hopper deserves special thanks for taking *Colorado Birds* under her wing and organizing the highly complex technical aspects of its production. Her high standards are in no small part responsible for the quality of the product you hold in your hands.

I echo the sentiments of nearly every editor who has ever taken these reins: this is *your* journal. Many things are new in this issue of *Colorado Birds*, but our mission remains the same: to publish articles and art of interest to birders both casual and serious, ornithologists both amateur and professional, and nature lovers of nearly every other stripe. I hope you enjoy this issue of the journal, and I look forward to your feedback on it so that we may continue to improve.

Nathan Pieplow, 4745-B White Rock Circle, Boulder, CO 80301, 303-245-8421, editor@cfo-link.org

Flocking Up

Conventions 2006 and 2007

Norm Lewis

In late May, as spring slowly morphed into summer, one hundred forty birders gathered in Sterling from all over the region for the 2006 convention of the Colorado Field Ornithologists. With the possible exception of the famous Pawnee National Grassland, the eastern plains of Colorado are one of the best kept secrets of North American birding. Eastern Colorado is where the flyways of the mid-continent meet the vast grasslands of the Great Plains and the arid scrub deserts of the southwest. Here, almost anything avian is possible. This year's convention featured over thirty field trips which were led by some of the most accomplished birders of Colorado and which covered much of the northeast corner of the state. In spite of unseasonably warm weather, the convention field trips counted 185 species, including many eastern Colorado specialties such as Red-bellied Woodpecker, Great Crested Flycatcher, Field Sparrow and Northern Cardinal. Eastern Colorado usually produces some wandering rarities in the spring, and this year was no exception, with Magnolia, Blackburnian, Prothonotary and Worm-eating Warblers appearing on various field trips, as well as Carolina Wren, Glossy Ibis and even Ladder-backed Woodpecker!

Joe Roller enjoying Dr. Kroodsma's workshop, May 29, 2006. Photo by David Leatherman

The field trips generated a lot of fun and excitement, but it was left to Dr. Donald Kroodsma to bring the magic. Don, who recently authored the fabulous *Singing Life of Birds*, is considered by many to be the foremost American authority on bird vocalization. Don opened the convention with a pre-dawn expedition to Prewitt Reservoir, where he led a group in listening to the dawn songs of a variety of birds, pointing out how the singers were communicating and responding to one another, and demonstrating birdsong recording. Those who had the pleasure of listening to the singing Lark Sparrow through the

headphones with Don's stereo parabola will never forget the beauty and intimacy of the experience. Following the field trip, Don conducted a workshop using the recordings he had just made in the field. His captivated audience looked on in amazement as he visually displayed the characteristics of the songs using the Raven birdsong analysis software developed by the Cornell Laboratory of Ornithology. He opened up an entirely new way of listening to and understanding bird vocalization for those who were lucky enough to be in attendance. As a grand finale, Don shared a fascinating look into the singing life of birds with everyone after the Sunday evening banquet. Everyone who heard his presentation came away with a new depth of appreciation of the world of birdsong.

Dr. Donald Kroodsma, May 29, 2006. Photo by David Leatherman

The 2007 convention will be held in Craig from 8-11 June, and will feature another world-renowned member of the birding community, Victor Emanuel, founder of VENT (Victor Emanuel Nature Tours). Victor will address the convention about top birding "hotspots" around the world. Convention headquarters will be the Holiday Inn in Craig; participants can stay at a special rate of $82 per night by calling (970) 824-4000 and mentioning CFO. For questions about the special rate, contact Tammie at extension 403. Due to the number of temporary oil and gas workers based in Craig, rooms there tend to book early, so make your reservations soon! More information about the convention can be found on the CFO website at www.cfo-link.org.

CFO conventions are a great opportunity for all birders with an interest in Colorado field ornithology to participate in terrific field trips and meet fascinating people with similar interests. If you have never attended a convention, I heartily encourage you to join us in Craig to look for birds including Greater Sage-Grouse and Sharp-tailed Grouse, Scott's Orioles and Juniper Titmice, Three-toed Woodpeckers and Boreal Owls, not to mention the fabulous scenery of Moffat County. I look forward to seeing you in June in Craig!

Norm Lewis, President, Colorado Field Ornithologists, 852 S. DeFrame Way, Lakewood, CO 80228, president@cfo-link.org

CFO BOARD MINUTES

November 4, 2006
Sand Creek Library
Colorado Springs, Colorado

Lisa Edwards, Secretary

The regular quarterly meeting was held November 4, 2006 at 11:08 AM. Board members present were President, Norm Lewis; Vice President, Bill Schmoker; Secretary, Lisa Edwards; Treasurer, David Waltman; directors Jim Beatty, Maggie Boswell, Cheryl Day, Doug Faulkner, Mark Peterson, Nathan Pieplow, Larry Semo, and Glenn Walbek. Directors Rachel Hopper and Tom McConnell sent their regrets. The minutes of the August meeting were approved as corrected.

President's Report

Norm Lewis welcomed Jim Beatty and Nathan Pieplow as new board members and stated that CFO is running smoothly.

Treasurer's Report

CFO's current liquid assets are $36,757.03. The retail value of the merchandise inventory is $5,626.00. The Treasurer's report was approved.

Committee Reports

COBirds—Mark Peterson. The list is running very well. We have over 740 subscribers.

CFO website—Rachel Hopper. The "Mr. Bill Mystery Quiz" continues to draw a big response. Rachel is continuing to explore various options to upgrading the site and has met with several different vendors.

Colorado Birds—Doug Faulkner. The October issue will be going to the printers next week. It is a larger issue and includes the youth articles.

CBRC—Larry Semo. A second round has started for records that were not approved earlier this year. Rachel Hopper will be joining the CBRC in January, replacing Brandon Percival, whose term ends in December. Peter Gent will continue as a member of the CBRC.

Field Trips—Bill Schmoker. The California Pelagic trip was very successful; everyone came back for the second day of trips! Field trips under consideration for the coming year include Pacific pelagic trips, NE Colorado private ranches, an Owl Prowl, Bohart Ranch, a gull workshop, and a Wyoming trip, among others.

Project Fund/Youth Fund—Cheryl Day. December 1 is the deadline for submissions to be accepted for review by the Project Fund committee. The board discussed the possibly of putting information on the web site with regards to the youth scholarships offered by CFO along with information about how the youth have benefited from the scholarships that have been awarded in the past several years.

Membership—Maggie Boswell reported that there are 417 active members.

2007 Convention—The board decided to run an ad in the January-February and March-April issues of the ABA publication Winging It.

Old Business

Digital Archiving of Colorado

Birds—Norm will discuss this topic with Rachel Hopper and Andrew Spencer.

New Business

Colorado Breeding Bird Atlas—Tony Leukering presented a proposal to the board to consider with regards to funding the second Colorado Breeding Bird Atlas. The board approved and passed the following motion: "Commit to a first-year pledge of $1.00/member and look to repeat for 4 subsequent years. The monies will come from the savings account and CFO will choose to give more or less each year."

The next board meeting will be held in Broomfield at the SWCA Environmental Consultants Office beginning at 11 AM on February 3, 2007. The board meeting was adjourned at 2:30 p.m.

FIELD TRIP REPORT

Birding the High Seas

CFO Pelagic Trip to Monterey Bay, CA

September 17 & 18, 2006

Bill Schmoker

Fifteen seafaring CFO birders were California-bound to bird the Monterey Bay on September 17 & 18, 2006. Sailing on the Point Sur Clipper, we were treated to good weather, reasonable seas, and great birding opportunities. The boat is dedicated to natural history outings and doesn't charter fishing trips, so the whole stern is open for birders without a big bait tank in the way. One sign of our success was that everyone who went out the first day came back for the next successive day—no serious seasickness victims! Monterey Seabirds and our guide Roger Wolfe took great care of us and used their expertise to maximize our chances at seeing plenty of good birds and other marine life.

One of the highlights on day one was getting the "skua slam"—we observed Long-tailed, Parasitic, and Pomarine Jaegers in addition to South Polar Skua. While the Long-tailed Jaegers stayed out away from the boat, the other three species were observed up close. Parasitics and Pomarines were plucking the thrown fish out of mid-air from nearly point-blank range.

were coming right to the stern to get anchovies, either by robbing them from gulls or getting them directly from our chummer, plucking the thrown fish out of mid-air from nearly point-blank range. At one time we had six or seven jaegers simultaneously vying for the fishy treats. Another mind-blowing incident came when a South Polar Skua hovered as if to land on the boat's cabin — I don't think views of this bird get much better than that. We got all of the expected shearwaters (Sooty, Pink-footed, and Buller's) in great light and up close, and in good enough numbers to really work on learning the GISS of each bird. We also picked up a distant Flesh-footed Shearwater. A neat spectacle was seeing big rafts of Sooty Shearwaters, whose total numbers were probably in six digits. Alcids and storm-petrels were a bit harder to come by, but we observed our share of Common Murres and Rhinoceros Auklets along with some Pigeon Guillemots and a handful of Ashy Storm-Petrels along with lone Black and Fork-tailed Storm-Petrels. Red & Red-necked Phalaropes, Black-footed Albatross and Northern Fulmar padded out our seabird list for the day.

South Polar Skua, Monterey Bay, CA, September 17, 2006. Photo by Bill Schmoker

On the second day we headed out with hopes of finding better numbers of storm-petrels. We had the whole boat to ourselves this day, so there was plenty of elbow room. While the storm-petrel raft remained elusive, we had another great day with mostly sunny skies, pretty tame seas, and more incredible looks at the seabirds we had traveled so far to see. By now lots of us landlubbers were identifying shearwaters by GISS alone, not needing to raise binoculars on routine fly-bys unless we wanted more detailed study. Photographers among the group got additional great photo opportunities of well-lit, cooperative birds. Another day at sea also provided more study time for west-coast specialties like Pelagic and Brandt's Cormorants and Western, Heerman's, and Sabine's Gulls.

Perhaps our most serendipitous highlight was encountering a pod of Killer Whales on both days. A group of transient-type Orcas

frequents the bay, but finding them requires a lot of luck. Not only did we see them, but they worked their way over to the boat for up-close looks each day. In fact, during each encounter a few swam under the boat, and in the clear water they were visible carrying a scrap of some hapless sea mammal (probably a seal) that they had saved, maybe as some kind of trophy to show off. Other marine mammal species seen on our trip included Humpback Whale, Pacific White-sided Dolphin, Risso's Dolphin, Northern Right Whale Dolphin, Harbor Porpoise, California Sea Lion, Northern Fur Seal, Harbor Seal, and California Sea Otter.

In the clear water the Orcas were visible carrying a scrap of some hapless sea mammal.

Folks also took advantage of the area's great shorebirding and landbirding resources before and after the pelagic trips. Ad-hoc groups saw such specialties as California Condor, Red-shouldered Hawk, Black Oystercatcher, Black Turnstone, Surfbird, Ruff, Elegant Tern, Vaux's Swift, Pacific-slope Flycatcher, Yellow-billed Magpie, Oak Titmouse, Wrentit, California Towhee, and Tricolored Blackbird. Stay tuned for the 2007 slate of CFO field trips (information updated as it becomes available on the CFO web page), which will probably include another pelagic outing. And thanks to everyone who made the Monterey trek such a great trip!

Bill Schmoker, 3381 Larkspur Drive, Longmont, CO, bill.schmoker@gmail.com

ACROSS THE BOARD

Bill Schmoker, CFO Vice President

Editor's Note: In this issue, we begin a regular series profiling the board members of the Colorado Field Ornithologists. Bill Schmoker, CFO's Vice President, will be in charge of this series starting next issue–in the meantime, he has agreed to become its first subject.

William "Bill" Schmoker, known as "Willy" to his friends, has served as Vice President of CFO since 2004. As Vice President, he is in charge of coordinating all of CFO's field trips, including pelagic trips (see prior article). Prior to his term as VP, he served on the board of directors as membership chair.

Involvement with birds goes back at least three generations in

Bill's family. Many in the birding community know Bill's parents, Jim and Karen, who are active birders in the Denver area. Jim's grandfather was a game warden in the upper Mississippi Valley of Minnesota, with a professional knowledge of game birds and conservation. Both of Bill's grandmothers had an interest in birds, and while growing up he spent a lot of time with them in the outdoors of northwestern Wisconsin. The defunct north woods resort that became the Schmoker family's summer getaway headquarters always had feeders, binoculars, and bird books at hand to go along with the breeding Common Loons, Whip-poor-wills, Pileated Woodpeckers, Veerys, and Ovenbirds. These birds and many others left a lasting impression on Bill's earliest memories of birding, even though he didn't realize he was birding at the time. Bill still birds a lot with his parents, and he claims that some of the bug is rubbing off on his wife Charlene. Whether their infant son Garrett will like birds also, it's a little early to tell.

The switch to "serious" birding for Bill happened around 2000, perhaps not coincidentally the year the *Sibley Guide to Birds* was published. Around that time he also discovered "organized" birding: COBirds, CFO, ABA, etc. He attended his first CFO convention in Pueblo in 2001, and has been to every one since.

Bill is perhaps best known in the birding community as a leading digital photographer of birds. Since late 2001 he has built an awe-inspiring collection of bird photos documenting over 550 species of North American birds, many of which can be seen on his website (schmoker.org/BirdPics). His photography has appeared in many publications including this journal, Birding, WildBird, North American Birds, National Wildlife, Bird Conservation, Audubon, British Birds, Birdwatching and Western Birds. His pictures have also been featured in photographic field guides, bird ID cards, newspapers, interpretive signs, web pages, advertisements, corporate logos, and as references for paintings.

Other birding experiences of Bill's include several summers doing fieldwork for the Rocky Mountain Bird Observatory, presenting digital bird photography workshops, giving general interest bird talks, leading field trips, and working with Leica Sport Optics as a digiscoping consultant. He was part of Leica's digiscoping big day team at this year's World Series of Birding, an event he very much hopes to be involved with again. He has also enjoyed his involvement with the ABA's youth program, coordinating field trips for this year's Young Birder Conference in Fort Collins and judging the photo module of

the Young Birder of the Year contest for the last three years.

In that mundane space known as his "day job," Bill teaches 8th-grade Earth Science in Boulder—hardly a job that could be called "mundane." In between teaching, birding, bird photography and other bird-related projects, Bill also enjoys gardening, tinkering in his garage, and spending time with his family as well as taking the occasional spin on one of his mountain unicycles. Bill welcomes your input about how he can help CFO continue to offer unique field trips, maintain its strengths, and improve as a premier state-wide birding organization.

Bill Schmoker, July, 2004. Photo by Chris Wood

Bill Schmoker, 3381 Larkspur Drive, Longmont, CO, bill.schmoker@gmail.com

In Memoriam

John W. Prather, *1969-2006*

Alex Cruz

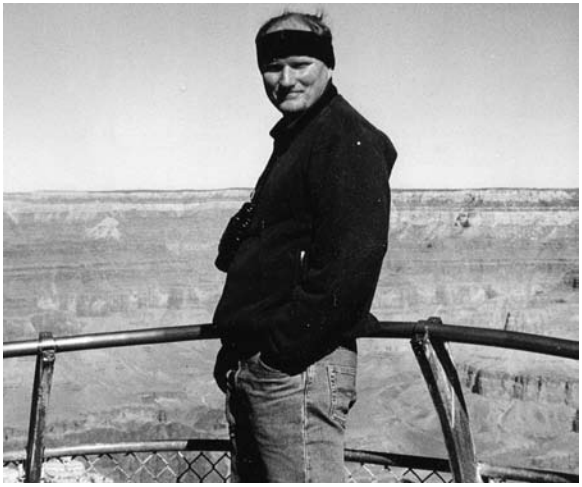
John William Prather passed away on 20 February 2006 in Flagstaff, Arizona, from a hypertensive aneurism. He was 36 years old. John was an outstanding human being—a brilliant scholar, compassionate and dedicated. I was privileged to know him.

He was born in Boulder, Colorado on 12 March 1969. As an ecologist and an ornithologist, John combined his keen awareness of nature with brilliant analytical skills. He was a tireless worker for the conservation of biodiversity. He will be missed, not only by the Colorado birding community, but also by friends and colleagues throughout the world.

John's parents, Inez and Bill Prather, well known to the Colorado

birding community as keen observers of birds and nature in general, instilled in John a passion for nature. As a result, John excelled in bird identification from an early age. I first met John 19 years ago when he was an undergraduate at the University of Colorado. He came to my office in the biology department and I was immediately impressed with his knowledge of Colorado birds and of birds in general. John, more than anyone I knew, could identify and locate hard to find birds. I invited John to assist me in a study of breeding birds of the Colorado Front Range—thus began a fruitful relation that continued until his untimely death.

After finishing his undergraduate degree, John worked on his Master's degree under my supervision, where he studied the breeding biology and population dynamics of the Cuban Yellow Warbler and the Florida Prairie Warbler in the Florida Keys. These studies were significant. They not only provided important information about these poorly known species, but also provided evidence of interspecific competition between them. In addition to his Master's work, John was also involved in a study of the spread of the Shiny and Brown-headed Cowbirds into the Florida region and the breeding biology of Florida Red-winged Blackbirds. After completing his Master's degree, John enrolled in the Ph.D. program at the University of Arkansas, working with Kimberly Smith. John's dissertation, *The ecology and analysis of diet switching by migratory birds: the use of fruits during migration* was an important and significant study about the resources used by neotropical migrants.



John Prather, March 12, 1969-February 20, 2006

After completion of his doctoral work, John worked with me as a post-doctoral scholar, where he was involved in studies on Hispaniola and along the Colorado Front Range. The Hispaniolan study examined egg rejection behavior of the introduced Village Weaver populations and the breeding biology of potential Shiny Cowbird hosts. We

found that weavers reject experimental eggs with increasing frequency as those eggs are increasingly different from the host eggs. Comparison of our results with the lower cowbird egg rejection rates found in the 1980s suggests that rejection has increased, coinciding with the establishment and parasitism of weaver populations by cowbirds. In Colorado, John coordinated a large-scale study on the distribution, breeding biology, and host-parasite interaction of birds along an urban-montane interface of the Colorado Front Range in Boulder.

While fieldwork can often be strenuous, it also has its lighter moments—such as the time when, after working in the field, John and Pablo Weaver, a CU graduate student, decided to go for a swim off the Dominican Republic coast. Unfortunately, John forgot that he had left his wallet in his shorts. John and Pablo spent some time retrieving the assorted valuables floating in the ocean.

In 2002, John accepted a position at Northern Arizona University in Flagstaff. At NAU, John was the science lead on the Forest Ecosystem Restoration Analysis (ForestERA) Project. His research involved GIS-based wildlife habitat modeling and an assessment of the potential effects of fire and forest management techniques on biodiversity.

John also had another side, as noted in the Northern Arizona University memorial: "At Flagstaff, he was a thoughtful and passionate participant in grassroots democracy. By speaking eloquently on human rights, peace, and justice issues, in addition to environmental conservation, John added an intelligent and tolerant perspective to political debate within his community."

I would like to end by quoting from an e-mail that I received from Lisa Munger, a current graduate student at Scripps Research Institute in San Diego. When she was an undergraduate at the University of Colorado, John assisted Lisa with her study of the Lesser Goldfinch in the Colorado Front Range. Together, they published the results of this study in the Wilson Bulletin. Following is an excerpt of what Lisa wrote me upon finding out about John's death. "John was just a good person through and through, and I had a lot of respect for him and was glad to be his friend. The last time I saw him, I was in Flagstaff for a field trip. John and I went out to his favorite low-key beer and wine bar, sampled a nice dark beverage, and then went outside and admired all the stars. I think John was very happy in his life there. I'm very sad to lose John and I think the world will miss his gentle spirit and keen biologist's eye. I will think of John often, in particular every time that I see or hear a Lesser Goldfinch."

These words are a testament to the many students that John helped to inspire not only at the University of Colorado, but also at North Arizona University. John's legacy continues in these future biologists and in his superb body of published work. For me, what began as a professor-student relationship changed to that of a valued colleague and friend. John is survived by his parents, Inez and William Prather, and his sister, Kea, all of Longmont, Colorado. He will be missed.

Donations in John's memory may be made to the Northern Arizona Audubon Society (PO Box 1496 Sedona, AZ 86339), Democracy for America (DFA-Flagstaff, PO Box 31382 Flagstaff, AZ 86003), or to the John W. Prather graduate student scholarship (make check payable to NAU Foundation Account 4342, Box 5694, Flagstaff, AZ 86011-5694 or online at https://www4.nau.edu/mpcer/start.html and select Prather Memorial Fund).

Alex Cruz, Department of Ecology and Evolutionary Biology, University of Colorado, Boulder, CO 80309-0334, Alexander.Cruz@colorado.edu

Detecting and Documenting Nocturnal Migration in Colorado

Ted Floyd

Scientists have known for decades that literally billions of birds migrate by night across North America. George Lowery, working in the 1940s and 1950s, demonstrated that migrating landbirds can be viewed as they transit the disk of the moon, and "moonwatching" became a popular activity for birders in the middle of the 20th century. Later, in the early 1970s, Sidney Gauthreaux pioneered the use of weather surveillance radar for monitoring nighttime migratory passages. And around the same time, Will Russell and Davis Finch (1973) famously proposed that birders might identify nocturnal migrants by their flight calls. In the years that immediately followed, however, rather little progress was made toward realizing Russell and Finch's proposition (cf. Lehman 1993).

Only in the past decade, really, has it become widely appreciated that birders and field ornithologists can detect, document, and make sense of nocturnal migration by listening to the flight calls of birds on passage. Three major contributors to the recent upsurge of interest in nocturnal migration have been the following: (1) the release of *Flight*

Calls of Migratory Birds (Evans and O'Brien 2002), a CD-ROM with flight calls and sonograms of more than 200 species; (2) increasing reliance by birders on NEXRAD (Doppler) radar data for real-time evaluation of nighttime overflights of migrants (see Gauthreaux and Belser 2003); and (3) the proliferation of easily accessed internet reports on and discussions of the general matter of birds that migrate and call by night. The history of nocturnal migration studies is discussed in a popular article by Withgott (2002), a technical paper by Farnsworth (2005), and a recent book by Chu (2006). The OldBird.org website is a good internet resource.

Field ornithological studies of nocturnal migration in North America have been concentrated mainly in the East and Midwest. This bias may be due to the fact that nocturnal migrants are more difficult to detect in the West; for example, birds may migrate at higher altitudes and at lower densities in the West (Withgott 2002). I suspect that the bias may also be attributable to something of a self-fulfilling prophesy: Birders in Colorado and elsewhere in the West "know" that nocturnal migration is primarily an eastern phenomenon, and that one therefore should not expect to be able to witness significant nighttime flights in our region. Certainly, I was guilty of such a bias during the first several years that I lived in Colorado.

In the past year, however, I have come to realize that Colorado is a fine place for listening to and learning about nocturnal migration. There are differences, of course, between nocturnal migration in Colorado vs. farther east; if nothing else, the mix of species is not the same. An important corollary to the preceding is that methods developed by nocturnal migration enthusiasts farther east may not be well suited to the study of nocturnal migration here in Colorado. At the same time, one ought not to throw out the baby with the bathwater; assumptions and methods employed in the Midwest and in the East may have considerable relevance to nocturnal migration studies in Colorado and elsewhere in the West. My approach during the past year has thus been two-pronged—to try to build on tried-and-true methods developed farther east, but also to be attuned to the possibility of new paradigms for the study of nocturnal migration in our region.

In the accounts that follow, I present a summary of selected highlights from the past year—a year spent listening to and thinking about nocturnal migration in Colorado. My approach has been highly exploratory, and the primary method that I have employed is that which is termed by statisticians as "convenience sampling." My

emphasis here is not on results and analyses, nor even on the development of testable hypotheses; rather, my desire is that my experiences during the past year will stimulate increased interest in nocturnal migration in our region. I hope that my questions, impressions, and speculations will lead to systematic, scientific study of nocturnal migration in Colorado and elsewhere in the West.

Selected Highlights: September 2005-August 2006

24 September 2005, Prewitt Reservoir, Washington County

Nocturnal migration enthusiasts often report having had an "epiphany"—a night on which both the mystique and reality of nocturnal migration are dramatically and permanently etched into the mind of the observer (see Withgott 2002, Chu 2006). My Colorado epiphany had something of an admittedly preordained aspect to it: I had just returned from a trip Back East, where the nighttime overflights of landbirds had been characteristically strong, and I wanted to give it a go in Colorado. Although I had passively noticed nocturnal migration on many prior occasions in Colorado, this was the first time I headed out with the specific objective of listening to nighttime migrants.

My companion, Bill Schmoker, and I were well pleased with our haul of migrants streaming south over Prewitt Dam in the hour before sunrise. We heard about 100 flight calls of what we presumed were Orange-crowned Warblers, and we heard many presumed Chipping Sparrows too. We were fairly confident of certain flight calls, e.g., Swainson's Thrush; less so of others, e.g., MacGillivray's Warbler; and clueless about yet others. At one point we heard what sounded like the daytime contact note of Rock Wren, and, sure enough, moments later, we could make out the form of a Rock Wren bobbing up and down atop the dam. Our epiphany was the following: It really is possible to detect nocturnal migrants—more than 100 per hour—here in Colorado. Next on the agenda: to start to figure it all out.

15 October 2005, Walden Ponds Wildlife Habitat Area, Boulder County

What birds are up there, and how often do they call? That is the foundational two-part question that provided the basis for a pre-dawn excursion sponsored by Denver Field Ornithologists (DFO). Seven of us assembled in the Walden Ponds parking area a little before 6:00 a.m., with the simple goal of counting and trying to identify flight calls of passerines migrating in the hour before sunrise. Our tally: ~10 Hermit Thrushes, 1 presumed Orange-crowned Warbler, 1 presumed Chipping Sparrow, 25+ presumed White-crowned Sparrows, ~10 presumed sparrows, ~5 presumed sparrows/warblers, ~5 totally unidentified.

Here are some lessons that we learned that morning. First and foremost, yes, one really can detect nocturnal migration in the West, corroborating the previous month's experience out at Prewitt. Second,

identifying nocturnal flight calls is, to a significant degree, an exercise in conjecture and probability. We were fairly certain of the distinctive-sounding Hermit Thrushes, especially given that the only similar-sounding species, e.g., Swainson's Thrush and Black-headed Grosbeak, had presumably (that word again!) departed from Boulder County by mid-October. But many of the other flight calls could be assigned only conjectural determinations. Third, it is instructive to attempt to correlate the nighttime overflight with on-the-ground conditions the following morning. I have found that, in general, the correlation is not as strong as one might expect. Even though we heard about 60 flight calls during the hour before sunrise, we saw only 30+ migrants during several hours of daytime observation. And the species-by-species correlation was not terribly strong, as evidenced by the following list of daytime migrants: 3 Brown Creepers, 3 Ruby-crowned Kinglets, 1 Hermit Thrush, 4 Orange-crowned Warblers, 1 "Myrtle" Yellow-rumped Warbler, 5+ "Audubon's" Yellow-rumped Warblers, and 15+ White-crowned Sparrows.

22 October 2005, Fountain Creek Regional Park, El Paso County

What is the relationship between the number of flight calls detected and the actual number of birds passing over in nocturnal migration? That is a matter I wondered about during a solo pre-dawn session the week following the DFO field trip described in the previous entry. This time, I was at Fountain Creek Regional Park, and I heard only three flight calls—all three of which, I am fairly certain, came from the same bird (a presumed White-crowned Sparrow). I first heard the bird faintly, then clearly as it presumably passed directly overhead, and then faintly again as it presumably kept on going. (Curiously, its direction of movement was straight north.) I heard no other flight calls until dawn, when I heard several White-crowned Sparrows descending from nocturnal migration.

It is tempting to posit a linear relationship between flight calls detected and the actual number of birds passing within earshot of the observer. Based on the present example, then, one might simply divide by 3 to get the actual number of birds. But I think the matter is more complex. The problem is not simply one of the complicating factors of atmospheric conditions (see Brown and Handford 2003) and interspecific variation in audibility; such factors might, in fact, be related in a simple linear fashion to the actual number of birds on passage. Rather, the problem is that individual birds may call more frequently when there are more birds aloft, a scenario that Jay Withgott has suggested to me (pers. comm.). It is difficult to imagine how a ground-based observer might quantitatively assess this phenomenon of density-dependent call frequency.

5 November 2005, Boulder Reservoir, Boulder County

Really, how can one be certain of the identity of unseen migrants,

passing over in the dark and uttering monosyllabic flight calls? Flight calls vary among individuals within a species and probably with atmospheric conditions, as I alluded to in the previous entry. Process of elimination is an essential first step in the identification process. A second component of the process, strange as it may seem, is to try to actually see nocturnal migrants well enough to identify them. That is the two-step approach that produced edifying results for the six participants in a DFO outing for late-season nocturnal migrants.

Given the date, we expected to hear few if any migrants, but we did in fact hear at least eight flight calls—all of them pretty much identical—in the hour before dawn. They were of the warbler/sparrow variety, but they were also notably if subtly different from other common sparrow/warbler notes, e.g., Yellow-rumped Warbler, White-crowned Sparrow, and Song Sparrow, that I had been hearing in recent weeks. My strong suspicion, based on process of elimination, was that they were all American Tree Sparrows. Then we set out to confirm that suspicion: First, we got visual fixes on the blurry forms of calling birds landing just before dawn; second, we walked over to the vegetation that the birds had landed in; third, we stayed with the blurry forms until it was light enough to confirm that they were in fact American Tree Sparrows. On a pedagogical note, I have long felt that one of the best ways to improve auditory and visual identification skills is by *simultaneously* observing birds by sight and by sound. Certainly, this particular episode helped me to learn the flight call of the American Tree Sparrow.

20 May 2006, Table Mesa Park-n-Ride, Boulder County

Where, exactly, should one listen for nocturnal migrants in Colorado? That is a question that I gave a fair bit of thought to during the first chunk of spring migration in 2006. Or maybe I should frame the question a little differently: Why was it that I had been hearing disappointingly little in the way of nocturnal migration, despite spending many pre-dawn hours at a variety of locales throughout Colorado? Hilltops, lakefronts, and other propitious-seeming spots simply had not been producing, going back at least to early April of the year.

One of my first 2006 encounters with a decent passage of pre-dawn migrants was, oddly enough, at the noisy and brightly illuminated Table Mesa Park-n-Ride, off US-36 in South Boulder. (I was en route to DIA, and thence to Chicago, where to seek—what else?—nocturnal migrants.) While waiting for the airport bus, I heard a fair number of short-duration high-frequency flight calls of the sort that are given by several common warblers and sparrows that migrate through our region in mid-May. I was reluctant to identify the birds to species, however, as the highway traffic and idling bus engines generated significant acoustic competition and distorted or blotted out the fine details of the various flight calls. Regardless, birds were on the move, audibly so. Thus: One should eschew hilltops

and lakefronts, and instead listen for migrants flying low over light-polluted bus stations? Yes, to some extent, although I shall have more to say about the matter a little later on.

27 & 28 May 2006, North Sterling Reservoir State Park, Logan County

A corollary to the question posed in the preceding entry: *When*, exactly should one listen for nocturnal migrants in Colorado? In order to answer that question, one ought first to get a handle on the often extreme temporal variation in the phenomenon of nocturnal migration. On that note, my experiences during back-to-back nights over the Memorial Day weekend of 2006 are illuminating.

On the first night, atop a promontory at a well-lit campground along the shore of North Sterling Reservoir, Andy Boyce and Nathan Pieplow and I enjoyed listening to a steady stream of migrating Swainson's Thrushes and Lark Sparrows, along with smaller numbers of other species, among them Veery, Dickcissel, and a *Pheucticus* grosbeak. In the intriguing-but-unconfirmed category were a possible Gray-cheeked Thrush and a probable Scarlet Tanager. (Conditions were good later that night, just before dawn, at nearby Prewitt Reservoir, too.) The next night, a Colorado Field Ornithologists (CFO) field trip convened at exactly the same campground promontory, and there my companions and I found almost nothing: only 3 or 4 distant flight calls during 2+ hours of listening. What was the difference between the two nights? On the first night, we had light east-southeast winds; on the second night, following an afternoon of strong south winds, we had light northwest winds. To be sure, weather has a tremendous impact on the timing and nature of nocturnal migration—a point that I take up in additional detail in the "Discussion" section of this article.

9 July 2006, Carpenter Ranch, Routt County

What do nocturnal migrants do during the day? During the breeding season? One thing they do *not* do, according to conventional wisdom, is utter flight calls. That belief is widely held, and it has a certain romantic aspect about it—as though one might hear flight calls only in the dark of night, atop lonely rock outcroppings, on chilly autumn nights. The belief is also false. Often, I have had the experience of hearing few if any migrants by night, only to observe many individuals giving flight calls a few hours later, in broad daylight. Indeed, flight calls are readily detected by day even during non-migratory periods—a lesson that was reinforced for me during a summer visit to the Colorado breeding grounds of the Swainson's Thrush and Veery.

Even though it was the proverbial dead of summer, Heidi and Michael Harper and I were pretty much within continual earshot of the flight calls of *Catharus* thrushes on their breeding grounds in the broadleaf groves in the Yampa River lowlands of Routt County. Indeed, we heard considerably more "nocturnal" flight calls than we did "diurnal" alarm

calls of the two species. We also observed many Yellow Warblers giving flight calls, and we witnessed a few Lazuli Buntings doing so too. As the breeding season was somewhat advanced, I wondered if these birds were exhibiting *Zugunruhe*, the term used to describe the "restlessness" of birds before they migrate. In any event, the woods around the ranch were full of flight calls. From an educational standpoint, the experience was valuable: Hear a flight call, see the bird, learn the flight call. (And it's easier than waiting in the cold and darkness for nearly invisible American Tree Sparrows to show themselves; cf. my account of 5 November 2005.)

25 August 2006, Lafayette, Boulder County

I noted in the first entry in this section that my "epiphany" out at Prewitt Reservoir was somewhat preordained. Don't get me wrong: Being up there on the dam that night was thrilling. But I was not entirely surprised by what transpired there. Sometimes, though, the experience of nocturnal migration can indeed be surprising—astonishingly so, as I discovered one night out in the rather unprepossessing venue of my driveway.

First, a bit of context. In addition to searching for nocturnal migrants in a disciplined sort of way, as chronicled above, I also enjoy simply stepping outside the house to see if anything is passing over. Throughout the spring migration of 2006 and also during the early part of the fall migration of that year, I would typically hear anywhere from zero to four or five flight calls during the fifteen or thirty minutes that I would be outside. Zero was a not-uncommon result. I doubt I ever detected flight calls at a rate of better than ten per hour. That all changed on 25 August 2006, when I heard hundreds of flight calls during the 15-minute period beginning just before 4:45 a.m. After running inside for a quick errand, I noticed that the massive flight was still continuing. When I went in at around 5:15 a.m., the flight was showing no signs of abatement. I estimated close to 1,000 flight calls during about half an hour of listening. Passerines detected included: presumed Orange-crowned Warbler (a few), Yellow Warbler (numerous), presumed American Redstart (2), presumed MacGillivray's Warbler (numerous), Common Yellowthroat (1), Wilson's Warbler (a few), Chipping Sparrow (abundant), Brewer's/Clay-colored Sparrow (abundant), Lark Sparrow (a few), Lark Bunting (at least 5), Bobolink (several), and, of course, many that I left unidentified. Non-passerines included Great Blue Heron (2), Solitary Sandpiper (several), and Greater Yellowlegs (1). I had never witnessed anything like it in Colorado. Just one week later, I would witness a similar event, just a few miles west of Lafayette. I am now convinced of the following: Nocturnal migration in Colorado can be spectacular.

Discussion

In the two-part discussion that follows, I freely speculate about various

matters that are some combination of complex, variable, indeterminate, and undetermined. I exhort the reader *not* to treat any of the following as dogma. Instead, I implore the reader to regard what follows as a springboard for further study and enjoyment of nocturnal migration, in ways that I imagine will be considerably more sophisticated than my own efforts to date.

When and Where to Listen

It is tempting to recommend the following: Just go outside at night in May or September, anywhere in Colorado, and listen. That said, I offer the following generalities about maximizing one's chances of having a memorable night afield:

• Listen from well-lit and topographically complex places of the sort that might "confuse" migrating birds. The dam at Prewitt Reservoir (headlights and other infrastructure associated with I-76, weird shimmerings on the water's surface, low woods adjacent to the dam, Platte River and sand bluffs nearby) has been the best and most consistent performer, in my experience. Closer to the Denver metro area, the Legion Park Overlook, Boulder County, was sometimes quite good in the fall of 2006. And although I have not tried it myself, I would imagine that rooftops in Denver might be especially productive. I find that remote desert and mountain habitats tend *not* to perform well, probably because the birds are too high up (see Withgott 2002).

• Weather is unquestionably important, but I have had limited success in trying to predict its impacts on the strength and detectability of nocturnal migration. All things being equal, favorable *local* weather conditions probably include light winds in the direction of migration, some amount of cloud cover, and little or no precipitation. Sudden changes in local conditions, e.g. rapid onset of fog or even rain, may result in greatly increased calling by confused migrants. *Regional* weather conditions—for example, passage of a cold front—no doubt play a role, but I have not given much thought to the matter. The interplay between local and regional weather conditions may well be important, too.

• Real-time Doppler NEXRAD (WSR 88) radar, continuously updated online, is a valuable resource for nocturnal migration enthusiasts. By poking around on the National Weather Service Radar Images website <radar.weather.gov/ridge/index.htm>, one will quickly navigate one's way toward real-time images showing the number ("volume") of birds migrating, their direction of movement, and doubtless other parameters that I have not yet stumbled upon. Learning how to make sense of Doppler radar images does, admittedly, require some patience. To get started, check out the tutorial by Gauthreaux and Belser (2003).

• Be wary of extrapolating from on-the-ground conditions by day to overflight conditions at night. Even though "the warblers are dripping from the trees" by day, they may be strangely silent at night. Conversely, I have found, an uneventful day of birding may be immediately preced-

ed or followed by a strong nighttime passage of landbirds. As a corollary, and as I noted in the account for 15 October 2005, I am often hard-pressed to discern a relationship between the actual species mix by day vs. night. Two related factors are at play here. First, species that are vocal as nocturnal migrants, e.g., *Catharus* thrushes and Common Yellowthroat, may be rather secretive by day. Second, and conversely, species that are conspicuous by day, e.g., flycatchers and Wilson's Warbler, may be nearly silent on nocturnal migration.

• My experience has been that fall migration in Colorado is, in general, better for listening to nocturnal migration than is spring migration. That makes sense: In fall, populations are at an annual maximum, with large numbers of hatch-year birds joining their parents and just starting out on migration; in spring, following half a year or more of heavy mortalities on migration and on the wintering grounds, numbers are much reduced. Still, there will always be exceptions (a few good nights each spring, plenty of dull nights each fall). Also, with more study, we will doubtless start to figure out how the two migratory seasons differ in their species mixes. For example, I tentatively posit that the *Catharus* thrush migration over Colorado is more readily detected in spring than in autumn.

• Although birds migrate during much of the night, the period just before dawn is often especially good for detecting flight calls. As the birds begin to land, they are obviously closer to the observer, and they also seem to call more frequently. Slightly facetiously, I note that the latter portion of fall migration is especially suitable for listening to migrants just before dawn; what I'm getting at is that, with the switch to Mountain Standard Time not happening until early November (as of 2007), one needn't even wake up all that early to hear nocturnal migration.

• As I stated earlier, one perfectly valid approach to studying nocturnal migration is to go outside and just listen—from a Denver rooftop in May, from the edge of a foothills reservoir in August, atop a grain elevator out on the plains in September, whenever and wherever. Still, it is fun to speculate about the "perfect storm" of conditions for a breathtakingly exciting passage of migrants by night. How about this?—Prewitt Reservoir, up on the dam, about 5:00 a.m., around 20 September, following a week of dry weather and south winds, but with the winds having shifted around to the northwest about twelve hours earlier; it's been a hazy but generally fair night, but then the skies above and in the vicinity of the reservoir suddenly fill up with dense fog. Then again, my memorable experience of 25 August 2006, described earlier, did not seem to correspond to any local or regional weather phenomenon that I was able to discern. The bottom line is that we still have much to learn about the determinants of nocturnal migration.

How to Learn Flight Calls

I do *not* believe the following: It is enjoyable—even mystical, enchanting—to go out at night, listen

to nocturnal flight calls, and neither know nor care what's actually going on up there. On the contrary, I sense that most of us in the birding community *do* want to know. Where does one start? How does one proceed? I offer the following suggestions:

• Go outside and listen. No amount of staring at sonograms or downloading .wav files can substitute for the actual experience of listening to real migrants just overhead. See if you can discern their direction of movement, if you can guess about their altitude, if you can hear differences among the various call types up there.

• Don't give up at first light. Listen—and look for—birds landing. And keep on going into the early daylight hours, when many birds are still on the move, if erratically so, and calling frequently. Hear a flight call, get a visual fix on the bird, follow it into a tree or tangle, and identify it.

• Make use of the process of elimination. Sure, an awful lot of species say *tswit*, or something like it. But how many of them are actually migrating in early August? In late October? Being aware of basic patterns of seasonality can be at least as useful as knowing that you're in Durango vs. Julesburg. In many instances, more useful.

• It is initially daunting, but see if you can distinguish *tswit* from *tsweep*, *sip* from *siss*. I have found that most flight calls are characterized by five or more field-ascertainable parameters, described presently.

° *Syllabification* is an excellent place to start. Think of the familiar flight calls—typically uttered by day—of Common Grackle (*chuck*) and American Goldfinch (*perchickoree*). The flight call of the latter typically comprises four syllables, whereas that of the former is monosyllabic. The majority of flight calls—especially those given by passerines migrating at night—are admittedly monosyllabic; but don't give up. See if you can distinguish between those that are monosyllabic but strongly slurred, e.g., Lark Bunting, vs. those that are monosyllabic and not slurred, e.g., Hermit Thrush. With just a little practice, it is easy to discriminate between slurred vs. unslurred monosyllabic flight calls.

° *Frequency* (for present purposes, the same thing as pitch) is easy to get a qualitative handle on. The flight calls of Bobolink (low-frequency) vs. Orange-crowned Warbler (high-frequency) are actually surprisingly similar in several parameters. But they are instantly separable by their differences in frequency. Note that most Americans' ears (since they are biased by the western tonal tradition) do *not* hear frequency differences as they are typically portrayed on sonograms. Rather, we hear logarithmic differences, whereas computers tend to churn out linear analyses.

° *Intonation* refers to the direction of frequency change, i.e., rising or falling, of a single syllable. Examples of rising flight calls include the monosyllabic utterances of Bullock's Oriole and Chipping Sparrow; examples of descending monosyllabic flight calls include those of Eastern Kingbird and Savannah Sparrow. I should note that I, personally, have difficulty discerning intonation. Al-

though I can usually tell that an unidentified call is slurred, I frequently cannot determine the actual direction of frequency change. Intonation is especially difficult to discern in the case of short-duration calls (<75 milliseconds) and strongly inflected calls (i.e., those which rise or fall sharply).

° *Modulation*, although somewhat difficult to describe mathematically, is easy to describe verbally and is an essential parameter for separating flight calls. Highly modulated flight calls sound as though they were produced by a buzzer, with good examples being those of Blue Grosbeak, Lazuli Bunting, and Dickcissel. At the opposite end of the spectrum are the pure tones of such species as Swainson's and Hermit Thrushes.

° *Duration* of flight calls is often very useful, as long as you accept that this parameter is especially susceptible to atmospheric conditions. I find that I can resolve differences in flight call duration to about 25 milliseconds (1/40th of a second). For example, the ~78-ms flight call of the Northern Waterthrush (Evans and O'Brien 2002) is diagnostically longer, to my ears, than the ≤50-ms flight calls of most other warblers in Colorado.

° *Volume*, by which I simply mean loudness, clearly varies among species. However, I question the usefulness of this parameter for study by night. How could one distinguish between a loud call far away vs. a soft one up close? Without being able to see the bird, I don't see how. Even so, I frequently catch myself saying or thinking, "That call was loud," or "That call was close." I am trying to train myself to listen instead for the less-subjective and more-diagnostic parameters of syllabification, frequency, intonation, modulation, and duration. (I note in passing that volume *is* a useful parameter for daytime work, when a calling bird can be seen and its distance to the observer reliably estimated.)

° *Intangibles* certainly play a role in the identification process. I am thinking of characterizations of flight calls as "vibrant" or "ringing", "emphatic" or "piercing", "dry" or "flat". But what do these terms really refer to? That inevitably depends on the observer. Even seemingly objective descriptors such as "consonantal" and "vocalic" are hard to agree on, I have found. My suggestion is that you devise whatever mnemonics work for you. "Melancholy" may well convey as much or more information as 150 milliseconds, 3.5 kilohertz, rising with little modulation.

° *Variation* should always be a front-and-center concern. Even supposedly distinctive flight calls, e.g., those of Veery and Lark Bunting, exhibit substantial variation, sometimes to the point of overlap with the calls of other species. On top of intrinsic variation is the complicating factor of distortions caused by humidity and air turbulence, along with nearby vegetation. Such distortions may have differential effects both on acoustic parameters, e.g., maybe intonation is more affected than modulation, and on call types, e.g., maybe high-frequency vocalizations are more affected than lower-frequency ones.

• Do, in fact, stare at sonograms

and download .wav files, despite my snide remark at the outset of this section. Compare what you're hearing to published sonograms and sound recordings, e.g., Evans and O'Brien (2002). Try to guess what a sonogram might sound like. Conversely, try to guess what a flight call might "look" like. Such exercises provide valuable discipline for actual field studies of nocturnal flight calls.

• Start with the Chipping Sparrow. Well, start with anything you want to. But I have found that the Chipping Sparrow is an excellent point of entry into the realm of identifying nocturnal flight calls. It is an abundant migrant throughout nearly all of Colorado, with good numbers on the move from early August until early October. Chipping Sparrows are highly vocal as nocturnal migrants, and, just as helpfully, they give flight calls pretty much all day long. Although the basic flight call of the Chipping Sparrow is not strikingly distinctive, it can nonetheless be separated from the calls of similar species. Start in August (when species diversity is low), and see if you can separate Chipping Sparrow from Yellow Warbler (another abundant early-season migrant). By September, Yellow Warblers are getting scarce, but Orange-crowned Warblers (vocal both by night and by day) now represent a good point of distinction. All the while, see if you can distinguish Chipping Sparrow from Brewer's/Clay-colored Sparrow.

Some Final Thoughts

I've already said it—several times—but it bears repeating: We are still learning the basics. A dogmatic approach to bird identification is simply never a good idea, especially not in the slippery, subjective arena of nocturnal flight calls. In the case of nocturnal landbird migrants here in Colorado and elsewhere in the West, we have yet to establish the foundational matters of who's who, what's what, and when and where. Here is but a small sample of unresolved matters that I have confronted in the past few months:

• To what extent do Eastern Kingbirds call as nocturnal migrants? The conventional wisdom is that they rarely call during nocturnal migration (Evans and O'Brien 2002), but I have heard the species calling both during sustained passage overnight and while landing at dawn. Maybe the conventional wisdom applies in the East, but not here in Colorado?

• Can the flight calls of Clay-colored and Brewer's Sparrows be separated? There is basically no published literature on possible differences between the flight calls of these two species. I have noticed, however, that the flight call of Brewer's rises less sharply, is somewhat more modulated, and has a somewhat more "piercing" quality than the "sweet" flight call of Clay-colored. I have also noticed much variation in these generalities, and I have not yet confirmed these putative distinctions with sonograms.

• When do Lark Buntings migrate? Davis (1988) argues that the species is not a nocturnal migrant, but I heard the species migrating by night on three dates in August and

September of 2006. (I also saw and heard diurnal-migrant Lark Buntings during the same period.) With additional data, we may be able to corroborate my observations or, conversely, to conclude that they were anomalous.

More generally speaking, the whole field of avian migration remains wide-open. Surprising results seem to be the norm. For example, I was recently startled to learn that *Catharus* thrushes use only half the amount of energy when they are engaged in sustained migratory flight than when they are "on the ground" at stopover sites (Wikelski et al. 2003).

Which brings me to the point I would like to close on. I suppose nocturnal landbird migration is a cold, hard fact. But it is also something that is surprising, even startling, almost every time I am out by night. It is one thing to know, at an academic level, that billions of birds migrate by night across the North American continent. It is quite another to go outside and witness the phenomenon for oneself—not faint and far-off and hard to discern, but often just above the rooftops, right over our heads, in real time, right now.

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Reservoir Use by Post-breeding Shorebirds in the South Platte River Valley of Northeastern Colorado

Brad A. Andres

Introduction

Despite Colorado's inland location, 42 species of shorebirds have been recorded in the state as of 1 July 2006. Most (68%) of the 37 shorebird species that are regularly observed in Colorado (i.e. those above casual or accidental in status) are spring or fall migrants; these migrants tend to be more abundant during fall than spring migration (Andrews and Righter 1992). Beyond reports from birders, little quantitative information on shorebird migration in Colorado has been published. Skagen et al. (1999) used shorebird surveys, including counts from the International Shorebird Survey (see http://www.shorebirdworld.org/), and casual observations to assess patterns of migration in midcontinental North America, and Johnson and Ryder (1977) documented the migration of Wilson's Snipe (*Gallinago delicata*) at four sites in Colorado. To provide information for the development of The Nature Conservancy's Ecoregional Plan for the Central Shortgrass Prairie, I conducted field surveys to determine species composition, migrant abundance, and timing of post-breeding shorebird migration through the South Platte River Valley in northeastern Colorado.

Study Area and Methods

Between 8 July and 21 October 2005, I conducted eight surveys (two per month) of reservoirs along the South Platte River Valley in northeastern Colorado. Based on accessibility and time constraints, I made repeated surveys, arranged from northeast to southwest, of Jumbo (Julesburg) Reservoir (including Little Jumbo Reservoir and the roadside wetlands west of Red Lion Wildlife Management Area), North Sterling Reservoir, Prewitt Reservoir, and Jackson Lake. Water stored in these human-made impoundments is used for irrigation, and water volume generally decreases through the summer (Sprague et al. 2002). These reservoirs vary somewhat in their size and holding capacity (Sprague et al. 2002; Table 1), but all have average depths of 20 feet except for North Sterling, which has an average depth of 30 feet and reaches a maximum depth of 55 feet (Sprague et al. 2002). All these reservoirs are generally eutrophic and experience

algae blooms in summer (Sprague et al. 2002). Much of the land surrounding these reservoirs is included in Colorado State Parks or State Wildlife Areas.

I selected viewing stations at each reservoir where I could survey as much of the shoreline as possible. At all reservoirs except for North Sterling, I was able to view >90% of the shoreline; at North Sterling, I surveyed the same area on each visit. I attempted to identify each individual shorebird to the species level, although some birds, generally the size of Lesser Yellowlegs or smaller, were observed at distances too large to allow the determination of specific identity. In those instances, I used species composition of the reservoir count on that survey day, from portions where it could be determined, to partition numbers where species could not be determined. Shoreline habitat (e.g., substrate composition and vegetation) at a given reservoir was relatively uniform, and I therefore believe that shorebird species composition along the entire shoreline was correspondingly similar. On each visit, I also recorded the presence or absence of motorized watercraft on the reservoir and recorded the percentage of the reservoir basin that was filled with water. After data were collected, I modeled the passage of post-breeding shorebirds by linearly interpolating numbers between adjacent counts at seven-day intervals beginning on 5 July. Nomenclature follows the recent American Ornithologists' Union Checklist update (see http://www.aou.org/checklist/index.php3), and scientific names of shorebirds are provided in Table 1.

Results and Discussion

Species composition and abundance

During the eight surveys I conducted in northeastern Colorado

Table 1. Locations and characteristics of reservoirs sampled in the South Platte River Valley of northeastern Colorado, and distribution of post-breeding shorebird observations in 2005.

	Location	Surface area (acres)	Capacity (acre-feet)	% boating activity (n = 8 visits)	% of all shorebirds observed
Jumbo	40.919°N, 102.662°W	1703	31,800	12.5	29.1
North Sterling	40.781°N, 103.267°W	2879	74,010	100.0	5.4
Prewitt	40.430°N, 103.370°W	900	28,840	12.5	42.6
Jackson Lake	40.373°N, 104.079°W	2600	35,629	62.5	22.9

in 2005, I recorded 10,699 individuals of 24 species; an additional nine species were detected by birders visiting the same reservoirs in the fall of 2005 (Table 2). These combined observations represent all of the non-breeding shorebird species above casual in status that can expected as fall migrants in eastern Colorado. Baird's Sandpiper was the most numerous species I encountered, followed in abundance by Killdeer, Stilt Sandpiper, Lesser Yellowlegs, Least Sandpiper and Long-billed Dowitcher. Together, these six species constituted 90% of all shorebird observations. Solitary Sandpiper, Willet, Upland Sandpiper, Red Knot and Wilson's Snipe were observed only in small numbers (Table 2). Two-thirds of all of the individuals I counted were of species that bred in the arctic or boreal forest.

Abundances of post-breeding shorebirds generally followed those reported for eastern Colorado by Andrews and Righter (1992), with a few exceptions. In my study, Greater Yellowlegs and Stilt Sandpiper were more abundant and Western Sandpiper less abundant than reported by Andrews and Righter (1992). My low counts of Wilson's Snipe were likely due to their use of well-vegetated wetlands, which were generally not included in shoreline surveys. As indicated by birders' observations, Short-billed Dowitcher is likely a rare or uncommon fall migrant on the eastern plains as suggested by Andrews and Righter (1992).

Distribution

Shorebird migrants were not distributed equally among reservoirs. Although the smallest in size, Prewitt Reservoir contributed 43% of all shorebirds I observed (Table 2); Jumbo Reservoir had the second highest use (29%). Boating activity was greatest on Jackson Lake and North Sterling Reservoir (Table 1) and may have influenced migrant shorebird use of these sites. Also, the shoreline of North Sterling Reservoir is much steeper, in many parts, than that of the other reservoirs and may limit foraging habitat for post-breeding migrant shorebirds. The sandy shoreline of Jackson Lake contrasted with the muddy shorelines of Prewitt and Jumbo Reservoirs, which appeared to have higher insect and crustacean abundances.

Timing

Migrant shorebirds were present on the South Platte River Valley reservoirs from early July to the end of October. In early July, reservoir basins were almost completely filled and little shoreline was available to foraging shorebirds. Water levels generally decreased throughout the period to a low of about 50% filled on 7 October. Migrant shorebirds were most abundant between 16 August

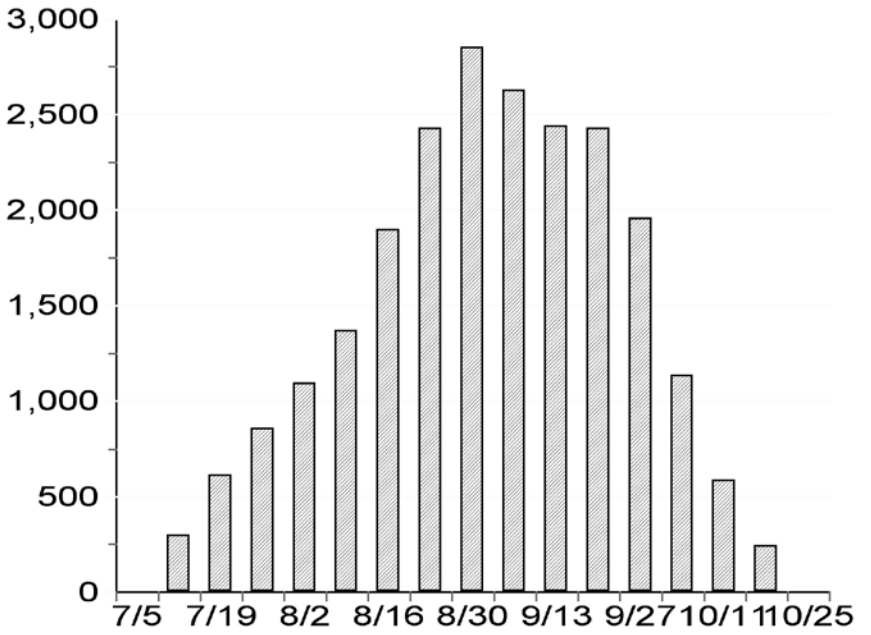
Table 2. Numbers of shorebirds and proportion of total species recorded on South Platte River Valley reservoirs in northeastern Colorado, July–October 2005. Species indicated as "obs" were not seen during surveys but were reported from sampled reservoirs during the same time period in the January 2006 issue of Colorado Birds *(Vol. 40, No. 2; five species) or on the CO Birds listserv (http://lists.cfo-link.org/birding/COBirds.php; four species seen by multiple observers).*

Common name	*Scientific name*	Breeding area1	Total number observed	% of total
Black-bellied Plover	*Pluvialis squatarola*	A	74	0.7
American Golden-Plover	*P. dominica*	A	obs	
Semipalmated Plover	*Charadrius semipalmatus*	B	43	0.4
Piping Plover	*C. melodus*	C	obs	
Killdeer	*C. vociferus*	C	3,178	29.7
American Avocet	*Recurvirostra americana*	C	174	1.6
Spotted Sandpiper	*Actitis macularius*	C	83	0.8
Solitary Sandpiper	*Tringa solitaria*	B	6	0.1
Greater Yellowlegs	*T. melanoleuca*	B	183	1.7
Willet	*T. semipalmata*	C	3	<0.1
Lesser Yellowlegs	*T. flavipes*	B	895	8.4
Upland Sandpiper	*Bartramia longicauda*	C	2	<0.1
Whimbrel	*Numenius phaeopus*	B	obs	
Long-billed Curlew	*N. americanus*	C	20	0.2
Marbled Godwit	*Limosa fedoa*	T	18	0.2
Ruddy Turnstone	*Arenaria interpres*	A	obs	
Red Knot	*Calidris canutus*	A	2	<0.1
Sanderling	*C. alba*	A	45	0.4
Semipalmated Sandpiper	*C. pusilla*	A	95	0.9
Western Sandpiper	*C. mauri*	A	48	0.4
Least Sandpiper	*C. minutilla*	B	392	3.7
Baird's Sandpiper	*C. bairdii*	A	3,884	36.3
Pectoral Sandpiper	*C. melanotos*	A	115	1.1
Dunlin	*C. alpine*	A	obs	
Curlew Sandpiper	*C. ferruginea*		obs	
Stilt Sandpiper	*C. himantopus*	A	931	8.7
Buff-breasted Sandpiper	*Tryngites subruficollis*	A	obs	
Long-billed Dowitcher	*Limnodromus griseus*	A	358	3.3
Short-billed Dowitcher	*L. scolopaceus*	B	obs	
Wilson's Snipe	*Gallinago delicate*	C	3	<0.1
Wilson's Phalarope	*Phalaropus tricolor*	C	115	1.1
Red-necked Phalarope	*P. lobatus*	A	32	0.3
Red Phalarope	*P. fulicarius*	A	obs	

[1] breeding area in North America: A = arctic, B = boreal, C = Colorado, and T = temperate.

and 27 September (Figure 1, modeled with an assumed seven-day turnover period). Five of the six most abundant species (Killdeer, Greater Yellowlegs, Lesser Yellowlegs, Baird's Sandpiper and Stilt Sandpiper) and Semipalmated Plover followed the same pattern, within 10%: 7% of all observed individuals of these species were seen in July, 39% in August, 45% in September, and 8% in October. However, most American Avocets (92% of all observations), Pectoral Sandpipers (68%), Wilson's Phalaropes (70%) and Red-necked Phalaropes (94%) were present on reservoirs in September, whereas virtually all Black-bellied Plovers (96% of observations), Sanderlings (100%) and Long-billed Dowitchers (98%) occurred during September and October. Species that tended to migrate earlier than the general pattern included Long-billed Curlew (100% of all birds observed were seen in July and August), Semipalmated Sandpiper (63% in August), Western Sandpiper (40% in July) and Least Sandpiper (55% in August). Passages of post-breeding shorebirds in the South Platte River Valley generally corresponded with those reported by Andrews and Righter (1992) and Skagen et al. (1999).

Figure 1. Passage of post-breeding shorebird migrants, modeled with an assumed seven-day turnover rate, through South Platte River Valley reservoirs, northeastern Colorado, during 2005



Populations

Assuming that migrants spend seven days on a reservoir, I estimate that about 23,000 shorebirds passed through sampled reservoirs during the post-breeding season. If the turnover period was only three days, the total population passing through sampled reservoirs could have been as high as 53,000 individuals. Recent observations of broad-scale departures of shorebirds from Prewitt Reservoir at dusk suggest that turnover may be quite rapid on these reservoirs (Todd Felix, U. S. Dept. Agric., pers. comm.). Clearly, reliable estimates of turnover rates are needed to determine the total population of post-breeding shorebirds that use these reservoirs as migration stopovers.

Dunlin, Weld County, April 16, 2006. Photo by Rachel Hopper

If the two nearby reservoirs that I was unable to visit, Empire and Riverside, support similar numbers of shorebirds as Jackson and Jumbo Reservoirs (which are similar in size and shape), then the South Platte River Valley reservoir system might provide post-breeding stopover habitat for 35,000 to 80,000 shorebirds. I did record more than 900 shorebirds on an accessible section of Empire Reservoir, which subsequently dried out, on 20 July. At a minimum, the South Platte River Valley reservoir system would qualify as a site of regional importance in the Western Hemisphere Shorebird Reserve Network (at least 20,000 migrants annually; see http://www.whsrn.org/). Individually, Prewitt Reservoir, Jumbo Reservoir, and Jackson Lake would meet the criteria of an Audubon Colorado Important Bird Area (at least 750 migrants annually; see http://co.audubon.org/birdcon_iba.html).

Substantial loss of natural wetlands throughout the Great Plains likely increases the value of the South Platte River Valley reservoirs to post-breeding shorebird migrants. For example, more than 50% of natural wetlands have been lost in Colorado in the last two centuries (U.S. Geological Survey 1996), and climate change could dry

out wetlands in the western parts of the Great Plains (Johnson et al. 2005). Thus, shorebird conservationists should monitor how water allocation decisions along the South Platte River and other Colorado rivers will affect shorebird foraging habitat.

This article was peer-reviewed by Susan Skagen.

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Recent Avian Literature Pertinent to Colorado: 2005

Kim Potter

This review provides abstracts and citations for articles published during the year 2005 in peer-reviewed journals that involve Colorado avain populations. As usual, prairie birds (e.g., Mountain Plover and Horned Lark) and grouse (e.g., Gunnison Sage-Grouse and White-tailed Ptarmigan) were the primary subjects of research in the state. All studies reviewed here involve species or habitats of special conservation concern, and all have implications for management. It is the goal of this review to disseminate basic findings of ornithological research into the Colorado birding community, and

to thereby build bridges between ornithologists and field ornithologists in this state.

Comparisons and Contrasts Between the Foraging Behaviors of Two White-tailed Ptarmigan (*Lagopus leucurus*) Populations, Rocky Mountains, Colorado, and Sierra Nevada, California, U.S.A.

J. A. Clarke and R. E. Johnson

Abstract: The summer diets of a natural population of white-tailed ptarmigan (*Lagopus leucurus*), an herbivorous alpine grouse, in the Rocky Mountains and an introduced population in the Sierra Nevada were compared to determine if differences in alpine tundra plant communities affected nutritional intake. Foraging selections of 28 adult ptarmigan were recorded regarding number, amount, availability, nutritional, mineral and energy content of plant species eaten. The average diet of the Rocky Mountain ptarmigan was composed of nine plant species (99% g dry wt), while the average diet of the Sierra Nevada ptarmigan was composed of only two plant species, *Salix anglorum* and *Carex jonesii* (99% g dry wt). Although plant species eaten differed between the populations, the energy and lipid content of the diets were nearly identical. The diet of Sierra Nevada ptarmigan was 28% higher in protein and 13% lower in carbohydrate than the diet of Rocky Mountain ptarmigan, likely due to high consumption of *Salix* leaves and low consumption of flowers by the Sierra Nevada ptarmigan. Both populations exhibited sampling behavior (ingesting occasional bites from many species), which would allow ptarmigan to track changing resources in the highly variable alpine environment and may have enabled the introduced ptarmigan to identify a suitable diet.

Citation: Clarke, J. A. and R. E. Johnson. 2005. Comparisons and contrasts between the foraging behaviors of two White-tailed Ptarmigan (Lagopus leucurus) populations, Rocky Mountains, Colorado, and Sierra Nevada, California, U.S.A. Arctic, Antarctic, and Alpine Research 37:171-176.

Movements and Home Ranges of Mountain Plovers Raising Broods in Three Colorado Landscapes

Victoria J. Dreitz, Michael B. Wunder, Fritz L. Knopf

Abstract: We report movements and home-range sizes of adult

Mountain Plovers *(Charadrius montanus)* with broods on rangeland, agricultural fields, and prairie dog habitats in eastern Colorado. Estimates of home range size (95% fixed kernel) were similar across the three habitats: rangeland (146.1 ha ± 101.5), agricultural fields (131.6 ha ± 74.4), and prairie dog towns (243.3 ha ± 366.3). Our minimum convex polygon estimates of home-range size were comparable to those on rangeland reported by Knopf and Rupert (1996). In addition, movements—defined as the distance between consecutive locations of adults with broods—were equivalent across habitats. However, our findings on prairie dog habitat suggest that home-range size for brood rearing may be related to whether the prairie dog habitat is in a complex of towns or in an isolated town.

Citation: Dreitz, V. J., M. B. Wunder, and F. L. Knopf. 2005. Movements and home Ranges of Mountain Plovers raising broods in three Colorado Landscapes. The Wilson Bulletin 117:128-132.

Nest Survival Relative to Patch Size in a Highly Fragmented Shortgrass Prairie Landscape

Susan K. Skagen, Amy A. Yackel Adams, Rod D. Adams

Abstract: Understanding the influences of habitat fragmentation on vertebrate populations is essential for the protection and ecological restoration of strategic sites for native species. We examined the effects of prairie fragmentation on avian reproductive success using artificial and natural nests on 26 randomly selected, privately owned patches of shortgrass prairie ranging in size from 7 to 454 ha within a cropland matrix in Washington County, Colorado, summer 2000. Survival trends of artificial and natural nests differed. Daily survival of artificial nests increased with patch size up to about 65 ha and differed little at larger patch sizes, whereas daily survival of Lark Bunting *(Calamospiza melanocorys)* and Horned Lark *(Eremophilia alpestris)* nests decreased with increasing size of the grassland patch. We hypothesize that our unexpected findings of lower survival of natural nests with increasing patch sizes and different trends between artificial and natural nests are due to the particular structure of predator communities in our study area and the ways in which individual predators respond to artificial and natural nests. We recommend that the value of small habitat patches in highly fragmented landscapes not be overlooked.

Citation: Skagen, S. K., A. A. Yackel Adams, and R. D. Adams. 2005. Nest survival relative to patch size in a highly fragmented shortgrass prairie landscape. The Wilson Bulletin 117:23-34.

Population Genetic Analysis of Mountain Plover Using Mitochondrial DNA Sequence Data

Sara J. Oyler-McCance, Judith St. John, Fritz L. Knopf, Thomas W. Quinn

Abstract: Mountain Plover *(Charadrius montanus)* distribution and abundance have been reduced drastically in the past 30 years and the conversion of shortgrass prairie to agriculture has caused breeding populations to become geographically isolated. This, coupled with the fact that Mountain Plovers are thought to show fidelity to breeding grounds, leads to the prediction that the isolated breeding populations would be genetically distinct. This pattern, if observed, would have important management implications for a species at risk of extinction. Our study examined genetic variation at two mitochondrial regions for 20–30 individuals from each of four breeding sites. We found no evidence of significant population differentiation in the data from the control region or the ATPase 6/8 region. Nested-clade analysis revealed no relationship between haplotype phylogeny and geography among the 47 control region haplotypes. In the ATPase 6/8 region, however, one of the two clades provided information suggesting that, historically, there has been continuous range expansion. Analysis of mismatch distributions and Tajima's D suggest that the Mountain Plover underwent a population expansion, following the Pleistocene glacial period. To explain the lack of detectable genetic differentiation among populations, despite their geographic isolation and fidelity to breeding locations, we speculate that there is sufficient female-mediated gene flow to homogenize gene pools among populations. Such gene flow might ensue if pair bonds are formed in mixed flocks on wintering grounds rather than on the summer breeding grounds.

Citation: Oyler-McCance, S. J., J. St. John, F. L. Knopf, and T. W. Quinn. 2005. Population genetic analysis of Mountain Plover using mitochondrial DNA sequence data. The Condor 107:353-362.

Population Genetics of Gunnison Sage-Grouse: Implications for Management

Sara J. Oyler-McCance, Judith St. John, Sonja E. Taylor, Anthony D. Apa, Thomas W. Quinn

Abstract: The newly described Gunnison sage-grouse *(Centro-*

cercus minimus) is a species of concern for management because of marked declines in distribution and abundance due to the loss and fragmentation of sagebrush habitat. This has caused remaining populations to be unusually small and isolated. We utilized mitochondrial DNA sequence data and data from 8 nuclear microsatellites to assess the extent of population subdivision among Gunnison sage-grouse populations in southwestern Colorado and southeastern Utah, USA. We found a high degree of population structure and low amounts of gene flow among all pairs of populations except the geographically adjacent Gunnison and Curecanti populations. Population structure for Gunnison sage-grouse was significantly higher than has been reported for greater sage-grouse *(C. urophasianus)*. Further, we documented low levels of genetic diversity in some populations (particularly Dove Creek/Monticello and Piñon Mesa with an average of only 3.00 and 2.13 alleles per locus respectively) indicating that translocations from larger, more genetically diverse populations may be warranted. Bayesian analysis identified 3 potential migrants (involving San Miguel, Dove Creek/Monticello, Crawford, and Curecanti). Further, this analysis showed that 4 individuals from Cerro/Cimarron were more closely related to birds from San Miguel than to its geographically closer neighbors Gunnison and Curecanti. This suggests the Cerro/Cimarron area may act as a stepping stone for gene flow between San Miguel and Gunnison and that habitat restoration and protection in areas between these 2 basins should be a priority in an attempt to facilitate natural movement among these populations. Conservation plans should include monitoring and maintaining genetic diversity, preventing future habitat loss and fragmentation, enhancing existing habitat, and restoring converted sagebrush communities.

Citation: Oyler-McCance, S. J., J. St. John, S. E. Taylor, A. D. Apa, and T. W. Quinn. 2005. Population genetics of Gunnison Sage-Grouse: implications for management. Journal of Wildlife Management 69:630-637.

Kim Potter, 809 Cedar Drive, Rifle, CO 81650

Orange-crowned Warbler Singing in October

Jeff Jones (ed. Hugh Kingery)

On Sunday, October 16, 2006, I went birding at Manitou Lake in northern Teller County. It was 9-10 AM, clear skies and a warming 55 degree morning.

Ruby-crowned Kinglets were working through the mountain willows (*Salix montanus*), Song Sparrows noisy and active; a lone Lincoln's Sparrow made a late appearance. I caught my first junco for the season not in the gray-headed group.

That is when I heard it. A song I have often heard during spring migration at this location, but which caught my ear as unfamiliar at this time of the year—a singing Orange-crowned Warbler! It continued to sing two or three times per minute for the five or more minutes I listened. It was singing its standard male song. While I observed it, the warbler moved from willows to a nearby group of junipers and continued to belt out its song.

Editor's Note: Though an out-of-season singer may seem a trivial thing—and indeed for many species it would be, as some young birds need fall or winter "practice" to ready their songs for the following year—this observation seems particularly unusual. The Orange-crowned Warbler has been fairly well studied in terms of song development and annual patterns of vocalization—by no means exhaustively, but more than most passerines. Despite this fact, the Birds of North America account does not mention October singing, nor does autumn song fall into the "theoretical pattern" established by the author of the account. Therefore we believe this observation is of some scientific interest, even if it merits only a footnote in the annals of ornithology. The Field Notes column is always interested in your observations of the unusual, no matter how seemingly slight.

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Eating Along the Peak-to-Peak Highway in Boulder County

Bill Kaempfer

Editor's Note: In this issue, we begin a series dedicated to resolving one of birding's thorniest questions: when out in the far-flung field chasing our feathered friends, where should we fill our stomachs? Bill Kaempfer starts us off with a culinary exploration of the Allenspark area. Suggestions and contributions for future installments of this series are welcome; please direct them to Nathan Pieplow, editor@cfo-link.org.

The Peak-to-Peak Highway crosses the montane areas of the Colorado Front Range from Mount Evans north to Estes Park. The section of the highway in Boulder County, from south of Nederland to Meeker Park, is a well-birded stretch of road featuring several good turnoffs into the high country of the Indian Peaks Wilderness Area and Rocky Mountain National Park as well as a number of populated areas that can have active feeder stations. But in the middle of a long day birding in the area, what should you do if you get hungry? Why, eat, of course! And the purpose of this article is to tell you where.

Perhaps the most visited spot in the Indian Peaks Wilderness Area—one of the most visited wilderness areas in the state—is the Brainard Lake region. Trailheads from this spot offer good birding for all of the high elevation Colorado breeding birds from White-tailed Ptarmigan to Fox Sparrow. In particular I recommend the trial to the summit of the appropriately-named Mt. Audubon for tundra breeders like ptarmigan and Brown-capped Rosy Finch. And, fortunately, after a long day on the trail, there is a conveniently located watering hole to sate your thirst and appetite—the Millsite Inn (303-459-3308).

Located just north of the Brainard Lake turnoff on the Peak-to-Peak Highway, the Millsite is most aptly described as a "biker bar." But remember, you are in Boulder County—so the foot-powered bikes far outnumber the gas-powered ones. Still, the Millsite is a fairly earthy place, in spite of its lofty altitude. Owner Kirk Byers has been there for 23 years now, bringing a consistent quality and friendly attitude to the place.

Open every day except Thanksgiving and Christmas, the Millsite's hours are from 11:00 AM in the summer and 12:00 PM off-season until 9:00 PM. The mid-day menu offers a variety of hot and cold sandwiches on home-baked rolls served with chips as well as calzones and pizza. Most of the sandwiches can be ordered in half

portions for modest appetites. Dinner entries include additional Italian-American fare. There are also several home-made desserts featured. Prices are in the $5 to $20 range.

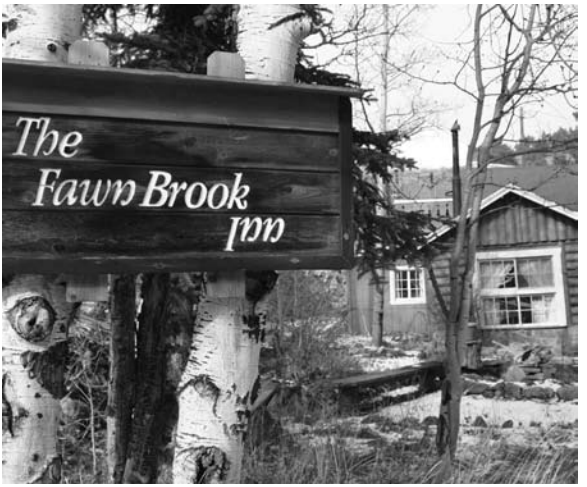
Further north along the Peak-to-Peak, one comes to the little village of Allenspark. Home to several active feeder stations including the expansive one at the Fawn Brook Inn, Allenspark attracts lots of birds and birders both summer and winter. The Fawn Brook's feeders provide one of the world's best viewing spots for all three species of rosy-finch from late November through March every year. But other finches, woodpeckers and corvids are also attracted. Pine and Evening Grosbeaks are frequently here in the winter with reports in several recent years of Common Redpoll spicing up the mix.

There are two recommendations for eating in Allenspark—the Meadow Mountain Café (no phone listing) and the Fawn Brook Inn (303-747-2556)—adjacent to each other along the business loop of CO 7. The Meadow Mountain Café is the place to visit for a bite while out birding, as it is open every day from breakfast through lunch only. A tiny place with seating for only 22 except during warm months when outside tables can be used, small groups frequently share larger tables. The breakfast fare (served all day) is generally standard (e.g. eggs, bacon and sausage, pancakes and waffles), but features a lot of fresh and healthy alternatives. The omelets are exceptional, served with fresh homemade bread. Other homemade baked goods are also available. Lunch items feature sandwiches, burgers and incredibly good onion rings. Prices are all in the $6 to $10 range, and while eating you can add Flamingo and Blue-footed Booby to your day list if you aren't very strict on your listing requirements!

Meadow Mountain Café, Allenspark, November 13, 2006. Photo by Virginia Gielow

Some of the best dining in the state is available at the last site on our culinary tour of the Peak-to-Peak region—the Fawn Brook Inn. Unfortunately the Fawn Brook is only open for

dinner, seven days a week in the summer but weekends only in winter, so birding while dining is an option only during the warm season. The option may be a good one, however, as this establishment, which has received an award from the Colorado Field Ornithologists in recognition of its wonderful accommodation of the Colorado birding community, has a huge array of hummingbird feeders set out in the summer that attract hundreds of Broad-tailed, Rufous and Calliope Hummingbirds from July through early September. In fact, the Fawn Brook Inn provides the locale for Jon Dunn's introductory comments in the Advanced Birding Video series' *Hummingbirds of North America*.



Fawn Brook Inn, Allenspark, November 13, 2006. Photo by Virginia Gielow

The Fawn Brook Inn is one of the top eating experiences in the state, with a contemporary approach to continental cuisine. The cozy dining room is warmed in the winter by a roaring fireplace complete with a cute little dog who retires to sleep in front of the fire after greeting new diners. Birders should look for the CFO plaque upon entering, and comments of appreciation for the active birding environment outside are appreciated by the owner and staff. Remember that this may be the only restaurant in the world where you can engage your

Black Rosy-Finch, Allenspark, Boulder County. Photo by Glenn Walbek

server in the fine points of *Leucosticte* plumage distinctions. Donations of birdseed are *always* appreciated.

On the evening that I visited, I enjoyed the featured special, which was a complete five-course meal with an entrée of Roasted Red Deer. The appetizer was a tasty trout paté, followed by an intriguing pumpkin and ginger soup and a refreshing salad. The Red Deer entrée boasted a sauce that exploded in a taste combination of peppercorn, pomegranate seeds and *mole* sauce. However, after the first four splendid courses, the dessert included in the special was a bit of a let-down. My special was $38 inclusive. Other entrées on the menu ranged up to $50 *a la carte*, with two-person specials also available.

All in all, the dining experience at the Fawn Brook Inn is exquisite and every bit as sought-after by the clientele inside as by the clientele outside.

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NEWS FROM THE FIELD

Summer 2006

Andrew Spencer and Nathan Pieplow

Is there a better season in Colorado than the summer?

Conventional birding wisdom says yes. Spring is the favorite time for most of us, followed immediately by fall—those times when neotropical migrants are swinging through northward or southward, and your species lists begin skyrocketing, and you never know what you might find. That's what we love about birding, isn't it? The variety. The adventure and surprise. The sheer numbers of birds. The quick turnover from one day to the next.

But let me put in my little plug for summer. Summer is when birds are *doing* the most: establishing and defending territories, courting and copulating, building nests, raising young, fattening for the fall. The immensely complex phenomenon called birdsong peaks at the beginning of the season, and then tapers off—at least until the little ones come out to confuse us with their practicing. Ah, *the variety*…

And what other time of year allows you access to the entire state? In summer the roads into the high country finally lose their snow, and the combination of four wheels and two good legs will get you

anywhere you want, with time and a fair bit of effort. Only in summer, on the tundra before dawn, can you hear the mad screeching of male ptarmigan performing their "flight scream" display—by no means the shabbiest show put on by Colorado's grouse, but a show that most April out-of-state chicken-chasers don't even know exists. *The adventure and surprise…*

Summer's not the time for winter finch invasions, or irruptions of Bohemian Waxwings or Snowy Owls. But some irruptive species specialize in summer, and the 2006 season was particularly amazing for those birds in Colorado. Dickcissels pushed westward, infected, it seemed, with the dream of manifest destiny. Cassin's Sparrows couldn't be stopped. Not normally known for irruptive behavior, Eastern Meadowlarks managed to breed in Pueblo County, and possibly even in Chaffee! And the on-again, off-again outpost colony of Painted Buntings was "on" again in Cottonwood Canyon. *The sheer numbers of birds…*

Sure, we listers want to have our fun, and spring and fall bring vagrants...but summer brings vagrants too. In fact, this summer, just like last, the solstice outdid the equinox, at least in *quality* of rare birds if not quantity. This year's top draw came from a little closer to home than the Mexican megas of 2005, but it probably didn't feel that way for all the Front Range folks who had to drive seven hours to see the state's second Hooded Oriole. The first of its kind to oblige a Colorado audience with repeat performances, this bird put on quite a show down by the Utah border, and encouraged a heck of a lot of people to visit McElmo Canyon who might otherwise never have gone. In fact, many of those people visited more than once. The oriole was found by Norm Erthal and Joe Roller on Joe's *second* trip of the year to see the Lucy's Warblers in Yellowjacket Canyon...and it was the following day that Kellner and Percival, fresh from ticking the incomparable icterid, found territorial Summer Tanagers at the Lucy's spot. Add Magnificent Hummingbird and Lesser Nighthawks to the mix, and one can see why many a lister made repeat visits to the Four Corners region this summer. Then again, at least some of those trips had to do with the fact that none of the major vagrants in other parts of the state decided to stick around, at least in ways that were easy to chase—as many of those can attest who tried for Phainopepla, White Ibis, Brown Pelican, Yellow-crowned Night-Heron or Swallow-tailed Kite. Alas, *the quick turnover from one day to the next…*

Hence the beauty of the summer season.

Many thanks to all those who contributed to this report, including observers as well as regional and state compilers. To those who reported, keep reporting—and please submit documentation of out-of-range or out-of-season birds to the Colorado Bird Records Committee. Documentation is the best way to ensure that your interesting sightings find the proper audience in an interested posterity.

Note 1: *The reports contained herein are largely unchecked, and the report editor does not necessarily vouch for their authenticity. Underlined species are those for which the Colorado Birds Records Committee requests documentation. The Colorado Field Ornithologists' website* (http://www.cfo-link.org) *has a link to the Records Committee website, where rare bird records can be submitted electronically. The rare bird sight record reporting form is also printed on the inside cover of this journal's mailer.*

Note 2: *The name of the county is typically listed in italics only the first time each location is mentioned in the report. County names are usually not mentioned in subsequent records except to specify the placement of birds within sites that lie within multiple counties.*

Snow Goose: There were two reports of this species, which is quite rare in the summer in Colorado. The first was on 24 July, at NeeNoshe, *Kiowa* (PJ), probably the most consistent summertime haunt of Snow Goose in the state. The other was on 28 July in Colorado Springs, *El Paso* (BS).

Trumpeter Swan: One spent the summer in Crested Butte, *Gunnison* (FL). Whether this was a naturally occurring bird or a release is unknown. The only other summer records are of the released family of swans in Pagosa Springs, *Archuleta.*

American Black Duck: A single individual was seen at Pueblo Reservoir, *Pueblo*, on 29 July (BKP). As with any occurrence of this species in the state, potential hybrid origin must be taken into account, but in this case the observer felt this particular bird to show no signs of hybridization. No documentation has been submitted to the CBRC.

Canvasback: There were two reports of this species on the eastern plains this summer, including a female with young on 9 July near Jackson Reservoir, *Morgan*, potentially representing a first county breeding record (NK, CW).

Ring-necked Duck: One was in Pueblo, *Pueblo* on 30 June (BKP, MP). This species is rare in southeastern Colorado during the summer.

Greater Scaup: One was at Big Johnson Reservoir, *El Paso*, on 2 June (BM), probably a tardy spring migrant.

Lesser Scaup: Rare on the plains during the summer, one was on Big Johnson Reservoir, *El Paso*, from 2 to 16 June (BM, LS).

Bufflehead: To round off the list of tardy ducks in June at Big Johnson, a single male was seen on 2 June (BM).

Common Goldeneye: A long-staying female spent the summer at Zink's Pond, *La Plata* (JBy). Two were at Pueblo Reservoir, *Pueblo*, an adult male from 22 Jun to 21 July (BKP), and an immature male on 23 July (AS, BKP). The observers of the second bird saw it immediately after the White Ibis, making for a very unusual mix of species for the state!

Hooded Merganser: There were a slew of sightings of this species on the plains this summer. A male and female were at Big Johnson Reservoir

on 2 June (BM), a female at Dead Man Reservoir, *Larimer*, on 30 June (DL), a female at Jumbo Reservoir, *Sedgwick/Logan*, on 8 July (NK, CW), and finally a female at Bear Creek Lake Park, *Jefferson*, on 13 July (MH, MFo).

Common Merganser: Lower than normal for the summer were one at Denny Lake, *Montezuma*, on 20 June (BKP, JK) and one at Pueblo Reservoir on 25 July (BKP).

Red-breasted Merganser: This species is quite rare in Colorado during the summer, so a single female at Pueblo Reservoir on 5 July was exceptional (BKP).

White-tailed Ptarmigan: A single female was seen in the Sangre de Cristo Wilderness, *Custer*, on 3 July, where they are rarely reported, doubtless due to the infrequency of birder incursions into the wilderness (ABu, DCh).

Ruffed Grouse: Two individuals of Colorado's rarest breeding species were seen on 7/21 at Hoy Mountain, *Moffat* on 7/21 (AS). At least one was a drumming bird, adding to the evidence that the birds actually breed at this location rather than wander in from Utah.

Brown Pelican: The juvenile first found this spring by Nick Komar toured various Larimer County lakes this summer. Almost never at the same lake on two consecutive days, this bird was frustrating to chase. The only two reports submitted were on 15 July at Fossil Creek Reservoir, *Larimer* (CW, NK), and on 31 July at Lake Loveland, *Larimer* (JL).

American Bittern: There were only two reports of this elusive heron this summer. The first was at the Fort Lyon marshes, *Bent*, on 8 June (JL), and the other was at the Alamosa National Wildlife Refuge, *Alamosa*, on 24 June (BKP, MP). Though none were reported from Lower Latham, *Weld*, this summer, they were probably present as usual.

Least Bittern: The only report of this rare heron from the summer was a calling bird in the marsh below the dam at Jumbo Reservoir, *Logan*, on 8 July (NK, CW). No documentation has yet been submitted to the CBRC.

Great Egret: Only two were reported this summer, though doubtless more were present at various locations. One was at Lake DeWeese, *Custer*, where rare, on 24 June (BKP, MP). The other was an individual that spent much of July at Prewitt Reservoir SWA, *Washington* (AS, LS).

Tricolored Heron: Duane Nelson struck gold when he found a single immature of this species at

Brown Pelican, Fossil Creek Res., Larimer County, July 16, 2006. Photo by Rachel Hopper

Verhoeff Reservoir, *Bent*, on 25 July. The bird remained at least through 26 July and likely longer, though it was difficult to see from the road.

Cattle Egret: The only report this summer was of two at Barr Lake, *Adams*, on 18 July (RR, RA). This summer (and fall) was exceptionally poor for this species in Colorado.

Green Heron: There were ten reports from nine counties (*Adams, Prowers, Larimer, Arapahoe, Otero, El Paso, Boulder, Fremont* and *Broomfield)*. The most unusual of the bunch was the one at Zuni & 136th, *Broomfield*, on 5 July (OJ).

Yellow-crowned Night-Heron: An adult was photographed at Walden Ponds, *Boulder*, on 25 July (WSt). Unfortunately it could not be relocated by any of the birders searching for it during the next couple of days.

White Ibis: One of the highlights of the summer was the adult found by Brandon Percival on the evening of 22 July at Pueblo Reservoir SWA, *Pueblo*. It was seen roosting in a large area of flooded dead trees, and hung around long enough for one lucky observer to see it the next morning before it flew off towards the east, never to be found again. What possessed Brandon to go to this seldom-visited spot the one evening a White Ibis was coming into roost remains a mystery!

Swallow-tailed Kite: Truly exceptional was one reported from Longmont, *Boulder*, on 7 July (PPi). A concerted effort by many observers failed to relocate this bird. This would be the fifth state record if accepted by the CBRC, though as of yet no documentation has been received.

Mississippi Kite: Though typically a summer resident of southeastern Colorado, this species has been slowly expanding in the northeastern part of the state. Birds returned to Sterling, *Logan* again this year, where at least five to six were reported on 7/8 and 7/12 (NK, CW, BBo). "A few" were seen in Fort Morgan, *Morgan* throughout June, where not previously recorded, and it is likely they bred in the area (PW, JRi). And, best of all, one was seen at the intersection of Parker Road and Arapahoe, *Arapahoe*, on 27 June (LCr).

Merlin: The recent slew of summer records continued this year, when one was seen 16 July at Big Johnson Reservoir (MP) and one 25 July at the Boulder County Fairgrounds, *Boulder* (MFr). There have not been any confirmed breeding records since 1887.

Peregrine Falcon: There were six reports from this past fall, from *Pueblo, Huerfano, Jefferson, Moffat and Montezuma* counties. Most of these probably represent locally breeding individuals, but a second year bird seen on 1 June in Westminster, *Jefferson* (LS) may have been a late migrant.

Black Rail: The summer of 2006 was probably the worst summer for this tiny mouse with wings in recent years. There were only three reports from the heart of the species' range in the state, and the high count was a paltry five! Three were heard at Bent's Old Fort, *Otero*, on 28 June (JD), five at the Fort Lyon Marshes, *Bent*, on 30 June (MP, BKP), and one there on 7 July (MK). One hopes the

decline is merely in reports and not in birds.

Sandhill Crane: Recently established breeding populations in *Montrose* and *Mesa* returned for the fourth year. Three breeding pairs were counted, at Paradox, Nucla, and Unaweep, present through the summer (CD, BW).

Snowy Plover: The high count for the season was of 18 at NeeNoshe Reservoir, *Kiowa*, 8 July (MP).

Semipalmated Plover: The first report of a fall migrant was on 22 July at Prewitt Reservoir SWA, *Washington* (LS).

Piping Plover: Out of range were two at Jumbo Reservoir on 8 July (NK, CW). Though the species is usually restricted to southeastern Colorado, in most years a vagrant or two shows up in the northeastern part of the state.

American Avocet: A high count of over 100 was reported from Loloff Reservoir, *Weld*, on 27 July (NK).

Greater Yellowlegs: The first of the returning fall migrants was reported this year on 22 June, at Pueblo Reservoir (BKP).

Lesser Yellowlegs: Hot on the heels of its Greater cousin, the first Lesser Yellowlegs of the "fall" was reported from Lake DeWeese, *Custer*, on 24 June (BKP, MP).

Willet: Not even a month separated the last of the spring migrants of this species, on 2 June at Big Johnson Reservoir (BM), and the first of the returning fall migrants, on 1 July at Prewitt Reservoir (LS).

Upland Sandpiper: There were four reports away from the northeastern corner of the state, where this species is an uncommon breeder. Three of these were from the Stulp Farm south of Lamar, *Prowers*, which seemed to be the epicenter of Upland Sandpiper migration in the state this summer. Birds were reported from here on 9, 15 and 22 July, with a maximum count of 15 on the 15th. (JSt). The only other report was of three birds from Prewitt Reservoir on 21 July (LS).

Long-billed Curlew: Unusual in time and location was one at Lake DeWeese on 1 June (RM). Whether this bird was a late spring migrant, an exceptionally early fall migrant, or a summer wanderer is unknown. Either this bird or another was seen on 30 June as well (BKP, MP). The only other two reports received were of one at Big Johnson Reservoir on 16 June (MP) and five at Barr Lake on 28 July (TLe).

Marbled Godwit: The first of the fall migrants was seen on 22 June at Pueblo Reservoir (BKP). A high count of 96 was reported from *Morgan*, a flock flying near Jackson Lake, on 9 July (NK, CW).

Sanderling: The first report of this species for fall migration was of one at Prewitt Reservoir on 21 July (LS), which is quite early.

Semipalmated Sandpiper: One at Pueblo Reservoir on 22 June (BKP) was the first reported this summer.

White-rumped Sandpiper: As usual, a few lingering spring migrants were found in early June. Five were reported from Fruitgrower's Reservoir, *Delta*, on 1 June, where they were not only late, but quite rare as well. 25 were seen at Big

Johnson Reservoir on 2 June (BM), four at Lake Cheraw, *Otero*, on the same day, and one at NeeNoshe on 4 June (LS), rounding out the summer reports.

Short-billed Dowitcher: There were three reports of this species this summer, the first on 9 July from Loloff Reservoir (NK, CW). Four were at Fruitgrower's Reservoir 15 through 18 July (AS, NK, CW, JBs), and one was at Duck Lake, *Larimer*, on 22 July (NK). The *Delta* birds were especially significant, as this species is casual west of the Continental Divide. All summer reports pertain to adult birds, which the CBRC would like to remind Colorado's birders are still write-up birds. Alas, none of these records has been documented.

Red-necked Phalarope: Exceptionally early was an adult female in alternate plumage at the Dove Creek Sewage Lagoons, *Dolores*, from 15 to 30 July (AS, NK, CW, JBy, BBy).

Herring Gull: A sub-adult at Pueblo Reservoir on 22 June provided a rare summer record for Colorado (BKP).

Lesser Black-backed Gull: There were two reports of this species this summer, the first of two second-cycle birds from Big Johnson Reservoir on 1 and 2 June (JW, LS), at least one of which was a holdover from the spring. The other report was from Jackson Reservoir on 21 July (LS), this time an adult-plumaged bird. While this species has increased tremendously over the last ten years in Colorado, it is still quite rare during the summer.

Sabine's Gull: Practically unprecedented in Colorado was a first-summer bird at Big Johnson Reservoir, a holdover from May (MP), seen on 2 June (BM). This bird probably represents the first individual in this seldom-seen plumage for Colorado.

Caspian Tern: This summer only provided a paltry three reports for this giant of a tern. An adult was seen on 18 June at Pueblo Reservoir (BKP), one at Lake Estes, *Larimer*, on 9 July (SR), and one at Big Johnson Reservoir on 16 July (MP).

Arctic Tern: Certainly among the highlights of the summer, and one of the more bizarre occurrences, was the **four** Arctic Terns found at John Martin Reservoir, *Bent*, on 20 June (DN). They remained through 22 June, and included three adults and one immature. Documentation for this spectacular sighting has not yet been received by the CBRC.

Forster's Tern: The first fall migrants on the plains were reported at Prewitt Reservoir on 1 July, when 10 were seen (NE).

Least Tern: Two that were first found in May at Big Johnson Reservoir (BS) remained through at least 2 June (LS). A pair nested at Lamar, reported from 4 June (LS), representing a first local breeding record. In the lost and confused department, one at Lake DeWeese on 9 June (RM) was a first for *Custer*, and one was reported from *Sedgwick* on 4 July (HA).

Black Tern: 20 reported from Big Johnson on 1 June (JW) probably represent the last of the spring migrants, while two at Jumbo Reservoir on 8 July (NK, CW) were the scouting party for the fall horde. An alternate-plumaged

bird from Pastorius Reservoir SWA, *La Plata*, on 29 July (JBy) was slightly unusual for the location.

White-winged Dove: In keeping with the ongoing increase of this species in the state, there were twelve reports of this species during the summer. Most were from the expected counties in the southeastern part of the state and the Front Range (*Pueblo, Boulder, Larimer, El Paso, Jefferson*). More unusual were singles at Palisade, *Mesa*, on 1 June (LCu), Ovid, *Sedgwick*, on 22 June (HA), north of Conejos, *Conejos*, on 24 June (MP), McElmo Canyon, *Montezuma*, on 30 June (JBy), and Columbine Park, Salida, *Chaffee*, on 9 July (SL).

Inca Dove: The only reports from the summer were from Lamar, *Prowers*, where this species has been regular during the past couple of years. Sightings were reported throughout the season, and likely indicate breeding (JTh, LS, BKP, MP). There were no reports from the older colony in Rocky Ford, though this may be due to lack of effort on the part of birders rather than an absence of birds.

Yellow-billed Cuckoo: There were a few reports from scattered eastern plains counties this summer, where this species is an uncommon but regular breeding resident. Far more unusual was a report from the Alamosa National Wildlife Refuge, *Alamosa*, on 24 June (BKP, MP), which is likely referable to the far rarer southwestern population of this species (suspected of breeding at the nearby Pike's Stockade, *Conejos*).

Eastern Screech-Owl: Unusual at Crow Valley Campground was a family group found in early June that had produced two young by the 27th and remained throughout the period (DL, RH, m.ob.).

Eastern Screech-Owls, Crow Valley Campground, Weld County, June 27, 2006. Photo by David Leatherman

Burrowing Owl: Though a common species on the eastern plains, Burrowing Owl is far rarer west of the Continental Divide. Breeding was reported from near Lay, *Moffat*, during June and July (FL), and from near Dove Creek, *Dolores*, on 4 July (AS). The latter report involved two adults and four young, and was a "new" species for the CFO Dolores County list, though ranchers in the area report it to be a rare and irregular breeder in the area.

Long-eared Owl: Breeding was documented from Pastorius Reservoir again this year, where as many as ten were seen (JBy). One sitting on a gravel road south of Dove Creek on 14 July (AS, NK, CW) was also

a "new" county record for *Dolores*, even though the species is undoubtedly resident in the area.

Short-eared Owl: There were five reports of this hard-to-locate species this summer. One was seen on 15 June near Mancos, *Montezuma* (SA). This species is quite rare in southwestern Colorado. Two were seen at Bent's Old Fort on 28 June (JD). At least five were seen in *Moffat* between 6 and 22 July, and nesting was confirmed for a very rare northwestern Colorado record (DD, DH, FL). One was seen just north of Golden, *Jefferson*, on 14 July (PPl), and finally, one was seen on 25 July at CR 210, *Chaffee* (KN, JSc).

Lesser Nighthawk: Presaging the large fall flight of this species in *Montrose* were at least two seen among a large group of Common Nighthawks at the Dove Creek Sewage Lagoons on 14 July (NK, AS, CW). Individuals suggestive of this species were seen later in July at the same location, but ID could not be confirmed.

Black Swift: Very unusual were three birds at Lake Beckwith, *Pueblo*, on 16 July (DSi) and five on 29 July (BKP, BS, DSi). There were also reports from Zapata Falls, *Alamosa* (BKP, MP), where they nest, and from the classic location at Box Canyon Falls, *Ouray* (NK, AS, CW). Birds were also seen away from nesting colonies near Silverton, *San Juan*, and Ophir, *San Miguel* on 23 July (ABo, NP, AS).

Magnificent Hummingbird: Certainly among the highlights of the summer was an adult female of this species that graced the feeders at the Durango Mountain Resort, *La Plata* from 20 July through the end of the season (SBB, JBy, m.ob). This individual was the most chaseable "Mag" in many years, and a state bird for a number of listers.

Ruby-throated Hummingbird: An adult male was at Lamar, the epicenter of Ruby-throated Hummerdom in Colorado, from 2 to 9 July (JTh). Documentation, however, has not yet been received by the CBRC.

Black-chinned Hummingbird: A male visited feeders in Lamar from 17 July through the end of the season (JTh). Though common in the pinyon-juniper country to the south and west of Lamar, this species is rare in *Prowers*.

Calliope Hummingbird: The first report of the season was an exceptionally early individual on 11 June in Lakewood, *Jefferson* (MC).

Rufous Hummingbird: Two reports vied for the honor of earliest sighting, one at Beulah, *Pueblo* (MP, BKP), and the other at Colorado City, *Pueblo* (DE), both on 29 June.

Red-headed Woodpecker: Exceptionally rare for the west slope was an adult male at Zink's Pond on 17 July (JBy, JRo, m.ob).

Acorn Woodpecker: The outpost at Rafter J, *La Plata* appears to be doing well, with numerous sightings this summer of up to five birds (BKP, JK, m.ob). One wonders how many other undiscovered colonies of this species are scattered around southwestern Colorado!

Red-bellied Woodpecker: This species was reported to be "common"

northwest of Snyder, *Morgan*, this summer (BBo), which is farther west than usual.

Eastern Wood-Pewee: One was reported (and documented) at the Soapstone Ranch, *Larimer* on 1 June (CW, SN). Severs found one at the Shanahan Ridge, *Boulder*, on 2 June (SSe, m.ob). Many other birders subsequently found the bird, and reports came in through 23 July. Unfortunately, no documentation has been received for this bird as of yet.

Willow Flycatcher: Probable breeding was reported from Loudy-Simpson Park, *Moffat* on 10 June (FL), lower than the normal breeding range of this species in the area.

Black Phoebe: Despite the fact that the bird is fairly common along the San Miguel River in *Montrose*, all seven reports save one this summer came from the Front Range. Four of these were from along the Arkansas River in *Fremont*, one from Salida, *Chaffee* on 22 June (BKP, MP), and one from Valco Ponds, *Pueblo*, on 16 July (MY). The sole west-slope report was from along the Piedra River near Pagosa Springs, *Archuleta*, on 4 July (AS). The CBRC would like to remind everyone that this species still warrants documentation away from *Montrose* and *Pueblo* counties.

Ash-throated Flycatcher: One reported on 2 June at the Stulp Farm (JSt) was probably a late spring migrant.

Great-crested Flycatcher: A nesting pair was reported on 29 June at Bent's Old Fort (JD), and one was reported at the Julesburg Rest Area, *Sedgwick*, on 9 July (NK, CW), though it was not indicated whether nesting was suspected.

Scissor-tailed Flycatcher: There were a paltry three reports of this magnificent species this summer, none of which were especially chaseable. The first was from Las Animas, *Bent*, on 5 June (DN), the second from along the Rampart Range Road, *Douglas*, on 29 June (DCa), and the third a mysterious report from an unknown location in *El Paso* by an unknown observer at the "end of July" (*fide* BM).

Red-eyed Vireo: Reports from 2 June at the Lamar Community College Woods, *Prowers* (DR) and 3 June from the Fort Lyon Cemetery, *Bent* (LS) probably refer to late spring migrants. One at Castlewood Canyon State Park, *Douglas*, from 28 May through 8 June (GW), a singing bird that could not be refound despite

Red-eyed Vireo, Castlewood Canyon SP, Douglas County, June 06, 2006. Photo by Glenn Walbek

searching after the late date, may have been a migrant, though there is no way to know for sure. The most spectacular record of this species this summer came on 6 June from the Uncompahgre Plateau, *Montrose*, where one was detected singing on a ponderosa pine breeding bird survey transect (CD, BW). Another was reported on 16 June at Eldorado Springs, *Boulder* (TF), where breeding has been suspected in the past. In addition, an individual seen from 26 June though 13 July at the Fountain Creek Regional Park, *El Paso* (BM) may have bred in the area, and a pair was seen on 5 July along the Poudre River in Fort Collins, *Larimer* (DL).

Purple Martin: This species is quite rare on the eastern plains, where any reports likely pertain to the eastern subspecies. Two second-year males were at a nest box in Lamar on 2 June (LS, DN), where it was reported they did not attempt to nest. Hopefully they'll come back as adult males, bring some females, and actually do it right next time! A female was reported in *Baca* on 17 June (SL), and a female was reported from Chatfield State Park, *Douglas*, on 25 June (WSz), which would represent a second Chatfield record.

Carolina Wren: The long-staying birds at the Lamar Community College woods were reported this summer from 6 June through 14 July (DR, m.ob). A report of a single bird in Lamar away from the woods on 28 July (JTh) was likely one of the LCC birds wandering. The only non-Lamar report came from Reynolds Park, *Jefferson*, on 24 June (RA), a singing male.

Marsh Wren: Three singing birds were reported from below Jumbo Reservoir, *Logan*, on 22 July (LS). It would be interesting to perform a spectrographic analysis on the songs of Marsh Wrens from Colorado's eastern tier of counties to determine which form (eastern or western) is present.

Winter Wren: Two were seen at Hoy Mountain on 21 July (AS), where one was singing a song typical of the western subspecies. This bird is a rare breeder in Utah's Uintah Mountains, and there may be a tiny population in this rather remote part of Colorado.

Eastern Bluebird: Nesting was reported from Colorado City this summer, with sightings from 18 to 30 June (DSi), a bit farther west and higher than is normal for this species.

Veery: One at Crow Valley Campground from 2 to 3 June (DL, m.ob) pertains to a late migrant. Reports of breeding birds include one at Golden Gate Canyon State Park, *Jefferson* on 17 June (PH), one from Pass Creek Road, *Chaffee* on 23 June (VT), one at Fox Creek, *Conejos* on 24 June, a new county record (BKP, MP), ten from Carpenter Ranch, *Routt* on 9 July (TF), and finally, the best of the bunch, one at Lime Creek, *San Juan*, on 11 July (JBy, JP)

Wood Thrush: Among the most spectacular of the summer's "spring" migrants was the individual of this species present at Crow Valley Campground from 2 to 3 June (DL, m.ob).

Northern Mockingbird: One was at Morgan Bottoms, *Routt* on 12 July (TLi). This species is rare in *Routt*.

Curve-billed Thrasher: Typically residents in southeastern Colorado's

cholla grasslands, a couple of individuals this summer decided they'd had enough of sitting on cacti and wandered up to the northern Front Range. One was reported from Horsetooth Mountain Park, *Larimer* on 2 June (GL), and one was at the East Boulder Recreation Center, *Boulder* on 28 June (JF, CLo).

Phainopepla: Certainly spectacular was a female of this species near Beulah, *Pueblo* from 10 through 15 June (MA, BM, MP). So far documentation has only been received for the latter date.

Lucy's Warbler: The outpost of this species at Yellowjacket Canyon, *Montezuma* appears to be doing well, with reports of up to four or five birds this summer, including at least a couple of juveniles seen. Reports came from 19 June (two males, BKP, JK), from 23 June (immature, BKP, MP), and from 4 July (two adults and one juvenile, AS).

Northern Parula: An adult male was an unusual summer resident at the Canon City Riverwalk, *Fremont* from 30 June through 10 July (RM).

Black-throated Blue Warbler: A singing male in Boulder, *Boulder* on 11 June (DSp) must have been spectacular!

Grace's Warbler: Certainly among the most unusual records this summer was an individual of this species from Last Chance, ***Washington***, on 2 June (JK, GW, NE, DSc). In addition, two reported from North Creek Road, *Custer* on 18 June (BM, KL) were probably breeding in the area. A small population calls this part of the Wet Mountains home.

Phainopepla, Pueblo County, June 15, 2006. Photo by Bill Maynard

Prairie Warbler: Quite a shock for Duane Nelson was a singing male at the Lewis Creek Trailhead, *Custer* on 1 June!

Ovenbird: There were nine reports this summer, seven of which came from Front Range breeding locations, with a high count of 16 in mid-June at Mt. Herman, *El Paso* (SSh). Unusual were one at Echo Basin Road, *Montezuma* from 10 June through 1 July (J & JRe, m.ob), and one at the Julesburg Rest Area on 9 July (NK, CW). Neither location is anywhere near a known breeding area.

MacGillivray's Warbler: A male at Last Chance on 6 June (DL) was likely a late spring migrant. A female at the Lamar Community College Woods on 1 July (BKP, MP) was just plain bizarre.

Hooded Warbler: There is only one confirmed nesting record of this

eastern species in Colorado, from Gregory Canyon, *Boulder*, so a male that was heard singing along the Canon City Riverwalk from 11 June through 13 July (RM, m.ob) raised some eyebrows. A fledged juvenile seen on 13 July confirmed breeding at the site. A female at Burchfield SWA, *Baca* on 17 June (SL) was likely a very late migrant.

Hepatic Tanager: This southwestern species is an uncommon to rare breeder in the mesa country of *Las Animas*, but until recently every known breeding location was inaccessible to the public. So, it was with some excitement that at least one pair was found at the now accessible Bader Ranch, *Las Animas* on 3 June (MP, m.ob). Breeding was confirmed on 18 July, when a nest with two nearly fledged nestlings was found, in addition to at least two males and one female (AS, CW).

Summer Tanager: A first-year bird, sex unspecified, was seen at Temple Canyon Park, *Fremont* on 9 June (JW), probably a late spring migrant. Far more exciting was the discovery of what appears to be a small population at Yellowjacket Canyon, though breeding has yet to be confirmed. A singing male and a female were seen on 19 June (BKP, JK), and two males appeared to be defending separate territories on 14 July (NK, AS, CW). These individuals represent the first definite records of the southwestern subspecies. One wonders what has yet to be discovered from this gem of a location!

Eastern Towhee: A report with no details came from Fountain Creek Regional Park on 22 June (*fide* KP).

Canyon Towhee: Quite unusual for the northern Front Range (though certainly not out of habitat) was one at Red Rocks Park, *Jefferson* on 8 June (KS).

Cassin's Sparrow: This was a spectacular summer for this species away from its normal eastern plains breeding locations. No fewer than six counties got their first county records! These include one on 3 June south of Westcliffe, *Custer* (LE), five in the southern San Luis Valley, *Conejos* on 14 June (JR, LR), four along US 160 in *Alamosa* and one in *Costilla* on 24 June (BKP, MP), and one along FR 660, *Saguache* (AS). The best of the bunch, though, was the first west-slope record, from the Dry Creek Basin SWA, *San Miguel* on 5 and 7 June (CD, BW). Documentation has yet to be received for any of these birds. One at Chatfield State Park, *Douglas* on 15 and 16 June (JK, GW) was only slightly less unusual, and only the second Chatfield record. In keeping with all this, Leatherman reports that it was the best year he's seen for this species on the Pawnee National Grasslands, *Weld* in 30+ years of birding there.

Black-throated Sparrow: One was reported on 1 June from Boulder, *Boulder* (EZ) for a very rare northern Front Range record. A pair near Florence, *Fremont* on 17 June (BM, KL) were out of range but may have been breeding in the area. Less out-of-range was a singing male at the Bader Ranch on 18 July (AS, CW), but it does give yet another reason to visit this beautiful ranch.

Lark Bunting: A "flock" in north-

ern suburban Denver, *Denver* on 26 June (JBr) was at quite an unusual location for this species.

Grasshopper Sparrow: Three singing birds were found at the Trapper Mine, *Moffat* on 7 July (FL), but could not be refound later despite much searching. This species is exceptionally rare in northwestern Colorado, and if breeding could be confirmed in the area it would likely be a first for that corner of the state.

Northern Cardinal: An unknown observer reported a single bird, sex unspecified, from Fort Collins, *Larimer* on 3 July (*fide* AC). Another was photographed at Willow Springs, *Jefferson* on 4 July (RW, BH). Finally, a male first found at Chatfield State Park, *Douglas* last winter was seen this summer on 29 July (JK).

Rose-breasted Grosbeak: There were six reports of this species this summer, all from the Front Range. One was at the Haystack Golf Course, *Boulder* on 18 June (PPl); one was near Sondermann Park, *El Paso* from 20 through 26 June (CLe, CK, SC); one at Willow Acres, *Jefferson* from 2 to 3 July (RW, BH); a male and female between Boulder and Lyons, *Boulder* from 1 through 8 July (DW); a pair in Salida, *Chaffee* from 21 through 22 July (*fide* SY); and finally one along Boulder Creek, *Boulder* on 29 July (JTu).

Painted Bunting: A pair first found at the Painted Bunting capital of Colorado, Cottonwood Canyon, *Las Animas,* this past spring by Joey Kellner was seen this summer from at least 1 June through 18 July, with up to two males and a female seen (MP, m.ob).

Dickcissel: The summer of 2006 will long be remembered as one of the best for Dickcissels in many years. If a field was on the eastern plains and had alfalfa in it, chances are there was a Dickcissel singing from it. A few were reported farther west than normal, with at least two near Wetmore on 1 July (RM, VT), a singing male in Paonia, *Delta* on 23 and 24 June (JBs, m.ob), and two singing along CR 210, *Chaffee* from 25 June through 4 July (SeM, AS).

Bobolink: Only a single singing male was reported from the Canon City area this year, from 31 May through 17 June (RM, m.ob). A report from Westcliffe, *Custer* was received, though information on the date or sex of the bird was not (VT). At least three males were reported from the breeding colony near Castlewood Canyon State Park on 25 June (GW), and a single bird was reported along the South Platte River, *Weld* on 9 July (NK, CW). Finally, a female was near La Veta, *Huerfano* on 29 July (BKP, m.ob).

Eastern Meadowlark: As it was for Dickcissel, the summer of 2006 was one of the best years in a long time for this rarity in Colorado. Not since the colony at Red Lion SWA, *Logan* was abandoned has the state had as many in one year. One was documented from the Soapstone Ranch on 6 June (CW), though subspecific ID was not noted. A pair, reported as the "Lillian's" race, was found near Colorado City, *Pueblo* on 19 June, and remained at least through 23 July (DSi, m.ob). A female was seen carrying food in its mouth on 8 July (BKP, VT) con-

firming breeding at this site. By far the most widely seen birds, however, were up to three birds along CR 210, *Chaffee* from at least 23 June through 4 July (VT, m.ob). At least two males were heard singing, and one female was seen. Unlike the Pueblo birds, these were apparently referable to the "eastern" race, creating an interesting conundrum for birders: exactly which subspecies occurs where in the state?

Hooded Oriole: Right on the heels of Colorado's first record of this southwestern oriole, which failed miserably as a chaseable rarity, the second, along McElmo Creek, *Montezuma*, found on 18 June (NE, JRo), proved itself a spectacular crowd pleaser. It was seen at least through 14 July (NK, AS, CW), and many a state lister got to ogle this beautiful bird.

Baltimore Oriole: There were a number of reports of this eastern oriole farther west than normal for Colorado this summer. A male was at the Inverness Golf Course, *Jefferson* on 20 June (BA), a female was at Barr Lake, *Adams* on 23 June (TLe), one was at Cherry Creek Reservoir on 26 June (MaB), and one was at Prewitt Reservoir on 8 July (NK, CW). A hybrid male was photographed and present throughout the summer in Lamar (JTh), reminding Colorado's birders that just because it looks like a Baltimore Oriole in Colorado doesn't mean it's a *pure* Baltimore Oriole!

Scott's Oriole: An individual of the rare southeastern Colorado population was seen in Grape Canyon, *Las Animas* on 3 June (LS). Birds of the more common, though still hard to find, southwestern population were reported on 23 June (a male) at Towaoc, *Montezuma* (BKP, MP), on 4 July (a male) at Yellowjacket Canyon (AS), and on 5 July (a female) from Squaw Canyon for a first *Dolores* record (AS).

Hooded Oriole, McElmo Creek, Montezuma County, June 19, 2006. Found by Norm Erthal, June 18, 2006; will likely be Colorado's 2nd state record. Photo by Joey Kellner

White-winged Crossbill: Colorado's most erratic breeding species was only reported twice this summer, on 4 July from the Elkhead Mountains, *Moffat* (DD), and on 15 July from the Grand Mesa, *Mesa* (NK, AS, CW).

Lesser Goldfinch: Up to three birds were reported throughout the summer in Lamar (JTh) for a rare *Prowers* record...not so rare, however, that one was not also reported from the Stulp Farm on 20 June (JSt).

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IN THE SCOPE

Gray-cheeked Thrush

Tony Leukering

Tips for a Tricky Colorado Identification

Colorado plays host to four of the five species of *Catharus* thrush that breed in the US and Canada. Three of these species breed in the state, but Gray-cheeked Thrush (*Catharus minimus*) is of annual spring occurrence on the eastern plains in low enough numbers to be a review species (Semo et al. 2002). Due to the tricky nature of *Catharus* thrush identification and the difficulty, in many cases, of getting satisfactory views of these skulking birds, the species is probably both under-reported and over-reported in the state. As there is only one fall report from the state (Andrews and Righter 1992), this discussion will focus only on spring occurrence and identification.

The standard field guides do a fairly poor job of delineating those features useful in identification of *Catharus* thrushes, both in text and in illustration. This is largely due to space constraints and the relatively large range of variation among the various subspecies. Additionally, these guides tend to treat the identification of Gray-cheeked Thrush from an eastern perspective, as the species is primarily an eastern North American migrant. In the East, it is often compared to Swainson's Thrush.

Here in Colorado, and elsewhere in the western interior, the species most likely to cause confusion is Hermit Thrush (*Catharus guttatus*), particularly the large, pale, and dull subspecies *auduboni*, which is the form found breeding in the state. Three other subspecies of Hermit Thrush are known to pass through Colorado on their spring migrations (*euborius*, *guttatus*, and *oromelus*), but these are smaller and brighter with more contrasting tails than *auduboni* shows and should cause little or no confusion. (For brief details of these subspecies, see Bailey and Niedrach 1965 and Pyle 1997).

Despite the species name, *minimus*, Gray-cheeked Thrush is a large *Catharus* thrush sporting very long wings. Though some individuals nearly lack eye rings, most have a whitish eye ring that is most apparent behind the eye and is often incomplete. The loral area is pale, not contrasting with the rest of the face. The auriculars (cheeks) are distinctly gray and vaguely streaked or mottled and contrast strongly with a pale "ear surround" (a pale extension behind the auriculars of the lower edge of the malar stripe (*sensu* Sibley 2000). The base of the mandible is yellow and the lateral throat stripes are black.

Our subject species has the densest chest spotting of any *Catharus* and that spotting is black on the upper chest and fades to gray on the upper belly. The wing panel—created by the more rufescent edges to the outer primaries—is variably contrasting, but on many individuals contrasting as much as that of *auduboni* Hermit Thrushes. The wingtip projection (distance from tip of longest tertial to tip of longest primary) is the longest of any *Catharus*. However, as the species' tail is also fairly long, the ratio of wingtip projection to the distance between tertial tip and tail tip is similar to that of many

The species: Gray-cheeked Thrush (*Catharus minimus*)
The context: Spring migration in eastern Colorado
The problem: Standard field guides treat the identification of *Catharus* thrushes in too little detail and from a primarily eastern perspective.
(See photos on back cover.)

of the other temperate-zone *Catharus*. Though tail color is usually depicted in field guides as similar to and not contrasting with the upperparts, Gray-cheeked Thrush has a tail with a slight to moderate rufescent cast, particularly in strong light (see discussion on light, below).

Table 1 (see next page) compares a host of features of Gray-cheeked and *auduboni* Hermit Thrushes to assist with the separation of the two. As with many difficult species, utilizing as many characters as possible will more often yield the correct identification of this rare Colorado species. A key character not mentioned in the table is a behavioral one that is absolute: the tail-lifting of Hermit Thrush. If a suspected Gray-cheeked Thrush slowly lifts its tail and returns it to the horizontal, it is a Hermit Thrush.

If a suspected Gray-cheeked Thrush slowly lifts its tail and returns it to the horizontal, it is a Hermit Thrush.

Finally, the two smaller pictures on the back cover illustrate quite well the strong influence that light plays in the apparent color tone of Gray-cheeked Thrush—and all other *Catharus* thrushes. All pictures on the back cover are of the same individual; note the much grayer appearance of the bird in shade and the warmer appearance of the bird in partial sun and consider this facet of plumage color when looking at any *Catharus* thrush.

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Table 1. Comparison of features of Gray-cheeked Thrush with those of auduboni *Hermit Thrush.*

	Gray-cheeked Thrush *aliciae*	Hermit Thrush *auduboni*
Size	Large[1]	Large
Bill	Black with restricted dull yellow base of mandible	Black with extensive orangish-pink base to mandible
Loral region	Pale gray	Gray-brown lores contrasting with buff supraloral
Lateral throat stripes[2]	Medium-width, black	Wide, black
Eye ring	Usually thin, whitish, most apparent behind eye; often incomplete	Medium-width, whitish to pale gray, often broken in front
Auriculars	Medium gray, with vague streaking or mottling	Medium gray-brown
Ear surround[3]	Long, medium width, pale to medium buff	Short, medium buff
Back color	Brownish-olive	Medium to pale grayish-brown
Wing panel[4]	Low to medium contrast	Low to medium contrast
Wingtip projection[5]	Very long; about half tertial tip to tail tip length; 7-8 primary tips visible	Long; about half tertial tip to tail tip length; 6-7 primary tips visible
Chest spotting	Extensive spotting of smaller spots, black on upper chest fading to gray on upper belly	Large, black through lower chest, gray on upper belly
Flanks	Grayish-brown to brownish-olive	Medium to pale grayish-brown

[1]Descriptions in table modified from those presented in Pyle (1997) and Sibley (2000).
[2]*sensu* Sibley (2000)
[3]Usually pale extension of lower edge of malar stripe (*sensu* Sibley 2000) below and behind auriculars
[4]On the folded wing, the relative contrast of the more reddish edges of the outer 3-4 primaries with the rest of the wing, forming a distinct, but thin, panel at the leading edge of the wing
[5]A composite feature incorporating actual wing length, extension of primary tips beyond tertial tips, and tail length

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Gray-cheeked Thrush, Ft. Lupton, Weld County, May 14, 2006
Photos by Tony Leukering