

New York State Breeding Bird Atlas



Handbook for Workers

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A Project of the
NEW YORK STATE
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and

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

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Objective

The primary objective of this project is to determine the current (2000 to 2004) breeding range of each bird species that breeds in New York State, and to compare the current range with the range determined in our first Atlas project (1980-1985).

This will be accomplished by volunteers who will find and document evidence of breeding of the bird species within the areas assigned to them.

The First Atlas

Volunteer field workers participating in Atlas 2000 are encouraged to refer to “The Atlas of Breeding Birds in New York State,” the publication that resulted from our first Atlas project (see Suggested References p. 13). The introduction in that book provides a thorough overview of the procedures used in New York’s first Atlas, including the breeding codes and the method of gathering data. These will be essentially the same for Atlas 2000. The results of the first Atlas, in the form of maps showing the breeding range in New York State for each species, should provide inspiration and a benchmark for Atlas 2000 field workers.

Project Administration

Each of the ten Atlas reporting regions has one or two Regional Coordinators whose basic responsibilities are to recruit and instruct field workers, assign blocks, distribute maps, monitor their Region’s coverage, and receive and check Annual Summary Forms and forward them to the Project Coordinator.

The Project Coordinator is responsible for coordinating the day-to-day activities of the Atlas, providing materials and assistance to the Regional Coordinators, gathering, editing, and analyzing the data, updating the Atlas website, producing reports from the database, and other aspects of Atlas coordination. The Project Coordinator works at the NYSDEC Wildlife Resources Center in Delmar, NY.

The Atlas Steering Committee consists of representatives of six organizations. Members and their affiliations are listed at the front of this manual. This Committee provides guidance for the Atlas project, produces materials, and manages budget and policy matters.

The Maps

Maps of Atlas blocks are available on the NYSDEC website (address on page ii), and can be printed in color or in black and white. If you do not have internet access at home, you might go to a nearby library that has internet access. You may also contact your Regional Coordinator or the Project Coordinator for maps of your blocks.

The mapping for the Atlas is based on a grid system that divides the state into 10 km x 10 km map squares, each of which is identified by a four-digit number. Each map square is in turn divided into four 5 km x 5 km (9.65 sq mi) Atlas blocks, which are designated by the letters A, B, C, and D (Figure 1). The Atlas block is the basic unit for conducting surveys for the Atlas.

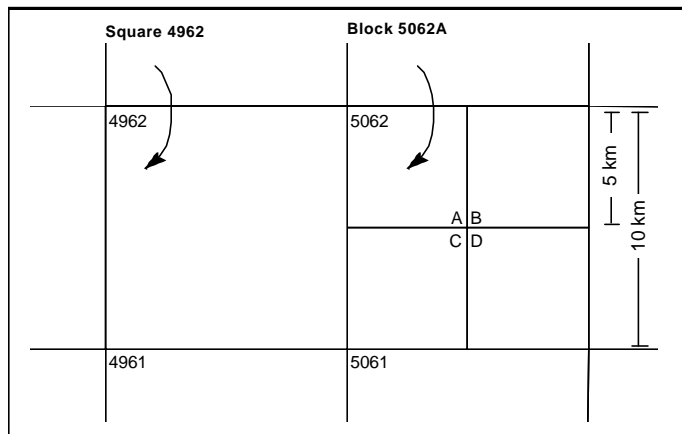


Figure 1: Atlas blocks.

Observers and Block Assignments

Volunteers are assigned to blocks through their Regional Coordinator(s). You will be asked to complete a Volunteer Registration Form that will allow you to submit your data and to receive Atlas newsletters. This is also the source we will use to acknowledge volunteers in the final publication. Please inform us of address and/or name changes by completing another Volunteer Registration Form. If someone is assisting you with your block, they should complete a Volunteer Registration Form as well.

While each block is generally assigned to a principal observer, volunteers are also welcomed to make observations in a block that has already been assigned. This situation may occur when a volunteer wishes to go birding while on vacation, for example. While we encourage you to visit blocks that have not been assigned, this is not always possible. Observations made in a block not assigned to you should be submitted on a Single Visit Observation Form to the Regional Coordinator responsible for that region.

Surveying the Blocks

You should set a goal of recording at least 76 species in each survey block, and confirming breeding for about half of those species (see The Breeding Codes on page 9). You need to confirm a species only once in each block; one American Robin nest in one season confirms that species for that block for the duration of the project (2000-04).

Familiarize yourself with the blocks to which you have been assigned, making note of the boundaries, roads, geographic features, and habitat types (e.g. wetland, lake, woodland, field, etc...). This can be done in winter by studying detailed maps and visiting sites. Once the breeding season begins, your atlasing efforts will be most effective if you survey areas that represent each distinctive habitat within a block, rather than trying to cover every square foot. *Always keep disturbance to an absolute minimum.* In most cases breeding can be confirmed without approaching the nest.

Property Access

Much of your atlasing should be done on unrestricted public lands or from road sides. However, private landowners and park managers may be interested in cooperating in the project. Please remember that *it is very important to obtain permission before entering private or restricted property*. Identify yourself to the landowner and explain the nature of the project. Your Regional Coordinator will provide you with a supply of Atlas brochures that you can give to landowners, as well as a letter that you can send to landowners to ask for permission to survey on their lands. Assure landowners and land managers that you will not damage crops or fences, will not disturb livestock, and will close all gates behind you. It would be courteous and create goodwill to say thanks and report on your findings before you leave.

Timing of Surveys

June and July are the months when most birds in New York breed, although a small number of species breed anytime from January through August. Early July can be especially productive since many adults with food for young (FY) and recently fledged young (FL) can be seen at that time.

Remember that birds begin to disperse soon after fledging. *Fledged young seen late in the breeding season may be outside their breeding block and should not be recorded. Also be aware that sightings early in the breeding season could be migrants.* A table containing egg dates, incubation periods, nestling and fledging dates is in the back of this Handbook as well as on the NYSDEC Atlas website and in the back of the original published Atlas. When in any doubt about the breeding season for any species, please refer to this table.

It almost goes without saying that early morning (5:00-8:00 am) reveals the most birds. Don't forget evening visits to your block, though, for Common Snipe, American Woodcock, Common Nighthawk, Whip-poor-will, owls and other nocturnal birds.

Breeding Categories

Field workers will document breeding birds using the Breeding Codes in each of three categories of breeding status: Possible (PO), Probable (PR), and Confirmed (CO) (see The Breeding Codes on page 9). Within each of these categories are codes that allow field workers to specify the behavior that was observed. This system greatly simplifies the recording of evidence and is essential to the computerized recording and analysis of the project data. The codes are the same as those used in the first Atlas so that direct comparisons may be made. Before you begin your surveys, you should become familiar with the three categories of breeding status and the descriptive codes within each category. The gathering of accurate data is dependent on using the correct code.

While looking for still unrecorded species from day to day, week to week, or year to year, you may find a more advanced form of breeding evidence for a previously recorded species. Noting this in your field notes will enable you to upgrade that species on the data form. *You should upgrade a species whenever possible and aim to ultimately confirm breeding for as many species as possible.*

There are two ways in which upgrading can occur. The most significant upgrade occurs when a species is moved from a lower breeding category to a higher one. A *Possible* breeding can be upgraded to a *Probable* breeding or a *Probable* breeding can be upgraded to a *Confirmed* breeding.

You can also upgrade a species' Breeding Code within a breeding category. For example, within the Probable breeding category, T (pair holding a territory) is stronger than S (singing male), and D (courtship or display) is stronger than T. Likewise, FS (adult carrying fecal sac) is stronger than ON (adults entering or leaving nest site), and FY (adults with food for young) is stronger than FS in the Confirmed breeding category.

The Breeding Codes in the Probable and Confirmed breeding categories increase in certainty of evidence as they descend the page as they are listed in this Handbook and on the Field Card.

A summary of the data for each block will be available on the NYSDEC Atlas website (address on page ii) after the data from each field season have been processed. These lists will be updated as the Atlas progresses. You may print these lists directly from the website or request a copy from the Project Coordinator. Use the printout to determine which species need upgrading in your block.

Adequate Coverage

When should you be content with your work in a particular block and move on to a new block? Because your time is valuable and should be spent in a way that maximizes your contribution to the Atlas project, it is helpful to know when a block has received adequate coverage.

Since no two blocks are alike, it is difficult to recommend a single target number of species for all blocks. We can, however, get some guidance from the results of our first Atlas. The average number of species per block statewide during the first Atlas was 68; two of the ten regions averaged 76 species per block. About 40% of the records statewide were confirmed breedings.

The unique characteristics of your block(s) will determine the number of species you can expect to find and confirm. If your block contains few habitat types or has limited access, you will probably find and confirm fewer species than if it contained varied habitats and was highly accessible.

Lists of species found in each block during the first Atlas are available on the NYSDEC Atlas website or from the Project Coordinator. You can use these lists to determine how many species you can expect to find in a block and to set goals for yourself.

The Field Card

A Field Card should be used to record visits to each block. The card will be your record for a single block throughout a single breeding season. Data from the Field Card will be transferred to the Annual Summary Form for submission to your Regional Coordinator in the fall. You will keep your original Field Card.

Note that on the Field Card some species have an asterisk beside the name. The asterisk indicates that a Notable Species Form should be completed when those species are seen. Please read the section on Reporting Rare Species (page 8) for instructions on how to deal with these observations. If you observe a species that is not on the Field Card, write the species name in the space provided. A Notable Species Form will be required for these observations as well; please contact your Regional Coordinator.

As you observe birds in the field, record the appropriate Breeding Code in the appropriate column (PO, PR, or CO). *Use pencil* so you can easily upgrade codes as you re-visit the block. Use the "Date" column to record the date when you saw the evidence of breeding; erase and change that date (and the Breeding Code) if you later find stronger evidence. Be careful not to record species outside of their expected breeding dates. Refer to the Breeding Season Dates in Appendix III (page 25) to be sure that the species you saw is not in migration. There is also space on the Field Card to keep track of the hours spent surveying and the number of observers present. This will allow us to calculate the total hours spent surveying each block.

Even if some of your observations are made casually while participating in other activities in your block, please make an effort to estimate the number of hours you spend atlasing. This documentation of effort will be useful in calculating statistical data on the survey, and more importantly, it will provide a record to establish the amount of time contributed by volunteers in conducting a nongame species program that may later be supported by matching federal funds.

When you return to a block to upgrade species from previous years, you may want to note on your Field Card the highest Breeding Code already recorded for each species. If duplicate data are recorded in a block in the second or subsequent years, the computer will store the data, but updated printouts will only show the highest category, regardless of duplication.

The Annual Summary Form

At the end of the breeding season, you will transfer the information from your Field Card to an Annual Summary Form for each block that you survey. Your Annual Summary Form should only include observations for the year in which you made them. Do not record data from different years on the same form. Specific instructions will be provided with this new scannable form.

Send your completed Annual Summary Form(s) to your Regional Coordinator when a block survey is completed, or by a specified date in the fall. If two field workers conduct surveys in the same block, each can submit an Annual Summary Form.

Reporting Rare Species

A number of species names on the Field Card are followed by an asterisk. A Notable Species Form (available from your Regional Coordinator or on the website) and a map of the location should be submitted for observations of each of these species. Additional information is requested for these species because they are rare in the state or are of management concern to the NYS Department of Environmental Conservation.

Your Regional Coordinator may add species to this list that are regionally rare or are of regional concern. Any species observed that is not on the Field Card will also require a Notable Species Form. Contact your Regional Coordinator if you encounter an asterisked species or any species whose breeding in New York State, or in the area of the state where you find it, is either previously unsuspected, hypothetical, poorly documented or was not recorded in the first Atlas.

Do not hesitate to ask for help in confirming and documenting observations of rare species. Your Regional Coordinator will be glad to talk with you about any problems or questions you may have.

The Breeding Codes

There are three breeding categories: Possible (PO), Probable (PR), and Confirmed (CO). Within each of these categories are descriptive behavior codes. These codes are listed here and on the Field Card in order of increasing certainty.

POSSIBLE BREEDING - Enter behavior code “X” in the “PO” column of the Field Card.

- X** Species observed in breeding season in possible nesting habitat, but no other indication of breeding noted. Singing male(s) present (or breeding calls heard) in breeding season.

PROBABLE BREEDING - Enter appropriate behavior code in the “PR” column of the Field Card.

- S** Singing male present (or breeding calls heard) on more than one date in the same place. This is a good indication that a bird has taken up residence if the dates are a week or more apart.
- P** Pair observed in suitable habitat in breeding season. Pair refers to a male and a female together, not just any two members of the same species. To use this code you must be able to determine that one bird is male and the other is female, because of differences in plumage or size, or pairing must be clearly indicated by the birds’ behavior. Two birds of the same species does not make a pair unless there are discernable indications of pairing between them.

- T** Bird (or pair) apparently holding territory. In addition to territorial singing, chasing of other individuals of same species often marks a territory.
- D** Courtship and display, agitated behavior or anxiety calls from adults suggesting probable presence nearby of a nest or young; well-developed brood-patch or cloacal protuberance on trapped adult. Includes copulation.
- N** Visiting probable nest site. Nest building by wrens and woodpeckers. Wrens may build many nests. Woodpeckers although they usually drill only one nest cavity, also drill holes just for roosting.
- B** Nest building or excavation of a nest hole.

CONFIRMED BREEDING - Enter appropriate behavior code in “CO” column of the Field Card.

- DD** Distraction display or injury-feigning. Agitated behavior and/or anxiety calls are Probable-D.
- UN** Used nest found. Caution: These must be carefully identified if they are to be counted as evidence. Some nests (e.g. Baltimore Oriole) are persistent and very characteristic. Most are difficult to identify correctly.
- FE** Female with egg in the oviduct (by bird bander).
- FL** Recently fledged young (including downy young of precocious species - waterfowl, shorebirds). This code should be used with caution for species such as black birds and swallows, which may move some distance soon after fledging. Recently fledged passerines are still dependent on their parents and are fed by them.

- ON** Adult(s) entering or leaving nest site in circumstances indicating occupied nest. NOT generally used for open nesting birds. It should be used for hole nesters only when a bird enters a hole and remains inside, makes a change-over at a hole, or leaves a hole after having been inside for some time. If you simply see a bird fly into or out of a bush or tree, and do not find a nest, the correct code would be Probable-N.
- FS** Adult carrying fecal sac.
- FY** Adult(s) with food for young. Some birds (gulls, terns, and raptors) continue to feed their young long after they are fledged, and even after they have moved considerable distances. Also, some birds (e.g. terns) may carry food over long distances to their young in a neighboring block. Be especially careful on the edge of a block. Care should be taken to avoid confusion with courtship feeding (Probable-D).
- NE** Identifiable nest and eggs, bird setting on nest or egg, identifiable eggshells found beneath nest, or identifiable dead nestling(s). If you find a cowbird egg in a nest, it is NE for Cowbird, and NE for the identified nest's owner.
- NY** Nest with young. If you find a young cowbird with other young, it is NY for cowbird and NY for identified nest owner.

Examples of Breeding Evidence

Below are some examples to serve as guidelines for using the codes described in the previous section. The fact that a species has not been known to breed in your county or region before is not a valid reason for omitting a Possible-X or Probable-S. Summering, non-breeding birds should be included, provided there is suitable breeding habitat.

1. Common Loon in basic (winter/subadult) plumage spending the whole summer on a lake or other waters: omit.
2. Common Loon or ducks in alternate (breeding/adult) plumage spending the whole summer on a lake or other waters, but no display or broods: Possible-X.
3. Double-crested Cormorant spending whole summer on a lake with wooded islands or other suitable breeding habitat: Possible-X.
4. Great Blue Heron or similar species seen in a wooded block, but where no heronry is known, even if there is a known heronry in a nearby block: Possible-X.
5. Grouse heard drumming: Possible-X (Probable-S if heard on more than one date in the same place; Probable-D only if actual courtship and display seen).
6. Rails heard in a marsh on a visit in early breeding season, but not on subsequent visits: Possible-X (because they are elusive species).
7. American Woodcock “peenting”/nuptial flights, or Common Snipe “winnowing”/flights, for three weeks, but then no further signs: Probable-S (Possible-X if seen or heard only once; Probable-D if actual courtship and display before female seen).

8. Gulls frequenting dumps, plowed fields, drive-ins, park lakes, etc. throughout the summer in unsuitable breeding habitat: omit.
9. Woodpeckers drumming: Possible-X if heard in breeding season; Probable-S if heard a week or more apart in same place. (Note: Pileated and Sapsucker can be safely identified by sound alone; other species should be seen.)
10. Single Clay-colored Sparrow seen, heard singing or building or occupying a nest (but no second bird ever seen): Probable-B.

Income Tax Deduction

Expenses that you incur (gasoline, motels, etc.) while surveying may be claimed on your income tax as a contribution to a non-profit organization. Carefully keep supporting records and consult your tax advisor for more information.

Suggested References

- Andrle, R.F and J.R. Carroll, eds. 1988. The Atlas of Breeding Birds in New York State. Cornell University Press.
- Harrison, H.H. 1975. A Field Guide to Birds' Nests. (A Peterson Field Guide.) Houghton Mifflin.
- Baich, P.J. and C.J.O. Harrison. 1997. A Guide to the Nests, Eggs and Nestlings of North American Birds, 2nd Ed. Academic Press.

Appendix I: Regional Coordinators

The following is a list of the Regional Coordinators, their contact information and the areas they are responsible for by county. Please note that the regional boundaries do not run precisely along county lines. Refer to a map of Reporting Regions on the inside of the back cover.

NIAGARA FRONTIER REGION 1: Niagara, Erie, Chautauqua, Cattaraugus, Allegany, Orleans (western half), Genesee (western half), Wyoming (western half).

Richard C. Rosche, 110 Maple Road, East Aurora, NY 14052-1720. (716) 652-8409, drosche@juno.com.

GENESEE REGION 2: Orleans (eastern half), Genesee (eastern half), Wyoming (eastern half), Monroe, Wayne, Livingston, Ontario (western half).

Robert Spahn, 716 High Tower Way, Webster, NY 14580-2514. (585) 671-5690, rspahn@prodigy.net.

Dominic Sherony, 51 Lambeth Loop, Fairport, NY 14450-1720. (585) 223-7353, dsherony@frontiernet.net.

FINGER LAKES REGION 3: Ontario (eastern half), Seneca, Cayuga (southern half), Yates, Schuyler, Tompkins, Steuben, Chemung.

Bard Prentiss, P.O. Box 283, Dryden, NY 13053. (607) 844-4691, prentiss@.cortland.edu.

Dave Russell, P.O. Box 35, Elmira, NY 14902. (607) 739-1314, birdny@verizon.net.

SUSQUEHANNA REGION 4: Cortland, Chenango, Otsego, Tioga, Broome, Delaware.

Tom Salo, 5145 State Hwy 51, West Burlington, NY 13482. (607) 965-8232, tomsalo@ascent.net.

Bob Donnelly, 6606 State Hwy 80, Cooperstown, NY 13326. (607) 547-8654, rsdonn@yahoo.com.

ONEIDA BASIN REGION 5: Oswego, Oneida, Herkimer, Cayuga (northern half), Onondaga, Madison.

Dorothy W. Crumb, 3983 Gates Road, Jamesville, NY 13078.
(315) 682-5420, dwcrumb@a-znet.com.

Bill Purcell, 281 Baum Road, Hastings, NY 13076.
(315) 668-2871, wpurcell@twcnny.rr.com.

ST. LAWRENCE REGION 6: St. Lawrence, Jefferson, Lewis.

Bob Long, 989 James Street, Apt 9H, Syracuse, NY 13203.
(315) 475-0681, rlongmd@a-znet.net.

ADIRONDACK - CHAMPLAIN REGION 7: Franklin, Clinton, Essex, Hamilton.

John M.C. Peterson, 477 County Route 8
Elizabethtown, NY 12932-9721.
(518) 873-2052, jmcp7@juno.com.

HUDSON - MOHAWK REGION 8: Warren, Washington, Fulton, Saratoga, Montgomery, Schenectady, Schoharie, Albany, Rensselaer, Greene, Columbia.

Jane Graves, 133 York Ave., Saratoga Springs, NY 12866-2533.
(518) 587-8992, jgraves@skidmore.edu.

Mark Fitzsimmons, 56 Somerset Drive, Glenmont, NY 12077.
(518) 439-8403, markfitz@earthlink.net.

HUDSON - DELAWARE REGION 9: Sullivan, Ulster, Dutchess, Orange, Putnam, Rockland, Westchester.

Michael Bochnik, 86 Empire Street, Yonkers, NY 10704.
(914) 237-9331, bochnikm@cs.com.

MARINE REGION 10: Bronx, Queens, Kings, New York, Richmond, Nassau, Suffolk.

Ken Feustel, 41 Belton Road, Babylon, NY 11702.
(631) 669-0951, feustel@mindspring.com.

Appendix II: Hints on Haunts **by Janet Carroll and John M.C. Peterson**

For most bird species there are characteristics of habitat and behavior that are specific to that species. These characteristics provide clues as to where to find the species and what to look for in seeking breeding evidence. Such hints can be of much help in Atlas surveying.

At the 1982 annual meeting of the Federation of New York State Bird Clubs, a workshop on these “clues” or “hints” was held. Jay Lehman (then Region 4 Coordinator) and Mike Peterson (Region 7 Coordinator) presented what they have learned about these clues for a number of species. This information seemed to be something that would be useful for all Atlas workers. Jay and Mike were invited to expand upon and write up their thoughts. The results are given below with additional comments from Gil Raynor.

This compilation is by no means complete. All Atlas workers are invited to contribute observations on additional species or expand on what has been written. Send your observations to the Project Coordinator to be incorporated into the list.

Least Bittern: Probably in most large cattail marshes, but one nest location was a vest-pocket wetland on a dry, bushy upland hillside, above a large lake and marsh. Play a tape of the “coo-coo-coo” call from mid-May onward and listen for a response. Any spot where rail tapes are going to be played would probably be worth checking with a Least Bittern tape as well. On Long Island, Least Bitterns occur in marshes with taller sedges, mixed woody and herbaceous emergent vegetation, and *Phragmites*, in brackish as well as in fresh water.

Red-shouldered Hawk: Check hardwood forests or mixed woods with tendency to deciduous upslope from pond inlets or outlets. Look for large stick nests in the main crotch of mature trees. Mark nest trees with surveyors tape and return in May to see if the nest has been repaired and decorated with evergreen, often balsam, sprigs. The small Long Island population prefers the richer deciduous woods, often near water.

Broad-winged Hawk: Watch tops of power poles along roads bordered by leafy hardwood forest. When driving dirt roads through a tunnel of leafy trees, one may flush from its hunting perch and will fly ahead of a car, often several times before it disappears into the forest. Usually quiet and secretive, in deciduous or mixed woods. Sometimes soars or flies above the forest but mostly below the tree tops.

Virginia Rail: Try playing rail tapes at any wetland area, even tiny spots less than an acre in size, bordering highways. Virginia Rails may prefer cattails with

nearby shrubs such as willow, dogwood, and alder; also sedge meadows, marshes with mixed woody and herbaceous growth and brackish marshes on Long Island.

Sora: Soras may prefer cattails with tussocks of grass and patches of open water nearby. Check all wetlands, no matter how small and unpromising.

Spotted Sandpiper: Any shoreline along lakes or streams. Scan with binoculars or walk along the edge to locate birds frozen in place that may otherwise be difficult to spot.

Upland Sandpiper: While driving, watch tops of power poles, fence posts near hayfields, wide open grasslands, old and active pastures, natural short grass prairies, airports and golf courses. Often easier to spot on poles than when standing on the ground.

Common Snipe: Wet pasture areas marked by some standing water and emergent tussocks of grass are good places to stop and listen for a winnowing snipe, especially on cloudy days. Remember when you spun a rope over your head as a kid, faster and slower, to make the sound rise and fall? There was an eerie, resonant whistling. That's what a winnowing snipe sounds like as it circles far overhead, seeming to come from now here, now there.

American Woodcock: Check abandoned fields, especially those that are low or seasonally wet and bordered by aspens and early second-growth, on an evening in early spring. Just at dusk listen for the nasal "beezp" note followed by the eerie flight song from overhead.

Yellow-billed/Black-billed Cuckoo: Songs are more important than habitat, which is often a combination of second-growth hardwood forest, open areas, overgrown fields and dense brush tangles. Yellow-billeds tend to give the fading "kowlp-kowlp...kowlp...kowlp...kowlp" call just once, while Black-billeds shoot off several series of their "cu-cu-cu-cu" call with spaces or pauses in between. On Long Island, both are found in nearly all wooded habitats, including the Pitch-Pine Scrub Oak barrens where the Black-billed is more common. The Yellow-billed prefers damper habitats but wide overlap occurs.

Barred Owl: Dense forested areas, often near low, wet woods. Look for white cedars; Barred Owls frequent nearby woods.

Northern Saw-whet Owl: Low, wet woods with cedars. Learn the easily imitated whistled call. May be found in second-growth around abandoned fields or open areas.

Whip-poor-will: Often heard calling just after dusk from fairly open hardwood

slopes, perhaps bordered by open areas. Also from steep rooftops. When driving dirt roads after dark, watch for the gleaming ruby eye reflecting in the headlights from the dusty road surface ahead. On Long Island, most common in oak-pine woods and Pitch Pine/Scrub Oak barrens.

Ruby-throated Hummingbird: Watch for a minuscule bump on power lines along forested roads. In woods check active Yellow-bellied Sapsucker food stations - evenly stitched holes near the tops of trees such as birches, oozing sap. Through binoculars a hummingbird may be seen among the clouds of yellowjackets. In open clearings or flooded areas, always focus on the tops of dead snags; that tiny bump is probably a hummingbird. Finally, watch the tops of those bigger stands of lilacs around Memorial Day for a hummingbird going straight up and down like a yo-yo (this is a flight display: PR-D), or swinging from side to side in a wide arc.

Red-headed Woodpecker: Open hardwoods bordered by open fields. Watch fence posts, telephone poles, corn cribs, or manure piles nearby.

Yellow-bellied Sapsucker: Drums in bursts like a jackhammer, slows toward the end in a kind of hesitant stutter, with longer pauses before the final rap.

Pileated Woodpecker: Drumming sounds something like a wooden ruler being twanged on the edge of a desk, running down at the end.

Olive-sided Flycatcher: Dead snags, almost always in wet areas or around wilderness ponds.

Alder Flycatcher: Black alder thickets. Most singing comes to a halt in July.

Yellow-throated Vireo: Seems to be found not far from water in hardwoods mature enough that the trees are well-spaced and understory is vigorous. In taller woods, but usually near edges, fields, roads or water.

Philadelphia Vireo: Look in second-growth hardwoods with sugar maple-paper birch-aspen dominant as a result of forest fires or heavy logging about 75 years before with the trees forming a dense canopy. May also be found foraging on the edges of such forests. Identification by song rarely helps due to the considerable variation in other vireo songs, particularly Red-eyed. Apparently absent at lower elevations. Most of them are located by carefully sorting through all movement in the leaves and determining what bird is "kicking" around - just persistent, methodical birding.

Warbling Vireo: Loves large shade trees like elms, especially in villages. One birder dubbed the Warbling Vireo the "squeeze-me" bird, after its song: "You see me and seize me, and squeeze me til I squeak!" The very end of the song is

an upward warble and actually sounds as if someone is squeezing the notes out of the bird. This is one of the most nondescript of North American birds and is often high up in the leafy foliage. Learning the song is almost essential to finding it. Sounds much like Purple Finch, without the rising notes at the end.

White-eyed Vireo: Thick brush, bushes, tangles bordering second-growth woods, perhaps not far from water, or with nearby openings.

Gray Jay: The “gray ghost” bird. Habitat is boreal, mature, dense spruce-hemlock. When walking sandy wood roads, railroad beds, along bog edges or other avenues and openings, keep looking back. Talking while walking, or even stopping to give some whistles and claps may help, as these birds are inquisitive and like to see “what’s going on,” but keep an eye to the rear. Without warning, the bird may glide silently across the opening behind. Don’t mistake it for a small accipiter!

Horned Lark: Check all plowed fields with a scope or binoculars and keep scanning. A Horned Lark may walk up out of a furrow onto a dirt clod before dropping back into the next furrow out of sight as it feeds, looking almost like a mouse against the earth. On Long Island, also found in dunes on barrier beaches, airports and golf courses.

Northern Rough-winged Swallow: Stone bridges over small streams seem to be favored by this swallow. The present bridge may be paved and have concrete sides but you should check to see if the old foundation beneath is laid stone with some crevices. If so, a Rough-winged may be perched or flying nearby. On Long Island, may nest in any small bank, such as a road cut or sand pit, not always near water. A pair is often found at the edge of a Bank Swallow colony.

Cliff Swallow: Look among the Barn Swallows for the ochre rump and squared-off tail that marks the Cliff Swallow. Check under barn eaves, or watch for the birds disappearing under the eaves of houses or buildings.

Boreal Chickadee: Dense spruce-balsam stands. Listen for the nasal “zick-zee-day-day” or “feed the baby” call and then use spishing in a chickadee-like pattern to help locate the bird. A whistled Eastern Screech-Owl imitation also works to bring them in, especially if alternated with a rapid spishing pattern. Watch for food carrying.

Red-breasted Nuthatch: Conifer forest, stands of large spruces, Red Pine, and Hemlock. Originally more common at higher elevations (3,000 feet and above), but now extending to lower elevations (1,000-1,200 feet) in conifer plantations. Same habitat as Golden-crowned Kinglet. On Long Island, in stands of planted conifers and in Pitch Pines.

Winter Wren: Montane, evergreen forests with spruce and balsam, but also lower elevation bogs and swamps. Deciduous mountainsides with heavy undergrowth. Often found around logged-over areas and slashings. Nests in upturned roots.

Carolina Wren: Brushy woods, thickets, undergrowth and dense tangles near water or ravines, old dumps or refuse areas around villages. Listen for its loud “tea-kettle...tea-kettle...tea-kettle” song. Originally more common on Long Island and lower Hudson Valley, expanding range north.

Marsh Wren: Cattail marshes, inland and upstate. Coastal brackish salt hay marshes. Less numerous northward and at higher elevations. Also in *Phragmites* and taller sedges.

Sedge Wren: Avoids cattail marshes. Moist meadows (without standing water) with scattered low bushes, grass and sedge bogs. Coastal brackish salt marshes. Frequently found in same habitat as Henslow’s Sparrow but in the moist portions.

Golden-crowned Kinglet: Any conifers, but especially likes hemlock or dense spruce stands, 40-50 feet tall. More common at higher elevations but also found at 1,000 feet. Calls and song can be confused with Brown Creeper; it’s best to locate the bird.

Ruby-crowned Kinglet: Mature spruce, sometimes where spaced. Learn the energetic, loud song which ends in rapid, rising triplets - “ti-daleet, ti-daleet, ti-daleet.”

Blue-gray Gnatcatcher: Frequents dense, brushy areas near water. Complaining nasal calls often give them away. Tiny but active and relatively approachable. On Long Island in oak-pine woods, deciduous woods and swampy woods but often near water, prefers fairly tall trees.

Thrushes - Elevational Stratification: There is much overlap in these zones and habitat plays a part. In late June, there are often two or three thrush species within earshot. The first three, Wood, Veery and Hermit, can often be found in the same hardwoods. In conifers one may find Hermit, Swainson’s and Bicknell’s. Thus Hermit may be hardwoods, conifers or where the two meet. Thrush songs are easier to learn than warbler songs; field marks are simple compared to gulls and shorebirds.

Wood Thrush: Lowest in elevation, in lowland and deciduous woodlands, open but with plenty of undergrowth.

Veery: These are uphill from the Wood Thrush, in moist damp woodlands with lush understory of ferns and other low plants.

Hermit Thrush: Higher than the Veery and Wood Thrush in upstate where it lives on cool, moist woodland slopes, and cooler deciduous woods. On Long Island it is found in pine barrens.

Swainson's Thrush: Generally at higher elevation than Hermit - at 1,800 to 2,000 feet, or above in spruce, hemlock, or beech-maple-hemlock on lower slopes.

Bicknell's Thrush: Near the summits of highest peaks, 3,000 feet to the tree-line (5000 feet).

Blue-winged Warbler: Neglected pasture, woodland borders, or openings with low bushes, briar patches, bushy thicket borders and open brushy hillsides. Formerly more southern but moving northward.

Golden-winged Warbler: Similar habitat to Blue-winged but tends to be more northern and at higher elevation. Singing stops early in season, after mid-June, when feeding young (more so than Blue-winged and other warblers).

Tennessee Warbler: Seems to favor brushy northern zone habitat (leatherleaf, sheep laurel) with scattered trees (spruce, tamarack, aspen). Secretive unless singing.

Nashville Warbler: Edges of woodland forest, or open edges of wooded bogs, young tree growth in cut-over or burned over areas, forest openings. Found mostly at 1,100 feet or above, possibly at lower elevation in northern parts of the state.

Northern Parula: Locate by sound in dense conifers, humid woods near ponds, lakes and streams where old man's beard moss (*Usnea*) abounds.

Magnolia Warbler: Conifers, especially spruce but also hemlock and mixed deciduous-conifer. More common at higher elevations but now found as low as 1,100-1,200 feet in suitable habitat.

Chestnut-sided Warbler: Dry, brushy areas, similar to habitat of Common Yellowthroat, but sometimes drier. Both species may often be found in close proximity, sharing the same habitat.

Black-throated Blue Warbler: Shaded deciduous or mixed woodland where there is heavy growth of ferns, laurel, deciduous bushes or saplings two to three feet high. Found at 1,200-2,500 feet, less common in low-lying

agricultural regions.

Yellow-rumped Warbler: Large conifer stands, especially spruce and fir such as in state reforestation plots. Originally confined to higher mountains. Now found at 1,500-1,600 feet or above, except in the more northern regions. Also found in Long Island pine barrens.

Black-throated Green Warbler: Mainly conifers or mixed deciduous-conifer, especially spruce and hemlock. Upstate mostly at 1,500-1,600 feet or above, except in the more northern regions. Also found in Long Island pine barrens.

Blackburnian Warbler: Higher elevations (1,500-1,600 feet in southern portions). Mixed deciduous, but especially conifer (spruce, fir, hemlock and pine).

Pine Warbler: Breeds exclusively in pines, preferring tall, dense stands. Downstate in Long Island pine barrens. Upstate in large, mature White and Red Pines.

Prairie Warbler: Brushy pastures, old clearings, hillsides, especially with small (15-20 feet) White or Red Pines. Moves on when pines get too tall or dense. Formerly mostly southern but expanding northward into upstate. On Long Island, mostly in low Scrub Oak/Pitch Pine barrens, but also other brushy habitats, such as abandoned fields growing up in young pines and bushes.

Cerulean Warbler: Deciduous forest, especially lowland river bottoms with high trees. A bird of the high tree tops.

Worm-eating Warbler: Wooded hillsides, ravines with heavy undergrowth, especially south-facing (upstate) and often near rivers and streams.

Northern Waterthrush: Swampy wet woods, bogs, along shorelines of lakes or ponds with brushy edges, especially in shallow or standing pools with partly submerged logs or fallen trees, where a waterthrush may teeter along slowly feeding.

Louisiana Waterthrush: Found along small, fast flowing brooks and rivers with steep banks. In deep cuts or ravines, especially with trickles of water running down the sides to the stream. Loud, ringing song that carries well. Plumage of the two waterthrushes is similar, but Louisiana likes rushing water while the Northern prefers still ponds. Both waterthrushes constantly wag their tail.

Mourning Warbler: Look in open woods with blackberry or raspberry thickets where there's been logging, thinning or slashings. Check open clearings, abandoned sugar houses, cutbanks along dirt roads, where waist-high

undergrowth and berry tangles are dense and young maples are not much thicker than a thumb. Electrical or gas rights-of-way are often good spots. Birds are skulkers, sing deep in tangles, refusing to pop up. Patience will usually bring you an FY. Listen for the “chirry, chirry, chorry, chew” song.

Wilson’s Warbler: Only one confirmed NY nesting, in North Meadow, Essex County. Ground cover was patches of meadowsweet (*Spiraea*) growing one to five feet tall in clearings between white and red spruce, tamarack and balsam (15-30 feet) in clumps or singly. Quaking aspen, fire cherry, white pine, alder and willows also occur here. Ground cover of blueberry, goldenrod, strawberry, grasses, sedges, mosses and hawkweed: an old pasture.

Canada Warbler: Very diversified habitat, forest undergrowth, conifer swamps with deciduous undergrowth, heavy brushy growth along rock ledges, ravines and steep road cuts that are wooded at the top.

Indigo Bunting: Males usually sing from exposed high, outer branches, often a dead limb. Learn the paired song to help locate them (“fire-fire, where-where, hurry-hurry, see-it see-it”). Brushy forest edges and openings are the usual locations. In largely unbroken forest look for them in clearings around hunting camps or wide loading areas for logging operations. Often found along railroad tracks or power lines. If the male is singing high overhead, the female is probably somewhere low nearby, perhaps skulking in a berry patch or dense shrubs. Spishing will often elicit a disturbed response (PR-D) or bring her into sight with a beak full of food (CO-FY). On Long Island, mostly at edges between woods and overgrown fields or brushy areas.

Purple Finch: Song has much the same quality, warbling and sweet as the Warbling Vireo but without the phrasing and the squeezed-out, uprising finale. Turns up in all kinds of woods and woodlots, often singing from an outer branch or the tip-top of a conifer. Not too easy to confirm, but a singing male can be often parlayed into a Probable Pair.

Clay-colored Sparrow: Overgrown fields with scattered red cedars, maybe a few young White Pines, barberries, and other scrubby growth. Horses or cattle may still be grazing in it but basically it was abandoned about 30 years ago. The birds sing from dawn to dusk but mornings may be best. Listen for flat, insect-like buzzes - “bzzz, bzzz, bzzz” - in a series of three, four, or even five notes, building in intensity and then maybe dropping. Most listeners would attribute it to an insect of the grasshopper and cricket tribe, not to a bird. Look at the tops of the scattered trees; the bird is probably singing about a foot from the top of the cedars and may be partly hidden, although the pipe-clay colored breast should show up. He throws his voice, so it may take some patient triangulation to locate the bird that is making this strange sound. Get your scope! This rare bird requires solid identification.

Field Sparrow: Much the same habitat as Clay-colored Sparrow. This bird likes overgrown, not open fields. Listen for the sweet opening notes, following by a descending, slowing trill. On Long Island, common in abandoned brushy fields and Scrub Oak/Pitch Pine barrens.

Vesper Sparrow: The song is strongly reminiscent of Song Sparrow, so listen for the paired opening notes. Look in short, sparse grassland of waste areas, in brushy, grassy edges near large open fields often planted to young corn, potatoes, strawberries, raspberries with grasslands or woods nearby. On Long Island in abandoned weedy fields and airports.

Savannah Sparrow: Stop at a big hayfield almost any time from dawn to dusk during summer - a lazy "tseeee- tsaay" will drift across the field. Inhale... exhale, "tseeee-tsaay." Get out into real farm country where there are big, wide-open, grassy fields. Listen for the song. If the bird is close enough, the "tsit-tsit-tsit" introductory notes may be audible but most often only the "tseeee-tsaay" is going to reach you. Once heard, the same spot can be revisited a week later for an easy PR-S. A little patience usually produces a CO-FY. If you have trouble identifying these striped field sparrows, look for a little bit of yellow behind the bill, running into the eyeline; that's the bird. Wilderness birders should look for it on the bog mats, too. On Long Island in abandoned weedy, grassy fields, airports and drier portions of salt marshes.

Grasshopper Sparrow: Sparsely grown, short, abandoned grassland or weedy fields, generally not hayed or pastured. Shorter, grassy road sides or hayfields. Usually not found in luxurious, well-tended, tall hayfields.

Henslow's Sparrow: Often sings at night, especially when the moon is full. Open, abandoned hayfields, or farmland reverted to natural grassland but remaining uncut and ungrazed, and with a clear, unobstructed view to the horizon (by trees, high hedgerows or enclosing hills). Some diversity or vegetation height preferred for singing perches but excessive invasion by woody plants (bushes, small trees) decreases habitat suitability. Sedge Wrens may use moist portions of this type of habitat.

Lincoln's Sparrow: This bird seems to prefer scattered young tamaracks. There may also be spruce scattered about, some of it more mature. In northern areas, look for open areas such as bog edges or blueberry barrens where the trees scattered a little more widely than a White-throated would like, not as wet and damp as a Swamp Sparrow would prefer, although both may be heard or seen quite nearby. Walk up to the tamaracks and spish loudly. Listen for a sharp, musical "tink" note. Keep spishing and a lovely little sparrow with a buffy breast with fine sidestreaks and grayish face markings will pop out with head top feathers crested, "tinking" vigorously, perhaps with a mate or a mouthful of bugs. In some northern counties, it's as easy to find as a Chipping Sparrow.

Appendix III: Breeding Season Dates

The table on the following pages was compiled during the first Atlas by Gordon M. Meade as an aid to Atlasers in their field surveying. The data on which it is based were derived from Forbush (1929), Bull (1974), and Harrison (1978). Additional data submitted by surveyors and Regional Coordinators have been incorporated into it. Information on the Canvasback and Brewer's Blackbird is also added, but the two exotic parakeets are omitted, as are the hybrids. This table is still incomplete, however, because data on breeding in New York are minimal or lacking for many species. Species names and taxonomic order were updated for this printing according to the Federation of New York State Birds Clubs' 1999 *Checklist of the Birds of New York State*.

The "Egg Dates" are the earliest and latest dates within which eggs have been found for each species. The "Incubation Period" refers to the period during which each species incubates and hatches its clutch of eggs.

The "Nestling period" is the time during which the young bird is dependent on its parents for survival. The length varies depending on several factors, including whether the species is altricial or precocial. The young of some species may remain with their parents after fledging and achieving independence. Because severing contact from the parents is a gradual process with many species, the times given for this period are necessarily approximations.

The dates given for "Unfledged Juveniles" are those within which young have been found in the nest (altricial), and both in the nest and after they have left it (precocial) but before they are able to fly. Those dates in the table for "Fledglings" are the periods within which young have been found that are able to fly. Dates for "Unfledged Juveniles" can be earlier than those for "Egg Dates" because some data are incomplete, certain species may have more than one brood during the season, some single-brooded species replace broods if they are lost, and there is often a differential in time within a species as to when it commences egg laying. For some species only single dates rather than a period are known.

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Common Loon	5/15-7/17	1, occ. 2	29-30	Lv. @10-17 (usually 12), near nest 2-3	6/5-8/22	6/20-9/15
Pied-billed Grebe	4/21-7/2	1, poss. 2	23-24	**	5/14-8/20	6/30-9/23
Double-crested Cormorant	6/2	1	25-29	Yg. wander @ 3-4 wks, fly @ 5-6 wks, indep. @10 wks	8/31; 9/19	*
American Bittern	5/10-6/29	1	24-29	Lv. nest @ 14	5/26-7/24	6/14-8/3
Least Bittern	5/15-7/29	1 or 2	15-19	Lv. nest @ 5-14, flight age ?	6/10-7/20	7/2-9/4
Great Blue Heron	4/15-6/9	1	25-29	Yg. fly @ 60, lv. nest @ 64-90	5/19-7/17	from 7/17
Great Egret	5/23-6/4	1	25-28	Yg. fly @ 35-42	6/25-7/25	7/25
Snowy Egret	4/16-6/25	1	21-23	Yg. lv. nest for branches @ 21-28	5/16-7/14	7/31-9/17
Little Blue Heron	6/18	1	21-24	Lv. nest @ 12, fly @ 28, indep. @ 35-40	7/7	7/4-7/18
Tricolored Heron	begin mid-May	1 (?)	21	Yg. climb @ 11-17, fed away from nest @ 24	July	July
Cattle Egret	6/7	1	21-25	Yg. fly @ 40, indep. @ 60	6/9-7/7	*
Green Heron	4/29-8/4	1, occ. 2	17-21	Yg. fly @ 21-23, indep. @ 35-40	5/22-8/24	7/4-9/19
Black-cr. Night-Heron	4/1-7/23	1	24-26	Lv. nest @ 14-21, fly @ 6 wks	5/21-7/26	6/30-8/25
Yellow-cr. Night-Heron	4/30-6/10	1 or 2	24	**	5/30-6/24	6/22-7/4
Glossy Ibis	5/3-7/27	1	21	On branches @ 14, fly by 42	6/24-8/25	7/1-9/14
Turkey Vulture	5/4-6/20	1	38-41	Fly @ 11 weeks	6/15-8/27	7/14-9/24
Canada Goose	3/28-5/14	1	25-30	Fly @ 9 weeks	4/28-6/27	from 5/18
Mute Swan	3/26-5/26	1	34-38	Indep. @ about 4 months	5/16-6/21	*
Wood Duck	3/28-7/15	1	28-32	Lv. nest in 24-30 hours	5/15-8/7	5/22-9/23
Gadwall	5/30-7/25	1	25-28	Fly @ 7 weeks	5/26-8/25	6/29-9/19
American Wigeon	late May-mid-June	1	24-25	Indep. @ 6-7 weeks	6/24-8/6	*
American Black Duck	4/2-6/22	1	26-28	Fly @ 7-8 weeks	4/28-7/14	*
Mallard	3/25-7/9	1-2	23-29	Fly @ 7-8 weeks	4/24-8/16	*
Blue-winged Teal	5/3-7/4	1	23-24	Fly @ 7 weeks	5/17-8/7	*
Northern Shoveler	5/29-6/11	1	21-26	Indep. @ 6-7 weeks	6/12-7/18	7/18

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Northern Pintail	May-early June	1	22-26	Fly @ 7 weeks	*	*
Green-winged Teal	5/25-7/15	1	21-24	Fly @ 6 weeks	6/16-7/28	7/5-8/11
Canvasback	*	1	24-27	Fly @ 10-12 weeks	7/3;7/7	*
Redhead	mid-May-early June	1	22-24	**	6/4-7/27	August
Ring-necked Duck	5/20-6/30	1	26	**	5/29-7/11	7/25-8/22
Lesser Scaup	mid-May-June	1	21-28	**	6/1	*
Common Goldeneye	mid-April-mid-June	1	27-32	Fly @ 51-60	*	7/21
Hooded Merganser	4/25-6/2	1 †	31	**	5/11-7/17	6/21-8/18
Common Merganser	5/5-7/10	1	28-32	Indep. @ 5 weeks	5/15-8/18	7/12-8/25
Red-breasted Merganser	early June	1	26-35	Fly by 59	*	*
Ruddy Duck	June-early July (Ont.)	1	24-30	**	5/30-9/1	into Sept.
Osprey	4/27-6/21	1	32-33	Fly @ 51-59	6/18-7/25	7/10-8/22
Bald Eagle	3/16-5/14	1	28-46	Lv. nest @ 10-11 weeks	4/11-6/30	from 5/20
Northern Harrier	4/20-6/25	1	21-36	Fly @ 37	5/30-7/18	7/4-8/11
Sharp-shinned Hawk	4/16-6/21	1	21-35	Fly @ 23	6/8-7/23	7/3-7/25
Cooper's Hawk	4/20-6/16	1 †	21-36	Lv. nest-male @ 30, female @ 34; indep. @ 8 weeks	6/2-7/2	7/2-8/3
Northern Goshawk	4/20-5/15	1	28-41	Fly @ 45, hunt @ 50, indep. @ 70	5/18-7/1	6/14-7/27
Red-shouldered Hawk	3/25-5/26	1 †	23-25	Lv. nest @ 5-6 weeks	5/5-7/5	early as 6/6
Broad-winged Hawk	4/27-6/26	1	23-28	Lv. nest @ 29-30	5/30-7/27	7/4-8/16
Red-tailed Hawk	3/8-5/16	1	23-28	Fly @ 45	4/17-6/20	6/1-7/8
Golden Eagle	Mar.-June (U.S.)	1	27-45	Fly @ 9-10 weeks	7/10	7/24
American Kestrel	4/5-6/29	1	29-30	Fly @ 30	5/19-8/2	6/12-8/10
Peregrine Falcon	3/2-5/31	1	28-29	Fly @ 35-42	4/19-7/10	5/21-7/27
Gray Partridge	late Mar.-early June	1-2	21-26	Fly @ 16	*	*
Ring-necked Pheasant	4/14-8/16	1-2	23-27	Fly @ 12-14	6/22-8/16	8/14

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Ruffed Grouse	4/1-6/22	1 †	23-24	Fly @ 10-12	5/27-7/5	6/15-9/4
Spruce Grouse	Mid-early June	1	17-24	Fly @ 10-12	6/19-7/16	8/17-8/22
Wild Turkey	4/26-7/9	1	28	Fly @ 14	5/13-8/13	6/1-9/7
Northern Bobwhite	5/25-9/14	1	23-24	Fly @ 14; full grown @ 60	6/11-9/27	7/5-10/11
Black Rail	6/20-7/12	*	*	**	*	*
Clapper Rail	4/11-8/4	1	20-24	Lv. nest soon after hatching; swim @ 1	6/6-8/20	*
King Rail	5/20-7/3	1	21-24	Lv. nest soon after hatching	6/16-8/6	8/2-8/31
Virginia Rail	5/5-7/13	1	20	Lv. nest soon after hatching	5/11-8/14	7/23-9/8
Sora	4/30-7/17	1	14-20	Lv. nest @ 1-2, fly @ 36	5/19-8/8	6/9-9/15
Common Moorhen	5/14-7/25	1	19-25	Indep. @ 5 weeks	6/3-8/27	7/9-9/17
American Coot	4/25-7/14	1-2	21-24	Indep. @ 8 weeks	5/17-8/12	6/29-8/21
Piping Plover	4/18-7/23	1 †	26-30	Fly @ 30-35	5/21-7/24	6/2-8/18
Killdeer	4/3-7/4	1-2	24-28	Fly @ 40	5/3-7/30	5/21-8/12
American Oystercatcher	5/25-7/22	1 †	24-27	Indep. @ 34-37	5/30-7/28	6/7-8/19
Willet	5/19-6/30	1	22	**	6/15	*
Spotted Sandpiper	5/6-7/26	1	18-24	Fly @ 16-18	6/2-8/19	*
Upland Sandpiper	4/23-6/15	1	17-21	Full grown @ 30	5/28-7/18	6/15-8/11
Common Snipe	4/20-6/16	1	18-20	Fly @ 19-20	5/19-6/20	7/5
American Woodcock	3/24-6/17	1	20-21	Fly @ 14-15	4/17-6/29	4/29-8/2
Laughing Gull	late May; 6/14, 6/28	1	21-23	Fly @ 4-6 weeks		
Ring-billed Gull	5/3-7/10	1	21-23	Fly @ 35	5/16-7/10	6/25-7/24
Herring Gull	4/27-6/26	1	24-28	Fly @ 6 weeks	5/17-7/24	7/5-8/31
Great Black-backed Gull	4/25-6/19	1	26-30	Fed for 7 weeks, then begin to fly	5/30-6/27	7/10-7/26
Gull-billed Tern	6/2-7/8 (Va.)	1	22-23	Fly @ 4-5 weeks	*	*
Caspian Tern	6/23, 7/6	1 †	20-22	Fly @ 25-30	6/23, 7/6	*

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Roseate Tern	5/20-7/27	1	21-26	**	6/13-8/31	7/11-9/9
Common Tern	5/12-8/15	1 †	20-23	Fly @ 4 weeks	6/11-9/3	7/10-9/9
Forster's Tern	6/8	1	23-25	**	6/16, 6/23	*
Least Tern	5/9-7/27	1 †	14-22	Fly @ 15-17	6/4-8/11	7/15-8/29
Black Tern	5/27-7/23	1	20-22	Fly @ 3-4 weeks	6/13-8/5	7/3-8/25
Black Skimmer	5/31-9/3	1	*	**	6/20-9/24	7/17-10/11
Rock Dove	every month	2-3	14-19	Indep. @ 30-35		
Mourning Dove	3/9-9/28	2-3	12-15	Fly @ 13-15	4/6-10/5	4/24-10/26
Black-billed Cuckoo	5/20-8/28	1	14	Fly @ 21-24	6/1-9/10	6/20-9/27
Yellow-billed Cuckoo	5/26-8/19	1	14	**	6/21-9/17	6/23-9/23
Barn Owl	all mos., usu. Apr-Jun	1-2	32-34	Fly @ 60, indep. @ 70	all months	all months
Eastern Screech-Owl	3/23-5/11	1	21-26	Lv. nest @ 35	4/24-6/25	5/5-8/17
Great Horned Owl	1/28-5/8	1 †	30-35	Lv. nest @ 31-35	3/8-6/12	4/9-6/9
Barred Owl	3/23-5/3	1 †	21-28	Fly @ 6 weeks	4/14-6/11	5/13-7/1
Long-eared Owl	3/21-5/23	1, occ. 2	21-30	Lv. nest @ 23-24	5/5-6/24	6/1-8/8
Short-eared Owl	4/2-5/19	1, occ. 2	24-28	Lv. nest @ 12-17, fly @ 22-27	5/7-6/19	6/11-7/13
Northern Saw-whet Owl	3/31-6/11	1	26-28	Lv. nest @ 36, occ. longer	4/21-7/16	5/28-8/22
Common Nighthawk	5/25-7/25	1	16-19	Fly @ 23, indep. @ 30	6/14-8/14	7/7-8/30
Chuck-will's-widow	5/23 (Va.)	1 †	20	**	6/22-6/28	6/29
Whip-poor-will	5/6-6/30	1	14-20	**	6/2-7/14	6/16-8/8
Chimney Swift	5/30-7/27	1	18-22	Fly @ 24-26	6/25-8/12	7/18-9/1
Ruby-thr. Hummingbird	5/21-8/16	1-2	14-16	Lv. nest @ 19	6/24-9/6	7/12-9/30
Belted Kingfisher	4/28-6/10	1 †	17-24	Lv. nest @ 30-35	6/8-7/14	7/29-8/9
Red-headed Woodpecker	5/16-6/19	1-2	14	Lv. nest @ 27	5/31-8/26	7/5-9/15
Red-bellied Woodpecker	4/26-6/28	1 †	12-14	Lv. nest @ 26	5/18-8/29	6/23-8/13

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Yellow-bellied Sapsucker	4/29-6/19	1 †	12-14	Lv. nest @ 25-29, depend. 1-2 wks more	5/29-7/8	6/12-8/15
Downy Woodpecker	5/6-6/30	1	12	Lv. nest @ 20-22, depend. 3 wks more	5/31-7/3	6/9-7/16
Hairy Woodpecker	4/23-5/19	1 †	11-14	Lv. nest @ 28-30, depend. 2 wks more	5/5-6/14	6/13-8/1
Three-toed Woodpecker	5/14-6/14	1	14	**	7/2, 7/31	7/9-7/24
Black-backed Woodpecker	5/18-6/12	1	14	**	5/30-6/20	6/20-7/23
Northern Flicker	4/20-6/19	1-2 †	11-16	Lv. nest @ 25-28	5/18-7/26	6/19-8/15
Pileated Woodpecker	4/22-5/20	1 †	18	Lv. nest @ 22-26	5/10-6/21	6/9-7/15
Olive-sided Flycatcher	6/9-6/27	1	14-17	Lv. nest @ 15-19	6/22	7/10-7/24
Eastern Wood-Pewee	5/30-8/15	1	12-13	Lv. nest @ 15-18	6/22-8/13	8/3, 9/16
Yellow-bellied Flycatcher	6/10-6/27	1	12-15	Lv. nest @ 13	*	7/25
Acadian Flycatcher	5/28-7/4	1	12-14	Lv. nest @ 13, fed by parents 12 more	6/19	*
Alder Flycatcher	6/2-7/29	1	12	Lv. nest @ about 14	6/21-8/14	7/11-8/24
Willow Flycatcher	6/11-7/29	1	13-15	Lv. nest @ 12-15	6/21-8/14	7/11-8/24
Least Flycatcher	5/16-6/28	1-2	12-16	Lv. nest @ 13-16	6/22-8/6	7/8-8/16
Eastern Phoebe	4/20-8/4	1-3	12-16	Lv. nest @ 15-17, fed by parents 2-3 wks more	5/13-8/10	6/9-8/24
Great Crested Flycatcher	5/22-7/11	1	13-15	Lv. nest @ 14-15	6/10-7/26	6/27-9/14
Eastern Kingbird	5/20-7/18	1-2	12-16	Lv. nest @ 13-14, fed by parents 5 wks more	6/3-8/5	6/21-8/21
Loggerhead Shrike	4/18-6/28	1-2	13-16	Lv. nest @ 20, indep. @ 26-35	5/18-6/25	5/25-7/26
White-eyed Vireo	5/17-7/17	1	12-15	**	6/18	6/30
Yellow-throated Vireo	5/17-6/18	1	12-14	**	6/16-7/30	7/1-8/14
Blue-headed Vireo	5/10-8/9	1	10-11	**	6/7-8/13	6/28-8/31
Warbling Vireo	5/16-6/16	1	12	Lv. nest @ 16	5/31-6/29	6/21-7/24
Philadelphia Vireo	June-July	*	13-14	Lv. nest @ 13-14	*	*
Red-eyed Vireo	5/13-8/1	1-2	12-14	Lv. nest @ 12	6/8-8/17 ^(2nd : 9/4)	8/6-9/13
Gray Jay	3/10-4/10	1	16-18	Lv. nest @ about 15	*	5/19-8/12

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Blue Jay	4/15-6/17	1 †	15-18	Lv. nest @ 17-21, indep. in 3 wks more but may be fed longer	5/18-7/5	6/1-7/31
American Crow	3/30-6/14	1	15-18	Lv. nest @ about 5 wks	5/1-7/28	*
Fish Crow	3/20-6/5	1 †	16-18	**	*	*
Common Raven	3/26-4/14	1	19-21	Lv. nest @ 5-6 wks	3/21, 4/12	4/17,5/30,6/14
Horned Lark	2/28-7/31	1-3	11-14	Lv. nest @ 9-10, fly well @ 20	3/11-8/4	3/31-9/13
Purple Martin	5/21-7/13	1, occ. 2	12-20	Lv. nest @ 24-28, roost in nest after leaving	6/22-8/15	7/30-8/22
Tree Swallow	5/5-7/18	1-2	13-16	Lv. nest @ 16-14	5/22-8/10	6/10-8/2
N. Rough-winged Swallow	5/12-7/5	1	15-16	Lv. nest @ 18-21	6/14-7/11	7/6-7/28
Bank Swallow	5/15-7/13	1-2	12-16	Fly @ 17-18, lv. nest 1-2 days later	5/31-8/12	6/28-9/1
Cliff Swallow	5/9-7/14	1-2	12-16	Fly @ 23, return to nest for 2-3 more	5/29-8/19	6/23-8/23
Barn Swallow	5/15-8/4	2-3	13-16	Lv. nest @ 17-24	5/24-8/28	6/25-9/22
Black-capped Chickadee	4/29-7/15	1	11-14	Lv. nest @ 16	5/21-7/20	5/21-8/3
Boreal Chickadee	6/11-7/17	*	**	**	6/27-7/26	7/2-8/27
Tufted Titmouse	4/29-5/27	1	12-13	Lv. nest @ 15-16	5/13-6/30	5/20-8/4
Red-breasted Nuthatch	4/30-6/17	1	12	Lv. nest @ 18-21	5/15-7/1	6/8-8/18
White-breasted Nuthatch	4/13-6/6	1	12(?)	Fed for 2 wks after leaving nest	5/8-6/11	6/3-6/22
Brown Creeper	4/24-6/30	1	14-15	Lv. nest @ 14-16	5/27-7/28	6/24-8/20
Carolina Wren	4/1-8/5	2-3	12-14	Lv. nest @ 12-14	4/21-10/2	5/8-8/29
Bewick's Wren	late Mar.-early Apr.	2-3	about 14	Lv. nest @ about 14, fed for 2 wks more	*	*
House Wren	5/15-7/31	1-2	13-15	Lv. nest @ 12-18, feed selves @ 13	5/22-8/28	6/26-9/11
Winter Wren	5/22-7/29	1-2	14-17	Lv. nest @ 15-20	6/3-8/4	6/15-8/16
Sedge Wren	5/28-7/30	1-2	12-14	Lv. nest @ 12-14	6/30-8/22	8/4-9/15
Marsh Wren	5/22-8/7	2-3	10-14	Lv. nest @ 13-15, fed for 7 more	6/21-8/12	7/2-8/31
Golden-crowned Kinglet	5/28-7/26	1-2	12-17	**	6/11-7/25	6/17-8/30
Ruby-crowned Kinglet	May-6/29	1-2	14-15	**	7/2	7/24

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Blue-gray Gnatcatcher	5/14-6/17	1	15	Lv. nest @ 12-13; fed for up to 19 more	6/1-7/11	6/28-7/25
Eastern Bluebird	4/1-8/18	2-3	12	Lv. nest @ 15-18, male may continue to feed yg.	4/28-9/6	5/10-9/17
Veery	5/15-6/25	1-2	10-12	Lv. nest @ 10-12	6/14-7/22	6/20-7/31
Bicknell's Thrush	6/12-6/27	1	13-14	Lv. nest @ 11-13	7/1-7/25	7/12-8/7
Swainson's Thrush	5/31-7/11	1	10-13	Lv. nest @ 10-12	6/30-7/22	7/10-8/10
Hermit Thrush	5/10-8/24	2-3	12-13	Lv. nest @ 10	5/30-8/31	6/9-9/23
Wood Thrush	5/14-7/7	1-2	12-14	Feed selves @ 10, lv. nest @ 12-13	5/22-8/1	6/9-8/31
American Robin	3/23-7/19	2-3	11-14	Lv. nest @ 14-16	4/21-8/30	5/25-9/10
Gray Catbird	5/5-8/12	2-3	10-14	Lv. nest @ about 10	5/29-8/20	6/6-9/21
Northern Mockingbird	4/27-7/21	2-3	10-14	Lv. nest @ 12-14	5/5-8/11	5/25-8/29
Brown Thrasher	5/6-6/26	1-2	11-14	Lv. nest @ 9-12	5/19-7/29	6/19-7/26
European Starling	4/10-6/15	1-2	12-16	Fed by parents for 20-22	5/1-7/30	5/19-8/30
Cedar Waxwing	6/5-9/23	1-2	12-16	Lv. nest @ 16-18	6/12-10/1	6/16-10/8
Blue-winged Warbler	5/18-6/17	1	10-11	Lv. nest @ 8-10	6/4-7/11	6/8-8/12
Golden-winged Warbler	5/18-6/16	1	10-11	Lv. nest @ 10	6/8-7/6	6/27-8/6
Tennessee Warbler	June-July	1	*	**	*	*
Nashville Warbler	5/19-6/10	1	11	Lv. nest @ 11	5/30-6/22	6/15-8/17
Northern Parula	5/17-6/27	1-2	12-14	**	6/6-7/4	7/4-8/5
Yellow Warbler	5/15-7/3	1-2	9-15	Lv. nest @ 9-12	6/4-7/23	6/12-8/1
Chestnut-sided Warbler	5/20-7/25	1, occ. 2	10-13	Lv. nest @ 10-12	6/15-8/6	6/22-8/20
Magnolia Warbler	5/25-7/11	1-2	11-13	Lv. nest @ 8-10	6/5-7/24	6/15-8/26
Cape May Warbler	6/6-6/16	1	*	**	*	6/23-7/4
Black-thr. Blue Warbler	5/29-7/17	*	12	Lv. nest @ 10	6/14-7/29	6/22-8/14
Yellow-rumped Warbler	5/19-7/10	1	12-13	Lv. nest @ 12-14	6/2-7/22	6/9-8/17
Black-thr. Green Warbler	5/24-7/2	1-2	12	Lv. nest @ 8-10	6/11-7/29	6/23-8/15

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Blackburnian Warbler	6/1-6/24	*	*	**	6/17-7/1	7/13-8/4
Yellow-throated Warbler	*	*	*	**	7/21	*
Pine Warbler	5/4-6/6	1-2	*	**	5/19-6/17	5/30-8/8
Prairie Warbler	5/25-6/29	1	12-14	Lv. nest @ 8-10	6/19-7/15	6/30-7/14
Palm Warbler	7/8	1-2 (?)	12	Lv. nest @ 12	*	*
Bay-breasted Warbler	mid-June	1	12-13	Lv. nest @ 11	6/25-7/6	7/23
Blackpoll Warbler	6/5-7/10	*	11	Lv. nest @ 10-11	*	6/30
Cerulean Warbler	5/19-6/23	1	**	**	6/12-7/6	6/22-7/22
Black-and-white Warbler	5/10-6/30	1	11-13	Lv. nest @ 8-12	6/5-7/23	6/19-7/31
American Redstart	5/14-7/16	1	12	Lv. nest @ 9	6/4-8/5	6/26-8/19
Prothonotary Warbler	5/17-6/29	1-2	10-14	Lv. nest @ 10-11	6/8-7/6	7/10-8/6
Worm-eating Warbler	5/24-6/18	*	13	Lv. nest @ 10	6/6-7/15	6/16-7/29
Ovenbird	5/17-7/22	1-2	12-14	Lv. nest @ 8-10	6/8-8/8	6/18-9/10
Northern Waterthrush	5/10-6/28	1	14	**	5/24-7/5	6/4-7/20
Louisiana Waterthrush	4/25-6/20	1	12-14	Lv. nest @ 10, fly @ 16	5/20-7/6	6/9-7/25
Kentucky Warbler	6/1-6/27	1	12-13	Lv. nest @ 8-10, fed for 17 more	6/20	6/29
Mourning Warbler	5/28-7/7	1	12-13	Lv. nest @ 7-9, fly 2nd wk	6/17-7/28	6/27-8/16
Common Yellowthroat	5/15-7/12	1-2	12	Lv. nest @ 9-10	6/2-8/22	6/15-9/11
Hooded Warbler	5/25-7/10	1-2	12	Lv. nest @ 8-9	6/14-8/12	7/8-9/10
Wilson's Warbler	8/1	1	11-13	Lv. nest @ 10-11	*	*
Canada Warbler	5/31-7/24	1	*	**	6/14-7/29	6/20-8/15
Yellow-breasted Chat	5/25-7/13	1	11-15	Lv. nest @ 8-11	6/8-7/17	6/22
Scarlet Tanager	5/20-7/23	1	13-14	Lv. nest @ 15	6/9-Aug.	7/4-9/19
Eastern Towhee	5/15-8/4	1-2	12-13	Lv. nest @ 8-10	5/18-8/15	6/2-8/31
Chipping Sparrow	5/2-7/19	1-2	10-14	Lv. nest @ 9-12, fly @ 14	5/23-9/3	6/4-9/21

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Clay-colored Sparrow	May-June	1-2	10-11	Lv. nest @ 7-9, fed for 8 more	6/15	6/20-7/15
Field Sparrow	5/16-8/17	2-3	10-13	Lv. nest @ 7-8, fly @ 12, indep. 18-20 later	5/26-8/20	6/17-6/20
Vesper Sparrow	5/5-8/16	1-3	11-13	Lv. nest @ 9-13, depend. 21 more	6/11-7/16	7/11-7/31
Savannah Sparrow	5/11-6/16	1-2	12	**	5/30-7/23	6/12-8/30
Grasshopper Sparrow	5/17-8/2	1-3	11-12	Lv. nest @ 9	6/29-8/19	7/21-9/5
Henslow's Sparrow	5/17-7/5	1-2	11	Lv. nest @ 9-10	6/1-7/22	6/19-7/30
Saltmarsh Sharp-tailed Sp.	5/30-7/21	1	11	Lv. nest @ 10, depend. 20 more	6/11-8/5	8/1
Seaside Sparrow	5/25-7/10	1-2	11-12	Lv. nest @ 9, depend. 21 more	6/8-7/23	*
Song Sparrow	4/17-8/13	1-3	12-14	Lv. nest @ 10, fly @ 17, depend. 18-20 more	5/5-9/3	5/18-9/23
Lincoln's Sparrow	6/10-6/28	1-2	13-14	Lv. nest @ 10-12	6/18	7/21
Swamp Sparrow	5/5-7/22	1-2	12-15	Lv. nest @ 9-10	5/21-7/30	6/28-8/3
White-throated Sparrow	5/30-7/21	1-2 †	11-14	Lv. nest @ 7-12, fly 3 later	6/14-8/16	6/27-8/31
Dark-eyed Junco	4/28-8/13	1-3	11-13	Lv. nest @ 10-13, depend. 21 more	5/16-8/17	6/7-8/27
Northern Cardinal	4/10-9/9	2-3	12	Lv. nest @ 9-11, fly well @ 19, indep. @ 38-45	4/23-9/23	4/30-9/23
Rose-breasted Grosbeak	5/6-7/19	1-2	12-14	Lv. nest @ 9-12, depend. 3 wks more	5/30-7/26	6/11-8/15
Blue Grosbeak	6/17	1-2	11	Lv. nest @ 9-13	*	7/1
Indigo Bunting	5/20-8/3	1-2	12-13	Lv. nest @ 9-13	6/18-8/14	6/21-9/20
Dickcissel	May-6/29	1-2	11-13	Lv. nest @ 7-10, fly @ 11-12	*	*
Bobolink	5/18-6/20	1	10-13	Lv. nest @ 10-14, fly a few days later	5/30-7/20	*
Red-winged Blackbird	4/26-7/9	1-2, occ. 3	10-15	Lv. nest @ 10-11, stay near nest 10 more	5/29-7/19	6/20-7/30
Eastern Meadowlark	5/9-8/1	1-2	13-17	Lv. nest @ 11-12	5/24-8/12	6/5-8/24
Western Meadowlark	May-July	1-2	13-15	Lv. nest @ 12, fed for a few days more	6/23	6/26
Rusty Blackbird	5/17-6/15	1	14	Lv. nest @ 13	5/30-7/8	7/7-7/24
Brewer's Blackbird	*	2	12-13	Lv. nest @ 13, fed for further 12-13	*	*
Common Grackle	4/12-6/4	1-2	12-14	Lv. nest @ 10-17, near nest only 2-3	5/3-6/28	5/18-7/29

Species	Egg Dates	# of Broods	Incubation Period	Nestling Period (days)	Unfledged Juveniles	Fledglings
Boat-tailed Grackle	5/31-6/15	1-2-3	13	L.v. nest @ 20-23	6/9-7/11	6/23, 7/29
Brown-headed Cowbird	4/23-7/31	*	10-12	L.v. nest @ 10, usually before host yg., fed for 2 wks	5/19-8/2	5/30-8/19
Orchard Oriole	5/18-6/22	1	12-15	L.v. nest @ 11-14	5/28-7/26	6/19-8/21
Baltimore Oriole	5/15-6/13	1	14	**	6/6-7/9	6/15-7/14
Purple Finch	5/13-7/16	1	13	L.v. nest @ 14	6/2-7/24	6/10-9/3
House Finch	4/11-8/6	2-3	12-14	L.v. nest @ 14-16	4/24-8/23	5/18-8/11
Red Crossbill	3/30-4/30	1-2	12-16	L.v. nest @ 17-23, depend. 3-4 wks more	4/24-5/27	3/29-6/19
White-winged Crossbill	mid-Jan-Aug	*	*	**	*	2/4,6/15,9/11,10/10,11/25
Pine Siskin	3/15-5/25	1-2	13-14	L.v. nest @ 14-15	4/13-6/10	4/17-7/16
American Goldfinch	6/25-9/16	1	12-14	L.v. nest @ 11-17	7/24-9/30	8/17-10/10
Evening Grosbeak	5/19-6/4	*	12-14	L.v. nest @ 13-14	5/31-6/17	6/15-9/5
House Sparrow	3/23-7/16	2-3	11-14	L.v. nest @ 15	4/15-8/4	6/24-9/6

* No New York data available.

** No information from references checked.

(?) Probable.

† If brood is lost, it usually will be replaced.

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