



Memorandum of Understanding
on the Conservation of
Migratory Birds of Prey in
Africa and Eurasia

Distribution: General
UNEP/CMS/Raptors/TAG4/Doc.6.4

14 November 2021

Fourth Meeting of the Technical Advisory Group | *Online, 13-15 December 2021*

RAPTORS MOU SITE NETWORK PILOT ANALYSIS FOR DRAFT TABLE 3 SITES

Prepared by BirdLife International

Introduction

1. Activity 2, Task 2.5 of the TAG workplan from MOS2 was to “Advise on gaps in current information on key breeding areas, stopovers, refuelling, bottleneck, other congregational and non-breeding sites along raptor flyways, and:

- a) make recommendations on how these might be filled; and,
- b) advise on appropriate approaches for the conservation and management of critical areas.”

2. The approach TAG agreed to take as outlined in UNEP/CMS/Raptors/TAG3/Doc.4.2b¹ was to carry out a pilot analysis for a small set of Annex 1 species to test an approach that could later potentially be applied to all Annex 1 species if deemed useful. For each of these pilot species the aim was to overlay Table 3 sites on the species distribution map, identify major gaps and use information on the species congregatory behaviour (as in Annex 2 of UNEP/CMS/Raptors/TAG3/Doc.4.2b) to assess whether those gaps were genuine or could be explained by the species not congregating during that part of its annual cycle, resulting in the species not meeting criteria for international importance. This in turn would indicate that site-based conservation approaches might not be the most effective way to support the species in that part of the annual cycle.

3. The approach taken in this trial piece of work could help TAG to advise on for which Annex 1 species there are significant and genuine gaps in the network of internationally important sites in draft Table 3 and where further discussion is needed on the kind of recommendations that could flow from such an analysis with the aim of increasing the comprehensiveness of the Table 3 site network for Annex 1 species.

Species selection for pilot analysis

4. For this task, TAG3 identified a sub-set of eleven species from Annex 1 of the MOU. Details for the pilot species selection are outlined in TAG3 meeting document UNEP/CMS/Raptors/TAG3/Doc.4.2b. The species list comprises the following: Rüppell’s Vulture, Lappet-faced Vulture, Egyptian Vulture, Cinereous Vulture, Steppe Eagle, Wahlberg’s Eagle, Mountain Hawk-eagle, Pallas’s Fish-eagle, Grasshopper Buzzard, Amur Falcon and Lanner Falcon.

¹ <https://www.cms.int/raptors/en/document/selection-pilot-species-site-network-analysis>

5. These species were chosen to reflect differing ecologies and migratory strategies and collectively their ranges span the agreement area from east to west (although they do not cover the northern portion of the agreement area).

Methods

6. The basis for the analysis was the draft Table 3 List of Internationally Important Sites for Migratory Raptors in Africa and Eurasia as amended by TAG according to the instructions of MOS2 and shared at TAG3 in document UNEP/CMS/Raptors/TAG3/Doc.4.1b². Initially, BirdLife species distribution maps displaying the full range of annual life cycle stages (Native Breeding, Native Non-breeding, Passage, Native Resident, Extinct, Possibly Extinct and Reintroduced) were plotted for each pilot study species which had sites on draft Table 3. The sites pertaining to the pilot species were overlaid onto these maps and any sites with geographic overlap of >50% with another site (e.g., SPA sites overlapping with IBA sites) were removed and considered to be functionally identical in terms of their contribution to the site network for species in that location. Point locations of draft Table 3 sites falling inside each part of the species' ranges were tabulated, as well as those falling outside of their current range maps. Sometimes such mismatches between species records at IBAs and their distribution maps can occur when the data sources supporting the two are different in age, and for example the species' distribution has reduced in recent years but the site has not been monitored lately so the species loss from the site has not yet been recorded. Population information for those sites falling outside range maps was therefore examined to identify the types of sites where the species was no longer occurring.

7. Subsequently, a rapid literature review was conducted to understand and document the congregatory behaviour of pilot species at different stages of their annual cycles. This information was partly used to help identify priority geographic areas for potential site identification for globally threatened species. Additionally, congregatory information indicating that Least Concern species did congregate in numbers meeting >1% of total population (commonly recognised as a threshold of international importance) in each season clarified whether any gaps in the site network were to be expected or were genuine gaps that could potentially be filled with further site identification efforts.

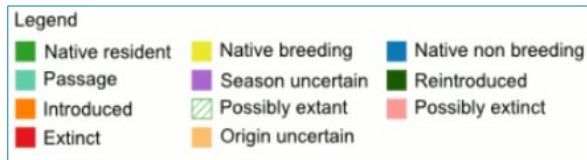
8. A brief summary of findings was prepared for each pilot study species, outlining the comprehensiveness of draft Table 3 sites across their geographic range. Any apparent paucity of sites in certain parts of their range was evaluated as either being appropriate/expected, due to the species behaviour not being congregatory in that season or constituting a genuine potential gap in the draft Table 3 site network.

Results

9. The following section outlines the results of overlaying pilot species site networks from draft Table 3 with current BirdLife species ranges (2019). Range maps show all draft Table 3 sites with IBAs represented as circles and SPAs represented as triangles. Three of the eleven species (Grasshopper Buzzard, Mountain Hawk-eagle and Wahlberg's Eagle) had no sites on draft Table 3 and so maps were not produced for these species. It is worth noting that beyond the pilot species, there are 28 other Annex 1 species which do not have sites of international importance identified for them in draft Table 3). All maps follow the legend below and further information on the mapping approach can be found in the BirdLife Datazone webpages³.

² [Amendments to the list of sites important for migratory raptors | Raptors \(cms.int\)](#)

³ <http://datazone.birdlife.org/species/spcdistPOS>



IBA Protection status

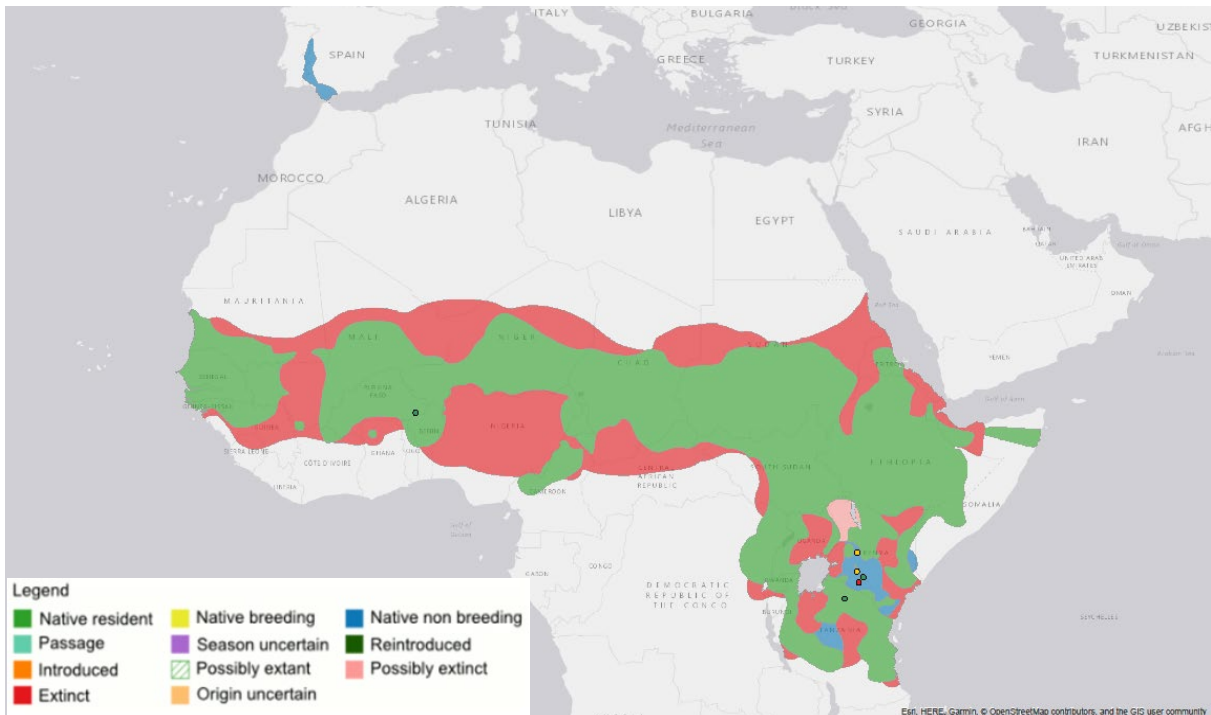
- Little/none of site (<10%)
- Some of site (10-49%)
- Most of site (50-90%)
- Whole area of site (>90%)
- Unknown

Additional sites

- ▲ SPA Sites

10. Annex A to this document should be viewed in tandem with the maps and comprises a table with coloured highlights to indicate areas of the pilot species range map which might be considered gaps, the kind of thresholds that might apply for identifying sites of international importance and further detail of the number of sites on Table 3 falling within different polygons of the species range map.

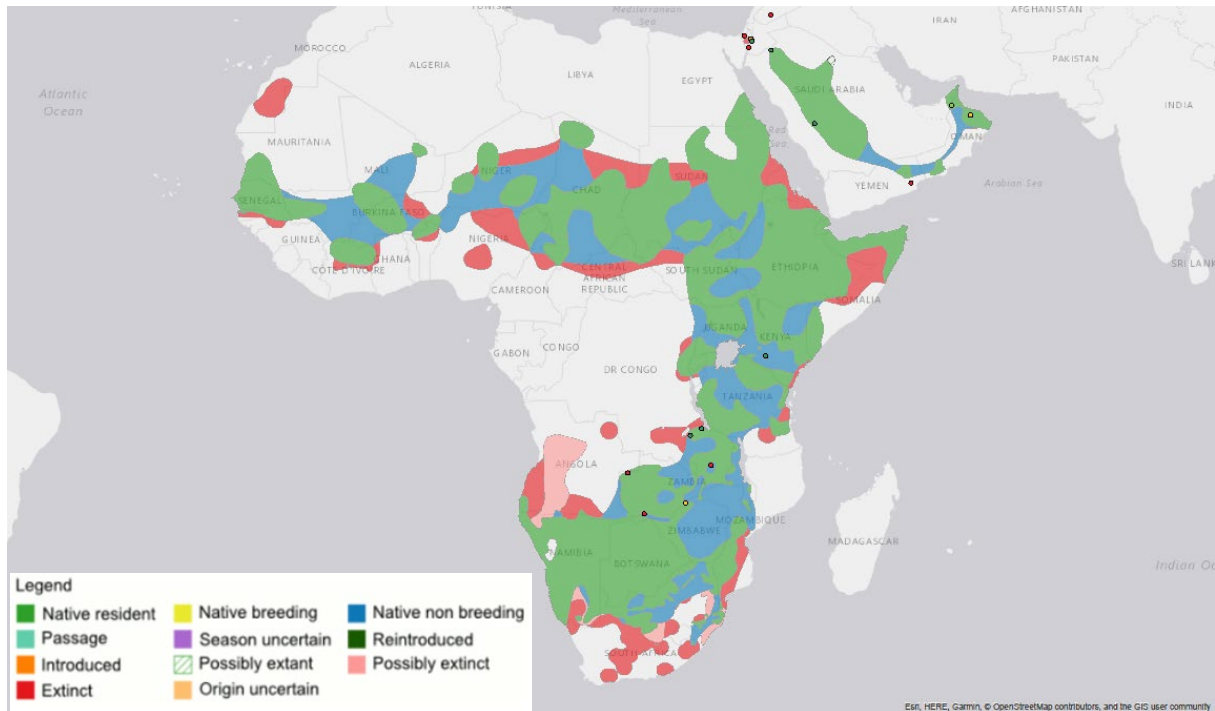
Rüppell’s Vulture (Critically Endangered)



11. Only six sites are listed for this species and these fall within its Native Resident and Native Non-Breeding range. The species is described as being highly gregarious, with breeding colonies of 10-100, and up to 1000 pairs mentioned in Ferguson-Lees & Christie (2001)⁴. The draft Table 3 site network has a selection of sites around colonies in East Africa and one site in Burkina Faso. However, to achieve adequate site protection across the species’ Native Resident range in the Sahel, additional sites of regular species presence should be identified for assessment under IBA Criterion A1. The reassessment of sites for this species is especially critical as the current sites were all designated when the species was formerly listed as Near Threatened. Its recent decline to Critically Endangered means that lower thresholds of international importance now apply and could likely be met at many more sites.

⁴ Ferguson-Lees, J. & Christie, D.A. (2001) Raptors of the World. Houghton Mifflin Harcourt

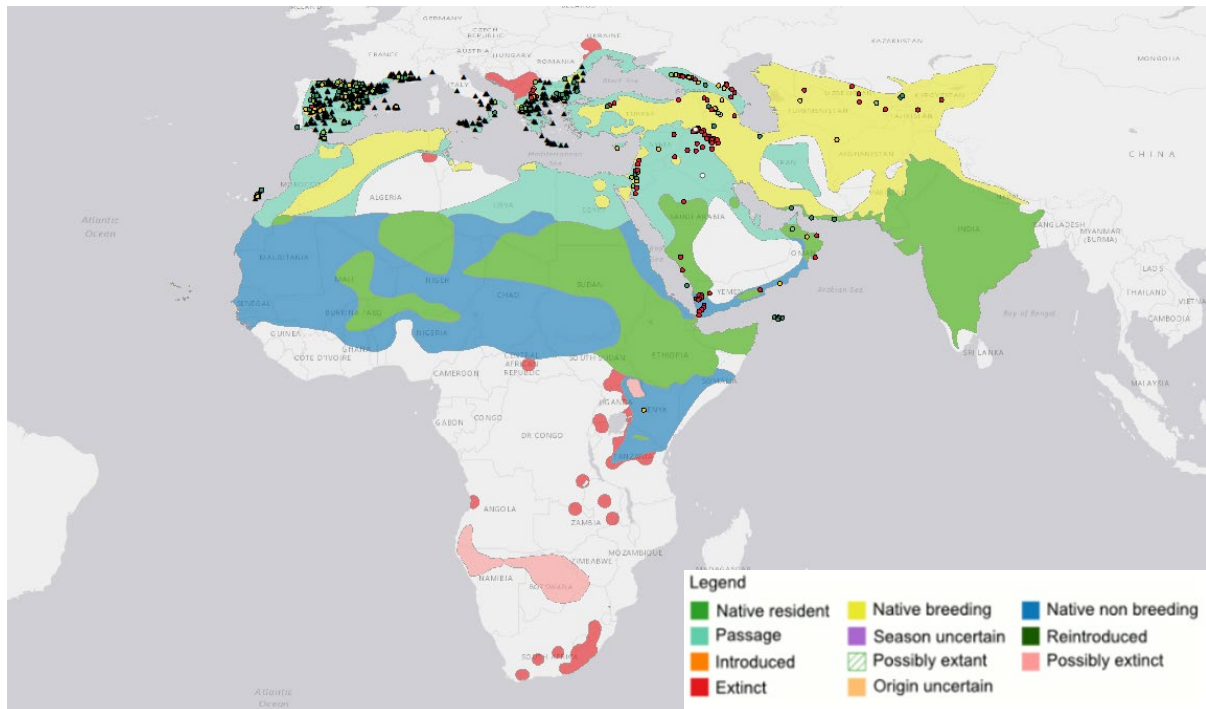
Lappet-faced Vulture (Endangered)



12. Eighteen draft Table 3 sites are listed for this species and many fall within its Native Resident and Native Non-Breeding range. Six sites fall outside the current distribution for the species and are situated in historical breeding locations around Israel and Jordan where the species is likely now extinct. As population numbers have crashed over the last few decades, breeding strongholds, such as the Namib-Naukluft Park/ Kruger National Park are likely to qualify as IBA's for the species if they are reassessed, particularly as Lappet-faced Vulture is now Endangered on the IUCN Red List.

13. Six draft Table 3 sites associated with the species are now located outside of its current range. Seasonal information indicates these sites were former Non-breeding (4), Resident (1) and Winter (1) sites. It will be important to retain these sites in the Middle East to recognise the formerly suitable habitat and provide an indication of where future conservation efforts might aim to restore populations.

Egyptian Vulture (Endangered)

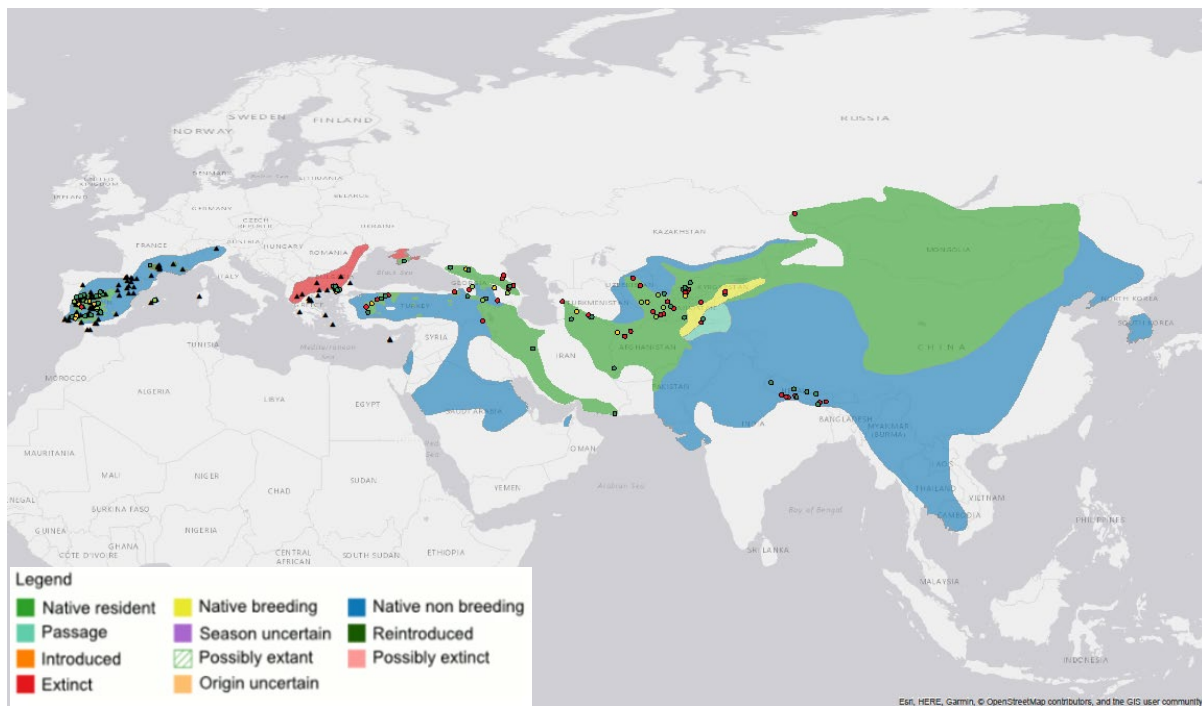


14. The Egyptian Vulture has many more draft Table 3 sites than most Annex 1 Species. There are 248 IBAs and 410 SPAs across the range with a majority distributed across its Native Breeding range and Passage areas in Spain, Greece and other countries in the north of its range. Many fewer sites are located in Africa where there is a need for the protection of winter congregations and communal roosts. The area around Bati, Mille, Logya and Serdo in Ethiopia should be included in the draft Table 3 site network because it may meet the criteria for an IBA for globally threatened species (see Annex 1 and Arkumarev et al., 2014)⁵. Currently, some coverage exists for the Egyptian Vulture in the Balkans, Central Asia and the Caucasus and the Middle East, which holds about 40% of the global population. In some countries like Oman and Yemen, draft Table 3 sites are valuable to maintain, as the population is regionally stable and even increasing.

15. Ten IBAs associated with the species are now located outside of its current range. Seasonal information indicates these sites were former Breeding (4), Passage (2), Winter (2), Resident (1) and Non-breeding (1) sites. Nine percent of Egyptian vulture SPAs fall outside current BirdLife range maps comprising 23 concentration sites, 10 reproducing sites, 3 permanent sites and 2 wintering sites.

⁵ Arkumarev, V., Dobrev, V., Abebe, Y.D., Popgeorgiev, G. and Nikolov, S.C., 2014. Congregations of wintering Egyptian Vultures *Neophron percnopterus* in Afar, Ethiopia: present status and implications for conservation. *Ostrich*, 85(2), pp.139-145.

Cinereous Vulture (Near Threatened)



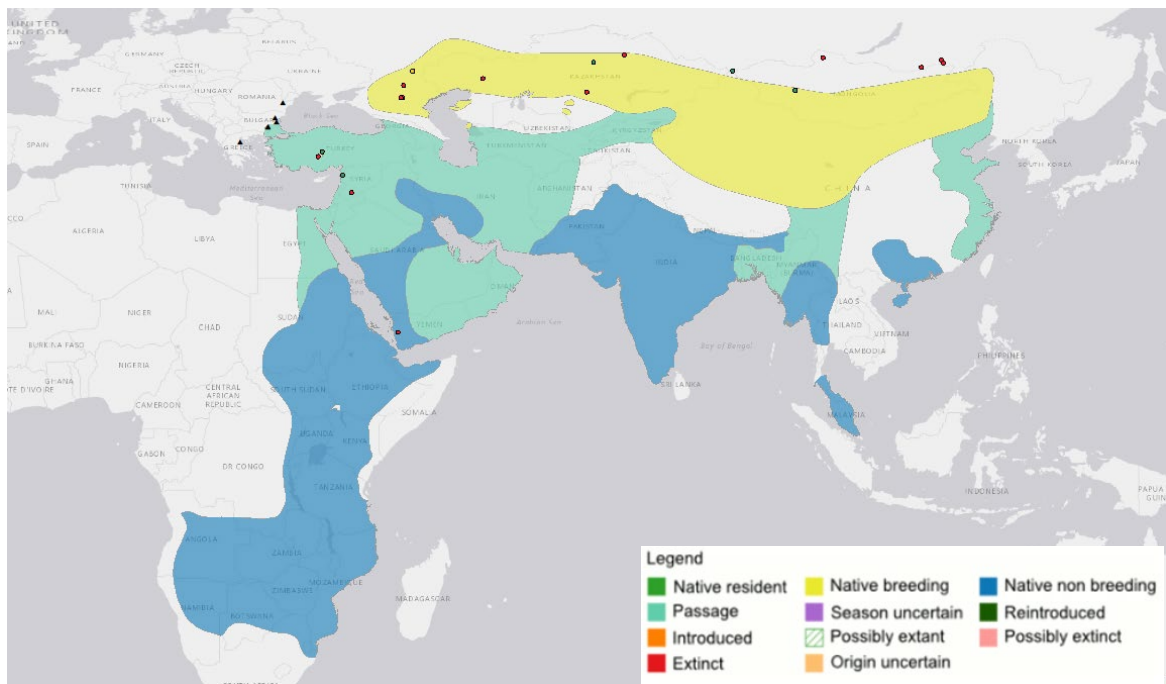
16. There is reasonable coverage in relation to sites for Cinereous Vulture across its European range with a majority of sites located in Native Resident (68) and Native Non-breeding (31) portions of its range. Three sites are located in portions of its range now classified as ‘Extinct’, but reintroduction efforts may be ongoing in these areas. There are additional Table 3 sites in Central Asia and Nepal but no sites in China, where 1,760 pairs were identified in 1991 (Ye Xiao-Ti 1991)⁶. Monitoring data for China and surrounding countries is urgently needed to assess the state of vulture populations and assess this gap in the network. Congregations of 234 Cinereous Vulture may well exist in China and could potentially meet thresholds for international importance.

17. SPAs are also primarily located in Native Resident (37) and Native Non-breeding (43) range but many are also outside the currently acknowledged range for the species. Some SPAs in these regions, such as southern Greece are unlikely to support populations of species unless they spread from reintroduction sites and breeding locations such as Thrace.

18. Eight IBAs associated with the species are now located outside of its current range. Seasonal information indicates these sites were former Passage (2), Winter (2), Resident (2), Breeding (1) and Non-breeding (1) sites. 20% of SPAs for Cinereous Vulture fall outside the current range map comprising 16 concentration sites, 6 permanent sites, 2 wintering sites and 1 reproducing site.

⁶ Xiao-Ti, Y., 1991. Distribution and status of the Cinereous Vulture *Aegypius monachus* in China. *Birds of Prey Bulletin*, 4, pp.51-56.

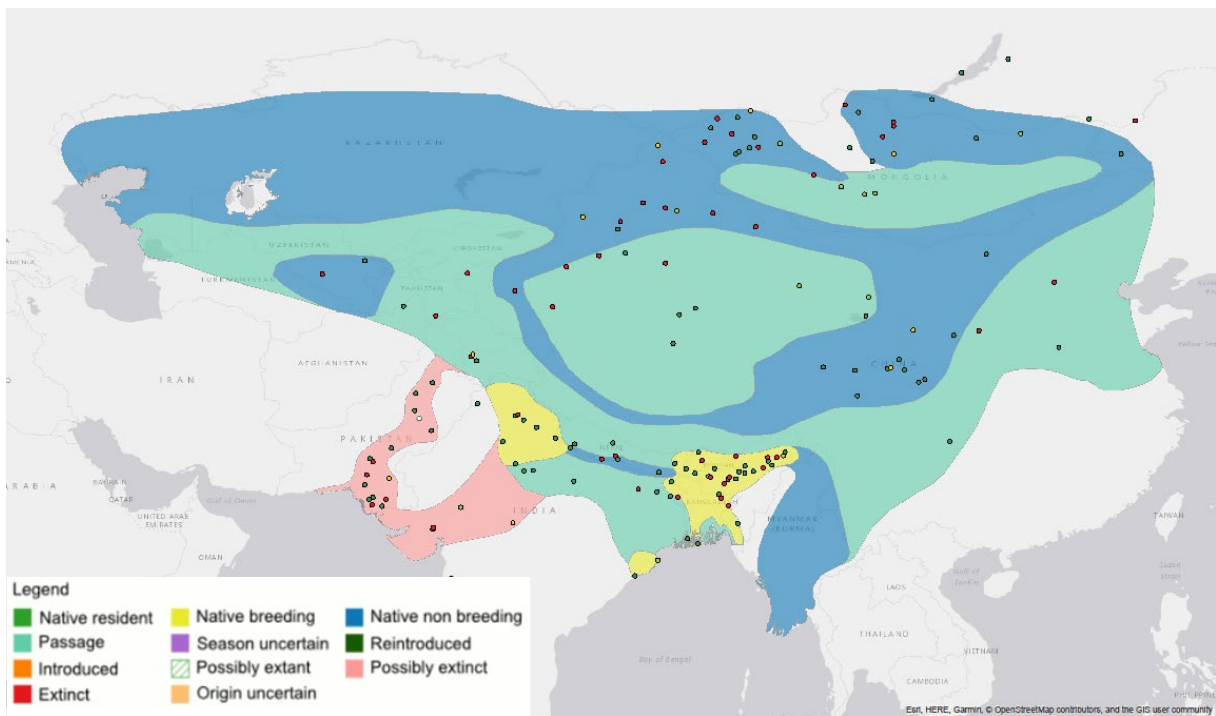
Steppe Eagle (Endangered)



19. This species' global distribution marginally borders Europe and as a result it only has 6 SPA sites (2 are within Passage range and 4 are outside current range maps). The species is represented in 9 draft Table 3 sites in its large Native Breeding range and other sites in northern Mongolia, which are outside the range maps and may no longer host the species due to population declines and range retraction. Since its recent up-listing to 'Endangered', Steppe Eagle would benefit from further data on population numbers at wintering grounds, which may warrant IBA status under Criterion A1. Currently, only one site in Yemen is designated as an IBA in the Non-breeding range. Since the Steppe Eagle was uplisted to Endangered in 2015, many sites across its Native Breeding and Native-non-breeding range are likely to qualify as of international importance for this species. The most obvious gap in the network is across eastern and southern Africa where there are no sites in the network.

20. Five IBAs associated with the species are now located outside of its current range. Seasonal information indicates these sites were former Breeding (4) and Unknown (1) sites. Five concentration SPAs and 1 reproducing SPA fall outside the current BirdLife range maps. The cluster of former breeding sites located outside the Native Breeding range will be important to maintain and recognise as suitable areas for future conservation interventions to aim to restore the species and increase its range.

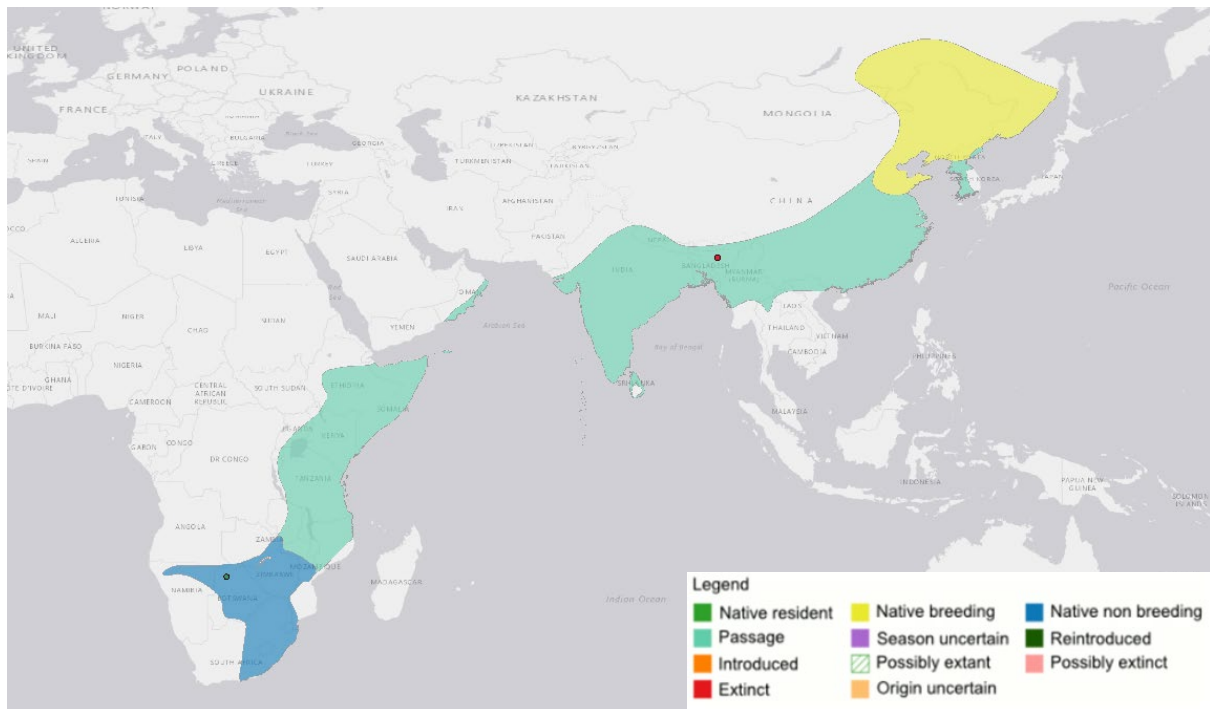
Pallas's Fish-eagle (Endangered)



21. There is reasonable coverage of draft Table 3 sites for this species with 52 Native Non-breeding range sites, 39 Native Breeding sites, 33 Passage sites and 31 sites either in Possibly Extinct regions or outside the current distribution map. This suggests that range contraction may have resulted in the species no longer occurring at a number of sites and a reassessment may be necessary.

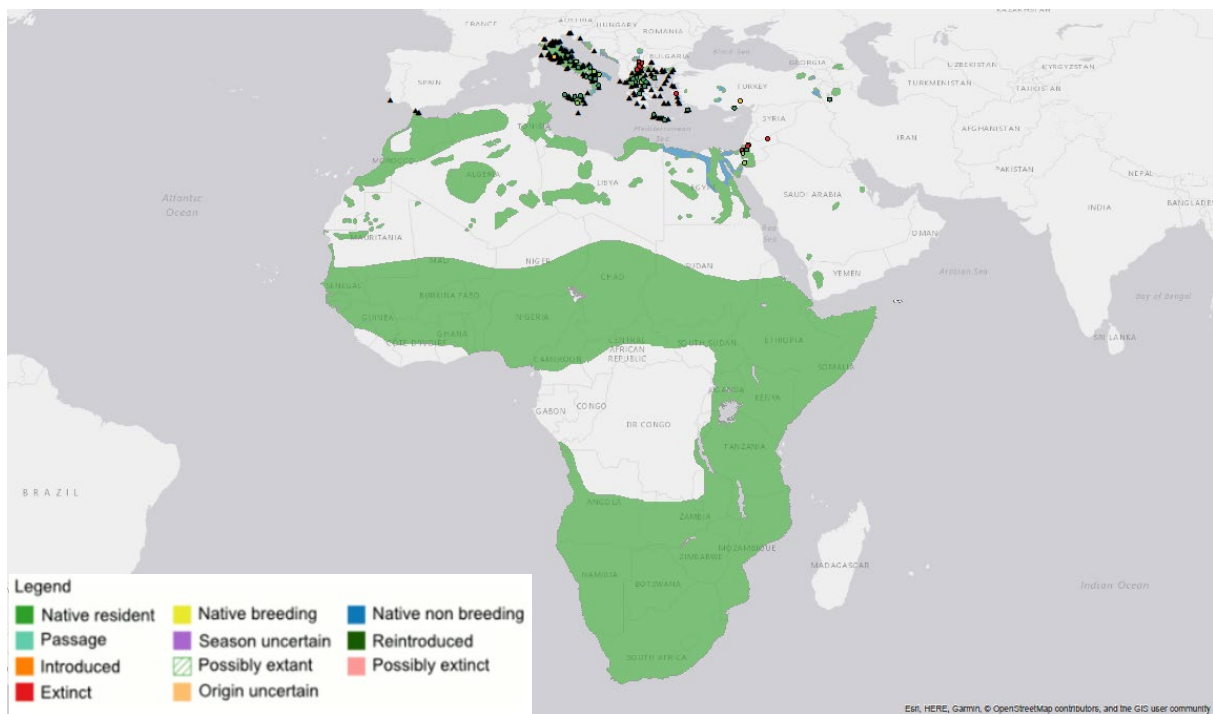
22. Eight sites associated with the species are now located outside of its current range and will be good candidates for future conservation interventions to encourage population expansion for this Endangered species. Seasonal information indicates these sites were former Breeding (4), Resident (3) and Unknown status (1) sites.

Amur Falcon (Least Concern)



23. Amur Falcon only has 2 draft Table 3 sites but maintains an expansive range spanning southern Africa to north-eastern Asia. Given the congregatory nature of the species (throughout the year but particularly on passage), it is likely that there are locations of importance that are unrecognised and may require site identification. There are currently no draft Table 3 sites in its breeding range and a South African census recording only 111,291 individuals in 2009 hints that the global population may be smaller than 1 million as South Africa is one of its main wintering countries. Sites such as Doyang Reservoir in India are known for holding significant proportions of the global population on Passage and are currently unrecognised in the site network.

Lanner Falcon (Least Concern)



24. This species is particularly well represented in draft Table 3 sites in Europe, (Italy and Greece) where there are 25 IBAs in Native Resident range, 6 IBAs in Native Non-breeding range and 14 IBAs outside its current range. The same situation is reflected with SPAs (which have been identified on the basis of the unfavourable conservation status for Lanner Falcon in Europe). However, Europe represents 1% of the global population and globally, the species has a positive population trend. Therefore, the lack of draft Table 3 sites throughout Africa is to be expected.

25. Fourteen IBAs associated with the species are now located outside of its current range. Seasonal information indicates these sites were former Resident (7), Breeding (6) and Winter (1) sites. Strikingly, 41% of SPAs for Lanner Falcon fall outside the current BirdLife range maps comprising 37 permanent sites, 34 concentration sites, 7 reproducing sites and 4 wintering sites.

Pilot species without any Table 3 sites

26. Of the eleven pilot species selected, as mentioned earlier, 3: Grasshopper Buzzard, Mountain Hawk-eagle and Wahlberg’s Eagle had no sites on draft Table 3 and so maps were not produced for these species,

Mountain Hawk-eagle (provisionally uplisted to Near Threatened) tends to occur solitarily or in pairs and is not congregatory at any stage of its annual cycle. Therefore the lack of sites identified for it up until now on draft Table 3 is expected.⁷⁸

Grasshopper Buzzard (Least Concern) is gregarious and on migration and, during the dry season, forms loose congregations of up to 50-100 near grass fires (Ferguson-Lees and Christie 2001). However the numbers so far encountered in the published literature do not generally meet thresholds of international importance, so the lack of sites of international importance for

⁷ <http://datazone.birdlife.org/species/factsheet/mountain-hawk-eagle-nisaetus-nipalensis>.

⁸ This species has provisionally been uplisted to Near Threatened in the 2021 IUCN Red List assessment, but this is not yet reflected in the species’ Factsheet.

Grasshopper Buzzard on Table 3 is expected. The Global Raptor Impact Network (GRIN)⁹ does however report that in Sudan, according to Nikolaus (1987) the species moves north with the rains and 'very large numbers' concentrate in the Khartoum-Gadareg area in September-October. Observations like this might warrant further investigation.

Wahlberg's Eagle (Least Concern) appears to congregate only rarely. Ferguson-Lees and Christie (2001) suggest that many migrate singly, but there can be some local abundance during migration, for example 131 observed on a single thermal (GRIN). The Uganda passage area may observe over 1000 individuals on migration in March and in July-August (Ferguson- Lees and Christie, 2001). These sorts of numbers could potentially approach thresholds of international importance (bearing in mind there is some uncertainty over the global population size for this species). Further monitoring data could be sought from passage areas to see whether sites of international importance could be identified for this species.

Discussion

27. Key findings suggest that species, such as Egyptian Vulture and Steppe Eagle, have substantial gaps in the draft Table 3 site network and that the species are unrepresented on draft Table 3 in significant parts of their range, such as wintering grounds. Additionally, several species have undergone significant range contractions, which may mean these species are no longer occurring at a number of the sites in the network, although this would need to be confirmed through monitoring. It is important to still recognise these sites as they represent candidate areas for conservation efforts focussed on connecting habitats and restoring former ranges.

28. The analysis is likely to be useful for determining which species are most appropriate for site-based conservation strategies. For example, Lappet-faced Vultures dispersing over large tracts of Africa will not be sufficiently protected by the current draft Table 3 list of Sites. Due to the wide-ranging movements of many vulture species and their poorly defined seasonal ranges (in comparison to other raptors), the best option for adequately protecting vultures is likely to include a network of sites spanning their entire distribution. This, in addition to recognising known breeding colonies, roost sites etc will offer a more comprehensive site network than currently exists. Of course site based approaches alone will not be adequate for such species and measures in the wider landscape will be needed in addition. This will be the case for even for the most congregatory Annex 1 species, but an important contribution can be made by a well-managed and secured network of the most important sites covering all stages of the annual cycle where a site-based approach could provide benefit.

29. Further consideration is needed of whether scaling up this pilot analysis to all species on Annex 1 would be valuable and what kinds of actions could be recommended or further developed by way of follow-up to try and improve the comprehensiveness of Table 3.

30. It would be useful, for different Annex 1 species, to try to identify which geographic areas are most important for targeting gap-filling surveys to gain an accurate estimation of how many individuals might be occurring at sites in parts of their range unrepresented in their current draft Table 3 site network. For example, there are currently no draft Table 3 sites in Cinereous Vulture breeding grounds in Mongolia.

31. It is clear that some of the information on species presence at sites is relatively old. Efforts are needed both to increase monitoring of Annex 1 species at known sites and to undertake gap-filling surveys to improve knowledge and provide a basis for identifying new sites of international importance. This would ensure a Table 3 site network that makes a key contribution to maintaining

⁹ <http://www.globalraptors.org/grin/indexAlt.asp>

and restoring populations of Annex 1 species by supporting species at all the stages of their annual cycles in which a site-based approach could be effective.

Action requested:

TAG is requested to consider whether this approach is worth expanding to cover all Annex 1 species. Suggestions on potential further analysis on the network of sites would be welcome.

Annex A

Current number of Table 3 sites (IBAs) falling within different polygons of the BirdLife species range map											
Species	Red List Status	Potential threshold for international importance	Native Breeding	Native Non Breeding	Passage	Native Resident	Extinct	Possibly Extinct	Reintroduced	Total no. IBAs outside BL Range Maps	% IBAs outside BL Range Maps
Pallas's Fish-eagle	EN	5 pairs/ 15 individuals	39	52	33	n/a	n/a	20	n/a	11	7.10
Amur Falcon	LC	≥1% of population present on a regular or predictable basis	0	1	1	n/a	n/a	n/a	n/a	n/a	n/a
Lanner falcon	LC	≥1% of population present on a regular or predictable basis	n/a	6	n/a	25	n/a	n/a	n/a	14	31.11
Egyptian Vulture	EN	5 pairs/ 15 individuals	118	13	67	30	1	n/a	n/a	19	7.66
Lappet-faced Vulture	EN	5 pairs/ 15 individuals	n/a	2	n/a	10	n/a	n/a	n/a	6	33.33
Ruppell's Vulture	CR	5 pairs/ 15 individuals	n/a	2	n/a	4	n/a	n/a	n/a	0	0.00
Steppe Eagle	EN	5 pairs/ 15 individuals	9	1	4	n/a	n/a	n/a	n/a	5	26.32
Cinereous Vulture	NT	10 pairs/ 30 individuals	2	31	2	68	3	n/a	2	8	6.90
Grasshopper Buzzard	LC	≥1% of population present on a regular or predictable basis	0	0	n/a	n/a	n/a	n/a	n/a	0	0
Mountain Hawk Eagle	NT*	10 pairs/ 30 individuals	n/a	n/a	n/a	0	n/a	n/a	n/a	0	0
Wahlberg's Eagle	LC	≥1% of population present on a regular or predictable basis	0	0	n/a	0	n/a	n/a	n/a	0	0

Genuine gap where sites of international importance could be identified for this species in this season

Where congregatory information is lacking from the literature

Where sufficient sites exist across the species range to not constitute a total gap

Lack of sites justified by species ecology in this season

SPA Species presence categories p = permanent, r = reproducing, c = concentration, w = wintering
 * Provisional status as of 2021 IUCN Red List assessment not yet released.

Current number of Table 3 sites (IBAs) falling within different polygons of the BirdLife species range map (cont.)								
Species	Red List Status	Seasonal occurrence of species at IBA for sites falling outside current range map	Total	Maximum Congregation	Provisional 1% of global population threshold	Provisional Global Population Size Min (2021)	Provisional Global Population Size Max (2021)	Provisional Global Population size mean (2021)
Pallas's Fish-eagle	EN	Breeding (4) Resident (3) Unknown (1)	155	Not congregatory	17.495	1000	2499	1749.5
Amur Falcon	LC	n/a	2	10,000 + (Passage)	4335	200000	667,000	433500
Lanner falcon	LC	Resident (7) Breeding (6) Winter (1)	45	~20 (HBW, Native Resident)	3685	67000	670,000	368500
Egyptian Vulture	EN	Breeding (4) Passage (2) Winter (2) Redisent (1) Non-breeding (1)	248	1,171 (Native Resident-India)	242	12,400	36,000	24200
Lappet-faced Vulture	EN	Non-breeding (4) Resident (1) Winter (1)	18	?	65	6500	6,500	6500
Ruppell's Vulture	CR	n/a	6	2000 (Native Resident)	220	22000	22,000	22000
Steppe Eagle	EN	Breeding (4) Unknown (1)	19	310 (Native Non Breeding)	625	50,000	75,000	62500
Cinereous Vulture	NT	Passage (2) Winter (2) Resident (2) Breeding (1) Non-breeding (1)	116	?	198	16,800	22,800	19800
Grasshopper Buzzard	LC	n/a	0	Not congregatory	349.995	20,000	49,999	34999.5
Mountain Hawk Eagle	NT*	n/a	0	Not congregatory	39.5	1200	6,700	3950
Wahlberg's Eagle	LC	n/a	0	1000 (HBW, On passage through Native Resident areas)	3685	67000	670,000	368500

Current number of SPAs falling within different polygons of the BirdLife species range map												
Species	Red List Status	Native Breeding	Native Non Breeding	Passage	Native Resident	Extinct	Possibly Extinct	Reintroduced	Total no. SPAs outside BL Range Maps	% SPAs outside BL Range Maps	SPA category for sites outside range	Total
Lanner falcon	LC	n/a	18	n/a	102	n/a	n/a	n/a	82	40.59405941	p (37), c (34), r (7), w (4)	202
Egyptian Vulture	EN	180	n/a	169	23	n/a	n/a	n/a	38	9.268292683	c (23), r (10), p (3), w (2)	410
Steppe Eagle	EN	0	0	2	0	0	0	0	4	66.66666667	c (5) r (1)	6
Cinereous Vulture	NT	0	43	0	37	14	0	8	25	19.68503937	c (16), p (6), w (2), r (1)	127

Genuine gap where sites of international importance could be identified for this species in this season

Where congregatory information is lacking from the literature

Where sufficient sites exist across the species range to not constitute a total gap

Lack of sites justified by species ecology in this season