

## 7 NEST RECORD SCHEME

Zoological Museum, Finnish Museum of Natural History  
Societas Scientiarum Fennicae

Nest Record Scheme / Zoological Museum

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1. BACKGROUND AND AIMS. Knowledge of the breeding biology of Finnish birds has mainly been gained with the help of nest record cards. The original Finnish nest record card was among the first ones in the world after the card produced by the British Trust for Ornithology in 1939. It was designed by Prof. Lars von Haartman in 1956, and about 120 000 cards had been completed up to 1985. However, many years before 1985, the data had become too extensive for a manual analysis. A new card was designed for computer usage. This version (7A-B) was produced by the Zoological Museum and Societas Scientiarum Fennicae, and has been used since 1986. About 6000 cards are filled annually.

When the nest record card was renewed, the aim was to investigate new types of problem, made possible with the application of modern methods; for example: how the timing of nesting and success of breeding varies in different environments, in different parts of the country and in different habitats. These are important for ecological research and for monitoring environmental changes. The new nest record card can also be used in recording the nesting habitats of threatened species.

Although a computer system was developed for the new card, information from the old cards was also included in the data base. The new system enables us to collect enough nest cards for monitoring the annual breeding performance of certain species. The supporters of the Museum are urged to put special effort into collecting data on the following species of

- forests: Redwing *Turdus iliacus*, Garden Warbler *Sylvia borin* and Willow Warbler *Phylloscopus trochilus*
- open land: Whinchat *Saxicola rubetra*, Whitethroat *Sylvia communis* and Scarlet Rosefinch *Carpodacus erythrinus*
- agricultural habitats and human settlements: Swallow *Hirundo rustica*, Pied Wagtail *Mo-*

*tacilla alba*, Magpie *Pica pica* and Starling *Sturnus vulgaris*

- shores: Common Gull *Larus canus*, Lesser Black-backed Gull *L. fuscus*, Sedge Warbler *Acrocephalus schoenobaenus* and Reed Bunting *Emberiza schoeniclus*.

2. WHEN TO FILL IN A NEST RECORD CARD? Every nest that is visited at least twice can be used to calculate nesting success rates. The most useful are the nests visited at least twice during both egg and nestling stages. If the age of either eggs or nestlings are estimated and given on the card, it is possible to calculate the first day of laying even if the nest was visited only once. Cards with only one visit are also useful, when habitat and nesting site data are accurately coded.

It is important that the nests reported are not selected in any way. The aim is to gather a random sample of all nests of each species regardless of their timing of breeding, or of their success.

3. NEST VISITING AND THE OBSERVER FORM 7C-D. Nests should not be visited too frequently (i.e.: every day), although it would be good if nests were studied throughout the whole nesting period (if possible from the egg laying to the departure of fledglings). Nests that are more vulnerable to destruction should not be visited more often than other nests. Observers often tend to check sooner the nests they believe will be destroyed, but if nesting seems to go well, then the nest is not checked so often for fear of predators finding the nest. Thus unsuccessful nests are visited over short intervals and successful nests over long intervals. This produces difficult biases for the statistical analysis of nest mortality. Details on species that the observer has observed without the bias mentioned above, should be reported on the observer form.

Time spent searching and observing nests should be written on Observer Form 7C-D. This information is helpful in the analysis of nest record cards. Generally searching and observing activity decreases toward the end of the summer. Accordingly, nest record data is biased toward early season nests. If late nests of a species produce more chicks than the more easily found nests from the early part of the season, it is possible that false conclusions will be drawn from the nesting results. However, it is possible to take this bias into account if observing activity has been recorded.

**4. HOW TO FILL IN A NEST RECORD CARD?** The completion of nest record cards (Form 7A-B) is explained in detail below. The cards are to be filled in clearly with a pencil. The data should be written in the box reserved for it or marked by circling the appropriate option. Only one capital letter or one number should be written in each space, the letters starting from the left margin and the numbers ending at the right margin.

It is recommended that data are inserted at the time of the nest visit (the folding seam improves the use of the card in field). This practice reduces the risk of mistakes in recall and in copying of data. It is also easier to report all the required codes accurately while at or near the nest site.

#### THE FRONT SIDE OF THE NEST RECORD CARD (Form 7A)

**CARD NUMBER** will be written onto the card by Museum staff when it is returned. The code for **CLUTCH SEQUENCE** indicates the position-order of this clutch in the breeding effort of a pair during the ongoing season. The pair should be colour-ringed or otherwise individually known and have been under study from the start of the breeding season. The box should be left empty if it is not fully certain how many clutches the pair has had. The number codes are:

- 1 = first clutch
- 2-4 = clutches laid after the first clutch was destroyed: code for the first repeat clutch = 2, for the second one = 3, for the third one = 4
- 5 = a genuine second clutch laid after the first successful clutch
- 6-8 = repeat clutches laid after the second clutch was destroyed (as 2-4)

- 9 = a genuine third clutch laid after the second successful clutch.

Each new clutch is to be reported on its own card even if it is laid in the same nest. Nest record cards concerning the same pair are to be sent to the Museum tied together. The mark of the pair should be written under the box. The mark may be the ring number(s) of the male and/or female. With these marks it is possible to combine the clutches of the same individuals in different years.

**SPECIES** is marked with a 3+3-letter code according to Appendix 1. If you are not sure about the abbreviation, write the ordinary name beside the box. If you are not sure about the species, do not fill in the card. The Museum guarantees that information about rare or threatened species will remain confidential. Such data may be used with all details only for conservation purposes.

**OBSERVER NUMBER.** The personal observer number (or ringer number) given to recorders by the Museum is used on nest record cards. If you have no observer number yet, write your name beside the box. Once you have returned nest record cards or participated in other bird projects of the Museum, you will be given a number (check the general instructions of the Manual). If you have an observer number already, it is still useful to write your name or initials beside the box.

**YEAR, SHIELDING and MUNICIPALITY.** The **YEAR** is marked with the last two numbers of the year. **SHIELDING** may be used, if you are conducting a special research project on the species. In this space write the number of years (1-9) that you wish the material to stay protected from other use. For example, year = 90 and shielding = 3 mean that the material is for your use only up to and including the year 1993. It is recommended that you negotiate with the Museum about especially long shielding periods. The **MUNICIPALITY** is marked with a 6-letter code according to Appendix 2. The exact place is of special importance if the national grid coordinates are not available.

**NATIONAL GRID.** All the spaces of the box should be filled in with numbers if the accuracy of the coordinates is given to 1x1 km (recommended). If the accuracy is given to 10x10 km, the last space of both coordinates should remain empty (do not use zeros in this case because they are reserved to indicate accu-

rate coordinates). If the coordinates are not reported, they are either defined at the Museum using the place-name or the computer picks the central coordinates of the municipality to be the coordinates of the nest. Note that if only the municipality code is given, a small spelling error may "throw" the nest to another part of Finland. If the grid coordinates are available, comparison with the municipality code reveals possible errors. There is more information about using national grid coordinates in the general instructions of the Manual.

**NEST HEIGHT FROM GROUND OR WATER, HEIGHT OF NEST TREE, DISTANCE OF NEST FROM STEM.** The two heights are reported more exactly for shorter distances: height from ground or water is estimated from the nest's lowest point with an accuracy of one decimeter (10 cm), for nests placed higher than 20 m, an accuracy of five meters is sufficient. For example the code 001 = 10 cm, 095 = 9.5 m, 220 = 22 m. On cliffs, sandbanks and buildings the height of the nest is estimated from level soil. The height of a nest tree is easily estimated by standing about 20 m away from the tree and mentally dividing it into parts to give the heights of 2, 5, 10, 15 and 20 m. **DISTANCE OF NEST (the rim of the nest) FROM STEM** is estimated with an accuracy of one decimeter (10 cm). The distance is 1 (= 10 cm), if the nest is touching the stem. Zero can not be used in this case, because it is used for indefinite or missing values.

**NEST SITE.** Circle the code which best describes the nest site. The species of deciduous bush or tree should be written beside codes 08 and 15; these are not indicated in advance on the card because of the large number of alternatives.

**TERRAIN AROUND NESTING HABITAT.** The more clearly the nesting habitat is a patch, the more important it is to know what kind of landscape surrounds it. For example, a small wood or coppice may be surrounded by a large clear-cut area, an open fen, a field, a lake, an urban area or some other type of landscape. The breeding result of a species may differ between similar habitat islands in accordance to differences in the surrounding habitat.

**NESTING HABITAT.** Circle the code which describes the nesting habitat best. In each habitat group the most nonspecific definition is given first (e.g., 10 = forest, 70 = arable land); usually there is no reason to use these

codes, because a more specific description can easily be given. In forest habitats, poor or mesic (fairly productive) sites are distinguished from rich ones, and in reference to tree species composition.

**AREA OF NESTING HABITAT.** The area covered by the habitat is expressed in size classes. The rough metrical measures of each square area representing the maximum size of its class are shown on the card in brackets, in order to help the estimation of the nesting habitat area.

**POSITION OF NEST WITH REGARD TO EDGE.** Circle one code from both columns. Mark the options which describe most accurately the position of the nest with regard to the edge of the area. The left column is used to record on which side of the edge between an open and a closed habitat the nest is situated. The alternative "cannot be estimated" may be used if there is no clear edges or, for example, when the nest is situated in a building. The alternative "nest in semi-open area" may be used when the nest is, for example, in a patchy scrub area or in a garden. A clear-cut area with a few seed-trees left standing can be regarded as an open area when the nest is situated in an adjacent forest. If the nest is in a seed-tree stand, it is classified into open or forested habits on the basis of the density of the trees. In the right column the distance from the nest to the edge is estimated. Note that if the position of the nest cannot be estimated (a zero is marked in the left), a zero is marked also in the right column. If the nest is placed deep in the forest (distance from edge 90 m or more), the code 9 is circled in both the columns.

**HOW NEST FOUND.** Of the options presented, "cold search" means that the search for nests was not based on observations on the behaviour of parents, but purely on searching in likely sites.

#### THE REVERSE SIDE OF THE CARD (Form 7B)

**BREEDING SUCCESS** is reported by circling the appropriate code. It summarizes the visits during which the nest contents were carefully checked. Nests of species which tend to abandon their nests when disturbed (usually during the egg stage) must be checked with special care. Such species include at least Eagle Owl, Woodpigeon, Song Thrush, Willow Tit and

Red-backed Shrike. Most of the options are commented upon below.

- 01: Usually used when coding old cards.
- 02: May be used when the nesting result is unknown. The situation may occur, if the nest was not visited after ringing or near fledging or, if the nest was visited so late after the chicks left the nest that the nesting result could not be evaluated with certainty.
- 03: The nesting is reported as successful even if the chicks were still in the nest at the last visit, which was made at so late a growth stage that they would have been able to leave the nest if disturbed severely. Note that *the nest is regarded as successful even if it produces just one chick which leaves the nest.*
- 04, 05: The chicks may "explode" from the nest before the normal fledging time, if they are disturbed near the end of the nestling period. Even though any disturbance leading to premature fledging should be avoided, this sometimes happens (e.g. if the nest was found accidentally at the end of nesting).
- 06, 07: Make sure that the parents and the chicks are from the observed nest, not some other birds visiting the nest site. Note that the parents may continue carrying food after their nest has been destroyed. However, this stage is short and the parent itself usually eats the food after a while. Warning calls may not be used as the only criterion of successful breeding, because parents sometimes keep calling many hours after their nest has been destroyed. Code 06 may be used when the parent is acting as if injured (distraction display).
- 08: If there are broken shells but no leather-shells in the nest, nest destruction has occurred (in case of precocial species, presence of leather-shells indicates successful hatching).
- 09: In altricial species flight feathers and coverts are first seen as pointed "pins". When the feather emerges from the sheath the cover of the pin breaks down to scurf and disappears to the bottom lining of the nest. The scurf is found by lifting the lining of the nest. To establish a successful breeding, a lot of scurf must be found on the bottom. A small amount of scurf may occur if the nest was destroyed when the chicks were still young. The amount of scurf is proportional to the brood size.
- 12, 13: If the nest is unbroken but empty, although there should still be eggs or chicks in it, the contents have probably been taken by a predator. Distinguishing between unbroken and de-

stroyed nests helps in rough identification of the kind of predator. If the predator is identified for certain, write the species name beside the code.

- 15: Flood, rain or wind may have caused failure.
- 17: The eggs were abandoned during incubation.
- 18: Incubation lasted longer than usual, but the eggs did not hatch.
- 20: This option may be used, when the remains of the clutch show that a predator ate all the chicks.
- 24: Exploitation by Cuckoo means unsuccessful breeding for the host species. For the Cuckoo, nesting may be successful. In all cases, fill in another card for it. Mark the host species on the Cuckoo card.

STUDY AREA and NEST(-BOX) NUMBERS are mainly reserved to be used in studies that monitor hole-nesting birds (see instructions in Ch. 9 of this Manual). Numbers of new nest-box areas are given out from the Museum. Consult with the Museum if there is need to code other types of study area in this box.

IS THE NEST IN A COLONY? The nest is considered to be in a colony of another species if it is in the area which is protected by the parents of the colony when they defend their own nests. The species are most often the Fieldfare, terns and gulls. If information about several nests of colonial species is written on the same card (option 3), each nest visit row represents a separate nest; in this case all rows must have the same date. (Note that the maximally 15 nests which can be reported e.g. from a large Black-headed Gull colony should be chosen randomly from different parts of the colony. To establish the stage of the development of the eggs one can use the flotation test or candling techniques.) If it is possible to visit the colony twice without causing damage, even more valuable material may be collected by marking several nests individually and reporting each nest on a separate nest record card.

NEST VISITS. Information about each nest visit is reported in the box below. (In case of colonies, the rows may represent different nests; see the previous paragraph.) If there are more than 11 visits, use an extra card bound together with the first one. The data input computer program tolerates maximally 15 visit rows from one nest. (If more are presented, less informative ones are excluded at the Museum.)

STAGE OF BREEDING should be coded at each visit with numbers or with a letter-number

combination according to the list beneath. With the help of the letter code it is usually possible to determine the age of the nest with an accuracy of a few days, if it is not already exactly known. It is necessary to report the exact age of the nest with numbers only once (if it is known or can be estimated accurately). On the other hand it is possible to fill in two data rows at one visit, one giving the exact age of the nest with a number and the other one indicating the stage of nesting with a code (this is possible only if the card is of one nest). When ringing chicks (C5) it is useful to report ringing on one line and to give the exact age of the chicks on another line, if it was not presented before. The system allows one to code records also when chicks have been followed after leaving the nest.

The number code is used if the age is known or if it can be estimated with an accuracy of 1–2 days. In the egg stage this is possible by candling or with a flotation test. In the nestling stage the age may be estimated on the basis of experience or according to the wing lengths of the chicks.

The codes E4–E5 may be used only if the incubation stage has been tested. Start using the C-codes instead of E-codes when the first chick has hatched. When you use the codes C1–C9, give the exact number of young. If the young are not counted use code C0. Codes C7 and C8 may be used as long as the brood stays together and it is possible to identify the juveniles and parents as the original ones. It is also important to count the exact number of young after they left the nest. (Note that broods of many species divide into two groups, which are each led by a single parent. There is no reason to report a divided brood if both groups have not been found.) When using the codes E0, E9, C0, D0, D1 or D2 the columns "Eggs" and "Young" remain empty.

With the aftercheck code A1 it is possible to present information on breeding losses in a successful nest. Remember then also to report cases when there were no unhatched eggs and no dead chicks. When using A2, only the part of brood, which is in the nest, is presented in the box, because you do not know the exact number of young that are alive outside of the nest. Instead of code A3, use codes D0–D2 if the nest has been destroyed.

Using the nest visit data it is possible to calculate the initial date of nesting, the clutch and

brood size and breeding success. Especially remember to present data on the visit(s) on which you have based your selection of the BREEDING SUCCESS code.

In the space reserved for HOUR and ADDITIONAL INFORMATION write all exceptional observations about the nest (e.g. if some eggs or chicks disappeared or if a part of the brood had already left) so that the inspector of the cards knows that the change in the number of eggs or young was not a mistake. If the reason for the destruction of the nest is known it should be reported here. HOUR is needed when reporting the interval between egg laying, hatching of chicks or chicks leaving the nest. If there are eggs or chicks of more than one species in the same nest, only the eggs and chicks of the incubating species are to be reported in the boxes. The possible eggs and chicks of other species are to be written in the space reserved for additional information.

The most common mistakes can be avoided by taking a look at Form 7E ("Check out of the nest record cards"), with which the inspector reports about repeated mistakes and asks for additional information.

5. NESTS IN NEST-BOXES. Data on nests in nest-boxes can be reported on Nest Record Cards. All bird watchers who have more than a few nest-boxes would be welcome to participate in the special nest-box research project. Information for this is available elsewhere in this Manual (Ch. 9).

6. NESTS OF RAPTORS. The data from all raptor nests are reported by a special "Nesting form for raptors", which is available from the Ringing Office at the Zoological Museum (look at the special raptor monitoring instructions, Ch. 8, in this Manual). If you use a normal Nest Record Card instead of using the Raptor Nest Record Form, write the coordinates of the nest to an accuracy of 100 metres in the space for additional information.

7. GENERAL INSTRUCTIONS FOR NEST SEARCH AND VISITS. New users of the Nest Record Card and birdwatchers with little experience of how to find and visit nests should read the following instructions and follow them carefully.

Move with great care near nests. Activities at the nest must not cause destruction of the

nest; so be careful not to expose the nest to predators, cause desertion or any other harm to the nest.

Do not visit the nest more often or for longer than is essential. Visits should be made as quickly as possible to minimize disturbance. Make all equipment ready before you go to the nest. Searching for nests should, if possible, be done by observing the normal behaviour of parents from a suitable hiding place. Searching near a nest, which causes parents to make a lot of alarm calls, should be used as little as possible. Experience makes searching easier and quicker.

The nest, as well as the vegetation surrounding it, should be left unharmed. Vegetation that protects the nest should only be bent carefully to allow inspection of the nest; never break the plants. If the nest is supported by vegetation be sure that the nest does not lose support. Also the nest should not be powerfully swung by moving the supporting plants. The nest must not become more visible after it has been visited. Also be careful not to leave tracks or clearly defined smell traces that lead to the nest. Ideally the nest should be examined when passing it from as far away as possible. The nest should never be examined if there is a watching corvid or other potential predator nearby.

When the nest site is already known, subsequent visits should be done without scaring the parents. While approaching the nest it is recommended to make some noise to warn the parents of your coming. This may be done by e.g. singing, cracking dry sticks or knocking on the bottom of the nest-box. If the parent is not at the nest when it is examined, make sure that any approaching parent can see you from some distance. If the bird does not notice a person until it tries to land on the nest, it may be scared into desertion.

When approaching the nest try to ascertain as soon as possible whether the parent is in the nest or not. If the parent seems to be especially reluctant to leave the nest, it is possible that it is laying or that the chicks are just hatching. The nest should not be disturbed in this kind of situation, it is better to retreat without flushing the bird. The parent may also be reluctant to

leave the nest for fear of revealing it. In these cases if you turn your back to the nest the parent may use the opportunity and slip away "unnoticed".

A few species (such as grebes and tits) cover the eggs when they leave the nest. If the parent leaves the eggs uncovered because of your visit, you should cover them.

It is common that fledglings may leave the nest prematurely during their last days in the nest. In this way, if an enemy threatens the nest, at least one or some of the chicks may survive. However, such prematurely fledged chicks are often quite helpless out in the open and have a higher risk of perishing than if they were still in nest. A nest with old chicks should be examined from such a distance that the fledglings do not "explode". Thus, for example, do not climb a tree if it causes the nesting tree to shake or swing. The chicks of e.g. Dunnock, Song Thrush, Blackbird, Red-backed Shrike, Linnet and all the *Sylvia* warblers are prone to leave the nest when still very young.

The safety of the birds is always more important than a perfectly completed nest record card!

*Return the nest record cards and the observer form to the Museum before the end of August!*

#### SELECTED REFERENCES

- v. Haartman, L. 1969: The nesting habits of Finnish birds. I. Passeriformes. – *Comm. Biol. Soc. Sci. Fennica* 32:1–187.
- v. Haartman, L. 1974: Finnish nest records. – *Ornis Fennica* 51:48–58.
- Tiainen, J. & Piironen, J. 1985: Nesting success of the Redwing in Finland in 1984 (in Finnish with English summary). – *Lintumies* 20:150–152.
- Tiainen, J. & Väisänen, R.A. 1986: The renewed Finnish nest record scheme (in Finnish with English summary). – *Lintumies* 21:58–59.
- Väisänen, R.A. & Stjernberg, T. 1989: Finnish nest record scheme in 1986–88 – a progress report (in Finnish with English summary). – *Lintumies* 24:142–149.

<p><b>RECORD CARD</b> Version 11/1990</p> <p>Zoological Museum, University of Helsinki Societas Scientiarum Fennica</p> <p>RD NUMBER (for Museum use) <span style="border: 1px solid black; padding: 2px;">1</span> CLUTCH SEQUENCE</p> <p>SPECIES (3+3 letter code) RING NUMBERS</p> <p><span style="border: 1px solid black; padding: 2px;">P H O</span> ♂ V-617.177  <span style="border: 1px solid black; padding: 2px;">H O P H O</span> ♀ Y-617.178</p> <p>SERVER NUMBER</p> <p><span style="border: 1px solid black; padding: 2px;">234</span> or name: .....</p> <p>COUNTRY MUNICIPALITY (6 letter code)</p> <p><span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">K O N T I O</span></p> <p>place-name: <b>KEROLANKANGAS</b> .....</p> <p>COORDINATES</p> <p><span style="border: 1px solid black; padding: 2px;">69</span> <span style="border: 1px solid black; padding: 2px;">50</span> <span style="border: 1px solid black; padding: 2px;">65</span> <span style="border: 1px solid black; padding: 2px;">0</span> W - E</p> <p><span style="border: 1px solid black; padding: 2px;">11</span> <span style="border: 1px solid black; padding: 2px;">0</span> <span style="border: 1px solid black; padding: 2px;">12</span> <span style="border: 1px solid black; padding: 2px;">.</span> S - N</p> <p>HEIGHT OF DISTANCE OF NEST TREE NEST FROM STEM</p> <p><span style="border: 1px solid black; padding: 2px;">11.0</span> <span style="border: 1px solid black; padding: 2px;">1.2</span> <span style="border: 1px solid black; padding: 2px;">.</span> m</p>	<p><b>TERRAIN AROUND NESTING HABITAT</b> (circle one code):</p> <p>0 Not classified 5 Scrub          1 Forest 6 Arable land          2 Clear-cut area 7 Settlement          3 Open fen or pine 8 Gravel pit          mire 9 Fell          4 Shore, wetland or water</p> <p><b>POSITION OF NEST WITH REGARD TO EDGE</b> (circle one code in both columns):</p> <p>SITUATION OF NEST FROM EDGE</p> <p>0 Cannot be stated          1 Nest in open area          2 Nest in semi-open area          Nest in forest, nearest open area is:          3 Arable land 4          4 Clear-cut area          5 Road          6 Shore          7 Mire          8 Open cliff or fell          9 Open site is situated further than 90 m away</p> <p>16 Hole in coniferous tree, species:          17 Hole in deciduous tree, species:          18 Nest-box          19 Cavity under stones or in ground          20 Cavity in cliff or bank          21 Building          22 Other artificial structure:          23 Other, what:</p>	<p><b>NESTING HABITAT</b> (circle one code):</p> <p>10 FOREST poor or mesic rich          01 11 Spruce          02 12 Pine          03 13 Coniferous          04 14 Mixed          05 15 Deciduous          06 16 Birch          07 17 Aspen          08 18 Alder          09 19 Oak</p> <p>20 CLEAR-CUT AREA          21 Not ploughed          22 Ploughed</p> <p>30 MIRE          31 Open fen without pools          32 Open fen with pools          35 Pine mire (natural state)          36 Ditched pine mire</p> <p>40 FELL          41 Mire (birch zone)          42 Mire (alpine zone)          43 Alpine heath          44 Stony ground</p> <p>50 SCRUB          51 Spruce, seedling stand          52 Pine, seedling stand          54 Juniper scrub          55 Mixed scrub          56 Deciduous scrub          57 Willow scrub          58 Coniferous hedge          59 Orchard scrub</p> <p><b>AREA OF NESTING HABITAT</b> (circle one code; appr. upper limits of classes in parenthesis):</p> <p>0 Not estimated          1 Less than 1 are (10x10m)          2 1-10 ares (30x30 m)          3 10-100 ares (100x100 m)          4 1-10 hectares (300x300 m)          5 10-100 hectares (1x1 km)          6 Over 100 hectares</p>	<p><b>SHORE OR WETLAND</b>          60 Marine islet (without or with few trees)          62 Coastal or lake islet          63 Narrow shore          Over 30 m wide shore:          64 Sandy or gravel shore          65 Shingle or cliff shore          66 Shore meadow (dry)          67 Shore meadow (wet)          68 Reed-bed, cattail, sedge marsh etc. (also previous year)</p> <p>70 ARABLE LAND          71 Cereal field          72 Root or oil plant field          73 Ley or pasture          74 Drain or ditch side          75 Abandoned field, not yet overgrown by bushes</p> <p>80 SETTLEMENT          81 Farmstead          82 Rural settlement          83 Private house area          84 Sparse high building area          85 Dense high building area          86 Park, cemetery          87 Wasteland, ruderal area          90 GRAVEL PIT          94 ROCK          95 Deep rock or mountain steep          96 Open rock          99 OTHER, specify:</p> <p><b>HOW NEST FOUND</b> (circle one code):</p> <p>1 Accidental 3 Adults followed          2 Cold search 4 Site previously known</p> <p>Return to: Nest cards / Zool. Museum          P. Rauaiakatu 13, SF-00100 Helsinki  <b>REMEMBER ALSO TO FILL IN THE OBSERVER FORM!</b></p>
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IS THE NEST IN A COLONY ?  
 ( ) No  
 1 In a colony of another species, specify:  
 2 In a colony of the same species, here put data for one nest only  
 3 In a colony of the same species, here put data for several nests  
 Size of colony: \_\_\_\_\_ pairs

STUDY AREA NUMBER \_\_\_\_\_ NEST (-BOX) NUMBER **6 / 10**  
 Hour, ring numbers, other additional information  
 12.00  
 15.50  
 12.10 ♀ INCUBATING  
 18.15 A PARENT BIRD CALLING  
 21.00 ♀ WARMING CHICKS  
 21.00 V-617.152-158  
 16.30 PARENTS WERE RINGED (TRAPPED BY A NET)  
 16.30 THE CHICK DEAD, CA. 10 DAYS OLD  
 9.00 THE EGG WAS UNFERTILIZED, BOX WAS EMPTIED  
 9.15 ♂ HAD 3, ♀ HAD 3 FLEDGLINGS 100M FROM THE NEST

Day	Minth	Eggs	Young	Stage of breeding
2	1:5			B 2
2	8:5	4		E 2
3	7:6	8		E 3
1	7:6	1	7	C 2
2	3:6	1	7	O 7
2	3:6	1	7	C 5
2	8:6	1	6	C 6
2	8:6	1	1	A 1
0	5:7	1	1	A 1
0	5:7		6	C 9

For official use

STAGE OF BREEDING. Use numbers (no letter) when giving the age in days accurately known or estimated, in egg-stage from the beginning of egg-laying, in nestling-stage from hatching of the first chick. E.g. code 01 = one day, 02 = two days etc. For other visits use codes starting with a letter:

BUILDING STAGE  
 B0 Nest occupied (e.g. nestbox), no building or reconditioning  
 B1 Nest being built (no other information)  
 B2 Initiation  
 B3 Half-built  
 B4 Nearly finished  
 B5 Complete, no eggs

EGG STAGE  
 E0 Nest with eggs, no. of eggs unknown  
 E1 No. of eggs counted (no other information)  
 E2 Eggs cold  
 E3 Eggs warm, no other information  
 E4 Initial stage of incubation  
 E5 Middle stage of incubation  
 E6 Final stage of incubation  
 E7 Eggs about to hatch  
 E8 Eggs remained unhatched  
 E9 Parent incubating, left undisturbed

CHICK STAGE (from the hatching of the first chick)  
 C0 Parent on nest, no. of chicks unknown  
 C1 Eggs and chicks counted (no other information)  
 C2 Newly hatched chicks  
 C3 Chicks still undeveloped, naked or in down  
 C4 Nestlings half-grown, partly feathered  
 C5 Nestlings ringed  
 C6 Nestlings ready to fledge or exploded prematurely

DESTROYED NEST during the last visit there were:  
 D0 Eggs or nestlings (not known exactly)  
 D1 Only eggs  
 D2 Nestling(s)  
 AFTERCHECK  
 A1 Unhatched eggs and dead chicks in a successful nest  
 A2 Part of brood in nest  
 A3 Empty nest, the fate of eggs and chicks is unknown

NEST VISITS (each visit is recorded separately in the chart)

Only exact information, no guesses!  
**FEEDING SUCCESS** (see one code):  
 NOWN, because: incomplete data  
 Nest was not visited at the late stage of nesting  
**CESSFUL BREEDING**  
 Nest one fledgling left the nest, use:  
 Chicks ready to leave  
 Nestlings fledged "normally"  
 Nestlings fledged prematurely  
 Fledglings observed near the nest  
 Empty nest, parents carried food nearby  
 Separate leather shells and egg shells in the nest  
 Abundant "scurf" in the nest  
 Much droppings on edge of, and around, the nest  
 Other evidence, specify:

**UCCESSFUL BREEDING**  
 single fledgling left the nest, see:  
 Empty but unbroken nest in early feeding stage  
 Empty and destroyed nest  
 Nest destroyed by man  
 Nest destroyed by water or bad weather  
 Eggs broken  
 Nutch abandoned during incubation  
 Nutch remained unhatched  
 Chicks uninjured but dead  
 Chicks injured and dead  
 Parent dead  
 Nest occupied by other bird species  
 Nest destroyed by insects  
 Nest parasitized by Cuckoo (fill in a separate card for the Cuckoo)  
 Other evidence, specify:



**7C OBSERVER FORM /  
NEST RECORD CARDS**Version  
II/1990Zoological Museum,  
University of Helsinki  
Societas Scientiarum  
FennicaeReturn with the nest cards to:  
Nest cards / Zoological Museum  
P. Rautatiekatu 13, SF-00100 HelsinkiYEAR  
19 

Cross, if

I am a new observer

My address has changed from last  
year

OBSERVER NUMBER

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel: \_\_\_\_\_

NEST CARDS

Total number of nest cards returned here. List the number of nests of  
each species separately on the reverse side of this form and return the  
cards in the same species order as listed, any additional species  
placed last.**THE TIME SPENT IN SEARCHING AND OBSERVING THE NESTS.**It is recommended to estimate the time in days ( e.g. 10 = nests were observed on  
about ten days in the particular month ). The following letter codes may also be  
used: MM = On most days, SS = At several days, NN = Not at all. Check the nest  
card instructions for more information.

March

April

May

June

July

August

NUMBER OF NEW CARDS ORDERED 250 ( please check your supply first )**GENERAL INSTRUCTIONS.** Even cards with only one visit to the nest are useful, if the  
stage of incubation or the age of nestlings has been estimated. For non-abundant,  
threatened and several other species it is worth completing a card for nesting habitat  
details even if the number of eggs or nestlings were counted only once. A second visit  
increases the value of the card markedly. It is increased even more if the nest is visited  
twice both during egg stage and during nestling stage. Count accurately the amount of  
eggs and nestlings at every visit (note the warnings given in the instructions).**SPECIES UNDER SPECIAL INVESTIGATION.** Mark a cross on each species,  
on which you have made a special investigation. If you have followed every nesting  
attempt of a single pair, you have collected this kind of information. The study  
must fulfill the following requirements:

- Nesting of the species was monitored in a specific area throughout the entire breeding period.
- Cards were completed for both successful and unsuccessful nests without selecting them.

