

Monitoring European Egyptian Vultures wintering in Africa

ESF Activity: Research and Monitoring for and with Raptors in Europe
Acronym: EURAPMON

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Purpose

The purpose of the visit was to establish a research relationship with Djibouti Nature (Houssein Reyaleh), and collect data potentially valuable to monitoring of raptor populations in Europe. To do this we undertook pilot field work on the spring migration of soaring birds across the Bab el Mandeb Straits between Djibouti and Yemen. The field work followed-up on recommendations in an IUCN report (Welch and Welch 1999), and included a capacity building component. Although not set out in the original proposal to ESF, because we were offered satellite-received transmitters (GPS-PTTs), we also aimed to capture an Egyptian vulture and fit it with a transmitter and then track its movements.

The products of the visit were to be: the establishment of a research relationship with Djibouti Nature focussed on birds, a report on our activities, a manuscript about the migration for submission to a peer-reviewed journal, the capture and tracking of an Egyptian vulture (*Neophron percnopterus*), a blog that details the work and posts maps of movements made by the tracked vulture, the discussion and drafting of proposals for follow on work on the migration and perhaps other topics. Synergies were possible with work on Egyptian vulture funded by the European Union (Life+; Bulgarian Society for the Protection of Birds, <http://lifeneophron.eu/>) and the Environment Society of Oman. In fact, a local member of our field team was given training during a workshop in Ethiopia just prior to our field work. That workshop was funded by the Bulgarian Life+ project. The possibility to track a vulture was also the result of synergy between this work and work on declining vulture species in Africa by Hawk Mountain Sanctuary, Pennsylvania, USA.

Description of work

The field team comprised M. McGrady (MM), H. Rayaleh (HR), E. Abdillahi (EA), A. Darar (AD) and A. Hamadou (AH). The schedule was:

25-26 Feb	MM travels to Djibouti.
26-28 Feb	HR, EA and MM prepare for field work.
1 March	HR, EA, AH, MM and travel to Ras Siyyan.
2 -10 March	Observation of migration in vicinity of Ras Siyyan (HR, EA, AH, MM).
10 March	HR, EA, AD and MM travel to Tadjoura.
11 March	Trap Egyptian vulture at Tadjoura abattoir. Fit with solar powered GPS PTT.
12 March	Attempt to trap Egyptian vultures at Tadjoura abattoir. Travel to Djibouti city.

- 13 March Unpack. HR, EA, MM work on notes, data, reporting and discuss way forward for this and other potential work (Djibouti francolin).
- 14 March MM leaves Djibouti.

The Rift Valley forms part of the second most important flyway for migratory birds in the world. The Bab el Mandeb Strait is where Africa (Ras Siyyan) and Arabia (Pirim Island) are closest and is a migration bottleneck. At the straits, heavy southward passages of buzzard (*Buteo buteo*), steppe eagle (*Aquila nipalensis*), pallid harrier (*Circus macrourus*, NT), greater spotted eagle (*A. clanga*, VU), eastern imperial eagle (*A. heliaca*, VU), and lesser kestrel (*Falco naumani*, VU) are known to occur in autumn (Welch and Welch 1988), and many Egyptian vultures (EN) and booted eagles (*A. pennata*) cross the Straits going north in spring (Welch and Welch 1991). Significant numbers of other bird taxa have been also recorded. Despite the flyway's global importance and status as a focal point for conservation (Birdlife) the migration over the Bab el Mandeb has been little studied.

Results and findings

Migration

A total of 4562 migrating raptors were observed from five vantage points near Ras Siyyan. Booted eagle and Egyptian vultures were the most commonly observed species and comprised 38.9 and 25.6% of the total, respectively. A large number of birds were too far away to be identified to species, although almost certainly they comprised mostly Egyptian vulture and booted eagle. Unidentified soaring raptors comprised almost 28% of the migration. Table 1 summarizes the results of migration counts.

The rates and species composition of migrating birds were not vastly different from those recorded by Welch and Welch (1991) during three days of observations. In addition, our observations suggested a daily pattern of migration similar to that described by Welch and Welch (1991), in which heavy migration was seen at Ras Siyyan until about 1030, after which the migration moved upwards and southwards. We were unable to determine if the apparent southward movement was accompanied by a shift of the migration path inland. We were also unable to discover whether migrating soaring birds departed Djibouti along a broad front or embarked from some point (presumably) south of Ras Siyyan.

Interestingly, only three individual migrating Egyptian vultures were not full adults (all were three years of age). Welch and Welch (1991) did not report age composition of their counts. This supports the idea that Egyptian vultures from northern parts of their distribution (Eurasia) may spend the years prior to entering the breeding population at lower latitudes (including in Africa) (Mundy et al 1992). Additional support to this idea is given by the fact that young birds (<3 yrs) were observed in villages and towns in Djibouti. So, although young birds occur in Djibouti during this time, we did not observe any of them migrating.

Trends in raptor populations can be detected from long-term standardized migration counts (Farmer et al 2007). The sensitivity of these counts to changes in population size is dependent to some extent to the proportion of the population that fly over the place where counts are made. A large proportion of the Egyptian vulture population that apparently breeds in Eurasia migrate over the Bab el Mandeb Straits. However, within the context of the aim of EURAPMON to monitor European raptor populations, it is unclear what proportion of Egyptian vultures we saw had destinations in Europe. Although the number of vultures we counted was extremely large do know that some Egyptian vultures that migrate between Africa and breeding grounds in Eastern Europe fly over Suez spring (See <http://lifeneophron.eu/>), and we know that Egyptian vultures breeding in Spain appear to migrate over Gibraltar in spring (García-Ripollés et al 2010). More work is needed to determine what proportion of the migration of Egyptian vultures over the Bab el Mandeb Straits is European.

Tracking Egyptian vulture via satellite

We captured a single adult Egyptian vulture at the abattoir in Tajoure on 10 March. We ringed this bird with a metal Bulgarian Society for the Protection of Birds alpha-numeric ring. We also fitted the vulture with a 40 gram solar powered GPS PTT, and we are tracking it. The transmitter is programmed to deliver eight GPS locations per day on a 8 hour ON/48 hour OFF duty cycle.

Basic maps of the movements of the tagged vulture are being posted to a blog (<http://egyptianvulturedjibouti.blogspot.co.at/>). To date (1 April) the tagged bird has been moving within about 50 km of where it was marked. Locations appear to be clustered around areas of human habitation. The vulture moves between areas, seemingly spending 1-36 hours at any given location. It sometimes makes relatively long journeys between areas it visits, and may revisit areas. Although it has not yet revisited the site where it was captured, it has been located at the Tajoure municipal rubbish dump, about 2 km distant. Current data seems to suggest that this bird is not migratory, has not migrated yet this year, or has not reached the age at which it might migrate.

Table 1. Counts of migrating raptors in the vicinity of Ras Siyyan, 2-10 March 2013.

	02-Mar	03-Mar	04-Mar	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar	10-Mar	TOTAL	%
Egyptian Vulture	29	84	233	15	73	71	309	158	195	1167	25.58
Booted Eagle	37	166	271	67	55	315	276	369	217	1773	38.86
Short toed eagle	0	0	5	11	5	6	66	64	69	226	4.95
Steppe Eagle	2	2	4	7	0	8	17	29	7	76	1.67
Imperial Eagle	1	1	0	1	0	0	3	0	2	8	0.18
Honey Buzzard	1	1	4	4	0	4	5	0	2	21	0.46
Long-legged Buzzard	0	0	2	0	0	0	0	0	0	2	0.04
Lanner Falcon	1	0	0	0	0	1	0	0	0	2	0.04
Kestrel	0	1	1	0	0	1	0	0	0	3	0.07
Lesser spotted eagle	3	0	0	0	0	0	0	0	0	3	0.07
Shikra	1	0	0	0	0	1	0	0	0	2	0.04
Bonelli's eagle	0	0	0	0	0	2	2	0	0	4	0.09
Pallid Harrier	0	0	0	0	0	0	1	0	0	1	0.02
Marsh Harrier	0	1	0	0	0	0	0	0	0	1	0.02
Unidentified falcon	0	0	0	0	0	0	0	0	1	1	0.02
Unidentified raptor (likely eagle)	3	21	105	50	3	81	526	311	172	1272	27.88
TOTAL	78	277	625	155	136	490	1205	931	665	4562	

Future collaboration with host institution

The major purpose of the ESF grant is to promote collaborative research between Europe based scientists and institutions and others. This particular grant, channelled through EURAPMON (An ESF Research Networking Programme) was to support collaboration that would potentially contribute to the way raptors monitoring in Europe

We are currently seeking funding for follow-up research, using the data we have gathered to strengthen our proposals. We submitted a proposal to a potential funder on 1 March, thereby demonstrating follow-on efforts. We have deadlines for two potential funders on 15 April, and plan to submit proposals to both. With these proposals we are seeking funding for migration monitoring during autumn and spring and for an expanded effort to capture more vultures, fit them with satellite-received GPS transmitters and track their movements.

We are considering future collaboration (H. Rayaleh/Djibouti Nature – M. McGrady/International Avian Research) on topics other than migrating raptors. See below.

Projected publications / articles

We are preparing a manuscript about our migration observations (Working title: Migration of soaring birds over the Bab el Mandeb Straits, March 2013.), aiming at a summer 2013 submission. *Ostrich*, the journal of African ornithology, seems an appropriate journal in which to seek publication.

We aim to post maps of vulture movements to our blog every 10 days or so. In due course, especially if we can attract funding for more tracking of vultures, we will seek publication on the movements of Egyptian vultures tracked via satellite in the peer-reviewed literature.

Other comments

The Djibouti Francolin (*Francolinus ochropectus*) is a critically endangered species endemic to Djibouti and occurring only in two locations. Little is known about this species and this lack of information undermines conservation. Potential exists for collaborative research work on the Djibouti Francolin. We are currently developing proposals based on recommendations made in a World Pheasant Association report (Bealy et al 2011). While not an initiative that qualifies as follow-on within the context of the EURAPMON funding, it certainly falls under the more general aims of the ESF science networking funding.

Literature cited

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