

Final Evaluation Report

Your Details	
Full Name	Dulan Pathum Jayasekara
Project Title	Conservation of large and medium terrestrial carnivores within and outside Kumana National Park
Application ID	38961-2
Date of this Report	2/09/2024

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Preliminary surveys to evaluate habitat availability				We could complete this objective with great success. A full paper has been submitted to a journal for publication. The very first detailed high resolution habitat map will be available with that.
Camera trap survey				This has been the most successful camera trap survey conducted by us to this date with exciting footages and findings.
Awareness programs/establishment of information boards				Three awareness programs (2 for pilgrims/visitors/villagers/officials and 1 for school children) were successfully conducted. Especially the workshop for school kids was a great success.
Publications/symposia/conferences				The outcomes of this project have been published in a number of local and international symposia and conferences. Two of the major conferences that are coming up include

				SCCS Bangalore, India and ISBE 2024 Congress Melbourne, Australia where our work will be presented. One of the most exciting papers on the population density of Leopards is currently under review in a reputed journal and will be out soon. Few more papers to follow.
Documentary creation				The support provided by Rufford helped us immensely to fulfil this objective to a great extent. An extended trailer on our documentary can be seen through the following link. However, with limited resources we will try our best to complete the full documentary soon.
Data analysis/species and habitat map generation/Knowledge sharing				We have done comprehensive data analysis to investigate multiple aspects including multiple ecological aspects of the focal species, anthropogenic interventions/disturbances on wildlife and

2. Describe the three most important outcomes of your project.

a). Generation of population density estimates for the terrestrial mammals of Kumana National Park for the very first time: For the first time, we have successfully generated population density estimates for the terrestrial mammals of Kumana National Park, yielding invaluable insights for the conservation and status evaluation

of key species. Among our most remarkable discoveries is the revelation that this area harbours one of the highest population densities of leopards in the world. The accuracy of our findings underscores the extraordinary nature of this density, which is supported by a rich prey base, including spotted deer, wild boar, sambar, and wild buffalo. Our comprehensive study, encompassing all medium and large-sized mammals, offers crucial insights into these ecological dynamics. The results of our work underscore the urgent need to prioritize the conservation of this unique landscape with its irreplaceable wildlife. Several scientific papers with these exciting findings will be published soon.

b). Conservation awareness: We could approach multiple stakeholders including the park officials, visitors, local villagers including farmers, seasonal pilgrims, school kids, safari jeep drivers and eco-tourism operators. One of our major target audiences was the religious devotees of the annual pilgrimage which take place every year. These people traverse the park and unwittingly disturb the wildlife and leave behind a trail of litter in considerable volumes. During the duration of the project, we supported the spreading of the message for conservation in direct and indirect approaches. This crowd of visitors, not only included pilgrims, but also casual visitors and photographers and other influencers as well. We participated during the 2023 event as well as 2024 event. During this time span of only one year, we observed a significant improvement in the behaviour of pilgrims as well as a reduced amount of litter. The local villagers, safari jeep owners, park officials, forces and other corporate parties were involved in the post pilgrimage cleanup events that were conducted. The details of the final year cleanup are given in the attached image. When compared to the 1 ton of litter collected in year 2023, it was reduced to ~720 kg in the year 2024 while a considerable reduction in anthropogenic disturbances was also observed.



The most successful awareness event was the workshop conducted for school kids "Creative Wild Eye – Young" where the children were allowed to express their messages towards

conservation in creative ways through conservation art and other interactive activities. They were given gifts, and certificate to encourage their attempts.

c). Wildlife Documentary: Thanks to the equipment provided with the support of Rufford Small Grant 1 and 2, we could obtain a considerable amount of footage for our final objective of documentary creation. While it has taken us a more than desired time, I am happy to share an extended trailer to our documentary which focus on leopards and other faunal species that are associated. This will be compiled with videos captures on site as well as camera trap footage which will be a different experience altogether. **Please follow this link that leads to the extended trailer of our documentary which is still under development.**

<https://photos.app.goo.gl/afYd3rxDBuaEsprx5>

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Compared to the previous project which was conducted during Covid-19 period, this project could be conducted with greater freedom. However, Sri Lanka had to face a catastrophic economic crisis starting from June 2022, and to this date the country is still under recovery. Therefore, we had to afford unforeseen increases in all cost components including travel, food and subsistence and accommodation. Some costs increased by trifold during the last couple of years which resulted in exceeding the projected cost estimates.

With the restrictions for drones within the national park, we were unable to capture some of the landscape scenes which would have added more value to the documentary. However, we replaced them with ground footages.

Seasonal floods in some parts of the park restricted our work for short durations. In such instances, our safari jeep driver Asanka did his best to reach our targeted sites.

Though we received a telephoto lens through the Rufford Small Grant, we are still using two old DSLR camera bodies and basic tripods that we had with us. We faced some stabilization issues in our video captures due to these technical difficulties. However, our team video graphed with great determination, manually handling the cameras and lenses most of the time the videos were hand supported rather than tripod or gimble. While acknowledging that we still need improvements in this segment, we will try our best to deliver the best possible outcomes with limited resources.

We received 10 new camera traps from this grant which were a great addition to our set of cameras. Unfortunately, many of the trail cameras from our past projects were not operational due to heavy weathering during the past 5 or 6 years in field conditions. Therefore, we were highly restricted with the number of operational cameras. We modified the study design and methodology to reduce the impact of this limitation.

The usual challenges that we face in a terrain where elephants, leopard, and sloth bear frequently roam, were there and I admire and appreciate the courage, determination and passion showed by my team.

4. Describe the involvement of local communities and how they have benefited from the project.

The local villagers and pilgrims were made aware about the value of conservation. We especially targeted the younger generation and hopefully the message will pass on to the next generations with this little seeding of ideas.

The school kids, school teachers were made aware about the conservation values, the social responsibilities they have and also about sustainable livelihoods they can take using the invaluable natural resources they are gifted with in a sustainable manner. The kids received gifts, crafts with conservation messages, and valuable certificates.

By the second year, the local community including farmers, eco-tourism operators and safari jeep owners were actively involving in the cleanup work and other related work to conserve these extraordinary habitats of leopards and many other fauna and flora.

Several wildlife volunteer rangers from the area as well as safari jeep operators significantly contributed to our work and they were highly benefitted with the training they got in relation to different techniques of wildlife surveying and overall knowledge gained in terms of species identification and ecology

5. Are there any plans to continue this work?

We really do want to continue this work in this area as well as in some other critical habitats of medium and large sized mammals of Sri Lanka. It has been an amazing journey over the last several years starting from my previous Rufford Small Grant. While we are still committed for our work on medium sized mammals, with the steps initiated during this second Rufford grant, we could generate important findings about the populations of leopard and sloth bear in this region. Moreover, our plan is to expand our scope towards the conservation of Sri Lankan elephant which is a significant animal that shape the landscapes of this island. However, as a country the level of conflict between elephant's vs humans and leopards vs humans increase in a rapid rate and we feel that there's a responsibility and duty that needs to be fulfilled by us to protect these amazing creatures from going in to peril. Our future work will be focused on conflict mitigation and make a paradigm shift towards peaceful coexistence of all animals sharing these landscapes. For this purpose, we will try to initiate a multifaceted approach which involve the grassroot level interventions and national level policy influences. Finally, an attitude change in all stakeholders.

6. How do you plan to share the results of your work with others?

We have already presented our work in a number of symposia and conferences. Some other work will be presented in upcoming international symposia including Student Conference For Conservation Science (SCCS Bangalore 2024) and International Society for Behavioural Ecology Congress (ISBC 2024 Melbourne – will be presented by one of our team members of first grant who is currently there for his

PhD) both of which are excellent platforms for sharing conservation work experiences.

We have submitted several full paper to be published in peer reviewed scientific journals. Some of the paper titles and submitted journals are provided below;

We submit our findings to the relevant policy making bodies including the Department of Wildlife and Ministry of Environment as well as IUCN specialist groups to help in status evaluations.

Via the upcoming documentaries we try to capture a diverse and greater audience locally and internationally as a way of sharing our work and findings in a creative manner.

7. Looking ahead, what do you feel are the important next steps?

We feel that there's a responsibility and duty that needs to be fulfilled by us to protect these amazing creatures from going in to peril. Our future work will be focused on conflict mitigation and make a paradigm shift towards peaceful coexistence of all animals sharing these landscapes. For this purpose, we will try to initiate a multifaceted approach which involve the grassroot level interventions and national level policy influences. Finally, an attitude change in all stakeholders.

So far we have covered a considerable amount of protected areas and adjacent areas which facilitate the terrestrial large and medium sized terrestrial carnivores of Sri Lanka. We hope to extend our work to cover the remaining important protected areas such as Wilpattu National Park and Udawalawa National Park.

As previously mentioned, we feel that there's a responsibility and duty that needs to be fulfilled by us to protect these amazing creatures from going in to peril. Our future work will be focused on conflict mitigation and make a paradigm shift towards peaceful coexistence of all animals sharing these landscapes. For this purpose, we will try to initiate a multifaceted approach which involve the grassroot level interventions and national level policy influences. Finally, an attitude change in all stakeholders. We consider focusing more on larger mammals (leopard, sloth bear, elephant) as well as larger reptiles such as the crocodiles since they play multiple roles acting as keystone species, umbrella species and flagship species with characteristics that can influence the attitudes and human perceptions.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

We always acknowledge The Rufford Foundation in our work. In almost all our publications/social media posts we acknowledge the organization and the support extended via this grant scheme.

During our workshops we include the logo in the material that is provided (leaflets/broachers/t-shirts/stickers).

In our video documentary we will use the Rufford Logo to thank the organization.

In the Kumana National Park, we have included the Rufford logo in the information boards. We did this in our previous project as well. This kind of boards provide important information to the public/visitors and provide a good publicity to the supporting organizations.

9. Provide a full list of all the members of your team and their role in the project.

Ms. Tharanga Dasanayake (B. Sc.) (PhD candidate) – A postgraduate researcher in our team who has been with us since the first Rufford Grant. Contributed during all field work and project management. An experienced member of our team.

Ms. Vinuri Mendis (B. Sc.), (M. Phil candidate) - A postgraduate researcher in our team who has been with us since the first Rufford Grant. Contributed during all field work and project management. An experienced member of our team. Recently began her PhD work in Canada.

Mr. Pasindu Rodrigo (B. Sc.) – Early career researcher with BSc degree. Actively engaged in field work and data analysis, map creation and paper writing. Provide camera trapping and analysis training to the new team members. Actively supported the workshop work. Presented in several symposia.

Ms. Charani Gunathilake (B. Sc.) – Early career researcher with BSc degree. Actively engaged in field work and paper writing. Actively supported the workshop work. Presented in several symposia.

Ms. Hiruni Weerasinghe (B. Sc.) – Fresh graduate. Contributed for field work. Actively supported the workshop work. Presented in several symposia.

Ms. Chanima Anawarathna (B. Sc.) - Fresh graduate. Contributed for field work and data analysis. Actively supported the workshop work. Presented in several symposia.

Mr. Pawan Wishmith (B. Sc.) – Supported the field work during the initial part of the project. Provide camera trapping and analysis training to the new team members.

Ms. Sachini Sigera (B. Sc.) - Supported the field work during the initial part of the project.

Mr. Dushantha Jayakody: Supported during workshops.

Mr. Dilantha Samaranayake – Park Warden of Kumana National Park. Provided vital support throughout for our field work and workshops/cleanup/awareness programs representing the park management.

Mr. Wasantha Dissanayake - Wildlife ranger attached to the Department of Wildlife Conservation. Provided vital support for all the field work including excursions into

the deep forest. Provided vital support throughout for our field work and workshops/cleanup/awareness programs representing the park management. A resource person for the school workshop.

Mr. Ajith Kumara - Wildlife volunteer guide attached to the Department of Wildlife Conservation. Provided vital support for all the field work including excursions into the deep forest and camera trapping. The person who joined us for most of the field work in difficult conditions.

10. Any other comments?

I would like to acknowledge the Rufford Foundation, trustees, grant managers, and trust managers for providing me with the opportunity to initiate and conduct this project with your funding. As an early career researcher and an academic this Rufford Small Grant immensely helped me to achieve my objectives and research goals. My gratitude is extended to my PhD supervisor and grant referee Prof. Dharshani Mahaulpatha for her guidance throughout. I thank my grant referees (Dr. Kalinga Padmalal and Dr. Sanjay Molur) for their comments, support and trust during the application process. Wildlife Circle team, DWC and everyone who supported are thanked.

Rufford Foundation the Rufford Small Grants programme has played a pivotal role in shaping my research and conservation journey, especially during the early stages of my academic career. During my PhD, when resources were scarce, the first Rufford small grant I received was instrumental in enabling me to successfully complete my research on medium-sized mammals. This grant allowed me to carry out crucial fieldwork, and most importantly, engage with local communities/stakeholders to raise awareness about the conservation of our valuable wildlife heritage. The impact of this grant extended beyond the academic realm, as it also empowered us to play active roles in delivering the message of conservation to a broader audience.

As I transitioned into my academic career, I found myself once again in need of financial support to continue my research conservation efforts. The second Rufford small grant came at a time when funding opportunities were limited, yet the need for research and conservation was pressing. This grant enabled us to conduct extensive research in Kumana National Park, where we achieved remarkable results in the conservation of terrestrial large and medium-sized carnivores. The outcomes of this project have not only contributed to the scientific understanding of these species but have also enabled us to deliver tangible conservation benefits within the park. And I want to highlight that this project took place during a time when our country faced the worst financial crisis in its history. Therefore, if we didn't receive this grant, we wouldn't be able to achieve this success.

In a country like Sri Lanka, where funding for research and conservation is often limited, the support provided by the Rufford Foundation is invaluable. For young and early career researchers like myself, these grants are more than just financial aid; they are a lifeline that allows us to pursue our passion for conservation and make meaningful contributions to the preservation of our natural world. The Rufford Foundation's commitment to supporting early-stage projects has a profound impact, not only on individual researchers but also on the entire next generation of young conservationists. Our team consists of such young individuals with great

passion for research as well as conservation. I am delighted to inform that the field work we conduct are pivotal for such individuals. Over the last several years we have been blessed with a group of such passionate young minds and with the support we received through the Rufford grant we could groom them to be influential in their own work as well.

I am deeply grateful to the Rufford Foundation for their unparalleled support and for believing in the potential of young researchers. Their contributions have been instrumental in the success of my projects and continue to inspire me to strive for excellence in conservation.

➤ Submitted papers

Spatiotemporal distribution and population density of endangered Sri Lankan Leopard (*Panthera pardus kotiya*) in Kumana National Park, Sri Lanka

Pasindu Rodrigo¹, Chanima Anawarathna¹, Hiruni Weerasinghe¹, Ajith Kumara², Charani Gunathilake¹, Sachini Sigera¹, Pawan Wishmith¹, Vinuri Mendis^{1,3}, Tharanga Dhananjani^{1,3}, Wasantha Dissanayaka², Dilantha Samaranyaka², Dulan Jayasekara^{1**} and Dharshani Mahaulpatha^{1*}

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Acknowledgments

We appreciate the generous cooperation of the Kumana National Park staff and the Department of Wildlife Conservation for granting permission to conduct this research under the permit No: WL/3/2/44/22. We would also like to express our gratitude to the University of Sri Jayewardenepura and the Rufford Small Grants programme for facilitating to conduct this research. We extend our gratitude to the Indika, Asanka, Chanaka and Gunasinghe for their support during the field work.

Funding

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Assessing Habitat Utilization, Activity Pattern and Population Density of the Globally Threatened Sri Lankan Sloth Bear (*Melursus ursinus inornatus*) in Kumana National Park

Rodrigo, B.K.P.D.¹, Anawarathna, M.A.D.C.K.¹, Gunathilaka, W.D.C.N.¹, Jayasekara, E.G.D.P.¹ and Mahaulpatha, W.A.D.^{1*}

¹Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

A Comprehensive Analysis for Habitat Categorization and Vegetation Mapping of Kumana National Park, Sri Lanka

Pasindu Rodrigo¹, Charani Gunathilaka¹, Dulan Jayasekara¹ and Darshani Mahaulpatha^{1*}

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5. Acknowledgement

We appreciate the support received from all the staff of Kumana National Park, Sri Lanka. We thank the Department of Wildlife Conservation for granting permission to conduct our research work under the Permit No: WL/3/2/44/22. We would also express our sincere gratitude to the Department of Zoology, University of Sri Jayewardenepura, the Wildlife Circle, and **Rufford Small Grants programme (Grant ID: 38961-2)** for the facilities and equipment provided. We humbly appreciate Mr. R.A.D. Samaranayaka (Park Warden - KNP), Mr. Wasantha Disanayaka (Wildlife Range Assistant) and Mr. Ajith Kumara (Volunteer guide) for the field assistance throughout our work

Population density estimation of terrestrial mammals in recreational areas of Kumana National Park based on random encounter model

Chanima Anawarathna¹, Pasindu Rodrigo¹, Dulan Jayasekara^{1*} and Darshani Mahaulpatha¹

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➤ **Other published work**

- IRCUWU 2024: Temporal habitat utilization of meso-carnivores (Order: Carnivora) in Kumana National Park - 2024
- International Forestry Symposium 2023: Spatiotemporal Habitat Use of Family Viverridae in Kumana National Park, Sri Lanka
- WildLanka 2023: Activity and Temporal Niche Overlap of Sri Lankan Leopard (*Panthera pardus kotiya*) with Sympatric Medium-sized Mammals in Kumana National Park, Sri Lanka – 2023

➤ **Field work and Workshops**







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தமண தேசியப் பூங்காவின் மத்திய மற்றும் பெரிய அளவிலான முலையூட்டிகள்
Large and medium sized mammalian species of Kumana National Park

Contributors: Prof. Dhanjani Mahalinga, Dr. Dulani Jayawardana, Tharanga Dissanayake, Vinuth Mendis, Pawan Wickramasinghe, Pradeepa Bandula, Chandra Gunaratne, Indika Ranasingha, Indrani Jayasinghe (Wildlife Circle, Department of Zoology, F.A.S., University of Sri Jayawardenapura, Sri Lanka), RASND (Kumana National Park), Wimala, D.M. Wimala (Department of Wildlife Ranger Assistant), Ajith Kumara (Volunteer Guide)

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Supported by: Rufford Foundation

A project by: Wildlife Circle, University of Sri Jayawardenapura

"In every walk with nature, one receives for more than he seeds" - John Muir



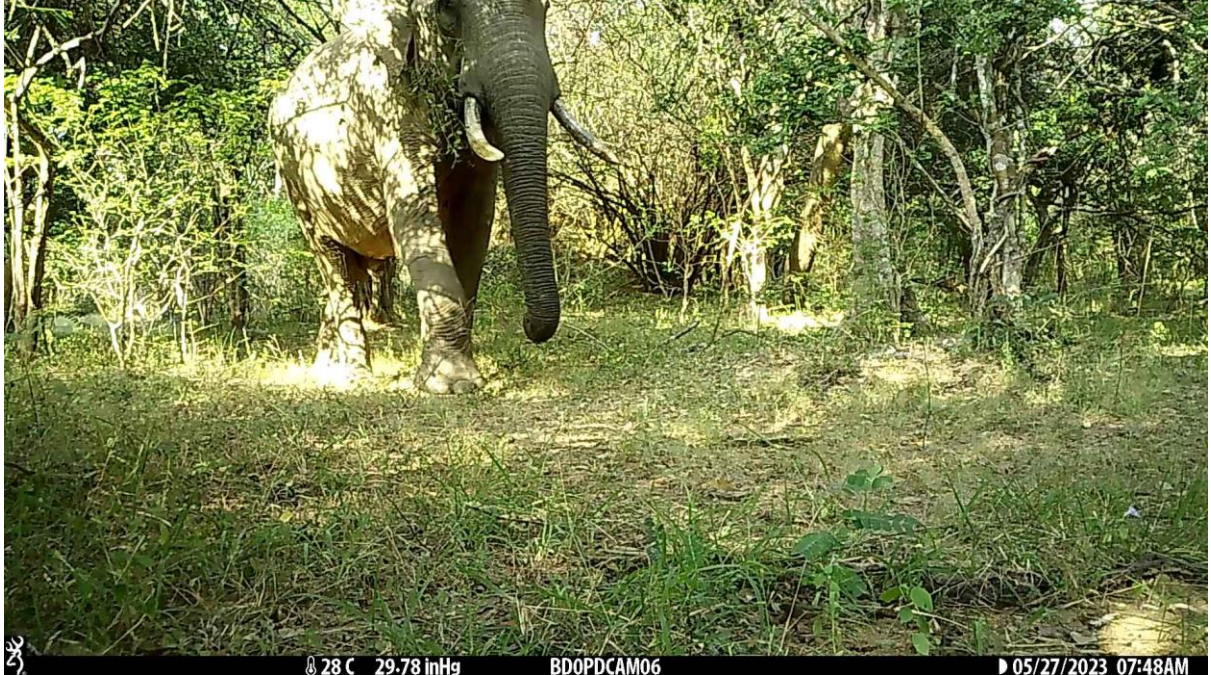
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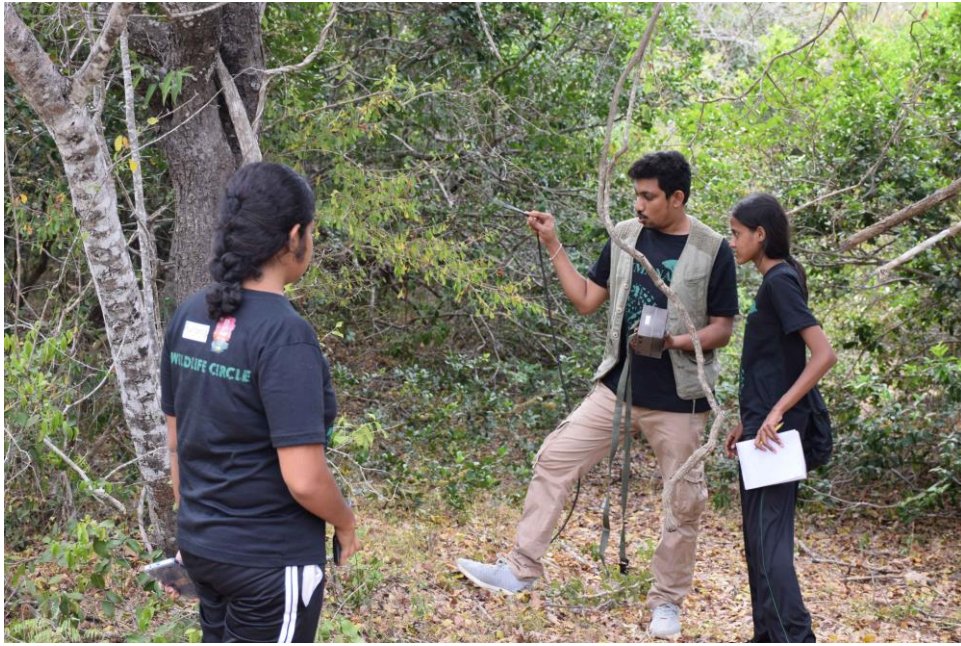


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SAVE LEOPARDS





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The image is a promotional poster for leopard conservation. At the top, the text "SAVE LEOPARDS" is written in white, bold, uppercase letters on a dark green background. Below this is a large circular frame containing a close-up photograph of a leopard's face, looking directly at the camera. In the bottom left corner, there is a square QR code. At the bottom, there are two logos: "Wildlife Circle" with the text "UNIVERSITY OF SRI JAYAWARDENAPURA" underneath, and "The Rufford Foundation" with the website "www.rufford.org" and social media handle "@ruffordfndm" below it. The text "WILDLIFE CIRCLE - USJ" is centered between the two logos.