EURING Newsletter 3

edited by

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This newsletter has been published thanks to the financial support of the Italian Ministero dell'Ambiente e Tutela del Territorio – Servizio Conservazione della Natura.

Aknowledgments. I warmly wish to thank all those who kindly contributed to this third issue of the EURING Newsletter. A special thank to Mrs. Maria Luisa Romagnoli, who helped in assembling the material in a camera-ready format, and Dr. Davide Licheri, who helped with the graphs originated from the questionnaire.

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FOREWORD

Dear Colleagues and friends,

Over two years have passed (unfortunately!) since the publication of the last newsletter, and EURING has been very active in this period. Following a proposal by Niels Otto Preuss, and thanks to the support offered by Franz Bairlein and the Vogelwarte Helgoland, the first 100 years of bird ringing have been celebrated by EURING on the famous island of Helgoland in October 1999, with a very interesting international conference. The meeting attracted 239 participants from 39 countries and 5 continents, just as a confirmation of the world-wide use of this important and versatile research technique after one century of existence. Two volumes of proceedings have been published, which offer an excellent overall view of the many important scientific achievements which had been impossible without the method of bird ringing. A special issue of Ardea (Vol. 89 (1), *special issue*, 2001: 1-252), edited by the EURING General Secretary Lukas Jenni together with Kees Camphuysen contains a total of 21 papers from plenaries and a selection of invited talks, while a Jubilee issue of Die Vogelwarte (Vol. 40 (4): 249-318), edited by Peter Berthold and Wolfgang Winkel offers 10 more interesting papers. On the occasion of the Helgoland meeting, also the EURING General Assembly was held, with the largest representation ever of member and associate member schemes.

As will also be confirmed by the summary results of the questionnaire, much development has taken place in data management at many of the ringing schemes within the last few years, also thanks to the increasing support in data entry offered by the ringers. In order to improve our EURING code and update it to the present situation of computer use, Gerrit Speek produced a revised version. A special committee with Gerrit, Jacquie Clark, Rinse Wassenaar and Xenon Rohde has been established and is actively working now on the final version of the new code, which will surely improve the quality and exchange of data.

As for data use, the last analytical meeting, held in California in October 2000, was a new milestone in the development of statistical models for increasingly detailed analyses on many aspects of bird demography, management and conservation.

Recently, thanks to the support kindly offered by the BTO, a EURING web site has been established, at www.euring.org. This is located on a web server at the BTO and we hope that it will provide a web gateway to the EURING community. The site contains contact and web site details for all EURING schemes. All schemes have now the opportunity to contribute to the site with information on ringing projects and results, links and announcements, as this site will surely provide a useful service for EURING.

The EURING Swallow Project is positively developing also through an increasingly large geographical coverage, and is building up a unique data base on movements and population parameters.

All these activities confirm that ringing is positively developing and that EURING is playing a leading role in promoting the evolution of this technique, which with good reasons has entered the new Millennium.

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As in previous issues, a full and updated address list is offered here, with names of staff members of the different schemes, e-mail contacts and web-page addresses. Virtually all schemes are now on electronic mail, which greatly improves the efficiency of contacts. All schemes are kindly requested to circulate changes in their addresses, phone numbers and e-mail connections.

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Table 1 – Staff, ringers courses and exams, birds and species ringed and recoveries.

Country (and scheme)	Staff			Number of ringers	Courses	Exams	Birds ringed	Birds ringed per ringer	Species ringed	Recoveries		
	academic	Clerical	total							own	foreign	total
Belarus	3,0	0,0	3,0	35	N	N	2700	77	161	30	46	76
Bulgaria	2,0	0,0	2,0	650	Y	Y	10000	15	110			0
Croatia	3,0	0,0	3,0	37	N	Y	20000	541	150	300	60	360
Denmark Zool. Mus. Copenhagen	1,0	7,0	8,0	174	N	N	60000	345	185	2500	1100	3600
Estonia	1,0	1,0	2,0	100	N	N	60000	600	165	N		0
Finland	1,0	5,0	6,0	663	Y	Y	230000	347	235	40000	630	40630
Germany (Helgoland)	0,5	3,0	3,5	259	Y	N	110000	425	200	2000	500	2500
Germany (Hiddensee)	1,0	3,0	4,0	300	Y	Y	120000	400	220	8000	1300	9300
Germany (Radolfzell)	1,0	0,9	1,9	250	Y	N	80000	320	190	600	100	700
Greeece	3,0	1,0	4,0	10	N	N	4000	400	85	5	5	10
Hungary	1,0	1,0	2,0	304	Y	Y	100000	329	180	1900	100	2000
Iceland	2,0	1,0	3,0	50	N	N	14000	280	50	850	150	1000
Israel	1,0	0,0	1,0	35	Y	N	20000	571	N	10	300	310
Italy	2,0	3,0	5,0	350	Y	Y	250000	714	280	2000	600	2600
Kazakhstan	7,0	0,0	7,0	6	N	N	42000	7000	180	45	30	75
Latvia	2,0	0,0	2,0	60	Y	Y	18000	300	150	400	100	500
Lithuania	1,0	1,5	2,5	60	N	Y	85000	1417	147	900	300	1200
Malta	0,0	0,0	0,0	12	Y	N	11000	917	100	20	10	30
Norway	1,0	1,0	2,0	450	Y	Y	230000	511	230	3100	400	3500
Poland	6,0	4,0	10,0	232	Y	Y	82600	356	202	6960	783	7743
Portugal	3,0	1,0	4,0	110	Y	N	30000	273	200	50	180	230
Russia	6,0	3,0	9,0	70	N	N	120000	1714	N	350	450	800
Slovenia	1,0	0,0	1,0	65	Y	Y	100000	1538	144	100	60	160
Spain (Madrid)	2,0	0,0	2,0	633	Y	Y	260000	411	300	4200	2550	6750
Spain (S.Sebastian)	1,0	0,0	1,0	15	N	N	2000	133	90	30	20	50
Sweden	4,0	2,0	6,0	387	N	N	280000	724	247	2300	630	2930
Switzerland	1,0	1,0	2,0	200	N	Y	40000	200	170	750	140	890
The Netherlands	3,0	3,0	6,0	450	Y	N	217000	482	230	42200	2800	45000
UK and Republic of Ireland	2,0	8,0	10,0	2000	Y	N	750000	375	250	10000	1000	11000
Ukraine	4,0	0,0	4,0	55	N	N	15000	273	120	50		50
Yugoslavia	3,0	0,0	3,0	38	N	Y	12000	316	130	90	10	100
AVERAGE	2,2	1,6	3,9	260	Y=55%	Y=45%	108881	719	176	4474	513	4648
TOTAL	69,5	50,4	119,9	8060			3375300			129740	14354	144094
Diff. Newsletter 1	33,0	7,4	40,4	876			311700			52271	5606	57877

THE QUESTIONNAIRE

Introduction

A questionnaire on different aspects of the present situation of the different ringing schemes has been circulated last year, and eventually produced a good percentage of replies. Some of these are listed in table 1, together with a very rough comparison with the data gathered with the first questionnaire circulated in 1996 (*see* newsletter 1). The overall situation seems quite encouraging, with a positive increase both for staff, ringing activities and data management from what reported in the first newsletter. However, training is an aspect which might be improved further, as just about half of the schemes which replied to the questionnaire hold ringing courses and exams. Aside to a most positive improvement in the computerisation of data (also directly by the ringers), an aspect which might be further improved is represented by the set of variables which are collected and routinely entered by the ringers to the national data banks. It is in fact still very low the number of schemes whose ringers enter also data on morphometrics (wing length, third primary, tarsus) and conditions (fat, muscle, body mass). It is surely important to improve the quality of the ringing data by adding also these most important variables to the standard formats gathered by the ringing schemes, as these are important covariates in most analyses. The positive role EURING has had in introducing standardised field protocols in data collection should now offer the opportunity to build up a data base also on morphological variability of European birds, as these data are often regularly collected by the ringers, who are now able and ready to computerise and transfer their data to the national schemes.

1. **Staff**, (table 1, Fig. 1): all schemes have got some permanent staff, although with few cases of one-man situations. A good proportion of schemes rely on 2-3 staff members, and over 40% have more than 4 people working for the scheme, with 2 cases of over 10 staff; the average situation is just close to 4 people staff.

2. **Ringers** (table 1, Fig. 2): the highest number of cases refers to small schemes, with up to 50 ringers, and only one case has more than 700 (2000 in fact, the UK case!). The second most frequent situation refers to quite large schemes, with 300 to up to 700 ringers. On average, EURING schemes have 260 ringers.

3. **Ringing totals** (table 1, Fig. 3): one third of the schemes which replied to the questionnaire ring at least 100,000 birds/year (out of which 7 are above 250,000); another third score between 10- to 50,000, and 7 between 50- to 100,000. A total of 4 centres reach 10,000 ringed individuals. Very good annual samples are collected across Europe, with an average total of just above 108,000 per scheme

4. **Birds ringed per ringer** (table 1, Fig. 4): European ringers handle and mark most frequently between 300-400 birds annually, with a wide variability across schemes, and an average total of just above 700 ringings.

5. **Own recoveries** (table 1, Fig. 5): the most frequent situation refers to less than 100 own recoveries processed by a given scheme on an annual basis. There is then a wide variability, also due to the fact that several schemes did not include retraps in this calculation. Several schemes are treating some thousands own recoveries, which is a very good annual sample.

6. **Foreign recoveries** (table 1, Fig. 6): nearly half of the schemes handle less than 200 foreign recoveries per year, with few cases of over 1,000 data. Overall, EURING gathers over 144,000 recoveries/controls of ringed birds annually, which represents a significant regular improvement for our central Data Bank.

7. **Computerised recoveries** (table 1, Fig. 7): the vast majority of schemes routinely computerise recoveries (less than 10% still have to start). In an increasingly number of cases recoveries are computerised by the ringers. Since the first questionnaire, the computerisation of recoveries by ringers has more than doubled, and this is surely a situation which will soon further improve, reducing the work load for ringing schemes.

8. **Computerised ringings** (table 1, fig. 8): an impressive improvement in data management from what reported through the first questionnaire is represented by the computerisation of ringing data by ringers. Nearly 70% of ringings are in fact entered by ringers, which represents the opposite of the situation found in 1996. This fast and positive improvement offers a new potential for ringing/recovery analyses, as models increasingly require ringings being computerised.

Final remarks: the questionnaire is a useful tool to monitor changes in the general situation in the organisation of the ringing schemes and in bird ringing in general. Even the very basic aspects summarised here confirm, when compared with the situation reported in 1996, a positive interest for bird ringing across Europe. The increasing efficiency in data management, and the improvement of the quality of data gathered through the vast network of our ringers, are also important aspects to show how ringing is being able to evolve towards a positive tool for bird population monitoring. Further aspects of the management of ringing activities at the national and international level will be discussed at the next General Assembly. I wish to thank all schemes who filled the questionnaire.

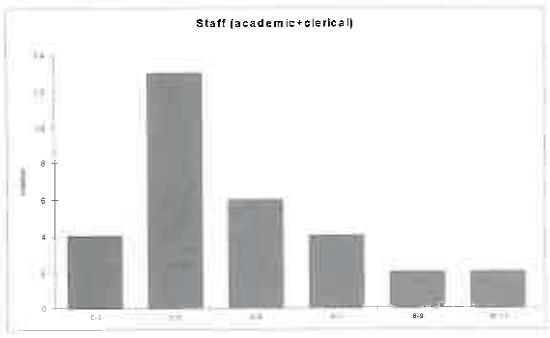

Fig. 1 – Staff members

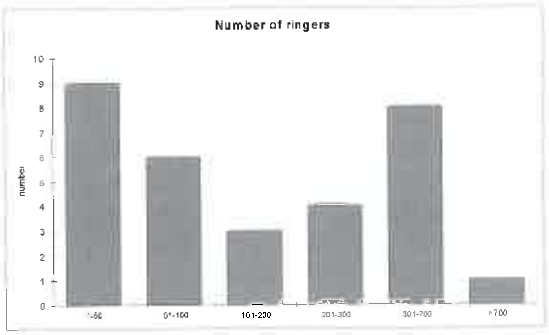

Fig. 2 - Ringers

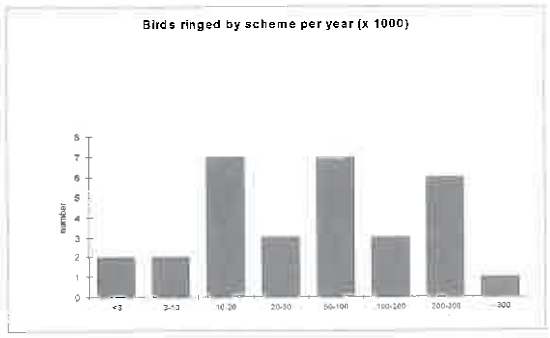

Fig. 3 – Birds ringed per year

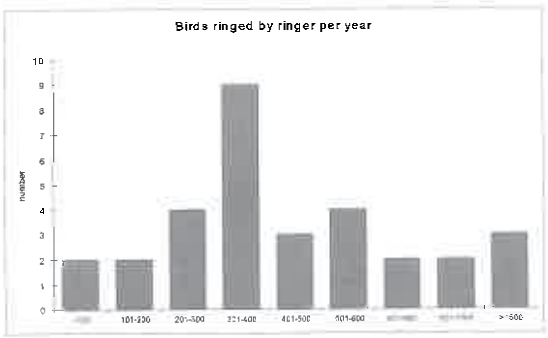

Fig. 4 - Birds ringed per ringer per year

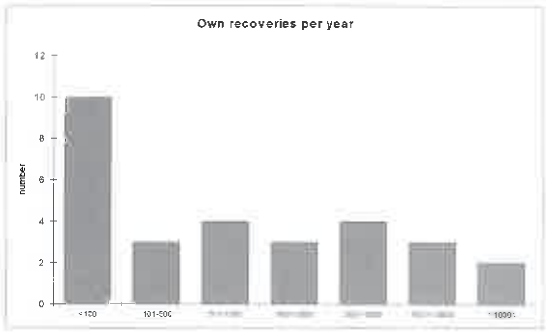

Fig. 5 – Own recoveries per year

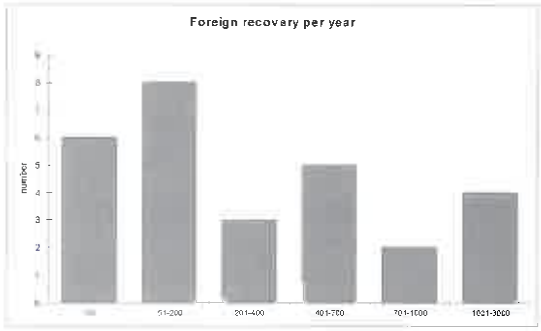

Fig. 6 - Foreign recoveries per year

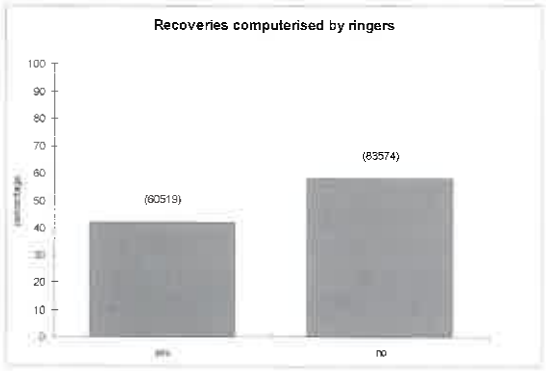

Fig. 7 – Recoveries computerised by ringers

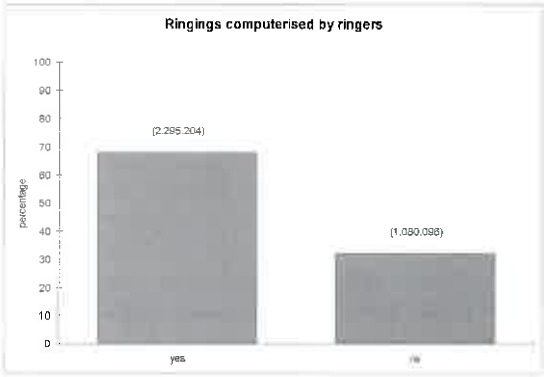

Fig. 8 – Ringings computerised by ringers

Bird ringing based on large-scale, standardised mist-netting is becoming an increasingly important method in bird population monitoring. Based on the example of the British CES scheme, MAPS program was introduced in North America in 1989, and offers a huge network of sites across this vast geographical area. David DeSante and Philip Nott report on the many interesting results obtained so far by their ongoing project.

AN OVERVIEW OF THE NORTH AMERICAN MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP (MAPS) PROGRAM

by David F. DeSante and M. Philip Nott

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I. WHY MONITOR VITAL RATES?

There are three important reasons why monitoring vital rates (primary demographic parameters such as productivity and survivorship) must be a component of any integrated avian population monitoring scheme (Baillie 1990). First, environmental stressors and management actions affect vital rates directly and usually without the time lags that so often occur with population size (Temple and Wiens 1989, DeSante and George 1994). Second, vital rates provide crucial information about the stage of the life cycle at which population change is being effected (DeSante 1992). This information is particularly important for migratory birds that winter in tropical latitudes, because it can determine whether management actions should be directed toward a species' temperate breeding grounds, tropical wintering grounds, or both. Third, monitoring vital rates provides crucial information about the viability of the population being monitored and about the quality of the habitat or landscape in which the population occurs (DeSante and Rosenberg 1998). Because of the vagility of most bird species, local variations in population size may often be masked or accentuated by recruitment or lack thereof from a wider region (DeSante 1990, George et al. 1992). Thus, density of a species in a given area may not be indicative of population viability due to source-sink dynamics (Van Horne 1983, Pulliam 1988, Donovan et al. 1995).

Estimating primary demographic parameters is critical for understanding population dynamics and is directly applicable to population models that can be used to assess land-management practices by examining the effects of the landscapes they produce on vital rates (Noon and Sauer 1992). Although several studies have investigated relationships between regional landscape patterns and population trends (Sauer et al. 1996, Flather and Sauer 1996), a particular need remains to examine relationships between landscape configuration and vital rates, using standardized methods for collecting vital rate data, at various spatial scales (Villard et al. 1999). To be successful, management actions must be designed to influence the key primary demographic parameter responsible for population decline in a specific target species (DeSante 1995). Such an approach will have a much higher likelihood of success than one based on correlations with presence/absence or relative abundance data (DeSante and Rosenberg 1998, Villard et al. 1999). These considerations necessitate the continued collection of demographic monitoring data, indicate the direction in which analyses of such data should proceed, and emphasize the importance of an integrated approach to monitoring and adaptive management.

II. OVERVIEW OF THE MAPS PROGRAM

The Monitoring Avian Productivity and Survivorship (MAPS) program is a cooperative effort among public agencies, private organizations, and individual bird ringers in North America to operate a network of over 500 constant-effort mist netting and ringing stations during the breeding season (DeSante et al. 1995). MAPS was established in 1989 by The Institute for Bird Populations (IBP) and was patterned to a

large extent after the British Constant Effort Sites (CES) scheme operated by the British Trust for Ornithology (Baillie et al. 1986, Peach et al. 1996, 1998). MAPS utilizes a standardized constant-effort mist-netting protocol at a network of stations. Each station typically consists of about ten permanent net-sites located opportunistically, but rather uniformly, within the interior eight ha of a 20-ha study area (DeSante et al. 2000). Typically, one 12-m, 36-mm-mesh mist net is operated at each net site for six morning hours per day, for one day during each of six to ten consecutive 10-day periods. Starting dates vary between May 1 and June 10 (later at more northerly latitudes and higher elevations) and operation continues through the ten-day period ending August 8. All birds captured during the program are identified to species, age, and sex using criteria in Pyle (1997) and, if unmarked, are ringed with a uniquely numbered aluminum ring provided by the U.S. Geological Survey/Biological Resources Division (USGS/BRD) Bird Banding Laboratory or the Canadian Wildlife Service/Bird Banding Office.

Following Peach et al. (1996), productivity indices are calculated as the proportion of young in the catch (number of young individuals captured/total number of aged individuals captured). Annual adult survival rates and adult capture probabilities are estimated from modified Cormack-Jolly-Seber mark-recapture models (Clobert et al. 1987, Pollock et al. 1990, Lebreton et al. 1992) that include a between- and within-year length-of-stay transient model (Pradel et al. 1997, Nott and DeSante in press). These modifications permit estimation of the proportion of residents among newly captured birds and provide survival rate estimates that are unbiased with respect to transient individuals (Pradel et al. 1997).

MAPS protocol (DeSante et al. 2000) also requires station operators to record the probable breeding status of all avian species seen, heard, or captured at each station on every day of operation using methods similar to those employed in breeding bird atlas projects; and to assign a composite breeding status for every species at the end of the season based on those records. In addition, a station map and standardized quantitative habitat descriptions are prepared each year for each major habitat type contained in the station by means of the MAPS Habitat Structure Assessment protocol (Nott 2000). Finally, MAPS operators are able to enter or import, verify, edit, and submit all their data to IBP by means of MAPSPROG Version 3 (Froehlich et al. 2000, Michel et al. 2000), a specially designed Windows-based computer program distributed free of charge for that purpose by IBP. MAPSPROG has four modules that deal, respectively, with ringing, effort, breeding status, and habitat assessment data. The program includes within- and between-record verification algorithms that substantially improve the quality of the ringing data, particularly age and sex determinations. Importantly, it allows the persons who actually collect the data to also verify and edit them. Moreover, this process can be carried out during the field season, thereby allowing station operators to learn from their errors in a very timely manner.

During its first three years (1989-1991), MAPS was comprised of an IBP-sponsored feasibility study, during which time the program grew from 16 to 66 stations and the protocol became standardized. The Program was endorsed in 1991 by the Monitoring Working Group of the Neotropical Migratory Bird Conservation Initiative, "Partners in Flight" (PIF), and the Bird Banding Laboratory, and a four-year pilot project (1992-1995) was approved and funded by the U.S. Department of the Interior (USDI) to evaluate the utility and effectiveness of the Program for monitoring demographic parameters of landbirds. During the ensuing four-year pilot study, the program grew from 178 to 391 stations. A general evaluation of the pilot project (DeSante 1996, 2000, DeSante et al. 1999) and an evaluation of the statistical properties of the data (Rosenberg 1996, Rosenberg et al. 1999, 2000) were completed in 1996. A review of the Program and of the evaluations of the pilot project was completed by a panel assembled by USGS/BRD (Geissler 1996). The review concluded that: (1) MAPS is technically sound and is based on the best available biological and statistical methods; (2) it complements other landbird monitoring programs such as the North American Breeding Bird Survey (BBS) by providing useful information on landbird demographics that is not available elsewhere; and (3) it is the most important project in the nongame bird monitoring arena since the creation of the BBS.

MAPS thus became an "established" monitoring program in 1996 and continued to grow from 424 stations in 1996 to about 507 stations in 2000, the ninth year of standardized operation. The substantial growth of the Program was caused in part by its endorsement by PIF and the involvement of various federal agencies in PIF, including the USDA Forest Service; the USDI National Park Service, Fish and Wildlife Service, and Bureau of Land Management; and the USDoD Department of the Navy, Department of the Army, and Texas Army National Guard. During 2000, for

example, 151 "agency" stations were operated by IBP personnel under federal contracts. Support for the operation of the remaining 356 "independent" stations (those not operated by IBP personnel) has come from a wide variety of federal, state, and private sources.

III. GOALS AND OBJECTIVES OF MAPS

MAPS is organized to fulfill three tiers of goals and objectives: monitoring, research, and management.

- The specific monitoring goals of MAPS are to provide, for over 100 target species, including Neotropical-wintering migrants, temperate-wintering migrants, and permanent residents:

  (A) indices of adult population size and post-fledging productivity from data on the numbers and proportions of young and adult birds captured; and

  (B) estimates of adult population size, adult survival rates, proportions of residents, and recruitment into the adult population from mark-recapture data on adult birds.

- The specific research goals of MAPS are to identify and describe:

  (1) temporal and spatial patterns in these demographic indices and estimates at a variety of spatial scales ranging from the local landscape to the entire continent; and
  (2) relationships between these patterns and ecological characteristics of the target species, population trends of the target species, station-specific and landscape-level habitat characteristics, and spatially-explicit weather variables.
  (3)
- The specific management goals of MAPS are to use these patterns and relationships, at the appropriate spatial scales, to:
  (a) determine the proximate demographic cause(s) of population change;
  (b) suggest management actions and conservation strategies to reverse population declines and maintain stable or increasing populations; and
  (c) evaluate the effectiveness of the management actions and conservation strategies actually implemented through an adaptive management framework.

IV. RECENT IMPORTANT RESULTS FROM THE MAPS PROGRAM

For the past nine years, IBP has been publishing monitoring results from MAPS (DeSante 1992, DeSante and Burton 1994, DeSante et al. 1993, 1996, 1998, in press a). These papers have documented pronounced annual variation in regional productivity indices as well as the pattern that increases or decreases in productivity in a given year are typically followed by respective increases or decreases in population size the following year (DeSante et al. 1996, 1998). More recently, MAPS data have yielded interesting research and management related results. Several of the more important of these are described below.

A. Patterns of productivity as a function of nest location and migration strategy

DeSante (2000) described patterns of productivity indices at two spatial scales: all of eastern North America and the Sierra Nevada physiographic stratum. Productivity indices for species groups at both spatial scales varied as a function of nest location (in descending order: cavity, ground, open-cup tree, and open-cup shrub nesters) and migration strategy (again in descending order: permanent residents, temperate-wintering migrants, and Neotropical-wintering migrants). These patterns agree with those found by direct nest monitoring and those predicted from theoretical considerations, are robust with respect to time and space, and thus apparently reflect real population processes at multiple spatial scales.

B. The development and utilization of transient models in MAPS mark-recapture analyses

Not all individual adult birds captured as part of MAPS protocol are resident in the study area during the breeding season. Some, such as floaters, failed breeders, and post-breeding dispersing individuals, may be merely passing through the study area and have essentially zero probability of being recaptured there at a later date. The inclusion of such transient individuals in standard mark-recapture analyses violates the basic assumption that all individuals have an equal probability of recapture and causes substantial underestimation of survival-rates. This problem can be overcome by use of a transient model (Pradel et al. 1997, Nott and DeSante in press) that utilizes both between- and within-year information to estimate the proportion of residents among newly captured adults and the survival rate of those resident adults.

Figure 1 shows that survival rate estimates in the range of 0.4 to 0.5 obtained for target species from the standard CJS non-transient model were increased by 12% to 20% through the use of the transient model. Moreover, the precision of the survival rate estimates from the transient model averaged 7.5% higher than the precision of the estimates obtained from the standard CJS non-transient model (Nott and DeSante in press). These transient models are now being employed in all mark-recapture analyses of MAPS data. Nevertheless, survival rate estimates from MAPS and virtually all mark-recapture experiments on landbirds, including estimates obtained from use of the transient model, are confounded by emigration of breeding individuals and, therefore, are actually estimates of apparent survival.

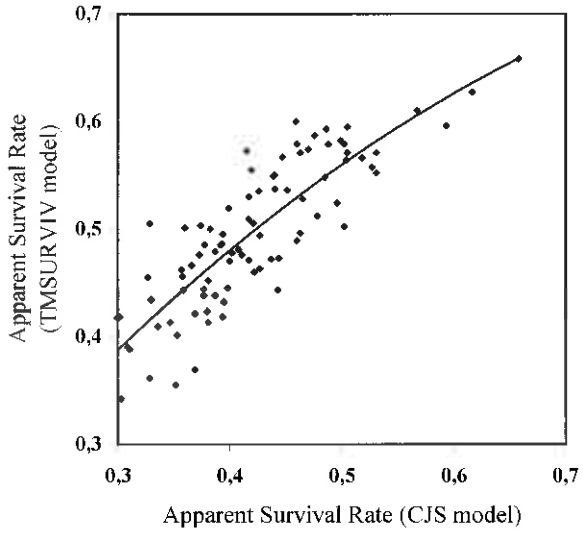

Figure 1. Relationship between 1992-1998 MAPS continent-wide, time-constant annual adult survival rates from use of the within- and between-year transient model (TMSURVIV) versus use of the standard Cormack-Jolly-Seber (CJS) non-transient model for 89 species. Adapted from Nott and DeSante in press.

C. Relationships between adult survival rate estimates from MAPS and body mass and migration strategy

Although previous researchers have made broad inferences about variation in avian survivorship, they generally have done so by comparing survival rates of two or more populations of a single species (e.g., Greenberg 1980) or by aggregating multi-species data from many disparate sources (e.g., Martin 1995). The latter studies have been hampered by the fact that the survivorship values from different studies were derived from many different field methods and analytical models, each of which has its own unique biases. In contrast, survival rate estimates from MAPS are derived from modified Cormack-Jolly-Seber mark-recapture analyses that include a between- and within-year transient model and are applied to continent-wide data generated by a standardized mark-recapture methodology. As a result, ecological and geographical correlates of adult survival rates can be examined with much greater rigor than ever before.

Figure 2 shows time-constant 1992-1998 annual adult survival rates plotted against the natural logarithm of mean body mass (Dunning 1992, Sibley 2000) for 89 target species and for three groupings of these species classified according to migration strategy (permanent residents; temperate-wintering migrants; Neotropical-wintering migrants). Positive linear relationships were found between adult survival rates and ln(body mass) for each species group and were significant ($P<0.05$) for all groups except permanent residents. An analysis of co-variance (ANCOVA), which took body mass into consideration, showed significant ($P=0.01$) variation in annual adult survival rates among the three migration-strategy species groups, with both permanent residents and Neotropical-wintering migrants having

higher survivorship than temperate-wintering migrants. Interestingly, the species group with the lowest average survival rate, temperate-wintering migrants, also had the steepest slope for its survival rate versus body mass relationship, suggesting that the low survival rates for species in this group were especially pronounced among species with small body mass. This may suggest that species with small body mass are better off either by migrating to tropical latitudes where overwintering climates are predictably benign, or by adapting to predictably harsh climatic conditions and foregoing migration. The poorest strategy (at least as regards adult survivorship) may to be that of migrating to areas where overwintering climate may sometimes be unpredictably harsh, such that costs of migration are always incurred without always reaping the benefits.

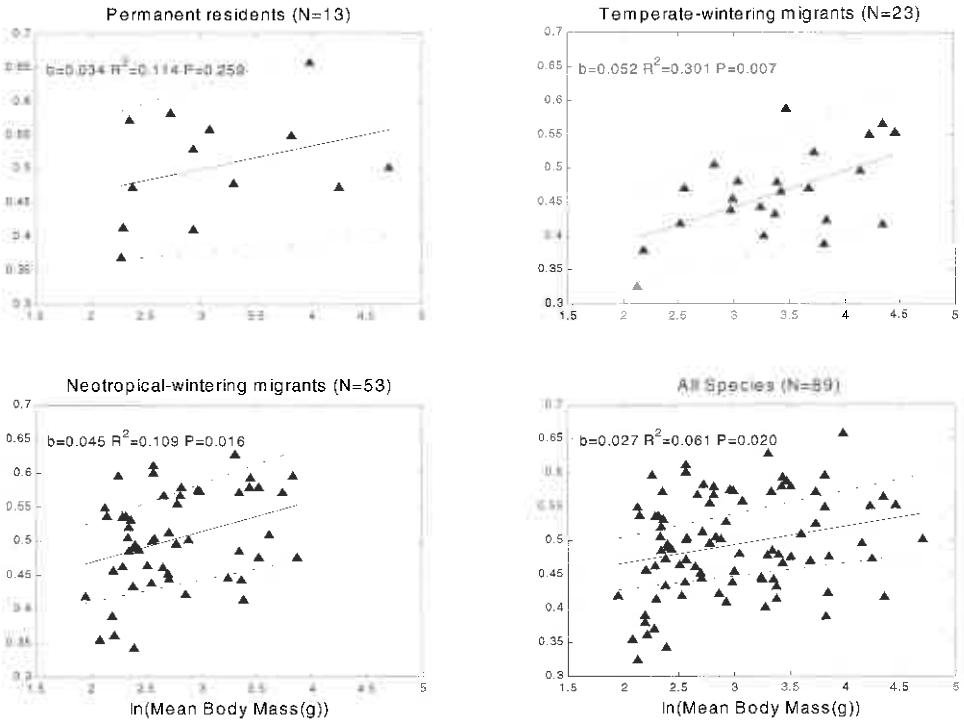

Figure 2. Relationships between time-constant annual adult survival rates from 1992-98 continent-wide MAPS data and the logarithm of the mean body mass for each of three migratory-strategy species groups (permanent residents, temperate-wintering migrants, and Neotropical-wintering migrants) and for all species. IBP unpublished data.

D. Measures of productivity and survival from MAPS are consistent with observed population trends

DeSante (1995) showed that reproductive indices based on the ratio of young to adult captures can provide unbiased estimators of actual productivity if the capture probabilities of young and adult birds are equal. This is unlikely to be the case, however, because the young captured by the MAPS protocol are primarily juveniles dispersing from the surrounding landscape, while the numbers of dispersing adults are inflated by captures of the breeding adults that are resident at the station during much of the MAPS season (DeSante 1995). Thus we might expect MAPS reproductive indices to underestimate actual productivity.

Considerable evidence is accumulating, however, to indicate that measures of productivity and survival from MAPS are generally capable of producing modeled population growth rates for multiple species that correlate with observed population trends for those species (DeSante et al. 1999). Moreover, such relationships have been demonstrated at multiple spatial scales, ranging from the smaller scale of a single national forest, national park or military installation, through the larger scale of groups of national forests or military installations

within different geographic areas, and finally to the largest scale of the entire continent. These demonstrations indicate that although MAPS productivity indices may indeed be biased low, the biases remain relatively consistent over time and space and among various species, including those with widely different nest locations and migration strategies.

An example of such a relationship for multiple species on a single national forest is shown in Figure 3. Here we see that trends in adult captures for eight target species were significantly positively related to modeled population changes obtained from data pooled from six MAPS stations operated from 1992 through 1995 on Wenatchee National Forest (DeSante et al. 1999).

E. MAPS productivity indices and survival rate estimates can be used to identify the proximate demographic cause(s) of population decline

DeSante et al. (in press b) recently described and evaluated a technique for identifying the proximate demographic cause(s) of population change. The approach involves modeling spatial variation in vital rates (productivity and survivorship) both as a function and not as a function of spatial variation in population trends, and using Akaike's Information Criteria (AIC) to select the appropriate (area-dependent or area-independent) model (Burnham and Anderson 1992).

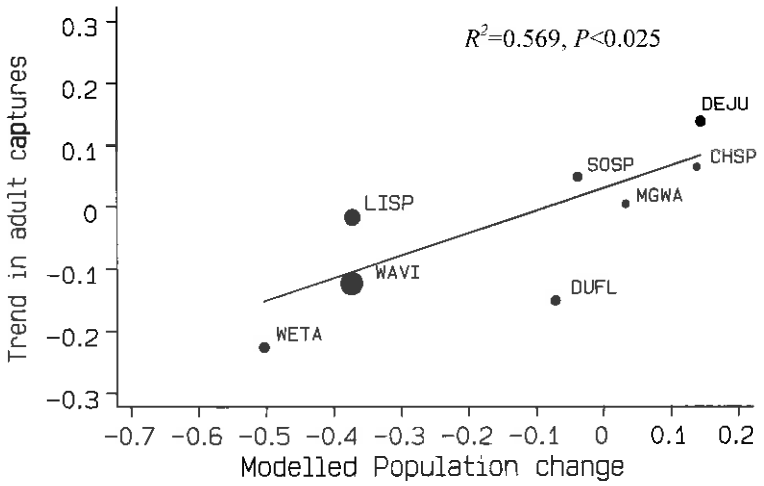

Figure 3. Relationship between trends in adult captures and modeled population changes calculated from reproductive indices and survival estimates from 1992-1995 MAPS data for eight species on Wenatchee National Forest. Trends in adult captures were weighted by the reciprocal of their standard errors and the size of each point reflects the relative weight of each species. From DeSante et al. 1999.

We conducted these analyses at two spatial scales. At the larger scale, we examined 1992-1998 BBS and MAPS data for Gray Catbird. We modeled productivity and survival rates from MAPS stations located in BBS physiographic strata where catbirds were significantly (P<0.01) increasing, as well as strata where they were significantly decreasing. We found that catbird productivity was best modeled as independent of area, while adult survival rates for catbirds were best modeled as area dependent. Moreover, differences in adult survival rates were of the magnitude needed to cause the observed differences in population trends. We concluded that low adult survival rate, rather than low productivity, was the proximate demographic cause of population decline for Gray Catbirds in the physiographic strata where they were declining.

At the smaller scale, we examined six years (1994-1999) of MAPS data from stations on military installations in both the western and eastern Midwest. We conducted analyses on five target species that showed significant negative or positive trends in adult captures on installations in either the western or eastern Midwest, and trends with the opposite sign on installations in the other area. For all five species, we found that low productivity on the installations where the species was declining was a cause of population decline. Low adult survival was an additional cause of decline for Gray Catbird and Yellow-breasted Chat. These are important results

because they confirm that MAPS data can be used to identify the vital rate(s) responsible for population declines and, thus, the vital rate(s) toward which management actions should be directed.

F. MAPS productivity indices, coupled with landscape-level habitat data, can be used to identify management strategies for reversing population declines

A critical management goal of MAPS is to identify management actions and conservation strategies to reverse population declines by quantifying relationships between reproductive indices and landscape-level habitat characteristics (Askins and Philbrick 1987). Ideally, habitat variables should be measured in the landscape surrounding the station that includes the area from within which the dispersing juveniles captured by MAPS protocol have originated. The size of this area undoubtedly varies from species to species, and possibly varies geographically and among habitats for a given species. Although the size of this area is unknown for virtually all species, radio telemetry data demonstrate that dispersing juvenile and post-breeding adult Wood Thrushes generally disperse less than four km from their nests and often to edge locations that have dense shrub cover and an abundance of fruit (Anders 1996, Anders et al. 1997).

Using funding supplied by the DoD Legacy Resources Management Program, we have begun to investigate relationships between bird captures and landscape characteristics within four-km-radius areas surrounding MAPS stations on military installations. For example, for each of the nine most common target species on Jefferson Proving Ground, Indiana, we established logarithmic relationships between bird captures and various landscape metrics based upon 30-m resolution Multi-Resolution Land Characterization (MRLC) Consortium remote-sensed data (Bara 1994). Then, from these fitted logarithmic curves, we calculated the relationships between reproductive indices (young/adult) and landscape metrics (Figure 4).

Figure 4a shows these results for four target species (Ovenbird, Acadian Flycatcher, Wood Thrush, Kentucky Warbler) as a function of mean forest patch size, the single landscape metric that showed the strongest correlation with number of adults captured for each of the four species. These four species are generally considered to be forest interior species and, for each of them, numbers of both adults and young were significantly ($P<0.05$) positively correlated with mean forest patch size at the six stations. Even more interesting were the relationships between reproductive index and mean forest patch size (Fig. 4b). For each species, a threshold patch size (the patch size associated with the 45 degree inflection point of the relationship) was found, below which reproductive indices increased rapidly with increasing forest patch size and above which increases in forest patch size produced relatively small increases in reproductive indices.

Both the threshold patch size and the sharpness of the threshold varied among species. Of the four, the reproductive index for Ovenbird was the most sensitive to mean forest patch size; that is, its threshold patch size was highest (about 30 ha) and its threshold was least sharp of the four species. This is in accordance with recent literature on Ovenbirds (Porneluzi et al. 1993, Burke and Nol 1998). Acadian Flycatcher showed the least sensitive response of reproductive index to mean forest patch size; its threshold patch size was lowest and its threshold was sharpest with very little increase above 20 ha. Reproductive indices for Wood Thrush and Kentucky Warbler showed intermediate sensitivity to mean forest patch size. These tolerances to forest fragmentation are also similar to those previously reported (Gibbs and Faaborg 1990, Robinson et al. 1995), but here, for the first time, we are able to relate the vital rate actually causing the area sensitivity to habitat conditions in the local landscape.

These results have profound management implications. When these types of analyses become fully developed, it should be possible to calculate, from MAPS survivorship and population trend data, the critical values of productivity needed to reverse population declines and produce positive population trends. It should then be possible to predict the values of various landscape metrics that would be needed to produce such reproductive indices. The development of such landscape-level management strategies is one of the ultimate goals of the MAPS Program.

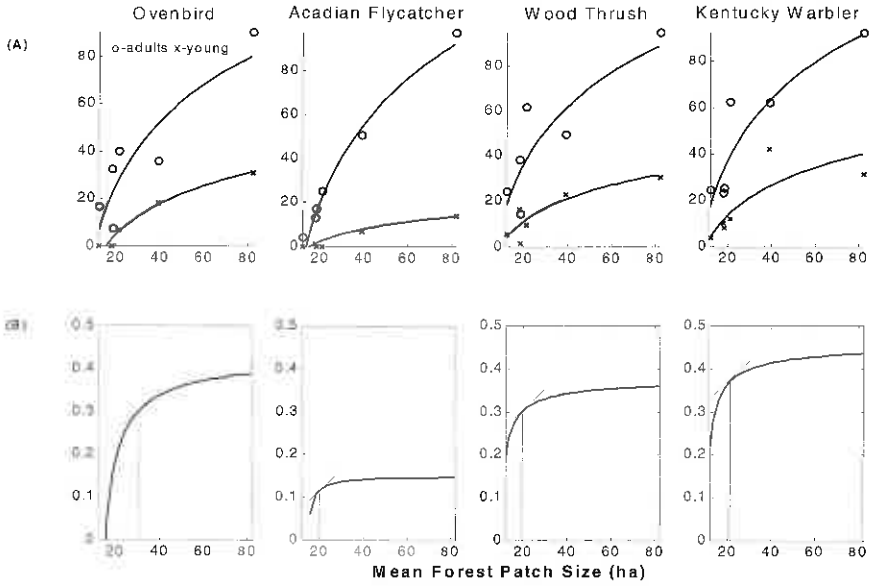

Figure 4. (A) Numbers of individual adult (o) and young (x) birds of four forest interior species captured per 3600 net-hours at six MAPS stations operated during 1994-1999 on Jefferson Proving Ground, Indiana, as a function of mean forest patch size in the 4-km-radius area surrounding each station. (B) Relationship between reproductive index (young/adult) and mean forest patch size at Jefferson Proving Ground for these four species (obtained from the fitted curves in A). IBP unpublished data.

V. MAPS FIVE-YEAR PLAN AND OBJECTIVES FOR THE NEXT THREE YEARS

With the completion of ten years (1992-2001) of standardized data collection, MAPS will have matured to the point where it can begin to achieve its major research and management goals, as well as provide meaningful summaries of monitoring results. Here I present our overall five-year plan and a plan for achieving a specific set of monitoring, research, and management objectives over the next three years (2001-2003).

The major monitoring objective for these three years is the production of a ten-year summary of regional patterns and trends in productivity indices and estimates of adult population size, adult survival rate, recruitment rate into the adult population, and population growth rate for about 100 target species, and a comparison of these data to population trend data from the BBS and other sources. This will represent the first ever comprehensive summary and regional analysis of the vital rates of 100 or so of the more common landbird species over an entire continent.

These monitoring results will provide the basis for achieving the two major research objectives that are to be addressed during the next three years: (1) to identify spatial patterns in the relationship between a major climate variable (standardized El Nino Southern Oscillation [ENSO] Index) and productivity indices from the MAPS Program; and (2) to identify spatial patterns in the relationships between vital rates (productivity, recruitment, and survival) and species-specific demographic and ecological correlates and life history traits, including population growth rate, body mass, migration strategy, nest location, foraging strategy, and habitat preference. Achieving these two research objectives also paves the way for reaching the major research goal for the final two years of this five-year plan: to describe temporal patterns in the vital rates of target landbird species and to relate them to demographic and ecological correlates. All of these research objectives address critical areas of current scientific investigation that have profoundly important practical applications. Understanding the manner in which global climate variables affect bird demographics, and the manner in which bird demographics affect and are constrained by life history strategies, are fundamental for projecting the effects of human-induced climate change upon avian diversity across north America.

Fulfilling these research objectives will, in turn, provide the basis for achieving the major management objective of these three years: identification of the proximate demographic

cause(s) of population change for some 40 or more target species. We will accomplish this objective by modeling spatial variation in vital rates as a function of spatial variation in population trends and ecological characteristics. Identification of the demographic cause(s) of population decline is crucial for assuring that the most appropriate species-specific management actions are being implemented to reverse the declines, and that management efforts are not being directed towards inappropriate stages in the life cycles of the species.

The application to MAPS data of two recently developed analytical techniques is necessary for achieving the research and management results proposed above. These are: (1) extension of a method for adjusting indices of adult population size and productivity to account for missed effort during operation of MAPS stations (Peach et al. 1998); and (2) the use of temporal symmetry models that permit direct estimation of recruitment and population growth rates from mark-recapture data (Pradel 1996, Nichols and Hines in press). Application of these new methods to MAPS data provides the final two objectives to be addressed during the first three years of this five-year plan.

Completing the three-year objectives discussed above will set the stage for fulfilling the major management goal for the final two years of this plan: formulation of landscape-level management actions and conservation strategies for 40 or more target species to reverse population declines and maintain stable or increasing populations. We will achieve this goal by establishing relationships between productivity indices and recruitment estimates obtained from 12 years (1992-2003) of MAPS data and station-specific and landscape-level habitat characteristics.

The objectives proposed here have been achieved for very few species anywhere, and for virtually no landbird species in North America, save a few that are critically endangered because of outright habitat destruction. Still, we believe that we can meet these objectives, given the increasingly powerful mark-recapture models that have recently been developed and more than ten years of data from the network of over 500 MAPS stations all utilizing a standardized protocol. We are confident that we can fulfill these objectives, because we have already completed successful pilot studies on all of them at one or more spatial scales.

Completion of the objectives outlined in this five-year plan will allow the information derived from 12 years of MAPS data to be applied to the development and implementation of landscape-level management plans in a scientifically rigorous manner. The management goal for MAPS subsequent to these five years will be to evaluate, through an adaptive management framework, the effectiveness of the management actions and conservation strategies that are actually implemented. Under this approach, we will utilize hypothesis-driven sampling strategies for siting new stations, such that existing stations will serve as controls and will be paired with new experimental stations in areas where management strategies designed specifically to increase productivity are being implemented. If the goal is to manage for increased productivity, then the adaptive management process demands that productivity, and not simply population size, be monitored. Before reaching that stage of the program, however, we need first to identify those species whose population declines can be reversed by increasing their productivity, and then to formulate appropriate management strategies for them. That is the goal of our five-year plan.

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As mentioned already, Constant Effort Site schemes are becoming increasingly important methods to monitor bird populations; an inventory of CES schemes in Europe has been produced by Romain Julliard. EURING is now planning the launch of a Europe-wide CES project, as reported here by Chris Wernham and Dawn Balmer.

CONSTANT EFFORT RINGING IN EUROPE
OUTLINE OF PROJECT AIMS FOR PARTICIPANT RINGING SCHEMES

by Chris Wernham & Dawn Balmer

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Background

At the last EURING General Meeting on Helgoland (autumn 1999) there was considerable interest expressed by a number of Ringing Schemes in trying to standardise, as far as possible, CES techniques across Europe, with the ultimate aims of comparing species trends between countries and producing combined trends at the European scale. At the meeting, the British Trust for Ornithology (BTO) agreed to take the lead in developing CES at the European scale, in collaboration with Romain Julliard and the French Ringing Scheme. After discussions at the conference, we needed to acquire funding to run a full pilot project. The Council of the BTO has now agreed this funding, and we would like the project proposed below to be carried out, beginning in the autumn of 2000. For the project to be a success, we will need the support and assistance of our colleagues in as many of the other European ringing schemes and other organisations with existing constant effort ringing programmes as possible.

Project aims

1. **To assess the current state of CES-type schemes in Europe, their protocols and the species that are monitored satisfactorily.**

Romain Julliard has already assembled much of the information that is needed here, for a recent report on the French constant-effort netting programme. In order to run the current project, we will need to build on Romain's results by again contacting individual schemes to find out more about existing field methods and data collation, and to acquire some sample data sets.

2. **To develop agreed protocols for CES fieldwork methodology, data exchange and analysis.**

We agreed at the EURING meeting in autumn 1999 that the BTO would produce a set of European CES fieldwork guidelines. With the newly acquired funding, we will be able to take this a step further and provide guidance on computerisation, in order to facilitate the combination of CES data from the different schemes (probably based on the new EURING exchange code with appropriate modifications).

3. **To assess the potential for producing combined European trends/comparative national trends for a common suite of species.**

In order to fulfil this aim, we will need to acquire sample data sets from a number of schemes. We should be able to find a number of species common across countries, which we can use to assess national differences in trends and the validity of a combined European trend. Britain & Ireland, Finland and France have data spanning a concurrent period of at least 10 years, while the Netherlands and Spain could be added to run trends for five years.

Outputs

1. A set of European CES field methodology and data exchange guidelines.

2. A short report on the results of attempting to run comparative and combined trends for a suite of species common to several countries.

3. A scientific paper in a refereed journal (perhaps methodologically-based) if the pilot results are of sufficient calibre. Joint authorship will, of course, be offered to those schemes/organisations who have provided sample data used in any such publication.

4) Access to the above guidelines and results on the BTO web page, with translations for at least the key countries/languages if at all possible (we will need our European colleagues' help with this aim!).

5) A proposal for further development of this European CES initiative, for discussion at a subsequent EURING meeting, to allow us to seek future funding for the benefit of CES ringing in Europe.

Time-scale

We hope to acquire the necessary information and sample data from the individual schemes during the winter of 2000/01. Assuming that our colleagues in the other Schemes can reply fairly rapidly to our requests, we would like to have a set of draft guidelines ready for comment by the spring of 2001 (1 above). The report on trends (2 above) and the web pages (4 above) would be put together during the remainder of 2001, ready for the guidelines to take effect for the 2002 breeding season. Once items 1, 2 and 4 have been addressed, a proposal for further development will be written (4 above) and a scientific paper prepared, if the results are deemed suitable (3 above).

EURING SWALLOW PROJECT

THIRD NEWSLETTER YEARS 1999 – 2000

by Fernando Spina

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This newsletter reports the results gathered by the EURING Swallow Project (ESP) during both 1999 and 2000; the reason for having 'missed' the 1999 annual newsletter lies in the difficulties in getting the summary data from the schemes, as well as to problems in data management by the co-ordination in Bologna.

Geographical coverage 1999-2000: a total of 12 countries joined the project in 1999 (Tab. 1), while 15 countries were active in 2000 (Tab. 2). Two important additions to the project came in 1999, when Denmark joined for the first time, and 2000, when France had the start of ringing activities, after having already carried out an important national swallow project over 10 years ago. The geographical coverage of the ESP in these last two years is reported in Figs. 1,2. Since the pilot year of 1997, a total of 25 countries took part into the project (Tab. 3), offering a very good coverage across Europe (Fig. 3).

A special report on the activities during 1999-2000 in Finland is offered by Pertti Saurola (*see below*).

Overall, 7 countries (Finland, Germany, The Netherlands, Italy, Slovenia, Spain, Switzerland) joined the project so far.

During the four years, many more birds were ringed at roosts, which offer the potential for high trapping figures, but large samples originate also from the colonies (Fig. 4). Overall, more than 500,000 swallows have been ringed since the start of the project.

As for the activities in other continents, in South Africa a number of roosts were studied, and regular ringing activities were continued by Rick Nuttall in the well known tree roost in Bloemfontein (*see below*). In the United States a number of banders were marking breeding swallows in 2000, given the most interesting absence of roosting behaviour in North American Barn Swallows, and we hope to get summary data soon. A strong interest for the project asshown by the Japanese Ringing Scheme, on the basis of the intense research activities already carried on both on pre-migratory roosting swallows in Japan, and on the wintering grounds in peninsular S.E. Asia and Sunda islands (*see below*). A joint Japanese-Italian expedition to study some of the main winter roosts of Asian Barn Swallows in Borneo was organised in Sabah in January 2001, on the kind invitation of Dr. Kiyoaki Ozaki, from the Japanese ringing sheme at the Jamashina Institute of Ornithology.

EURING SWALLOW PROJECT

Tab. 1 – Ringing totals 1999.

SCHEME	ADULTS	CHICKS	TOTBREEDING	NROOSTS	ROOSTRINGED	TOTRINGED
Denmark	17	200	217	4	550	767
Finland	987	8642	9629	30	14449	24134
Germany	317	6456	6773	9	2894	9667
Hungary						TO COME
Italy	1873	9540	11413	25	39660	51073
Kazakhstan		0		1	2923	2923
Portugal		72	72	8	4170	4242
Slovenia			219		14950	15169
Spain	20	1058	1078	10	4179	5257
Switzerland	497	3373	3870	16	6523	10393
The Netherlands			3353	9	10246	13599
Ukraina	110	428	538	0	0	538
Totale	**3821**	**29769**	**37162**	**112**	**100544**	**137762**

Tab. 2 – Ringing totals 2000.

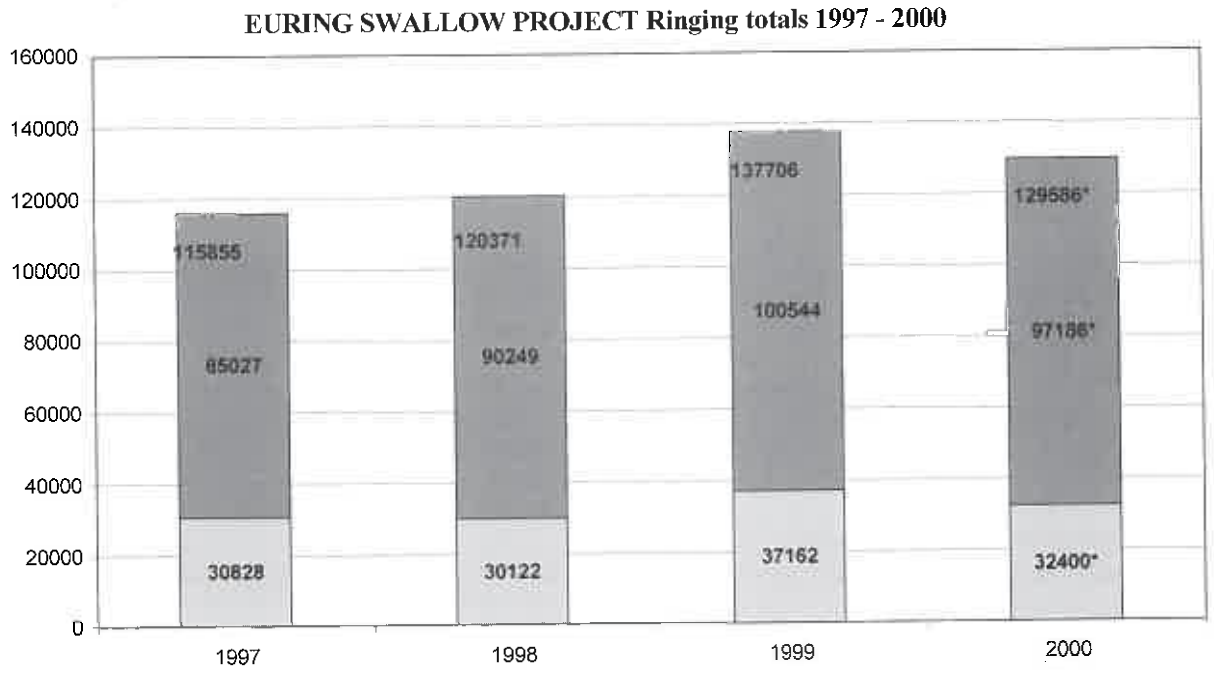
SCHEME	BREAD	PULLI	TOT BR	ROOS	TOT ROO	ANN TOT	NRINGERS
Denmark	25	250	275	2	1050	1325	6
Finland	1139	8441	9580	35	15422	25002	127
France	1332	2468	3800		4101	7901	
Germany	268	3121	3389	5	3031	6420	25
Hungary						TO COME	
Italy	1178	6102	7280	20	28298	35578	120
Kazakhstan	0	0		1	2891	2891	
Latvia	64	550	614	0	0	614	16
Malta				2	490	490	6
Poland	0	0		8	4642	4642	9
Portugal		22	22	10	1397	1419	11
Slovenia	0	96	96	4	18173	18269	13
Spain	18	352	370	7	3210	3580	14
Switzerland	574	3889	4463	14	5500	9963	46
The Netherlands	425	2086	2511	9	8981	11492	14
Totale	**5023**	**27377**	**32400**	**117**	**97186**	**129586**	**407**

EURING SWALLOW PROJECT

Tab. 3 – Active countries 1997-2000.

COUNTRY	1997	1998	1999	2000	COUNTRY	1997	1998	1999	2000
Austria	*				Latvia	*	*		*
Belgium	*				Lithuania	*	*		
Czech Republic		*			Malta	*	*		*
Denmark			*	*	Norway	*	*		
Estonia	*				Poland				*
Finland	*	*	*	*	Portugal		*	*	*
France				*	Slovenia	*	*	*	*
Germany	*	*	*	*	Spain	*	*	*	*
Holland	*	*	*	*	Sweden		*		
Hungary		*	*	*	Switzerland	*	*	*	*
Italy	*	*	*	*	Ukraine	*	*	*	
Kazakhstan		*	*	*	United Kingdom	*			
					Yugoslavia	*	*		

Fig. 4 -



EURING SWALLOW PROJECT

Fig. 1 – Geographical coverage year 1999

Fig. 2 – Geographical coverage year 2000

Fig. 3 –Geographical coverage years 1997 – 2000

EURING SWALLOW PROJECT

Data analysis

The coordination of the migration section of the EURING swallow project at the Bologna Ringing Scheme has analysed data collected at roosts in different European countries to investigate relationships between pre-migratory strategies and the eco-geographic features of the routes followed by swallows on autumn migration.

Dr. Diego Rubolini carried on these analyses for his thesis, taking into account data from Finalnd, Lithuania, UK, Germany, Switzerland, Italy, Spain and Malta. He was able to confirm preliminary results obtained from the pilot year of the project (Pilastro & Spina 1999, *see* EURING newsletter 2). Swallows seem to accumulate fat while approaching the ecological barriers (Mediterranean Sea and Sahara desert) they will have to overcome in order to reach the African wintering grounds. Birds leave northern latitudes in Europe (e.g. Finland) without significant fat depots, getting progressively fatter at lower latitudes. Differently from what often reported, swallows do not seem to adopt a "fly-and-forage" strategy, but rather accumulate fat as other long-distance songbird migrants do, up to 40-60% of lean body mass just before barrier crossing.

More detailed analyses were performed to better investigate the relationships between ecological barriers and swallow migration across Europe (Rubolini et al., J. Avian Biol., *in press*). When taking into account pre-migratory conditions of swallows ringed in southern Spain vs. southern Italy, a significant positive correlation was found between the extension of ecological barriers and the amount of energy stores. The barriers were expressed as distance from the different roosts to the coast of North Africa, as well as to the southern edge of the Sahara. The weaker correlations obtained when considering only the Mediterranean as a barrier indicates that swallows may cross the desert without substantial refuelling in North Africa. Hence, departure conditions from southern Europe suggest a fast migration across the barriers.

The observed differences in fuel stores between Italian and Iberian Barn Swallows suggest a degree of population-specific variability, and the extension of ecological barriers may play a role in determining the amount of stores needed for the migratory flight.

These very interesting results confirm the great potential of our Swallow project in unravelling still undescribed migratory patterns even in one of the reportedly best known migrants. It is now important to further improve the geographical coverage of the project, and especially to collect more data from central-eastern Europe, in order to describe another most important route, funnelling along the eastern Mediterranean and the Nile.

Analyses in Italy

The strong involvement of Italian ringers in the project provided a very good seasonal and geographical coverage of roosts, and a large set of data to analyse. In the last two years, Lara Marangoni, Alessandra Stagni and Fernando Spina analysed features of the swallow pre-migratory phase in Italy, by taking into account possible differences between sex- and age-classes, as well as along the latitudinal gradient. A huge sample of over 160,000 swallows was used.

In the pre-migratory phase swallows are leaner in the north of Italy and fatter further south; this difference disappears when analysing adults in the last phase before departure, when conditions do not differ between the two areas. Adults leave the northern roosts earlier and in better conditions than juveniles, suggesting a higher foraging efficiency.

The roosts are used already since June, mainly by juveniles and by adult males (these might also belong to the non-breeding part of the higher fraction of males within the sexes, A. Møller, *in verbis*). In the early stages of the

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roosts, juveniles have better conditions than adults, and males are in better conditions than females. The difference between sexes disappears later in the season; adults are finally leaving the roosts with higher energy stores than juveniles.

The very large set of data collected in Italy produced an interesting sample of nearly 500 controls between colonies and roosts, as well as among roosts. These data were used by Davide Licheri to investigate the seasonal patterns of movements across Italy. He found that swallows move towards the north on post-fledging movements (July-August), while later in the season (September- October) the larger movements recorded are mainly directed towards the migratory direction of south. Northwards movements are performed in birds younger than 70 days of age; these movements can be meant to build up a navigational target for the birds. The accumulation of fat is seasonally controlled, as the same patterns of increase are recorded in first year birds during the pre-migratory phase, regardless of their age.

All these results are being arranged in a series of papers which we hope will contribute to the better understanding of the pre-migratory behaviour of swallows in Italy, a country which really seems to bridge swallows to the south, before the risky phase of their journey across the vast barriers towards Africa.

EURING SWALLOW PROJECT

THE EURING SWALLOW PROJECT IN FINLAND YEARS 1999 - 2000

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RESEARCH ACTIVITIES IN 1999

In total, 24,134 Barn Swallows *Hirundo rustica* were ringed in Finland in 1999 by 138 ringers. This was again a new record (64% more than in 1997) and consisted of 8642 nestlings, 987 breeding adults and 14 449 full-grown birds roosting in reed-beds; all these three figures were new annual records. The number of ringings was distributed unevenly across the 10x10 km squares of the Finnish National Grid, and also the ringing effort was distributed unevenly among the ringers: 59% of nestlings were ringed by three ringers, 64% of adults captured at the nest were caught by three ringers, and 59% of swallows ringed at the reed-beds were caught at four sites.

Hatching dates in 1999 were estimated of all broods ringed in "Häme" (= Hauho, 61°10'N /24°35'E, and surrounding communes) and in "Savo" (= Pielavesi, 63°15'N /26° 45'E, and surrounding communes) on the basis of the wing length of the oldest young of the brood (cf. Saurola 1999). In 1999 breeding started about a week earlier than in 1998.

A totals of 16 hybrids between the Barn Swallow and House Martin, *Delichon urbica*, belonging to 10 different broods were detected already as nestlings. In Savo one out of 128 Swallow nestlings was a hybrid! In all these cases the nests were located inside the building and no House Martins were seen close to the nests. In addition, 26 hybrids were captured in 1998 as first year birds in 8 reed-beds. This means that one out of 489 Swallows ringed at roosts was a hybrid. Altogether 80 such hybrids have been reported from Finland so far.

In total, 1,347 breeding adults were captured, either ringed or recaptured, at the nest in Finland in 1999. Of all 363 adults recaptured at the nest in 1999, 265 (73%) were originally ringed as breeding adults, 72 (20%) as nestlings and 26 (7%) as roosting birds in the reed-beds in 1998 or earlier. In 1998, 908 adults were captured at the nest. Out of these 239 (26%) were recaptured at the nest in 1999 as well. The distances moved between the successive nest sites by these adults of 1998 were: 232 x 0 km, 5 x 1 km, 1 x 2 km and 1x 18 km. Hence, the fidelity to the nest site was extremely high.

The data on natal dispersal has not yet been corrected with the geographical distribution of the effort of ringing the nestlings and of catching the adults at the nest. According to the uncorrected data (n= 95), 17% of young swallows returned to their natal colony, 73% moved less than 6km, 86% moved less than 10 km and all moved less than 28 km from their natal colony.

Ringing of Swallows roosting in reed-beds in August-September was carried out at 30 sites by 28 ringers during 340 sessions in total. However, only at 18 of the sites over 100 birds were ringed. Catching at roosts in Häme was difficult in 1999 because the Swallows were not strictly linked to the roost. In 1997 and 1998, roosting Swallows were caught at Lusinselkä and Pyhäjärvi. In 1999, very few Swallows were roosting at these sites. A new roost, Roinelahti was detected 30 July with a good number of birds. The numbers of Swallows roosting were high from 31 July to 24 August and numbers decreased dramatically afterwards. New roosts were searched actively, and a next one was not found on 28 July, when a

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huge number of Swallows was found in Väinölänlahti. However, this roost was already abandoned on 29 July, before catching had started! The next roost Ali-Äijälä was detected 1 September and was very good in numbers to 9 September. After that, a small number of roosting Swallows were caught at a roost found near Muttamo. Why did the Swallows abandon their roosts? First of all, in Häme, there is a huge amount of good habitat available for roosting Swallows. They can easily find a new one if they want to change. Disturbance made by ringing and/or disturbance made by hunting Hobbies Falco subbuteo could be the main causes to abandon the roost. In any case, at these sites ringing was carried out very carefully with the minimum amount of disturbance.

I have tried to get some preliminary information for the following question. What is the probability that a nestling born at a given distance from a given roost will be recaptured at that roost? The results suggest that the recapture probability of a Swallow ringed 0–5 km from the roost is twice as high as the recapture probability of Swallows ringed 10–15 km from the roost, etc.

As for new data on migratory routes folowed by Finnish swallows, an exceptionally strong migration of Barn Swallows through the Ornithological Station Ventes Ragas in Lithuania was observed between 6 September and 17 September 1999 (Patapavicius pers. comm.). During that period 10,155 Swallows were ringed and 10 birds from Finland were controlled. These were the first Lithuanian recaptures/recoveries of Finnish Swallows ever. In 1999, 8 new recoveries were reported from Africa.

RESEARCH ACTIVITIES IN 2000

In the year 2000, a total of 25,007 Barn Swallows Hirundo rustica were ringed in Finland. This was again a new record, with 8,446 nestlings, 1,139 breeding adults and 15,417 full-grown birds roosting in reed-beds.

Few ringers were able to contribute a large proportion of the data; 52% of the nestlings were ringed by two ringers, 42% of the adults captured at the nest were caught by one ringer, and 55% of the Barn Swallows ringed at the reed-beds were caught at five sites.

Hatching dates in 2000 were estimated of all broods ringed in "Häme" (= Hauho, 61°10'N /24°35'E, and surrounding communes) and in "Savo" (= Pielavesi, 63°15'N /26° 45'E, and surrounding communes) on the basis of the wing length of the oldest young of the brood. Breeding started in Häme four days and in Savo six days later in 2000 than in 1999. This difference can be attributed to the cold period in early summer (cf. Haapala *et al.* 2001).

In 2000, eight hybrids between the Barn Swallow and House Martin, Delichon urbica, belonging to 7 different broods were detected as nestlings. In addition, 20 hybrids were captured in 2000 as first year birds in reed-beds (cf. Saurola 2000).

In total, 1,594 breeding adults were captured, either ringed or recaptured, at the nest in Finland. The first estimate of the annual survival of adult Finnish Barn Swallows was based on the capture-recapture modelling with the program MARK and on data from Hauho, where breeding adults were captured every year since 1997. The estimate 0.49 (95% confidence limits 0.42–0.56) was clearly higher than the ones given by Siriwardena et al. (1998) and Moller & Lope (1999).

The ringing of Barn Swallows roosting in reed-beds in August-September was carried out at 29 sites by 34 ringers during a total of 312 sessions. However, only 21 sites ringed over 100 birds. The average body mass of first-year Barn Swallows ringed in reed-beds was 18.5 g in the beginning of August, 19.3 g in the middle of August and 20,9 g during the first 10-day period in September. At the beginning of September the young Swallows were as heavy as at the same time in 1998, but heavier than in 1999.

New data have been gathered on movements and routes followed by Finnish Swallows. In total, 74 Barn Swallows ringed in Finland have been reported from abroad: 34 were recaptured, 14 killed and 26 were found dead. The EURING Swallow Project has produced 30 new foreign recoveries of Swallows ringed in Finland. Of all foreign recoveries, 30 are from southern Africa, 12 from equatorial Africa, 9 from Mediterranean countries and 23 from Baltic countries.

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BARN SWALLOW *HIRUNDO RUSTICA* RINGING IN SOUTHERN AFRICA (1998/99 - 2000/01)

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Introduction

In an attempt to improve the numbers of Barn Swallows *Hirundo rustica* handled by ringers in southern Africa, and in this way to assist with the EURING Swallow Project, a few roosts have been targeted during the last three southern summers (1998/99 - 2000/01). Apart from the obvious data on controlled birds, mass and moult data, and to a lesser extent, fat score indices, have also been recorded.

Numbers of swallows ringed

A total of 13,354 swallows have been ringed in southern Africa (including Botswana, Namibia, Zambia & Zimbabwe) during this period by a total of 53 ringers, although seven ringers only have contributed over 11,000 of the birds ringed (data provided by SAFRING; Table 1). This is largely as a result of two roosts being worked, the one in Bloemfontein (*see below*), Free State, situated centrally in South Africa, and the other near Middelburg, Mpumalanga, in the north-east of the country.

Numbers of foreign-ringed swallows controlled/recovered in southern Africa

A highlight of any ringing activity is the recapture or controlling of ringed birds; this is especially so when attention is focussed on Palearctic migrant species, such as the Barn Swallow. At the time of writing (10 July 2001), a total of **44** foreign-ringed swallows have been controlled or recovered in southern Africa during the last three southern summers. An indication of the activity at and success provided by the Bloemfontein roost is the fact that **29** of this total of 44 birds have been caught here.

The majority of the foreign-ringed swallows were ringed in Great Britain, while a number were also ringed in Finland, Norway and Denmark. A single Italian-ringed swallow was controlled at the Bloemfontein roost early in 1999.

Table 1 - Summary of Barn Swallows ringed in southern Africa (1998/99 - 2000/01).

No. of birds per ringer	No. of ringers	Total birds per group	% of combined total
>1000	3	9059	67.8
501-1000	4	2069	15.5
101-500	8	1492	11.2
51-100	7	467	3.5
11-50	10	204	1.5
1-10	21	63	0.5
Total	**53**	**13354**	**100**

Numbers of southern African-ringed swallows controlled/recovered outside of the region

During this same period, information has been received for **13** swallows ringed in southern African countries and controlled/recovered elsewhere. Again, the majority of these records are

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from Great Britain, but single records also exist for Sweden and Uganda.

Numbers of southern African-ringed swallows controlled/recovered in southern African countries

A total of 51 swallows have been controlled/recovered within southern Africa; 45 of these at the Bloemfontein roost. The time period separating dates of initial and subsequent capture of the latter birds during a single season ranges from 1-72 days.

The Bloemfontein Swallow Project

Swallows have been caught and ringed at a roost in trees in a suburban garden in Bloemfontein since early 1998. Favourable conditions for catching comparatively large numbers of birds in a short period of time have resulted in the capture and ringing of almost 7500 swallows during 29 ringing sessions during the report period (Table 2). Low numbers of birds ringed during the last season are probably attributable to unfavourable weather conditions (very hot and dry) for swallows in the central parts of the country, while the north-eastern parts of the country experienced moist conditions and consequently, higher numbers of swallows.

Table 2 - Barn Swallows ringed at the Universitas, Bloemfontein roost

Season	Total	Sessions
1998/99	3935	15
1999/00	3062	9
2000/01	493	5
Total	**7490**	**29**

Foreign-ringed swallows have originated mainly from Great Britain, but Scandinavian countries are also well represented (Table 3).

Table 3 - Foreign controls of Barn Swallows at the Universitas, Bloemfontein roost.

Year	n	Country ringed	Total
1998/99	8	Great Britain	11
	2	Norway	
	1	Italy	
1999/00	9	Great Britain	16
	3	Norway	
	1	Denmark	
	3	Finland	
2000/01	1	Great Britain	2
	1	Finland	
			29

Further details can be found by visiting the Bloemfontein Swallow Project web site at **www.nasmus.co.za/ornithol/swallow1.html**.

It is hoped that weather conditions during the 2001/02 summer will again be favourable for optimum swallow activity and thus ringing in central South Africa. An effort will also be made to encourage ringers in other parts of the region to actively target swallow roosts.

Acknowledgements

Sincere thanks to those who submitted data for inclusion in this report, and especially to Dieter Oschadleus, SAFRING Co-ordinator, for summary data provided at short notice. The Bloemfontein Swallow Project would not have been possible without the generous sponsorship of Norwegian swallow ringing colleagues as well as the dedication of a handful of keen ringers.

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SWALLOW BANDING AND ROOSTING COUNTS IN SOUTH-EAST ASIA

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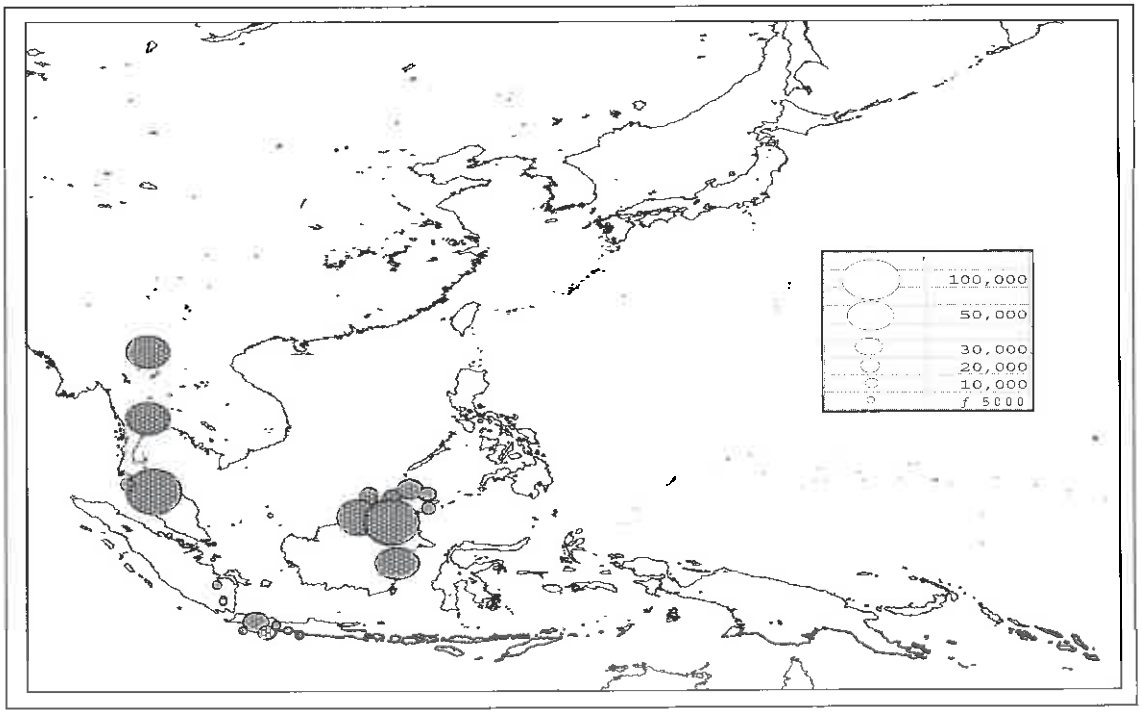
In Japan, more than 150,000 Swallows were banded from 1961 to 1995. About 80 out of a total of 300 recoveries are obtained from foreign countries, like Philippines, Taiwan, Vietnam, China, Malaysia (peninsula) and Russia. From this results we could estimate that Japanese swallows are wintering mainly in the Philippines.

Since the MAPS project (Migratory Animals Pathological Survey) by the US Army ended in 1960's, there have been only scanty banding activities in Southeast Asian countries. The Yamashina Institute for Ornithology started winter Swallow banding and roosting counts since 1990. So far we have carried on this project in Thailand (6 years), Indonesia (3 years) and Malaysia (in Sabah, 3 years). These activities allow us to offer an estimate the overall numbers of wintering swallows in those countries: Thailand has a total of 233,000 birds in 4 sites, Indonesia a total of 115,000 birds in 9 sites and Malaysia 335,000 birds in 7 sites. Hence the total number of counted roosting swallows is 683,000 in these three countries.

During the years we were able to band over 17,000 swallows. We could also control Japan ringed birds in Indonesia (Java) and Malaysia (Sabah), showing new and undescribed wintering sites.

Our Swallow banding and counting has also encouraged banding activities in the different countries, and in Thailand in particular, where a national banding scheme has been created issuing own rings.



In the second issue of the newsletter Roland Staav has contributed a most interesting longevity list of birds ringed in Europe. Roland is still working on this issue, and offers here an updated list, with new data on several species. All schemes are kindly requested to support Roland by sending him all new national longevity records, for further additions to the list on future issues of this newsletter.

COMPLEMENTARY LONGEVITY LIST OF BIRDS RINGED IN EUROPE

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In EURING NEWSLETTER vol 2 (1998) a longevity list of the oldest known ringed european birds was published. After another two years many new recoveries of old birds have come to my knowledge. In december 2000 I compiled the following up-to-date list containing individuals of 68 species, older than in preceding list. I know that there are still many interesting recoveries of old birds about which I have not been informed. Please send me all ringing details of the oldest birds for future longevity lists

BLB	Belgium Bruxelles	NLA	Netherlands Arnhem
DDH	Germany Hiddensee	NLL	Netherlands Leiden
DFH	Germany Helgoland	NOA	Norway Ås
DFR	Germany Radolfzell/Rossitten	NOO	Norway Oslo
DKC	Denmark, Copenhagen	NOS	Norway Stavanger
ESA	Spain Aranzadi	PLG	Poland Gdansk
ESI	Spain, Icona	PLW	Poland Warsaw
ESM	Spain Madrid	SFH	Finland Helsinki
FRP	France Paris	SUM	Russia Moscow
HES	Helvetia Sempach	SUR	Latvia Riga
HGB	Hungary Budapest	SVG	Sweden Gothenburg
ILT	Israel Tel Aviv	SVJ	Sweden Jägareförbundet
ISR	Iceland Reykjavik	SVS	Sweden Stockholm

Explanations to the columns:

1) Species
2) Ringing Scheme:
3) Ring number
4) Time elapsed between ringing and recovery in years and months.
5) Minimum age according to status at ringing.
6) Age recorded at the time of ringing: 1= pullus, 2= fully grown, 3 hatched during calendar year of ringing, 4= hatched before calendar year of ringing, 5= hatched during previous calendar year, 6= hatched before previous calendar year, 7= definitely hatched two years before year of ringing, 8= hatched three or more calendar years before year of ringing.
7) EURING-code when found
8) Ring verification: + ring sent or otherwise verified.
9) Comments
10) Reference

1	2	3	4	5	6	7	8	9	10
Podiceps cristatus	NLA	7035018	13-06	14-06	2	2340			23
Podiceps auritus	ISR	V 4646	07-00	07-00	1	1010			5
Sula bassana	GBT	1010527	37-04	37-05	1	2010			20
Phalacrocorax carbo	**GBT**	M 5650	**23-06**	**23-06**	**1**	**1010**			**14**
P. aristotelis	ISR	18820	20-02	20-03	1	2100	+		5
Anser brachyrhynchus	GBT	1007752	38-07	39-09	6	1010			20
Branta leucopsis	SVS	9116305	23-00	24-00	5	2080		Female, wing damaged, bird Killed.	1
Anas penelope	GBT	AT71365	33-06	34-02	3	2100		Male	20
Anas querquedula	GBT	EC74458	14-06	14-06	3	2100		Female	14
Aythya marila	SFH	47205	13-01	14-00	4	3100	+	Female	9
Mergus albellus	NLA	5241039	07-06	10-00	6	1600		Male,probably taken by mink.	8
Milvus migrans	HES	829312	23-10	23-10	1	2430			6
Haliaeetus albicilla	SFH	E3948	25-01	25-02	1	3100	+	Dead since 2-3 weeks, male accor-ding to measure-ments.	11
Circus aeruginosus	DFR	D16220	20-01	20-01	1	2500	+		7
Buteo lagopus	**SVS**	9208506	18-09	18-09	1	1430		Remains under electric transmission line.	1
Falco subbuteo	GBT	EK04489	11-11	11-11	1	2010	+		3
Falco rusticolus	ISR	15567	12-11	12-11	1	3010	+	Skeleton found.	5
Rallus aquaticus	GBT	DA56290	08-09	08-10	3	2010			12
Charadius hiaticula	DFH	80669310	18-01	19-00	4	8200		Male, breeding.	19
Charadius hiaticula	GBT	NB38376	18-00	19-11	6	8200		Male	12
C. alexandrinus	SVS	3247244	18-00	18-00	1	8290		Female, breeding.	15
C. morinellus	GBT	XR45242	10-10	10-11	4	2010		Male	14
Lymnocrypt. minimus	DDH	7170838	12-01	12-04	2	2100			16
Scolopax rusticola	GBT	R4516	15-06	15-06	1	2100			14
Limosa lapponica	GBT	DS28165	30-03	31-04	4	8200			13
Numenius phaeopus	GBT	EH49697	16-01	16-01	1	1100	+		3
Tringa erythropus	SFH	B70005	07-07	08-07	4	2100	+		9
Tringa totanus	GBT	DR10814	19-10	20-04	2	8200			3
Larus ridibundus	SFH	S-049.023	30-07	30-07	1	1010			17
Larus fuscus	GBT	GM02212	32-08	32-09	1	1010			20
Larus argentatus	SFH	71386	32-01	32-01	1	2340	+		18
Larus hyperboreus	ISR	214599	18-01	18-08	1	2100	+		5
Larus marinus	SFH	D24294	26-01	26-01	1	1110			9
Sterna sandvicensis	GBT	DS61571	30-09	30-09	1	6210		Alive,taken in captivity.	14
Sterna hirundo	GBT	CK39045	33-00	33-00	1	7280			12
Sterna paradisaea	GBT	CK10952	29-10	29-10	1	1010			26
Sterna paradisaea	DFH	7491927	27-11	30-11	8	8200		Male,breeding.	19
Uria lomvia	NOS	449130	20-04	20-05	1	2100			27
Alca torda	GBT	M2388	28-05	29-05	6	2010			20
Cepphus grylle	SFH	ST26032	26-00	26-00	1	8200		Nesting.	9
Fratercula arctica	ISR	419571	32-11	33-10	4	8200			5
Bubo bubo	SVS	9300365	24-09	24-09	1	2350	+		1

1	2	3	4	5	6	7	8	9	10
Glaucid. passerinum	DDH	TA1347	05-00	06-00	5	8200		Male, breeding.	24
Glaucid. passerinum	SFH	BV3310	05-00	05-01	1	8200			9
Aegolius funereus	SFH	C99518	14-11	15-00	1	1310			9
Jynx torquilla	SFH	P245673	06-02	06-02	1	1100			9
Dryocopus martius	SFH	S95923	13-11	14-00	1	8290		Breeding bird.	18
Dendrocopos leucotos	SFH	A275614	10-01	10-11	4	1100		Female	10
Riparia riparia	SVS	AR45926	09-01	10-00	4	2400	+		1
Anthus petrosus	SVS	AK74816	10-11	10-11	1	8290		Male,contr. breeding 10 years.	1
Motacilla alba	GBT	KN38306	11-03	12-03	4	1010		Female	14
Troglod. troglodytes	GBT	7P3202	06-01	06-11	5	8200		Female, breeding.	14
Prunella modularis	GBT	BW170	11-03	11-08	2	1010			14
Lusc. megarhynchos	DDH	80573976	08-11	09-08	4	8200		Male	16
Turdus iliacus	SFH	P337619	17-01	17-04	3	2100	+		9
Turdus viscivorus	GBT	CP00285	11-04	12-04	4	1010			14
Cettia cetti	GBT	KV98586	07-03	07-06	3	8200		Male	14
Acroc.schoenobaenus	SFH	V637074	10-00	10-01	3	8200			17
Acroc. palustris	SVS	AX18398	08-00	09-01	4	8200		Male breeding.	1
Acroc. arundinaceus	DDH	80532535	08-11	10-00	4	8200			2
Sylvia melanocephala	IAB	L942812	07-01	07-07	3	2010		Male	22
Phyllosc. collybita	GBT	5R9768	07-07	07-08	3	1010			25
Phyllosc. trochilus	GBT	9J1321	10-08	11-09	3	8200		Male, nesting.	20
Ficedula hypoleuca	SFH	J74662	10-10	10-11	1	2100			9
Sitta europaea	GBT	VA82072	11-08	12-11	4	2010		Male	25
Pica pica	GBT	74564	21-08	21-08	1	2100			14
Corvus corone	SFH	C-259138	17-01	17-01	1	2010	+		21
Carduelis chloris	GBT	P3640	12-00	13-00	5	7200			14
Carduelis flammea	SFH	K370978	10-06	10-08	3	0100	+		9
Plectroph. nivalis	ISR	952718	07-07	09-06	7	8200		Male	5
Emberiza hortulana	NOS	E311117	04-11	05-10	4	8200		Male	4

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Computers have become increasingly important in the management of ringing activities world-wide. Recent developments in hardware and software technologies have also allowed a direct involvement and contribution of ringers to the computerisation of ringing data. Several schemes are updating their systems, and an interesting case is offered here by the Radolfzell and Helgoland joint new systems, as described by Wolfgang Fiedler and Walter Foken.

ESTABLISHMENT OF THE NEW DATABASE RINGZENT IN THE BIRD RINGING CENTRES HELGOLAND AND RADOLFZELL

by Wolfgang Fiedler① and Walter Foken②

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In the years 1999 and 2000 fundamental reorganizations of the ringing databases were undertaken in parallel at the ornithological centres Radolfzell and Helgoland. The revision was necessary because the old system was able to accept in electronic form only a small proportion of the incoming recovery data, and in many respects no longer satisfied the modern criteria for a large, rapidly accessible data bank. Now, with the introduction of the new system, the ringers have finally been given an opportunity to exchange their data with the ornithological centre quickly and less laboriously.

The ringing database RINGZENT

The Research Centre for Ornithology of the Max Planck Society, Vogelwarte Radolfzell, and the Institut für Vogelforschung, Vogelwarte Helgoland, joined forces with the firm SOFT Solution (Karlsruhe) in order to develop the new database for their ringing centres. This collaboration not only halved the development costs for the two centres but also provided a number of other advantages: while each of the centres can continue to operate entirely independently of the other, the system makes it possible for them to easily exchange data, useful program tools and of course practical experiences with one another. In the planning stages, the designers of the database drew upon the extensive experience the Dutch ringing centre in Arnheim had accumulated during years of developing and working with a similar system. However, because in Holland some components were no longer state-of-the-art, and several things could not be applied without modification to the situation in Germany, a specially designed system was developed on the basis of the background and advice kindly provided by our Dutch colleagues (in which regard, heartfelt thanks are due here to Gerrit Speek, Arje van Noordwijk and Rinse Wassenaar!).

Figure 1 shows how the database is constructed. At its foundation is the database system ORACLE, which the Max Planck Society urgently recommended to us as an international standard. RINGZENT is thus a program that operates under ORACLE within the ringing centre. Its most important functions are:

- to receive the ringing data provided by field workers, check these data and transfer them into the database; if the data contain any errors, an error protocol is transmitted to the originator;
- to receive all recovery data (from ringers, other people who report recoveries, those who find ringed birds by chance and so on, as a file or by direct input), check these data and where necessary request the associated ringing data if this is not directly available;
- to compile ringing and recovery data, and to inform finders, ringers and, where appropriate, the affected ringing centres;

- to receive, check and administer supplementary data such as kinship status, re-ringing and subsequently also nest maps and other special files;
- to keep track of the stocks of rings at the ornithological centre and provide information about the issuing of rings;
- rapid export functions in various formats for data users and export of the data in EURING format for the central database of the European Union for Bird Ringing (EURING);
- monitoring of access to the data, management of data security and continuous monitoring of data quality and consistency;
- accessory procedures for the administration of ringing and recovery data.

RING – the program for the ringers

As can be seen in the diagram, ringers (and of course ring-readers, e.g. in the case of the White Stork) can enter their ringing and recovery data at home on their PCs and then send them on a disk (or via the Internet) to "their" ringing centre. The program RING enables the ringers or readers to enter the data in the form required by RINGZENT. Hence it does not run in the ringing centre but rather on the ringers' own home computers; it can be obtained from the associated ringing centre.

On the basis of questionnaires filled in by the ringers as well as other external considerations including a fixed limit on expenditures, it was decided to design RING as a program that can run under Windows 95, Windows 98 and Windows NT. Therefore ringers who want to use RING must have access to a computer on which one of these operating systems is installed. The other prerequisites are standard for modern PCs: a monitor with a resolution of at least 1024 x 768 pixels, about 15 MB of free hard-disk space (actually less storage space is needed, but the data tables will expand as new ringings and recoveries are added), a 3.5" disk drive and at least 16 MB of RAM.

RING not only enables the ringing and recovery data to be entered for transmission to the ringing centre, but also generates tables containing all the entered data, which remain on the original computer and are thus available to the ringer for further evaluation. By pressing a button the ringer can obtain information at any time about important statistics resulting from his or her ringing and recovery activity. In addition, of course, for any selected ring number all the recoveries known to the ringer are displayed and for every recovery that the ringer has entered, the ringing data are immediately available.

Behind the user interface that appears when RING is started up is a much reduced version of the database program Microsoft Access, which can be passed to other users from the ringing centres without additional licence fees. This means that ultimately all the data that have been entered are available as Access files. Therefore experienced users with a complete version of Access, which is commercially available, can make use of these data directly for their own evaluations. In addition there is a number of other programs that can be used since the ODBC standards are kept. The export function, normally used to send data to the ringing centre, can serve to transfer the user's own data completely into a working file that can then be modified as desired in the course of the user's own evaluations.

High personnel costs, more limited funds and great expectations regarding the efficacy of a ringing centre nowadays make it essential for the time-consuming everyday work of entering, sorting and organizing data in a ringing centre to be automated as much as possible. The staff members employed in a ringing centre are expensive and are needed for other important tasks (receiving recoveries from external sources, monitoring data, data delivery to external users, internal evaluations, analyses and much more), so that in future it will be out of the question for them also to enter lists of ringings or recaptures. Therefore it was a necessary decision that from the year 2000 on, the ringing centres in Wilhelmshaven and Radolfzell will in principle accept only ringing data that have been entered into an electronic database by means of the program RING and that are submitted to the centre in computer-readable form, e.g. on disk.

There are two exceptions to this rule: Ringers who had been working with the centre concerned before the year 2000 and are reluctant to convert to computerized data entry can continue to deliver their data in the customary manner, as lists on paper.

Ringers experienced in the use of computers may use their own programs, which in some cases may be more extensive, for entering data. However, when supplied to the ringing centre the data must be precisely in the form prescribed by the centre. A comprehensive description of the data exchange structure is available.

It can happen, of course, that a person who has just joined the group of ringers has no suitable computer available. RING is so designed that several ringers can enter their data into the same computer. Even if such joint use with a fellow ringer proves not to be feasible, a solution can surely be found in consultation with the ringing centre.

In addition to the ringing data, all recoveries (including "own recoveries", made by the original ringer) should be sent to the centre by means of RING. Ring-readers who, as in the case of the White Stork, perform more than 20 readings per year are also cordially invited to use RING when communicating their data to the centre. However, RING is of no use when only colour-ring readings (where neither ringing centre nor ring number are known) are to be submitted. Recovery data communicated to the centre by means of RING can be processed considerably faster than written communications.

What happens in case of recoveries by people not associated with the centre?

Rings are not uncommonly recovered at random, by people throughout the world who have no connection to the ringing program but nevertheless communicate their findings to the centre. These data will naturally continue to be accepted in any form. They are then entered directly into RINGZENT by coworkers at the centre. Every user of RING can enter any recovery of a bird (whether the bird is included in the program or not, wherever it was found, regardless of the ringing centre, and so on) by means of that user's version of the RING program, provided that he/she knows the ringing centre (which is imprinted on the ring) and the ring number, and that the ring originated from a scientific program. These recoveries are then processed by the ringing centre as soon as the data have been received and all the other required data (e.g. from another ringing centre) have been made available.

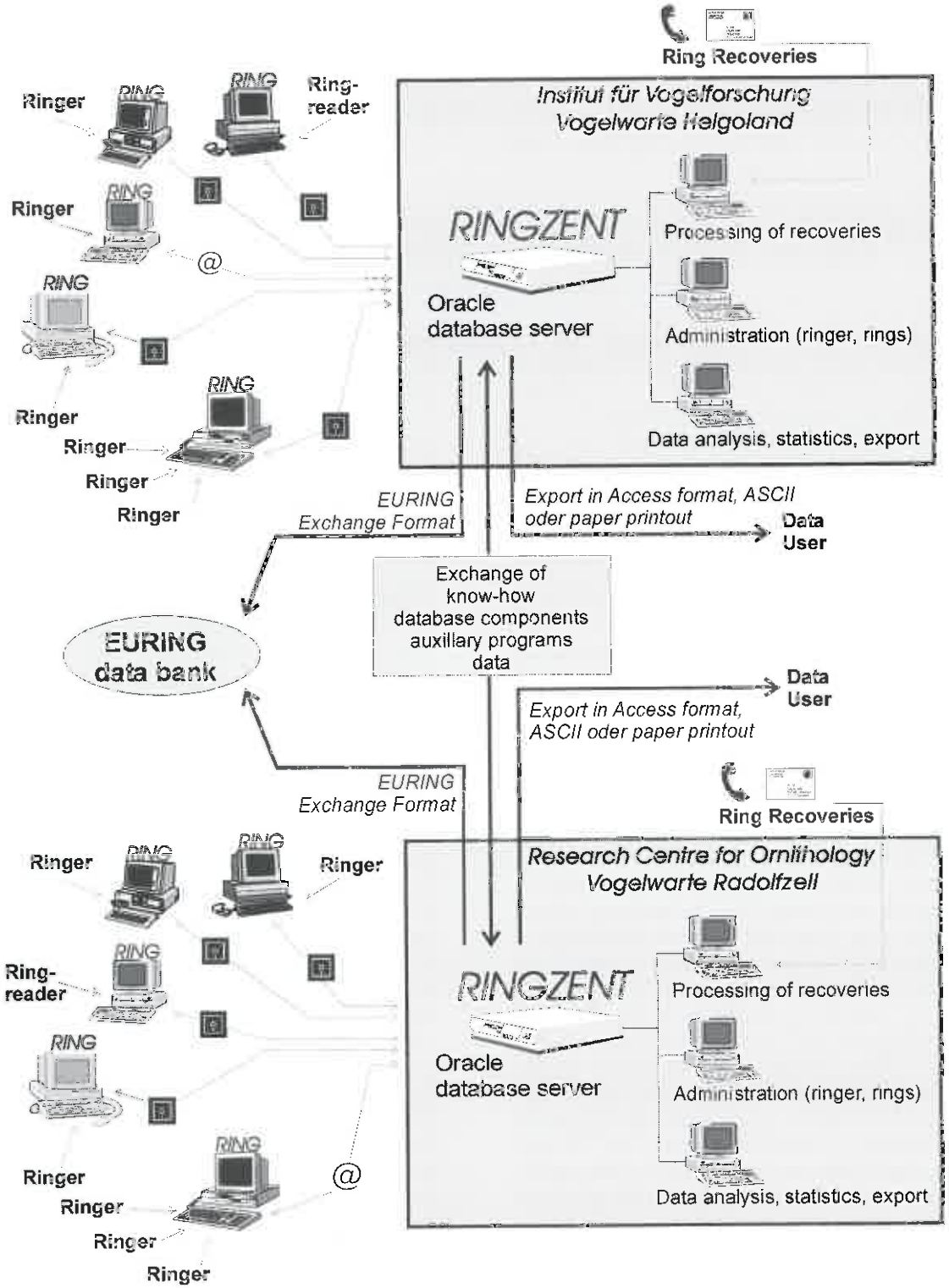

Fig. 1: Structure of RINGZENT and RING

In recent decades the increasing number of birders has also produced a fast increase in the number of ringed birds reported on the basis of remote reading of both metal rings and visual marks (especially colour engraved rings). These data are of great importance to study life-histories and estimate survival rates in many bird species. However, it is often difficult to assess the rate of mistakes in such readings, and an interesting experimental approach in this respect is described here by Wojciech Kania.

ERRORS IN EXPERIMENTAL READINGS OF WHITE STORK RING NUMBERS BY BINOCULARS

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Introduction

Readings from a distance of the number on metal rings with the aid of a telescope or binoculars have become quite common in the last decades. Even small rings are sometimes read in this way. J. Muiswinkel identified GDAŃSK KJ 45022 (digits 1.5 mm high) on a Little Stint in Tunisia. For some species the resightings represent over 90% of all recoveries. The White Stork is one of the species for which distant ring identification is particularly prequent. To make remote readings easier, special stork rings were introduced, with a short number and big characters, often repeated. Up to the end of the eighties such rings were usually high (≥30 mm) and put on the ulna. After Schulz (1987) had claimed it dangerous to storks, many ringing schemes started to put rings on tibia, diminished their height and changed the design. The Polish ringing scheme considered two designs of new rings. To test their readability, an experiment was performed. The analysis of the results showed quite unexpectedly that it was not the completeness of the ring number reading but the errors made by observers that posed the main problem (**Fig. 1**). The experiment was repeated on different occasions and the results so far obtained presented as posters at some international meetings. Additional experiments on their participants were also organised. In this paper I focus on the most important results concerning observer errors. A wider and more detailed analysis is planned to be published elsewhere.

Although considerations provided below are based mainly on remote readings of stork rings, they apply probably to all rings and other marks to a large extent.

Methods and material

The experiment consists in reading the rings by binoculars. Five white stork metal rings with different numbers and sometimes two colour rings were exposed simultaneously. Four of the metal rings, the ones with six character numbers (two letters and four digits) representing two designs (Fig. 2) are discussed here.

The first design (Fig. 2a & b), adopted only for the experimental rings, contained triplicated numbers (as the address was planned to be printed with small characters invisible from a distance, the first letter of the ring number was designed as identifier of the ringing scheme). The numerical part of the number was repeated on both sides of the two letters in the upper row, and letters were put both before and after a set of numerals in the lower row. The complete number could be read from each direction.

The second design (Fig. 2, c & d), actually used by the Polish ringing scheme Gdańsk, had doubled the number also put in two rows. The first two characters of the upper row were situated just above the two last ones of the lower row. As at least four characters of one row were visible from each direction, the full number could be read without changing position of the observer from 60% of directions.

All letters and digits engraved on the rings were filled with black paint. The rings were exposed on wooden sticks at various turn of the vertical slit to the observer (Fig. 2). Distances between sticks were 15-25 cm. The distance from rings to the parallel path, along which observers could move, was usually 20-22 m. The length of the path was 17-30 m. The experiments were carried out during ringing courses or ornithological meetings. The time allowed for reading was not limited.

There were two experiments, with naive and then with trained observers. In the first one the participants were only told that they should read and note the number in the same manner as during observation of a ringed bird in nature. Candidates for ringers were additionally informed that errors made would be taken into account when assessing their ability to be a ringer. In total 86 people in 6 groups took part in the experiments. They were Polish or German amateur or professional ornithologists.

The second experiment was performed with Polish ringing course participants who took part in the first experiment and in the discussion of the mistakes made then, where the main conclusion was that the observer should have noted down what he really saw and not what he thought was written on the ring. The circumstances of the reading as well as the design and position of the three rings were the same as during the first experiment (the fourth ring was sometimes put upside down), only ring numbers differed. Results of 25 observers (2 groups) who were later accepted as ringers are analysed here.

Fisher's exact two-sided test was used to calculate significance of the differences.

Results

The first experiment - with naive observers

In the case of a ring with a slit exposed to the observer (Fig. 2a) the most common mistake was putting the last digits before the first ones as a result of ignoring the slit (**Table**). It appears in 62% of the readings, whereas other errors - in 24% of the readings, similarly as in the case of the next ring (Fig. 2b).

Apart from this error, 88 mistakes occurred in the readings of all four rings (Table). They appeared in 56 of 328 ring readings (17%). Up to three mistakes were made during the reading of one ring number. Erroneous reading of a character dominated (83% of 94 errors in both experiments; **Table**). Misreading concerned mainly the characters placed on the edge of the visible part of the ring, seen sometimes only partly and at a sharp angle. Among the misspelled characters placed in the centre was "F" instead "V". There were also errors in the ring address: "GDAŃSK" inscription was read as "GERMANY" (a Polish observer) and "POLAND" was read where only "ND" was visible (a German observer). In many cases parts of the number visible in the upper and lower rows were written in one line, not always being connected properly (**Fig. 3a and b**). When the observer tried to draw characters as he actually saw them, he often did not take care of their proper in respect to the adjacent ones and to the edges of the ring (**Fig. 3c**).

Particular persons read the set of rings in 5 – 34 minutes, on average 16 min. (The averages for groups: 13 – 22 min.).

The second experiment - with trained observers

The observers, repeating the experiment after discussion of the results of the first one, made fewer errors (Fig. 2; significances of differences between the first and the second experiments for design*positions a, b and c are: $p_a < 0.0001$, $p_B = 0.01$, $p_c = 0.18$).

Particular persons read the set of rings in 9 – 55 minutes, on average 26 min. The averages for both groups: 33 min. (readings performed by the same persons during the 1st experiment lasted on average 16 min.) and 15 min. (14 min.during the 1st experiment).

Discussion

Errors in the experimental ring number readings were astonishingly numerous. Is it like this in the field work?

Although the observers had been instructed that they should behave as when encountering a ringed bird in the field, they obviously did not do so. Not a single person read all five metal rings (and sometimes additionally two plastic ones) during the first experiment in more than 34 minutes (i.e. on average one ring in 7 min. at the best) and some did it even in 5 minutes. It is at least several times less than usual in extremely good conditions in the field where, on the other hand, quite often many hours of observations are needed to identify the ring number of a single stork (J. Ptaszyk in lett.). This shows that the observers paid much less attention in the ring reading during the experiment than under the real field conditions. The main reasons for that could be:

(1) experiments concerned the behaviour of people and not birds, which to most ornithologists is less interesting and less important, thus – subconsciously – of lesser value; (2) experiments were conducted during ringing courses or other meetings and constituted only one of many items of the agenda, not the most important one to most people. The participants were in a hurry to do other things. It was quite the opposite to the field situation, where the ring identification is usually the main purpose of a many hours activity of the observer; (3) quick completion of the task by some persons prompt others to read rings with less care – not to do it for too long. For the above reasons the level of errors in ring number readings from a distance in the field is probably lower than in the experiments reported here.

The observers often wrote down not what they really had seen, but their reconstruction of the partly visible text. E.g. where "nd" was only possible to see, "Poland" was noted although, e.g., also "Finland" or "Helgoland" fit well. Most commonly wrong reconstructions concerned parts of characters placed near the edge of the visible part of the ring. Another common error of that kind was joining fragments of the number from the upper and lower rows assuming that there was a two letter and four digit number as it appears in the Polish stork rings, even when the scheme address was invisible. Also when the scheme could be identified, it has to be kept in mind that some schemes change the number of characters in the ring number, usually by adding one digit (Eggers & Fiedler 1980). A false assumption as to the number of characters can lead to a wrong reconstruction of the ring number even when enough fragments of the number are read properly, especially when the number contains two or more identical characters in the adjacent positions (**Fig. 4**).

Similarly, ignoring the vertical slit by 2/3 observers was probably a result of an a priori belief that a number written on the ring should start with letters, not numerals, and that a sequence of four digits had to constitute a set of successive digits of the number. During the second experiment, after being acquainted with the design of the rings, only 1 of 25 people again did not see the slit. Rings with the repeated number starting and ending near the vertical slit were actually used by some schemes (e.g. Eggers & Fiedler 1980). Such a design should not generally be applied (only resightings by specially trained persons could be accepted here).

Other source of errors can be disturbances in perception (dyslexia) of some observers, e.g. when "F" was noted instead of "V" (both letters denote similar sound). Using similar characters (e.g. "H" and "4"; "B", "3" and" "8") can increase the probability of wrong readings.

As untrained observers, even ornithologists, have made so many errors, members of the public do probably more. In reading of the numbered neck collars on Canada Geese the accidental observers made 23 times more mistakes than the member of the project crew (Raveling *et al.* 1991). This raises the question if resightings done by such persons can be accepted at all.

The great reduction of errors in the second experiment points out to the need for training the observers of ringed birds. As in many countries they are usually ringers, ringing courses should include the exercises in proper remote identification of ring numbers. It seems that the most efficient training might be reading of rings easy to misread and next the explanation of mechanisms leading to errors. Trainees should be instructed that instead of or prior to reconstructing the number they should draw what they really have seen, noting the position of each character in respect to the adjacent ones and to the edges of the ring (Fig. 3d), especially when the scheme address cannot be read. This can much help the ringing officer to identify the ringing scheme and the number from visible fragments or to verify the number reconstruction made by an observer. When the scheme address is not identified, also the information on the ring shape (proportion of height to diameter) and on the presence or absence of the lock and its pattern, should be added.

Conclusions

The results of the paper, I think, are valid not only for the stork, but for any species for which resightings are performed.

1. Analysts should bear in mind that the data they work with can be erroneous to a larger extent than is usually expected.

2. Errors in the ring numbers read from a distance are in fact probably less common than in the reported experiments, mainly because field workers put much more effort to read the number properly.

3. Ignoring the vertical slit, the cause of most errors, concerns only the rings with the

number (or repeated numbers) starting and ending immediately near the slit. Such rings were used only by few schemes.

4. Training of the remote ring number readers seems to be highly desirable.

5. Real level of errors in the field remote ring number readings should be evaluated for each ring design separately, e.g. by analysing reports on rings not put on birds or put on the ones found dead before resighting them (Ebbinge *et al.* 1991, Raveling *et al.* 1991).

Acknowledgements

P. Chylarecki, A. Zawadzka, J. Gromadzka, K. Mokwa and M. Gromadzki made valuable comments on the manuscript. S. Bławat helped with the English.

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Figure 1 - The problem.

Table - Types and number of errors.

Types of error (example for AB1234)		1st experiment		2nd experiment	
		Ring readings*	Errors**	Ring readings*	Errors**
1. Slit position not noted	(AB3412)	80	50	25	1
2. Character changed	(AB1534)	328*	74	73*	4
3. Characters sequence changed	(AB1324)	328*	8	73*	2
4. Character added	(AB12234)	328*	2	73*	-
5. Character lost	(AB134)	328*	4	73*	-
All types of error excluding item 1.		328*	88	73*	6

* *Number of rings read multiplied by number of observers minus omitted readings of particular rings,*
** A reading of one ring can contain more than one error.

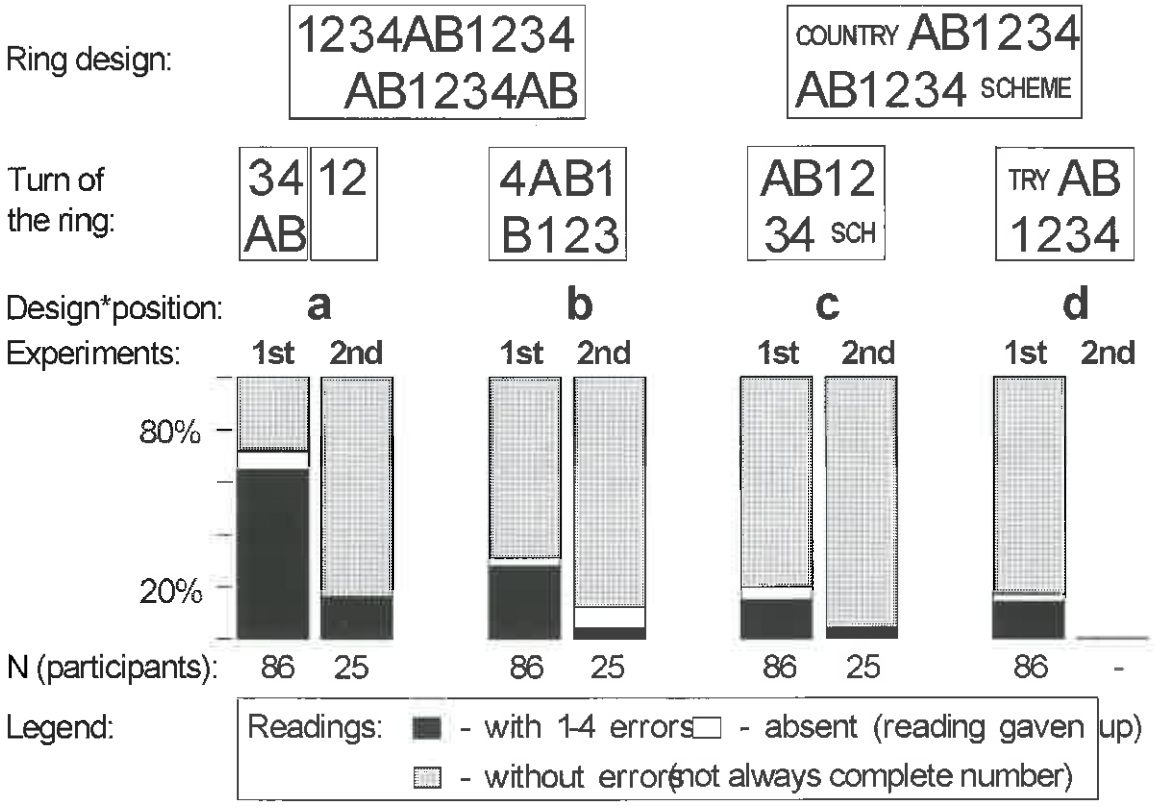

Figure 2. Correctness of experimental ring number readings. Ring design: a & b - experimental rings with the number visible from each direction (free area assigned to scheme address in small characters); c & d - rings used by Polish scheme. "AB1234" symbolises letters and digits of the actual ring number. Turn of the ring: part of the ring exposed to observers during the experiment. Experiments: 1st – with naive observers; 2nd – with trained observers.

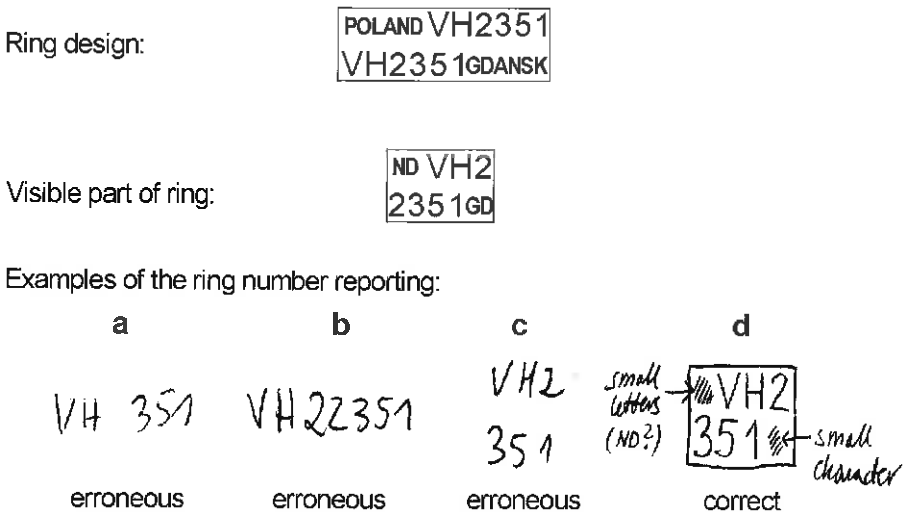

Figure 3. Examples of erroneous and correct noting of one of the rings used in the experiment.

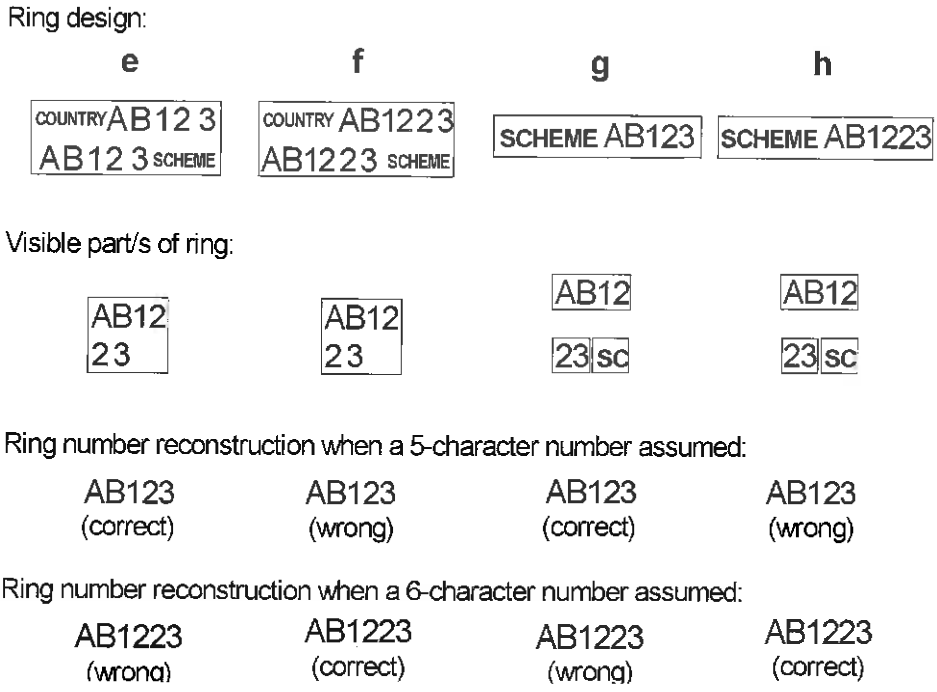

Figure 4. Examples of different reconstruction of the ring number from correctly read fragments of the number depending on assumptions of the length of the number.
For designs g and h two fragments of the number visible from different directions are shown. Note that in the example c "VH" is above "35" instead above "51".

The historical distribution of bird ringing in Europe has produced recovery data which date back nearly one century in some countries. This material offers a unique opportunity to monitor changes in migratory patterns and bird-man interactions. However, old recovery data can be not easy to access to, or to use, and often need a significant effort in checking and coding. An example of the very interesting results in the analyses of historical recoveries is offered here by the case of the German-ringed White Storks, reported by Alexandra Sproll and Wolfgang Fiedler.

DIGGING IN OLD DATA: MIGRATION AND CAUSES OF DEATH IN WHITE STORKS (*CICONIA CICONIA*) ACCORDING TO RINGING RECOVERY DATA OF THE VOGELWARTE ROSSITTEN (EASTERN PRUSSIA) BEFORE THE SECOND WORLD WAR

by Alexandra Sproll and Wolfgang Fiedler

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Although we have many hints about extended changes in migration and other environment-related behaviour of birds during the last years or decades on one hand and are on the other hand able to look back at a whole century of scientific bird ringing, comparisons over the whole period are seldom done. Old data is often stored on paper only, not coded and difficult to access with justifyable effort. Moreover, parts of the older data was teared apart or partly lost during war confusion.

Within the framework of the Joint Vogelwarte Radolfzell - EURING Migration Project it seemed especially valuable to make the Rossitten data of early White Stork ringing available. This has been done recently in a diploma thesis at Vogelwarte Radolfzell of which some results shall be shown here. The data is now inserted into the European White Stork recovery database and large scale analysis has already started.

Methods

Johannes Thienemann, the founder of the Vogelwarte Rossitten, started ringing of the White Stork in 1906. Within the shortest time several thousands of mainly juvenile White Storks were ringed thanks to the help of many ringers. Only a few years later (1908) the first long distance recovery was reported. With the White Stork Thienemann had found the "predestined target species" that made bird ringing internationally known.

Until the Second World War members of the Vogelwarte Rossitten marked about 100,000 White Storks with rings in different parts of Europe. These are the only extensive data that show the whereabouts of individually marked White Storks in this time except of a few previous or parallel ringings, mainly in Denmark, Northern Germany and Poland.

About 3000 index-cards with data of ringing and recovery had to be analyzed. The cards were originals or they were reconstructed out of publications and manuscripts after World War II. These data are of birds ringed in the years 1908-1949. The geographical coordinates of the ringing and recovery localities (often given as old and meanwhile hardly known place names) were determined and the standard Euring-Code was encoded. An additional result of this work is a file containing 2700 old names of places in Eastern Prussia and in Colonial-Africa. This file is now available for future analysis of further Rossitten recoveries.

Migration

The analysis includes the Eastern and Western migrating White Stork populations (Fig. 1). Half of the storks recovered are ringed in Eastern Prussia (Fig. 2). The analysis of the time of the recoveries from the autumn migration indicates also that the birds reach the Sudan in September and Eastern or

South African wintering areas in November (Fig. 3). Wintering storks were observed in Europe even at the beginning of the century (Fig. 4), but most of them were ill or in a poor condition.

Causes of death

The following causes of recovery were reported, classified by frequency:

- ring read from the living stork 27%
- bird found with ring (without details) 25%
- electrocuted, collision with wires 14%
- "found" (without details) 6%
- "shot" (without details) 6%
- found hurt 5 %
- hunted (without details) 4 %
- trapped through poor condition 3%
- starvation / thirst 2 %
- victim of fighting with conspecific rival 1%
- ring found (without details) 1 %
- other causes 6 %

Comparing the causes of recovery from the time of Rossitten with today we must consider that the breeding and ringing areas do not correspond. Nevertheless some meaningfull figure can be derived (Fig. 5). Fig. 6 illustrates the distribution of the causes of recovery within Europe, along the migration flyways and at the wintering grounds.

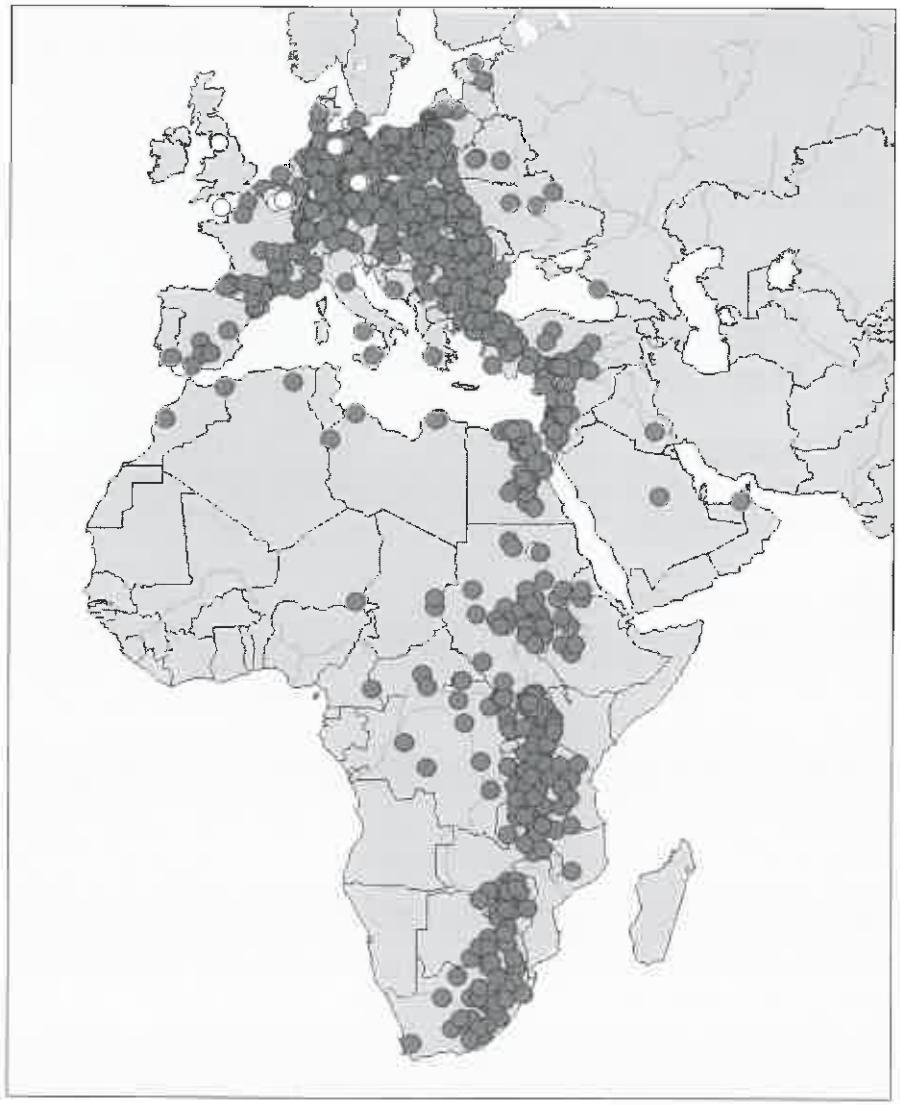

Fig. 1: All recoveries of White Storks ringed with Vogelwarte Rossitten rings 1908-1954 (n=2043). White dots: manipulated birds (transported or tame), grey dots: all others.

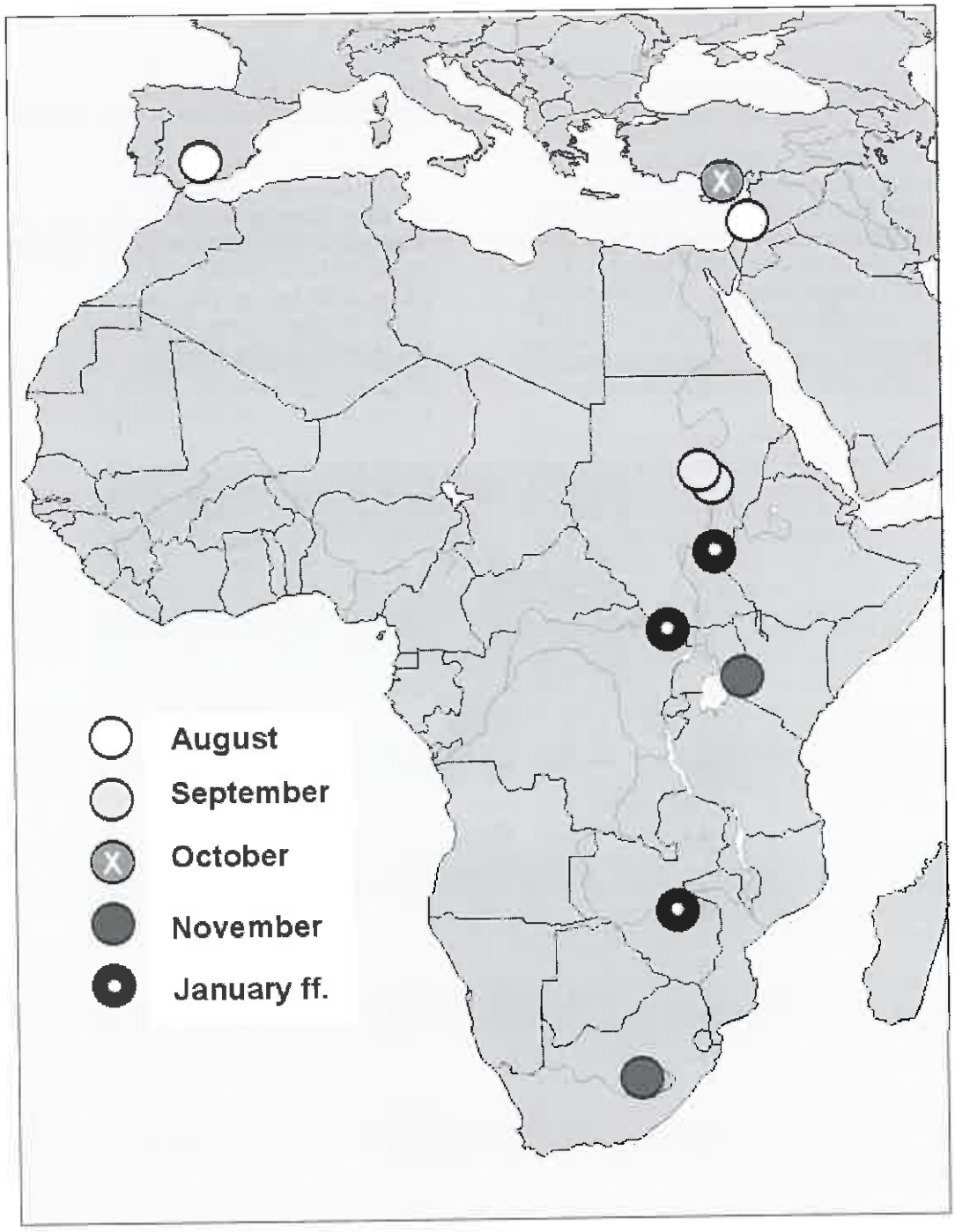

Fig. 2: Recoveries of birds from Eastern Prussia (n=1103). Grey dots: recovery of storks ringed as nestlings, white dots: ringing age not available.

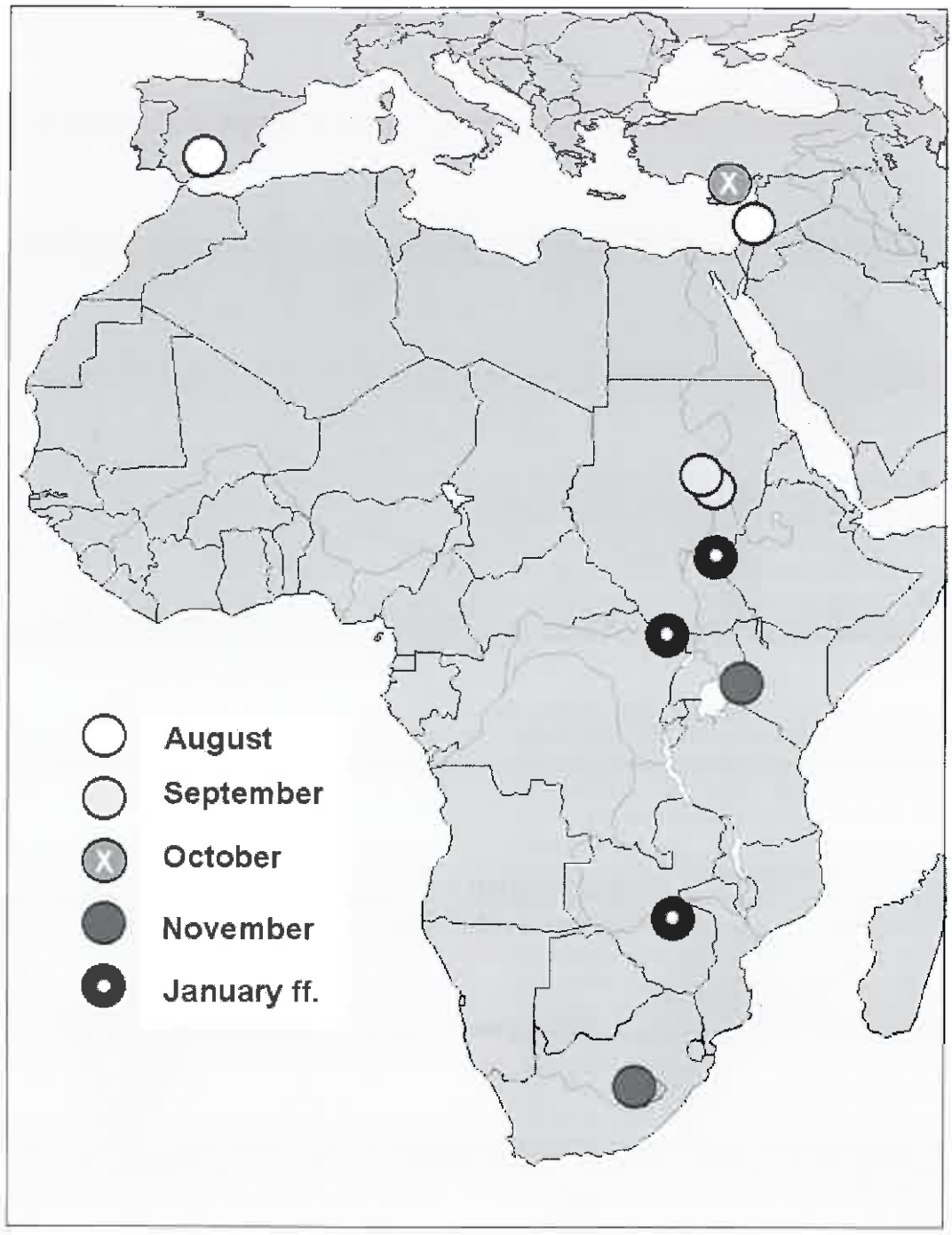

Fig. 3: Recoveries within the first autumn migration south of 40° latitude. Only recoveries with reported dates exact to the month are included (n=10).

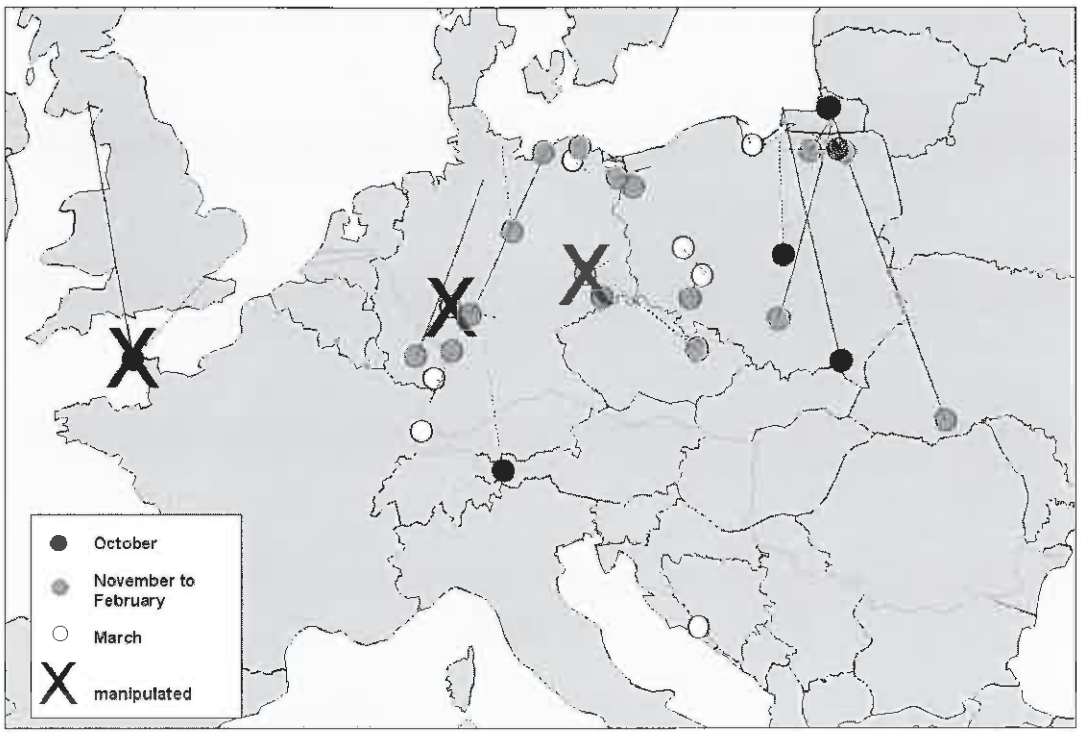

Fig. 4: Winter recoveries in Europe (1908-1950; n=33).

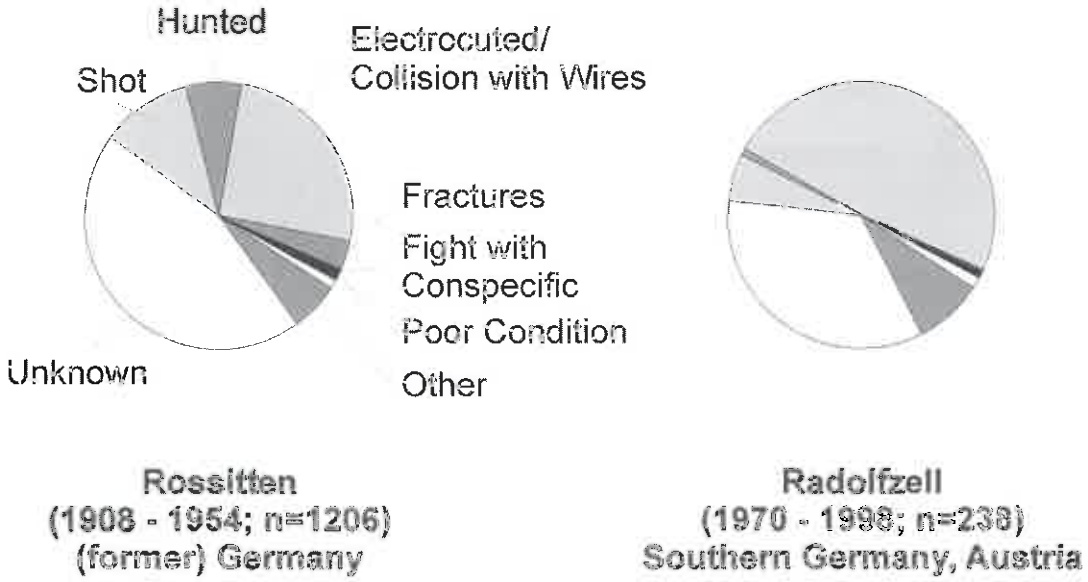

Fig. 5: Causes of recovery of ringed White Storks reported as dead at the beginning and the end of the 20th century.

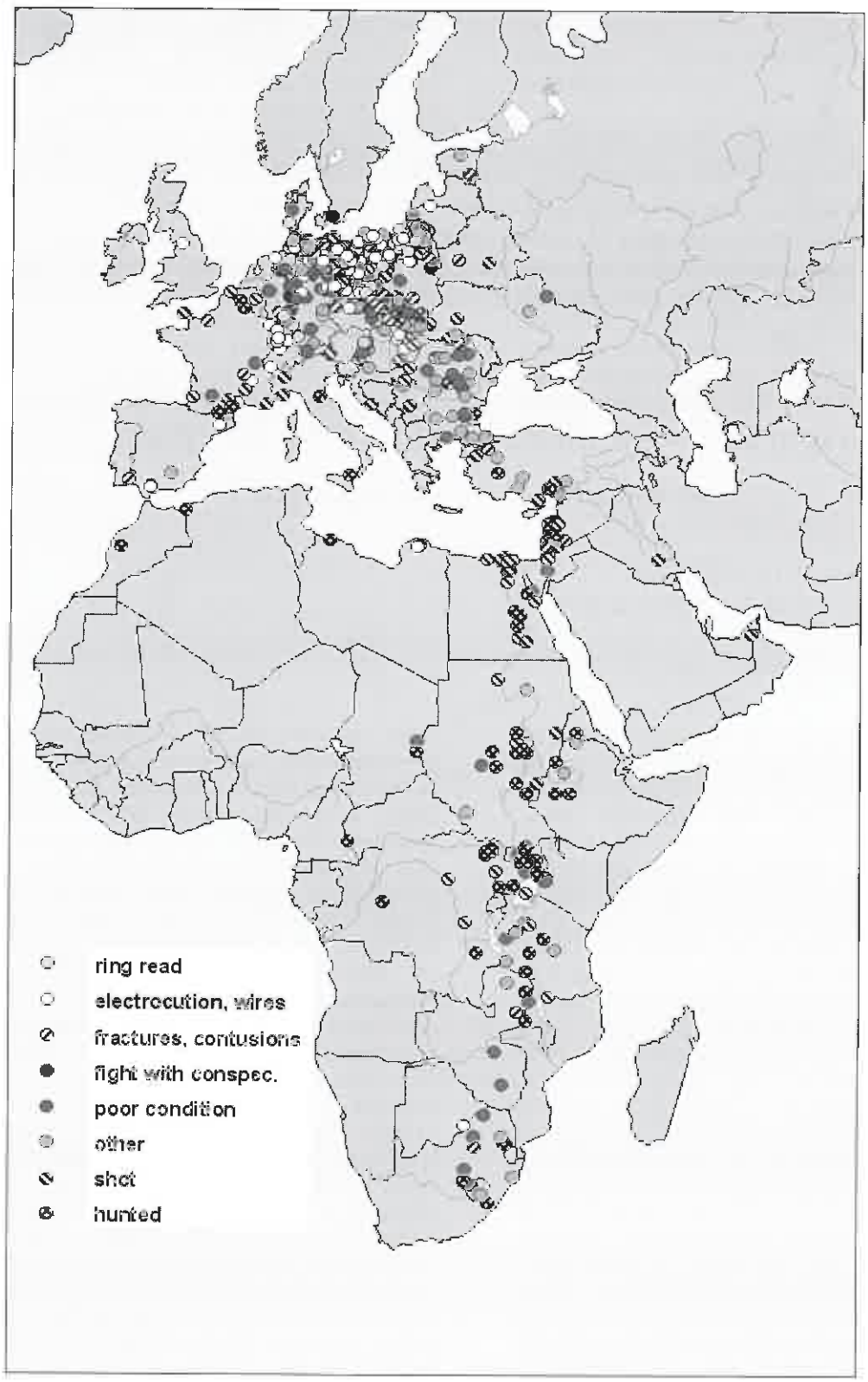

Fig. 6: Distribution of the causes of recovery without "unknown" code (1908 - 1954; n= 1922).

The original aim of bird ringing was to describe the routes followed by birds during their fascinating migratory journeys. Large sets of data have been produced through recoveries of ringed birds. In recent years, several ringing schemes have been working on the production of recovery atlases. A massive effort has been needed to analyse the huge database which led to the completion of the British and Irish migration atlas, surely a milestone in the study of bird migration in Europe.

THE BRITISH AND IRISH MIGRATION ATLAS NEARS COMPLETION!

by British Trust for Ornithology (BTO)

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As you read this, the team at the British Trust for Ornithology (BTO) should be putting the final touches to the manuscript of their forthcoming book, *The Migration Atlas: Movements of the Birds of Britain and Ireland.* This ambitious project, that has been carried out over the last four years, will be an important milestone for presenting the results of ringing in Britain and Ireland since 1909. The book is due to be published by T. & A.D. Poyser at the end of 2001.

The main part of the book consists of 188 species accounts. Every species present in Britain & Ireland at sometime during the year for which we have sufficient ring-recoveries to provide information on movements will be covered. For each of these species, we carried out a standard set of mapping and analyses of movement patterns, with funding from the Heritage Lottery Fund, ringers, BTO members and commercial/charitable trust sponsorship. The analyses included both the recoveries of birds ringed in Britain and Ireland, and those of birds ringed abroad and recovered in Britain or Ireland. The results of our analyses were sent to voluntary authors, for them to write the species accounts. These are a mixture of professional and amateur ornithologists but all experts on their allocated species. In each species account, the author brings together information from the ring-recoveries and from other sources (such as through-the-year distribution data, data from bird observatories, at-sea survey data for seabirds) to provide a clear interpretation of the movements undertaken by their species throughout the year. Wherever possible, authors have also included the results from intensive field studies of movements, such as colour-marking work and remote-tracking using satellites, all of which add exciting supplementary information to that which can be obtained from metal ringing. All species are included if they have enough ring-recoveries, whether they are long-distance or trans-Saharan migrants (*eg Puffinus puffinus, Hirundo rustica*), partial migrants (*eg Carduelis carduelis*) or traditionally 'dispersive' (*eg Rissa tridactyla*) or even sedentary (*eg Cepphus grylle, Passer domesticus*) in Britain & Ireland. For each of these species, the book will contain a first page, with information that is presented in a standard way for all species (*eg* locations where recovered birds have been ringed, age and month of ringing, numbers ringed and recovered, finding circumstances and so on). There will then be the text and a number of maps, the length and number depending on the complexity of the species' movements.

As well as the main species texts, there will be a number of supporting chapters. There is

an introduction to methods of studying bird movements and a chapter on the Ringing Scheme in Britain and Ireland. There is a chapter of detailed methods, to accompany the texts and maps. There is also a chapter highlighting the important results from some detailed across-species statistical analyses that have been carried out, lead by Gavin Siriwardena. These look at the degree of migrancy exhibited by each species, and differences in movement patterns between different age classes, sexes and birds from different regional sub-populations within Britain & Ireland. The results of these analyses are also highlighted in the individual species texts and given in detailed appendices at the back of the book. A further chapter, importantly, deals with the ecology and physiology of migration, expertly written by Peter Evans and Franz Bairlein, and with the influence of weather on movements, compiled by Norman Elkins. This chapter can only be a summary of the huge amount of information available but gives a very important overview and key references to guide the reader to further material of interest. The *Migration Atlas* project has been an important 'stock-taking' exercise for us all, so it is equally important that the book will contain chapters summarising the importance for bird conservation of the movement patterns identified and where the gaps in our knowledge still lie. A series of recommendations will state possible ways in which we can fill the gaps in knowledge in future, both through ringing and by other methods (such as exciting new developments in remote tracking technologies).

The new *Atlas* will be of great value for conservation and an invaluable reference source for ornithologists, conservation organisations and policy-makers. It will highlight the importance of Britain and Ireland as the wintering area for breeding birds from much further afield, such as for Golden Plovers (*Pluvialis apricaria*) from Iceland (Map 1), Turnstones (*Arenaria interpres*) from both Greenland/Canada and Fennoscandia (Map 2) and Black-headed Gulls (*Larus ridibundus*) from right across continental Europe (Map 3). It will show both established migration routes, for species such as Barnacle Goose (*Branta leucopsis*), and provide new insights into the seasonal influxes into Britain & Ireland of populations from continental Europe, such as Greater Black-backed Gulls (*Larus marinus*), Greenfinches (*Carduelis chloris*) and Starlings (*Sturnus vulgaris*).

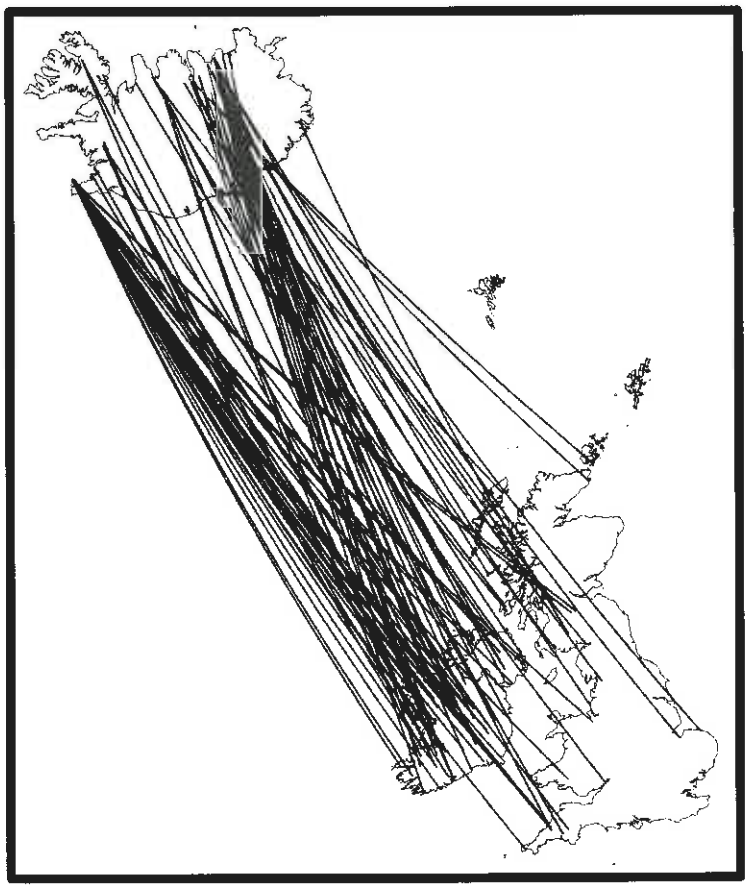
The book will also show where British and Irish breeding birds spend the winter months, and therefore where we should look for threats to their populations outside the breeding season. Of course previous work has already shown that problems in wintering areas have affected the birds breeding in Britain and Ireland, such as droughts in the Sahel reducing the over-winter survival of trans-Saharan migrants like Whitethroat *(Sylvia communis)* and Sedge Warbler *(Acrocephalus schoenobaenus)*, and the capture of large numbers of terns *(Sterna* spp) for food or bait off the coasts of West Africa. All these previous results will feature in the book, along with many new ideas about conservation issues for each species. For example, ringing shows that the Ring Ouzels *(Turdus torquatus)* that breed in Britain spend the winter in Iberia and in the highlands of North Africa, notably Morocco's Atlas Mountains (Map 4).

British Ring Ouzels have been placed on the Amber List of Birds of Conservation Concern (moderate concern), mainly because of a large decline in their breeding range in Britain during the last 25 years. Ian Burfield, a student at Cambridge University, is studying the reasons behind the population changes, and is also the author for the Migration Atlas species account. He has used both British and other European ring-recoveries (mainly from Scandinavia, with many thanks to those ringing schemes involved) to show that the wintering areas of these different populations seem to overlap. As the Scandinavian populations of Ring Ouzel seem to be fairing OK, these preliminary results suggest that the threats to British birds are not coming from the wintering areas. Ian is doing fieldwork in an attempt to find out whether the problems lie on the breeding grounds. It is possible that threats exist on the migration route for the British birds, or that the wintering altitudes of the different populations vary, and these ideas will also need further investigation.

British Trust for Ornithology

Each time we read one of the new species accounts for the Migration Atlas we find ideas for further research on migration that needs to be carried out, either by new ringing projects or by other methods. In this respect, the publication of our *Migration Atlas* will be incredibly important in developing plans for further migration research, hopefully in close collaboration with our colleagues in mainland Europe. The concluding 'conservation implications' and 'recommendations' chapters will be very important in showing what we need to do to improve our knowledge of bird movements in the future.

The British and Irish *Migration Atlas* project has used ring-recovery data gathered between 1909 and 1997. But it is now a new millennium, and the ringing that is continuing across Europe now, in more and more countries, is already providing the basis for understanding the remaining unknowns in bird migration, as well as for monitoring possible changes to migration routes, breeding, wintering and staging areas (*eg* as a result of global climate change?). Let us hope that the publication of our book, dealing with only a very small part of Europe, along with those from other European Ringing Schemes already produced or in production at the moment, will provide the incentives for the next steps. These should be Europe-wide atlases, and more and more collaborative work across Europe to find out about the movements of our birds and provide better scientific knowledge on which to base their improved conservation.



Map 1 - Exchanges of ringed Golden Plover *(Pluvialis apricaria)* showing the importance of Britain and Ireland as a wintering area for birds from the Icelandic breeding population.

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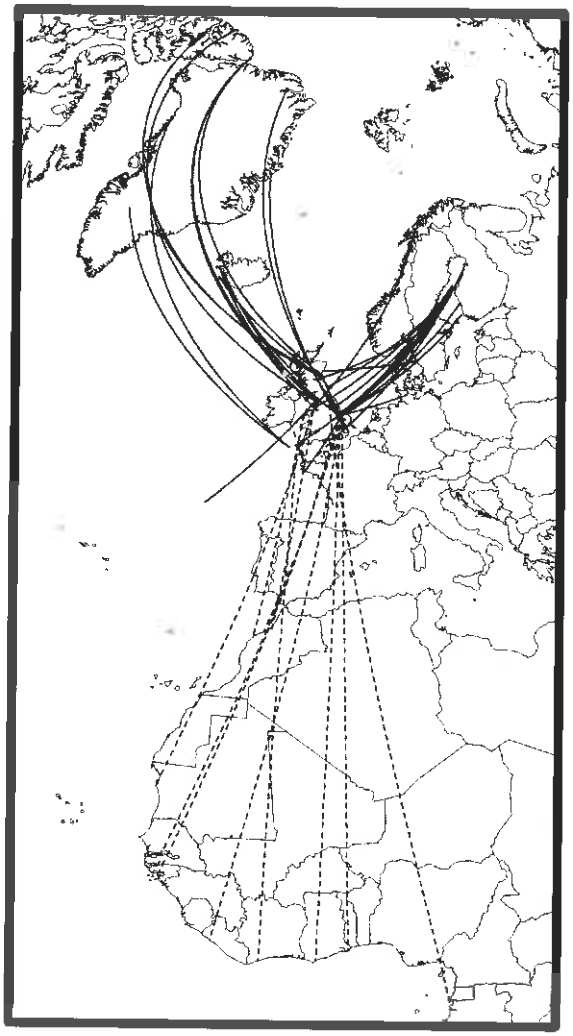
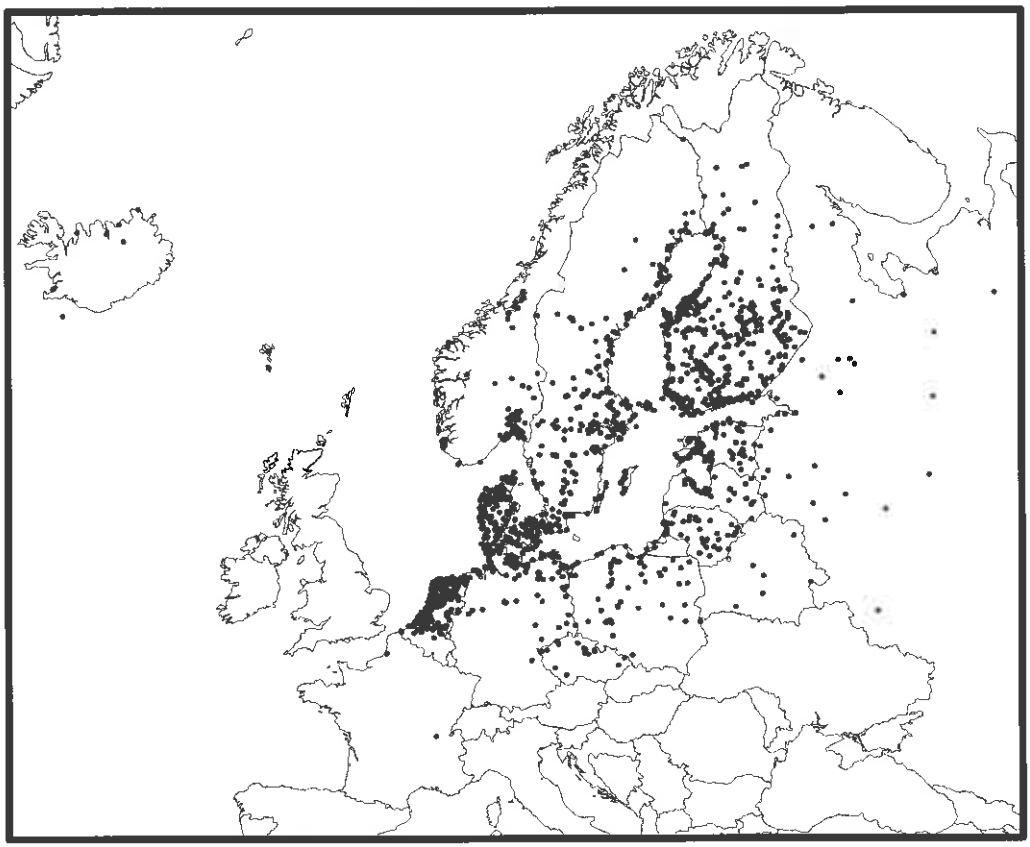


Map 2 - Recoveries in the breeding season (solid lines) and winter (dotted lines) of Turnstones *(Arenaria interpres)* present in Britain or Ireland during autumn. Birds from both the Canada/Greenland and the Fennoscandian breeding populations visit Britain & Ireland in autumn. Many stay for the winter while others move on to winter in Africa.



Map 3 - Locations abroad during the breeding season of Black-headed Gulls *(Larus ridibundus)* present in Britain or Ireland during the winter, showing how important Britain and Ireland are for populations breeding further north and east in mainland Europe, and in Iceland.

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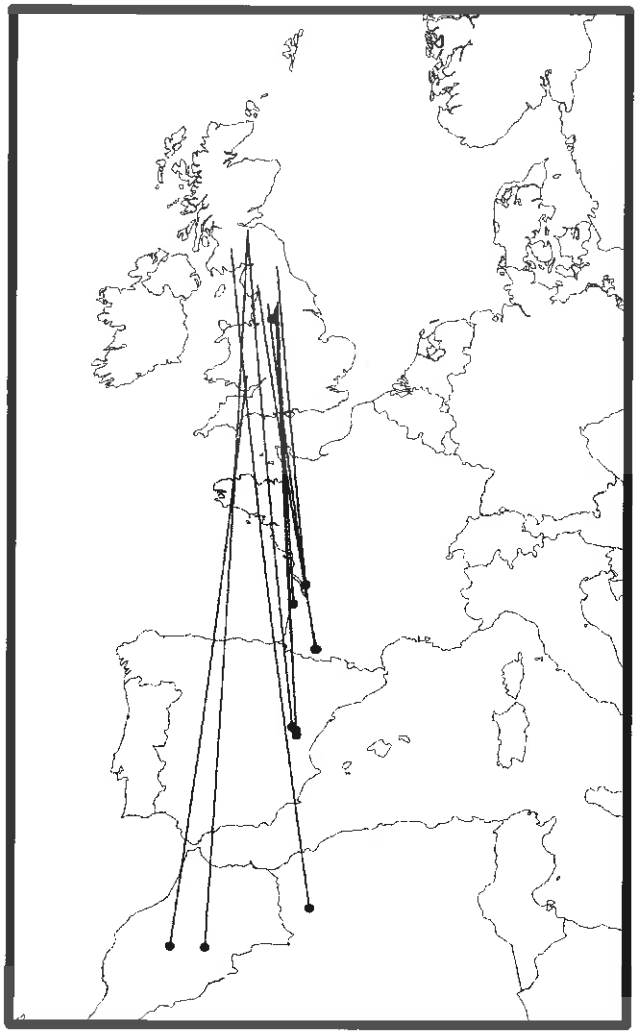

Map 4 - Wintering locations of Ring Ouzels *(Turdus torquatus)* that were present in Britain during the breeding season. British birds spend the winter mainly in Iberia and Morocco, as do those from Scandinavia.

As interesting contributions to this section, Pertti Saurola from Finland and Dare Sere from Slovenia offer an overview of the Helsinki and Ljubliana ringing schemes. Helsinki is an example of the potential ringers can represent in mapping and monitoring breeding bird populations on a national scale, as well as of the historical computerisation of both ringing and recovery data.

Ljubliana is a rapidly growing scheme with a fast increase in ringing activities and an active role within co-ordinated EURING projects.

THE FINNISH RINGING SCHEME

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This contribution is a summary of the activities of the Finnish Ringing Scheme. More detailed information can be found at the home page address above and from the annual *"Bird ringing in Finland in XXXX"* -articles in the *Yearbook of the Linnut-magazine* published by BirdLife Finland.

History and administration

In Finland, bird ringing was started in 1913 by a private person, Johan Axel Palmén, professor in Zoology at the University of Helsinki. In 1926, the responsibility for bird ringing was moved over to the Zoological Museum of the University of Helsinki, where a Ringing Centre was later established. Nowadays, the Ringing Centre, situated at the Finnish Museum of Natural History (together with the Zoological Museum), employs a regular staff consisting of a head, a secretary and four assistants.

In Finland, the catching of birds is governed by both the *Nature Protection Act* and the *Hunting Act* (game birds). Every fifth year the Ringing Centre has to submit the applications for the necessary permits for catching and ringing birds to the *Ministry of the Environment* and to the *Ministry of Agriculture and Forestry*. These permits are then delegated onwards to the ringers accepted by the Ringing Centre.

Ringers

Ringing has always been based on voluntary work in our country. The government is only responsible for the wages of the Ringing Centre's staff, as well as for paying for rings and office equipment. Thus the ringer has to pay for literature, climbing gear, protective headgear, safety harnesses, scales, measuring equipment, bird nets and other trapping gear. Only organisations maintaining bird observatories have been able to pay a modest daily fee to ringers who have worked for a long time at the observatories.

The number of yearly active ringers has increased from the roughly twenty in the early days to the good five hundred active today. During the first decades, ringing was mostly the privilege of academic people. Nowadays, the civilian professions of the ringers vary a great deal, as every bird-watcher who has passed the exams can become a ringer. The Finnish ringer of today is a competent expert on birds, skilled and dedicated to his work.

At the end of 1999 altogether 630 ringers had valid permits. Despite the constantly rising number of women bird-watchers in Finland ringing has remained a strongly masculine hobby in our country, and among active ringers only 2.5% are women.

The representative organ of the ringers is the Ringers' Committee elected at the annual Ringers' Meeting. The main tasks of the

Ringers' Committee are to help and support the Ringing Centre by giving statements and recommendations (1) on all applications for ringing permits, (2) on "territorial fights" between the ringers and (3) on the venue and program of the Ringers' Meetings.

Ringing permits

The Finnish Museum of Natural History hands out ringing permits of different types according to the needs of the ringer and the Ringing Centre. The main types of permits are (1) the nestling and (2) the mist-net ringing permits.

The prerequisites for obtaining a new ringing permit are that the applicant (1) has turned 18, (2) has learned ringing and bird handling in practice as a trainee to an experienced ringer and has received a certificate after passing his training period, (3) has passed a basic exam, in which the applicant's ability to recognise the regularly nesting species in Finland and the most abundant migrants has been tested, and (4) has presented an acceptable ringing plan. During a trial period of 2-3 years, new nestling permits are restricted to concern the nestlings of only a few species. The permit can be extended later on if the ringer has been working actively and correctly.

If the ringer wishes to ring full-grown passerines with mist-nets, he must present a certificate of sufficient training exercises at a bird observatory and pass an exam known as the bird observatory exam. In the latter, the applicant must be able to identify not only all species encountered in Finland, but age and sex on the level of the present knowledge as well (e.g. Svensson 1997, in Finnish).

Ringing

At first the yearly numbers of ringings increased slowly. It was not until the 1930's that yearly totals of over 10,000 individuals were reached and the total amount of 100,000 ringings was reached in 1939. With the World War II the number of ringings crashed to zero. However, shortly after the war the enthusiasm for ringing grew again at a rapid rate. The grand total of one million ringed birds was exceeded in 1966, three million in 1978 and five in 1988. Altogether, more than 7.6 million birds have been marked with an individual ring in Finland between 1913 and 1999. During the last twenty years 180,000 - 250,000 birds per year have been ringed. Of these, nestlings form some 40%. During recent years, the rather large inter-annual variation in ringing totals with respect to the number of ringings has been due to varying breeding success, varying occurrence of irruptive species, unstable manning situation at bird observatories and other changes in the activity of ringers, whereby old projects have died out and new ones been born (e.g. the EURING Swallow Project).

In the statistics for the entire period the ten most numerously ringed species are: *Parus major, Ficedula hypoleuca, Phylloscopus trochilus, Regulus regulus, Larus ridibundus, Erithacus rubecula, Acrocephalus schoenobaenus, Parus caeruleus, Carduelis flammea* and *Larus argentatus*. Compared with other countries, Finland has been very active in the ringing of birds of prey, as shown e.g. by the following ringing totals 1913–1999: *Aegolius funereus* 89,829, *Accipiter gentilis* 42,686, *Falco tinnunculus* 41,010, *Accipiter nisus* 37,111, *Strix aluco* 33,111, *Pandion haliaetus* 31,079 and *Strix uralensis* 30,779.

Recoveries

In 1999, the Ringing Centre processed a total of 46,682 recovery, recapture and resighting reports of Finnish rings. The grand total of recoveries filed in the database for the years 1913–1999 was 604,843 at the end of 1999.

A large part of the recovery database consists of "less interesting" (but still important) recaptures and resightings from the same place within a few days. Thus, when annual statistics are calculated (e.g. for EURING Annual Reports) only those recoveries that fulfil any of the following criteria are included: (1) the bird was found dead (dead nestlings excluded), (2) the bird was alive but had moved at least 10 km from the ringing site or from the previous included retrap place, or (3) the bird was alive at the same site as before, but the time elapsed from the ringing, or from the previous recapture (included already in the statistics) was at least three months. Using the definition above, the number of "interesting" recoveries was 18,543 in 1999 and the cumulative total for 1913–1999 was 309,397. These numbers are more comparable with the ones from other countries not yet able to store all recaptures and resightings.

The majority of the recoveries of birds ringed in Finland come from Finland. Of the recoveries defined as "interesting" 21% are reported from abroad, and further, of these foreign ones 94% are from Europe and 4.6% from Africa. Among the most exotic reports of birds ringed in Finland are: *Sterna hirundo* from Victoria, SE-Australia, *Sterna hirundo*

vel paradisea from Tasmania, *Larus fuscus* from Cocos Islands, *Emberiza aureola* from Thailand, *Emberiza rustica* and *Carduelis flammea* from China, *Stercorarius parasiticus* from Brazil, *Sterna hirundo vel paradisea* from Trinidad, *Larus ridibundus* resighted in winters 1998–2000 in Texas and *Philomachus pugnax* from Newfoundland.

Database

In 1967, the Ringing Centre started to feed into the computer all recoveries (excluding local recaptures) from the start of bird ringing in 1913 in EURING 1963 format. The "comprehensive computer era" started in Finland in 1974. Since then, all new ringings, recaptures (incl. all local ones) and recoveries reported to the Ringing Centre have been fed in Finnish format into the main frame computer of the University of Helsinki, "online". When data is requested the national format will be reduced to e.g. EURING data-exchange-format. Since 1974 all thank-you-letters to the finders and ringers have been written by the computer in ten different languages according to the language used by the receiver. During the last two decades, four different PC-programs have been produced for ringers to allow them to feed in their ringing and recapture data and send it to the Ringing Centre in electronic form. By the end of this year the members of the general public will be able to send their recovery reports through special forms on our home pages. In the beginning our system was based on a set of FORTRAN programs and sequential files on magnetic tapes. Today we rely on ORACLE database system in Unix.

The Finnish Ringing Centre has never had much money available. That's why the role of some idealistic persons, amateurs as bird ringers but professionals as computer programmers, has been crucial in developing all our sophisticated computer systems voluntarily without any economical compensation.

International ringing projects

Finland has tried to participate actively in the international ringing programs launched by the EURING. In the EURING *Acrocephalus schoenobaenus* project altogether 160,726 Sedge Warblers were ringed by the Finnish ringers in 1984–1995. When EURING Swallow Project was started the annual totals increased from the average level of 1,427 in 1990–6 to 10,853 in the pilot year 1997, 14,743 in 1998 and 24,134 ringed Swallows in 1999.

The Constant Effort Sites (CES) monitoring program based on standardised mist-net ringing programme was brought as such from Great Britain to Finland in 1986. Since then, about 30 CES sites have been operating annually.

The role of ringers and the Ringing Centre in monitoring and conservation

Ringers belong to the qualified core group among the Finnish amateur ornithologists. They participate in many conservation and faunistic programs conducted by various organisations. Ringers play the main role e.g. in all conservation programs of Finnish birds of prey although WWF-Finland has been responsible for the *Haliaetus albicilla* and Finnish Forest and Park Service for the *Aquila chrysaetos*, *Falco peregrinus* and *Falco rusticolus* programs. *Project Pandion* and monitoring all the other species of birds of prey have been organised by the Ringing Centre.

The conservation program on *Pandion haliaetus* is a convincing example of the work that ringers do for the Finnish environment. In 1971, the Finnish ringers made the Osprey a target for a special monitoring study, after which almost all Osprey nest sites reported to the Zoological Museum have been checked on a yearly basis. In 1999, 1,301 nest sites were checked, and 865 territories proved to be occupied. In addition to checking nest sites and ringing nestlings, ringers have also collected unhatched eggs and dead nestlings found in the nests for toxicological analyses.

As early as in the early days of *Project Pandion* the lack of tree nest - in addition to environmental pollutants and persecution - was found to be a serious threat to the Osprey population of Finland. The only means of trying to ward off this threat factor brought on by our intense forestry is to build artificial nests, a project to which Osprey ringers have devoted a lot of time and money. Today, nearly half of the known Finnish Osprey pairs nest in artificial nests!

The nation-wide general monitoring study on birds of prey, conducted in unison with the Ringing Centre and the Ministry of the Environment, started in 1982. The populations of birds of prey are studied in 10 km x 10 km *Raptor Grid* squares based on the National Grid and spread over the country. The aim is to find all nests - or at least all occupied territories of the birds of prey in the squares. Since 1986, the monitoring was made more effective by starting to gather all information from the ringers with a *Raptor Questionnaire*

on the nest sites checked and the nests found outside the squares as well. One of the important aims of the project is to get information on nest sites, breeding performance and population trends needed for the protection of birds of prey. In 1999, 124 *Raptor Grid* squares were monitored and altogether more than 46,000 potential territories of birds of prey were checked and reported on *Raptor Questionnaires* by Finnish ringers.

Priorities of bird ringing in Finland

According to conservation ethics and the Finnish law it is not allowed to catch and ring birds merely for fun or the mental therapy of ringers. All ringing must produce sound data for science and/or conservation.

How should different species be ranked with regards to ringing priority if resources are restricted? Certainly it is reasonable to use more resources on ringing species which have maximal *benefit:cost ratio* from a scientific point of view. The following criteria are important for the evaluation: (1) suitability of the species for testing scientific hypotheses, (2) the information content of an individual (the identification possibilities by sex and age), (3) the recovery rate (number recovered per number ringed) and (4) the relationship between the number ringed and the amount of field work required. In addition, some groups should have high priorities because of aspects relating to management: vulnerable species (e.g. birds of prey), game species (waterfowl and gallinaceous birds) and species which are otherwise manipulated by man (gulls and corvids).

During the last two decades, population ecology has obtained the highest position on the list of priorities of the Finnish Ringing Centre. For this reason, the ringers have been encouraged both (1) to ring nestlings and (2) to ring and recapture adults at the nest, but of course, without taking any risk of desertion. This has produced large-scale capture-recapture data sets for estimating survival and dispersal of hole-nesting species of owls and passerines, and *Bucephala clangula*. In 1984, a "constructive restriction " was given to make catching of breeding adults of *Ficedula hypoleuca* more effective: the ringing of nestlings was allowed only for those ringers who caught at least 90% of the females and 50% of the males of that local population as well.

Efficient long-term and large-scale ringing of nestlings of many open-nesting species (e.g. diurnal raptors, some waders and passerines) has produced thousands of individuals, which carry important information for science and management with their rings. Unfortunately, this information is not yet available for science because the breeding adults of these species have not been recaptured on a sufficient scale (excluding *Hirundo rustica*). Much work is still to be done to develope new, efficient and safe methods for catching adults at the nest of open-nesting species.

Because Finland is a country with harsh winters, ringing and recapturing of Finnish winter populations should be effective and produce material for comparisons in survival and movements of populations from more favourable areas. But winter ringing should not take place only at permanent feeding stations, but rather at places where "unnatural" food is used temporarily and only for catching purposes.

In Finland, ringing during spring or autumn migration has lower priority than ringing during summer or winter. Ringing migrating birds is only allowed at ten bird observatories and in special projects (e.g. Acro, ESF, EURING Swallow, and irruptive species). We think that it is also very important for migration studies and especially in northern Europe to ring efficiently nestlings and breeding adults, which then can be recaptured along their long migration routes and finally in their wintering grounds.

In general, ringing and recovery data have not been used effectively enough. It is important that the staff of a Ringing Centre also participates in data analysis, in addition to everyday routines. The Finnish Ringing Centre has published many papers based on results from ringing, both as "real" scientific contributions and as more simple feedback papers to ringers. Further, during more than ten years already, the Ringing Centre has tried to find time and resources for preparing *The recovery atlas of birds ringed in Finland* and hopefully this project will be finished in the near future.

75 YEARS OF THE BIRD RINGING SCHEME LJUBLJANA

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In 1926, an Ornithological Observatory was founded in Ljubljana, it main task being the scientific study of bird migrations across Slovenia on the basis of ringing. Most of the credit for its foundation goes to Dr Stanko Bevk and Dr Janko Ponebsek. Slovenia thus joined the advanced countries, which after 1899 decided to follow Denmark, where ringing of birds, as a new method in ornithology of that time, was initiated by Prof. Mortensen.

Even prior to the foundation of the above mentioned Observatory, two White Storks (*C. ciconia*) had been ringed in mid-September 1909 in Maribor, the rings for them made by Jurij Brandl, maker of church organs. At the end of the same month in 1909, one of the two ringed storks was caught at Roccela Jonica (Reggio di Calabria/Italy), which was actually the first recovery of a bird carrying a Slovene ring abroad.

The first success of the Ljubljana Observatory was the recovery of a Barred Warbler (*S. nisoria*) that had been ringed on July 3rd 1927 and caught again on June 28th 1928 at the very same place at Ljubljansko barje (Ljubljana Marshes). Thus the assertion was confirmed that the majority of migratory birds return to the place where they had been hatched.

The first much talked about recovery in Europe of that time was a Red-backed Shrike (*L. collurio*) ringed in Slovenia and caught, in August 1930, on the Peloponnese in Greece. There followed another recovery of a Slovene Red-backed Shrike, i.e. on one of the islands in the Aegean Sea at the end of September 1933. These two recoveries were very important indeed, for until that time only three recoveries of the Red-backed Shrike had been known in Europe – two in Egypt and one in Sudan.

In 1934, the first number of »Izvestje« of the Ornithological Observatory 1926 – 1933 (ORNITHOL. OBSERVATORIUM IN LJUBLJANA. Jahresbericht 1926-1933) was published, with a report on ringed bird species from Slovenia during 1927-1933 as well as on the first Slovene and foreign recoveries of ringed birds. During the Ornithological Observatory's seven years of operation (1927-1933), 2,938 birds were ringed (60 species). In Slovenia, bird ringing continued during World War II, and eventually the Ornithological Observatory was incorporated into the Slovene Museum of Natural History. The first major change took place in 1973, when we began to use genuine nylon nets. During this work we were getting thoroughly acquainted with different bird species, and some of the first biometric data on live birds were also collected at that time. The very first courses for future ringers were then organised, and we began to think about setting up an ornithological trapping sites that would operate during the entire migration period. Eventually some new bird species were established that had not been recorded in Slovenia till then, such as: Cetti's Warbler (*C. cetti*), Fan-tailed Warbler (*C. juncidis*), Rustic Bunting (*E. rustica*), Little Bunting (*E. pusilla*) and Chestnut Bunting (*E. rutila*). In 1976, for example, no less than 35,087 birds (127 species) were already ringed by 69 people.

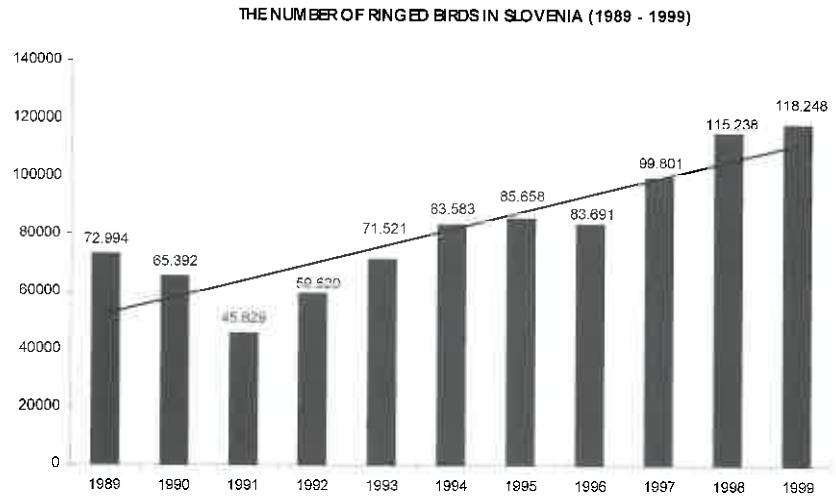
In 1987, the Vrhnika trapping grounds were set up, where birds have been ringed every year since then from mid-July till the end of October. For the first time we have joined the international project dealing with the study of migrating warblers, known as Acroproject. At the very start we proved very successful in the ringing of roosting Barn Swallows (*H. rustica*), and soon the first recovery of our swallow was recorded in South Africa. For numerous species, a great dynamics in their

autumn migration was established. The order, as far as the numbers of birds ringed in Slovenia in 1998 are concerned, is the following: *S. atricapilla* (27,428), *H. rustica* (17,065), *S. borin* (9,056), *P. modularis* (6,987), *E. rubecula* (6,120), *A. scirpaceus* (5,072), *P. major* (4,852), *P. collybita* (4,805), *A. palustris* (3,466) in *R.. regulus* (3,021). The species that were known as rare till then, suddenly became even common. With numerous Slovene as well as foreign recoveries of ringed Penduline Tits (*R. pendulinus*), an important migratory route across Slovenia to the Mediterranean was established, and many of our recoveries have greatly supplemented the picture of the migratory routes of European birds to their wintering grounds in Africa. On the Vrhnika trapping grounds' list of ringed birds, species confirmed in Slovenia for the first time have also appeared, such as Blyth's Reed Warbler (*A. dumetorum*), Paddyfield Warbler (*A. agricola*), Booted Warbler (*A. caligatus*) and Yellow-Browed Warbler (*P. inornatus*). In 1999, another new species new to Slovenia was recorded, i.e. Pallas's Warbler (*P. proregulus*), and yet another in 2000, i.e. Red-flanked Bluetail (*Tarsiger cyanurus*). Reports on many of these new species have been published in the Slovene ornithological journal Acrocephalus. After 1997, the so-called Ornithological News for Ringers have been published regularly (in Slovene), in which data on the numbers of ringed birds as well as on our and foreign recoveries can be found.

For some years, the ringed birds have been constantly increasing in numbers (Fig. 1), and in 1999 precisely 118,248 birds were ringed in Slovenia. All these results, however, would not have been possible without our ringers, the number of which has for some years varied around 60. There are quite a few of them who manage to ring a few thousand birds per year. The highest number in 1999 was reached by a ringer with 21,170 birds, followed by four ringers with 15,548, 11,269, 11,052 and 10,547 ringed birds. There were no less than seventeen (17) people who ringed more than 1,000 birds in that particular year. All these results are of course closely associated with our new method of bird attraction called »night effect« (NE), which has been used successfully from 1995 onwards.

In 2000, the Slovene Museum of Natural History ordered a special programme for the entry and processing of data on ringed birds, based on independent application for WINDOWS 95, 98 and 2000. This year, 30 ringers have thus already made reports on ringed birds for the year 2000 with this programme via diskettes.

Our wishes for the future are: to supplement the picture of migratory routes of different bird species with emphasis on Reed and Marsh Warblers (*A. scirpaceus/palustris*), greater participation in international projects and, last but not least, to increase the number of employed professional ornithologists at the "BRC LJUBLJANA", where the current single employee is simply not enough.



Since 1986, 'EURING technical meetings' offered important venues to statisticians and ornithologists for progressively improving the methods to analyse mark-recapture data. The last meeting was held in october 2000 in California. Nadav Nur and David Anderson report here on the organisation and results of this most interesting conference. The next meeting is scheduled for 2003, and Wolfgang Fiedler offers a first invitation to flock in october 2003 in Radolfzell, Germany.

SUMMARY AND HIGHLIGHTS OF THE EURING 2000 TECHNICAL CONFERENCE

by Nadav Nur

EURING 2000 LOCAL CHAIR,
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The EURING 2000 Technical Conference was hosted by the Point Reyes Bird Observatory (PRBO) and was held 2 to 7 October 2000 at the Marconi Conference Center in Marshall, California, USA, a dozen kilometers north of Point Reyes Station, along the shores of beautiful Tomales Bay. The location of the conference was both aesthetic and historic: the Conference Center is on the site of Guglielmo Marconi's TransPacific wireless station, and is now a California State Historical Park. This Technical Conference was the seventh in a lineage of technical conferences which bring together biologists and biometricians, with the aim of advancing the methodology and analysis of data gleaned from the capture and recapture of marked birds. The conference was a rewarding experience for all those who attended, of which there were over 80 scientists from about 20 countries, representing North America, Central America, Europe, Africa, and Oceania.

The conference began on Monday 2 October with a short course, organized by Dan Rosenberg and Anne Viallefont, which was extremely well-attended. The main conference began the following day and continued through lunchtime on Saturday. Each session that followed was packed with papers and lively discussion. In addition to the seven main sessions (listed by David Anderson, below), the conference featured two software sessions, where recently developed and in-progress software were showcased.

Thursday was the mid-conference day off and many participants availed themselves of one of three field trips. The first was a once-in-a-lifetime all-day boat trip out to the Cordell Banks, at the edge of the continental shelf. The boat was a fishing boat, which David DeSante (Institute for Bird Populations) was able to snare for the day, and left Bodega Bay early in the morning. Conditions were unusually calm that day, which made it perfect for observing blue whales, dolphins, and a host of pelagic seabirds. The second field trip, led by Moe Flannery (PRBO), went to the Palomarin Field Station of the Point Reyes Bird Observatory, the Point Reyes National Seashore, Bolinas Lagoon, and Muir Woods National Monument, where an impressive stand of ancient coastal redwoods (tallest living things in the world) was at hand. The third field trip, led by Dave Shuford and Nils Warnock (both of PRBO) visited, as well, the Palomarin Field Station (to see the long-term constant-effort mist-netting program in action, now in its 25th year) , then went on to the tip of the Point Reyes Peninsula, where a diverse array of species are to be found, including "vagrants" that have wandered off their usual migratory routes. Both of the land-based trips got to see a wide variety of songbirds, shorebirds, ducks, and a handful of seabirds, including species that were over-wintering in California, that were year-round residents, and that were observed in migration. Some participants took the opportunity to relax and stay at the Marconi Conference Center, resting up for the last day and a half of the conference.

There were several distinctive aspects of this conference worth noting: first was the cozy, idyllic setting for the scientific conference, with dining facilities, a meeting room, modern accommodations, all nestled in the pine woods of the conference center. Participants carried on intense discussions of the nuances of capture-recapture methodology in the dining room and at the evening sessions, throughout the week. This Technical Conference had an especially large number of statisticians and biometricians (compared to previous conferences), which made for a fairly equal split between papers on statistical methodology and those on biological applications. It was good to see that graduate students were a conspicuous component, both in the audience, and as presenters.

Any successful conference has many persons and entities to thank and acknowledge, and this conference was no exception. I would like to thank the following:

- First of all the financial sponsors of the Conference, the United States Geological Survey, Autodesk, Inc., and the Western North American Region of the Biometric Society.
- The many staff of the Point Reyes Bird Observatory who worked to bring about the conference, especially Melissa ("Missy") Wipf, EURING 2000 Coordinator.
- Evan Cooch did a superb job as Web-site master, and kept laptop computers working at the conference (with help from Jim Hines).
- John Tautin, who not only organized the poster session (assisted by Tibor Szep), but stepped in to ensure that poster papers could be properly displayed at the conference. John also served on the Finance Committee (together with myself, Byron Morgan, and Franz Bairlein).
- Fernando Spina, EURING President, who provided a Welcome and Introduction to start the Conference as well as providing a gracious thank you to the organizers on the last night.
- Carl Schwarz and Fred Cooke, who collectively stepped in for Prof. George Seber, the Conference's invited Guest of Honor, but who could not attend. Carl supplied the final wrap-up talk, and Fred made the Introductory remarks on Monday evening.
- Finally, David Anderson (Program Chair) and the rest of the scientific session convenors, for providing a program with so much "meat" on its bones, for all participants to ponder now and in the future.

All of us (especially this conference organizer) look forward to the next EURING Technical Conference, which is planned for 2003, to be held in Germany, and to be hosted by Wolfgang Friedel and Peter Berthold of the Max Planck Institute at Radolfzell.

EURING 2000 CONFERENCE

by David R. Anderson

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Approximately 80 biologists and biometricians from many parts of the world met at the Morconi Center in central California for EURING 2000. The week-long scientific conference began on Monday, October 2 with a full day of short courses. These courses provided background information on 10 topics. These sessions where chosen to allow integration into the main conference themes. The short courses have become a vital component of the recent EURING meetings and allow people the catch up on new material and ask for clarification before the main conference starts.

The 7 half-day scientific sessions started on Tuesday and concluded at noon on Saturday, with a full day of field trips on Thursday. The themes of the 7 scientific sessions were –

1. Evolutionary Biology
2. Modeling and Inference Using Individual Covariates
3. Bayesian Methods
4. Random Effects Models
5. Meta-populations, Multi-strata Models, Dispersal, Translocations
6. Formal Experiments with Ringer Birds
7. Direct Estimation of Lambda (finite population growth rate).

Each of the scientific sessions began with a plenary address and these were followed by 1 or 2 formal discussants. The remaining papers related directly to the seesion theme. Ample time for discussion followed nearly all papers.

Excellent posters were displayed during a special Poster Session during the conference. These posters were not 'rejected papers' but, rather, material that could best be presented as a poster. This session also allowed a maximum of interaction between the poster presenters and the rest of the people attending the conference.

Conference editors are working with reviewers with the hope of getting the full proceedings published in about one year. This is a large, but very important, undertaking. Everyone seemed to come away with new ideas and problems in need of solution.

The provision of a summary of the highest of the highlights is premature as the proceedings are yet to appear. Sessions 1-7 are all at the current state of the science. Everyone learned a great deal from the session on Bayesian methods and EURING 2003 will surely see more reports using this paradigm. The direct estimation of the finite rate of population growth is still in its infancy and will see more work on this exciting issue. I felt people were very interested in the concept of 'random effects' models and the notion of variance components. Few of us think hard enough to achieve a clean, formal experiment and the session of experiments sharpened perspectives on this fundamental issue. The session on evolutionary biology was very important (and placed first on the program). In the end, these issues are the important ones. This session spoke more to biology and less on methods and we need to maintain some balance in the EURING conferences.

I thank ALL that helped make EURING 2000 a very successful scientific meeting.

INVITATION TO THE EURING TECHNICAL CONFERENCE 2003 IN RADOLFZELL (GERMANY)

by Wolfgang Fiedler

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The staff of Max Planck Research Centre for Ornithology, Vogelwarte Radolfzell, invites and welcomes the next EURING technical conference on the analysis of mark-recapture and ring-recovery data to be held October 5th – October 12th 2003 at Radolfzell am Bodensee (Lake of Constance, see fig. 1), Southern Germany.

The EURING technical conferences are undoubtely among the most important EURING initiatives and aim to bring together statisticians and ornithologists in the joint effort of making the best possible use of mark-recapture data in the study of bird population dynamics. Proceedings of the former meetings in Wageningen, Sempach, Montpellier, Patuxent, and Norwich are available, proccedings of the 2000 meeting in California will follow soon. Please check out for detailed informations about the 2003 meeting in Radolfzell at http://www.phidot.org/euring/.

The place

Radolfzell is a small city with 30,000 inhabitants in Southern Germany, situated directly at the western shore of Lake of Constance, on an axis between the larger Cities Singen and Konstanz (Constance). More info (in German) at *http://www.radolfzell.de* . The border to Switzerland is 8 km away across the western end of Lake of Constance. The direct distance to Zürich is 50 km. Tourism is well developed (tourists come mainly may - september) and the city is comfortable to reach by train and freeway. The next airports are Zürich and Stuttgart (see below).

Soon after World War II Radolfzell became the hometown of former „Vogelwarte Rossitten", the ornithological field station and institute founded by Johannes Thienemann in 1901 on the Courish Spit in Eastern Prussia (which also was the first ringing centre all over the world). Today, the now called „Vogelwarte Radolfzell" is part of the Research Centre for Ornithology of the Max Planck Society (more info at *http://vowa.ornithol.mpg.de*).

A large part of the delegates at the EURING 2000 meeting rejected the idea to meet at a university because the more familiar and exclusive frame of the meetings are considered to be an important key to their success. The old town of Radolfzell can more or less be regarded as „on site" facility because we would have short and easy to walk distances between railway station, hotel and lecture hall.

Housing & meals

The city hall of Radolfzell („Milchwerk Radolfzell") is used for concerts and cultural events as well as for conferences and meetings. The former factory for dairy products has been converted to a very well equipped and appealing centre with several halls and meeting rooms for 30 to 1100 participants. For our purposes the small hall („kleiner Saal") with 139 seats should fit very well for the lectures and the foyer or one of the smaller meeting rooms are suitable for the posters. More info (in German) at *http://www.radolfzell.de* → Wirtschaft → Milchwerk.

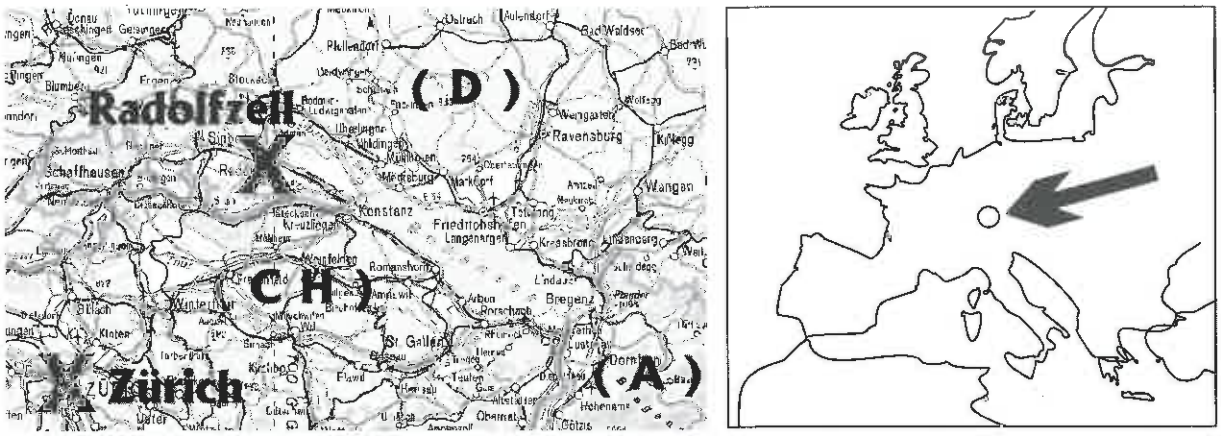
Several hotels with good standard can be booked in a distance of a 10 minutes walk from the lecture hall and <1 km from the railway station and lake shore. Fixed (reduced) prices will be arraged for housing. Breakfast is always included with the rooms, Lunch and supper will be booked at the „Milchwerk" catering service. In addition, there are lots of restaurants of various categories in the old town. During an excursion day trips to „Wollmatinger Ried" (internationally

important wetland area, 20 km from Radolfzell) and to the Alps (Switzerland, full day trip by bus) are intended.

How to come

For long distance travellers it is most convenient to take an airplane to Zürich Airport. From Zürich Airport to Radolfzell there are at least hourly train connections which take 1:40 h. Late flight arrivals (later than 8 pm) still make it possible to reach the city of Singen by train. From Singen to Radolfzell a shuttle service can be organized with institute cars. Flight arrivals at Stuttgart are also possible (i.e. for people expecting problems in getting a transit visum for Switzerland). The train connection from there might take 3:00 h and trains are availabe at least departing between 8 am and 6 pm. Frankfurt or Munic airports are less recommended because of travelling times > 4 h by train. Train connections to Radolfzell are good to very good. Fast trains directed to Zürich and Stuttgart as well as regional trains to Karlsruhe, Munic and Basel / France run at least each 2 hours from morning till evening. Freeways from south (via Zürich) and north (via Stuttgart) and a fairly good connection from west (Freiburg) and east (Munic, Lindau) make it also convenient to reach Radolfzell by car.

Fig. 1 –



PECULIAR RECOVERIES

This section offers few more peculiar recoveries, which also illustrate some interesting cases of predation. Schemes are reminded to contribute with their 'odd cases', which can however illustrate poorly known aspects of the life (and death!) of our birds.

Manx Shearwater

This recovery was reported by telephone from America. A man phoned to say that his daughter had found a live bird on her driveway. They took the bird to Detriot Zoo where it died a few days later. This is only the seventh report of a BTO ringed Manx Shearwater in the USA - it was over 750km inland.

Aves et Reptilia: Osprey

This is the seventh BTO ringed Osprey to be recovered in Gambia. It was 'found' in the stomach of a crocodile that had been killed. This was reported by Gambian gentleman who had killed the Croc. It was reported in some of the Scottish newspapers recently.

Aves et Pisces: Reed Bunting

Another interesting bird-fish interaction had been documented years back by the recovery of the Italian ringed Reed Bunting *Emberiza schoeniclus* B150624. The bird had been marked on the coast of Tuscany (Lago di Burano, 42.24N – 11.23E) on 1.2.1987, and has been reported by a Finnish angler, whose wife found the bird's leg with ring in the stomach of a Pike *Esox lucius* being processed for a barbecue – presumably! -, which had been caught on 31.7.87 in Pehkijarvi (Tammela, 60.50N – 23.54E), at over 2,200 Km distance.

ANNOUNCEMENTS

COLOUR-RINGING AND OTHER UNCONVENTIONAL MARKING OF BIRDS IN ICELAND

by Aevar Petersen

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Dear colleagues,

This letter is written for general orientation as regards colour-marking projects or other projects, which use unconventional marking of wild birds in Iceland. This is written in order to make as clear as possible the Icelandic standpoint on this issue. Moreover, cooperation is sought with you as a coordinator of an international colour-ringing registry.

Any marking of wild birds in Iceland, be that with traditional bird rings or unconventional marks such as colour-rings/bands, wing tags, radio-tracking devices, etc., is illegal by law except for scientific purposes. The Icelandic Institute of Natural History is in charge of the Icelandic Bird Ringing Scheme (IBRS) through which the scientific bird ringing activity in this country is co-ordinated.

Recently, a reorganisation of the handling of projects, which use other than the traditional metal rings/wing tags, has been undertaken within the IBRS. This includes a more rigorous licensing system, whereby persons applying for a licence (and hence responsible for the proposed project) has to state a clear scientific purpose for the marking, indicate the species involved, agree to cooperate with the relevant official registers which co-ordinate colour-marking activities, and various other details.

In previous years the agreement to start marking projects has been very much through verbal consent. Programs were in some instances even begun and liaison made with colour-marking registries, without the prior knowledge of the IBRS staff. Some of these programs were moreover started without any clear motive. Serious activity of this kind has till now been not too difficult to handle, since but few programs have been in operation during any given time period. Nonetheless too much time and money of the IBRS has being wasted on various, unnecessary enquires, resulting from this rather relaxed organisation.

The number of projects, esp. colour-marking programs, is increasing, through a greater appreciation of these techniques as well as increased ornithological activity in Iceland. The advent of broadcasting colour-marking schemes on the Internet (for instance the European Colour-ring Birding, http://www.ping.be/cr-birding/cr-birding.htm, endorsed by EURING) has also prompted us to give clearer directions and make sure there is better understanding of our rules and working procedures.

At present there are some 15 unconventional bird marking projects being carried out in Iceland. Some 10 others have recently ceased to operate, but marked birds may be still alive. Unconventional marking projects are not permitted unless the birds are also fitted with the traditional metal ring (very exceptional cases involve limited use of depth gauges, etc.). Using colour-rings only for marking birds creates various difficulties for the bird-ringing schemes, which I will not go into in more details here.

As a general rule, licences will not be issued in Iceland to start new colour-marking projects unless co-ordination with the relevant official international marking registry for the bird species in question, has been fulfilled.

Moreover, the same person (persons, ringing group) is usually registered responsible for the marking project as for the metal rings used. This focuses the responsibility, although sometimes birds may be colour-marked by ringers using their own rings but on behalf of another ringer who is responsible for the colour-marking project. Such projects can also be carried out in collaboration with other on-going colour-marking projects, which involve the same species but organised by other ringers/researchers, in Iceland or elsewhere.

Co-operation is needed in order that a registry does not sign up Icelandic marking schemes unless these have been endorsed by the IBRS. Neither will any unendorsed Icelandic marking schemes be entered on the European colour-ringing Web Page, according to an agreement between the IBRS and Dirk Raes who runs the Web Page.

I am of course willing to correspond on any aspect of unconventional marking, which may or may not be covered here. Also, if you see any difficulties arising from the contents of this letter, please send me your comments.

A LETTER FROM THE BULGARIAN ORNITHOLOGICAL CENTRE

by Dimitar Nankinov, Svetla Dalakchieva and Boris Nikolov

BULGARIAN ORNITHOLOGICAL CENTRE
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The Bulgarian Ornithological Centre is the national co-coordinator of the studies of bird migrations in Bulgaria. The Centre offers also an important contribution to the study of globally threatened, rare and endangered species, of the distribution, breeding, wintering and conservation of birds and their habitats. It was founded in the spring of 1928 as a special department of the Royal Research Institutes. During the first decades after its establishment from several hundreds to 3,000 birds were ringed annually. After its the reorganisation in 1975, the Bulgarian Ornithological Centre increased its capacity and the number of birds ringed per year. Three field ringing stations (Rupite, Atanasovsko Lake and Dolni Bogrov), located on key places on the migratory route of birds through Bulgaria, were established.

The decrease in the number of ringed birds during the past few years is due to the hard financial state of the Centre. We found ourselves badly short of budget resources to carry on ringing activities, for the maintenance of our field stations, for buying mist nests and equipment, for attending EURING meetings. The Centre was even unable to cover basic costa for mailing and telephone. Therefore we entirely support the initiative, undertaken in EURING Newsletters 1 and 2, for helping the Ringing Centres in poor economical state. Although it may be hard to believe, the Bulgarian Ornithological Centre continues working with few mist nets, without any field scope, with 1 pesola balance and with a rather old computer. However, we wish to express our gratitude to Mr. Flemming Byskov and the colleagues from the Dutch Ringing Centre, who gave us 10 mist nests this summer.

As a recommendation for future issues of the EURING Newsletter we want to suggest the publication of more information on ongoing and future ringing projects. The involvement of Ringing Centres in poor financial conditions in such projects will help avoiding their isolation, as well as contribute to more detailed and complete bird studies.

Finito di stampare
nel mese di luglio 2001
dalla Tipolitografia F.G. di Savignano sul Panaro (MO)