

## 8 RAPTOR GRID SCHEME

Zoological Museum, Finnish Museum of Natural History  
Raptor Grid Scheme / Zoological Museum

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SF-00100 Helsinki

**1. BACKGROUND AND AIMS.** The White-tailed Eagle, Golden Eagle, Osprey and Peregrine have been subjects of nation-wide monitoring in Finland since the beginning of the 1970s. Population size, population fluctuations and breeding success of other raptors were poorly documented up to the early 1980s. Data on these things, however, are essential to allow the effective preservation of raptors and for environmental monitoring purposes; raptors are useful indicators of certain changes in their habitats.

The Zoological Museum and the Ministry of the Environment started a raptor monitoring project in 1982. The aims of the survey are: (1) to collect data on the status (present population size and nesting success) of Finnish raptors and owls, (2) to establish annual population fluctuations and long term trends, and (3) to establish a file on the nest site locations of birds of prey for the use of conservation authorities.

A sample unit in the project is the "raptor grid square" (10x10 km). Special Nest Record Forms have also been used to monitor breeding success. In addition, summaries of pair numbers and nestling production of all raptor nests and territories found by ringers have been collected since 1986. The following instructions deal with grid monitoring and nest recording.

**2. EQUIPMENT AND TIME NEEDED .** The raptor grid squares are monitored most effectively by birdwatcher groups which include at least a few ringers. The minimum amount of field work is 200 hours per square but ca 400 field hours are usually needed to achieve reliable results. Co-operation of several birdwatchers is a prerequisite for successful monitoring.

One should avoid unnecessary climbing to nests with eggs (the birds may abandon the nest). One should have proper climbing equipment as well as protective clothes against aggressive birds, and always an accompanying person. A tape recorder, whistle or other lure

may be helpful when looking for inhabited territories. A survey map (1:20 000) of the square and a compass are needed when locating nests.

**3. CHOOSING THE SURVEY SQUARE.** A monitoring square (10x10 km) fitting in the national grid may be chosen freely but in order to avoid overlapping effort one should contact the Museum beforehand. Monitoring should be planned to continue in the same square in the future. One person should act as a corresponding observer who takes care of organizing the field work and of reporting the results.

**4. CENSUS PERIOD.** The monitoring season lasts from February–March (listening to owls) to August (searching for fledged broods). Twig nests, tree holes and nest-boxes for Goldeneyes (suitable for owls) can be searched for in winter time, by skiing, and their whereabouts noted for monitoring in the next breeding season. Time and energy allowing, artificial nests and nest-boxes can be built and positioned during the winter.

**5. FIELD WORK.** The aim of the field work is to find all inhabited raptor territories and nests within the study square. In principle, the annual routine is: (1) watching for aerial displays of diurnal birds of prey using binoculars or a telescope from high places, (2) listening to calling owls, (3) searching the square for nests (co-operation is the most effective way!) and checking them, and (4) searching for fledged broods and checking the known nests after fledging.

Territories and nests are easiest to find if the observers participate during several days to:

- listen to calling owls in March
- watch for aerial display in April
- search for owl nests in May
- search for hawk nests in June
- listen to owl broods in June
- listen to hawk broods in July.

These activities are usually arranged by the

corresponding observer who is responsible for the square. He/she should:

- collect all raptor observations from the square progressively,
- divide the field work among the observers, either by species or by subdividing the square to be covered,
- report the results to other observers of the square and to the Museum.

The Museum sends detailed information on searching for nests and mapping of territories to the corresponding observer.

**6. INTERPRETING OBSERVATIONS.** The census unit is a pair inhabiting a territory. The territories are divided into two types: (1) territories where an occupied nest or a fledged brood have been found, and (2) other occupied territories. Only one nest in which eggs have definitely been laid is taken into account per territory. There may be several nests decorated with green leaves in a territory but none with eggs. In such cases also, only one nest per territory is counted when estimating the number of pairs. All the nests counted have to be inside the square.

For fledged broods whose nests have not been found, only those that presumably hatched within the square are to be included. Broods observed in the square but known to have come from outside are not to be taken into account.

In territories where a nest has not been found, only those which have their core areas (where most observations of the birds were made) inside the square are counted. A territory is interpreted as occupied if a nest or brood has been found, if displaying adults have been observed, if one sex has been displaying during at least two days, or if there are traces of a long-term stay by an individual bird.

**7. FILLING IN THE FORMS.** Raptor Grid Form 8A is filled in yearly. Raptor Nest Record Form 8C is filled in for every nest found in the square (see Sect. 9).

Filled forms should be sent to the Museum after the field work period. Also send in a survey map (or a copy of it) where all nests, broods and core areas of inhabited territories from the current year are circled and numbered. A respective reference list of the nests, broods and territories should be enclosed (e.g. 1. ACCGEN nest with eggs; 2. ASIOTU brood; 3. BUTBUT territory, etc) . Data on the maps is

transferred on to file maps at the Museum and the field maps are returned to the corresponding observer. The Museum provides copies of maps for reporting nests to those who lack field maps.

**8. REPEATING THE SURVEY.** The square should be monitored as similarly as possible from year to year. If only a part of the square is monitored effectively, this part is kept the same every year. If there are any changes in the effectiveness of monitoring, one should enclose a short report when sending in the forms.

**9. THE RAPTOR NEST FORM, THE BASIS OF THE RAPTOR NEST REGISTER.** The raptor nest register consists of Raptor Nest Forms. The coordinates of the nest are given with an accuracy of 100 m. Breeding success, reasons for unsuccessful nesting, and description of the nest site (e.g. the degree of human activity) are reported on the form. Besides recording the nests within the monitored squares, the nest forms are used also to gather data on other raptor nests found outside the squares.

The nest form should be filled in if a nest was inhabited during the current year, or if it was abandoned but had marks of use during the last three years. Note also that decorated and scraped nests where no eggs have been laid and nests destroyed after egg laying (a few fresh pieces of shell are usually found in such nests) are included in the class of inhabited nests.

One can help conservation organizations to preserve raptors by filling in nest forms, even if not able to participate in grid monitoring. A nest already reported on a Raptor Nest Form should not be reported on a Nest Record Card (7A-B).

*Return the raptor grid forms and the nest forms to the Museum before the end of October!*

#### SELECTED REFERENCES

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- Haapala, J., Korhonen, J. & Saurola, P. 1990:  
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**RAPTOR GRID FORM**

**8A**

Version II/1990

Raptor scheme / Zoological Museum

P. Rautatiekatu 13  
SF-00100 Helsinki

Return before the end of October!

**NATIONAL GRID**

S - N **6,8,3** W - E **3,1** YEAR 19 **9,0**

**FIRST CENSUS YEAR**

19 **8,2**

**NUMBER OF OBSERVERS**

**7**

**OBSERVER NUMBER (corresponding observer)**

**1,2,3,4**

**MUNICIPALITY**

**Y, L O J A R**

**SURVEY SUBJECTS Name:** \_\_\_\_\_

(circle one code):

① All raptors

② Hawks only

③ Owls only

④ The following species:

Addr.: \_\_\_\_\_

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

**AREA km<sup>2</sup>**

**8,9**  
**6,2**  
**6**  
**1,9**  
**2**

**STUDIED THIS YEAR (0-10)**

**84**  
**57**  
**6**  
**19**  
**2**

Land area

Forest

Old spruce forest

Field

Open mire

Mountain heath

**SURVEY ACTIVITY (hours):**

**4,8**  
**6,8**  
**1,9,3**  
**5,8**  
**1,6**

Watching aerial display of hawks

Listening to hooting owls

Searching for nests

Searching for fledged hawk broods

Searching for fledged owl broods

**PREVIOUS INFORMATION FROM THE SQUARE (circle one code in both columns):**

**HAWKS OWLS**

0	0	None
1	1	Slight
2	2	Moderate
③	③	Good

SPECIES	NUMBER OF NESTS FOUND		FLEDGED BROODS (nest not found)	TOTAL NUMBER OF OCCUPIED TERRITORIES		BREEDING SUCCESS		NUMBER OF NEST-BOXES AND ARTIFICIAL NESTS	Remarks
	ACTIVE (eggs laid)	OCCUPIED (but no eggs laid)		MIN.	MAX.	NUMBER OF ACTIVE NESTS, BREEDING SUCCESS KNOWN	TOTAL NUMBER OF LARGE YOUNG		
Goshawk ACCGEN	1	1	0	2	3	1	3	0	.....
Sparrowhawk ACCNIS	1	0	0	4	4	1	5	0	.....
Buzzard BUTBUT	2	2	1	6	6	2	4	0	.....
Kestrel FALTIN					0				.....
Eagle Owl BUBBUB	0	1	0	1	1	0	0	0	.....
Tawny Owl STRALU	5	4	0	1,2	1,2	5	1,0	4,1	.....
Ural Owl STRURA					0			1,4	.....
Long-eared Owl ASIOTU					0				.....
Tengmalm's Owl AEGFUN					0			3,9	.....
<b>PER API</b>	1	1	0	5	5	1	2	0	.....
<b>FAL SUB</b>	1	0	0	2	2	1	2	0	.....