



An observation of Shelley's Eagle Owl *Bubo shelleyi* in Atewa Range Forest Reserve, Ghana

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Une observation du Grand-duc de Shelley *Bubo shelleyi* dans la Forêt Classée de la Chaîne d'Atewa, Ghana. Un Grand-duc de Shelley *Bubo shelleyi* a été observé en octobre 2021 dans la Forêt Classée de la Chaîne d'Atewa, East Region, Ghana. L'espèce était auparavant connue du pays sur la base d'au moins cinq spécimens, dont quatre datent du XIXe siècle et aucun n'a de détails précis sur la localité. Notre observation est documentée par la première photo identifiable de l'espèce prise sur le terrain et est examinée en référence aux autres hiboux du genre *Bubo* connus du Ghana. Cette photo confirme la survie du Grand-duc de Shelley au Ghana et souligne que la Forêt Classée de la Chaîne d'Atewa est un site de la plus haute importance pour la conservation de la faune.

Summary. We report the observation of a Shelley's Eagle Owl *Bubo shelleyi* in October 2021 in Atewa Range Forest Reserve, East Region, Ghana. This elusive species was previously known from the country on the basis of at least five specimens, of which four are from the 19th century and none has precise locality details. Our observation is documented with the first identifiable field photograph of the species and is discussed with reference to all other *Bubo* owls known from Ghana. The photograph confirms the survival of Shelley's Eagle Owl in the country and highlights that Atewa Range Forest Reserve is a site of critical importance for wildlife conservation.

Shelley's Eagle Owl *Bubo shelleyi* is one of the most enigmatic and least-known birds in Africa. First described from Ghana by Sharpe & Ussher in 1872, there are *c.*20 specimens in existence, only a few of which have precise localities. In addition, there has been a handful of sightings in recent decades, only one of which was documented with evidence—a sound-recording of a bird heard at night (see <https://xeno-canto.org/species/Bubo-shelleyi>). The only currently traceable images of live individuals are of a captive bird in Antwerp Zoo in the 1970s (e.g., <https://www.zoochat.com/community/media/127-bubo-shelleyi01.373520/>). There are no known identifiable field photographs. The near-absence of recent documented records in the wild appears surprising given that the species is large, distinctive, and widely distributed in the Upper Guinea forests from Sierra Leone to Ghana, and in the Congo Basin *sensu lato* from Cameroon to northern Angola and east to eastern Democratic Republic of Congo (Mackworth-Praed & Grant 1970, Holt *et al.* 1999, Mikkola 2012, Borrow & Demey 2014). The lack of records despite intensive searching in several areas of the species' historical range has led Shelley's Eagle Owl to be listed as Vulnerable on the IUCN Red List (BirdLife International 2022).

On 16 October 2021, we were birding in Atewa Range Forest Reserve, East Region, Ghana, with Isaac Ntakor, a Ghanaian wildlife tour guide. On the ridge trail (06°14'51.44"N 00°33'45.43"W; 810 m) we observed a Shelley's Eagle Owl and were able to take the first field photographs of the species, one of which is reproduced here (Fig. 1).

The initial sighting occurred at 13.55 hrs when JAT saw a very large bird fly across the trail at a distance of *c.*60 m. It seemed to have taken off from a relatively low perch and flew slightly upward. The huge broad wings, slow wingbeats and strongly barred plumage gave the impression of an eagle-like raptor. JAT drew the attention of RSRW & IN to the bird, who both glimpsed it before it disappeared. We speculated that it probably was a Crowned Eagle *Stephanoaetus coronatus* on account of its huge size and heavy barring on the wings, and because we had heard a Crowned Eagle calling a few minutes earlier. When we approached the spot where the bird had crossed, we heard the persistent alarm calls of a pair of Shining Drongos *Dicrurus atripennis*, suggesting they were mobbing a raptor. A drongo flyby drew RSRW's attention to a heavy horizontal branch in the subcanopy, on which a large raptor with an apparently crested head was perched. When it turned around it revealed a classic owl face with the apparent 'crest' being two large dark





Figure 1. Shelley's Eagle Owl *Bubo shelleyi*, Atewa, Ghana, 17 October 2021 (Rob Williams). The photo was taken with a Nikon D500 camera with a Nikon 500 mm PF lens; 1/400 second, F 5.6, ISO 1,600; the only processing has been to lighten the shadows and slightly sharpen the photo. The image clearly shows a large owl with dark plumage and face, large dark ear-tufts, and a heavy pale bill.

Grand-duc de Shelley *Bubo shelleyi*, Atewa, Ghana, 17 octobre 2021 (Rob Williams). La photo a été prise avec un appareil photo Nikon D500 avec un objectif Nikon 500 mm PF ; 1/400 seconde, F 5,6, ISO 1.600 ; le seul traitement a été d'éclaircir les ombres et d'accentuer légèrement la photo. La photo montre un grand hibou avec un plumage et une face foncés, des aigrettes foncées, et un gros bec pâle.

ear-tufts. The owl looked at us for perhaps ten seconds before dropping out of sight. Despite the very short period that the owl was in view, RSRW was able to take a series of images.

As the identity of the owl was not immediately obvious, we checked the images on the camera and noted that the eyes were dark, initially suggesting a Fraser's Eagle Owl *Bubo poensis*, which is regularly seen at Atewa and can be separated from the similar-sized Akun Eagle Owl *B. leucostictus* by eye colour (Borrow & Demey 2010). However, flight views of a Fraser's Eagle Owl seen by JAT in daylight at Ankaasa a few months previously had suggested a *Buteo*-sized raptor, whereas the Atewa bird appeared much larger, perhaps twice the size, and more like a large eagle. It had also lacked the obvious rufous tones of Fraser's Eagle Owl in flight, and had appeared darker and more uniform on the upperparts when perched. On account of these features, we began to discuss the possibility of Shelley's Eagle Owl, and quickly retraced our steps downhill to examine the photographs more closely.

Back at our hotel, the downloaded images revealed a bulky owl with a facial expression and stance that appeared very different from Fraser's

Eagle Owl, but quite similar to Verreaux's Eagle Owl *B. lacteus*, a species JAT & RSRW were both familiar with from elsewhere in Africa. Even given its superficial resemblance, the Atewa bird seemed extremely unlikely to be this species for two main reasons. First, our sighting was made in dense mossy ridgetop cloud forest, whereas Verreaux's Eagle Owl is widespread in drier lowland forests and savannas. Second, the plumage was strikingly unlike Verreaux's Eagle Owl in a number of respects (see below). We concluded that our bird had to be a Shelley's Eagle Owl. RSRW sent the image to several African ornithologists and bird tour guides, who confirmed the identification.

Two days later, we decided to spread the news via some media outlets to raise awareness about the Atewa Range Forest Reserve, a critically important and severely threatened protected area (Lindsell *et al.* 2019). While most experts have agreed with the identification, it has also been queried by at least one experienced observer, who suggested that the image may show a juvenile Verreaux's Eagle Owl. To address these misgivings, some discussion of the identification is warranted. The following notes are compiled from our observation and photographs, including images taken by JAT of





Figures 2–3. Dorsal and ventral views of specimens of, from left to right, Akun *Bubo leucostictus*, Shelley's *B. shelleyi* and Fraser's Eagle Owls *B. poensis* (Rob Williams, © Natural History Museum, London)

Vues dorsales et ventrales de spécimens, de gauche à droite, du Grand-duc tacheté *Bubo leucostictus*, du Grand-duc de Shelley *B. shelleyi* et du Grand-duc à aigrettes *B. poensis* (Rob Williams © Natural History Museum, Londres)

the bird looking away and dropping from the branch before it disappeared.

Size.—Although size of a lone bird is notoriously difficult to judge in the field, we would argue that Fraser's Eagle Owl is too small (39–44 cm) to give the impression of a Crowned Eagle (80–99 cm) in flight. In length, Shelley's Eagle Owl is 53–61 cm (Borrow & Demey 2010, Mikkola 2012), still much smaller than the eagle, although the length measurement is deceptive because of its shorter tail. During the perched view, size was harder to judge, but again the impression was of a bird roughly the size of a Eurasian Eagle Owl *B. bubo* (58–71 cm). Immediately afterwards, we discussed distances and agreed the branch on which the owl was perched was 35–40 m away. The camera focal settings aligned with this estimate, revealing the focal point to lie between 30 m and ∞ on the focal scale. We subsequently used the same equipment to take photographs of a tape-measure placed vertically on a pole at 35 m and 40 m. Comparing scales with the Atewa photo (Fig. 1) suggested that the owl was 50–60 cm long, albeit leaning away from the observers and thus slightly truncated. All

the evidence suggests that the Atewa owl was far too large for either Fraser's or Akun Eagle Owls (see Figs. 2–3 for size comparison of specimens), and more similar in size to Shelley's and Verreaux's Eagle Owls.

Head.—Appeared strikingly dark and sooty. The crown, forehead and throat were especially dark, with the facial disc only slightly paler with some dull brown tones, especially towards the outer rim. A blackish ring delimiting the edge of the facial disc is visible on the photograph along with some dark barring extending up the head-sides outside the ring. The two ear-tufts protruding conspicuously above the head were uniformly blackish, heavy and shaggy. Fig. 1 gives the impression that the ear-tufts are edged paler, but this is an illusion caused by strong backlighting (the light passes through the outer edge of the ear-tufts, but not through the centre, where multiple feathers are overlaid). The bill was heavy and pale horn-coloured, appearing broad at the base of the upper mandible below the nostrils. The eyes were dark; the eyelids were also apparently bare and dark, with no sign of the pale pink skin diagnostic of adult Verreaux's Eagle Owl.





Figure 4. Verreaux's Eagle Owl / Grand-duc de Verreaux *Bubo lacteus*, Gambia, April 2014 (Paul van Giersbergen)



Figure 5. Fraser's Eagle Owl / Grand-duc à aigrettes *Bubo poensis*, Ankasa, Ghana, March 2021 (Joe Tobias)

Upperparts.—Dark sooty brown, the mantle and scapulars particularly dark and relatively uniform, with dark barring barely visible. The tertials and greater coverts were more conspicuously barred blackish. The flight feathers appeared dark, and evenly partitioned by multiple narrow blackish bars. This narrow dark barring differs from the much wider barring of Verreaux's Eagle Owl (Fig. 4), being more similar to that visible on flight feathers of a perched Fraser's Eagle Owl (Fig. 5). However, the upperparts of the Atewa bird lacked the distinctive and conspicuous white patches on the scapulars and coverts typical of Fraser's Eagle Owl, and were also much darker and more uniform than those of Verreaux's Eagle Owl (Fig. 4).

Underparts.—With the bird facing away, the underparts are almost entirely invisible in the photos and were not seen in the field. However, a small section of the neck and upper breast is visible. These feathers are whitish and heavily marked with dark barring. We have searched hundreds of photographs and *c.*30 specimens of Verreaux's Eagle Owl and have found no individual showing such broad and well-defined barring on this area of feathering.

Wings.—Fig. 1 shows eight narrow dark bars visible on the upperside of the secondaries. A photo of the owl in flight (of poor quality and therefore not reproduced here) reveals that the

backlit underwing has a series of 8–9 regularly spaced dark bars on the primaries and secondaries.

Tail.—Relatively short, protruding only slightly beyond the wingtips. Two narrow dark bars interspersed between three broader and paler greyish bars are visible on the part of the rectrices extending beyond the primary tips. The flight photo shows that the tail feathers had at least six dark bars (part of the tail is obscured by a branch).

Age.—The bird does not match descriptions of the mesoptile plumages of Shelley's or Verreaux's Eagle Owls. In addition, the wing feathers appear to show variation in fading and abrasion suggesting ongoing moult, consistent with the bird being a subadult or adult.

Separation from similar species

The large size and prominent ear-tufts eliminate all owls other than eagle owls *Bubo* spp., which in West Africa are represented by five species. Here we discuss how four of these can be eliminated.

Akun Eagle Owl *Bubo leucostictus* (Fig. 6) is well known from Atewa (Dowsett-Lemaire & Dowsett 2014; *in litt.* 2022) but is much smaller (40–46 cm) and paler brown than Shelley's with notable white markings on the scapulars. The face is paler, particularly on the forehead and between the eyes, where a V-shaped pair of whitish supercilia extend from the top of the bill to the





Figure 6. Akun Eagle Owl / Grand-duc tacheté *Bubo leucostictus*, Ankasa, Ghana, March 2021 (Nik Borrow)



Figure 7. Greyish Eagle Owl / Grand-duc du Sahel *Bubo cinerascens*, Mole, Ghana, November 2018 (Nigel Redman)

ear-tufts. The Atewa bird did not have these pale markings and also lacked the noticeable whitish fringes and tips to the ear-tuft feathers of Akun Eagle Owl. The mantle, greater coverts, tertials, and the broad pale bars on the secondaries and tail feathers, are all distinctly marbled with dark vermiculations (absent in Fraser's and Shelley's Eagle Owls). The yellowish bill of Akun Eagle Owl is weaker and narrower than that of Shelley's, reflecting its different diet (insectivory rather than carnivory). Akun Eagle Owl can also be ruled out by its diagnostic yellow eyes.

Fraser's Eagle Owl *Bubo poensis* (Fig. 5) is present in humid forests and forest edge at Atewa and shares the dark eyes of Shelley's Eagle Owl. However, it is much smaller and more variegated in colour, with a rufous or tawny tone lacking in Shelley's Eagle Owl. The wing feathers are tawny brown, barred black, with a ground colour paler than Shelley's, particularly on the secondaries and tertials. The scapulars have prominent pale patches, adding to the contrasting impression of the upperparts. The face of Fraser's Eagle Owl is warmer in colour than the sooty face of the Atewa bird and also has a more compact structure, resulting in a different facial expression.



Figure 8. Dorsal views of specimens of Shelley's Eagle Owl *Bubo shelleyi* (right) and the largest West African Verreaux's Eagle Owl *B. lacteus* at NHMUK (Rob Williams, © Natural History Museum, London)

Vues dorsales de spécimens du Grand-duc de Shelley *Bubo shelleyi* (à droite) et du plus grand Grand-duc de Verreaux *B. lacteus* ouest africain au NHMUK (Rob Williams, © Natural History Museum, Londres)





Greyish Eagle Owl *Bubo cinerascens* (Fig. 7) has not been recorded at Atewa but occurs nearby in the drier lowlands, including sparsely wooded or agricultural habitats. It is relatively small, pale and lightly built. The plumage is predominantly pale grey, mottled or vermiculated darker on the upperparts, with conspicuous white scapular markings. It lacks the parallel barring on the upperpart and flight feathers of the Atewa bird. The facial disc is also much paler grey with a narrow black border. The ear-tufts are relatively small with pale markings at the base. Greyish Eagle Owl can also be eliminated by its slender blackish bill.

Verreaux's Eagle Owl *Bubo lacteus* has not been recorded at Atewa and is generally found in wooded savannas. It is similar in size to Shelley's Eagle Owl. Some sources (e.g., Mikkola 2012) give larger measurements for Verreaux's, but comparisons in the Natural History Museum, Tring (NHMUK), revealed Shelley's to be either the same size or slightly larger than all West African Verreaux's specimens in the collection (Fig. 8). The upperparts of adult Verreaux's are greyish brown with contrasting pale patches created by whitish areas on the scapulars and primary-coverts. The mantle, scapulars and coverts have distinctive fine marbling and vermiculations, but lack distinct parallel barring (Figs. 4 & 8) giving the plumage a very different 'feel' to the Atewa bird. When perched, the visible flight feathers do show barring, but this is far broader than the Atewa bird, typically with *c.*3 broad dark bars showing, versus the nine narrow well-defined dark bars visible on the Atewa bird. Similarly, the tail of Verreaux's is greyish with three broad darker brown bands, unlike the narrowly banded tail of the Atewa bird (Fig. 9). The underpart feathering is also finely vermiculated, rather than barred, diagnostically different from the broad parallel bars on the feathering visible around the neck of the Atewa bird (compare Figs. 1 & 4). The face of adult Verreaux's is distinctively pale and whitish grey with a heavy-lidded look created by bare pink fleshy eyelids above dark eyes. The facial disc is bordered by a broad dark ring, framed within whitish lightly vermiculated feathering on the head-sides. The throat is whitish and the ear-tufts are greyish brown with paler fringes and visible barring, quite different from the dense blackish ear-tufts of the Atewa bird. Finally, because this individual was either in subadult



Figure 9. Tails of specimens of three Shelley's Eagle Owls *Bubo shelleyi* (left) and three Verreaux's Eagle Owls *B. lacteus* in NHMUK, showing the much broader and more diffuse barring of the latter (Rob Williams, © Natural History Museum, London)

Queues de trois spécimens du Grand-duc de Shelley *Bubo shelleyi* (à gauche) et du Grand-duc de Verreaux *B. lacteus* conservés au NHMUK, montrant les barres beaucoup plus larges et plus diffuses chez ce dernier (Rob Williams, © Natural History Museum, Londres)

or most likely adult plumage makes it easier to eliminate Verreaux's, which should by that stage of development have conspicuously pink eyelids.

Even if we were dealing with an immature, separation from Verreaux's would still be straightforward (see Fig. 10). In subadult plumage, Verreaux's is even more milky-looking than the adult, with smaller and paler ear-tufts than those visible on the Atewa bird. The pale panel formed by pale silvery scapulars and greater coverts is even more prominent than in adult Verreaux's. The barring on flight feathers is more diffuse, lacking the precise, evenly spaced barring of the Atewa bird. Finally, the tail of immature/subadult Verreaux's tends to be relatively uniform (Fig. 10), again lacking the strikingly barred pattern of Shelley's (Fig. 9).





Figure 10. Juvenile Verreaux's Eagle Owl *Bubo lacteus*, Leadwood Big Game Estate, Limpopo, South Africa (Simon Price). Note diagnostic wing pattern and relatively uniform uppertail.

Grand-duc de Verreaux *Bubo lacteus*, juvénile, Leadwood Big Game Estate, Limpopo, Afrique du Sud (Simon Price). Noter le motif de l'aile diagnostique et le dessus de la queue relativement uniforme.

Overall, the combination of large size, dark sooty-grey appearance, dark eyes, relatively uniform upperparts, and broad-based cream-coloured bill confirms the identification as Shelley's Eagle Owl. Additionally, images taken at NHMUK, Tring, show that the striking pattern of barring on wing and tail feathers of the Atewa bird (Fig. 1) is very similar to specimens of Shelley's Eagle Owl but diagnostically different from the plumage of the two smaller syntopic *Bubo* species (Figs. 2–3) and the ecologically different Verreaux's Eagle Owl (Figs. 8–9).

Discussion

Our observation appears to represent the first fully documented field sighting of Shelley's Eagle Owl in Ghana (Dowsett-Lemaire & Dowsett 2014). It not only confirms that this spectacular species survives in the country but also offers hope for its long-term conservation because the finding occurred in an extensive block of suitable habitat with at least some degree of legal protection,

albeit increasingly threatened by mining and other pressures (Lindsell *et al.* 2019).

At the time of our sighting, we were aware of only two previous documented specimen records from Ghana, including the type specimen, both from *c.*1870 (Sharpe & Ussher 1872, Grimes 1987, Borrow & Demey 2010, Dowsett-Lemaire & Dowsett 2014). Subsequent research has revealed an additional three specimens from the country. None of the five Ghanaian specimens can be assigned to a precise locality, and all were probably collected in regions now largely cleared of forest.

Of three specimens held at NHMUK, Tring, all appear to have been collected from the interior of Fantee before its amalgamation, around 1873, with the British Gold Coast Colony. Fantee was a large confederation of tribal substates falling roughly between Accra and Sekondi-Takoradi and extending more than 100 km inland. At least two of the specimens were apparently obtained within the borders of Denker (= Denkyira), one of the previous states centred on a capital located at modern-day Dunkwa (between Kakum National Park and Kumasi). A fourth specimen dated 1888 and housed in the Staatliches Museum für Naturkunde, Stuttgart, is labelled 'Accra', although this presumably refers to the point of export rather than the collecting locality. The only recent (1966) specimen, also at NHMUK, seems to have been obtained in the drier Brong-Ahafo region, north of Kumasi, although the bird had apparently been in captivity for some time and its true origin may have been elsewhere. In addition, there have been several reported sightings of Shelley's Eagle Owl in recent decades, but none has been documented. Indeed, some of these reports have now been withdrawn and the only claimed sighting accompanied by a photograph was later re-identified as a Fraser's Eagle Owl (Dowsett-Lemaire & Dowsett 2014). However, a hunter from the Subri River Forest Reserve provided a seemingly credible account of the bird and its call (Dowsett-Lemaire & Dowsett 2014).

Our observation was in an area of intact upland evergreen forest inside the Atewa Range Forest Reserve. This locality has become one of the best-known birding sites in Ghana as it supports relict populations of several species now rare or absent elsewhere in the country, such as Nimba Flycatcher *Melaenornis annamarulae* (Demey &





Hester 2008). Atewa is also one of Ghana's most biodiverse forests. First protected a century ago, the extent of its biological riches was revealed by botanical fieldwork in the 1990s (Lindsell *et al.* 2019) and a Rapid Assessment Programme survey by Conservation International in 2006 (McCullough *et al.* 2007). Although it is now recognised as a Key Biodiversity Area (<http://www.keybiodiversityareas.org/site/factsheet/6312>) and an Alliance for Zero Extinction site (<http://www.zeroextinction.org>) Atewa remains inadequately protected and suffers from unmanaged logging, agricultural incursion, small-scale mining and associated chemical pollution, hunting, unsustainable harvesting of non-timber forest products, and fire (Lindsell *et al.* 2019). A particular threat hanging over the future of Atewa Forest is the plan to expand bauxite mining on the ridge summit, in the precise location of our sighting. This proposal has met with considerable opposition, both locally and internationally (see <https://ghana.arocha.org/projects/protecting-atewa-forest/>). We hope that our sighting of Shelley's Eagle Owl will boost ongoing efforts to designate the area as a national park and to conserve its rich biodiversity.

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