

HIGHLIGHTS OF THE SPRING SEASON

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"Most reporters concurred that Spring, 1990, was another in a growing series of lackluster migrations." Ken Able's Region 8 summary captures the feel of this season. He then discusses whether bird populations are really declining and if we can detect such changes with casual field observations. This is a must for reading and reflection. The problem is at least as difficult as it is serious. Anyone can recognize a big increase in bird numbers or a when rarity appears or that a passing flock or procession totaled much higher than any previous record. However, to convince skeptics of the reality of population declines one needs both data that show some species was observed in numbers much below some long-term average and also evidence that this decline is not due to some easily explained, short term factor such as weather, local land use changes, or observer numbers, activity and/or competency. Unfortunately, both long-term averages and, especially, measures of the variability of avian numbers are generally lacking, and few studies include enough information to address the potential biases in a meaningful fashion. Only efforts such as the Breeding Bird Surveys, well planned hawkwatches, and possibly the long-term seasonal censuses, such as are conducted in Region 1, have any hope of addressing this lack of hard data. In spite of these difficulties, I would differ from Ken's conclusion. I think there are serious overall population declines and I, and any other experienced field observer, can list a number of species for which there have been declines. These conclusions are not from one season's observations and also are based on reports from both nearby and more distant regions. Like everyone else, I don't know the cause of these observed effects or which changes really are of serious concern and which are "normal" population fluctuations over cycles we don't understand. The more carefully planned studies we can organize, the better chance we will have of detecting significant changes in populations as compared to depending on the assembly of casual observations.

This season really has some outstanding highlights: weather effects, early and late dates, a good supply of rarities, and a few special notes and comments. Before launching into these topics, I will present a quick survey of the groups of birds I usually discuss. Loons and grebes

Waterbird Arrivals 1990

Species	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10	Average
American Bittern	8 Apr	1 Apr	28 Apr		20 Apr	24 Apr	26 Mar	22 Apr	18 Apr	30 Apr	16 Apr
Green-backed Heron	21 Apr	26 Apr	19 Apr		1 May		30 Apr	27 Apr	25 Apr	10 May	27 Apr
Wood Duck	17 Mar	28 Feb	10 Mar		9 Mar	28 Mar	15 Mar	15 Mar	1 Mar	3 Mar	10 Mar
Green-winged Teal	11 Mar	8 Mar	3 Mar		13 Mar	1 May	11 Apr	14 Mar	18 Mar		21 Mar
Northern Pintail	10 Mar	18 Feb	12 Mar		3 Mar	17 Mar	3 May	12 Mar	10 Mar		14 Mar
Blue-winged Teal	12 Mar	13 Mar	16 Mar		14 Mar	21 Apr	3 May	29 Mar	12 Apr	21 Mar	29 Mar
Osprey	9 Apr	15 Apr	31 Mar		27 Mar	16 Apr	8 Apr	8 Apr	2 Mar	17 Mar	1 Apr
Virginia Rail	28 Apr	26 Apr	29 Apr		24 Mar	1 May		24 Apr	5 Apr	14 May	22 Apr
Sora	5 May	25 Apr	15 Apr		15 Apr	27 Apr			11 Apr	14 May	24 Apr
Common Moorhen	17 Apr	10 Apr	27 Apr		22 Apr	29 Apr		3 May	29 Apr	6 Apr	21 Apr
Black-bellied Plover	20 May	19 May	12 May		21 May			25 Apr			13 May
Semipalmated Plover	5 May	11 May	12 May		5 May					18 Apr	4 May
Killdeer	7 Mar	27 Feb	4 Mar		10 Mar	11 May	13 Mar	22 Feb	24 Feb		11 Mar
Greater Yellowlegs	22 Mar	18 Mar	1 Apr		19 Mar	5 Apr		28 Apr	10 Apr	18 Mar	30 Mar
Lesser Yellowlegs	8 Apr	18 Mar	23 Apr		13 Apr	5 May	10 Apr	28 Apr	26 Apr	7 Apr	15 Apr
Solitary Sandpiper	26 Apr	25 Apr	2 May		13 Apr		6 May	2 May	29 Apr	26 Apr	27 Apr
Spotted Sandpiper	26 Apr	27 Apr	25 Apr		24 Apr	26 Apr	28 Apr	3 May	30 Apr	29 Apr	27 Apr
Sanderling		2 Jun			29 May						31 May
Semipalmated Sandpiper	5 May	3 May	8 May		19 May	23 May		6 May		19 Apr	7 May
Least Sandpiper	5 May	1 May	8 May		5 May		9 Jun	12 May	12 May	23 Apr	9 May
Pectoral Sandpiper	22 Mar	26 Mar	1 Apr		16 Mar	9 May	9 Jun	29 Apr	25 Apr	19 May	20 Apr
Common Snipe	15 Mar	14 Mar	16 Mar		13 Mar	31 Mar	18 Mar	26 Mar	17 Mar		18 Mar
American Woodcock	10 Mar	11 Mar	9 Mar		12 Mar	11 Mar	15 Mar	13 Mar	11 Mar	24 Feb	9 Mar
Caspian Tern	15 Apr	13 Apr	14 Apr		13 Apr	27 Apr				18 Apr	16 Apr
Common Tern	8 Apr	16 Apr	26 Apr		6 May	5 Apr			12 May	29 Apr	23 Apr
Black Tern	29 Apr	4 May	26 Apr		9 May	29 Apr			7 May	14 May	4 May
Marsh Wren	29 Apr	25 Apr	26 Apr		5 May	21 May	6 May	24 Apr	12 May	12 May	4 May

Bold Regional Record Early *Italics* Also isolated earlier report(s).

Spring Arrivals 1990

Species	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10	Average
Black-billed Cuckoo	12 May	13 May	12 May		12 May	26 May	22 May	10 May	9 May		14 May
Common Nighthawk	20 May	15 May	9 May		19 May	12 May	17 May	16 May	13 May	22 Apr	12 May
Chimney Swift	25 Apr	24 Apr	23 May		23 Apr	12 May	28 Apr	28 Apr	27 Apr	1 May	1 May
Ruby-thr Hummingbird	7 May	28 Apr	7 May		10 May	12 May	8 May	5 May	28 Apr	28 Apr	4 May
Yellow-bellied Sapsucker	8 Apr	12 Apr	15 Apr		15 Apr	22 Apr	10 Apr		10 Mar	6 Apr	8 Apr
Olive-sided Flycatcher	20 May	24 May	7 May		25 May		9 May		8 May	19 May	16 May
Eastern Wood-Pewee	15 May	21 Apr	14 May		14 May	24 May	24 Apr	9 May	12 May	11 May	9 May
Alder Flycatcher	15 May	19 May	14 May		18 May	19 May	21 May		12 May		16 May
Willow Flycatcher	15 May	15 May	21 May		14 May			12 May	10 May	24 May	15 May
Least Flycatcher	25 Apr	21 Apr	23 Apr		25 Apr	27 Apr	28 Apr	28 Apr	28 Apr	7 May	26 Apr
Eastern Phoebe	15 Mar	13 Mar	12 Mar		15 Mar	31 Mar	16 Mar	17 Mar	13 Mar	14 Mar	16 Mar
Gr. Crested Flycatcher	26 Apr	28 Apr	26 Apr		28 Apr	1 May	1 May	29 Apr	28 Apr	28 Apr	28 Apr
Eastern Kingbird	27 Apr	19 Apr	27 Apr		28 Apr	27 Apr	1 May	28 Apr	25 Apr	28 Apr	26 Apr
Purple Martin	15 Apr	29 Mar	29 Mar		21 Apr	21 Apr	19 Apr		20 Apr	22 Apr	14 Apr
Tree Swallow	17 Mar	13 Mar	10 Mar		14 Apr	5 Apr	7 Apr	13 Mar	23 Mar	14 Mar	23 Mar
N. Rough-winged Swallow	16 Apr	21 Apr	6 Apr		16 Apr		9 May	19 Apr	10 Apr	6 May	20 Apr
Bank Swallow	28 Apr	26 Apr	17 Apr		16 Apr	21 Apr	30 Apr	26 Apr	14 Apr		22 Apr
Cliff Swallow	10 May	5 May	3 May		26 Apr	27 Apr	4 May	28 Apr	26 Apr		1 May
Barn Swallow	8 Apr	15 Mar	12 Apr		15 Apr	16 Apr	22 Apr	10 Apr	19 Apr	19 Apr	11 Apr
House Wren	21 Apr	28 Apr	27 Apr		24 Apr	26 Apr	26 Apr	22 Apr	18 Apr	22 Apr	23 Apr
Ruby-crowned Kinglet	31 Mar	31 Mar	6 Apr		22 Mar		19 Apr	10 Apr	3 Mar	18 Apr	2 Apr
Blue-gray Gnatcatcher	28 Apr	19 Apr	15 Apr		24 Apr			22 Apr	20 Apr	27 Apr	22 Apr
Eastern Bluebird	1 Mar	10 Mar	1 Mar		13 Mar	14 Mar	14 Mar		1 Mar	13 Mar	8 Mar
Veery	28 Apr	29 Apr	20 Apr		8 May	8 May	9 May	9 May	3 May	27 Apr	2 May
Swainson's Thrush	28 Apr	12 Apr	23 Apr		13 May	14 May	16 May	9 May	9 May	1 May	3 May
Hermit Thrush	8 Apr	13 Mar	12 Apr		15 Apr	11 May	12 Apr	15 Apr	9 Apr		11 Apr
Wood Thrush	27 Apr	25 Apr	21 Apr		24 Apr	30 Apr	1 May	27 Apr	27 Apr	28 Apr	26 Apr
Gray Catbird	28 Apr	19 Apr	27 Apr		30 Apr	6 May	28 Apr	28 Apr	15 Apr	27 Apr	26 Apr
Brown Thrasher	21 Mar	21 Apr	17 Apr		21 Apr	28 Apr	23 Apr	23 Apr	14 Apr	9 Apr	16 Apr
Solitary Vireo	21 Apr	25 Apr	22 Apr		25 Apr	28 Apr	25 Apr	21 Apr	20 Apr	22 Apr	23 Apr
Yellow-throated Vireo	28 Apr	3 May	28 Apr		29 Apr			28 Apr	1 May	23 Apr	28 Apr
Warbling Vireo	27 Apr	26 Apr	27 Apr		28 Apr	27 Apr	30 Apr	28 Apr	29 Apr	5 May	28 Apr
Red-eyed Vireo	6 May	8 May	27 Apr		1 May	9 May	1 May	9 May	1 May	5 May	4 May

Species	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10	Average
Tennessee Warbler	15 May	26 Apr	6 May		9 May	2 May	12 May	9 May	9 May	5 May	7 May
Nashville Warbler	27 Apr	27 Apr	27 Apr		28 Apr	4 May	26 Apr	28 Apr	3 May	7 May	29 Apr
Northern Parula	29 Apr	1 May	8 May		3 May	19 May	1 May	28 Apr	4 May	22 Apr	2 May
Yellow Warbler	27 Apr	25 Apr	22 Apr		27 Apr	27 Apr	6 May	27 Apr	23 Apr	26 Apr	26 Apr
Chestnut-sided Warbler	28 Apr	29 Apr	27 Apr		28 Apr	9 May	26 Apr	29 Apr	28 Apr	18 Apr	28 Apr
Magnolia Warbler	28 Apr	25 Apr	8 May		8 May	10 May	8 May	12 May	2 May	28 Apr	4 May
Cape May Warbler	8 May	6 May	6 May		28 Apr	7 May	11 May	28 Apr	30 Apr	8 May	4 May
Black-thr. Blue Warbler	28 Apr	28 Apr	29 Apr		28 Apr	4 May	2 May	28 Apr	28 Apr	27 Apr	29 Apr
Black-thr Green Warbler	28 Apr	27 Apr	24 Apr		28 Apr	29 Apr	27 Apr	26 Apr	27 Apr	18 Apr	26 Apr
Blackburnian Warbler	28 Apr	28 Apr	29 May		29 Apr	8 May	29 Apr	28 Apr	8 May	29 Apr	4 May
Pine Warbler	28 Apr	25 Apr	21 Apr		21 Apr	21 Apr	1 May	15 Apr	14 Apr	17 Mar	18 Apr
Palm Warbler	27 Apr	25 Apr	28 Apr		27 Apr	27 Apr	21 Apr		13 Apr	8 Apr	22 Apr
Bay-breasted Warbler	28 Apr	9 May	14 May		8 May	17 May	14 May	5 May	12 May	2 May	8 May
Blackpoll Warbler	19 May	9 May	18 May		17 May	17 May	19 May	19 May	12 May	28 Apr	14 May
Black-and-white Warbler	27 Apr	26 Apr	29 Apr		25 Apr	8 May	27 Apr	26 Apr	25 Apr	26 Apr	27 Apr
American Redstart	29 Apr	8 May	1 May		8 May	9 May	9 May	10 May	12 May	3 May	6 May
Ovenbird	28 Apr	28 Apr	25 Apr		29 Apr	30 Apr	29 Apr	27 Apr	26 Apr	28 Apr	27 Apr
Northern Waterthrush	28 Apr	25 Apr	21 Apr		26 Apr	30 Apr	27 Apr	29 Apr	30 Apr	24 Apr	26 Apr
Mourning Warbler	20 May	9 May	12 May		12 May	19 May	22 May	25 May	19 May	8 May	16 May
Common Yellowthroat	29 Apr	26 Apr	27 Apr		26 Apr	9 May	9 May	28 Apr	26 Apr	29 Apr	29 Apr
Wilson's Warbler	15 May	5 May	15 May		17 May	30 Apr	20 May	9 May	7 May	8 May	10 May
Canada Warbler	15 May	7 May	8 May		10 May	30 Apr	9 May		12 May	8 May	8 May
Scarlet Tanager	8 May	21 Apr	5 May		1 May	19 May	9 May	4 May	28 Apr	29 Apr	3 May
Rose-breasted Grosbeak	28 Apr	25 Apr	23 Apr		28 Apr	9 May	3 May	29 Apr	25 Apr	5 May	29 Apr
Indigo Bunting	4 May	8 May	3 May		8 May	17 May	22 May	10 May	28 Apr	2 May	8 May
Rufous-sided Towhee	8 Apr	21 Mar	27 Mar		15 Apr	20 Apr	28 Apr	19 Apr	15 Apr		11 Apr
Chipping Sparrow	3 Apr	31 Mar	16 Apr		7 Apr	20 Apr	17 Apr	15 Mar	12 Apr	18 Apr	8 Apr
Vesper Sparrow	8 Apr	23 Apr	11 Apr		13 Apr	6 May	31 Mar			15 May	19 Apr
Savannah Sparrow	8 Apr	13 Mar	15 Mar		14 Apr	13 Apr	9 Apr	19 Apr	11 Apr		5 Apr
Lincoln's Sparrow	28 Apr	14 Apr	7 May		6 May	17 May	9 May	18 May	6 May	8 May	5 May
White-crowned Sparrow	20 Apr	20 Apr	20 Apr		2 May	29 Apr	29 Apr	2 May	5 May	2 May	27 Apr
Bobolink	25 Apr	5 May	29 May		2 May	8 May	2 May	30 Apr	30 Apr	5 May	5 May
Northern Oriole	27 Apr	27 Apr	28 May		27 Apr	30 Apr	9 May	28 Apr	28 Apr	28 Apr	2 May

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moved through Lake Ontario basically on schedule, Double-crested Cormorant populations continue to explode, southern heron reports were scattered about Upstate, waterfowl numbers were often flagged as low, and hawks passed their watchers at Braddock Bay, Derby Hill, Coot Hill, and several of the usual fall watches in Region 9. As usual, few observers looked for rails or owls, the shorebird picture was generally dismal, there were few gull and tern records of note, and both of our regular, widespread goatsuckers continued to be scarce west of Region 9. Other than the excitement over arrival dates, passerines mostly elicited notes of low numbers although with reporting so irregular, it is difficult to draw a statewide conclusion about most species for even this one season. The few exceptions will be noted later.

The weather was responsible for a good portion of this season's highlights. Everybody got a shot of warmth just before mid March and a big jolt, with many record highs, near the end of April. Generally, the first three weeks of both April and May were damp and cool, with the May cold period wet across the entire state. In March and April, precipitation ran higher toward the southeast, especially in Region 10. From the arrival date tables and the Regional reports you can find that the warm spells brought a few record early dates (relative to John Bull's *Birds of New York State*) in March: Osprey in Region 9, Pectoral Sandpiper in Region 5, and Barn Swallow in Region 2; as well as a horde of early dates in late April. Several Regions specifically note large numbers of species arriving in those hot days, many of which would normally have appeared in the first few days of May. Twenty-five species whose 25-year average arrival dates were 26 April to 12 May arrived 1 to 6 days early. Seventeen statewide or inland record early dates were recorded, including: E. Wood-Pewee in Regions 2 & 7, Least Flycatcher in Region 2, Willow Flycatcher in Region 9, Veery in Region 3, Swainson's Thrush in Region 2, Philadelphia Vireo in Region 9, Red-eyed Vireo in Region 3, Golden-winged Warbler in Region 2, Tennessee Warbler in Region 2, Chestnut-sided Warbler in Region 7, Magnolia Warbler in Region 2, Yellow-throated Warbler in Region 10, Bay-breasted Warbler in Region 1, Blackpoll Warbler in Region 10, Mourning Warbler in Region 10, Scarlet Tanager in Region 2 and Lincoln's Sparrow in Region 2. The bulk of the relatively late arrivals in the arrival date tables fall in the first three weeks of April and those expected after May 13. In broader terms, water bird arrivals averaged slightly but statistically insignificantly later than their base line

Region	Species Reported	Seasonality (days)	Advance (days)
Region 1	92	-0.1	-2.0
Region 2	93	-0.7	-4.9
Region 3	92	-1.2	-1.3
Region 4	0		
Region 5	93	-1.4	-0.8
Region 6	81	-1.4	7.5
Region 7	79	-4.4	5.2
Region 8	79	-2.0	0.8
Region 9	87	-0.3	-1.9
Region 10	80	3.9	-1.0

average and land birds significantly 0.89 days early. By family, flycatchers, thrushes, vireos, and warblers predominantly arrived early, while the rest of the families were mixed. Significantly, the early appearing families are those whose members predominantly normally arrive near May 1, so given the weather, their early tendency this year is no surprise.

A personal surprise was damage to a "pet theory." I had hypothesized that southern overshoots arrive in best numbers when big fronts/warm bursts hit early, when these species are still on the move rather than settled on their breeding territories to our south. This year saw the best weather push in years at the "ideal" time and one of the poorest of recent years for these expected southern overshoots. Even the flurry of Kentucky Warbler reports came after May 15, when the push expected to bring them was long over.

The only outstanding late date was record late Bohemian Waxwing in Region 6. From the small summary table, seasonality overall was significantly early only in Regions 7 & 8 and late in Region 10, the rest falling within 2 standard deviations of the base line data. The relative arrival pattern among Regions looked normal, except that Region 10 averaged late relative to Regions 1 & 2.

The next obvious highlight was the best list of rarities in several

years, probably again related to the unusual, extreme seesaw weather pattern of this season. The best way to treat these is probably to revert to the standard checklist sequence. Multiple occurrences included: Eared Grebe in Regions 1 & 10; Cattle Egret in Regions 1, 2 & 6; Yellow-crowned Night-Heron in Regions 5 & 8; Greater White-fronted Goose, probably now to be considered a regular rare migrant, in Regions 1, 2, 5, 9 & 10; Ross' Goose in Regions 3 & 10; Eurasian Wigeon in Regions 1 & 10; Black Vulture in Regions 3 & 9; Mississippi Kite (all subadults) in Regions 2 & 5; Swainson's Hawk in Regions 2 & 5; Sandhill Crane, perhaps now regular, in Regions 1 (3), 2 (10+) & 3; Com. Black-headed Gull in Regions 1 & 10; Lesser Black-backed Gull in Regions 1, 2 & 3; Fish Crow nesting in Regions 3 & 8; Loggerhead Shrike in Regions 1, 2, 5, & 7; Orange-crowned Warbler in Regions 2, 7, 8 & 10; Yellow-throated Warbler in Regions 1, 3 & 10; Swainson's Warbler, a Regional first in Region 2, plus in Region 10; Kentucky Warbler in Regions 1, 2, 3, 5 & 9; Dickcissel in Regions 1 & 8; Yellow-headed Blackbird in Regions 1 & 9; and Brewer's Blackbird in Regions 1 & 2. Single records, with Region numbers following in parentheses, were: shearwater sp. (9), Sooty Shearwater (10), American White Pelican (2), Little Blue and Tricolored Herons (2), Glossy Ibis (7), Trumpeter Swan (3), Barrow's Goldeneye (3) Gyrfalcon (7), Black-necked Stilt (10), Franklin's and Little Gulls (8 - each a second Regional record), Sedge Wren only in Region 3, Townsend's Solitaire (9), Mountain Bluebird (9), Varied Thrush (1), Blue-winged and Hooded Warbler (6), Yellow-breasted Chat (7), Lark Sparrow (1), and Harris' Sparrow (3). An excellent collection!

There were some notable reports of more regular species as well. Record or near record high counts included: 14,000 Snow Goose in Region 3; 1000 Ring-necked Duck in Region 2; 24 Harlequin Duck in Region 10; 201 Osprey on two dates in Region 5; 1538 Red-tailed Hawk on 13 Mar in Region 2 followed by 1550 on 14 Mar in Region 5; and 5000 Pine Siskin past Braddock Bay in Region 2 on 23 Mar. For general birding, the Crown Point banding effort in Region 7 logged its second best total. For those seeking summaries, look for banding notes in Regions 2, 3, 7 & 8. Bob Yunick in Region 8 ringed over 4000 Pine Siskin from January to May. Additional records of note include N. Cardinal on the Tug Hill Plateau in Region 6 and a big spring for Bald Eagle, including 92 past Braddock Bay and one banded there. Hawk aficionados might want to compare peak dates between Braddock Bay and Derby Hill, but they will find no table for the former hawkwatch.

From local information, I can relate that Osprey, Red-shouldered Hawk, Broad-winged Hawk, Red-tailed Hawk, and Rough-legged Hawk all showed peaks at about the same time at both sites. Among the hawks, the lack of N. Goshawk is conspicuous. Abundance notes and endangered and threatened species is summarized in Region 6, plans to survey the Shawangunk Mts. for Peregrine Falcon nest site activity noted in Region 9, and interesting Staten Island data presented in Region 10.

This season's events again caution investigators to avoid over analyzing the arrival dates table because of its strong dependency on weather patterns. Some species whose populations seem to be in the worst shape, e.g., Loggerhead Shrike and Golden-winged Warbler, continue to appear at normal to early arrival dates. However, the four species whose arrival was significantly late this season, Green-backed Heron, Chimney Swift, Cliff Swallow, and Vesper Sparrow, have all been flagged as being of special concern by at least some observers. Fourteen species averaged significantly early arrival. Having finally obtained the raw data used to compute arrival/departure date range statistics for Monroe County in Region 2, the source of my variance values for assessing the date table data here, I could check some of my reservations about such data. First, as indicated several times, I suspected that several regions and Region 2 in particular reported only "noteworthy" dates. [Editor's note: this once was a *Kingbird* editorial policy.] The published data average 11 and 5 days early for water bird and land bird arrivals, respectively, relative to the more complete regional data (typically 40-70 arrival dates from the late 1800's to 1983). Comparison of early data (that through 1970) with 1971 to 1983 data showed less than 1 day differences in these averages, so there are no long-term trends in the data. The variances calculated from the full data set, the 1971-1983 data, and from the interquartile range were all essentially the same, lending some credibility to the use of these numbers as estimates of the year-to-year variability of arrivals.

As a final note, the BOTS Award for the season must be bestowed on the state's first **Cave Swallow** in Region 10, topping an excellent group with several other good candidates this season had they picked another year to appear.

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Standard abbreviations: county names are shortened to their first four letters and are in UPPER case; months are shortened to their first three letters; ! — details seen by Regional editor; ad — adult; Alt — Alternate plumage; arr — arrival or first of season; BBS — Breeding Bird Survey; CO — confirmed; FL — fledgling; FY — adult feeding young; I — Island; imm — immature; *intro* — see introduction to report; j — juvenile; L — Lake; max — maximum; mob — multiple observers; NWR — National Wildlife Refuge; NYSARC — report to New York State Avian Records Committee; P — Park; Pd — Pond; ph — photographed; Pt — Point; Res — Reservoir; SP — State Park; spm — specimen; subad — subadult; T — Town of; Twn — township; WMA — Wildlife Management Area; y — young.