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An electronic journal published by the Animal Demography Unit at the University of Cape Town

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Recommended citation format:
Franke-Bryson U 2016. Swifter than swifts: second Eurasian Hobby ringed in Namibia. Biodiversity Observations 7.86: 1–14

URL: http://bo.adu.org.za/content.php?id=279

Published online: 5 December 2016

– ISSN 2219-0341 –

AFRING NEWS

SWIFTER THAN SWIFTS: SECOND EURASIAN HOBBY RINGED IN NAMIBIA

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Abstract

The Eurasian Hobby *Falco subbuteo*, coming a long way south from Eurasia and its dragonfly prey, the Global Wanderer, migrating with the monsoon across the Indian Ocean, meet in Namibia. Distribution, migration, food and feeding of the species are described and the measurements of a ringed bird (5H26516) will be compared to the literature.

Introduction

On 25 December 2013, during our yearly ringing expedition to Namibia we caught an Eurasian Hobby in a 16 mm mesh mistnet. The bird had flown low over the water towards small acacias and *Prosopis* trees and was found in the second lowest shelf of four.

Small population numbers throughout a huge territory

The Eurasian Hobby, unevenly spread globally, inhabits a huge area of about 25 - 30 million square km. In the European, or Palearctic, summer it can be found across the whole Eurasian landmass from the Atlantic in western Europe (see Figure 1) eastwards through Asia to the Pacific including Russian Kamchatka and northern Japan, from Scandinavia south to the Mediterranean Sea and northern Africa. In the eastern part of its range from northern Russia to southern China it touches the comparatively small area of distribution of the second of the recognised subspecies, the resident or short distance migrant *Falco subbuteo streichii* (Ferguson-Lees and Christie 2001).

The non-breeding grounds lie south: the western and central populations mainly fly to central and southern Africa, while the far eastern populations migrate to southern and south eastern Asia, mainly southern China and India (Brazil 2009).

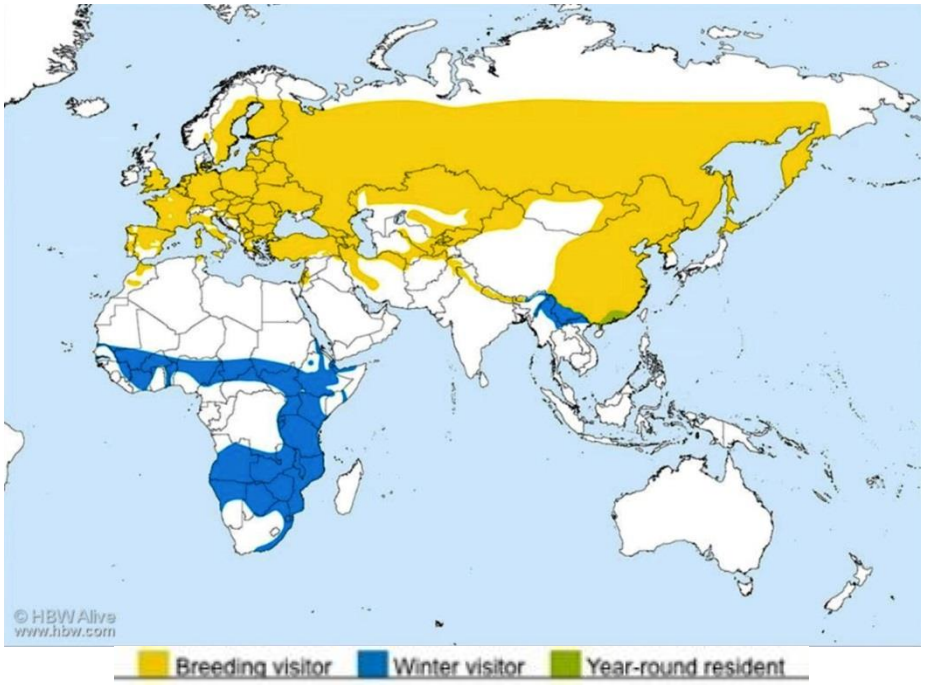

Figure 1 - Breeding and wintering grounds of the Eurasian Hobby (Handbook of the Birds of the World). The wintering grounds in India are not shown on the map (but see Naoroji 2006 or Brazil 2009).

Figure 2 - Eurasian Hobby *F. subbuteo*: This second year bird shows the distinctive features of the Eurasian Hobby: the black mask on white face, a white collar, reddish brown thighs, and broad black streaks flowing down the white breast while the upperparts are greyish.

Population numbers

Compared to many other Eurasian raptors, the Eurasian Hobby occurs only in small numbers. The population estimates vary, depending on our growing knowledge acquired through research, but also on the way of calculating. In 1982 its worldwide population was considered to be not more than 30 - 60 000 pairs (Cade 1982). But more recent calculation of observed birds and an extrapolation thereof, esp. for the Russian territories, conclude now a total of still not more than 200 000 pairs (Ferguson-Lees and Christies 2001). The population seems overall to be stable over the last decades, although local fluctuations can be considerable (Orta and Kirwan 2014).

The majority of the western Palearctic Hobbies account for a maximum of about 95 000 breeding pairs of which around 88 000 pairs are found in Europe (Mebs and Schmidt 2006). Other estimates are even lower (Forsman 1999): for western Palearctic 55 000 - 75 000 pairs of which 50% are thought to occur in Russia, the remaining being distributed over most of Europe. My home country Germany hosts only about 2900 breeding pairs. Steppe Buzzard *Buteo buteo* numbers, in comparison, are estimated around 100 000 individuals in Germany alone, reaching a million in the western Palearctic (BirdLife International).

From Europe into Africa: Tracking Hobbies by GPS

The first four Eurasian Hobby Falcons to be tracked on their migration route by GPS in the period of 2005 – 2007 took their way from Sweden to Angola and Zambia. Out of the 61 days of journey on the way to their wintering quarters 39 days were spent travelling for an average distance of 9200 km (Strandberg et al. 2009a).

The mean travel speed in Europe was 188 km/day, for the four days of the crossing of the Sahara speed was more than doubled (391 km/day) and passing over tropical Africa was performed in 200 km/day (Strandberg et al. 2009b). Hobbies fly between 7.9 to 14.6 hours daily, moving a maximum of about 1250 km in just 2 days, with some migration at night (Orta and Kirwan 2014). The Hobbies crossed the Mediterranean Sea on a broad front, unlike soaring raptors as eagles and buzzards. The latter depend on thermals and show up in high numbers over Gibraltar in the west and along the eastern coast of the Mediterranean where the difference in temperature between land and sea allows them to take advantage of the rising air.

Travelling south on individual routes that spread out from each other more than 2000 km north of the equator, all birds crossed the evergreen tropical rainforest in the Congo on tracks not further apart than 70km. Here the extension of the rainforest is shortest from north and south. For more details on travel schedules, migration routes, the rainforest as a possible ecological barrier and the discussion of the findings see Strandberg et al. (2009a).

Similar migration routes were confirmed in a later study (Meyburg et al. 2011), which added data that Eurasian Hobbies, who spend the winter in Angola, undertake huge latitudinal flights. One bird flew from Angola through Zambia, Zimbabwe and Botswana back to Namibia in less than three weeks, while the movement in Angola alone covered about 116 000 km^2, an area three times the size of Switzerland (Meyburg 2013).

Travelling the world

Hobbies are world travellers and are found in areas far beyond their usual home range. Some vagrants disperse over all oceans and reach islands far off the north and west of Europe and even islands off Alaska.

They were also recorded in the southern seas on islands in the Indian Ocean, off Indonesia, Australia and on tropical Pacific islands. Two records are mentioned for the USA and two for Canada, in both countries in the east as well in the west (Orta and Kirwan 2014; Glutz von Blotzheim et al. 1971). A review in the Encyclopedia of Life shows even more sightings and collected specimens on the north American continent (See the website in the literature list).

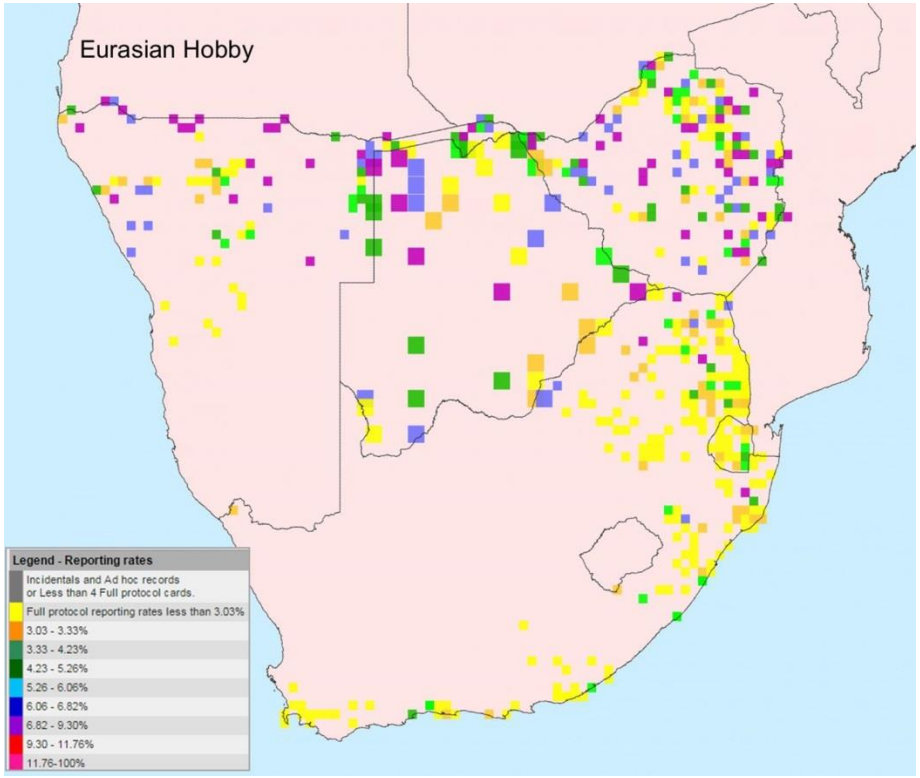

Figure 3 - Distribution map of Eurasian Hobby in southern Africa (SABAP1, 1997)

Coming across the Indian Ocean?

There arises the question, do the eastern populations of Eurasian Hobbies wander across the Indian Ocean from India to East Africa for wintering, like Amur Falcons *Falco amurensis* do in great numbers during migration?

Both species feed on the Globe Skimmer *Pantala flavescens*, a dragonfly which shows a transgenerational cycle, moving from India to Africa and back, as discribed further below.

While Ferguson-Lees considers this possible (2001, p. 881), it seems unlikely viewing the low numbers of observation records: The Eurasian Hobby is regarded to be a scarce winter visitor to Maldives (Naoroji 2006), while for the Seychelles overall only 28 records have been recognized (Safford and Hawkins 2013).

Bijlsma pointed out that there are no records of *F. subbuteo* fattening up in India, as *F. amurensis* do before their trans-ocean migration (pers. comm.)

Africa!!

In ten years of data collection for the South African Bird Atlas Project 1 (SABAP 1, Figure 3) from 1987 to 1997 a total of only 1384 Eurasian Hobbies has been recorded in the area of South Africa, Namibia, Zimbabwe and Botwana in 12.1% of the grid cells. This species is considered generally uncommon here, most frequently reported from northern Namibia and Botswana, Zimbabwe, the northern and eastern Transvaal and Swaziland. In well covered areas of atlassing it has been observed sporadically along the eastern and southern coast reaching Cape Town (Mendelsohn in Harrison et al. 1997).

Eurasian Hobbies mainly arrive in Africa from late October to November, in the south as late as December, and depart from end of February to reach the northerly breeding grounds in April and May. (For retrap data and tracking migration movements in individual birds in Europe: see Glutz von Blotzheim et al. 1971).

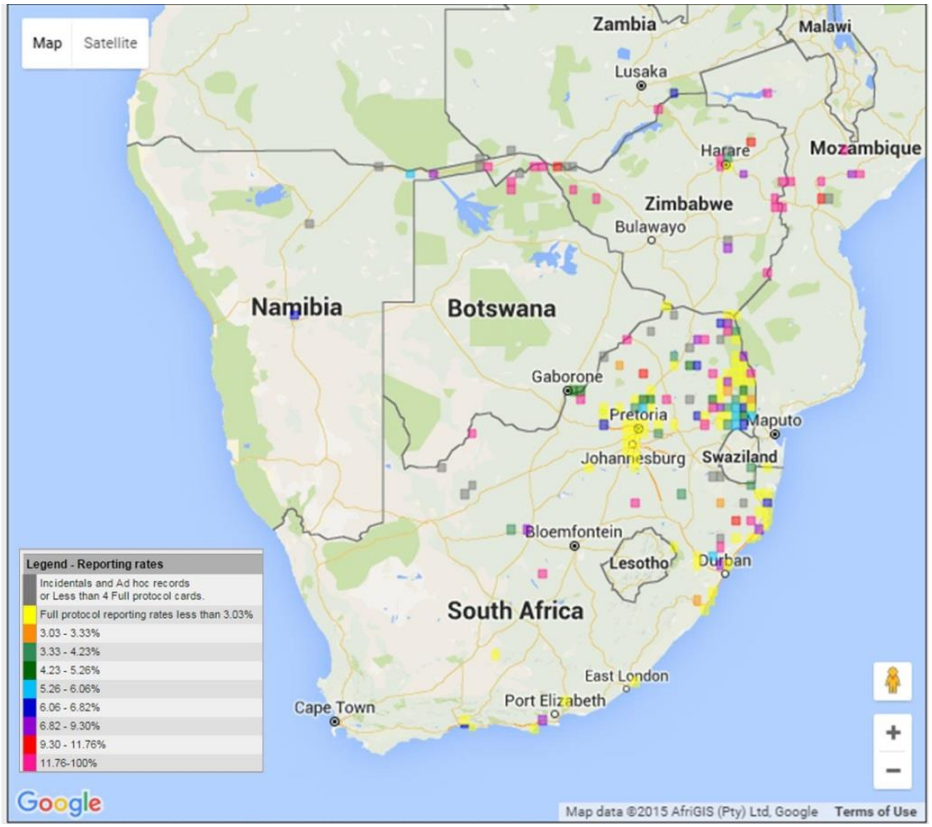

Figure 4 - Distribution map of Eurasian Hobby in southern Africa (SABAP2, 2015)

Hunting grounds in the arid savanna

We caught the Eurasian Hobby (ring 5H26516) on the farm Horebis located at 22°32‘S 15°33‘E in the ephemeral Swakop River bed about 80 km south of Karibib.

After a long, very dry winter there had been several occurences of rainfall in the weeks before our stay. Alates were erupting and attracting huge numbers of swifts, mainly Eurasian *Apus apus* but also Bradfields Swifts *Apus bradfieldi* and many dozens of Yellow-billed Kites *Milvus aegyptius* and other different raptor species. We could see on three occasions the whirling clouds of swifts circling and hunting over the ground, from close with noisy wingbeats sounding like traffic. After about two hours the birds left again. The raptors perched afterwards in trees nearby.

One day in the early afternoon we could only briefly observe two darkish falconids around the house where countless dragonflies were cruising over the cistern basin where the water is held for irrigation of the small fields. We could not identify the falcons in the short glance had, but we realized that they were not the usual Lanner Falcon *Falco biarmicus* or rarer Peregrine *Falco peregrinus*, by their swift movements and smaller size.

On the day following this observation (i.e. on 25 December 2013) the Eurasian Hobby was caught in full light in a mistnet on the edge of this water body at 8:30 in the morning, more than two hours after sunrise (6:05 am).

Figure 5 - View along the margins of the Swakop River; behind the trees is the actual riverbed.

Figure 6 - Retention dam for irrigation.

Figure 7 - A few of the Yellow-billed Kites gathering on the dam´s edge for drinking and bathing.

Age of the Eurasian Hobby

Corresponding to the features of the plumage, it was a second year bird. Most strikingly, the flight feathers and coverts were edged buffy, tail feathers ending with buffy tips, mantle scallopped, and pale thigh feathering, which is darker rufous in adults. The bird had an already fully adult head pattern which indicates that it had moulted out of its juvenile plumage. No primary moult was recorded, but P1 to P6 were more abraded than P7 to P10 which appeared fresh.

Figure 8 - Upperwing: Clearly visible are the buffy feather seams on fresh primaries P7 to P10, on the tail, the primary and secondary coverts and on the alula.

Figure 9 - Underwing and breast marking. Pale thigh with dark broad streaks visible. (For very detailed identification and sexing in all ages see Blasco-Zumeta and Heinze 2014).

Figure 10 - Close up of the Eurasian Hobby.

Measurements of the bird

The size and weight measurements of the bird were not conclusive for sexing, being in the range of overlap of male and female. Females tend to be slightly larger than males. Measurements of wing and beak in juveniles are smaller in comparison to adults, that of the tarsus slightly bigger (Glutz von Blotzheim et al. 1971)

The mass was 195 g, well in the „normal“ range. Shortly after the effort of migration, birds may be considerably lighter which can be seen in the following numbers: The range given for a male is between 131 and 232 grams, with an average of about 200 g. For females mass is recorded from 141 to 340 g, the average higher at around 225 g.

The wing length of the bird was 260 mm, matching recorded measurements for males of 237 to 272 mm, (average at around 256 mm), and for females from 248 to 282 mm, (average at 268 mm). The tail length was 134 mm, compared to males from 116 to 143 mm, (130 mm), and females 125 to 145, (134 mm). The head measured 46.1 mm, the culmen from beak tip to featherline 12.8 mm. Roberts (Hockey 2005) states for European males 12.6 mm (11.7 – 13.4) and for females 14 mm (12.2 – 15.1). The tarsus of 34.8 mm matches measurements of males of 32 to 35.5 mm with an average of about 33.5 mm and females with 33 to 37.5 mm, also with an average of around 35 mm. (Measurements from Glutzvon Blotzheim et al. 1971; Brown et al. 1982; Del Hoyo et al. 1994; Hockey et al. 2005; Kemp and Kemp 1998; Mebs and Schmidt 2006; Fiuczynski and Sömmer 2011.)

Birds, bats, insects: all you can eat

The great diversity of prey items shows the high adapatability of the Eurasian Hobby to existing food sources. The diet consists of birds, mammals up to the size of a young rabbit, bats, insects, including dragonflies, beetles, moths, grasshoppers, locusts, crickets and ants, and some reptiles, depending on availability and the time in the life cycle (Orta and Kirwan 2014). Prey is mainly caught in flight, but also hunted from a perch, or even taken on the ground. It will be consumed while perching or, in smaller prey, especially flying insects, it may be eaten on the wing. Some individuals specialize in certain prey types, especially when feeding young.

Kleptoparasitism has been observed, with Hobbies taking prey from other raptors like Rock Kestrel *Falco tinnunculus*, Sparrowhawk *Accipiter nisus*, Red-footed Falcon *Falco vespertinus* and Red Kite *Milvus milvus* and Black Kite *Milvus migrans* in flight (Fiuczynski and Sömmer 2011; Tinbergen 1958, p. 87-88). But they themselves are also robbed by other birds of prey.

In Europe at least 70 bird species have been recorded as prey of the Eurasian Hobby (Glutz von Blotzheim et al. 1971). In the time of raising its young, fledglings of other species are abundant which serve as food for the offspring. Depending on availability, birds like swallows, martins and swifts, as well as less aerial species of open areas, e.g. sparrows, finches, starlings, larks and pipits are hunted. The main prey size is between 8 to 65 grams, with a range from small passerines of 6.5 gram up to lapwings or doves with 200 grams (Bijlsma1980 in Fiuczynski and Sömmer 2011, p. 232 f.). A vagrant to Mahé, Seychelles was shot while feeding on a White Tern *Gygis alba* (Moreau 1938, p. 9). After the rains the Hobbies have been observed taking advantage of swifts that were handicapped by flying with wet plumage (Orta and Kirwan 2014).

Birds with eye-catching variation in shape and colour easily fall prey. In well studied breeding Hobbies in the city of Berlin half of the prey consisted of House and Tree Sparrows, followed by different swallow and martin species. Astonishingly 9.4% of the food items were Australian Budgerigar *Melopsittacus undulatus*, escapees from cages (Fiuczynski and Sömmer 2011, p. 230), which were also reported as unexpected prey even in a large woodland in The Netherlands (Bijlsma, pers. comm.). One study shows that out of 215 House Sparrows 8.4% were partially leucistic (Bijlsma 1980 in Fiuczynski and Sömmer 2011, p. 236).

Diet in wintering grounds of Africa

Many South African bird guide books describe the Eurasian Hobby as a hunter at dusk and dawn. Citing the basic literature, it becomes clear that this assumption all funnels back to two articles on feeding behaviour of this species, one on the influence of raptors on bats, which are rarely diurnal (Fenton et al. 1994), and one on hobbies in the city of Stellenbosch, where the researcher could observe the birds only in the early morning before leaving and at night fall coming

back to the roost in town. Some birds nesting in colonies in town were used as a food source at dawn and dusk, as well as occasional bats (Pepler 1993). The scarcely observed diurnal hunting activity has been left out. The hobbies spent the day hunting and resting in the mountainous Fynbos. Prey items were sunbirds, swallows, dragonflies, butterflies, even a flying ant and one unidentified nestling snatched out of the nest to be eaten on the wing (Pepler 1993)

After all, the diet of Eurasian Hobbies in wintering grounds is composed in major parts of alates and insects which emerge in huge numbers after the rains (Orta and Kirwan 2014). The birds follow, like other species, the insects, being pushed in front of the rain clouds and sucked in by low pressure, and feed on alates emerging after rainfall. Travelling with the rain, individual Eurasian Hobbies can be seen in flocks with Red-footed Kestrels and their eastern sister species, the Amur Falcons (M. Mills, pers. comm.). In northern Namibia, Eurasian Hobby Falcons have been seen in the 1970s in congregations of „dozens“ together with great numbers of raptors feeding on alates (Steve Braine, pers. comm.).

Dragonflies – Snacks from Asia

We had been finding every day numerous dragonflies in our mistnets, mainly Globe Skimmer *Pantala flavescens*, also called Globe Wanderer or Wandering Glider, and some Blue Emperor *Anax imperator*. The 5 cm long Globe Skimmer is a spectacular species. It comes during the rainy season with the monsoon shifts from India across the Indian Ocean to breed in equatorial East Africa (October/November). The second generation moves into southern Africa in December to February, the newly hatched third generation returns in a northern direction to East Africa and the fourth generation moves with the now east monsoon back to India in June/July. In this circuit across the Indian Ocean, four generations of *Pantala flavescens* cover a distance of 14 000 to 18 000 km (Anderson 2009a,b). A paper on stable isotopes even points out the probability of this dragonfly species coming from northern India, possibly from north of the Himalayas which would prolong the circuit to a still unknown distance (Hobson et al. 2012).

This migration pattern is possible through the extraordinary short larval life of *Pantala flavescens* of 38 – 65 days (Suhling et al. 2004), which allows this dragonfly species to breed in ephemeral freshwater pools after rainfall (Silsby 2001). Using all surface water for short term breeding, in one year three or even four generations can be produced Johansson and Suhling 2004).

Figure 11 - Globe Skimmer *Pantala flavescens*

The Globe Skimmer is the dragonfly with the greatest range worldwide. It was recorded at about 6200 m height in the Himalyas.

Figure 12 - Blue Emperor *Anax imperator*

How much food?

The hunting strategy, feeding frequency and activity maxima are determined by the amount of food needed per day and depends not only on the kind of prey animals available, but also on individual preferences (Tinbergen 1958). Feeding times of up to 13 hours per day have been observed (Schuyl et al. 1936). The daily food requirements are considered to be between 15 - 17% (Bijlsma, pers. comm.) or up to 30% of the body mass (Literature in Fenton et al. 1994; Brown et al. 1982). An Eurasian Hobby thus would need 37.5 to 75 g of food per day. Two birds or bats of about 20 g would cover the minimum, while the same quantity by feeding on insects would require much more time in hunting.

Figure 13 - The masses of Globe Skimmer, some of which were caught in the net, also attracted an Agama *A. agama* which got entangled reaching for the dragonfly.

Ringing and retraps

In southern Africa ringing and retraps are rare. At the time of this catch, 7 Eurasian Hobby Falcons had been recorded in the database of SAFRING for southern Africa, and one retrap from Finland. Another bird ringed in Finland as a nestling was found electrocuted seven months later in South Africa. (D. Paijman, SAFRING, pers. comm.) One Dutch bird was retrapped in Zimbabwe (Meyburg 2013).

The bird described in this article was the second bird ringed in Namibia. European countries, where Hobbies can be ringed at the nesting sites, show much higher numbers: In ten European countries 5720 birds have been ringed in the last 90 years, between 1909 and 1998, of which more than 1000 in the area around Berlin, Germany. The age of the oldest birds retrapped was 10 years (Orta and Kirwan 2014) and in Berlin up to15 years after being ringed (Fiuczynski & Sömmer 2011).

Acknowledgements

I am grateful for the support of Rob Bijlsma providing me with a continuous flow of information, to Hennie de Klerk for the quick identification of Pantala, Pascal Eckhoff from the Museum for Natural History of the Humboldt University, Berlin, Dane Paijmans for kindly supplying the requested data from SAFRING, Animal Demography Unit, University of Cape Town, Steve Braine, Michael Mills and Faansie Peacock for their comments and for encouragement. Thanks to BirdLife International and NatureServe for permission to publish the global distribtion map of the Eurasian Hobby.

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