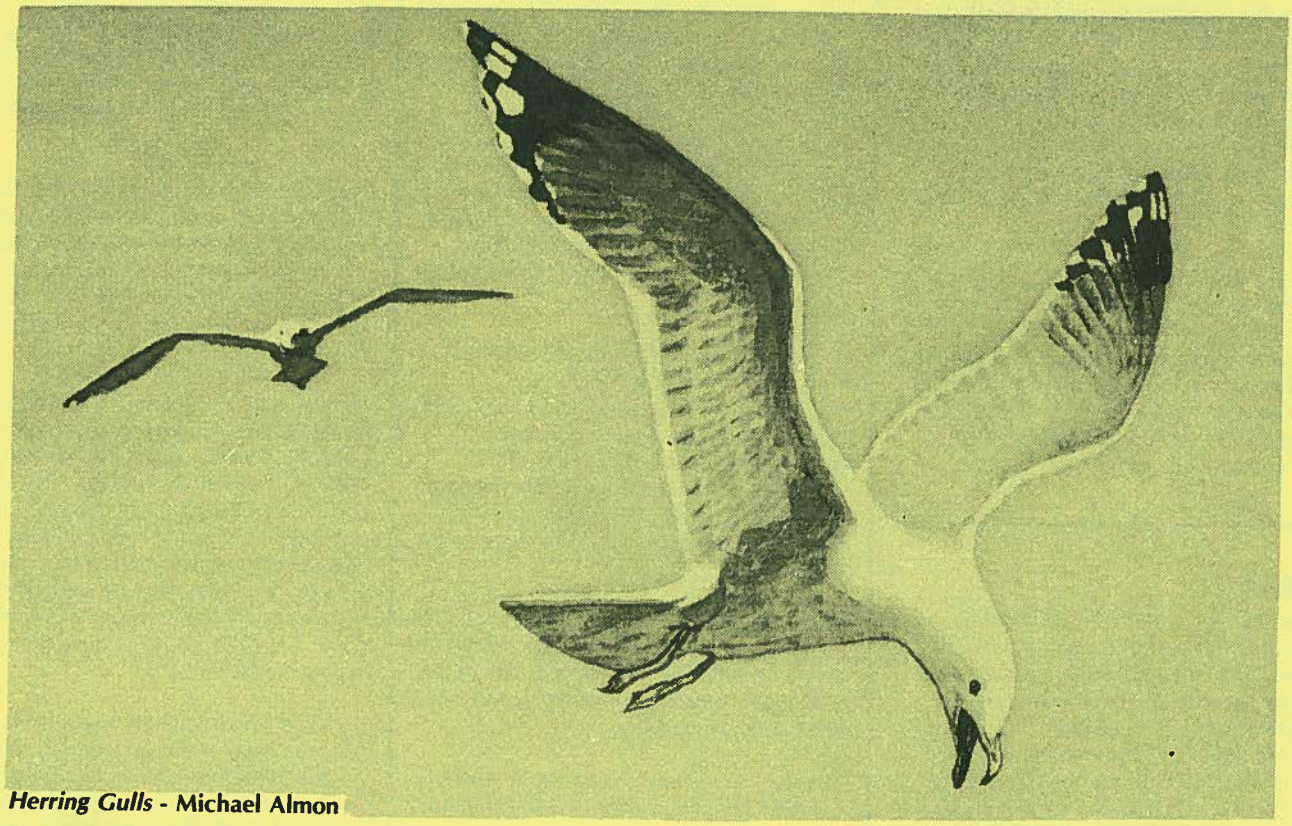
MARITIMES BREEDING BIRD ATLAS NEWSLETTER

WILDLIFE 1987 Gaining Momentum Un nouvel essor FAUNE

No. 9 Editor: Judith Kennedy Spring, 1987



Herring Gulls - Michael Almon

TIMING FIELDWORK

It is important to visit your square at different times of year to record as many species during their breeding season as possible. But to spend your time wisely, you should plan most of your visits when most species are breeding. In this way, your productivity will increase and your time investment will decrease.

Early in the season, in April and May, you should make very few visits (but you should definitely go out). Look for signs of activity among the early nesters such as both species of cormorants, Great Blue Herons, Black Ducks, raptors, Spruce and Ruffed Grouse, Killdeer, Rock Doves, owls, Horned Lark, corvids, and crossbills. While refreshing your memory of road-access and habitat locations in the square, keep an eye out for territoriality or nest-building in these species.

The majority of your time, however, should be focussed on the latter part of the season, in late June and throughout July. This is when you can apply our patented "quick and dirty" confirmation method. By visiting the different habitat types at this time of year you should be able to confirm many species with the code AY. Use this code when you see an adult bird carrying food for the young back to the nest, or a faecal sac away from the nest. Remember to be cautious when using this code as some species carry food for themselves before eating it, notably Osprey, Crows and Ravens. The nests of these species are obvious enough in most cases that you will be able to apply one of the other confirmed codes, like occupied nest, ON. If you see the adults with the young birds this is coded fledged young (FL), *not* AY, unless the young are still in the nest and you can use NY.

Another way to improve your results is to arrive in your square early in the morning. By arriving in your square by 6:00 a.m. when birds are singing and active, you will be able to identify more species in an hour or two than if you spent an entire afternoon in your square. Even if you don't recognize all the bird songs, the song will alert you to the presence of the bird and you may be able to identify it visually. One of the best ways to commit a bird song to memory is to search the bush for the songster. Nothing like a little bush-whacking to make a song memorable!

Efficient atlassing is particularly important for far-away squares. By correctly timing visits to a square you can completely cover the square and avoid unnecessary journeys. Square bashes for Atlas Day and other occasions should be planned to incorporate good timing. It would be a good idea to spend at least one night near the square (the bashee?) to include early morning atlassing the next day without embarking on a long drive at an ungodly hour.

By wisely allocating your time, you will be able to maximize your results. You will also avoid duplicating records you made last year, and can spend the time learning the habitats in a new square. If you plan your strategy carefully you will be able to get most of your confirmations in a very few outings. ☐

ERRATA

In the Winter, 1987 newsletter, there is an error that the mathematically inclined among you have no doubt noticed. The last sentence in the first column of the "1986 SUMMARY" section should read:

> Looking even closer, only 17 priority squares met our adequate coverage criteria of 75% of the expected species recorded and 50% of the observations confirmed. Before you get discouraged though, another 25 priority squares have 75% of the expected species but lack the 50% confirmations, and 56 squares have between 50 and 75% of their expected species recorded. . .

Including this omission will bring some logic to the creative accounting which may have puzzled you last time.

Also, some of you apparently did not receive the insert page of range maps which was part of Newsletter No. 8. Maps for 4 owl species and 2 other birds were produced using our 1986 data. Please contact the atlas office if you are missing the map page in your last newsletter and I will send you one. ☐

OWL IN THE BARN

by Elizabeth Otter

The day had gone badly. It had been bitterly cold in the morning with a brisk wind from the west that had swiftly filled the driveway with an unrelenting stream of blowing snow. It was doubtful whether I would be able to get out with the car as I had planned. But the day was new enough then for me to be hopeful.

I had hurried with the necessary chores and preparations for leaving, had left the warmth of the house and had gone shivering across the yard to the car. The car had refused to start.

The pattern had been established for the remainder of the day. The cold continued, the wind shifted imperceptibly to blow from the direction that invariably caused the wood-stove to smoke, and smoke it did with a malicious intent that I soon became convinced was personal. I blew a fuse in the laundry-room; there were no more of that amperage. I broke a saucer; the china pattern had been discontinued and it could never be replaced. The telephone went out of order. That was the last straw.

By the time my five sons had returned from school, I had recovered my equanimity to the point that I could greet them at least courteously if not with enthusiasm. But even then I had to struggle to keep vexation from my voice when the youngest failed again to close the door securely and it blew open in the wind.

I was moodily thinking about preparations for the evening meal when the son whose duty it was to care for the animals in the barn came bounding into the house with a great shout of excitement.

"Mother, come quick and bring your camera! There is a little owl in the barn!"

Without another thought for the potatoes and carrots in the sink I struggled into my sweater and boots, seized my camera and sprinted to the barn.

"Where, where?"

"You can't see him from there, come up here in the loft!" I climbed the ladder with an eagerness that would have astonished anyone seeing me ten minutes earlier.

And there it was. A little owl, scarcely much more than a ball of soft, beautifully marked and streaked feathers. He swivelled his head and gazed reproachfully at me as I crept closer for a photograph. I came very close before his yellow eyes became round with alarm and he took flight to perch on a higher beam. I stood for several moments longer speculating that this must be a Saw-whet and I had never before seen one. I wondered what its call was like and reproached myself that I had not earlier ordered the tape of the Owl calls from the MBBA office. I was dimly aware of the sound of my husband's truck as he arrived home from work and I turned to descend the ladder.

After greeting him with the first enthusiasm I had felt that entire day and telling him of the owl in the barn he passed me a brown envelope from the Atlas office in Halifax. It contained that tape.

Could I have been expected after that lamentable day to put that tape aside and attend dutifully to the vegetables waiting in the sink? Predictably, I hurried to the barn with the tape recorder and played again and again the first call, that of the Saw-whet Owl.

He was either not favourably impressed or he had taken flight away from the barn for I did not see him again. Supper was late, for I had to read immediately everything I had in my possession about Saw-whets. I was saddened to learn that when a Saw-whet Owl, which normally inhabits remote, wooded areas, appears suddenly in a farmyard during a period of intense cold, it is likely to be in a weakened state due to starvation.

I wished longingly that I could help that little creature and it grieved me that instead of helping it by permitting it to rest undisturbed, I had blunderingly perhaps hastened its death by driving it away from the haven it may have sought. I will never know. ☐

BACK ISSUES

If you don't have a complete set of the 9 MBBA Newsletters, you can get any that you are missing by requesting them from the atlas office. Don't miss out on any of the juicy tidbits or helpful hints published in the newsletter. It might provide the information you need to confirm those last few species in your square. ☐

THE ATLAS STEERING COMMITTEE

The accompanying photo will help you put names and faces together for the people who make many of the important decisions for the atlas. The Steering Committee meets two or three times a year to discuss management and direction of the atlas project, as well as technical aspects of data collection and quality control.

From left to right, the members are (seated) Linda Payzant, David Christie, Dr. Tony Erskine, Judith Kennedy; (standing) Dr. Ian McLaren, Bill Caudle, Dr. Eric Mills, Dr. Roger Foxall, Fred Scott, Peter Pearce, Peter Austin-Smith. (Missing: Rosemary Curley, Peter Payzant)

Photo: Peter Payzant

QUESTIONING YOUR CODES

by Peter Payzant, Steering Committee

After the first results from last year's field work began to come out of the computer, it became apparent that there were about as many different interpretations of the breeding codes as there were atlassers. At a meeting of the Steering Committee on January 10 of this year, committee members were shown a list of the number of times each code was used for each species. The reports for Herring Gull, for example, were as follows:

H - 31%	A - 0%	FL - 16%
P - 6%	N - 0%	ON - 10%
T - 1%	NB - 0%	AY - 0%
C - 2%	DD - 1%	NE - 12%
V - 1%	UN - 1%	NY - 19%

We asked ourselves, "Are each of these codes reasonable for the Herring Gull?". After some thought, we realized that for each species, we could say that some codes are reasonable almost without question; some are always wrong (using "N" for other than wrens and woodpeckers, mainly); and some may be misinterpreted — "FL" for Herring Gull, for example. Once the birds fledge they may travel long distances and consequently it is not easy to be sure that they bred in the square in which they were seen. In quite a few cases, nobody knew whether a given code was appropriate for a certain species. Do Red-winged Blackbirds do a distraction display (DD), for example? Several atlassers said that they did.

Roger Foxall, David Christie, and Tony Erskine took on the unenviable task of looking at each of the 2475 possible combinations of species and breeding codes, and deciding how they should be treated. We decided that we would ask for a few words of description from the atlassers for some of the combinations. In many cases, this was simply to clarify what was in all probability, a perfectly acceptable use of a code. In others, we really wanted to fill in the gaps in our own knowledge; and in a few cases we wanted the atlasser to take a second look at a report and think about whether the code she or he used was really appropriate for the behaviour observed.

A final list of questionable combinations was salted away in the computer, and a bunch of form letters and questionnaires was generated. In all, 1034 requests for information were mailed out, and we included pre-stamped return envelopes to increase our chances of getting a reply.

We had an absolutely astonishing response. As of early April, 849 forms had been returned, 82% of the number sent out. Almost everybody realized that there was a need to maintain the highest possible quality of data. The most active atlassers were unfortunately hit hardest. Ron Weir (a highly experienced veteran of the Ontario atlas), for example, had to fill in 69 reports, as a consequence of sending in cards for 12 squares in southern New Brunswick. He commented: "It's more a nuisance than anything, but I do understand the importance of quality data and the need to check everything." Sadly, a few atlassers were completely put off. We received comments like:

— "I find it unsettling that my judgement... has been questioned." (We "questioned" some of the most experienced birders in the Maritimes, including a good proportion of the Steering Committee.)

— "I was really surprised to get so many questions on my work." (Sorry — if we were on top of this a year ago we would have let you know that this was coming.)

— "Regret the day we agreed to do this." (We all have our bad days.)

Most responses were gladly given, however, and the Steering Committee is grateful to all of you who responded so well to this unforeseen nuisance. Perhaps Jim Wilson, the Regional Coordinator for region 11 (Saint John), summed it all up when he wrote "...has really emphasized that the data will be of the highest quality".

As a result of all the information we received, we have decided to take a slightly different tack for subsequent years. All atlassers who submitted cards last year will get a little handout listing the questionable codes for each species, so you will at least know what they are in advance. Some of these combinations are so improbable that we will require documentation for them, and these are marked. Most, however, are simply cautionary — you should be aware that there may be more appropriate codes to use. We plan to revise the handout from year to year as our knowledge grows. This should be mailed to you by mid-summer, at which time a full explanation will be included.

To make a long story short, the quality of the data is what determines the credibility of the atlas when it is finally published. We're very happy that so many of you appreciate this and are willing to put forth a little extra effort to keep the quality as high as possible. □

A THOUSAND THANKS

Sometimes when I'm sitting at my paper-strewn desk, being an Atlas Coordinator seems like just a job. But there are many times when it becomes much more than that. We are accomplishing something big, important, lasting. That is driven home when I look at a finished atlas, or read an article in a major magazine about atlassing, or receive notice of an international conference with a session on atlas projects. It's exciting. We are also showing politicians that we care about our bird-life and our environment. We are taking the initiative and contributing our knowledge, our time and our money. What better way to advertise our commitment and our concern?

The show of support for the atlas from those of you who sent donations and/or letters to the provincial governments has been immensely gratifying. I think that your dedication to the atlas will cause our potential funding sources to take note. So a very heart-felt thanks to you all for participating, and to the following people for their donations:

Bob Bancroft
Harry Beach
Thelma Bowers
Phyl Bryson
Eric R. Carr
David S. Christie
Marcel David
Lucy Dyer
Gwen J. Fichaud
Harold L. Forsyth
Sylvia J. Fullerton
Michael Gillis
Elizabeth M. Grant
Henry H. Green
Milton Gregg
Diane Griffin
Harold Hinds
David J.T. Hussell
Enid M. Inch
Regine Maass
Dr. Clive Macdonald
Rev. R.B. MacDonald
Donald A. MacNeill
Michel Martin
Patricia McCleave
Douglas McNicol
Mr. & Mrs. G.H. Niles
Linda & Peter Payzant
Peter A. Pearce
Lori Prosser
Margaret Pugsley
Les Rutherford
Esther Sporle
James W. Taylor
Elizabeth Townsend
Julie A. Turner
Azor Vienneau
Eleanor L. Waldron
Lorne Weaver
Donald White
Pixie Williams
Jim Wolford
Terrie Woodrow
Rural Delivery Magazine
Bowater Mersey Paper Co. Ltd.
Stora Forest Industries
P.E.I. Fish & Wildlife Division
The James L. Baillie Memorial Fund
Themadel Foundation □

DOCUMENTING RARITIES

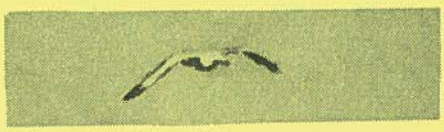
In addition to the species listed in the handbook there is a list of species for each region which require details to support breeding records. These species have been listed for a variety of reasons: they may be sensitive to environmental change and are being monitored; there may be few, if any, previous breeding records for that species in the region; or the species may be uncommon on a provincial, regional or national basis.

Out of the Species Documentation Forms we have received to date, *very* few have been for species whose identity is in question. It is still important, however, to provide a description of the species so that *anyone* could read the form and know that a first time breeding record was not, in fact, a case of misidentification. You should list the features you actually saw that allow you to identify the bird, and resist the temptation of repeating the fieldmarks given in a field guide.

Most of the Doc. forms that were not accepted by the Review Committee were for species deemed to be migrant or non-breeding adults. Sometimes records had to be rejected simply because there were too few details to support the hypothesis of breeding. Information on the bird's behaviour and habitat are particularly important to substantiate a record. Many non-breeding adults loiter all summer in certain areas that are not typical nesting habitat. If you haven't had much experience with a species, it can be difficult to tell the difference between loitering in a feeding area and selecting a nest-site. The experts on the review committee can make this decision with the correct details. If you get to the section "Breeding evidence observed" and feel inclined to write "none", then you should reconsider submitting the record at any code higher than X. Remember that even the code H is breeding evidence; the species was seen in suitable breeding habitat during its breeding season. If that is what you saw, write it in the "breeding evidence" section.

We don't *want* to reject any records we receive, but for our data to stand up under scientific scrutiny, we must review it very carefully. It would only take one false claim to make *all* of our records suspect. If you know that your record is accurate you must support it with a complete account on the Species Documentation Form. The review committee can only judge what is provided on the form. Each question that you answer on the form will improve the chances that your record will be accepted.

On your field card, you might want to make a little mark next to those species which require a Doc. form. Then you will be able to make note of all the necessary details at the time of sighting, which will avoid any confusion later. If you don't know which species are earmarked in your region, ask your RC. □



CHOOSING THE BEST BREEDING CODE

by David Christie, Steering Committee

When you received that mid-winter request for additional information — over 200 atlassers did — could you remember the "pair" of Cedar Waxings you reported in your square last summer? I reported "pairs" in two squares and I couldn't recall them from the many other waxwings I saw last year. However, I was able to supply details on most other reports of mine that were queried.

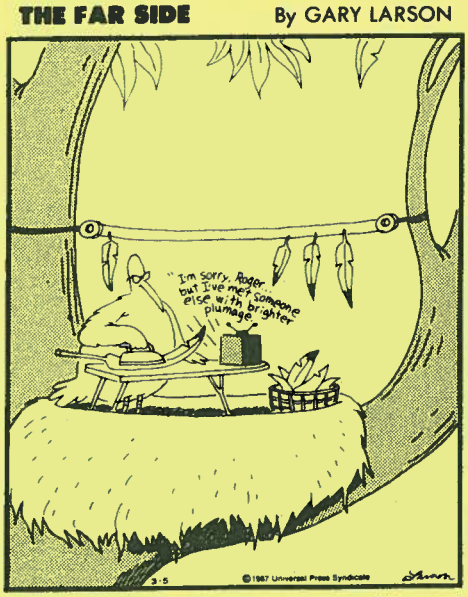
That whole irritating procedure of asking for details months after the observations were made was initiated by the atlas steering committee because, during the 1986 field season, there was a higher frequency of use than expected of certain codes and some inappropriate use of others. It seemed that we had not done a thorough enough job explaining them. There were also some reports of behaviour about which we felt there should be some documentation on file in order to maintain the integrity of the atlas database.

Requests for additional information should be considerably fewer in future, as we all become more familiar with the codes and as data review procedures are refined. Most checks should be made by regional coordinators and without such a long delay.

The two codes about which there seemed to be some obvious misunderstanding were "AY" and "C", and it's easy to see how confusion could arise.

AY — Our definition of AY as "ATTENDING YOUNG; adult seen carrying food or faecal sac", caused problems. Quite a few atlassers used this code when they saw adults carrying food to recently fledged young or when they saw adults with young, whereas the intended use was for observations of *adults alone,* whether their behaviour, gathering food or disposing of excrement from the nest, indicates that those birds are caring for young (undiscovered by the observer). Whenever you observe *young out of the nest you should use the code "FL",* for fledglings, unless the young are flying strongly enough that they may have moved into your square from another area, in which case they rate only an "X" (observed).

Thus, a warbler gathering a beakful of insects or a sparrow disposing of a white faecal sac is a valid "AY", but a duck or a grouse with its downy young, or swallows feeding their poorly flying young lined up on a barn roof, should be "FL". And, of course, you should never find a cowbird attending young.



Courtesy Universal Press Syndicate

Another source of concern with "AY" was the number of times it was reported for hawks and other raptors (40), kingfisher (26), and crow, raven and jays (48), birds which often or usually carry food before eating it themselves. This is very important for atlas purposes because a valid "AY" *confirms* breeding whereas a simple observation of one of those species with food, if in suitable breeding habitat, is only an "H", *possible* breeding.

That is why we are checking with observers for details whenever "AY" is used for one of those species — to learn, for example, whether your Blue Jay was dumping a faecal sac or, if not, what, besides carrying food, indicated that it was caring for young and not just itself.

C — "COURTSHIP behaviour between a male and a female, including display, copulation or food exchange" is a valid code for any species. However, the number of reports in 1986 suggest that some atlassers may be interpreting courtship too broadly. We often refer to the twittering and winnowing nuptial flights, respectively, of American Woodcock and Common Snipe as "courtship flights" but the principal significance of that behaviour, as of song, is to proclaim a breeding territory. So, unless the performing bird is seen to alight beside or display to a second bird, indicating that courtship is taking place, the flight should be considered territorial behaviour and coded as "H" (suitable habitat) or "T" (permanent territory — if observed on occasions a week or more apart).

Some care must be taken with ducks which begin to court and pair up during winter, long before they arrive on their nesting grounds. Unless the ducks are seen **repeatedly** in breeding habitat, it is probably not safe to assign a "P" (pair) or "C" (courtship) before early or mid-May, depending on species. Check your *Breeding Season Chart* for guidance on acceptable dates.

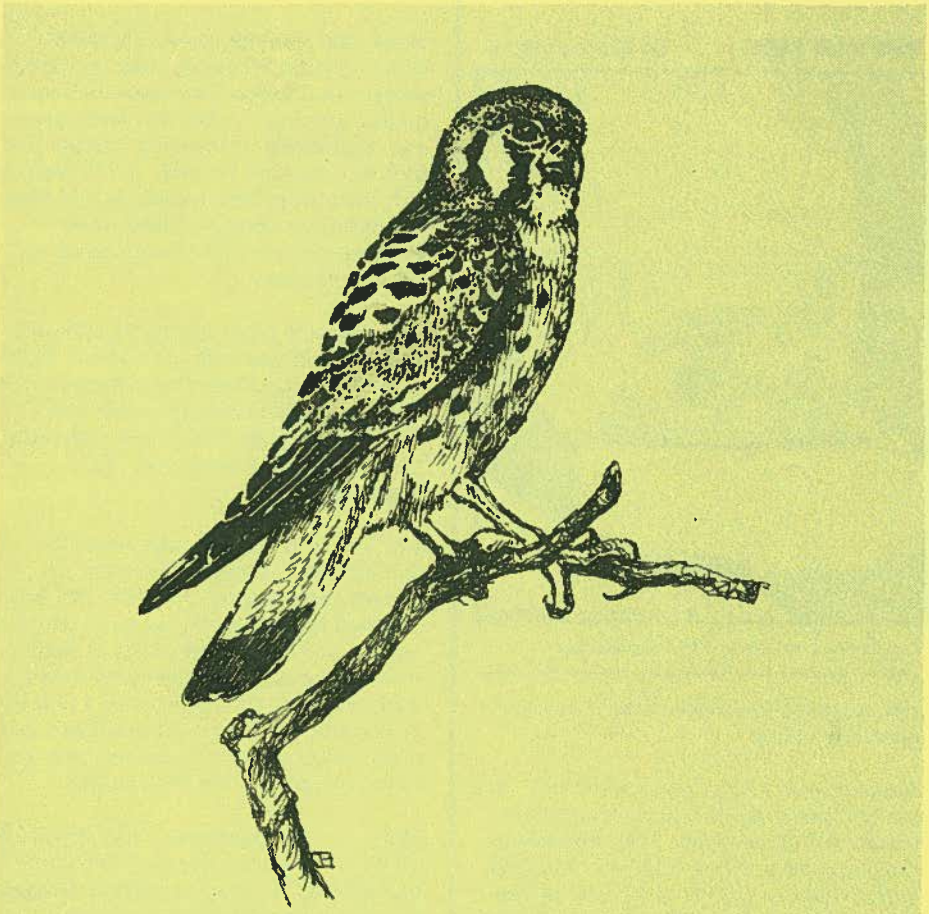
Let's examine other potentially difficult codes, beginning with the highest, those in the confirmed breeding category. There seems to be little difficulty with "NY" (nest with young), "NE" (nest with eggs), "ON" (occupied nest), and "FL" (fledglings).

UN — The prime difficulty with UN, "USED NEST or eggshells found", is correct identification. In 1986, UN was reported for 31 species, some of which do not have "unmistakable nests or shells". Also, it is usually difficult to tell when a stick nest, like an Osprey's, or a nest in a protected site, like a Cliff Swallow's was used. Nests active only before 1986 are not countable for the atlas project.

DD — A well-developed "DISTRACTION DISPLAY or injury feigning" behaviour, as exemplified by a crying Killdeer dragging its wing along the ground, occurs in species that nest on or close to the ground. Calling, scolding, and behaving in an agitated manner *may* also be a means of drawing attention away from a vulnerable nest and young but it has a lower value for atlas purposes. A good way to decide between those two similar codes is to consider the bird's mood. If it generally withdraws, feigning injury or illness, code its behaviour as "DD", a sure *confirmation* of breeding. On the other hand, if it is rather bold and scolding, call it "A" (agitated), a *probable* indication of breeding.

N and **NB** — Have you wondered why there are two codes for "nest-building"? Nest-building (N) by woodpeckers and wrens is considered only probable evidence of breeding because woodpeckers construct roosting holes and male wrens build dummy nests that are not used for nesting. Nest-building (NB) by other species is considered confirmation of breeding.

A — "AGITATED behaviour or anxiety calls of adult *indicating nest-site or young in the vicinity"* can be seen for most birds. Be careful with bold species, which often exhibit agitated behaviour when not nesting, for example crow and Blue Jay (which actually is usually quite quiet while nesting). Ask yourself whether they are exhibiting a degree of agitation that is



***American Kestrel* - Jennifer Brown**

greater than you would observe in fall and winter and therefore a good indication of probable nesting. For example, during April and May, the crows nesting near my house attack passing ravens with a vehemence they never show during winter. [Birds chasing others of their **own** species are exhibiting territorial, courtship or begging behaviour and should not be called "A".]

As the handbook states, be careful with birds that react to "pishing" or squeaking sounds that you make to attract them into view for identification. A somewhat agitated response is best recorded simply as "H" (if it is in suitable breeding habitat) but if a bird becomes very agitated you can safely call it "A".

V — "VISITING probable nest-site" is primarily for use with hole nesters and for Cowbirds seen visiting a songbird nest. It should generally not be used for other birds that nest in trees, bushes, and grassland in which they are normally seen when not nesting. Thus, we have been asking for clarification of "V" reports for species such as Yellow-rumped Warbler, Song Sparrow, and Goldfinch. However, repeated return of a bird to a particular suitable nesting location *may be* worthy of a "V".

T — On the whole, there is little problem with interpretation of the code for a presumed "permanent TERRITORY", indicated by "territorial behaviour in the same location on at least 2 occasions a week or more apart". However, there were a few reports of "T" for colonial birds, such as Great Blue Heron and Bank Swallow, which defend little more than the actual nest against others of their species. And if the nest-site is discovered, a higher code such as "V", "NB", "ON", "NE" or "NY" should be reported.

P — In defining "P" as "PAIR observed in suitable nesting habitat" the atlas handbook warns "that 2 birds of the same species do not always constitute a pair." How can you tell a pair? For atlas purposes, we assume that a male and female together are a pair. Male and female Evening Grosbeaks, redstarts or wood ducks are obvious, because the sexes have very different plumages; it's not too hard to distinguish a female robin from the similar but brighter male, or a chunky female Sharp-shinned Hawk from its diminutive mate, but in amost half our breeding species the sexes differ so little in coloration and size that one often cannot tell which is which.

In 1986 there were close to 600 reports of pairs for species in which males and females are extremely similar in appearance. Behaviour can help you to distinguish such pairs. For instance, if, during the breeding season, you see one bird singing and proclaiming a territory, yet accepting without challenge the **close** presence of another adult of the same species, you have adequate grounds for considering them a pair, even if the sexes are as indistinguishable as in Least Flycatcher or Swainson's Thrush. Be careful to check for behavioural indications before recording such pairs.

H — Observations in "suitable nesting HABITAT", an indication of possible breeding, is straightforward for most species but be careful with colonial birds — such as gulls and terns — that may travel a considerable distance to feed in a different habitat from that in which they nest. Gulls on a wharf, in a field, at a dump or even feeding along the shore are not in nesting habitat. They require islands or isolated sandbars. If you observe *adult* cormorants, terns, Great Blue Herons, etc. in your square try to pinpoint the colony location by observing the birds' flight-lines, so that you can eventually confirm breeding.

No doubt you're wondering what will become of the records for which additional information has been requested. In the computer database, each of them has been marked with a "flag" which indicates it is in the process of being checked. The details you submit are reviewed by the atlas technical committee which will either confirm your code, recommended a change in code or, perhaps, seek further clarification. Once the computer record has been amended to indicate that a check has been completed, the record will have normal status and be used in production of reports and maps.

Just after completing this article I received results of the review of 210 records of the four lowest breeding codes. That sample indicates that there was little problem with "P" for ducks (only 6% downgraded because the date was too early) and, aside from woodcock and snipe, not too much with "C" (73% maintained as "C" and 12% changed to "P", also a probable breeding code). However, for species in which males and females are almost identical in appearance, the committee suggested that 50% of the records of "pairs" be downgraded to the possible breeding category "H", at least half of them because observers, like me, could not remember the circumstances. On the other hand, 14% of the pairs were *upgraded* to higher levels because of information the atlassers provided! Don't forget to upgrade your records to reflect your highest observation. □

WONDERFUL WOODPECKERS

(Adapted from the Delaware B.B.A. newsletter)

Because woodpecker nesting behaviour is fairly similar among the various species, this article contains a generalized outline. Exact details concerning postures and calls vary from species to species, but the following should enable you to interpret what is happening with any particular pair of birds. A series of visual observations over a period of a few weeks is necessary to establish the stage of the nesting cycle.

Drumming is a relatively loud rhythmic series of sounds produced when the bird's bill strikes a resonating object such as a hollow log, branch, metal sign or rain gutter. Drumming occurs at a specific site or sites, called signal posts, which have been selected for their resonating qualities. This activity is part of establishing and defending a territory, or pairing.

Pecking sounds which usually are not loud, rhythmic or in a definite series are considered as **tapping.** Tapping has four known functions and must be evaluated in the context in which it occurs:

i) **Food tapping** is often performed in a series as the bird moves about seeking food. After a short observation period, it should be apparent that the bird is foraging.

ii) **Nest-site selection and hole-boring.** In its search for a nest-site, the bird moves about tapping lightly here and there. Eventually, the bird returns to one certain spot which will be the nest-site. In hole-boring, the rhythm is even and emphatic. The speed is related to the consistency of the tree and the intensity of the bird's drive.

iii) **Displacement tapping** is derived from food-tapping, but is usually a response to stress. If a hungry bird approaches a crowded feeding station but cannot gain access to the food, it will release its tension by tapping at the nearest spot with stereotyped movements, usually accompanied by a raised crest or nape feathers. The tapping is very similar in sound and rhythm to food-tapping, but occurs under different circumstances.

iv) **Ritual tapping** occurs almost exclusively in relation to the nest excavation period. Ritual tapping occurs near, at, or inside the nest cavity. This tapping is done without the apparent intent to excavate a hole, except in cases of extreme stress or excitement.

Pair formation in unmated resident woodpeckers takes place over a long period of time, often beginning in late winter. Resident woodpeckers who mated with one another one year are likely to have adjacent ranges and to pair with last year's mate. Migrant individuals take somewhat less time, because they return to the same area each year and are likely to have the same mate from year to year. Drumming is the first indication that a bird is on territory and that pair formation has begun. Drumming may occur between mates or neighbours causing, in the case of mates, one mate to approach the area of the other. When prospective mates first meet, a number of behaviours

***Pic flamboyant* - Jean-Raymond Gallien**

may be observed. These displays vary with the species, but may include head movements, wing displays, special flights, frozen poses and special calls.

An important interaction is the triangle encounter, involving a mated pair and an outsider. The outsider and the paired bird of the same sex engage in a series of displays and flights. The other pair member does not participate but remains nearby. This interaction may last an hour or more and be repeated over several days. In most cases the intruder loses the conflict and is forced to leave.

After pair formation has taken place **nest-site selection** begins. Both sexes search for a site and either may make the final choice. Both birds work on excavation.

Excavation can functionally be divided into three distinct stages. In the early, or "corridor forming" stage, the bird perches at the entrance and only the head and shoulders enter the cavity. When linking the corridor to the main cavity, the bird may enter the excavation completely, but must back out to dispose of chips. In the late, or "nest chamber" stage, the bird commonly enters, turns around inside and exits head first to dispose of chips from the hole.

Most species make a new cavity each year. Flickers will often re-use a cavity while Pileated Woodpeckers do only sometimes. If a bird does not re-use a cavity, it will spend time renovating, an activity comparable to excavating a new hole. The renovation/excavation ritual is apparently necessary to establish and maintain the pair bond and to assure a successful nesting attempt. Woodpeckers may excavate or begin to excavate multiple cavities before selecting one for the nest-site. Because competition for cavities is intense, a pair may lose one or more excavations to avian or mammalian usurpers. Once a nest cavity is complete there are few days of non-activity around the nest. Some birds will continue to excavate up to about fifteen days after the young hatch, which may be part of nest sanitation.

Copulation may occur from several weeks before egg-laying to shortly after the last egg is laid, but it occurs most frequently during the egg laying period. Copulation usually takes place on a limb in or near the nest tree, and lasts fifteen to twenty seconds. Sometimes tapping or reverse mounting (female mounts male) precedes copulations. Reverse mounting may also occur after the young have fledged and therefore does not necessarily indicate an early stage of the nesting cycle.

Clutch size (number of eggs laid) varies from two to five in Hairy Woodpeckers to five to ten in Northern Flickers. Typically one egg is laid each day in the morning until the clutch is complete. During this egg-laying period, before incubation begins, one bird is frequently at the nest but usually outside the cavity or perched in the entrance. At this stage both birds may be gone for an hour or more and some perfunctory excavation may take place.

The constant presence of an adult in the cavity marks the **incubation** and brooding stages. The male incubates or broods at night while the female roosts in a cavity elsewhere in the territory. During the day, the parents alternate. If a bird is seen perched for a long period of time outside the cavity or perched in the cavity entrance when the weather is cool, incubation has probably not begun. Also, note that in bad weather woodpeckers shelter in a cavity entrance, so this behaviour may not indicate a nest. After incubation has begun "sitting in the entrance" behaviour may be observed on warm days, and one might observe the bird panting. Caution is required late in the day as woodpeckers go to roost well before dark. A bird perched in a cavity entrance at this time may not be at a nest.

Woodpeckers are usually at the nest more during incubation than after **hatching.** As one might expect the attentive periods are longer in wet or cold weather or during the cooler part of the day. During incubation the birds will not flush readily from the nest, whereas after hatching they will. If a bird is flushed in the first four to six days after the eggs have hatched it will return fairly soon.

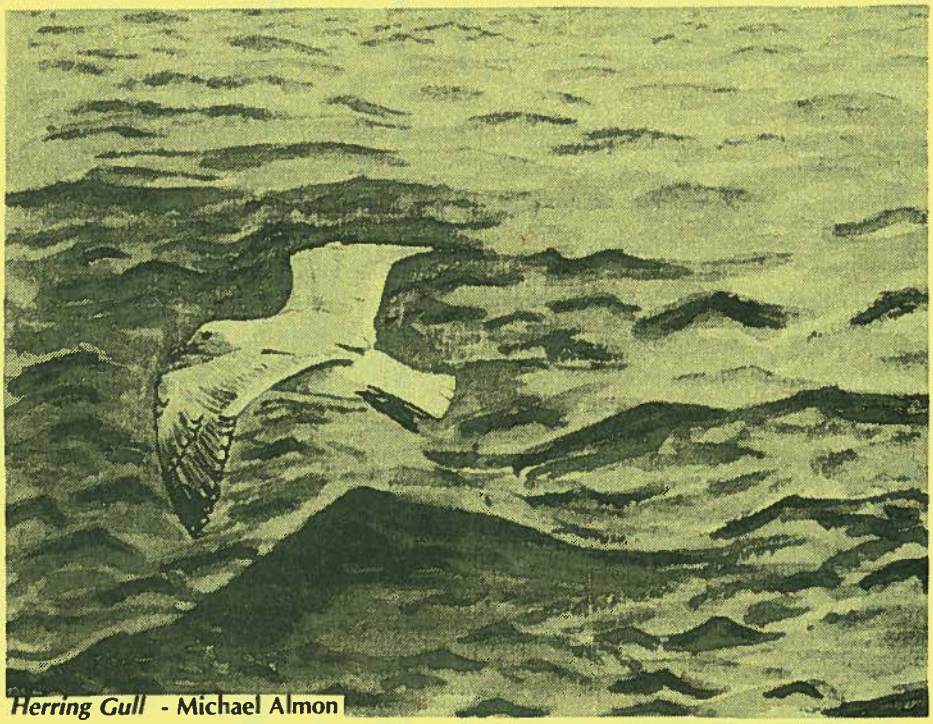
Since incubation may begin a day or two before the clutch is complete, hatching may take place over two to three days. The parents feed the young soon after they hatch, thus an adult carrying food or a faecal sac indicates that at least one egg has hatched. Egg shell removal may indicate the presence of young or may be the removal of a damaged egg. For the first four to six post-hatching days in Downy and Hairy Woodpeckers, one parent is nearly always at the nest. These species carry food in the bill to feed the young, but the food items may be so small that they are virtually unobservable. Flickers and Pileated Woodpeckers feed by regurgitation and thus it is more difficult to determine when the young have hatched.

During the first few days some of the adults of all species will consume the faecal sacs, then carry them away from the nest for disposal after this initial period. In the species that feed by regurgitation, and for the first few days in the others, look for a wet glistening bill on an adult emerging from the nest. Often the adult will perch momentarily at the entrance and will have peculiar throat movements that give one the impression that the bird is having difficulty swallowing or is rapidly extending and withdrawing its tongue. This has been noted for all our woodpecker species. The initial feeding rate may be slow but it increases rapidly as the eggs hatch. The number and frequency of the feeding trips varies with the species, time of day and weather conditions.

At hatching the young are naked except for tiny quills where the flight feathers will appear. The young of most species give a rhythmic beeping sound audible at one to two meters. A change in light intensity will elicit a raspy begging response, which, at three to five days after the young hatch, can be heard from the base of the tree. If you suspect a nest, pass an object over the entrance. The young birds will respond by begging loudly until they are twelve to fifteen days old, after which they will respond by huddling in the bottom of the nest. Young become active in the nest three to seven days before fledging and may appear at the nest entrance during this time.

For the first four to six days after hatching occurs, the adults completely enter the cavity to feed the chicks; after feeding the adult will brood the young or wait for its mate to return. At this time it leaves the nest head first. After the sixth day, the adult usually does not wait for its mate to return. By day ten to twelve, the adult will enter the cavity almost completely, feed the chicks and come out tail first. By day fifteen to eighteen, the adult feeds the young by inserting its head and neck into the nest cavity, entering on occasion to remove the faecal sacs.

This may be more information than you need to confirm woodpecker breeding in your square, but it should give you some insight into any woodpecker behaviour you encounter. It's such fascinating stuff that I can hardly wait to snoop around in my square in the hopes of spying some telltale signs that the woodpeckers are breeding. □



Herring Gull - Michael Almon

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