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LATE-SUMMER CONGREGATION OF SWALLOW-TAILED KITES IN SOUTHEAST GEORGIA

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The Swallow-tailed Kite (*Elanoides forficatus*) is an uncommon summer resident in riparian forests of southern Georgia (Burleigh 1958, Haney et al. 1986). The number of Swallow-tailed Kites breeding in Georgia has apparently declined in recent decades (Burleigh 1958, Haney et al. 1986, Stoddard 1978), and available data suggest a limited breeding range in Georgia (Meyer 1995, Price et al. 1995). The Georgia Breeding Bird Atlas (Georgia Department of Natural Resources 1996) considers this species one of special concern. However, the size of the Swallow-tailed Kite population in Georgia is unknown, and an accurate estimate is hampered by the fact that the kites are widely scattered along riparian bottomlands that are difficult to access. Counts of birds at premigration communal roosts provide another option for estimating numbers, but until now no such congregations have been reported in Georgia (unlike Florida; Meyer 1995). Therefore, the purpose of this paper is to describe a significant late-summer congregation of Swallow-tailed Kites near the Altamaha River in Tattnall County, Georgia.

From 8 July through at least 19 August 1997, as many as 52 Swallow-tailed Kites (together with up to 22 Mississippi Kites, *Ictinia mississippiensis*) congregated at a hayfield at the intersection of state road 308 and route 169, about 14 km north of the Altamaha River in southern Tattnall County (31° 56' N, 82° 01' W; Table 1). The proximate cause of the congregation was apparently the abundance of insects around the field. With the exception of riding thermals high above the field and occasional perching, the kites spent their time

Table 1. Summary of the size and species composition of a congregation of kites 14 km north of the Altamaha River, Tattnall County, Georgia, July–August 1997.

| Date | Time | Number of kites | | Observers ^a |
|------|----------|-----------------|-------------|------------------------|
| | | Swallow-tailed | Mississippi | |
| Jul | 8 13:15 | 22 | 0 | RS |
| | 9 13:00 | 20 | 11 | MC, RC, AK, SL |
| | 11 13:00 | 26 | 5 | RC |
| | 17 19:45 | 0 | 0 | AK, SL |
| | 18 12:00 | 26 | 15 | RC |
| | 21 19:00 | 0 | 16 | AK, SL |
| | 23 16:00 | 5 | 22 | RC, AK, SL |
| | 26 10:30 | 35 | 4 | RC, WD, TD, QF |
| | 28 10:30 | 52 | 8 | TA, LC, PM, LS |
| | 31 13:30 | 24 | 15 | SL |
| Aug | 1 06:30 | 0 | 0 | LC |
| | 1 17:00 | 0 | 6 | LC |
| | 2 11:00 | 40 | 2 | LC |
| | 2 13:00 | 22 | 5 | SL |
| | 3 13:30 | 20 | 0 | LC |
| | 4 10:00 | 52 | 3 | LC |
| | 5 13:00 | 10 | 3 | SL |
| | 8 11:00 | 46 | 8 | AK, SL |
| | 13 11:30 | 34 | 3 | RC, SH, AK |
| | 19 08:00 | 0 | 0 | AK, SL |
| | 19 09:30 | 25 | 4 | AK, SL |
| | 28 13:45 | 0 | 0 | RC, AK, SL |

a Tim Anderson (TA), Larry Carlile (LC), Michelle Cawthorn (MC), Ray Chandler (RC), Trey Denton (TD), Wendy Denton (WD), Quentin Fang (QF), Steve Hudman (SH), Andy Kinsey (AK), Stacy Lindemann (SL), Peter Moore (PM), Roy Shuford (RS), Linton Swindell (LS)

circling the field at low altitude and diving to catch insects (which they ate on the wing). The principal prey during early and mid-July were june beetles (probably *Cotinis nitida*) that were coursing above the field by the thousands (*Cotinis* has been reported previously in the diet of Swallow-tailed Kites; Lee and Clark 1993). By late July, dragonflies (tentatively identified as *Pantala flavescens* and *Tramea carolina*) were more apparent around the field and among the insects on which kites were feeding. At peak times of day (see below) dozens of kites would be circling in a tight group above the field with

individual birds constantly diving out of the group to capture insects just above the grass. Although we counted a maximum of 52 Swallow-tailed Kites at one time, the landowner reported seeing as many as "seventy" in late July. His count may include both Swallow-tailed and Mississippi Kites. Nevertheless, if there was some turnover of individuals over the course of our observations, considerably more than 52 Swallow-tailed Kites may have congregated at this site.

During our initial observations in mid-July, most of the Swallow-tailed Kites appeared to be adults. None of the birds had noticeably short tails and most were molting remiges and/or rectrices (young of the year would have fresh flight feathers and show no signs of molt; Lee and Clark 1993, Meyer 1995). By early August, we observed at least six hatching-year birds among the Swallow-tailed Kites. Our observed age ratio of 11.5% hatching-year birds (6/52) is similar to age ratios observed in premigration roosts in Florida in early August (17% hatching-year birds; Meyer 1995). More young may have been present later in August, but by this time molt was less apparent in the adults and relative tail lengths were difficult to evaluate in the swirling groups of kites. Two of the young birds we observed were still being fed by adults (through at least 8 August). Although these birds spent some time foraging on their own, they frequently perched on nearby trees or fences and were fed by adults. Both adults and young called loudly during feedings.

The number of Swallow-tailed Kites congregated at the field showed a strong relationship to time of day. Counts were at a maximum around 10:00–11:00 and decreased steadily through the rest of the day (Fig. 1). We were present on the morning of 19 August for the arrival of Swallow-tailed Kites. Although four Mississippi Kites arrived at the field by 08:30, no Swallow-tailed Kites appeared until a line of 15 birds arrived from the southeast at 09:27. Within minutes, 25 Swallow-tailed Kites had gathered. Throughout the period during which kites congregated at the site, no Swallow-tailed Kites were observed prior to 09:27 or after 16:00. Thus, our observations suggest that the Swallow-tailed Kites roosted at an unknown site (perhaps to the southeast), flew to the hayfield around 09:30 as the rising sun generated thermals and/or insect activity increased, and departed the congregation at a fairly constant rate through the day until all kites had departed by sometime between 16:00–17:00 (Fig. 1). Birds departing the congregation may have moved to other feeding sites or returned to a roost (in Florida some individuals returned to communal roosts by midafternoon; Meyer 1995).

The fact that the kites did not roost adjacent to the hayfield where they congregated raises the possibility that an even larger group of

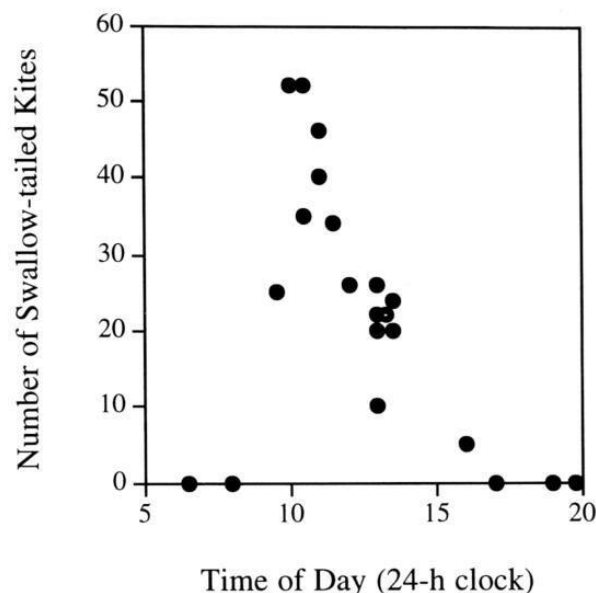


Figure 1. Relationship between number of Swallow-tailed Kites seen at a congregation in Tattnall County, Georgia and time of day, July–August 1997.

Swallow-tailed Kites gathered at a communal roost nearby during the same time period. Premigration roosts in Florida range from 120 to over 2000 birds, with individuals dispersing widely to forage during the day (Meyer 1995). If a possible roost site was located to the southeast (as our observations on the morning of 19 August suggest), it might be located at Padgett Bay or in the bottomlands along Watermelon Creek, Mushmelon Creek, or the Altamaha River. Search of these and adjacent areas during July and August might reveal a previously unknown premigration roost of Swallow-tailed Kites. However, we note that the landowner reported that kites did not congregate at his field in 1996.

To the best of our knowledge, this is the largest documented congregation of Swallow-tailed Kites reported from Georgia. Although large premigration roosts are well-documented in Florida (Millsap 1987, Bensen 1992, Meyer 1995), numbers of Swallow-tailed Kites in Georgia and their late-summer movements are more poorly known. There are old records of one hundred or more Swallow-tailed Kites congregating across the Savannah River from Augusta (Murphey 1937) and just south of Georgia on the Suwannee

River (Wayne 1906), but records published by the Georgia Ornithological Society since 1971 (*The Oriole*, volumes 36–60) report groups of no more than nine birds in Georgia (along the Little Satilla River in July 1983; Cohrs 1983). The numbers of Mississippi Kites we observed also represent a large congregation compared to records reported in *The Oriole*. Twenty-two Mississippi Kites were reported only once before (10 August 1988 in Dodge County; Brisse 1989), and a report of "100+" Mississippi Kites in Seminole County on 10 July 1977 is the only report of a larger congregation of this species in Georgia (Crawford 1977).

Given the proximity of the Altamaha River, we presume that the Swallow-tailed Kites we observed represent some portion of the breeding population along this river. Our observations of juveniles still being fed by adults also suggest that at least some of the birds were from nearby breeding sites. However, Little Satilla Creek, the Ochopee River, and the Canoochee River are also relatively close to the site of the congregation. Five radio-tagged birds in Florida moved approximately 100 km from nesting sites to a premigration roost (Meyer 1995), but there are no comparable data on late-summer movements in Georgia. Additional field work along the Altamaha River and adjoining areas in July and August might yield important information about the population size and late-summer movements of Swallow-tailed Kites in Georgia.

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POSSIBLE BREEDING RANGE EXTENSIONS OF NORTHERN FOREST BIRDS IN NORTHEAST GEORGIA

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During recent years, a number of observers conducting breeding bird atlasing, breeding bird censuses, and other ornithological field work have detected several northern forest bird species during the summer months in the mountains of northeastern Georgia. Many of these species have not been recorded previously during the breeding season in Georgia. Others appear to have extended their breeding range in Georgia or are breeding at lower elevations than previously documented. The purpose of this paper is to describe evidence for possible or probable breeding by Red-breasted Nuthatches (*Sitta canadensis*), Golden-crowned Kinglets (*Regulus satrapa*), and Pine Siskins (*Carduelis pinus*) in Georgia; regional extension of the breeding season range of the Winter Wren (*Troglodytes troglodytes*) in Georgia; and possible breeding by Black-throated Blue Warblers (*Dendroica caerulescens*), Canada Warblers (*Wilsonia canadensis*), and Dark-eyed Juncos (*Junco hyemalis*) at elevations lower than those previously documented in Georgia. We interpret these observations within the context of the early and late migration dates compiled for Georgia birds by Haney et al. (1986).

Methods

We carried out field work in a variety of locations in northeastern Georgia, primarily in Rabun and Union Counties, during the breeding seasons of 1995-1997. Some observations were gathered during a Breeding Bird Census conducted at Cooper Creek Scenic Area (34°45'N, 84°03'W), Chattahoochee National Forest, in May and June 1996 using standard census techniques (Hall 1964). A targeted search for Red-breasted Nuthatches in Rabun County, including use of taped playback, was undertaken during breeding bird atlas work

in 1996 and 1997. Additional records were gathered from a review of *The Oriole*, *Audubon Field Notes*, and other literature.

Results

Prior to our field work, Red-breasted Nuthatches had not been known to occur during the breeding season in Georgia (Haney et al. 1986). Nevertheless, during 1995–1997, this species occurred during the breeding season at several locations near Burrell's Ford, Cooper Creek, Rabun Bald, and Mose Mountain (Table 1). Individuals responded aggressively to tape playback of the calls of this species (Oberle and Forsythe 1995).

Golden-crowned Kinglets were detected in coniferous forest at Burrell's Ford in June 1995 (Oberle and Forsythe 1996) and June 1997, and at Cooper Creek in June 1996 (Table 2).

Pine Siskins were reported for the first time during the breeding season in Georgia near Roswell in June 1990 (Moore 1990a) and in Dawsonville in June 1992 by McCamey (Moore 1992). In 1992, Dot Freeman observed two Pine Siskins linger at a feeder near Blairsville through at least 18 June. A large siskin flock overwintered at an elevation of 612 m on the west side of Mount Oglethorpe near Jasper in 1996, with two birds lingering into June. In early July, two fledglings accompanied the two adults and continued to visit the feeder until 23 August (G. Rice, pers. comm.). On 1 June 1997, Jim Flynn, Bill Blakeslee, Giff Beaton, and Michael Bell observed eight Pine Siskins just south of the Georgia-North Carolina state line on the Hale Ridge access road to Rabun Bald (J. Flynn, pers. comm.), but the birds were not seen there on 21 June.

Winter Wrens were once documented as regular breeders in Georgia only above 1225 m elevation on Brasstown Bald (Burleigh 1958). However, recent years have seen a number of summer sightings at sites other than Brasstown Bald (Table 3). In June 1993 and 1994 a Winter Wren sang persistently between 1115–1180 m along the old firetower access road on the north side of Rabun Bald, Rabun County (Oberle and Volpi 1993, Moore 1994). Oberle found another Winter Wren in June 1996 just below the summit of Tray Mountain, Towns County, in a narrow ravine dominated by Yellow Birch (*Betula alleghaniensis*) and Mountain Laurel (*Kalmia latifolia*) (Table 3). At least one Winter Wren was detected in late spring at the much lower elevation old-growth hardwood forest adjacent to Cooper Creek (734 m). This bird occupied a heavily wooded ravine with many downed logs and lingered into June.

Black-throated Blue Warblers have been reported to breed in Georgia only above 825 m (Haney et al. 1986). However, this species has recently been recorded below this elevation during the

breeding season in Georgia (Table 4). Similarly, Canada Warblers have been reported to breed in Georgia only above 1160 m (Haney et al. 1986). However, their occurrence below this elevation at Sosebee

Table 1. Summer sightings of Red-breasted Nuthatches (*Sitta canadensis*) in northeastern Georgia.

| Date | Elevation (m) | No. of birds | Site | Observers ^a |
|-------------|---------------|--------------|-----------------------------|------------------------|
| 11 Jun 1995 | 1436 | 1 | Rabun Bald Rabun Co. | BB, BD |
| 18 Jun 1995 | 650 | 2 | Burrell's Ford Rabun Co. | DeF, DoF |
| 1 Sep 1995 | 650 | 1 | Burrell's Ford Rabun Co. | MO |
| 7 Jun 1996 | 670 | 1 | Burrell's Ford Rabun Co. | MO |
| 7 Jun 1996 | 495 | 1 | Mose Mountain Rabun Co. | MO |
| 10 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, LH, SW |
| 15 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, JA, LH, SW |
| 19 Jun 1996 | 495 | 1 | Mose Mountain Rabun Co. | KD, PH |
| 14 Jul 1996 | 670 | 1 | Burrell's Ford Rabun Co. | MO |
| 18 Aug 1996 | 650 | 2 | Burrell's Ford Rabun Co. | MO |
| 18 Aug 1996 | 670 | 1 | Burrell's Ford Rabun Co. | MO |
| 18 Aug 1996 | 520 | 2 | Mose Mountain Rabun Co. | MO |
| 18 May 1997 | 670 | 1 | Burrell's Ford Rabun Co. | MO |
| 27 Jun 1997 | 650 | 1 | Burrell's Ford Rabun Co. | CHu, MO |
| 27 Jun 1997 | 700 | 1 | Ridley Branch Rabun Co. | CHu, MO |
| 27 Jun 1997 | 670 | 1 | Burrell's Ford Rabun Co. | CHu, MO |

^a Jon Andrew (JA), Bill Blakeslee (BB), Kevin Danchisen (KD), Bill Dunbar (BD), Dennis Forsythe (DeF), Donna Forsythe (DoF), Chris Haney (CHa), Linda Hepfner (LH), Pierre Howard (PH), Chuck Hunter (CHu), Mark Oberle (MO), Sue Wetzel (SW)

Table 2. Summer sightings of Golden-crowned Kinglets (*Regulus satrapa*) in northeastern Georgia.

| Date | Elevation (m) | No. of birds | Site | Observers ^a |
|-------------|---------------|--------------|-----------------------------|------------------------|
| 18 Jun 1995 | 650 | 1 | Rabun Bald Rabun Co. | DeF, DoF |
| 21 Apr 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, MO |
| 15 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | JA, CHa, LH, SW |
| 27 Jun 1997 | 670 | 2 | Burrell's Ford Rabun Co. | CHu, MO |

a Jon Andrew (JA), Dennis Forsythe (DeF), Donna Forsythe (DoF), Chris Haney (CHa), Linda Hepfner (LH), Chuck Hunter (CHu), Mark Oberle (MO), Sue Wetzel (SW)

Cove in two separate summers, as well as at two other low elevation sites, suggests possible breeding attempts at elevations below 1160 m (Table 4).

Yellow-bellied Sapsuckers have been reported in the breeding season in Georgia only in June 1997, when a specimen was collected in White County and fledglings were found in a nest at Tray Gap, White County (Burleigh 1958, Neal 1997). Brown Creepers have never been documented as nesting in Georgia, but one individual was reported at an elevation of 1065 m on Grassy Ridge, Rabun County, on 27 June 1981 (Haney et al. 1986). A single Dark-eyed Junco was observed at Cooper Creek (728 m) on 2 June 1996.

Discussion

Summer records for several northern forest birds in north Georgia could have several explanations. Some of these species could have occurred in north Georgia during the breeding season for some time but were missed due to seasonal biases in observation efforts. The Cooper Creek Breeding Bird Census and the Georgia Breeding Bird Atlas are recent efforts; both have encouraged observers to study many mountain areas more intensively. Red-breasted Nuthatches and Golden-crowned Kinglets breed rather early compared to most Neotropical migrants, and thus their singing is reduced later in the breeding season when most observers are in the field. After the initial observation by Dennis and Donna Forsythe, Oberle played tapes of Red-breasted Nuthatches at the Burrell's Ford and Mose Mountain

locations, the first time anyone has played tapes of this species in the field during the breeding season in Georgia. At very low population densities, playback may be required to elicit vocalizations in widely dispersed, territorial birds (Rappole et al. 1993).

A more difficult to quantify increase in observer effort is related to the increased access to the Georgia mountains with the expansions of four lane highways in the last two decades. Also observer effort has probably increased because of more people residing in the mountains. In the 28 "mountain" counties of Georgia included in the Southern Appalachian Assessment, human population grew by 58.1% from 1970 to 1992, with the same level of brisk population increase

Table 3. Summer sightings of Winter Wrens (*Troglodytes troglodytes*) in Georgia away from traditional nesting sites on Brasstown Bald.

| Date | Elevation (m) | No. of birds | Site | Observers ^a |
|-------------|---------------|--------------|-------------------------------|------------------------|
| 13 Jun 1993 | 1150 | 1 | Rabun Bald Rabun Co. | BB, JS |
| 18 Jun 1993 | 1150 | 1 | Rabun Bald Rabun Co. | JV |
| 3 Jul 1993 | 1150 | 1 | Rabun Bald Rabun Co. | MO, JV |
| 22 Jun 1994 | 1070 | 1 | Rabun Bald Rabun Co. | GB |
| 26 May 1996 | 734 | 1 | Cooper Creek Union Co. | MO |
| 31 May 1996 | 734 | 1 | Cooper Creek Union Co. | CH, SW, LH |
| 4 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CH, SW, LH |
| 10 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CH, SW, LH |
| 20 Jun 1996 | 1335 | 1 | Tray Mountain Townsend Co. | MO |

a Giff Beaton (GB), Bill Blakeslee (BB), Chris Haney (CH), Linda Hepfner (LH), Mark Oberle (MO), Jeff Sewell (JS), J. Volpi (JV), Sue Wetzel (SW)

projected for the future. Much of this human population growth is driven by the expansion of the Atlanta metropolitan area northward. This rate of growth in north Georgia is more than twice the human population growth rate for all Southern Appalachian counties in the five other southern Appalachian states (SAMAB 1996).

Some records could be sightings of unmated wanderers rather

than true breeding attempts. The low elevation records of the Black-throated Blue Warbler, Canada Warbler, and Dark-eyed Junco at Cooper Creek all consisted of fewer than three sightings (the standard number of registrations required to confirm breeding status during a Breeding Bird Census). Therefore, in these cases breeding is unlikely. On the other hand, siskins near Jasper in 1996 had young, and Red-breasted Nuthatches have been seen in pairs at two sites and have responded aggressively to tapes. These two species have also been confirmed breeding at the same elevation as the Burrell's Ford area just a few kilometers east in South Carolina (Post and Gauthreaux 1989, Oberle and Forsythe 1995). Some of the Red-breasted Nuthatch and Winter Wren observations meet the Georgia Breeding Bird Atlas definition of "probable" nesting, whereas for other species discussed here, the observations meet the Atlas

Table 4. Summer sightings of Black-throated Blue Warblers (*Dendroica caerulescens*) and Canada Warblers (*Wilsonia canadensis*) in Georgia at elevations lower than previously reported.

| Date | Elevation (m) | No. of birds | Site | Observers ^a |
|-----------------------------|---------------|--------------|----------------------------------|------------------------|
| Black-throated Blue Warbler | | | | |
| 1 Jun 1996 | 336 | 1 | Roxanne Bartow Co. | GS |
| 3 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, LH, SW |
| 9 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, LH, SW |
| 27 Jun 1997 | 734 | 1 | FS 646 Rabun Co. | CHu, MO |
| Canada Warbler | | | | |
| 16 June 1994 | 966 | 1 | Sosebee Cove Union Co. | PB |
| 16 June 1994 | 884 | 2 | Slaughter Cr. Trail Union Co. | PB |
| 2-4 Jun 1996 | 734 | 1 | Cooper Creek Union Co. | CHa, LH, SW |
| 15 Jun 1996 | 980 | 1 | Sosebee Cove Union Co. | PB, TM, HG |

a Patrick Brisse (PB), Hugh Garrett (HG), Chris Haney (CHa), Linda Hepfner (LH), Chuck Hunter (CHu), Terry Moore (TM), Mark Oberle (MO), Georgann Schmalz (GS), Sue Wetzel (SW)

definition of "possible" breeding (Georgia Department of Natural Resources 1996). Another possibility for these occurrences could be that the breeding attempts represent temporary range extensions resulting from lingering winter residents. Red-breasted Nuthatches and Pine Siskins are especially prone to winter irruptions. Although irruptions did not occur in the winters of 1994-1995 and 1995-1996 in Georgia, it may be that there was an unreported, localized invasion of nuthatches on the upper Chattooga River in the winter of 1994-95.

Maturing habitat may also prompt some of these northern forest birds to establish breeding in new areas. Occurrence of Golden-crowned Kinglets in the mature eastern white pine (*Pinus strobus*) forest at Burrell's Ford is consistent with data from West Virginia, New York, Pennsylvania and elsewhere of kinglets extending their range into maturing conifer forests and even conifer plantations (Andrle 1971, Brauning 1992, Hall 1992, Oberle and Forsyth 1995, Ingold 1997). Golden-crowned Kinglets and Red-breasted Nuthatches breed in similar white pine and hemlock (*Tsuga* spp.) forest in the Great Smoky Mountains and just upstream of the Burrell's Ford site near Highlands, North Carolina (Bent 1948, Stupka 1963, Potter et al. 1980, Alsop 1991, Simpson 1992).

The fact that Red Squirrels (*Tamiasciurus hudsonicus*), Red-backed Voles (*Clethrionomys gapperi*), and other "northern" species reach the southern limits of their range in northeastern Georgia suggests that associated species such as Red-breasted Nuthatch may have existed in the area previously and are now re-establishing themselves as white pine and hemlock forests mature (Wharton 1989). Red Squirrels occur in the four northeastern-most counties of Georgia in preferential association with conifers, especially hemlocks (Wharton 1968).

Another possibility is that the occurrence of the northern forest species at Cooper Creek and Sosebee Cove may not reflect range extensions or colonization of newly recovered forest habitat, but rather long-established, persistent populations inhabiting relict fragments of old-growth forest. Haney and D.S. Lee (unpubl. data) have found similar assemblages of northern forest birds at low elevations in the old-growth forests of Joyce Kilmer, Nantahala-Pisgah National Forest in North Carolina. Old-growth forests are characterized by diverse plant communities - communities that are otherwise now quite rare in the landscapes of the Southern Appalachians. Red Crossbills (*Loxia curvirostra*), which regularly occur at Cooper Creek (Moore 1990b), prefer the older conifers typical of old-growth because these trees produce seed crops in greater abundance and at more frequent intervals than younger conifers (Benkman 1993). It may be that these species once bred over much of Georgia's mountains before logging and fire changed

forest composition.

A challenge in the coming years will be to document confirmed nesting of these species, not just possible or probable nesting occurrences. Red Crossbill nests have not been found in Georgia. However, juvenile Red Crossbills were observed in May and June in northwestern Georgia (Henson 1991), and adults have occurred throughout the year in the Georgia mountains (Moore 1990b, Brisse 1983). Two call types of Red Crossbills have been documented in the Southern Appalachians; both call type 1 (Oberle and Forsythe 1995) and probably call type 2 (Groth 1993:96) have occurred in Georgia (Groth 1988, 1993). Similarly, nests have not yet been detected for Brown Creeper, Red-breasted Nuthatch, Pine Siskin, or Golden-crowned Kinglet in Georgia.

Acknowledgments

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GENERAL NOTES

WASHINGTON COUNTY'S FIRST GREATER SHEARWATER

— On 14 July 1997, I received a call from the Sandersville Police Department, where I am employed, that a "seagull" had been found at a nearby kaolin plant. Two men saw it standing about with a flock of Rock Doves in the area of a large shelter building. It could not fly. Because I am a wildlife rehabilitator, I hurried to the station. Much to my astonishment, the bird turned out to be a shearwater (Procellariidae). This normally pelagic bird appeared to be uninjured except for being coated with kaolin (a clay-like substance mined in the area). It was taken to my rehabilitation facility, Mockingbird Hill Wildlife Rehabilitation, and cleaned. The shearwater eagerly consumed the live, fresh fish that I offered.

Unable to make a positive identification on which particular shearwater this was, I contacted Tommy Patterson. As I described the bird to him, he seemed incredulous, unable to believe that it was a shearwater. On his suggestion, I telephoned Paul Sykes. He and Bill Dunbar drove to Sandersville the following day. Sykes identified the bird as a Greater Shearwater (*Puffinus gravis*). Photographs (Fig. 1), video, and measurements were taken of the



Figure 1. Greater Shearwater (*Puffinus gravis*), Washington County, Georgia, 14 July 1997. Photo by Lynn A. Schlup.

bird. The bird had a tubed, black bill. It was dark above with dark feathers extending underneath on the chest and belly and on its long, narrow wings. White was present only on the lower face, neck, and upper chest. There were also a few white feathers at the base of the tail. The feet and legs were pink. Because the white did not spread completely over the nape, and there was quite a bit of dark feathering on the underside, observers speculated that this may have been a juvenile. I do not believe there is much information on the appearance of a young Greater Shearwater.

The bird ate well and seemed alert. When it saw the fish in the plastic bag at feeding time, it made a short, one-note "honk" and mindfully took small, careful steps to the feeding area. The bird appeared to be quite tame and unafraid.

Release at sea was planned for 7 August 1997. On 6 August 1997, I found the shearwater lying on its back. When I turned it over, it expired in my hands. It surmised that this bird may have had a parasite infestation or some internal injury. The bird's fatal wrong turn over land was not caused by any recent, adverse weather condition. The specimen was deposited at the Museum of Natural History, University of Georgia, Athens.

Haney et al. (1986, *Annotated Checklist of Georgia Birds*, GOS Occasional Publication No. 10) lists the pelagic Greater Shearwater as an uncommon visitor offshore during summer and fall and as accidental in winter off St. Mary's, Camden County, Georgia. Two previous inland records exist, one in Baldwin County on 4 September 1974 and the other in Hall County on 28 July 1994.

Lynn A. Schulp, *Mockingbird Hill Wildlife Rehabilitation*, 2101 Highway 272, Tennille, Georgia 31089

SCISSOR-TAILED FLYCATCHER IN PEACH COUNTY, GEORGIA — At 14:33 on 4 August 1997 Joyce Harrison discovered a Scissor-tailed Flycatcher (*Tyrannus forficatus*) while driving along White Road in Peach County. The bird was perched on a power line above a small horse pasture on the north side of White Road about 1 km east of Interstate 75 south of Byron, Georgia. Jerry Amerson observed the bird the evening of 5 August, after an unsuccessful visit to the site in the afternoon. He remarked that when he spotted the bird, several Eastern Kingbirds (*Tyrannus tyrannus*) were also present. I found the bird on the 6 August between 10:50 and 12:15; Jim and Joyce Harrison and Jerry and Marie Amerson observed the bird that evening. They saw it last at 20:15.

The characteristic long forked tail was evident to all observers.

Viewed from the top, three sets of streamers could be seen. The tail equaled the body length. The bill was dark gray, pointed, and wide at the base. The entire head and belly were pale gray. The mantle was gray-brown in color. The lesser coverts were mainly brownish, with a few black feathers. The sides, flanks, and undertail coverts were salmon pink. The axillaries were especially evident when the bird preened. During the last half hour or so of my observation, the bird perched in a dead deciduous tree at the edge of the woods bordering the horse pasture. While a calm bird when sitting, it was active in flight. The beautiful red axillaries were seen each time the bird took flight. It caught a variety of insects, including some dragonflies.

The *Annotated Checklist of Georgia Birds* (J. C. Haney et al., 1986, GOS Occasional Publication No. 10) lists the Scissor-tailed Flycatcher as an accidental to rare visitor over most of Georgia, 11 October–30 June. It has been seen in middle Georgia once before. George Griffeth found one in Peach County, south of Perry, on 3 September 1995, not very distant in time and place from this sighting, Middle Georgia's second record.

Paul Johnson, 901 Santa Fe Trail, Macon, Georgia 31220

FROM THE FIELD

March-May 1997

The memory of this spring season may fade quickly from the minds of many birders. There seemed to have been fewer rarities than in past springs, and two of the rarest birds of the season did not stay in place very long: a female BLACK-HEADED GROSBEAK seen 4-5 April at an Atlanta feeder (Tony Scardaci) and two ALDER FLYCATCHERS reported in Glynn Co. in May (Mike Chapman). This is not to say that there were not many "good" birds seen this spring, but my overall impression of this season is that it was rather dull. March was unusually warm, and there was evidence of early migration in some species. April and May were cooler than in recent years, and several prime weekends in late April were rained out in my area. Still, good numbers of warblers were seen in a few places. The numbers of thrushes and shorebirds were way off except for the huge pre-dawn counts of thrushes undertaken by a few of the advanced birders among us who have learned the nighttime call notes of the thrushes and who count these call notes before dawn at places like Kennesaw Mountain. More on this later.

Two birds I will remember from this season I saw only in photographs. One was a NORTHERN CARDINAL that was red on one side and pure white on the other. This bird appeared at a feeder in Coweta Co. in March, and the photograph was published in the Atlanta newspaper. The photographer and other observers said the bird's "white" side was not a pure white as it appeared in the photograph, but more like an immature bird, that is buff-colored with a few red feathers coming in. I could find no explanation of such a molt sequence in any of my reference books. Does anyone have any ideas? Please let me know. The other memorable photograph, taken in April by Anne Waters in Augusta, was of a BROWN THRASHER with an outrageously long, curved bill, longer even than the bill of a California Thrasher. The bird was seen for about a week. Paul Sykes, who examined the photograph, says he has heard of other Brown Thrashers with very long bills in Florida and elsewhere.

Several species were memorable this spring for having strayed so far from the coast such as the BROWN PELICAN seen near Valdosta on 16 April (Brad Bergstrom), the two BLACK-BELLIED PLOVERS at the E. L. Huie Land Application Facility (ELHLAF) in Clayton Co. on 3 May (Dan Demko) and on 4 May (Jim Flynn), the WILLET spotted at ELHLAF on 28 April (Brock Hutchins), the WILSON'S PHALAROPE at ELHLAF on 2 May (Kevin Danchisen, Carol Lambert) that stayed several days, and another Wilson's Phalarope seen at the protein plant in Dawson Co. on 18 May (Jack Carusos, John Padgett). A few WHITE-RUMPED SANDPIPERS strayed eastward from their mid-continent flyway, and we have come to expect these late migrants at ELHLAF in late May in most years. This year two early arrivals were seen on 1 May (Carol Lambert, Kevin Danchisen). As many as five were seen there on 4 May (Jeff Sewell), and two were seen in Laurens Co. on 2 May (Tommy Patterson), but the big news were the 30 counted on the coast in Glynn Co. on 1 May (Giff Beaton, Jim Flynn). The UPLAND SANDPIPER, also a mid-continent migrant, seems to be popping up in areas of the state other than the reliable Laurens Co. site (also famous for its Brewer's Blackbird flock). One was

seen on 3 May in Greene Co. (Paul Sykes) for the second there in as many years.

Reports of roving raptors were scarce this spring, with only two species making this column. On 15 March an immature ROUGH-LEGGED HAWK was seen in Floyd Co. (Aubrey Scott), the first seen in several years, and BALD EAGLES had great nesting success around the state. Jim Ozier of the Non-Game Division of DNR says a record 30 active nests were found, two more than last year and the most since DNR began monitoring them in the 1960s. Rails were found this spring in good numbers at several marshes around the state, two of which (in Macon and in Greene Co.) are on private property, but the good news is that a relatively new marsh in the Kennesaw Mountain National Battlefield Park produces some excellent counts of KING and VIRGINIA RAILS and SORA (Giff Beaton). It's a bit of a hike to get to this marsh, but well worth the effort. Call me if you need directions.

BLACK-BILLED CUCKOOS were seen this spring in numbers far exceeding the usual one or two seen around the state in the spring. Kennesaw Mountain was the hot spot, with this species being seen on 4, 11, and 17 May. Comparison of plumages among the observers, several of whom saw more than one bird, led to the conclusion that all three were different birds. Of course, it helped that, nowadays, 15-20 birders can be found on the mountain road on a Saturday and Sunday morning. Not to be outdone, Fernbank forest hosted a Black-Billed on 12 May (Lisa Hurt) as did the Ocmulgee National Monument in Macon on 6 May (Jim Ferrari). One seen near Gainesville on 4 May (Steve Moore) makes six Black-billed Cuckoos seen in the state this spring. This must be a record!

For me, the ones that got away this spring were the two ALDER FLYCATCHERS reported on 10 May at Paulk's Pasture WMA near Brunswick, by Mike Chapman, who was first attracted by their call notes. This is the first report of this species since spring 1982 with another record before that in 1963. This species was recently listed by the Checklist and Records Committee as requiring documentation so remember that my reporting it here does not mean that the committee has accepted the sighting. The same should be said for the BLACK-HEADED GROSBEAK previously mentioned.

Some birders, and true fanatics they be, are tallying huge counts of thrushes by listening to their night call notes in the period just before dawn as the birds pass overhead or come in to roost after flying all night. Not surprisingly, Kennesaw Mountain is a favorite locale for this arcane activity; but amazingly, Jim Flynn had the following count in his backyard in Forsyth Co. In the pre-dawn dark of 30 April he recorded 150 VEERIES, 3 GRAY-CHEEKED THRUSHES, and about 300 SWAINSON'S THRUSHES. Where do these birds go after sunrise? Numbers from other locations seemed down this spring. Banders at Zoo Atlanta re-captured a GRAY-CHEEKED THRUSH in early May that they had banded in the fall of 1994 (Brad Parks). SWAINSON'S WARBLERS are also a hard-to-find species, but made several notable appearances this spring from a Macon area record early arrival on 25 March (Jerry & Marie Amerson), to the three tallied by Paul Johnson in his subdivision near Macon in early April. A MOURNING WARBLER was reported near Athens on 7 May (Earl Hunter *fide* Chris Eberly). This is another species on the Record Committee "Documentation Required" list and, because of the difficulty in separating it from other look-alikes, should be carefully observed and written up. Two CONNECTICUT WARBLER reports were above average for one season: one at Fernbank Forest on 21 May (Georgann Schmalz), and one at Newman Wetlands Center, ELHLAF, on 24 May

(Carol Lambert).

Are PAINTED BUNTINGS pushing farther inland? There is a small breeding population in Macon and in Augusta, so perhaps the male seen at Marietta feeder on 24 April was scouting out new territory (Richard Cole). The same, or another, male was seen in Vinings, not too far from the first bird, on 29 April (Nancy O'Gara). A few sparrow sightings were noteworthy. A CLAY-COLORED SPARROW came to a feeder in Houston Co. on 26 April (Dan & Pam Guynn); a LARK SPARROW was well documented, complete with sketches, by John McMahan, on 4 May near Columbus; and a pair of SONG SPARROWS fledged two young in Macon in late May (Paul Johnson). This is Bibb County's first nesting record and the southernmost nesting record in Georgia according to Johnson. On the negative side, Dan Guynn saw only one VESPER SPARROW all year, that on 18 March. Ray Chandler reported the only YELLOW-HEADED BLACKBIRD on 13 and 15 May at the East Georgia Turf Farm near Statesboro. PURPLE FINCHES were seen in good numbers in March, with the 48 seen on Kennesaw Mountain on 22 March (Bruce Dralle) being outstanding. HOUSE FINCHES have reached the coast! Doris Cohrs reported nesting in Darien on 18 April. PINE SISKINS and EVENING GROSBEAKS were noted for their absence even in the mountains (Denny McClure).

FROM THE FIELD

June-July 1997

This breeding season, June and July, was a bit above average, it seems to me. Average would be a few extralimital breeders and a few vagrants for spice. This season we had quite a list of species that were found nesting outside their normal ranges, and though we may have been about average in the vagrant department, the several we did have were spectacular. In a separate category altogether was a remarkable assemblage of kites over a small field in Tattnall Co. (more later). Temperatures were somewhat below average for the period for most areas, with no extended periods of extreme heat around the state. The only substantial weather event was the passage of the remnant of Hurricane Danny across the northwest corner of the state, which brought with it a MAGNIFICENT FRIGATEBIRD (more below).

It's the very rare birds that always get our attention, especially during these months. The following sighting would have been astounding at any time of the year and although the species is not on the checklist (i.e., no acceptable sightings in the state), some predicted that sooner or later Georgia would get one, but in the winter not in summer. This made the appearance of a pair of COMMON EIDER on Sapelo Island all the more unusual, if not bizarre. First seen by Brad Winn on 9 July, the female disappeared on or before 16 July, before anyone else saw it, but the male remained faithful to one spot and was seen and photographed by birders from all over the state. Indeed, the male, which appeared to be a first-year bird, was never seen flying, so the conclusion was that it was molting its flight feathers. It remained through the end of the period.

Never forget that hurricanes can produce some very strange bird sightings. On 22 July, as a weakened Hurricane Danny passed through Haralson Co., Michael Bell spotted a female MAGNIFICENT FRIGATEBIRD about 60 meters above him as he traveled down a road. He followed it for about a kilometer as it sailed along in a swift wind. We should check North Carolina reports for it, as that's where Danny ended up. The GREATER SHEARWATER that landed in a parking lot in Sandersville on 13 July, apparently mistaking it for a lake, arrived there without the assistance of a hurricane. It wound up with Lynn Schlup, was identified by Paul Sykes, but died on 6 August after appearing to do well in the interim, a pattern much like that of one of the same species that landed in a yard near Lake Lanier in July 1994. That bird was also found in July.

Though each of the previous reports are quite remarkable, in my opinion the most unforgettable scene for this period involved two species that breed in Georgia, but before this, nobody had ever seen so many in one place at one time. On 9 July, Ray Chandler while driving on Georgia Route 169 fourteen kilometers north of the Altamaha River in Tattnall Co. saw a huge flock of SWALLOW-TAILED and MISSISSIPPI KITES swirling over a hay field feeding on June bugs. The birds remained through the end of the month with 22-35 Swallow-tails being seen consistently, peaking at 52 on 28 July (Ray Chandler). This is more Swallow-tails than some would have estimated as the entire Georgia population, even more remarkable because few immatures were seen among them. With the Swallow-tails were Mississippi Kites numbering from at least five up to a high of

22, which included seven juveniles.

Interesting sightings of late north-bound migrants include the pair of GREATER SCAUP at the E.L. Huie facility near Jonesboro, first seen in late May, and last seen on 1 June (Aubrey Scott), and the three CASPIAN TERNS seen on 21 June over Lake Tallapoosa in Haralson Co. (Giff Beaton). An even rarer stray was the WHITE-WINGED DOVE seen in Lowndes Co. on 1 June (Brad Bergstrom). Space limits require that I omit several other noteworthy sightings of vagrants in order to get on with breeding species, or at least species that spent the period in the state even though they may not breed.

In this last category is the group of AMERICAN WHITE PELICANS at the mouth of the St. Mary's River on the Georgia-Florida line, near the King's Bay Submarine Base and visible from the ferry to Cumberland Island. On 12 June, ten were seen here by Helen Brackett. Perhaps they are first-year birds that prefer to hang out here rather than follow the adults to their mid-continent breeding grounds. LEAST BITTERNS were seen more frequently than usual being reported from four inland locations, including one that is new: northeast Tattnall Co. where on 12 June Rick West saw two in a farm pond.

Will we find REDDISH EGRETS nesting in Georgia? The most northerly breeding site I know of is near Cape Canaveral, Florida. Thus, how do we account for two immatures seen on 21 June and 6 July on Ossabaw Island? I suppose, for now at least, we can only conclude that these birds are the first to spread north from their breeding grounds (all reports from Brad Winn).

Interesting breeding reports include a HAIRY WOODPECKER with young in Betty Derrick's backyard in Lowndes Co. (Brad Bergstrom), thought to be a first county record, and a new location for WILLOW FLYCATCHERS in southern Dawson Co. On 8 June, Joel Volpi heard one singing on territory near the Etowah River. The species seems slowly to be expanding its range across the northern piedmont. Also spreading south is the EASTERN PHOEBE. On 1 June, Dan and Pam Guynn saw and heard one near Vienna on their BBS route. Three HORNED LARKS including one immature were seen at a sod farm in Bulloch Co. throughout the period (Ray Chandler). This is even farther south than the sod farm in Peach Co. which is the most southerly breeding site I know of. Nesting TREE SWALLOWS also were noteworthy. A pair nested in a bluebird box at E. L. Huie (Carol Lambert et al) and Paul Sykes counted eight in Greene Co. on 28 June that include several very young birds. CLIFF SWALLOWS, too, made news by being found in two new locations: Chris Eberly found one pair with two nests under the Georgia Route 15 bridge over the Oconee River in Greene Co. on 21 June and Joe Greenberg discovered several hundred nestings at the Georgia Route 109 bridge over West Pointe Lake in Troup Co. in June, these numbers indicating a well-established colony in an area of the state that is mostly unbirded.

Do RED-BREASTED NUTHATCHES and GOLDEN-CROWNED KINGLETS nest in Georgia? Several birders have found them in Rabun Co. near the South Carolina line for years now, but no nests have yet been found, although just across the Chattooga River in South Carolina nesting has been confirmed. On 27 June, Mark Oberle saw or heard three or four RED-BREASTED NUTHATCHES at Burrell's Ford on the Chattooga River and on the same day saw two GOLDEN-CROWNED KINGLETS in the same vicinity. Two WHITE-BREASTED NUTHATCHES were seen in the Macon area this period: one near his home on 1 June (Paul Johnson) and one in another yard on 6 June (Maurice

Crenshaw). This species is rare in the Macon area.

It must have been a good year for GRAY CATBIRDS as both Ray Chandler and Paul Sykes mentioned this species. Ray said the bird is becoming a much more common nester in Bulloch Co. and Paul reported more nests in Greene Co. than at any time in the past 5-10 years. CEDAR WAXWINGS were all over the place, in North Georgia anyway. Many were most likely lingering late. I had reports in June from Macon, Cartersville, Marietta, Cherry Log, Greene Co. and six birds including one nest in Towns Co. on 27 June (Giff Beaton). The colony of SOLITARY VIREOS in the Piedmont National Wildlife Refuge, Jones Co., is doing quite well. On 11 June, Jerry and Marie Amerson counted 11 along a stretch of their BBS route. Although some assume their appearance here in summer indicates a new colony far south of its usual range in the mountains, Burleigh in *Georgia Birds* notes that in the summer of 1946 one nest and eleven males on territory were found in the refuge and in nearby Jones and Jasper counties.

Once again CERULEAN WARBLERS were found in the mountains. Giff Beaton, on a Breeding Bird Atlas trip, counted nine males and one female along Ivy Log Mountain Road on 5 June, but could not find a nest, leaving for another summer the discovery of conclusive evidence of nesting in Georgia. Paul Sykes found eight BLACK-AND-WHITE WARBLERS on 28 June in Greene Co., including two pairs with one fledgling each. A KENTUCKY WARBLER was seen and heard on 4 June in Lowndes Co. where they are very rare (Brad Bergstrom). SCARLET TANAGERS were reported from eight locations in the piedmont, further evidence of their southward expansion. Pairs were seen in two of these locations: in Kennesaw in mid-June (Chuck Saleeby) and at Watson Springs, Greene Co. on 28 June (Chris Eberly). Coming in the opposite direction is the PAINTED BUNTING. The colony in Macon is well known. This summer Andy Kinsey found two pairs in Burke Co. on 24 June, including a female carrying material. Ray Chandler reported that a pair nested near Statesboro. The Macon area had its first nesting SONG SPARROW, found by Paul Johnson near his home on 19 June. As far as I know, this is Georgia's most southerly nesting yet. The species has very slowly pushed southward from the north with the first nesting in Georgia in Union Co. in 1913. Many Atlanta area birders can remember its arrival here as a breeder in the late 40's and 50's. There is one odd record of two pair nesting at Milledgeville in 1950 but this outlying colony apparently never spread, unless the Macon pair are their descendants.

FROM THE LITERATURE

"From the Literature" provides brief reviews of recent ornithological studies conducted in the state of Georgia. The reviews are designed for a general reader and are meant to make ornithological research in Georgia available to a wider audience. — The Editors.

Red-cockaded Woodpecker foraging ecology in an old-growth longleaf pine forest. R. T. Engstrom and F. J. Sanders. 1997. *Wilson Bulletin* 109(2):203-217. — Virtually all of the old-growth longleaf pine (*Pinus palustris*) forests in the southeastern United States have been lost to logging. This loss contributed to the decline of Red-cockaded Woodpecker (*Picoides borealis*) populations, ultimately resulting in the species being declared endangered. Most remaining populations of Red-cockaded Woodpeckers, including those in Georgia, are in pine forests that have been harvested at least once and are relatively young compared to old-growth stands. These authors of this study took advantage of the existence of remnant stands of old-growth longleaf pine near Thomasville, Georgia to study (1992-1993) the foraging behavior, home range, and nest success for Red-cockaded Woodpeckers occupying old-growth forests. Average year-round home range size for seven woodpecker groups in and adjacent to an old-growth stand was 47.1 ha. The more old-growth forest that was included in the woodpeckers home range, the smaller the home range. In the old-growth stand, woodpeckers preferentially selected larger trees for foraging. As in other studies, males and females differed in foraging height and parts of the trees used. Woodpeckers in the old-growth stand laid more eggs and fledged more young than reported in most studies. The small year-round home range, high density, large group size, and high productivity observed in this study indicate that old-growth longleaf forest is high-quality habitat. The authors suggest that forest management intended to provide an adequate number of cavity trees and quality foraging habitat for the Red-cockaded Woodpecker should have old trees across the landscape. (Author's address: Tall Timbers Research Station, Route 1, Box 678, Tallahassee, FL 32312-9712)

The use of isotope tracers for identifying populations of migratory birds. C. P. Chamberlain, J. D. Blum, R. T. Holmes, X. Feng, T. W. Sherry, and G. R. Graves. 1997. *Oecologia* 109(1):132-141. — Where will that bird go for the winter? This is a question that often puzzles birders, but it also puzzles ornithologists who study the population biology of migratory birds. In order to better understand the factors contributing to the decline of some migratory birds, ornithologists need to know the exact breeding and wintering sites for particular populations. Unfortunately, most passerine birds are too small to carry appropriate radiotransmitters, and birds banded on the breeding grounds are rarely re-encountered on the wintering grounds. A novel potential solution to this problem is the analysis of isotopes (alternative forms of particular elements) found in the feathers of birds. The isotopic composition of hydrogen, carbon, and strontium in the environment (rain, plants, soils) varies with latitude and longitude in the eastern United States. The authors of this study show that the

isotopic composition of these elements in the feathers of Black-throated Blue Warblers (*Dendroica caerulescens*), which are grown on the breeding range, also vary throughout its breeding range in eastern North America (birds sampled in north Georgia were included in the analysis). Furthermore, the isotopic composition of the feathers matches that of the general environment for a given region. Thus, the authors were able to analyze feathers from Black-throated Blue Warblers captured on the Caribbean wintering range and show that these birds had isotopic compositions most similar to birds from the northern portion of their breeding range. Furthermore, variances in isotope ratios in samples from local areas in winter tended to be larger than those in summer, suggesting that individuals from different breeding localities may mix in winter habitats. These isotope markers have the potential for locating the breeding origins of migratory species on their winter areas and for quantifying the degree of mixing of breeding populations on migratory and wintering sites. (Author's address: Department of Earth Sciences, Dartmouth College, Hanover, NH 03755)

Haemoproteus greineri in Wood Ducks from the Atlantic flyway. O. J. Pung, N. E. Maxwell, E. C. Greiner, J. R. Robinette, and J. E. Thul. 1997. *Journal of Wildlife Diseases* 33(2):355-358. — Blood parasites are an important factor in the life history of many species of birds. Based on blood samples from 157 Wood Ducks (*Aix sponsa*) trapped at Savannah National Wildlife Refuge (just across the Savannah River from Georgia and Harris Neck National Wildlife Refuge, Georgia, the authors found that 13 ducks (8%) were infected with blood parasites. Eleven of these birds were infected with *Haemoproteus nettionis*, seven with *Leucocytozoon simondi*, and five with unidentified microfilariae. Additionally, eight Wood Ducks (5%) were infected with *Haemoproteus greineri*, a parasite not previously encountered in waterfowl trapped along the Atlantic flyway south of Labrador and the first record of this species in Wood Ducks. Additional sampling revealed this blood parasite in hatching-year Wood Ducks trapped at 10 locations along the Atlantic flyway from New Brunswick to Virginia. These findings highlight our poor understanding of blood parasites in birds, parasites that can exert a potentially important influences on survival, habitat selection, and reproductive success. (Author's address: Department of Biology, Georgia Southern University, Statesboro, GA 30460)

Ticks, Lyme disease spirochetes, trypanosomes, and antibody to encephalitis viruses in wild birds from coastal Georgia and South Carolina. L. A. Durden, R. G. McLean, J. H. Oliver, Jr., S. R. Ubico, and A. M. James. 1997. *Journal of Parasitology* 83(6):1178-1182. — Most birders in Georgia are aware of the risk of contracting Lyme disease from ticks, and the role that mammals such as deer and mice play as reservoirs for the Lyme disease spirochete. However, there is considerable interest among biologists in the role birds may play in the Lyme disease life cycle. In this study, ticks and blood samples were taken from birds mist-netted on St. Catherine's Island, Georgia, and in coastal South Carolina. The authors found immature stages of 5 species of ticks (some of which can act as vectors for Lyme disease) on 10 of 148 (7%) birds belonging to 6 species in Georgia; 6 tick species were recovered from 45 of 259 (17%) birds representing 10 species in South Carolina. The Lyme disease spirochete was found in 27 of 120 (23%) screened ticks recovered from South Carolina birds, but from none of 16 screened ticks removed from Georgia birds.

This spirochete was also found in 1 of 97 (1%) birds from South Carolina. Birds may also act as reservoirs for other important disease organisms. In 1995, the authors found antibodies for eastern equine encephalitis virus in 4 of 121 (3%) birds and to St. Louis encephalitis virus in 2 of 121 (2%) birds from South Carolina. No antibody to either virus was detected in 51 birds screened from Georgia. This study suggests that some wild birds may be reservoir hosts for the Lyme disease spirochete and for encephalitis viruses in coastal Georgia and South Carolina. Furthermore, migrating birds can disperse immature ticks infected with Lyme disease and may play an important role in affecting the distribution of the disease. (Author's address: Institute for Arthropodology and Parasitology, Georgia Southern University, Statesboro, GA 30460)

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