Photographic evidence of a 2nd calendar-year female European Honey Buzzard *Pernis apivorus* on autumn migration in the Western Palearctic

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The European Honey Buzzard *Pernis apivorus* is the most common long-distance migrant raptor in the Afro-Palearctic flyways (Bildstein 2006). Although honey buzzards are relatively flexible flyers among soaring birds (Horvitz *et al* 2014, Vansteelant *et al* 2017b), capable of traversing large bodies of water (Agostini *et al* 2012), the majority of adults aggregate in overland migration flyways around the Mediterranean and Black seas (Porter & Beaman 1985, Shirihai *et al* 2000, Verhelst *et al* 2011, Martín *et al* 2016). The largest autumn passage of Honey Buzzards in the world takes place along the eastern Black sea coast of Georgia, where on average *c*534 000 birds are counted every autumn by volunteers of the Batumi Raptor Count (Verhelst *et al* 2011, Vansteelant *et al* In review). Only a small fraction (*c*5.8%) of these Honey Buzzards are juvenile (*c*31 000 birds yr^{-1}, Vansteelant *et al* In review). That is because juveniles leave from their natal sites about two weeks later than adults, so they cannot learn the way to traditional bottlenecks by following elders (Hake *et al* 2003, Vansteelant *et al* 2017a). This stands in sharp contrast to the behaviour of larger obligate soaring migrants like large eagles and vultures, in which young birds follow unrelated elders into traditional soaring flyways on their first autumn migration (Oppel *et al* 2015, Mellone *et al* 2016, Meyburg *et al* 2017). Instead juvenile Honey Buzzards follow an innate compass direction to the south-southwest, and drift with prevailing winds during their first outbound migration (Thorup *et al* 2003ab, Vansteelant *et al* 2017a). Those juveniles that manage to reach sub-Saharan Africa are generally expected to stay there at least 18 months before they first return to Europe (Corso 2012, Panuccio & Agostini 2012; Strandberg *et al* 2012). It is not yet known when and how they ultimately learn the overland detours used by the majority of the adult population.

In the past substantial numbers of 2nd CY Honey Buzzards have been reported from spring migration watch-sites in Italy (*c*3.5% of spring migrants in Ustica and Messina, Panuccio *et al* 2004, 2006) and Israel (Shirihai *et al* 2000). However, it was later argued that many of these birds were likely aged incorrectly due to overreliance on non-diagnostic features such as the colouration of bare parts (which varies substantially across immatures and adults) (Corso 2005, 2012). Many reliable records of 2nd CY Honey Buzzards in Europe, including specimens in museum collections, originate from late winter to early spring, well before the main migration period of this species, These were individuals that never reached Africa during their first autumn migration, rather than birds that returned from Africa in their 2nd CY (Corso 2012). The issue has not been fully resolved as researchers at Messina maintained that their observations were reliable (Panuccio & Agostini 2012) and it could be that due to their inexperience 2nd CY Honey Buzzards that do return to Europe end up in the central Mediterranean flyway more often than experienced adults that learned overland flyways across Gibraltar to the west, or via Israel to the east of the Mediterranean. Complicating matters further, the number of migrant 2nd CY Honey Buzzards observed in spring in southern Italy seems to be increasing in recent years (2014–2018) (Corso unpubl, pers com). All considered, however, the fact there are so few uncontested spring and summer observations (Forsman 2016, Corso 2005, 2012), and to our knowledge no published autumn records, corroborate the notion that Honey Buzzards

rarely leave Africa before their 3rd CY. That is notwithstanding there is little published information about plumage details, nor photographic reference material, to aid observers in the recognition of 2nd CY Honey Buzzards.

OBSERVATION

During a day of low migration intensity, 17 September 2017, JW spotted a European Honey Buzzard with a ragged appearance approaching the most inland of two count stations of the Batumi Raptor Count project (41° 41′ 13.2″ N, 41° 46′ 45.5″ E, 414 m asl). At Batumi we often see oddly shaped birds that are usually individuals that have sustained feather damage from non-lethal lead shot (illegal hunting is widespread in the region, Sandor *et al* 2017), or, in case of juveniles, due to abrasion of weak sections in the flight feathers (*ie* fault bars). Digital photography allows for an accurate *ad hoc* examination of birds with such a ragged plumage. On this occasion photographs confirmed JW's impression that the ragged appearance of the bird was not caused by feather damage, but by the fact the bird had moulted many more flight and tail feathers than we had ever observed in adult Honey Buzzards.

PLUMAGE DESCRIPTION

The striking appearance of the bird is due to a clear contrast between worn and abraded juvenile feathers and freshly moulted adult-type feathers (Plate 1). The freshly moulted inner primaries protrude clearly beyond the older outer primaries. As indicated by Forsman (2016) this gives the wing a distinct shape from the gently S-shaped trailing edge of juvenile Honey Buzzards and the broader hand of adult birds. The freshly moulted central tail feathers, protruding far behind the worn tail feathers, are also very conspicuous (Plates 1, 2).

Moult

In both wings primaries show freshly moulted P1–5 and growing P6, while P7–10 are of the juvenile type. This is in contrast to adults that do not moult more than 4 primaries before autumn migration (males 0–3, females 2–4; Forsman 2016). The juvenile outer fingers show a sharp contrast between dark fingers and white base of the feather; a helpful feature to separate juveniles from tricky juvenile-like females. Secondaries are mostly of the juvenile type, except the outermost secondary of the right wing and the two outermost secondaries of the left wing which are freshly moulted (Plate 1). The juvenile-type secondaries are

Plate 1. 2nd calendar-year European Honey Buzzard *Pernis apivorus*, Batumi, Georgia 17 September 2017. © *John Wright*

Plate 2. 2nd calendar-year European Honey Buzzard *Pernis apivorus*, Batumi, Georgia 17 September 2017. © *John Wright*

typical of young Honey Buzzards, showing a bulging shape, being dark and showing 3 evenly spaced broad bars, lacking the dark trailing edge of the newly grown adult feathers. The bird had not only moulted the central tail feathers (as observed in late summer by Forsman 2016) but also the outermost tail feathers (Plate 1). The head and upper breast are moulted, contrasting with the light brown belly and underwing coverts where few feathers are fresh, giving a mottled aspect to the bird.

Bare parts

The iris is a dull yellowish-ochre and not as clean and bright as an adult and the bill is generally dull grey apart from a hint of pale yellow at the base (on the bare cere).

Sex

The adult-type inner primaries show a dark trailing edge combined with 3 rather broad bars spread across the feather, the outermost bar being close to the dark tip of the feather, indicating that this bird is female. The pattern of fresh adult-type tail-feathers shows a dark tip which is noticeably less solid than one would expect for an adult male.

DISCUSSION

To our knowledge this is the first autumn migration record and photographic evidence of a 2nd CY European Honey Buzzard in the Western Palearctic. This offers a rare opportunity to learn more about the moult strategy of immature Honey Buzzards. We know from spring observations of 2nd CY Honey Buzzards in Europe that immatures initiate body moult in Africa, prior to their first return migration. The observation at Batumi confirms that 2nd CY Honey Buzzards can moult flight and tail feathers faster than adults (Forsman 2016). A similar age-specific moult pattern is observed in almost all other raptors that engage in long-distance migration and that take several years to reach sexual maturity (*eg* Oriental Honey Buzzard *P. ptilorhynchus*, Black Kite *Milvus migrans*; Forsman 2016). Immature birds do not yet invest energy in breeding, allowing them to initiate moult earlier and perhaps even develop feathers faster than adults (Newton 2011).

Adult female Honey Buzzards moult 2–4 primaries on the breeding grounds compared to 0–3 primaries moulted by adult males before the start of autumn migration (unpublished data, see also Forsman 2016). It is likely that timing of moult diverges only after sexual maturation, as a result of sex-specific reproductive effort. Indeed, female raptors tend to start moulting earlier than male raptors, usually during the incubation period, when the latter need to invest much more energy in foraging and provisioning (Newton 2011). Accordingly, we expect non-breeding male 2nd CY Honey Buzzards to show a similar moult pattern when seen in Europe in autumn.

The 2nd CY female we observed at Batumi clearly interrupted moult for migration. Individuals which stay in Africa throughout their 2nd CY probably complete wing moult even faster by skipping migration altogether. On the other hand, immature Honey Buzzards that do not yet migrate to Europe often engage in intra-African movements (Strandberg *et al* 2012), and immatures moving between distant wintering sites may need to suspend moult as well. Unfortunately, disentangling how moult schedules are fine-tuned in relation to age and sex-dependent migration and reproductive schedules will be very challenging for this species. The chance of seeing a 2nd CY Honey Buzzard in Europe might be one in a million or less (Corso 2012) and Honey Buzzard sightings from sub-Saharan Africa are relatively rare. We strongly encourage observers in the OSME-region, and all across Europe and Africa, to document 2nd CY Honey Buzzards through digital photography and detailed field notes whenever the opportunity presents itself.

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