Ringing Ring Ouzels *Turdus torquatus* in Morocco

Peter Ellis, Barry Mill Cottage, Barry, Carnoustie, Angus, DD7 7RJ.

The Ring Ouzel *Turdus torquatus* has been studied and ringed by T.R.G. members in Glen Esk, Angus, since 1992. The species overwinters in Spain and northern Africa, and a Glen Esk bird was recovered in Morocco in November 1994. In 2000, four members of the Group visited the High Atlas Mountains in Morocco to investigate the distribution and habitat of wintering Ring Ouzels. Subsequently, permission was obtained to trap and ring birds in Morocco, and the team returned to the Tounfite area over the three years 2001-2003. A total of 118 Ring Ouzel were ringed during the project and a single bird was subsequently recovered in southern France.

Introduction

The Ring Ouzel *Turdus torquatus* is the most elusive and least numerous of Britain's six species of Thrush. It is also unique in having a wholly migratory population that winters around the Mediterranean Basin. There are three races of Ring Ouzel. Our British population comprises the nominate race *Turdus t. torquatus* that also breeds in Ireland, Scandinavia and the Kola Peninsula of western Russia and winters in Spain and northern Africa. In central and southern Europe, *Turdus t. alpestris* breeds in montane areas from the Pyrenees east to the Carpathians, and winters in southern Europe and northern Africa. A third race, *Turdus t. amicorum*, breeds and winters in Asia Minor.

For reasons that are not completely clear, the British population has been in decline since early in the 20th century. Between the two National Breeding Bird Atlases of 1968-72 (Sharrock 1976) and 1988-91(Gibbons *et al.* 1993), the breeding range decreased by 27% with an estimated population in the early 1990's revised to 5,500-11,000 pairs. The species was subsequently amber listed in *Birds of Conservation Concern (BoCC).* A national census of breeding Ring Ouzel carried out in 1999 produced a maximum population of 7,500 pairs, showing that the population had continued to decline by some 60% thus meeting the criteria for red listing.

Surveys for the two breeding bird atlases, and subsequently those by members of the British Ring Ouzel Study Group, show that losses have occurred throughout the species' range. However, major declines in the population have taken place in the fringe areas, most noticeably in Dartmoor, Exmoor, Wales, the Yorkshire Moors, southwest Scotland and Ireland. The core breeding range now comprises the Pennines, northwest England, the Southern Uplands, the Grampians and the Highlands.

Scottish Study Areas

Two of the more stable breeding Ring Ouzel populations under study are in Scotland. At Glen Esk, Angus, a small number of T.R.G. members have been ringing Ouzels since 1992, whilst at Glen Clunie, Aberdeenshire, members of the Grampian Ringing Group have been running a similar scheme since 1998. When Dave Arthur started the Glen Esk project, members of the T.R.G. had previously ringed only 58 birds. Within two years, and working alone, he had taken the total to just under 150. By 1998, with the help of a few T.R.G. colleagues, the numbers ringed were well past the

500 mark, and at the end of 2003 the Group total stood at 1250:– representing some 10% of all British-ringed Ring Ouzels.

In November 1995, a Glen Esk bird, (ringed as a juvenile in September 1994), was recovered near Oujda, in eastern Morocco. This was only the 10th British-ringed Ring Ouzel recovered in that country, (see figure 1 and map). Three years later, in November 1998, a Glen Clunie bird, (ringed as a pullus in May of the same year), was recovered in the Moroccan High Atlas Mountains near Ait Yaddou: the 11th British recovery from Morocco.

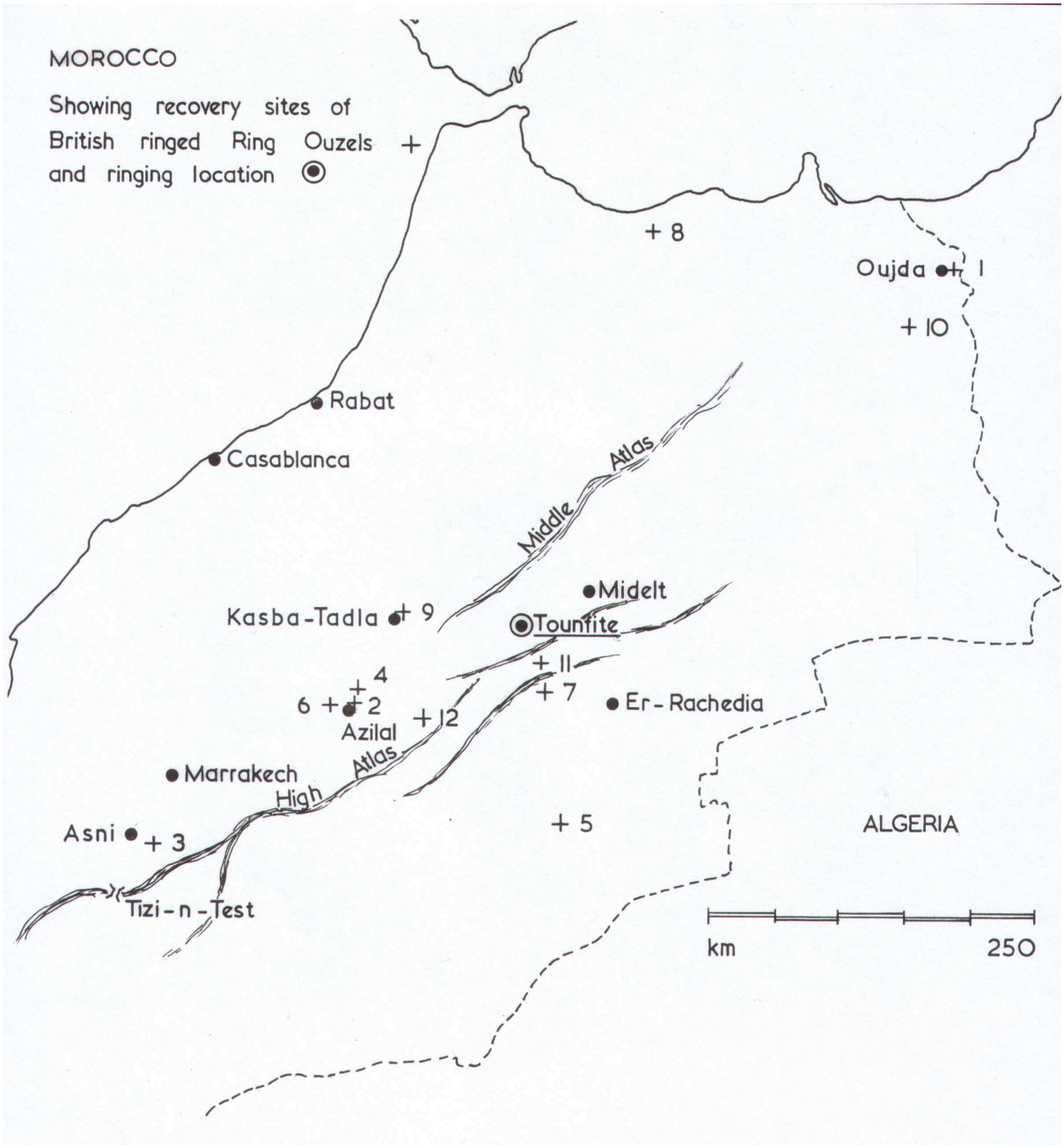
The Glen Esk study area has also played an important role in an extended Ph.D. thesis by Ian Burfield into '*The Breeding Ecology and Conservation of the Ring Ouzel in Britain'*. The project was co-funded by the Natural Environment Research Council and the Royal Society for the Protection of Birds and, between 1998 and 2000, studied two populations of breeding Ring Ouzels: the second population being in the Moorfoot Hills in the Lothian and Borders Region.

Figure 1

British ringed Ring Ouzels - Recovered in Morocco

	Finding Details		Ringing Details			
No	Date Recovered	Location	Date Ringed	Location	Age	Sex
1	26/02/1962	Oujda	17/09/1959	Gibraltar Point, Lincolnshire	4	M
2	15/12/1965	Near Azilal	03/10/1963	The Calf, Isle of Man	3	F
3	10/12/1968	Near Asni, south of Marrakech	29/09/1966	Spurn Point, Yorkshire	3	M
4	15/11/1976	Near Azilal	28/05/1975	Sandwich, Kent	4	F
5	13/12/1977	Near Alnif, south of Tinerhir	10/09/1977	Eastbourne, Sussex	3	M
6	14/02/1982	Tilouguit, near Azilal	23/05/1980	Trefil, Tredegar, Gwent, Wales	1	
7	21/11/1982	Amouguer, near Goulmimia	28/06/1982	Penicuik, Lothian	1	
8	15/03/1988	El Allig, near Bou Saada	21/10/1987	Noss farm, Wick, Caithness	4	M
9	10/04/1989	Kasba Tadla	24/04/1988	North Ronaldsay, Orkney	5	M
10	23/11/1995	Jerada Region, near Oujda	10/09/1994	Glen Lee, Angus	3	
11	05/11/1998	Ait Yaddou, near Aberdouz Mts	22/05/1998	Glen Clunie, Aberdeenshire	1	
12	15/12/2000	Zaouia-Ahanesal	12/10/1997	Isle of Grain, Kent	3	M

Map



Survey Visits to Morocco

The High Atlas Mountain area is of significant importance to the wintering Ring Ouzel population as it is here that we find large expanses of Juniper woodland; the berries of which form the principal part of their winter diet. Preliminary reports from Morocco in the 1990's (Ryall 1994) indicated that the Juniper habitat was under significant threat because of cutting as a primary source of domestic fuel and from clearance for agriculture. These reports suggested that the birds might be under greater pressure in their wintering grounds than in their breeding grounds.

Inspired by recent recoveries in Morocco of Scottish-ringed Ring Ouzels, four members of the T.R.G. – Dave Arthur, Pete Ellis, Ron Lawie and Mike Nicoll, together with three Moroccans, (our guide Ahmed El Ghazi from the Groupe D'Ornithologie du Maroc (GOMAC), a driver and a cook), visited the Moroccan High Atlas in January 2000 to investigate for themselves the distribution and habitat of wintering Ring Ouzels. Between 24th January and 1st February, a number of locations were visited over a 350km stretch of the main High Atlas range between the town of Tounfite, west of Midelt, and the pass of Tizi-n-Test, southwest of Marrakech. Ring Ouzels of both European races – *Turdus t. torquatus* and *Turdus t. alpestris* – were observed feeding together at three locations. Flocks totalling 175+ were seen around Tounfite on January 27th and 28th, 15+ by Tizi-n-Isly south of Bou-Mia on the 25th and 15 near Tizi-n-Test on the 31st, (see map).

The Ouzels were invariably part of larger flocks of mixed Thrushes feeding on berries of Phoenician Juniper *Juniperus phoenicea* and Prickly Juniper *Juniperus oxycedru*. The birds seemed to show a preference for the berries of Phoenician Juniper and this species was always present when the larger numbers of birds were seen. Another significant observation was the importance of a nearby source of water. The Juniper berries are quite resinous, and after the birds had fed they would fly off for a drink. As the birds were quite nervous, they would congregate at particular sites where there was plenty of cover close to the supply of water. Being a very arid country with low annual rainfall, water was often in short supply and the birds would even use quite small patches of water if the cover were particularly good. In recent years the High Atlas has experienced a succession of drier than average winters, and during our visit we had only a brief 20-minute shower of rain.

We found stands of Juniper to be plentiful, although well scattered, on arid, stony slopes (principally north facing) at altitudes between 1500m and 2000m. The Juniper berries take two years to ripen. Consequently, most trees would be carrying flowers and/or berries at different stages of development. The Ouzels targeted the ripe second-year berries and, if there were no ripe berries present in a particular area, the birds were noticeably absent. A large percentage of the Juniper trees had evidence of branches being chopped away over a long period of time, leaving partly pollarded, gnarled stumps; many probably of considerable age. Little evidence was found of complete removal of trees; indeed, in some areas, few trees were disfigured.

Ringing in Morocco - 2001

During the 2000 survey visit the potential for ringing Ring Ouzels had been recognised, particularly in the Tounfite area. The same four members of the T.R.G. planned a return visit to take place during February 2001. Permission to trap and ring Thrush species was obtained from the Department of Eaux et Forets in Rabat. As there was no national bird-ringing programme operating in Morocco, Professor Franz Bairlein of the Institute fur Vogelforschung in Germany provided the necessary rings as he was already actively ringing in the country. At a later stage in the planning, five members of Grampian Ringing Group and the R.S.P.B./British Ring Ouzel Study Group joined the T.R.G. members. The 9 team members flew to Casablanca. With Ahmed, (our guide from 2000), two drivers and a cook we arrived in Tounfite by Landrover and Mitsubishi 4x4 on 11th February.

Based on the observations of the 2000 survey, two suitable ringing sites, 3km apart, were located on the banks of the Oued Oudrhes:- a small river that flows north from Tounfite. At both sites, long lines of mist nets, totalling up to 250m, were erected among bushes close to the bank of the river; trapping the birds as they came to drink at shallow pools. Once again, the High Atlas was experiencing another dry winter, the river was running quite low, and we had no rain during our visit. The nets were set up each morning in the dark to be ready for catching at dawn and netting

would continue until dusk. The catching rate was painfully slow with a daily maximum of 36 birds of all species.

A total of 172 birds were caught during six days of netting. Of these, 127 were Thrushes, and 32 of them were Ring Ouzel – 23 *T. t. torquatus* and 9 *T. t. alpestris* – (see figure 2 for details). Biometric data was taken for all the birds caught but our permit only allowed us to ring the Thrushes. The Ring Ouzel sample was considered too small for detailed analysis of the data at that stage. We had, however, gained valuable experience in the field about the behaviour and habitat relating to the birds, as well as having made very useful contacts with the Moroccan authorities and the local community. In addition to ringing, a number of reconnaissance trips were made in the Tounfite area, and on our homeward journey several recovery sites of European ringed Ring Ouzel were visited en route to Marrakech.

Figure 2

Ring Ouzels ringed at Tounfite, Morocco.

Date	January															February														Totals
	13	14	15	16	17	18	19		24	25	26	27	28	29	30	31	1		12	13	14	15	16	17	18	19	20	21	22	23	24	25	
2000									survey																								
2001																			4	7	2	10	4	5									32
2002	7	8	4	1	9	1	2																										32
2003																									7	0	9	5	2		26	5	54
Grand Total																																	118

Ringing in Morocco – 2002

Following on from our measured success in 2001, preparations were soon underway for a return trip. This took place in mid-January 2002. For the first few days, five members of the R.S.P.B./British Ring Ouzel Study Group accompanied the same four T.R.G. members. We arrived back in Tounfite with our guide Ahmed, two drivers and a cook on 12th January. Ringing started at one of last year's sites the following morning, with permission this time to ring all birds caught. After two days, the R.S.P.B. party left to visit more recovery sites of European ringed Ring Ouzel as they journeyed south of the High Atlas to Marrakech. The T.R.G. team continued to ring in the Tounfite area for 7 days using the same technique as in 2001. Despite more effort and an extra day's netting, the capture rate was even quieter than in the previous year with as few as 13 birds on two days and a maximum daily catch of 43. The grand total was 155 new birds and 3 retraps from 2001, (1 Blackbird and 2 Song Thrush). Of the total, 84 were Thrushes with 32 being Ring Ouzel:– 18 *T. t. torquatus* and 14 *T. t. alpestris* – (see figure 2 for details).

Once again the winter had been relatively dry in the region and we had no rain during the trip. We were concerned this time to find disturbing evidence of more extensive destruction of trees in some locations. Juniper trees were evidently being 'harvested' for fuel and other tree species, particularly Holly Oak *Quercus ilex,* were being systematically lopped to provide fodder for sheep and goats. The problem seemed to be relatively localised. We did, however, find quite large tracts of Juniper and Oak woodland with trees relatively 'intact'.

Ringing in Morocco – 2003

With enthusiasm still running high, Dave, Pete, Ron and Mike returned once again to Tounfite in February 2003. This time our colleague Kenny Slater joined us for what was to be purely a T.R.G. venture. With Ahmed our Moroccan guide of previous years being unavailable, we felt confident enough to 'go it alone' with one of our previous drivers and a new cook. After the customary stopover in Rabat to collect our ringing permit, we arrived back in Tounfite on 17th February.

Although this was our latest arrival time in the area, we were confronted with a moderate covering of snow on the plain to the north of Tounfite and the access road was affected by snow drifts. The High Atlas was experiencing its worst winter weather for some 30 years! Consequently, we found higher levels of water in the Oued Oudres. Coupled with a different pattern of Juniper berry distribution, the behaviour of Ring Ouzels in the area was found to be different and we had to modify our capture method. Instead of netting beside the watercourses we focused on an area of Juniper scrub with high levels of ripe second year berries to the east of the town. For the first 5 days, with dull, cold and showery weather, success was limited in spite of having up to 288m of mist nets deployed at any one time, and our running total of 23 was lower than at the same stage on the previous years. Morale being down, we had a break from ringing and went for a recce through an area of fine Atlas Cedars *Cedrus atlantica* to the west and south of Tounfite. The break paid off and on the next day we caught 26 Ring Ouzels in spite of it being quite breezy and far from ideal netting weather. We had apparently benefited from a 'movement' of birds northwards. Over the 7-day period of ringing we caught a total of only 89 birds, (our lowest trip total), of which 58 were Thrushes but an impressive 54 were Ring Ouzel:– 24 *T. t. torquatus* and 30 *T. t. alpestris* (see figure 2 for details).

A bonus for the 2003 ringing session was the subsequent recovery in France of one of the birds ringed on 21st February. Ringed as a first winter male of the nominate race, the bird was found dead north of Perpingon, France on 25/10/03; presumably on its way south back to Morocco.

Discussion

Our work in Morocco confirmed that both European races of Ring Ouzel wintered together in mixed flocks, usually with other species of Thrushes. They were observed in a number of locations across the length of the High Atlas Mountain Range: in areas with Juniper woodland, on arid stony slopes (principally north facing) at altitudes between 1500m and 2000m. Where there was a choice of Juniper species, they appeared to prefer the berries of Phoenician Juniper, but also enjoyed the berries of Prickly Juniper. They were also observed taking berries of Spanish Juniper *Juniperis thurifer)*, and on one occasion during the survey in 2000 a small number of birds was seen feeding on the berries of Red-berried Mistletoe *Viscum cruciatu)* growing on Hawthorn *Crataegus sp.*

The availability of water was also observed to be of significant importance. The diet of resinous Juniper berries caused the birds to drink at regular intervals. In the arid terrain, water was not always readily available and the birds would often frequent quite small sources of water, especially if there was favourable cover. Popular watering holes were identified by quantities of droppings encrusting surrounding vegetation and rocks.

The two races of birds were usually seen in approximately similar numbers and the number of birds caught over the three years confirmed this observation. Of a grand total of 118 birds caught and

ringed, 65 (55% - annual variation 46-61%) were of the nominate race, *Turdus t. torquatus,* and 53 (45% - annual variation 39-54%) of the Alpine race, *Turdus t. alpestris.*

Of particular interest when we analysed the data, was the ratio of the numbers of adult versus first-winter birds caught. The figures for *T. t. alpestris* (sample 53) showed a higher proportion of first winter birds (56.5%) against adults (43.5%), whilst the figures for *T. t. torquatus* (sample 65) showed a significantly smaller number of first winter birds (34%) against adults (66%) – (see figure 4). The migration distance may well be a factor here. The Alpine race has a shorter distance to migrate, so presumably a higher proportion of young birds survive to overwinter, whereas the young birds of the nominate race must run the gauntlet of a longer migration route through Europe. Certainly, B.T.O. ringing recoveries indicate high levels of mortality as a result of shooting, particularly in France. Records to the end of 2001, (*B.T.O. Ringing & Migration 21 (2)*), show that there had been 85 foreign recoveries of British ringed Ring Ouzels:- 47 (55%) from France, 17 (20%) from Spain and 12 (14%) from Morocco. A further 9 (11%) were recovered from Italy, Germany, Norway and Algeria. Only one foreign ringed Ring Ouzel has ever been recovered in Britain:– a Belgian bird in 1968.

Figure 3

Ring Ouzels Ringed in Morocco - Summary by Race, Age and Sex

	Turdus torquatus torquatus				*Turdus torquatus alpestris*				
Year	5M	5F	6M	6F	5M	5F	6M	6F	Year Totals
2001	4	3	6	10	0	4	0	5	32
2002	2	4	5	7	1	8	3	2	32
2003	6	3	11	4	9	8	8	5	54
Totals	12	10	22	21	10	20	11	12	118
Totals by age									
	22 (34%)		43 (66%)		30 (56.5%)		23 (43.5%)		
	1st winter Birds		Adults		1st winter Birds		Adults		

The relatively small proportion of first winter nominate birds may also be explained by a lower survival rate across its British breeding range; a range that has declined markedly over the last 100 years. It would seem that there are also fewer first-winter birds surviving to return to Britain to maintain the breeding population levels. Ian Burfield's in-depth study concluded that "….the ultimate cause of the species' decline remains unclear,….." although he did make a number of suggestions to be considered for Ring Ouzel conservation.

Postscript

In February 2004, another Scottish Ring Ouzel from Glen Shee, just outside the Glen Clunie study area, was recovered in Morocco. Ringed as a pullus in May 2002, the bird was found injured and later released at Tilouguite south of Beni-Mellal. The research at the two Scottish study sites

continue to play an important part in discovering the breeding and migration behaviour of the Ring Ouzel.

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Last, but not least, to the Berber villagers and children around Tounfite who made our ringing experience in Morocco such a memorable one.

Appendix

Table 4

Summary of Species caught, Morocco 2001 - 2003					
Species		2001	2002	2003	Totals
Ring Ouzel	*Turdus torquatus torquatus*	23	18	24	65
	Turdus torquatus alpestris	9	14	30	53
Blackbird	*Turdus merula mauritanicus*	72	35+2*	1	108+2*
Song Thrush	*Turdus philomelos*	20	14+1*	1	35+1*
Redwing	*Turdus iliacus*	3	1	2	6
Mistle Thrush	*Turdus viscivorus*	0	2	0	2
Robin	*Erithacus rubecula*	0	1	0	1
Coal Tit	*Parus ater atlas*	13	13	3	29
Blue Tit	*Parus caeruleus ultramarinus*	1	1	3	5
Great Tit	*Parus major*	0	3	1	4
House Sparrow	*Passer domesticus*	0	24	0	24
Rock Sparrow	*Petronia petronia*	0	0	2	2
Chaffinch	*Fringilla coelebs*	3	3	0	6
Greenfinch	*Carduelis chloris*	24	24	19	67

	aurantiventris				
Goldfinch	*Carduelis carduelis parva*	4	2	0	6
Hawfinch	*Coccothraustes coccothraustes*	0	0	2	2
Yearly Totals		172	155+3*	89	416+3*
Thrush Totals		127	84+3*	58	269+3*
Ring Ouzel Totals		32	32	54	118
Days ringing		6	7	7	20
		Thrushes	All species ringed		*Birds
		ringed	2002 & 2003		retrapped
		2001			from 2001

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