Identifying migration routes and wintering sites of Egyptian Vultures breeding in Uzbekistan

PROJECT REPORT 2022/23

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HAWK CONSERVANCY TRUST

Oriental BIRD CLUB

INSTITUTE OF ZOOLOGY ACADEMY OF SCIENCES OF THE REPUBLIC OF UZBEKISTAN

ORNITHOLOGICAL SOCIETY OF THE MIDDLE EAST THE CAUCASUS AND CENTRAL ASIA

The State Committee for Ecology and Environmental Protection Republic of Uzbekistan

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Funders:

This project was funded in 2022/23 by the Conservation Research Fund from Ornithological Society of the Middle East (OSME), the Small Conservation Grant from Oriental Bird Club supported by Abigail, Shiloh, Jason, and Fern Mann; and finally, the Hawk Conservancy Trust, UK, funded the purchase of two transmitters.

SUMMARY

The aim of this project is to identify the migration routes and wintering sites of the Egyptian vulture *Neophron percnopterus* in central Asia. In the first year of the project, 2021/22, three juvenile Egyptian vultures were tagged and tracked on their first migration from Uzbekistan, showing they migrated along the central Asian Migratory Corridor and wintered in India and the Middle East. During the 2022/23 phase of the project the team increased the sample of birds to understand variation between individuals of different ages and geographical areas of Uzbekistan. The project team visited dump sites near the city of Samarkand in Uzbekistan during August 2022 where we encountered up to 350 Egyptian vultures between two dump sites. This suggests Uzbekistan may host more Egyptian vultures than previously thought. Five sub-adults were trapped on the dump sites and tagged with Ornitela satellite tags, bringing the total number of birds tracked to eight. All five sub-adults migrated from Uzbekistan during autumn 2022 and took routes over the Hindu Kush through Pakistan, with all birds arriving to wintering sites in India. All birds arrived in Rajasthan and four of the seven individuals wintering in India have used the internationally important carcass dump at Bikaner. After initially arriving to Bikaner, only two birds remained there by early 2023 while the rest have moved around Rajasthan and one bird into neighbouring Gujarat. A total of seven from the eight birds tracked during the project have wintered in India. Dr Dobrev from the team visited Bikaner in January 2023 and confirmed Bikaner was hosting at least 1,000 Egyptian Vultures during that period. The team have reported these results at two international vulture meetings and the CMS meeting in India.

INTRODUCTION

The Egyptian vulture is an Endangered species with a distribution across Europe, Africa and Asia and the global population is declining across most of its range (BirdLife International 2022). The factors behind this decline are diverse and in most of the cases regionally specific (Oppel et al. 2021). The distribution, numbers and trend are well studied across most of the range of the species and considerable conservation efforts have been undertaken (BirdLife International 2022). Nevertheless, almost nothing is known for the Central Asian population of the species which is poorly studied in many aspects and for only broad population estimates exist (Abuladze & Shergalin 1998, Kashkarov & Lanovenko 2011, Sklyarenko & Katzner 2012). Our project was focused on the Egyptian vulture (EV) population in Uzbekistan where it is also classified as Endangered (Uzbekistan Red Data Book 2019). There is little data available on the status of breeding (or passage) of Egyptian vulture in Uzbekistan, while the first data on their migration routes and wintering sites was only discovered in 2021/22 during the first year of this project (Burnside et al in prep), but the types and number of threats present in Uzbekistan and the wintering grounds remain understudied. It is unknown how important the breeding population in Uzbekistan is for the species, however, Uzbekistan itself is a very important part of the Central Asian Migratory Corridor and it is likely to be a key area for not only breeding Egyptian vulture but also passage Egyptian vulture.

The objectives of the project in 2022/23 were to build-upon the migration findings of 2021/22 by increasing the sample size of tracked individuals to improve our understanding of the variation of migratory behaviour between individuals of different geographical origin and ages. The primary objective was to trap and tag mature birds that had already completed at least one migration. Based on observations by the team in 2021, it was clear many mature birds were present on refuse dump sites. The team setout to develop methods to trap these individuals and fit tags.

MATERIALS AND METHODS

STUDY AREA

The work was carried out at two open dump sites near the towns of Guzar and Qitab (Kashkadarya region) in the eastern parts of the Kyzylkum desert, Uzbekistan between 27 July-4 August 2022 (Table 1).

Legal procedures

To carry out the work, permission to tag Egyptian vultures was obtained according to the legislation of Uzbekistan. This permit is necessary for carrying out any manipulation with rare species included in the Red Book of Uzbekistan (2019). The Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan supported the implementation of this work and prepared the necessary documents for filing an application for catching the Egyptian vulture in April 2022. In July 2022, before carrying out the work, we prepared additional letters for obtaining a permit in The State Committee for Ecology and Environmental protection of the Republic of Uzbekistan, which, in accordance with the procedures, issued a permit No. 000072 (Appendix 1).

Tagging

The capture was attended by two experienced experts in catching and tagging of the vultures – Dr Vladimir Dobrev and Dobromir Dobrev, as well as two local ornithologists - Anna Ten and Valentin Soldatov. Leg-traps and snares were placed in areas within the refuse that were observed to be frequently used by birds. After the trap was placed, the point was observed from a distance suitable not to disturb the vultures. Each trap was monitored continuously and once a bird was caught in the trap it was immediately approached and removed. Birds were hooded immediately to reduce stress. We used Ornitela Ornitrack-30 GPS/GSM transmitters (30g) with ¼ '' teflon ribbon harness in a leg loop configuration to attach the device to the bird. The transmitter with the harness did not exceed 3% of the body mass of the bird and thus was unlikely to affect the survival of the migrating bird (Klaassen et al. 2014). We also took standard measurements from each bird: weight, tail length, cranium, and tarsometatarsus. All birds were caught and released without injury. A total of 5 sub-adults were caught and tagged (three males and two females) and ranged in age from 2 – 5 years (Table 1) old based on plumage(Images 1- 3) .

Table 1. All the Egyptian vultures tagged in 2021 (three juveniles) and 2022 (five sub-adults).

Name (tag ID)	Sex	Date Tagged	Age Tagged	Place	Tagging location	Ring
Sofia.adult.224008.2022	Female	29/07/2022	5 years	Dump Kitab	N 39.18869 E 66.92508	K5055 right
Shirin.adult.224010.2022	Female	30/07/2022	2 year	Dump Kitab	N 39.18869 E 66.92508	K5057 right
Johny.adult.224011.2022	Male	30/07/2022	4 year	Dump Kitab	N 39.18869 E 66.92508	K5056 right
Guzar.adult.224012	Male	31/07/2022	3 years	near Guzar	N 38.58048 E 66.31075	K5058 right
Hissar.adult.224009	Male	01/08/2022	2 years	near Guzar	N 38.58048 E 66.31075	K5059 right
Arys.212859a.2021	Male	28/07/2021	65 days	Arystantau	N 41.23159 E 64.74726	K5050
Anya.212860a.2021	Female	28/07/2021	70 days	Arystantau	N 41.22191 E 64.68213	K5052
Timur.212861.2021	Male	01/08/2021	60 days	Ayakagytma	N 40.65013 E 064.60738	K5054

Image 1. Sofia.adult.224008.2022

Image 2. Guzar.adult.224012

Image 3. Hissar.adult.224009

Dump site counts

The dump sites, “Bi Say" near the Qitab town, as well as "Guzar" near Guzar town in the Kashkadarya region, were observed between 28th July 2022 to 1st August 2022. While observing trap sites, the team counted the numbers of Egyptian vultures present on each site each day and attempted to age all birds seen. Multiple counts were conducted over the days.

RESULTS

Migration of juveniles

Of the three juveniles that migrated in 2021, only Arys.212859a made a return migration (Fig. 1). The other two juveniles (Table 1) remained at their wintering sites through the first spring 2022 and into the second winter 2022/23 (Fig. 1). Arys.212859a took a different return route to central Asia than his autumn migration (Fig. 1) through Pakistan and Afghanistan, and spent the second spring on the border between Tajikstan and Uzbekistan and did not return to its natal area in central Kyzylkum. The juvenile vulture, Timur.212861.2021, that was the only bird to migrate to the middle east remained in Yemen during the winter of 2022/23. Unfortunately, Timur.212861.2021 died on 27th March 2023 in Yemen (15.025011°N 43.471531°E) as indicated by stationary GPS fixes and the activity sensor in the tag becoming static. We attempted to have local conservationists visit the site to confirm the cause of mortality, but we were unsuccessful due to apparent restrictions on visiting the location. Satellite imagery showed the bird became stationary within some type of livestock farm.

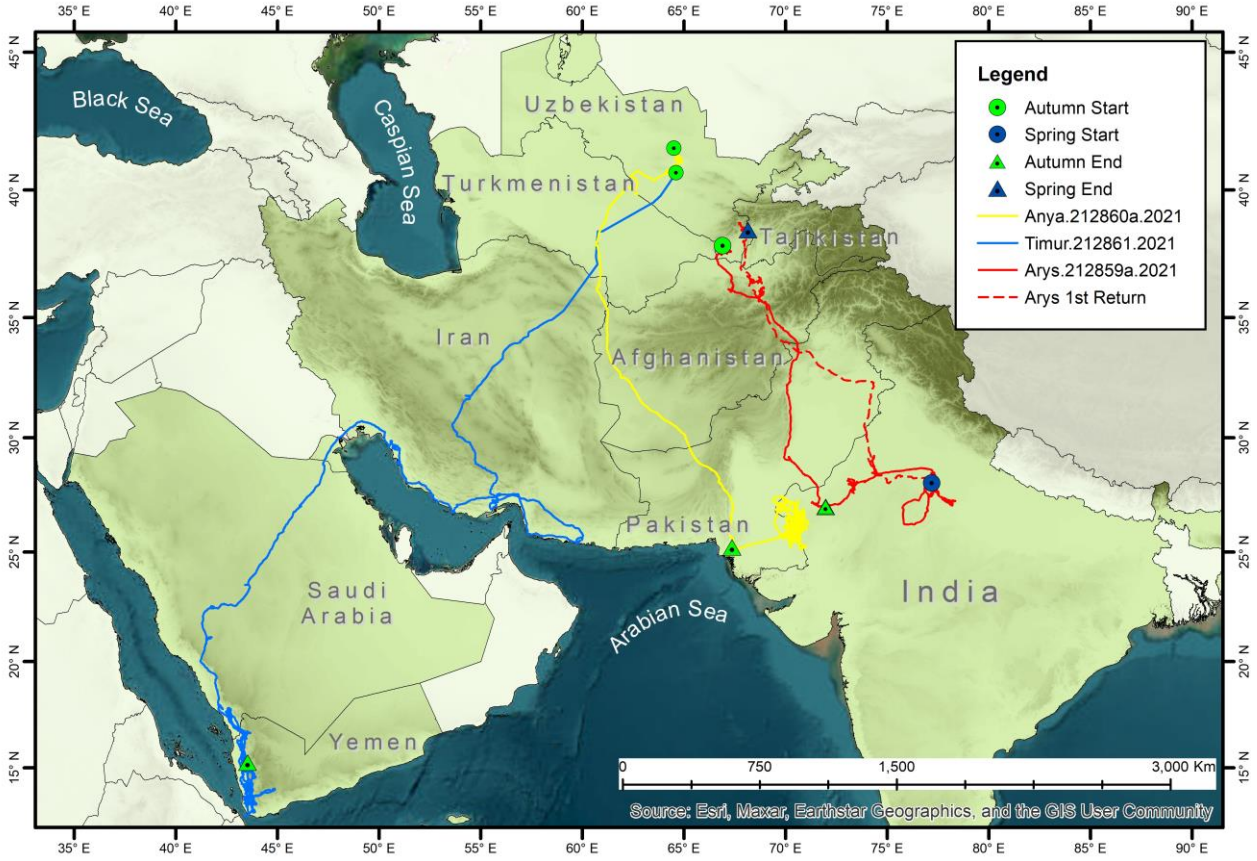


Figure. 1. Three juvenile Egyptian vulture migration movements between August 2021- August 2022. The solid lines are the autumn migration in 2021 and the dashed line is the return migration routes of Arys.212859a (red).

Migration of sub-adults

A total of six sub-adults (five newly tagged and Arys second winter migration) migrated from Uzbekistan between the 20th August and 29th September with most of the birds migrating in late September (Table 2). The mean distance of migration was 2,071 km ± 197 (SD) and the mean duration of 7 days ± 2.1 (SD) to complete the migration (Table 2). All vultures migrated independently of each other, but all took a similar route following a south-east trajectory from Uzbekistan, passing through the Tian Shan

mountains in Tajikistan, then crossing the Hindu Kush in Afghanistan, and finally following the Sulieman ridge south in Pakistan before crossing into India (Fig. 2). All birds arrived to Rajasthan, with four of the six migrants arriving directly to the Jorbeer Carcass dump in Bikaner, Rajasthan (Fig. 3). **VIDEO:** A video of the migration is available at: https://youtu.be/a_9BZgqkucI

Following initial arrival at Jobeer, vultures spread out across Rajasthan with two remaining at Jobeer and one bird moving into Gujarat where these birds remained during the winter (Fig. 3).

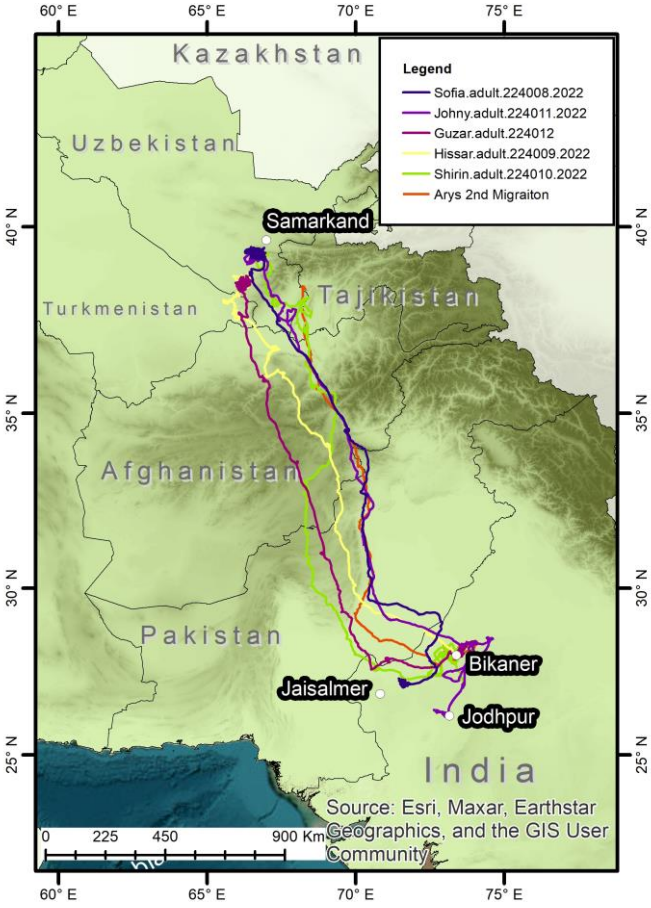


Figure 2. Autumn 2022 migration routes of 6 sub-adult Egyptian vultures from central Asia to India.

Table 2. Autumn migration departure/arrival sites and dates for the six sub-adult Egyptian vultures in 2022.

Name	Migration Start Date	Start location	Migration End Date	Duration	End location	Total Distance [Straight Distance]
Sofia.adult.224008.2022	24/09/2022	Qitab, Uzbekistan	03/10/2022	9 days	Ramdevra, Rajasthan	2,029 km [1,660 km]
Hissar.adult.224009	29/09/2022	Masari Sharif, Afganistan	04/10/2022	5 days	Bikaner, Rajasthan	1,899 km [1,659 km]
Shirin.adult.224010.2022	20/08/2022	Tigrovaya Balka State Nature Reserve, Tajikistan	01/09/2022	11 days	Bikaner, Rajasthan	2,402 km [1,664 km]
Johny.adult.224011.2022	19/09/2022	Qitab, Uzbekistan	25/09/2022	6 days	Kalu, Rajasthan	2,243 km [1,857 km]
Guzar.adult.224012	21/09/2022	Guzor, Uzbekistan	27/09/2022	6 days	Bikaner, Rajasthan	2,036 km [1,619 km]
Arys.212859a.2021	01/09/2022	Galya-Batur, Tajikistan	07/09/2022	6 days	Bikaner, Rajasthan	1,819 km [1,494 km]

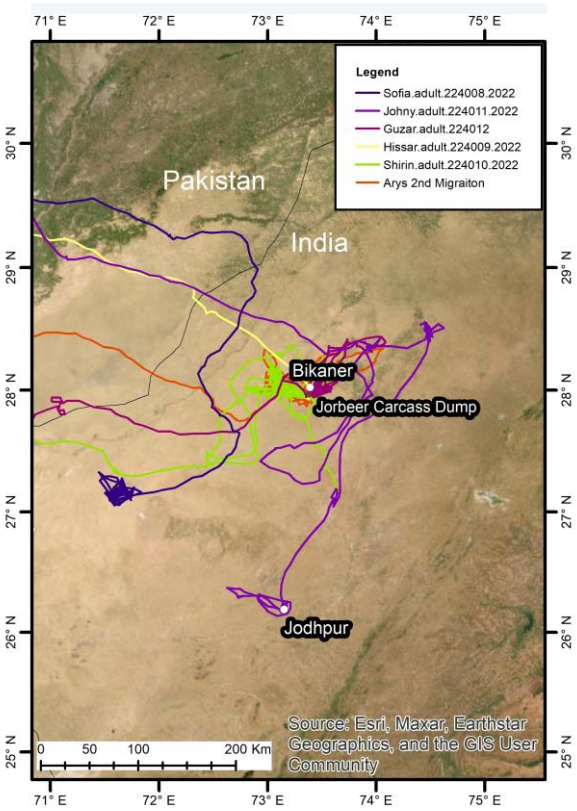


Figure 3. Four of the vultures arrived directly to Bikaner at the end of migration, and a total of four of the seven vultures wintering in India used the Bikaner dump site.

Dump site counts

Multiple counts were conducted during and across days at Guzar and Qitob (Table 3). The number of vultures varied between counts. Both sites hosted a large number of foraging Egyptian vultures with a maximum of 200 individuals observed at Guzar and 150 at Qitob. Attempts were made to age as many birds as possible which revealed a mixture of adult (6+ years old) and sub-adults (< 6 years old) utilizing the dumps with approximately 25% of birds counted classed as adults. Three other dumps near Tashkent were visited but these held few vultures with two sites containing three or less birds and no birds present at the last dump site near Tashkent. The Uzbek Egyptian vulture population was estimated as 135 breeding pairs (270 individuals) in 2011 and is considered rare and breeding in low numbers (Kashkarov & Lanovenko 2011). Therefore, the numbers found here, assuming no movement of vultures between Qitob and Guzar, are significant as an estimated 350 birds are hosted on these sites.

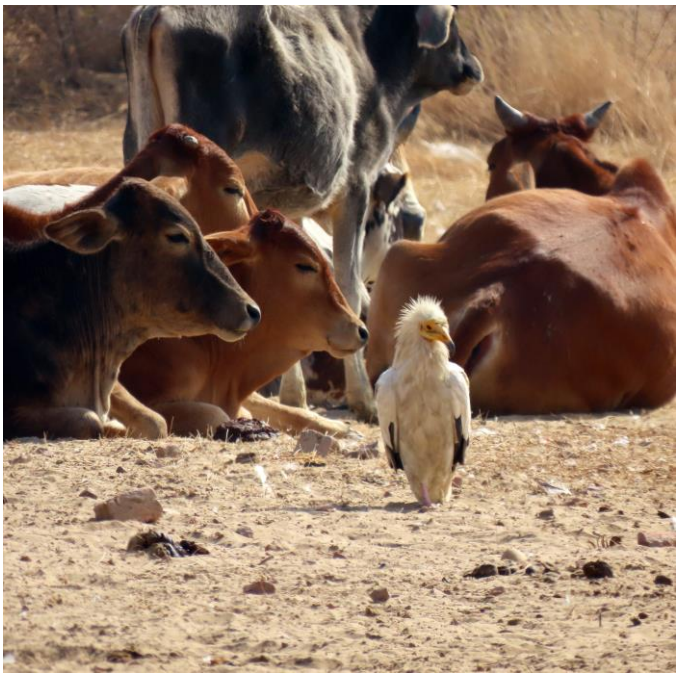
Image 4. Dump site in Uzbekistan used by feral dogs and vultures.

Table 3. Detailed Egyptian Vulture counts on dumpsites in Uzbekistan.

№	Dumpsite	Latitude	Longitude	Date	Start	End	Count	Age 6+	Unden-tified	estimation
1	Kitob	39,18869	66,92508	28.07.2022	16:44	18:44	60		60	
2	Kitob	39,18869	66,92508	29.07.2022	5:34	5:44	97		97	173-200 birds
3	Kitob	39,18869	66,92508	29.07.2022	6:48	7:11	173	56	2	173-200 birds
9	Kitob	39,18869	66,92508	29.07.2022	12:30	12:40	20		20	173-200 birds
10	Kitob	39,18869	66,92508	29.07.2022	17:30	18:30	15		15	173-200 birds
11	Kitob	39,18869	66,92508	30.07.2022	5:40	6:00	60		60	171-200 birds
12	Kitob	39,18869	66,92508	30.07.2022	6:30	6:40	100		100	171-200 birds
13	Kitob	39,18869	66,92508	30.07.2022	6:46	6:59	171	58		171-200 birds
14	Kitob	39,18869	66,92508	30.07.2022	9:10	9:20	120		120	171-200 birds
15	Kitob	39,18869	66,92508	30.07.2022	10:03	10:10	85		85	171-200 birds
16	Kitob	39,18869	66,92508	30.07.2022	11:34	11:45	35		35	171-200 birds
17	Guzar	38,58048	66,31075	31.07.2022	6:48	7:10	133	50	21	133-150 birds
18	Guzar	38,58048	66,31075	01.08.2022	6:10	6:20	40		40	
19	Guzar	38,58048	66,31075	01.08.2022	8:20	8:30	78		78	
19	Tashkent	41,0973	69,47641	03.08.2022	9:34	10:00	0			
19	Akhangaran	40,96457	69,61497	03.08.2022	10:50	11:10	3	2		
20	Kaplanbek	41,456503	69,207201	27.07.2022	15:00	15:10	2	2		

BIKANER VISIT

In January 2023, Dr Vladimir Dobrev (Egyptian vulture Conservation officer at Bulgarian Society for the Protection of Birds/BirdLife Bulgaria and Co-founder of the Central Asian Vultures) visited Rajasthan to further explore one of the wintering congregation sites, Bikaner, where several of the tracked vultures reside. Bikaner contains a well-known carcass dump site that supports thousands of vultures from different species during the winter. During the visit (9-14th January 2023) Dr Dobrev counted a minimum of 1000 Egyptian vultures, which included two that had been tagged by the team in Uzbekistan. Along with them there were at least 800 Griffon vultures, 16 Cinereous vultures, six Himalayan vultures and 1000 Steppe eagles.



PUBLIC AWARENESS WORK

- The website www.CentralAsianVultures.org is dedicated to our work and the future development of the Egyptian and other vulture species work in the region. We continue to publish news posts and updates on the website.

- On 8th November 2022, Anna Ten and John Burnside each gave a presentation on the status of Egyptian Vultures in Uzbekistan and the migration results from 2022/23 at the Life+ Egyptian Vulture Online Conference.

- On the 24th January 2023, Vladimir Dobrev presented the migration and wintering site results at the annual SAVE meeting (Saving Asia's Vultures from Extinction). SAVE is a consortium of 24 partners working together to implement actions for the recovery of globally endangered vultures.

- May 2023- Anna Ten attended the 'CMS Range States Meeting on the Institutional Framework and Next Steps for the Central Asian Flyway' (2nd-4th May 2023, New Dehli, India). The Egyptian Vulture Migration results were presented (Image 5) and included within the CMS draft plans for Raptors.

Image 5. The Central Asian Vultures results being reported at the CMS meeting.

CONCLUDING REMARKS

The migration data presented here confirm and support the conclusion that the majority of Central Asian Egyptian Vultures do winter in India, and that India is a critical wintering location for this species. Particularly, Bikaner as a single site holds great importance for these populations and requires good protection and management. The utilization of a single site by such a large number of individuals makes it vulnerable to a catastrophic event such as poisoning. The project has seen surprisingly little mortality in the birds in comparison to the migratory European populations, with only the first mortality occurring in March 2023. It is again important to maintain this good survival status of the central Asian population. Lastly, it is becoming clear that Uzbekistan is host to a larger population of Egyptian vultures than previously thought. It is important that we investigate this further to quantitatively establish the current population size and confirm the countries global significance for the Egyptian vulture.

FUTURE WORK

The next steps of the project in 2023/24 are to continue one more year of tagging work to increase the sample size of mature individuals from Uzbekistan. Secondly, the numbers of vultures present on the dump sites indicate that Uzbekistan could be an important country for EV with the large congregations present. The team will start to systematically assess the EV population present at different dump sites in the country.

DATA AVAILABILITY

The tracking data from this study is archived at MOVEBANK.ORG. This data will be made publicly available on completion of the study. The project name is: “Egyptian vulture Neophron percnopterus Uzbekistan” and the Movebank ID is: 1613108054.

ACKNOWLEDGEMENTS

We kindly acknowledge and thank Dobromir Dobrev for his invaluable assistance during the vulture tagging. For the implementation of this project, financial support was gratefully received from OSME; the Oriental Bird Club (supported by Abigail, Shiloh, Jason, and Fern Mann), and the Hawk Conservancy Trust, UK (Dr Campbell Murn and Hannah Shaw). The study was also supported by the Institute of Zoology from the Academy of Sciences of the Republic of Uzbekistan, represented by the director B.R. Kholmatov; and the State Committee for Ecology of Uzbekistan, represented by the head of the biodiversity conservation department A. B. Kazakov. Thanks to their support, we received permission to carry out work on tagging EVs in Uzbekistan.

We also thank Dr. Roman Kashkarov, Director of UzSPB, for the organizational support; Dr Elena Bykova, Maria Gritsyna and Timur Abduraupov for their help in providing information on the location of vultures and their nests in 2021.

Image 6. Field team in Uzbekistan (2022), Dobromir Dobrev, Vladimir Dobrev, Anna Ten and Valentine Soldatov (left to right).

REFERENCES

1. Abuladze, A. & Shergalin, J. (1998) The Egyptian vulture Neophron percnopterus in the former USSR. In: Chancellor, R.D., Meyburg, B.U., Ferrero, J. (Eds.) Holarctic birds of prey. ADENEX-WWGBP, Badajoz, pp. 183-195
2. BirdLife International (2022). *Neophron percnopterus*. *The IUCN Red List of Threatened Species* 2019: e.T22695180A154895845. https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22695180A154895845.en. Downloaded on 30 March 2022.
3. Burnside, R. J., Ten, A., Soldatov, V. & Dobrev, V.(in prep) First identification migration routes and wintering sites of Egyptian vultures breeding in Uzbekistan: Report 2021/2.

4. Kashkarov, R. D. & Lanovenko, E. N. (2011) Action Plans on Conservation of the World`s Endangered Bird Species in Uzbekistan: Saker Falcon and Egyptian Vulture. Uzbec Sosiety for Protection of Birds, Tashkent, 56 p. [in Russian]
5. Klaassen, R.H.G., Hake, M., Strandberg, R., Koks, B.J., Trierweiler, C., Exo, K.-M., Bairlein, F. & Alerstam, T. (2014). When and where does mortality occur in migratory birds? Direct evidence from long-term satellite tracking of raptors. J. Anim. Ecol. 83: 176–184.
6. Oppel, S., et al. 2021. Major threats to a migratory raptor vary geographically along the eastern Mediterranean flyway. Biological Conservation 262: 109277. https://doi.org/10.1016/j.biocon.2021.109277
7. Sklyarenko, S. L. & Katzner, T. (2012) Status of the populations of scavenging birds of prey in Kazakhstan. In: Kovshar, A. F et al. (Eds.) Ornithological journal of Kazakhstan and Central Asia. Vol. 1. MOO-SOPK-ASBK. Pp: 178-185. [in Russian]
8. Uzbekistan Red Databook (2019). Vol II. Animals. Tashkent, 2019.

Appendix 1: Permissions document from Gosbiokontrol to catch and tag four vultures.

O'ZBEKISTON RESPUBLIKASI
EKOLOGIYA VA ATROF
MUHITNI MUHOFAZA QILISH
DAVLAT QO'MITASI

ГОСУДАРСТВЕННЫЙ КОМИТЕТ
РЕСПУБЛИКИ УЗБЕКИСТАН
ПО ЭКОЛОГИИ И ОХРАНЕ
ОКРУЖАЮЩЕЙ СРЕДЫ

RUXSATNOMA

Qizil kitobga kiritilgan yovvoyi hayvonlarni tabiiy hududdan ajratib olishga

РАЗРЕШЕНИЕ

на изъятие из природной среды диких животных, занесенных в Красную книгу

Berildi / Выдано ИНСТИТУТ ЗООЛОГИИ АКАДЕМИИ НАУК РЕСПУБЛИКИ УЗБЕКИСТАН

Ovlash maqsadi / Цель добычи Отлов без изъятия, **Ovchilik guvohnomasi** разрешение на охоту

Ov hududi / Территория охоты Наманганская область: *Тайлы, Учкудук*
Кашкадарьинская область: *Чиракчи: Китоб: Шахрисябз и Яккабаг*

Tur nomi / Название вида	Miqdori / Количество		Muddati / Срок охоты
Обыкновенный стервятник Neophron percnopterus	2 особи (взрослые)	Без изъятия	22.07.2022 - 10.08.2022 год
Обыкновенный стервятник Neophron percnopterus	3 особи (молодые)	Без изъятия	22.07.2022 - 10.08.2022 год

При мечении, ни одна особь хищных птиц не должна пострадать

Отлов производить в строгом соблюдении установленных норм и требований природоохранного законодательства (Закона Республики Узбекистан «Об охоте и охотничьем хозяйстве, постановления Кабинета Министров Республики Узбекистан от 20.10.2014г. №290, Правил охоты и рыболовства на территории Республики Узбекистан»

Ruxsatnoma hududiy ekologiya va atrof muhitni muhofaza qilish organlarida ro'yxatdan o'tgan taqdirda haqiqiy. Joylardagi ekologiya va atrof muhitni muhofaza qilish organlariga taqdim etilishi lozim. Amal qilish muddati tugagandan so'ng ovlangan hayvonlar to'g'risidagi hisobot bilan birga berilgan joyga 10 kun ichida qaytariladi.

Разрешение действительно при отметке в территориальных органах по экологии и охране окружающей среды. Подлежит предъявлению органам по экологии и охране окружающей среды на местах. По окончании срока действия (в течение 10 дней) с отчетом о добытых животных возвращается по месту получения.

Asos / Основание: Заявление №01-09/380 от 07.07.2022г. (3338БТ) мечение птиц в научных целях

Tashkilot rahbari / Руководитель организации: М.O'.(М.П.) Imzo (Подпись)

ГОСКОМЭКОЛОГИИ

«22» июль 2022 у. г.