

2 Point Count of Breeding Land Birds

Zoological Museum, Finnish Museum of Natural History
Point count / Zoological Museum
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1. BACKGROUND AND AIMS. In many countries point counts are the main method in monitoring the population changes of breeding land birds. In Finland censusing was started in 1984. With the point count method it is possible to study the yearly changes of bird populations at fixed points, differences in species composition between habitats, and abundance patterns of species.

Point count method applied to land birds does not provide reliable data on waterfowl. Thus the following species are left uncounted: divers, grebes, ducks, gulls and Coot. However, other rails and waders are counted.

2. EQUIPMENT AND TIME NEEDED. One should not start point counts without good identification skills, including a knowledge of the songs and calls of birds. For the census one needs a map, a pencil, notebook, a watch that shows seconds, and binoculars. The route and the points are marked on a survey map and, if necessary, in the field with plastic tape or streamers to ensure that the same points are found in the following years. The observer may move from one point to another by foot or with a vehicle. In roadless areas a compass may be needed if one is going to census a straight or square-shaped route.

The time needed for censusing one point count route is 2.5–4 morning hours depending on the distance between the points and the vehicle used.

3. CHOOSING OF A COUNTING ROUTE AND POINTS. There are 20 points on each route and the time used for counting birds at each point is exactly five minutes.

One may plan the route and locate the points freely, because the emphasis is on providing indices of yearly population change. It is important, however, that the points be located in habitats as uniform as possible, and the same

points censused each year. The surroundings of the point within at least 50 m should be of the same habitat type. The habitat categories are listed on page 2B. Each point is placed in one of the classes. A point cannot be chosen merely because a rare species or many birds are singing at that site!

Time is saved if the route makes a circle or a square and ends at its starting point. The censusing can be done on foot, by bicycle, car, boat etc. Routes where it may prove difficult to make the census because of bad connections, floods etc., should be avoided. Other tasks, such as checking of nest-boxes, should not be done while censusing, unless these activities are done each year in an identical way and do not interfere with the point count.

The distance between points may vary freely, but the minimum is 350 m in open areas and 250 m in the forest, to reduce double-counting the same individuals. Distances between the points should not be too long, however, to minimize unnecessary waste of time during early morning hours.

4. CENSUS PERIOD. The best period for censusing in southern Finland is from 20 May to 20 June, and in northern Finland from 30 May to 30 June. Because the route is censused at the same time every year (see Sect. 10), the records of each route are comparable. The same censuser may thus have both early and late routes during one summer, to include early breeding and late breeding species in the data.

5. TIME OF DAY. The best time for censusing is between 4 and 9 a.m. No censusing should be done after 10 a.m. (see also Sect. 3 of the instructions for line transect censuses in the Manual).

6. WEATHER. The best censusing weather is calm. If the wind is moderate or strong, or if it

is rainy or cold, no point counts should be made.

7. FIELD WORK. The censuser should approach the point with as little disturbance to the birds as possible. The details of each point are marked separately, first the reference number and name of the point, then the type of habitat (see page 2B) and the time when counting is started. The species are written down in the order they are observed, and for each species the number of individuals (pairs) recorded, separately within and outside a circle of 50 m around the censuser. Each bird is plotted at the distance at which it was first observed. For birds recorded near the 50 m border, the category may be confirmed by measuring paces to the border when the counting is over. If a bird flees when the censuser arrives at the point, the bird should be included according to the take-off place. Overflying birds are included in the category 'outside 50 m'. Every bird should be marked down, regardless of whether it has been observed at one of the previous points.

Estimating distances requires experience, so a new censuser should measure the length of his steps in different terrains and then check the distance to several singing birds in order to make the estimating of distances a routine. Estimating may be eased by either natural or artificial landmarks. (In more southern countries forests are often so dense that it proves difficult reliably to judge the range of 50 metres, and a radius of 25 m is used instead.)

If there are several males of the same species around a point, one may sketch the directions and distances of each singing male with a simple arrow figure to ensure that they are not confused.

Censusing is finished at each point when exactly five minutes have passed. After that the location of any bird singing near the border of 50 m range may be checked. If observations other than those directly indicating pairs (male, pair, female) are written down (e.g. a party of fledglings), be careful not to cause any confusion (see Sect. 8).

8. INTERPRETING OBSERVATIONS. The census unit is a pair, not a single bird. Pair observations can be based on (1) a male heard or seen, (2) a pair, (3) a single female, (4) a party of fledglings or (5) a nest.

Birds moving around in flocks may be problematic. Small flocks of early breeders (cross-bills, Starling, House Sparrow, Hooded Crow, Greenfinch), of which the composition has not been observed, are interpreted as fledgling flocks. The number of pairs is calculated by dividing the number of the birds in the flock by the estimated number of one pair plus fledglings (usually 5–6); thus 1–6 birds = 1 pair, 7–12 birds = 2 pairs, etc. Late in the censusing period fledgling flocks of later breeders may also be observed. If the species breeds so late that it is unlikely that the observed flock should consist of fledglings (e.g. Swift, Wood Pigeon, swallows), the size of the flock is divided by two (uneven numbers are rounded upwards); thus 1–2 birds = 1 pair, 3–4 birds = 2 pairs etc. If the flock is so large that the number of pairs would be 10 or more, it is marked separately on Form 2A (see page 2B). Birds flying by are also counted (see Sect. 7), but flocks clearly migrating are not.

9. FILLING IN THE FORMS. These are divided into two parts: information on the route is given on Point Count Route Form 2A and the results of each point are reported on Point Form 2C. The instructions are on page 2B.

10. REPEATING THE COUNT. The timing of the census of each route should be kept constant from year to year: it should not differ by more than seven days from the date of the first count. If the phenology of the spring is about the same as in the spring of the first census year (arrival of birds, development of vegetation), the census should be made on the same day if possible. In late springs the count should be made later, in early springs earlier. The start of the count should not differ by more than 30 minutes from that of the first year. The maximum variation of the date is thus 15 days and of the start one hour.

The same observer should census the route every year. If the censuser changes, the route will be handled as a new route (note! a cross in Form 2A). Accordingly, the counting should be done by the same person each year; if e.g. another observer writes down the records the same practice should be followed every year. The weather and the duration of the census should also be as close as possible to that of the first year.

Return the point count forms to the Museum before the end of August!

SELECTED REFERENCES

- Hildén, O. & Väisänen, R.A. 1986: Population monitoring of Finnish land birds in 1984–85 by using point counts and line transects (in Finnish with English summary). – *Lintumies* 21:115–125.
- Routasuo, P. & Väisänen, R.A. 1990: Population monitoring of Finnish land birds in 1988–89 (in Finnish with English summary). – *Lintumies* 25:76–79.
- Svensson, S. 1975: Handledning för svenska häckfågeltaxeringen med beskrivningar av revirkarteringsmetoden och punkttaxeringsmetoden (in Swedish). – Department of Zoology, University of Lund, Lund.
- Svensson, S. 1978: Punttaxering (in Swedish). – In Statens Naturvårdsverk: BIN Fåglar. Biologiska inventeringsnormer, pp. F42:1–20. Liber, Stockholm.
- Verner, J. & Milne, K.A. 1989: Coping with sources of variability when monitoring population trends. – *Ann. Zool. Fennici* 26:191–199.
- Väisänen, R.A., Hildén, O. & Pulliainen, E. 1989: Monitoring of Finnish land bird populations in 1979–88 (in Finnish with English summary). – *Lintumies* 24:60–67.

POINT COUNT ROUTE FORM
2A Version IV/1990

Point counts / Zoological Museum
P. Rautatiekatu 13
SF - 00100 Helsinki

Return before the end of August!

ROUTE NUMBER: 1,0,8 YEAR: 199,0 OBSERVER NUMBER: 1,2,3,4

Name: _____
Addr.: _____
Tel.: _____

REPEATING THE CENSUS (cross)

New route Counted last year Census changed, describe how:

NATIONAL GRID S - N: 6,7,1 W - E: 3,4 MUNICIPALITY (6 letter code): K, A, R, K, K, I NUMBER OF POINTS: 2,0

NAME OF THE ROUTE: V, A, S, K, I, J, A, R, V, I COINCIDES WITH WINTER BIRD CENSUS ROUTE NUMBER: 4,7,8

DAY	MONTH	WEATHER (average situation during the census):	POINT NO.	FLOCK SPECIES (3+3-letter code)	FLOCK SIZE (individuals)
<u>0,7</u>	<u>6</u>	Temperature <u>+12</u> °C	<u>1,2</u>	<u>S, T, U, V, U, L</u>	<u>1,6</u>
ROUTE STARTED h min		Wind <u>3</u> m/s	<u>1,9</u>	<u>L, O, X, S, P, .</u>	<u>4,0</u>
<u>0,4</u>	<u>2,1</u>	Cloudiness <u>1</u> /8			
ROUTE FINISHED h min		Visibility <u>>10</u> km			
<u>0,8</u>	<u>2,5</u>				

REMARKS from points 1-20:

1. 6. 11. 16.
2. 7. 12. 17.
3. 8 **FOREST CLEAR-FELLED** 13. 18.
4. 9. 14. 19.
5. 10. 15. 20.

} WIND SLIGHTLY STRONGER

Other remarks:

.....
.....
.....

2B INSTRUCTIONS FOR FILLING IN THE POINT COUNT FORMS

The forms should be filled in with clear handwriting, in pencil using BLOCK LETTERS. All numbers should be written so they end at the right margin (e.g. time, habitat). All letter data are started from the left margin (e.g. municipality, place-name).

POINT COUNT ROUTE FORM 2A

General data on the route and census are reported on Form 2A. The ROUTE NUMBER is received from the Museum after the first census year. New observers get their OBSERVER NUMBER from the Museum. If the census routine has changed in some way from the previous year, give a detailed description below in "other remarks". The WINTER BIRD CENSUS ROUTE NUMBER is presented, if your point counts follow a winter bird census route. The instructions for defining the 10x10 km NATIONAL GRID coordinates are in the general instructions of the Manual. If the censuses are made in more than one MUNICIPALITY, write down the one where most of the census points lie. NUMBER OF POINTS means the points censused; subtract those not counted in this year. Large bird flocks observed at different points are presented on the front page: give POINT NUMBER, FLOCK SPECIES and FLOCK SIZE (individuals).

POINT FORM 2C

Write the observations made at each point on the point form pages 3-12 (2C), two points per page. The POINT NUMBER is pre-printed in the upper margin. Numbering of points within a route should be kept constant from year to year. The HABITAT CODE is taken from the list below and the clarification of the habitat is also of importance. Occasionally there may be difficulty in making a difference between rural settlement and e.g. forest. If the species are clearly those of farmstead or garden, a rural settlement is the right class. If the habitat changes with time (e.g. a stand of saplings grows to be a forest), the type has to be changed in due course (the code of the old habitat should be written down). Otherwise the habitat code should be kept constant from year to year.

HABITAT TYPES (surroundings of the point should be of the same habitat type within at least 50 m):

- | | |
|---|---|
| 1. Spruce forest (spruce as dominant tree). | 10. Shore meadow (there may be a few bushes here and there) |
| 2. Pine forest (pine as dominant tree). | 11. Arable land (also sown grass) |
| 3. Deciduous forest (deciduous trees dominate). | 12. Rural settlement (buildings, yards, gardens etc.) |
| 4. Mixed forest (approximately same amount of coniferous and deciduous trees). | 13. Park |
| 5. Deciduous scrub (lower than 5 m). | 14. Urban settlement |
| 6. Coniferous scrub (lower than 5 m). | 15. Mountain birch forest |
| 7. Clear-cut area. | 16. Open birch forest |
| 8. Pine mire (a peat bog with pine; drained mires are often already classified as 6 or 7. A mire with tall trees is coded 1, 3 or 4 according to the dominant species). | 17. Other (what?) |
| 9. Open mire. | |

SPECIES. The most common 60 species are listed on Form 2C. The numbers of pairs within a 50 m radius are marked in the left column (Inside = I), and the pairs flying over or observed outside the radius are marked in the right column (Outside = O). Clearly non-breeding flocks are reported on Form 2A without transforming them into pairs.

For ADDITIONAL SPECIES use 3+3-letter codes (see Appendix 1 in the Manual). Additional species are reported in arbitrary order. If e.g. a Linnet flies by, mark CARCAN and 1 (=1 pair) in column O. LOXSP. in the list means unidentified Crossbills; if they are identified, the species are marked in the additional species (Crossbill LOX CUR, Parrot Crossbill LOX PYT) and LOXSP. is

POINT FORM
2C Version 11/1990
 HABITAT CODE **0,2** This year Earlier, if changed
POINT NO. 01

Habitat name PINE FOREST (THINNED)

I	O	Black Grouse TETRIX	I	O	Lesser Whitethroat SYLCUR
		Pheasant PHACOL			Whitethroat SYLCOM
		Golden Plover PLUAPR			Garden Warbler SYLBOR
		Lapwing VANVAN			Blackcap SYLATR
		Snipe GALGAL			Wood Warbler PHYSIB
		Curlew NUMARQ			Chiffchaff PHYCOL
		Wood Sandpiper TRIGLA	1	1	Willow Warbler PHYLUS
		Wood Pigeon COLPAL			Goldcrest REGREG
		Cuckoo CUCCAN	1		Spotted Flycatcher MUSSTR
		Swift APUAPU			Pied Flycatcher FICHYP
		Gr. Spotted Woodpecker DENMAJ			Willow Tit PARMON
		Skylark ALAARV			Crested Tit PARCRI
		Swallow HIRRUS			Blue Tit PARCAE
		House Martin DELURB		1	Great Tit PARMAJ
1	3	Tree Pipit ANTTRI			Magpie PICPIC
		Meadow Pipit ANTPRA			Hooded Crow CORNIX
		Yellow Wagtail MOTFLA			Raven CORRAJ
		Pied Wagtail MOTALB			Starling STUVUL
1		Duncock PRUMOD			House Sparrow PASDOM
	1	Robin ERIRUB		3	Chaffinch FRICOE
		Thrush Nightingale LUSLUS			Brambling FRIMON
		Bluethroat LUSSVE			Greenfinch CARCHL
		Redstart PHOPHO			Siskin CARSPI
		Whinchat SAXRUB			Redpoll CARMEA
		Wheatear OENOEEN			Crossbill sp. LOXSP.
		Blackbird TURMER			Scarlet Rosefinch CARERY
		Fieldfare TURPIL			Bullfinch PYRPYR
	1	Song Thrush TURPHI			Yellowhammer EMBCIT
1		Redwing TURILI			Ortolan Bunting EMBHOR
		Sedge Warbler ACRSCH			Reed Bunting EMBSCH

ADDITIONAL SPECIES (3+3-letter code)

I	O	1	GARGLA	I	O		
		1	PHYDES				
		1	TRIOCH				

HABITAT CODE **1,2** This year Earlier, if changed
POINT NO. 02

Habitat name RURAL SETTLEMENT

I	O	Black Grouse TETRIX	I	O	Lesser Whitethroat SYLCUR
		Pheasant PHACOL			Whitethroat SYLCOM
		Golden Plover PLUAPR			Garden Warbler SYLBOR
		Lapwing VANVAN			Blackcap SYLATR
		Snipe GALGAL			Wood Warbler PHYSIB
		Curlew NUMARQ			Chiffchaff PHYCOL
		Wood Sandpiper TRIGLA		1	Willow Warbler PHYLUS
	2	Wood Pigeon COLPAL			Goldcrest REGREG
	2	Cuckoo CUCCAN			Spotted Flycatcher MUSSTR
		Swift APUAPU			Pied Flycatcher FICHYP
		Gr. Spotted Woodpecker DENMAJ			Willow Tit PARMON
		Skylark ALAARV			Crested Tit PARCRI
2		Swallow HIRRUS	1		Blue Tit PARCAE
	1	House Martin DELURB	1		Great Tit PARMAJ
		Tree Pipit ANTTRI			Magpie PICPIC
		Meadow Pipit ANTPRA			Hooded Crow CORNIX
		Yellow Wagtail MOTFLA			Raven CORRAJ
		Pied Wagtail MOTALB			Starling STUVUL
		Duncock PRUMOD			House Sparrow PASDOM
		Robin ERIRUB	1	2	Chaffinch FRICOE
		Thrush Nightingale LUSLUS			Brambling FRIMON
		Bluethroat LUSSVE			Greenfinch CARCHL
		Redstart PHOPHO			Siskin CARSPI
		Whinchat SAXRUB			Redpoll CARMEA
		Wheatear OENOEEN			Crossbill sp. LOXSP.
		Blackbird TURMER			Scarlet Rosefinch CARERY
		Fieldfare TURPIL			Bullfinch PYRPYR
		Song Thrush TURPHI		1	Yellowhammer EMBCIT
		Redwing TURILI			Ortolan Bunting EMBHOR
		Sedge Warbler ACRSCH			Reed Bunting EMBSCH

ADDITIONAL SPECIES (3+3-letter code)

I	O	1	PHACOL	I	O		
		1	JYNTOR				
		1	COLOEN				
		1	LUSLUS				