# Identification of Rüppell's Vulture and White-backed Vulture and vagrancy in the WP

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In the past, the identification of *Gyps* vultures in Europe has traditionally been considered straightforward, since Griffon Vulture *G fulvus* was the only recorded member of this genus. This changed with the rather recent addition of two African species to the European list: Rüppell's Vulture *G rueppelli* (in 1992) and, more recently, White-backed Vulture *G africanus* (in 2008), both recorded for the first time in Spain. Rüppell's is now a scarce but fairly regular visitor to the Iberian Peninsula and beyond. To date, White-backed has been recorded six times in the WP (Morocco, Portugal and four in Spain) but other occurrences may have been overlooked. Both species are quite distinctive in adult plumage but separating juvenile and immature individuals can be more challenging. This is mostly due to the incomplete treatment in the identification literature of individual age-related variation, which until recently has not been comprehensively described for the three species (cf Forsman 2016).

This paper deals with the identification of Rüppell's Vulture and White-backed Vulture in a European context and we include Griffon Vulture to complete the picture. We particularly focus on the individual variation of immature plumages,

**552** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli* (left) and Griffon Vulture / Vale Gier *G fulvus* (centre), Cadiz, Spain, September 2014 *(Yeray Seminario/Birding The Strait)*. This image shows an immature Rüppell's, an adult Griffon and a strikingly small vulture at right that at first glance appears to be a juvenile White-backed Vulture *G africanus* (with uniformly brown plumage). These three *Gyps* species are the focus of this paper. However, is the right-hand bird actually a White-backed? More about this tricky identification in plate 576.

**553** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, juvenile, Gibraltar, 25 June 2016 *(Stewart Finlayson)*. Note streaked plumage and relatively dark overall coloration. **554** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, second plumage, Tarifa, Spain, 10 September 2012 *(Yeray Seminario/Birding The Strait)*. Immatures are more chocolate brown than juveniles. Note block of four fresh inner primaries (p5 is growing), absence of moult in secondaries and new central pair of tail-feathers. Body patterning spotted rather than streaked.

which correspond with the most frequent age classes found among the vagrants in the WP. Our field experience with Rüppell's and White-backed comes from vagrants of West African origin at the Strait of Gibraltar, complemented with observations during different trips to Ethiopia and Senegal. The paper has to be used with care in the east of the Western Palearctic (WP) region, where a different subspecies of Rüppell's has reached Israel as a vagrant from East Africa, and where Himalayan Vulture *G himalayensis* and White-rumped Vulture *G bengalensis* occurred as vagrant in the Arabian peninsula. However, most features described here can be applied in the eastern WP as well and a brief discussion on this is offered in the last section.

Given the alarming decline that vulture populations are experiencing throughout the African continent (both Rüppell's Vulture and White-backed Vulture have been upgraded from a conservation status of 'Lower Risk/Least Concern' in 2000 to 'Critically Endangered' since 2012; BirdLife International 2015), a correct assessment of the identification criteria for hard-to-identify immature plumages is of importance not only within the WP boundaries but also for monitoring populations within the regular ranges in Africa.

**Distribution and geographical variation**

Both Rüppell's Vulture and White-backed Vulture have an Afrotropical distribution, occupying a broad belt from the southern Sahara through the Sahel region, from Senegal to Ethiopia and Somalia, and extending south to Kenya and northern Uganda (Ferguson-Lees & Christie 2001). White-backed also occupies an apparently disjunct region in southern Africa. Rüppell's is generally associated with more arid and open landscapes, being regular in extremely arid desert areas of the Sahara, whereas White-backed is found in more wooded areas (Wacher et al 2012). Most likely as a consequence of this habitat selection, the breeding range of Rüppell's in West Africa extends north into southern Mauritania, whereas White-backed is restricted to the southern half of Senegal (Borrow & Demey 2001, Ferguson-Lees & Christie 2001).

Two subspecies of Rüppell's Vulture are cur-

**555** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, third plumage, Tarifa, Spain, 6 February 2011 *(Paco Guerrero Roldán)*. Primary moult has progressed and bird also shows extensive replacement in secondaries and tail.

rently recognised: nominate *G r rueppelli* occurs across most of the species distribution area while Abyssinian Rüppell's Vulture *G r erlangeri* (hereafter *erlangeri*) is restricted to the Abyssinian region (northern Ethiopia, Eritrea and Somalia) (Gill & Donsker 2016). It is remarkable, however, that significant phenotypic variation is also found within the nominate's range; eastern birds are paler and much more densely patterned than those found in West Africa, especially adults (pers obs). No geographic variation has been described for White-backed Vulture since its split from White-rumped Vulture *G bengalensis* (also named Indian White-backed Vulture) and it is considered monotypic. Griffon Vulture has two recognised subspecies: *G f fulvus* (occupying the entire WP range, and thus the taxon of interest in this paper) and *G f fulvescens,* of which the range extends from Afghanistan to India (Gill & Donsker 2016).

**Vagrancy**

African vultures, particularly White-backed Vulture, are often found in captivity in Europe, and proven escaped individuals have been documented, eg, adult White-backed Vultures in Britain, Portugal and Spain and adult Rüppell's Vultures in, eg, Britain, Greece and the Netherlands (April 2004) (Small 2007; Enno Ebels in litt). Consequently, it is necessary to ensure that any given record in the region relates to a bird not showing signs of a history in captivity, especially when phenology and state of moult state do not fit the pattern shown by genuine vagrants from the Strait of Gibraltar.

*Rüppell's Vulture*

The presence of Rüppell's Vulture in Europe was discovered in the early 1990s, when several records occurred in southern Spain, and its occurrence north of the Sahara was considered rare and irregular until the mid-2000s (Gutiérrez 2003, Forsman 2005). Over the last decade, the number of records has increased significantly in Spain's neighbouring countries: Morocco (five records and c 15 additional reports not (yet) submitted; Patrick Bergier pers comm), Portugal (13 records; Jara et al 2011) and France (five records, all involving adult birds; CHN 2013). Recently, in May 2014, one was recorded in Israel (Dutch Birding 36: 198, plate 242, 2014). However, the majority of records still originates from Spain, where Rüppell's now occurs annually. Up to 2013, there have been 75 records representing 94 individuals (Gutiérrez et al 2010, Copete et al 2015), and around 40 more records since then which are currently under consideration. Additionally, there is a remarkable number of sightings that have not been officially reported. It is estimated that up to 20 different individuals have occurred around the Strait of Gibraltar within a single year, and a few groups of five to six birds have been recorded. Since 2015, Rüppell's is no longer considered by the Spanish rarities committee (CR/SEO).

As first proposed by Gutiérrez (2003), and later confirmed by field observations at the Strait of Gibraltar, the natural arrival of Rüppell's Vulture to western Europe results from their association with the Griffon Vultures that disperse annually in winter from the Iberian Peninsula to the African Sahel (mainly Senegal), where Rüppell's is widespread (eg, Dutch Birding 33: 395, plate 514, 2011). Rüppell's reach the Iberian Peninsula via the Strait of Gibraltar mainly from late spring to mid-summer. Once in the peninsula, they show a high mobility, and despite a significant concentration of records in the vicinity of the Strait of Gibraltar, Rüppell's has also been recorded in most major areas where Griffons occur, including the northern Atlantic coast. From late September to mid-

**556** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, old immature, Saint Louis, Senegal, January 2013 *(Yeray Seminario/Birding The Strait)*. Older birds can be similar to either second-plumage birds or more classic 'white' adults, depending on extent of patterning. Ordered moult sequence and worn p4 indicate this bird has third-generation (p1-3) and second-generation (p4-10) primaries; adults show disordered moult, alternating new and worn primaries. **557** White-backed Vulture / Witruggier *Gyps africanus,* juvenile, Yabelo, Ethiopia, 4 January 2013 *(Daniel López-Velasco)*. Note more finely streaked plumage and duller grey greater coverts than in Rüppell's Vulture *G **rueppelli***. Note that p1 has been dropped in both wings.

**558** White-backed Vulture / Witruggier *Gyps africanus*, second plumage, Tarifa, Spain, 7 September 2008 *(Markus Varesvuo)*. Bird showing typical moult of second-plumage birds, with fresh inner primaries. Otherwise, plumage similar to juvenile. **559** Griffon Vulture / Vale Gier *Gyps fulvus*, juvenile, Tarifa, Spain, 11 October 2013 *(Javier Elorriaga/Birding The Strait)*. Note extremely long wings, as well as prominent and typically closed tail.

**560** Griffon Vulture / Vale Gier *Gyps fulvus*, third plumage, Tarifa, Spain, April 2015 *(Javier Elorriaga/Birding The Strait)*. Griffon usually moults p5 during spring/early summer of second moult-cycle, in contrast to African vulture species which typically replace p5 earlier, around September, within their first moult cycle. For this reason, replaced inner primaries present gradually wear in Griffon, as opposed to Rüppell's Vulture *G rueppelli* and White-backed Vulture *G africanus* in which they look more uniform.

November, a remarkable occurrence of Rüppell's takes place in the Strait of Gibraltar, in association with juvenile Griffons concentrating there in large numbers before their departure to Africa. It has been documented that a majority of the Rüppell's that reach Europe successfully return to Africa (eg, Ramírez Román 2012). However, a few individuals stay into the winter.

The age-class composition of the Rüppell's Vultures in Spain is intriguing. Most individuals are in second plumage (ie, born the year before their arrival to Europe), while older individuals and juveniles are remarkably scarce. As an illustrative sample, of the 44 individuals with positive age determination recorded in Spain in the period 2011-14, three were juvenile (7%), 33 were in second plumage (75%), four were in third or fourth plumage (9%), and four were adult (9%). The explanation of this pattern is likely found in the breeding phenology of the species. According to Wacher et al (2013), Rüppell's in the Sahel breed slightly earlier (roughly one to three months) than Griffon Vultures in Spain, and most juveniles fledge in May. The return migration of Griffon in the Strait of Gibraltar is concentrated in May, with a few groups arriving from late February to early July. Accordingly, when the bulk of Griffon leaves the Sahel (presumably in mid-April), most young Rüppell's have not yet fledged. Therefore, only second-year or older Rüppell's join the groups of Griffon on their northbound migration. The occurrences of juveniles could involve extremely early fledglings that become associated with the latest migrant Griffon. This hypothesis is consistent with the observation of several fresh juvenile Rüppell's reaching Gibraltar in July (eg, Garcia & Bensusan 2006). Meanwhile, the scarce records of adult Rüppell's in Europe should be interpreted as persistent resident mature individuals, which might have originally reached Europe as immatures. This idea fits well with the proportionately higher occurrence of adults in regions further away from the Strait of Gibraltar, mostly around Griffon colonies, for example in France where most records referred to adults.

*White-backed Vulture*

There have been four records of White-backed Vulture in Spain, all near the Strait of Gibraltar, on 7 September 2008, 25 June 2009, 19 September 2011 and 17 June 2016, and single records in southern Portugal and northern Morocco (both in 2014, on 24-25 August and 25 May, respectively; cf El Kamlichi et al 2014, Godino & Machado 2015); a record of an adult in Portugal in October 2006 was accepted in Category D (cf Small 2007). All six records involved second-plumage birds. Despite the limited number of records, the emerging pattern is similar to that described for Rüppell's Vulture. However, White-backed is associated with rather forested areas, being much rarer than Rüppell's in the northern part of the Sahel and nearly absent along the edges of the Sahara desert. Due to this distribution, despite being regarded as the most abundant vulture in Africa, it is less likely to be attracted to migrant groups of Griffon Vultures, and therefore is a rarer vagrant to Europe than Rüppell's.

*Future records*

Due to the physical limitations for vultures crossing large stretches of open water (Bildstein et al 2009), their arrival in the WP from Africa is probably restricted to both extremes of the Mediterranean Sea (Strait of Gibraltar in the west and

Israel, Lebanon and Syria in the east). Once arrived, rather regular long-distance movements of immature Griffon Vultures along the Mediterranean arch are known to occur (eg, birds from the Iberian Peninsula reach central France and the Netherlands (including colour-ringed birds) and birds from the Balkan reach Israel and Italy). Therefore, there is a potential for extreme vagrancy of the African vulture species wandering in Europe together with Griffon.

Several factors may determine the future vagrancy patterns of these species. The future trends of the Griffon Vulture population in Europe and, more importantly, its migratory behaviour to Africa, may significantly influence the arrival of African species. However, the extremely rapid human-induced decline of vulture populations in West Africa will undoubtedly be the most decisive factor. Rüppell's Vulture has already disappeared from large regions and White-backed Vulture declines have exceeded 90% (Thiollay 2006). Given this trend, it seems likely that the occurrence of African vultures will decrease in the WP.

**Ageing and flight-feather moult**

Accurate age determination based on the state of moult, including plumage wear, and correct assessment of the corresponding body plumage, is crucial for a reliable identification, particularly in non-adult or tricky individuals. Ageing vultures in the field is feasible by looking at the combination of several characters that differ between age classes (eg, Duriez et al 2011). These features, summarized in table 1, provide an age classification into three major groups: juvenile, immature and full adult. In general, juveniles show a dark lanceolated ruff and pointed greater upperwing-coverts, whereas full adults show a whitish downy ruff and round-tipped wing-coverts. Immatures (ie, from the first moult onwards) and subadults gradually acquire mixed and intermediate characters. It must be noted that White-backed Vulture shows a black bill (including cere) and dark iris in all ages, while Rüppell's Vulture and Griffon Vulture gradually shift from blackish in juvenile to pale in adult. More precise ageing requires a detailed study of the moult pattern, and particularly the moult of the flight-feathers. In general terms, the three species follow the same moult sequence characteristics of large Accipitridae (cf Houston 1975, Forsman 1999, Newton 2009). Moult in Griffon and its application to ageing has been comprehensively described by Zuberogoitia et al (2013). We describe it here to provide a helpful baseline that is applicable to the African species.

Because African vultures start breeding around October-November, whereas Griffon Vultures start in January-February, birds from the same season correspond with different calendar-years. Therefore, in this paper we use the classification of plumages rather than calendar-year (as used by previous authors). In the case of Griffon, juvenile

TABLE 1 Key of ageing in *Gyps* vultures, generally applicable to all species unless otherwise stated in main text. See Duriez et al (2011) and Zuberogoitia et al (2012) for further information. White-backed Vulture *G africanus* maintains blackish iris and bill colour during adult stage. / Sleutel voor leeftijdsbepaling bij *Gyps* gieren, meestal toepasbaar op alle soorten, tenzij anders aangegeven in tekst. Zie Duriez et al (2011) en Zuberogoitia et al (2012) voor meer informatie. Witruggier *G africanus* houdt zwartachtige iris en snavel als adult.

| | **juvenile** | **immature** | **adult** |
|---|---|---|---|
| **bill** | uniform dull brownish | as juvenile but developing pale close to upper bill edge | creamy or ivory (not in White-backed) |
| **ruff** | brownish, concolorous with body-feathers | as in juvenile during first four years of life | creamy or white |
| **iris** | black | blackish until c fourth year of life | pale (not in White-backed) |
| **feather shape (especially obvious in greater coverts)** | long, narrow and pointed | after first moult, as in adult | rounder, shorter and broader than in juvenile |
| **moult** | flight-feathers jet black with uniform trailing edge | blocks of new and old feathers involving many feathers; eg, in second plumage, 3-4 inner black and 6-7 outer brownish | new (black) and old (brownish) primaries alternated, with at most 2, rarely 3, of same age in row |

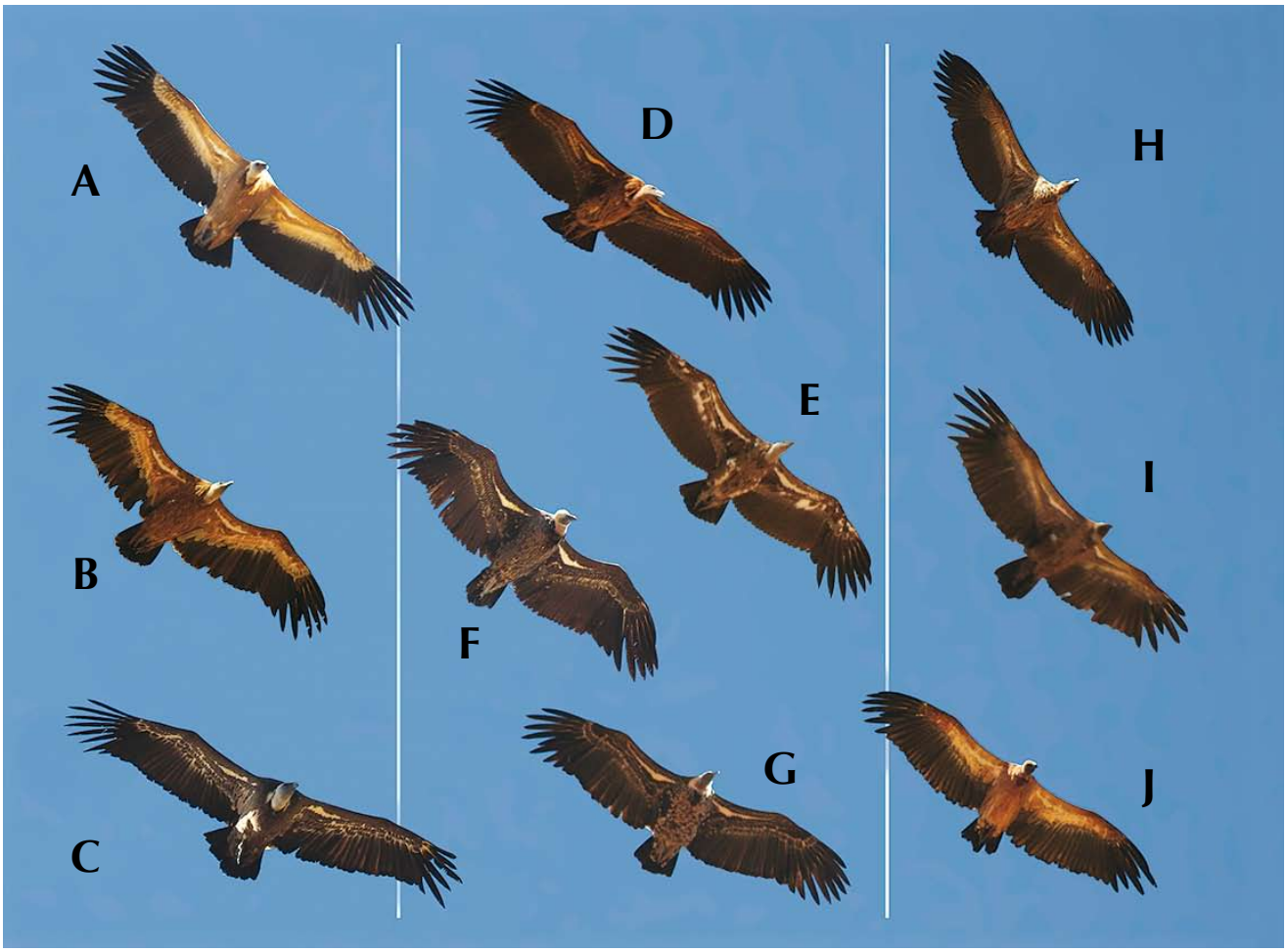


FIGURE 1 **A-C**: Griffon Vulture / Vale Gier *Gyps fulvus*; **D-G**: Rüppell's Vulture / Rüppells Gier *G rueppelli* (**D-G**); and **H-J**: White-backed Vulture / Witruggier *G africanus (Guillermo Rodríguez)*. Size roughly equalized in all photographs in order to emphasize silhouette differences. Compare uniform trailing edge and distinctive silhouette of juveniles (**A**, **D**, **E** and **H**) with older birds, especially with more squared-winged adults (**C**, **G** and **J**, although the latter is old immature). In all plumages, extremely long wing of Griffon evident, and 'open hand' provides rectangular wing-shape that is especially different from that of White-backed. Differences in bulkiness also noticeable in flight, particularly eye-catching in slim White-backed. Finally, note pale 'commas' on primary coverts of fresh juvenile Rüppell's (**D**), which is much less obvious in older bird (**E**), partially due to wear.

plumage corresponds with birds without primary moult, which lasts until May of the second year of life; second plumage corresponds with birds between May of the second year and May of the third year of life, when the second moult cycle starts; and so on. The classification is analogous in the African species, although the first primary moult and transition between plumages starts in December-January in the African vultures.

*Griffon Vulture*

The first moult starts c 14 months after hatching, around May of the second calendar-year, and it is arrested by December. The moult of primaries (p1-10) starts from the innermost (p1), progressing outward in an orderly fashion. It normally involves the replacement of two to four of the innermost primaries. The moult of the secondaries starts around mid-summer, from different foci and involving just a few feathers, and indeed individuals with no secondary moult are not rare. Moult resumes by late April of the third calendar-year, continuing with the feather next to the last one moulted in the previous season. On average the next four juvenile primaries are replaced, reaching c p6-8. In some cases, p1 is also replaced within this moult. The moult of the secondaries is much more extended in this season, involving a large proportion of the feathers. By December, when the moult is arrested, most individuals still show a few retained juvenile primaries in the wing-tip and retained secondaries interspersed in the inner half of the wing. In subsequent moult cycles, again extending from late April to

**561** Three *Gyps* vultures (right): Rüppell's Vulture / Rüppells Gier *G rueppelli*, adult (left), Griffon Vulture / Vale Gier *G fulvus*, second plumage (centre), and White-backed Vulture / Witruggier *G africanus*, juvenile, Saint Louis, Senegal, 15 January 2013 *(Yeray Seminario/Birding The Strait*). Griffon is bulkier and more massive compared with other two species, particularly White-backed. Note characteristic black mask of White-backed due to absence of feathering around face, as well as pale greater coverts in juvenile plumage. Hooded Vulture / Kapgier *Necrosyrtes monachus* on far left. **562** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, second plumage (front), and Griffon Vulture *G fulvus*, juvenile, Tarifa, Spain, 10 June 2005 *(David Cuenca)*. These birds were seen landing after arriving directly from Africa. Compare typical long-billed impression of Rüppell's with more triangular head of Griffon. Note also extensive body moult of second-generation feathers in Rüppell's.

December, the remaining juvenile feathers, which are notably worn, are replaced and full adult plumage is acquired. Adults moult within the same period of the year; their moult does not follow an evident pattern but they show a mixture of alternating new and old feathers. Finally, migratory individuals seem to perform a faster moult during their first one or two winter seasons in Africa compared with resident birds (pers obs), making the ageing of certain birds more complicated.

*Rüppell's Vulture*

Unlike Griffon Vultures in Iberia but similar to many other Afrotropical species, non-adult Rüppell's Vultures apparently moult year-round, probably lacking a fixed moult schedule. Based on our observations in Africa, primary moult usually starts in December-January. Second-plumage Rüppell's reaching the Iberian Peninsula in spring (roughly 16-18 months old in May) have replaced the innermost one to three juvenile primaries but generally no secondaries. By September, the primary moult at this age normally has reached p4 or

**563** Rüppell's Vultures / Rüppells Gieren *Gyps rueppelli*, juvenile (below) and adult, Gadabeji, Niger, 2 August 2014 *(Thomas Rabeil/SCF)*. Some juvenile Rüppell's are pale and remarkably unstreaked, resembling Griffon Vulture *G fulvus*. Note characteristic planar head profile. **564** Griffon Vulture / Vale Gier *Gyps fulvus*, Cadiz, Spain, 13 October 2009 *(John Wright)*. This image demonstrates the huge plumage variability exhibited by Griffon, including grey, rusty, and deep brown birds.

**565** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, in second plumage, Ceuta, Spain, 16 May 2011 *(José María Cárceles/avesdeceuta)*. Compare long and more pointed juvenile feathers (though extremely worn) with pattern of second-generation feathers. Note also details of red neck skin, white down in wing, forming characteristic wing-bar, and paling of bill edge already apparent at this age. **566** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, second plumage, Tarifa, Spain, October 2014 *(Javier Elorriaga/Birding The Strait)*. Upperside showing classic patterned upperwing and rump. Note also typical moult pattern, although this bird showing unusually extensive moult in tail-feathers.


FIGURE 2 **A-C** Griffon Vulture / Vale Gier *Gyps fulvus*, second plumage, third plumage and juvenile, respectively, Dadia National Park, Greece, October 2003 *(Javier Elorriaga/Birding The Strait)*; **D** Rüppell's Vulture / Rüppells Gier *G rueppelli*, juvenile, Mourao, Portugal, 9 June 2013 *(Alfonso Godino)*; **E** Rüppell's Vulture / Rüppells Gier *G rueppelli*, immature, Tarifa, Spain, 4 October 2008 *(Javier Elorriaga/Birding The Strait)*; **F** White-backed Vulture / Witruggier *G africanus*, second plumage, Tarifa, Spain, 25 June 2013 *(Javier Elorriaga/Birding The Strait)*. Details of diagnostic pattern of greater coverts. Juvenile Griffon shows extensive variation, from entirely white (**A**) to almost completely black (**C**), and though even in latter they usually retain diffuse pale edge. In immatures and adults, feather, though still variable, usually white fringed with sharper transition from white to black (**B**). Note that white edge surrounds entire feather. In Rüppell's, pale fringe restricted to feather-tip (**D**) and lacking on lateral edges; it is just a spot in juveniles but becomes broader line in older birds. Remarkably, pale markings are sandy tinged, not snowy white as in Griffon. However, worn greater coverts can lack pale markings (**E**). Note also larger size of spot on innermost secondaries. This pattern produces fine, well defined line along wing, both on upperwing and underwing. Immature White-backed always exhibits dull greyish greater coverts, lacking any pale markings (**F**).

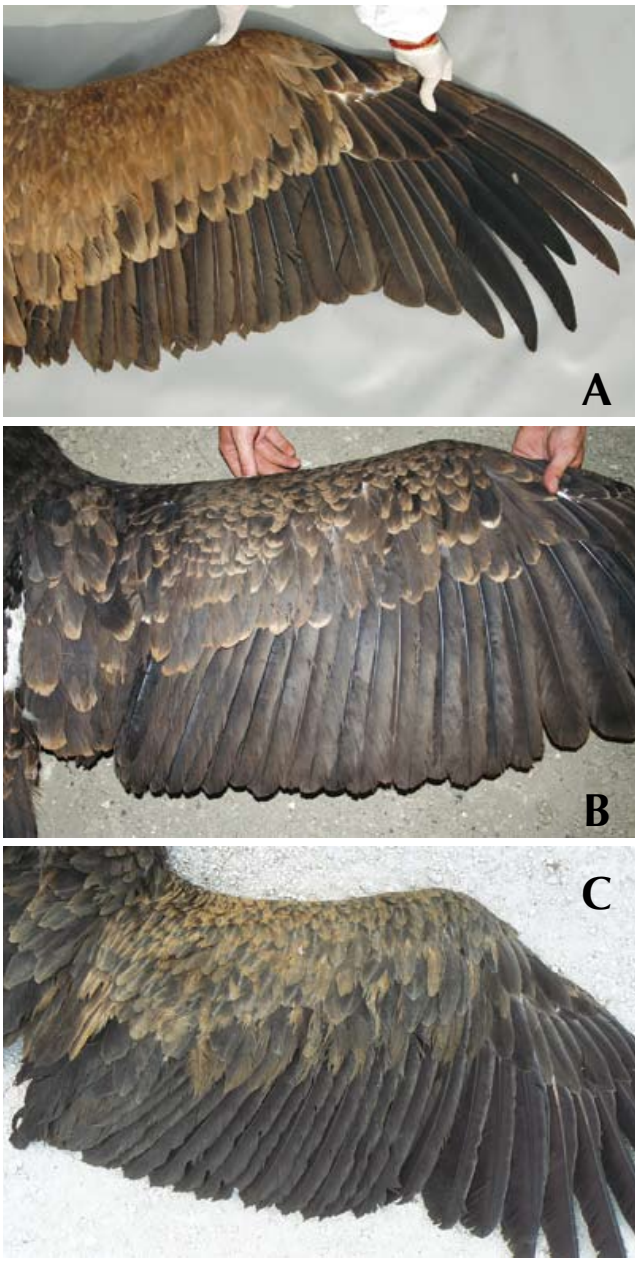


FIGURE 3 **A** Griffon Vulture / Vale Gier *Gyps fulvus*, Pais Vasco, Spain, 13 August 2005 *(Iñigo Zuberogoitia)*; **B** Rüppell's Vulture / Rüppells Gier *G rueppelli*, immature, Tarifa, Spain, 4 October 2008 *(Javier Elorriaga/ Birding The Strait)*; **C** White-backed Vulture / Witruggier *G africanus*, Tarifa, Spain, 25 June 2009 *(Javier Elorriaga/ Birding The Strait*). Details of upperwing. Note plain upperwing-coverts in Griffon and characteristic pattern of greater coverts, with sandy edge surrounding the feather profile. In comparison, in Rüppell's, pale markings restricted to tip and lacking on lateral feather-edges, and vary from pale line to triangular spot, conferring typical patterned appearance. Compare also feather shape, which is rounder and smaller in Rüppell's. In White-backed, although feathers are individually plain, contrast between different generations often producing slightly similar patterned appearance. Note pale colour of greater coverts.

p5 (40% and 60%, respectively, based on 20 birds; pers obs) and the moult of the secondaries starts from different foci. In third-plumage individuals in September, primary moult typically has reached p9, most of the secondaries have been replaced, and the retained juvenile feathers are heavily abraded.

*White-backed Vulture*
North of the Sahara (at the Strait of Gibraltar), the only two individuals for which the moult state was determined were two second-plumage individuals in which the moult limit reached p4 (nearly full-grown) and p5 (recently shed; see plate 558) in late June and early September, respectively. The observations fit well with the typical pattern of vagrant Rüppell's Vulture.

*Summary*
In summary, immature African vultures in Europe show an advanced moult compared with Griffon Vulture. This asynchrony may help identification; the presence of a uniform block of moulted p1-5 in autumn (around September), looking very fresh and contrasting with the faded outer primaries, strongly points to an African origin. In a second-plumage Griffon, the moult limit in September generally reaches p2-3. Some Griffon may show the moult limit reaching p5 in September as well but this would imply, in most cases, third-plumage birds. Thus, the set of moulted feathers belongs to two different annual moult cycles, in which the innermost primaries (moulted in the first cycle) may show a notably higher degree of wear than the outer feathers replaced during the current second cycle (see plate 560 and compare with plate 554 and 566).

## Species descriptions

### Griffon Vulture

*Size and structure*
Griffon Vulture is a large vulture, looking notoriously heavy and bulky both in flight and perched. It has very long wings and tends to hold the primaries well separated from each other (looking like an 'open hand'), resulting in a rectangular wing shape. Juveniles typically show a slightly rounder trailing edge to the wing than adults. In flight, the tail-base is separated from the wings, so that part of the rump is usually visible in the silhouette; the tail is often kept closed, making it quite prominent in the flying silhouette.

Griffon Vulture has a strong neck with a heavy

**567** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli,* juvenile, Tarifa, Spain, 11 September 2013 *(Javier Elorriaga/ Birding The Strait)*. Note small pale spots on greater coverts and primary coverts, otherwise generally very similar to White-backed Vulture *G africanus* and, to lesser extent, Griffon Vulture *G fulv*us. **568** White-backed Vulture / Witruggier *Gyps africanus,* second plumage, Yabelo, Ethiopia, 4 January 2013 *(Guillermo Rodríguez)*. Moulted p1 indicates age. Note completely dull, washed out greater coverts. Small head and characteristic facial pattern usually obvious.

head. It is more square headed than the other species. The front slope is pronounced and not continuous with the bill, forming an angular (concave) front profile. Nonetheless, a certain degree of sexual dimorphism in head shape exists and females show a slightly rounder head shape.

*Head and neck*

The down colour is white and it densely covers the entire neck and head but a hint of facial mask is sometimes present due to the greyish (or in adults, more bluish) skin showing through areas of absent (or less dense) down, especially behind the eyes and auriculars.

*Bare parts*

The crop is dark brown-grey. The circular bare patch at the side of the neck base (typical of the genus *Gyps*) is greyish-blue, although the colour is variable, sometimes appearing deep red or bicoloured red/blue, apparently depending on the bird's condition or stress (currently not clearly known). The tarsus is dull greyish, although it can be brown-tinged in young birds, individually variable, or affected by dirt. The bill is dark in juvenile and second plumages and develops small pale patches during the third plumage; it only becomes predominantly pale from the fourth plumage onwards. The iris colour remains dark during the first years of life but is very pale in adult birds.

*Main plumage*

Juvenile and immature plumages are similar overall in Griffon Vulture, and accordingly they are treated here together. The main differences are found in the shape of the feathers, being long and pointed in juveniles and more square in older birds, particularly in the greater coverts (these age differences likewise apply to the other species). The overall coloration is usually sandy or griffon but see 'Discussion'.

Typically, the body-feathers are plain in all plumages but some Griffon Vultures (especially juveniles) show a fine streaking. The appearance of a streaked body in these birds can lead to potential misidentifications as juvenile White-backed

**569** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, juvenile, Tarifa, Spain, 15 September 2013 *(Javier Elorriaga/ Birding The Strait)*. In few individuals, pale markings on greater coverts and primary coverts almost absent. This bird, although resembling White-backed Vulture *G africanus* in plumage, can be identified by more powerful structure. **570** Griffon Vulture / Vale Gier *Gyps fulvus*, third plumage, Skåne, Sweden, 21 July 2013 *(Tommy Holmgren)*. Griffon can be streaked in all plumages and although not as heavily marked as two other species, pattern can sometimes be confusing.

Vulture or Rüppell's Vulture (see plate 569). When present, the streaks in Griffon are usually finer than in the other species. The upper back is plain and concolorous with the body and wing, whereas the rump-feathers are black with wide pale fringes. In general, these dark feathers are developed after several moults; they are lacking in juveniles, whereas (possibly older) adults may show a completely scaled dark back. The lesser coverts and median coverts are concolorous with the body, while the primaries are contrastingly black. The pattern of the greater coverts changes significantly with age. In juveniles, the feather is pointed and pale tipped, showing a diffuse transition between dark centre and creamy fringes. In subsequent plumages, the greater coverts are round tipped with a black centre and show a pale fringe all along the feather contour, showing a more distinct contrast than in juveniles but still not markedly sharp. The pale fringe is concolorous with the lesser coverts and median coverts. The primary coverts and alula feather are plain black. The lesser coverts and median coverts are plain and concolorous with the body, while the primaries are jet black. In contrast, the greater coverts and primary coverts are bicoloured whitish-black but are very variable, ranging from uniform white (especially in juveniles) to nearly all black. In most adults and immatures, however, these feathers show a black centre with diffuse white fringe. Like the other species, Griffon lacks feathers in a small patch in the lesser to median coverts limit, close to the body, and the white down that is exposed beneath forms a short white 'wing bar'. The axillaries are plain and concolorous with the body.

**Rüppell's Vulture**

*Size and structure*

Rüppell's Vulture is smaller than Griffon Vulture (roughly 30% in weight; Ferguson-Lees & Christie 2001), and it generally looks slimmer and less bulky bellied. When perched, it often looks slightly humpbacked. In flight, it has a slim body but medium-long wings that are not strikingly shorter than in Griffon. The wing shows a clear narrowing

**571** Griffon Vulture / Vale Gier *Gyps fulvus*, adult (left), and White-backed Vulture / Witruggier *G africanus*, second plumage, Tarifa, Spain, 7 September 2008 *(Markus Varesvuo)*. Direct comparison provides straightforward identification due to much larger size of Griffon. Note differences, including more delicate silhouette in White-backed, with slender wing. **572** Griffon Vulture / Vale Gier *Gyps fulvus*, juvenile (top), and Rüppell's Vulture / Rüppells Gier *G rueppelli*, second plumage, Tarifa, Spain, 8 October 2010 *(Pako Zufiaur)*. Compare typical wing position of Rüppell's with closed hand pointing backwards with squarer wing and massive body of Griffon. **573** Griffon Vulture / Vale Gier *Gyps fulvus*, adult (top), and Rüppell's Vulture / Rüppells Gier *G rueppelli*, adult, Tarifa, Spain, 28 October 2013 *(Yeray Seminario/Birding The Strait)*. In adult plumages, differences are generally less accentuated, although note shorter wings of Rüppell's.

**574** Griffon Vulture / Vale Gier *Gyps fulvus,* adult, Tarifa, Spain, 27 February 2015 *(Fernando Goytre)*. Example of 'scaled' Griffon, showing second line of pale-fringed wing-coverts. Back also abnormally dark and particularly streaked below. Compare with Abyssinian Rüppell's Vulture *G rueppelli erlangeri* in plate 575, noting especially differences in pattern of scaled greater coverts and median coverts. **575** Abyssinian Rüppell's Vulture / Abessijnse Rüppells Gier *Gyps rueppelli erlangeri*, adult, Awash, Ethiopia, 11 November 2012 *(Fran Trabalon)*

from the arm to the hand and birds tend to soar with the hand held closed, so that the outer primaries are not well-marked and when gliding are typically oriented backward. This position produces a rounded wing tip in distant views. Adults show a more square-winged silhouette than young birds. Compared with Griffon, Rüppell's has an apparently shorter distance between the tail and wing-base, so that in flight the base of the trailing wing edge and the outermost tail-feather overlap. They also tend to hold their tail open, making it look less prominent in the silhouette than in Griffon and resulting in a 'short-tailed' impression. These differences in size and structure separating Griffon from the other two species are, however, rather subtle and require some experience (see figure 1).

Rüppell's Vulture has a flat head profile with a rather even transition between the bill and front slope. This is compounded with the comparatively slender bill to produce an accentuated long-billed impression (as shown in plate 562).

*Bare parts*

The crop is blackish, similar to White-backed Vulture but darker on average than in Griffon Vulture. The circular bare patch is blue/greyish as in Griffon. The tarsus is dark brown, with some variation between individuals; it is not a reliable characteristic for separating Rüppell's Vulture from Griffon (but see White-backed). The neck skin is brownish around the head and strikingly deep red on the lower part of the neck. The down colour is white. The bill tends to become pale at an earlier age than in Griffon, with a few second-plumage birds already showing pale patches, although more typically the pale regions are developed during the third plumage.

*Juvenile plumage*

Juveniles are profusely streaked and brown overall, usually darker in colour than Griffon Vulture and often slightly rufous-tinged. They have dense brown ruff, darker than the other two species, as well as a black bill and eye.

The entire body is thickly streaked, with streaks

formed by the creamy shaft and centre of the feather contrasting with the darker surrounding colour. Around the feather-tip, the pale colour also extends to the lateral fringes, producing an 'arrow' or 'anchor' pattern, which is particularly visible in the undertail-coverts. The back and rump are concolorous with the body and upperwing. Here, the streaking is less contrasting or even absent. On the upperwing, the lesser and median coverts are concolorous with the body-feathers but are plain or rarely finely streaked. The primaries and secondaries are blackish, creating only a moderate contrast with the wing-coverts. The pointed and dark brown greater coverts are pale tipped (typically creamy or sandy). On the underwing, the lesser coverts are concolorous with the body-feathers but very finely streaked. The median coverts are similar but with thicker streaks and feather-tip, and are slightly darker. The greater coverts are dark brown and unstreaked but show a small white spot at the tip. This spot is much larger in the primary coverts, sometimes forming a 'comma' like in Greater Spotted Eagle *Aquila clanga*. The white bar in the wing is broader than in the other species. The axillaries are long and darker than the surrounding feathers, and therefore the pale 'anchor' pattern is usually more contrasting and well defined.

*Immature plumages*

After the first body moult, Rüppell's Vulture loses its streaked juvenile plumage and immatures are dark and spotted overall. When second-plumage individuals arrive in Europe in late spring, they are usually finishing this first moult of the body-feathers. In subsequent moults, the spots become increasingly larger and some mature adults have a heavily patterned plumage. A dark brown ruff is maintained for at least the first three plumages.

In addition to having a squarer shape than juvenile feathers, the second-generation body-feathers maintain a pale central line but with a broader spotted tip, so that the pattern now resembles a 'T' rather than an anchor. They look 'streaked and spotted' overall (see plate 565). In third-plumage individuals, the central streak tends to disappear and the pale tip becomes larger, conferring the characteristic patterned appearance of the species. In subsequent moults, the pale white tips increase gradually in size, eventually acquiring the large V-shaped spots of adults. The feathers of the back and rump are blackish, sometimes contrasting with the paler wing. They also show the characteristic V-shaped pale tip, contrasting sharply with the rest of the feather. The feathers of the uppertail-coverts (except of the last line) are strikingly small and round, resulting in a high feather density (eg, plate 566) that differs from Griffon Vulture. On the upperwing, all wing-coverts are dark centered with a sandy V-shaped tip and they are also smaller and rounder than in Griffon. On the lesser coverts, the pale tip is dominant and only the pale area of the feather is exposed; on the median coverts, it is proportionally smaller and the dark base is visible, forming a heavily scaled area. On the greater coverts and primary coverts, the pale tip is just a fine line, and the feather looks basically blackish. Unlike in Griffon, the pale fringe is restricted to the tip and invariably not present on the lateral edges (ie, it is not complete). On the underwing, the wing-coverts are concolorous with the body-feathers. The lesser coverts are plain and unstreaked. The median coverts have a thick streak and a small white tip in second-plumage birds (plate 565); in third plumage, the streak is absent and the white tip is larger. The greater coverts are darker and unstreaked and show a distinctive white tip, forming a short line on immatures due to the square feather shape, in contrast with the white spot that is on the pointed juvenile greater coverts. This line on immatures becomes thicker in subsequent moults, forming a well-defined white bar across the entire wing. The combination of dark wing-coverts and abraded brownish primaries results in a low (often unnoticeable) contrast on the underwing.

**White-backed Vulture**

In this species, there are marked differences between the young plumages (which are similar to either juvenile Rüppell's Vulture or Griffon Vulture) and adults. The characteristic white back and underwing of adults are not developed until roughly the fourth plumage.

*Size and structure*

White-backed Vulture is a small vulture, roughly 50% and 30% smaller than Griffon Vulture and Rüppell's Vulture, respectively (Ferguson-Lees & Christie 2001). It looks slimmer and lighter than the other two species. In flight, White-backed is short-winged due to comparatively short primaries, looking more compact than Griffon or Rüppell's. The wing clearly narrows from the arm to the hand. Like Rüppell's, White-backed usually holds the hand closed, with all the outer primaries kept together and not as differentiated as in Griffon. Juveniles show a markedly rounded trailing edge to the secondaries, a feature that is likewise shared with Rüppell's but is less obvious in

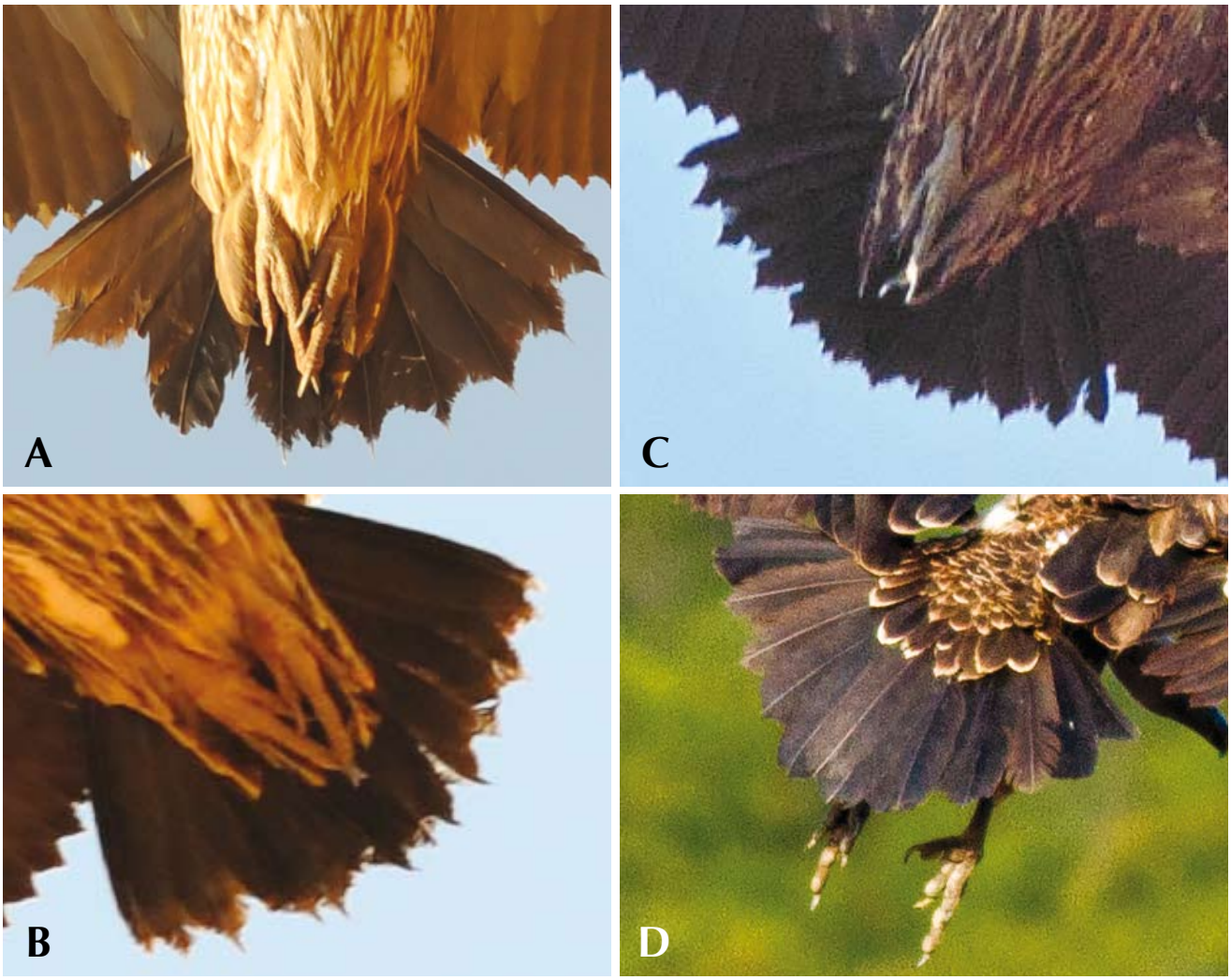


FIGURE 4 White-backed Vulture / Witruggier *Gyps africanus* (**A**) and Rüppell's Vulture / Rüppells Gier *G rueppelli* (**B-D**). Detail of tails. White-backed has 12 tail-feathers; both Rüppell's and Griffon Vulture *G fulvus* have 14. **A**: although r2 missing in this individual and r4 broken, 11 feathers clearly visible. **B-C**: in both these Rüppell's, 13 tail-feathers can be counted; 14th feather must be hidden or moulting. **D**: 14 tail-feathers visible in this uppertail view, although one or two difficult to see and probably not visible from below.

Griffon. The neck is notably slender and less powerful than in the larger vulture species. The head has a characteristic triangular shape.

*Head and neck*
The head exhibits a conspicuous black mask due to the complete absence of down covering extending from the lore through the eye area and auriculars. Only in a few juveniles is the mask lacking or restricted to just the lore.

*Bare parts*
The crop is jet black and the circular bare patches are sometimes strikingly yellow. The black tarsus has traditionally been considered an important identification feature, compared with the greyish tarsus of the other two species (van Duivendijk 2010). We consider this feature to be of limited use and only applicable to birds with an extremely black tarsus. The actual tarsus colour is often dark greyish, and not markedly different from that of immature Rüppell's Vulture or, to a lesser extent, Griffon Vulture. The bill is short and remains black, including the cere, even in adults. The skin is dark brown or blackish, and the down colour usually looks dirty compared with the other species. It retains a dark iris colour with age.

*Juvenile plumage*
Juveniles are darker than immature and adult birds, and are often similar to or even darker than the average juvenile Rüppell's Vulture. In general, some juveniles are extremely similar to Rüppell's and their identification relies on subtle details.

The body-feathers are streaked, with streaks of intermediate width (finer than in Rüppell's Vulture and thicker than in Griffon Vulture), which are also sometimes paler than in Rüppell's. The streaks are pointed, lacking any spot or anchor at the tip and are concentrated on the belly and breast, being more diffuse on the upperparts. The back and rump are plain and slightly browner than the body-feathers and underwing. On the upperwing, the lesser and median coverts are concolorous with the body-feathers and are plain or at most finely streaked. The greater coverts are also plain and paler than in the other species, usually being only slightly darker than the median coverts and therefore contrasting with the dark brown primaries. The wing often looks tricoloured. On the underwing, the lesser and median coverts are finely streaked and concolorous with the body-feathers. The greater coverts and primary coverts are plain and have a characteristic dull appearance, giving a washed-out impression even when fresh, and lacking any pale spot. The axillaries are concolorous with the underwing-coverts. The flight-feathers are dark but often with a distinct brown tinge,

**576** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, juvenile, Tarifa, Spain, 5 September 2014 *(Yeray Seminario/Birding The Strait)*. Same bird as right bird in plate 552. In this image, pale markings on primary coverts and inner greater coverts confirm that it is runt Rüppell's but this bird would likely be misidentified as White-backed Vulture *G africanus* in more distant views. **577** Griffon Vulture / Vale Gier *Gyps fulvus*, adult (back), and Rüppell's Vulture / Rüppells Gier *G rueppelli*, juvenile, Cadiz, Spain, 22 September 2009 *(John Wright)*. Other example of small Rüppell's, which could be difficult to separate from White-backed Vulture *G africanus* because of fine body streaking and intermediate facial pattern. Note slightly pale tipped greater coverts, although probably not marked enough to be diagnostic.

**578** Griffon Vulture / Vale Gier *Gyps fulvus,* adult, Tarifa, Spain, 3 September 2012 *(Alan Gilbertson)*. Bird showing large white stripes on underwing, contrasting with rather darkish plumage, causing potential confusion with Rüppell's Vulture *G rueppelli*. Note that white ruff indicates adult; adult Rüppell's is expected to have visible patterning. Note also typical structure with very long wings and tail and bulky body. **579** Griffon Vultures / Vale Gieren *Gyps fulvus,* adults, Castellon, Spain, 19 March 2011 *(José Luis Joanpere)*. Other example of dark adult Griffon which can lead to misidentification, emphasized here by direct comparison with paler and much larger classic Griffon.

**580** Rüppell's Vulture / Rüppells Gier *Gyps rueppelli*, second plumage, Tarifa, Spain, 22 August 2013 *(Yeray Seminario/ Birding The Strait)*. Uniform bird looking similar to dark Griffon Vulture *G fulvus*; however, narrow hand, short-tailed impression and patterning on undertail-coverts when seen in detail clinch identification as Rüppell's. **581** Griffon Vulture / Vale Gier *Gyps fulvus*, second plumage, Tarifa, Spain, 13 October 2014 *(Javier Elorriaga/Birding The Strait)*. If not seen in flight, some birds can be difficult to separate. In this bird, relatively uniform upperwing and characteristic head shape rule out Rüppell's Vulture *G rueppelli*.

**582** Abyssinian Rüppell's Vulture / Abessijnse Rüppells Gier *Gyps rueppelli erlangeri*, juvenile, Aledeghe Plains, Ethiopia, 18 November 2012 *(Nik Borrow)*. Some juveniles are plain and uniformly sandy, resembling Griffon Vulture *G fulvus*. Note, however, typical Rüppell's pattern to greater coverts, axillaries and underwing coverts, as well as silhouette.

**583** Abyssinian Rüppell's Vulture / Abessijnse Rüppells Gier *Gyps rueppelli erlangeri*, in third plumage, Debre Libanos, Ethiopia, 6 November 2012 *(Fran Trabalon)*. This bird is steadily developing patterned body and underwing of adult but still looks uniform overall. Note characteristic white bar along wing formed by white tips of feathers of greater coverts and primary coverts.

especially compared to the jet black that is characteristic of Griffon. The white wing-bar is narrow and short.

*Immature plumages*
Second-plumage birds are paler overall than juveniles. Although they retain the contrasting streaking on the underparts, in second-generation feathers the streaks are rather blunt, not pointed as in juveniles. The streaking is, in addition, more diffuse and sandy tinged. Other plumage features remain similar to juveniles, including the underwing. Second-generation greater upperwing-coverts and flight-feathers are now black. In third plumage, it gradually acquires a sandy colour and the streaking washes out, giving an 'untidy' impression. In subsequent moults, they become increasingly uniform. The development of white feathers on the underwing, usually starting on the median coverts and the upper rump, normally takes place within the third or most commonly fourth plumage.

**Identification key**
To facilitate identification, in this section we highlight the usual impressions shown by a potential vagrant African vulture, emphasizing the key features. A systematic comparison of the important features is presented in table 2.

*Griffon Vulture versus Rüppell's Vulture*
Rüppell's Vulture's smaller size is not always striking in flight; it is more obvious on the ground but, still, there is some overlap in apparent size. When close examination is possible, differences in head shape and particularly front slope (flat or convex in Rüppell's versus angular and concave in Griffon Vulture) are important, along with the deep red skin of Rüppell's, although Griffon stained by blood can look similar. The silhouette is not very distinctive (and it requires some experience) but can be a supporting feature in certain circumstances. Juveniles, in general, are surprisingly inconspicuous in a Griffon flock, despite their heavily streaked appearance. Immatures are more evi-

dent due to their overall dark brown color and patterned upperparts. In all plumages, Rüppell's have bicolored undertail-coverts ranging from V-shaped fringes in juvenile to large white spots in adult. Pale marking is also noticeable in the spotted and dark axillaries, usually visible at large distances. The greater coverts pattern is diagnostic: in Griffon, the pure white is usually extensive, not showing a contrast with the dark feather centre, and the white surrounds the entire feather edges; in Rüppell's, the pale area is sharply defined, restricted to the feather-tip, and lacking on the lateral edges. These differences are actually valid for all patterned feathers of the wing and back.

*Rüppell's Vulture versus White-backed Vulture*
Rüppell's Vulture looks larger and bulkier but there is some size overlap with White-backed Vulture and the difference is not always notable, especially in flight. The silhouette is similar in both species, especially in juveniles. In resting birds, the combination of a black mask and triangular head in White-backed, instead of the long-billed profile of Rüppell's, is quite reliable. The main identification problem occurs with the streaked juvenile plumages. One diagnostic feature is the form of the streaks on the body-feathers (particularly the axillaries and undertail-coverts): White-backed shows just a line, lacking the 'anchor' pattern of Rüppell's. Also, the presence of a pale tip to the greater coverts, while characteristic of Rüppell's, immediately discards White-backed. The number of tail-feathers (12 in White-backed and 14 in Rüppell's), as explained in the 'Discussion' section, could be a key feature for clinching the identification of difficult individuals. Immatures are usually distinguished more easily due to the darker coloration of Rüppell's.

*Griffon Vulture versus White-backed Vulture*
Despite the strong size difference, evaluation of size is often difficult and the difference only evident when the two species are side by side. The silhouette is distinctive enough, with the slim, more fragile impression of White-backed Vulture and its narrow, closed hand contrasting with the massive body and long, square wing of Griffon Vulture. When perched, the black mask of White-backed is a prime feature but beware of Griffon that can have a faint darkish mask due to feather loss. In all juvenile and immature plumages, the presence of white marking in the greater coverts

TABLE 2 Key features for separation of Griffon *Gyps fulvus*, Rüppell's *G rueppelli* and White-backed Vulture *G africanus* in juvenile and immature plumage / Sleutelkenmerken voor onderscheid tussen Vale Gier *Gyps fulvus*, Rüppells Gier *G rueppelli* en Witruggier *G africanus* in juveniel en onvolwassen kleed

| | **Griffon Vulture** | **Rüppell's Vulture** | **White-backed Vulture** |
|---|---|---|---|
| **silhouette** | long-winged, square wings, massive body | relatively short wings, closed hand, slim body | short wings, closed hand, very slim body |
| **head** | squared, bill dark until third/fourth plumage | very long-billed, flat forehead, bill becomes pale during second/third plumage | triangular, short black bill, jet black facial mask |
| **neck skin** | blue/greyish; blue circular patches | deep red; blue circular patches | black; often yellow circular patches |
| **body-feathers (especially undertail-coverts)** | usually uniform although sometimes with fine pale streaking | broad pale streaking with pale spot at feather-tip (anchor in juveniles) | intermediate pale streaking lacking any spot at feather-tip |
| **greater coverts and primary coverts** | from white to an almost black feather, but always entirely pale fringe | black with pale tip, particularly evident in primary coverts; lacking lateral fringe | dull black with no pale marking |
| **upperwing** | plain, uniform griffon/sandy except dark greater coverts with visible pale fringe | scaled upperwing with several rows of black pale-tipped feathers (greater and median coverts) | plain, uniform sandy/brown with uniform brownish greater coverts |
| **moult (birds in September in Spain)** | second plumage: fresh p1-2/3 third plumage: fresh p5-6 | second plumage: fresh p1-5 third plumage: fresh p6-8 | second plumage: fresh p1-5 |
| **number of tail-feathers** | 14 | 14 | 12 |

or primary coverts (both on upperwing and underwing) immediately rules out White-backed. During early summer and mid-summer, Griffon in active moult often show an almost entire white underwing, reminiscent of adult White-backed.

# Discussion

## Variability of key features

*Plumage coloration*
Juvenile and immature Griffon Vultures show a considerable (and largely overlooked) variability in their overall coloration, ranging from greyish-brown to rusty or cinnamon, or even chocolate brown (plate 564). Dark brown individuals, often immatures, are frequently mistaken for immature Rüppell's Vultures. Even dark adults (especially in underexposed photographs) are sometimes misidentified as Rüppell's (plate 578). All in all, plumage colour is an eye-catching but far from diagnostic feature. Both Rüppell's and White-backed Vulture exhibit significant variation in plumage coloration as well (plate 563). Adult Rüppell's also have extensive variability in plumage pattern. Some West African individuals are largely plain brown with only a fine pale barring, giving a dark appearance overall, while on the other extreme, some heavily spotted individuals look predominantly pale.

*Greater coverts in Rüppell's Vulture*
The greater coverts pattern is a diagnostic feature in all three species. It is particularly relevant in the identification of some small looking juvenile Rüppell's Vultures. Whereas the greater coverts and primary coverts in East African Rüppell's always show a large spot at the tip, in some West African birds the pale tip is almost absent or reduced to just a small spot that is only visible with close observation (eg, plate 569), which may hinder a positive identification. The spot is usually larger on outer primary coverts and axillaries (see plate 576).

*Wing-bar*
Frequently pointed out as a diagnostic feature of Rüppell's Vulture (Svensson et al 2009, van Duivendijk 2010), the underwing-bar is actually present in all three species and is very variable, especially in Griffon Vulture, where in many individuals this feature overlaps or exceeds the amount present in the average Rüppell's Vulture (plate 578). Note that this feature also depends on the extension of moult and, as previously mentioned, Griffon in strong active moult (mainly during the summer) often show large white patches in the wing.

*Tail-feathers*
White-backed Vulture is sometimes placed together with White-rumped Vulture in a separate genus, *Pseudogyps*, because both species have only 12 tail-feathers instead of the 14 characteristic of the rest of the *Gyps* taxa. In some cases, the number of tail-feathers could be a diagnostic feature for separating White-backed from both Griffon Vulture and Rüppell's Vulture. This feature, however, must be carefully considered for a variety of reasons. First, any feather loss in Rüppell's or Griffon could be misleading and mistakenly point towards White-backed. Second, the accurate count of the tail-feathers of birds in flight is often tricky, so the total count usually gives 12-13 feathers in Rüppell's and 10-11 in White-backed. However, even in these cases, White-backed gives the impression of 'having few tail-feathers' (see figure 4). Additionally, it has been suggested that there is some individual variation, and not all vultures may fit the described number of tail-feathers (Mundy et al 1992). These authors state that 20% of White-backed diverge from the usual 12 tail-feathers, although from 12 birds analysed we have not found any bird exceeding the expected number. In general, this character should be applied with caution in the field.

## Controversial cases

*'Scaled' Griffon Vulture versus Rüppell's Vulture (plate 574-575)*
A few adult Griffon Vultures show a second line of dark, pale-fringed upperwing-coverts, in addition to the greater coverts. Sometimes, the same pattern is also observed in a few sparse lesser coverts. The last line of median coverts is completely exposed, showing a similar pattern to the greater coverts and thus giving a scaled-wing impression, resembling that of Rüppell's Vulture. Moreover, these birds also have a markedly scaled back, with striking black-centred feathers, forming a dark back contrasting with the wing. All these features make these birds quite similar to adult Rüppell's, particularly to *erlangeri*, and these Griffon have caused some online debate over birds from Spain and Israel (Gordillo 2012; http://birdingfrontiers.com/2014/11/02/ruppells-vulture-or-hybrid). Identification is not difficult if one is aware of this plumage variation, as the scaling in this plumage is restricted to one line of median coverts (rather

than more extended along the entire wing as in Rüppell's), and the pattern of the feather is also typical of Griffon, showing a diffuse pale fringe along the entire feather contour. To our knowledge, it is unclear whether scaled plumages are associated with individual variation or related to plumage development with age.

*Abyssinian Rüppell's Vulture*

The taxonomic status of Rüppell's Vultures in the Abyssinian region (Ethiopia, Eritrea and Somalia) is currently poorly understood. Some authors distinguish between the subspecies *erlangeri* in Eritrea and northern Ethiopia, and nominate *rueppelli* in the southern part of the latter country (Ash & Atkins 2009). *Erlangeri* is usually described as paler than *rueppelli* but little is known about its actual variability. It seems that Abyssinian Rüppell's present two distinct morphs, one brownish and only partially different from birds from further west and south, and a striking pale morph which is very similar to Griffon Vulture, to the extreme that a hybrid origin has been proposed (Forsman 2016). Given the singularity of these vultures, as well as our limited experience with *erlangeri*, we just offer some brief comments as an introduction to its identification.

*Erlangeri* is, in several plumage aspects, intermediate between Griffon Vulture and nominate *rueppelli*, although structural aspects and silhouette are not appreciably different from their western counterparts. Juveniles of *erlangeri* are plain and sandy coloured, lacking any streaking, and have a plumage extremely close to Griffon (for an example of such controversial individuals, see plate 582). Adults and immatures are browner and more patterned than juveniles, although not as strikingly as in nominate *rueppelli* (plate 583). Specific plumage features such as the pattern of the greater coverts or axillaries are usually similar to those in nominate *rueppelli*.

Rüppell's Vulture vagrants to the Middle East are expected to originate from the northern area of Ethiopia or further north (eg, Eritrea, South Sudan and Sudan), where most Griffon Vultures from Eurasia winter (Ash & Atkins 2009). Hence, the aspect of potential vagrants to the Middle East is actually uncertain, and perhaps the closer resemblance of these *erlangeri* to Griffon has obscured the actual status in the region. Remarkably, the only Rüppell's recorded in Israel was quite typical and not significantly different from the Iberian vagrants (Dutch Birding 36: 198, plate 242, 2014).

*Potential hybridization in the WP*

Hybridization in the wild has never been proven within the genus *Gyps*. However, given their phylogenetic and ecological proximity and the proven cases of hybridization in captivity (McCarthy 2006), the possibility of mixed pairing between Griffon Vulture and Rüppell's Vulture, even if very unlikely, should not be disregarded, particularly in an extralimital scenario (Hubbs 1955). In this context, there are several cases in the Iberian Peninsula that could indicate a likelihood of (future) hybridization. ***1*** Between 1999 and 2007, an adult Rüppell's was regularly seen in a Griffon colony in Portas de Rodao, Portugal (Caty et al 2010). In 1999, this bird was recorded presumably incubating, although its progress was not monitored and no conspecifics were observed. Mixed pairing was therefore a possible explanation. ***2*** In 2011, an immature Rüppell's and an immature Griffon were observed twice exhibiting pairing behaviour (ie, mutual preening and neck intertwining; Elorriaga & Gutiérrez 2011) in Cádiz, Spain (video at http://tinyurl.com/z424cbo). This could be interpreted either as the prelude of pair formation or as just abnormal behaviour among immatures. ***3*** A widely discussed adult vulture photographed in Cáceres, Spain (Gordillo 2012), showed putative mixed characters. However, the characters shown were not conclusive and the explanation of an aberrant individual seems likewise acceptable.

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**Samenvatting**

Determinatie van Rüppells Gier en Witruggier en voorkomen als dwaalgast in de WP  Rüppells Gier *Gyps rueppelli* verschijnt regelmatig in Zuidwest-Europa en Witruggier *G africanus* is er een aantal keren als dwaalgast vastgesteld. Hoewel van beide de determinatie en het onderscheid van Vale Gier *G fulvus* doorgaans eenvoudig is in adult kleed, kan de herkenning van juveniele en onvolwassen kleden lastig zijn.

In dit artikel wordt het voorkomen in de WP van de twee Afrikaanse gierensoorten besproken, waarbij duidelijk wordt dat vogels in het tweede kleed het vaakst voorkomen. Het betreffen waarschijnlijk dispergerende vogels die zich aansluiten bij groepen Vale Gieren tij-

dens de trek naar Europa in het voorjaar. Juveniele vormen slechts een klein percentage, waarschijnlijk omdat de meeste nog in het nest zitten op het moment dat de Vale het Afrikaanse overwinteringsgebied verlaten.

Vervolgens worden de kleden van de drie soorten beschreven met de nadruk op de belangrijke determinatiekenmerken: ***1*** Grootte & bouw: Vale Gier is het grootst, en het zwaarst gebouwd, met lange rechthoekige vleugels. Rüppells Gier en Witruggier zijn kleiner, met meer afgeronde vleugelpunten en een kortere staart; ***2*** kop: elke soort heeft een opvallende kopvorm. Rüppells toont erg 'langsnavelig', en met een verlengde kop; Witruggier en Vale hebben een meer driehoekige kop, die bij Witruggier korter en compacter eruit ziet. De kleur van de kophuid verschilt ook tussen de drie soorten, diep rood bij Rüppells, blauwachtig bij Vale en donker bij Witruggier; laatstgenoemde heeft bovendien een karakteristiek zwart masker door het ontbreken van donsveren op de kop waardoor de donkere huid zichtbaar is; ***3*** algemeen kleurpatroon: Vale is variabel van kleur maar doorgaans tamelijk egaal, zonder opvallende tekening op de onderdelen, terwijl beide Afrikaanse soorten een opvallend gestreept juveniel kleed hebben, dat bij Rüppells gevlekt wordt in opeenvolgende ruiprocessen. Er is bovendien een subtiel verschil in het streeppatroon: bij Witruggier eindigen de strepen in een scherpe punt maar bij Rüppells in een pijlvorm die zich uitstrekt naar de veerrand (vooral duidelijk op de onderstaartdekveren en okselveren; ***4*** grote bovenvleugeldekveren (diagnostisch kenmerk): bij Vale met een donker veercentrum en een zandkleurige zoom om de gehele veer, bij Rüppells zwart met een lichte (doorgaans witte) vlek aan de veertop, en bij Witruggier geheel egaal en bruinachtig; ***5*** aantal staartpennen: 14 bij Rüppells en Vale, 12 bij Witruggier, maar dit kenmerk moet met enige voorzichtigheid worden gehanteerd (verlies van veren of actieve rui kunnen gemakkelijk tot een foute telling leiden).

Ten slotte wordt Rüppells Gier van de Abyssijnse regio in Oost-Afrika besproken (*G r erlangeri*). Deze ondersoort ziet er anders uit dan westelijke vogels, veel bleker en meer lijkend op Vale Gier. Dergelijke vogels kunnen in een oostelijke context (bijvoorbeeld Israël) een determinatieprobleem vormen. De structuurkenmerken en het patroon op de bovenvleugeldekveren zijn echter vrijwel identiek aan die van nominaat *G r rueppelli*.

## References


Ash, J & Atkins, J 2009. Birds of Ethiopia and Eritrea. London.

Bildstein, K L, Bechard, M J, Farmer, C & Newcomb, L 2009. Narrow sea crossings present major obstacles to migrating Griffon Vultures *Gyps fulvus*. Ibis 151: 382-391.

BirdLife International 2016. IUCN Red list for birds. Website: www.birdlife.org. [Accessed 24 September 2016.]

Borrow, N & Demey, R 2001. Birds of Western Africa. London.

Catry, P, Costa, H, Elias, G & Mattias, R 2010. Aves de Portugal. Ornitologia do territorio continental. Lisboa.

Copete, J L, Lorenzo, J A, Amengual, E, Bigas, D, Fernández, P, López-Velasco, D, Rodríguez, G & García-Tarrasón, M 2015. Observaciones de aves raras en España, 2012 y 2013. Ardeola 62: 453-508.

van Duivendijk, N 2010. Advanced bird ID guide – the Western Palearctic. London.

Duriez, O, Eliotout, B & Sarrazin, F 2011. Age identification of Eurasian Griffon Vultures *Gyps fulvus* in the field. Ringing Migr 26: 24-30.

El Khamlichi, R, El Haoua, M K & Amezian, M 2014. White-backed Vulture (*Gyps africanus*): a new species for Morocco and North Africa. Website: http://tinyurl.com/j2drnwn.

Ferguson-Lees, J & Christie, D A 2001. Raptors of the world. London.

Forsman, D 1999. The raptors of Europe and the Middle East: a handbook of field identification. London.

Forsman, D 2005. Rüppell's Vultures in Spain. Birding World 18: 435-438.

Forsman, D 2016. Flight identification of raptors of Europe, North Africa and the Middle East. London.

Garcia, F J & Bensusan, K J 2006. Northbound migrant raptors in June and July at the Strait of Gibraltar. Br Birds 99: 569-575.

Gill, F & Donsker, D (editors) 2016. IOC World bird list (version 6.3). Website: www.worldbirdnames.org.

Godino, L & Machado, C 2015. New record of African White-backed Vulture (*Gyps africanus*) in Europe. Vulture News 68: 52-58.

Gordillo, J 2012. Posible híbrido entre buitre leonado y buitre moteado. Quercus 217: 43.

Gutiérrez, R 2003. Occurrence of Rüppell's Griffon Vulture in Europe. Dutch Birding 25: 289-303.

Gutiérrez, R, Elorriaga, J & Daly, S 2010. How many Rüppell's Vultures do we have in Spain? An attempt to photo-identify the birds in autumn 2010. Website: www.rarebirdspain.net/arbsi036.htm.

Houston, D C 1975. The moult of the White-backed and Rüppell's Griffon Vultures *Gyps africanus* and *Gyps rueppellii*. Ibis 117: 474-488.

Houston, D C 1988. A change in the breeding season of Rüppell's Griffon Vultures *Gyps rueppellii* in the Serengeti in response to changes in ungulate populations. Ibis 132: 36-41.

del Hoyo, J, Elliott, A, Sargatal, J, Christie, D A & de Juana, E (editors) 2015. Handbook of the birds of the world Alive. Barcelona. Website: www.hbw.com. [Accessed 4 March 2015.]

Jara, J, Alfrey, P, Costa, H, Atias, R, Moore, C C, Lima Santos, J & Tipper, R 2011. Rare birds in Portugal. Portuguese Rarities Committee report for 2008 and 2009. Anuário Ornitológico 7: 3-11.

McCarthy, E M 2006. Handbook of avian hybrids of the world. Oxford.

del Moral, J C (editors) 2009. El buitre leonado en España. Población reproductora en 2008 y método de censo. SEO/Birdlife. Madrid.

Mundy, P, Butchart, D, Ledger, J & Piper, S 1992. The vultures of Africa. London.

Newton, I 2009. Moult and plumage. Ringing Migr 24: 220-226.
Ramírez Román, J 2012. First record of Rüppell's Vulture *Gyps rueppellii* arriving in Morocco from Spain. Go-South Bull 9: 44-45.
Small, B J 2007. African White-backed Vulture in Portugal, October 2006 – new for Europe? Website: http://tinyurl.com/hy779jf.
Svensson, L, Grant, P J, Mullarney, K & Zetterström, D 2009. Collins bird guide. Second edition. London.
Thiollay, J-M 2006. Severe declines of large birds in the northern Sahel of West Africa: a long-term assessment. Bird Conserv Intern 16: 353-365.
Wacher, T, Newby, J, Houdou, I, Harouna, A & Rabeil, T 2012. Vulture observations in the Sahelian zones of Chad and Niger. Bull Afr Bird Club 20: 186-199.
Zuberogoitia, I, de la Puente, J, Elorriaga, J, Alonso, R, Palomares, L E & Martínez, J E 2013.The flight feather moult of Griffon Vultures (*Gyps fulvus*) and associated biological consequences. J Raptor Res 47: 292-303.

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# Thayers Meeuw bij Egmond en Bergen in april 2015

*Leon Edelaar & Enno B Ebels*

In het voorjaar van 2015 vonden in het kader van de nationale kustversterking langs de kust van Noord-Holland uitgebreide zandsuppletiewerkzaamheden plaats. Deze werkzaamheden trokken grote aantallen meeuwen aan die tijdens de suppleties voedsel op een presenteerblaadje kregen aangereikt. Leon Edelaar bezoekt regelmatig de Noord-Hollandse stranden op zoek naar interessante en zeldzame meeuwen. Omdat de suppleties begin april 2015 plaatsvonden bij Egmond aan Zee, Noord-Holland, had hij zijn 'werkgebied' tijdelijk daar geconcentreerd. Op zaterdagochtend 11 april 2015 had hij al 1000en meeuwen bekeken totdat het weer verslechterde. 's Avonds klaarde het echter op en ging de wind liggen en keerde LE terug naar het strand. De suppletiewerkzaamheden waren vrijwel afgerond en het aantal meeuwen was ten opzichte van de ochtend flink afgenomen. Na enige tijd scande LE op c 100 m afstand een groepje meeuwen; er bleek een spannende meeuw met geheel egale onderdelen en bleekgrijze handpennen tussen te staan. LE liep dichterbij en maakte enkele foto's. In vlucht zag hij een ongetekende brede staartband en duidelijk aanwezige tekening op de bovenstaartdekveren, wat duidde op een Kumliens Meeuw *Larus glaucoides kumlieni* of Thayers Meeuw *L thayeri*. Het was zaak snel te handelen want overal liepen mensen en honden, en er reden shovels rond. De vogel was op een buis geland en LE kon nu goed de tertials zien; deze deden sterk aan Thayers denken. Hij bekeek zijn foto's en stuurde een whatsapp-bericht naar enkele lokale vogelaars (die niet reageerden…). Hij ging naar huis om snel de foto's op zijn computer te laden en literatuur te raadplegen. De conclusie was: Thayers Meeuw! Hij stuurde enkele foto's aan Peter Adriaens en Mars Muusse. Een half uur later reageerde PA met de bevestiging dat het een Thayers moest zijn.

De volgende ochtend vroeg waren langs de vloedlijn enorme groepen van in totaal 10 000en meeuwen aanwezig – en slechts enkele 10-tallen vogelaars. Desondanks zag Vincent van der Spek de Thayers Meeuw rond 08:20 vliegen boven de branding en konden de meeste aanwezigen hem gedurende c 10 min zien. Hij werd die dag nog enkele malen gezien en goed gefotografeerd, zowel op het strand als zwemmend of in vlucht, in totaal door zeker 200 vogelaars en voor het laatst om c 16:00. Een cameraploeg van het tv-programma 'Man Bijt Hond' die Arjan Dwarshuis volgde was 's ochtends aanwezig bij de terugvondst. De volgende dag werd tevergeefs gezocht maar op dinsdagavond 14 april vond Eric Menkveld hem terug op het strand van Bergen aan Zee, Noord-Holland, waar naar toe de suppletiewerkzaamheden waren opgeschoven. Hier werd hij vrijwel dagelijks gezien tot en met 27 april (de laatste dag