

Appendix G: Details of Breeding Evidence

There are several categories of breeding evidence within each breeding level (Table G1). Familiarize yourself with the breeding evidence codes and categories because they will be regularly used in the field; most atlasers find it handy to have a copy of the codes with them for reference and even experienced atlasers do so. The codes are also provided on the NatureCounts app. For instructions on how to report breeding evidence using the app, [click here](#).

The codes, levels and categories in Table 1 are listed in order of breeding evidence, **from lowest to highest**. When recording breeding evidence codes on the Atlas Checklist, **record the highest level observed for that checklist**. For example, if you hear the song of a Swamp Sparrow, then later during your walk witness one carrying food, change the earlier recorded “S” to “CF” in the breeding evidence column and add the individual(s) to the count column.

Be sure to only record breeding evidence codes for breeding birds; **do not use X for migrants**. For species that are clearly migrants, leave the breeding evidence code **blank**! If you are unsure as to whether a bird is a migrant, please refer to the Safe Dates available on the atlas website ([click here](#)). You may use the X code for a bird that *could* be a migrant or a local breeder, i.e. in the shoulder season between early breeding and last migration. If you have doubts about the appropriate category for a particular observation, ask your RC ([click here](#)) or contact the Atlas Office ([click here](#)).

Below are some examples to serve as guidelines for using breeding evidence codes.

- Common Loon in basic (winter/subadult) plumage spending the whole summer on a lake: Observed-X.
- Common Loon or ducks in alternate (breeding/adult) plumage on a lake or other waters (ie in suitable breeding habitat) during their breeding season, but no song, display or broods: Possible-H.
- Grouse heard drumming: Possible-S. (Probable-T if heard on more than one date a week or more apart in the same place. Probable-D only if actual courtship and display to females are seen).
- Rails heard in a marsh on a visit in early breeding season, but not on subsequent visits: Possible-S.
- Wilson’s Snipe “winnowing” flights, for three weeks, but then no further signs: Probable-T.
- (Possible-S if seen or heard only once; Probable-D if actual courtship and display to females seen).
- Gulls frequenting dumps, ploughed fields, drive-ins, park lakes etc. throughout summer in unsuitable breeding habitat: Observed-X.
- Woodpeckers drumming: Possible-S if heard in breeding season; Probable-T if heard a week or more apart in the same place.
- White-throated Sparrow building a nest: Confirmed-NB.

Breeding Evidence Quiz

You can test yourself on some of the trickier codes and categories using the Quiz ([click here](#)).

Cautions

Breeding evidence for some groups may be complicated by certain behaviors. Examples where **caution** is required include geese undergoing **molt migration** in the summer; some shorebirds, gulls, loons, grebes, waterfowl, and eagles “**over-summering**” without breeding; birds **singing at stop-over sites** on migration (warblers and sparrows); and **courtship behavior during migration** (gulls and waterfowl). Consult the “Safe dates” table ([click here](#)) to learn about the usual periods of migration and breeding in various parts of Ontario.

Questionable Codes

Some species-code combinations will not be accepted during data entry. Such combinations are largely common sense such as: NB (nest building) for a species that does not build a nest; CF (carrying food for young) for most precocial species; using N (Nest-building by wrens or nest hole excavation by woodpeckers) for anything other than wrens or woodpeckers; and FS (adult carrying a faecal sac) for non-passerines.

Other species-code combinations require caution and may be flagged during data entry. For example: NU (nest used) – most nests and eggshells are not unique or unmistakable; CF (adult carrying Food for young) for species that either carry food for themselves (raptors and corvids), typically regurgitate food (Northern Flickers), or perform courtship feeding rituals (terns); and P (pair observed in suitable nesting habitat during the species' breeding season) for species where males and females look alike.

Strengthening the Evidence for Breeding

During the course of the 5-year survey, while looking for previously unrecorded species, you should also look for stronger evidence of breeding for previously recorded species in each square. Information about the highest breeding evidence codes obtained for each species in a square can be found on the Square Summary sheets on the website ([click here](#)). For example, on your first visit to a square, you may observe a singing Song Sparrow in suitable habitat, which you record as “S”. If you observe this bird singing in the same location on subsequent occasions during the breeding season at least a week apart, you would now be able to upgrade this to “presumed territory” and you could enter “T”. If later that breeding season you were to find a Song Sparrow nest with eggs in it, you would fill in “NE”. You would then have upgraded the Song Sparrow from "Possible" to “Probable” and then to the “Confirmed” level of breeding evidence.

You should attempt to obtain Probable or Confirmed breeding evidence for as many species as possible in the square. For species flagged as regionally or provincially rare that you observe while atlassing, try to find Probable or Confirmed breeding evidence for these rare

species on each checklist. If you cannot upgrade the breeding evidence to Probable or Confirmed on the visit, consider returning later in the season to upgrade the breeding evidence for these rare species.

Many observers from previous atlases found that it was easier to obtain Confirmed breeding records later in the season by observing adults carrying food or seeing fledged young. However, it is still important to do most atlassing early in the season, especially in June, because many more species are singing and easier to find at that time. Remember that some groups are best surveyed earlier or later in the year, for example owls and grouse are most easily detected from March through April. American Goldfinch and Cedar Waxwing are examples of species whose nesting may peak in July and continue into August and even beyond.

Table G1. Breeding evidence codes (expanded version).

OBSERVED	
X	Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.
POSSIBLE BREEDING	
H	Species observed in suitable nesting Habitat during its breeding season.
S	Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.
PROBABLE BREEDING	
M	Multiple singing/calling/drumming individuals (7 or more) heard during one visit to a single square and in suitable nesting habitat during the species' breeding season. Use with caution to avoid counting migrants.
P	Pair observed in suitable nesting habitat during the species' breeding season.
T	Presumed Territory based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, one week or more apart, during the species' breeding season. Use discretion when using this code. "T" is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site (e.g. Turkey Vulture, and male waterfowl).

D	Courtship or Displays involving a male and female (e.g., courtship feeding, copulation) or antagonistic behavior between two or more individuals (e.g., territorial disputes or chases), in suitable nesting habitat during the species' breeding season.
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.
N	Nest-building by wrens or nest hole excavation by woodpeckers (both may build dummy or roosting nests so nest-building alone is not enough to confirm breeding).
CONFIRMED BREEDING	
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.
FY	Recently Fledged Young (nidicolous species - whose young are raised in a nest) or downy young (nidifugous species - whose young leave the nest soon after hatching) incapable of sustained flight.
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.
FS	Adult carrying a Faecal Sac.
CF	Adult Carrying Food for young.
NE	Nest containing Eggs.
NY	Nest with Young (seen or heard)