



MSTrIPES SITE-WISE TRAINING REPORT

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MSTrIPES SITE-WISE TRAINING REPORT

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Wildlife Institute of India





Frontline staff using the Patrol app during the training session in Kali Tiger Reserve

Introduction:-

Globally, an evident surge has been witnessed in the adoption of technologically sophisticated applications tailored to facilitate wildlife monitoring and law enforcement endeavors. A prominent illustration is MStrIPES, an intricately designed suite of tools specifically crafted to address the unique requirements of the Indian context. Conceived in 2010 through the collaborative efforts of the esteemed Wildlife Institute of India (WII) and the National Tiger Conservation Authority (NTCA), MStrIPES has garnered acclaim with over 82,000 users. Its deployment spans various tiger reserves and protected areas in India, undergoing continuous refinement predicated upon invaluable user feedback.

The MStrIPES team remains dedicated to furnishing robust technical support to state forest departments, ensuring the seamless integration and operation of the program. To ensure alignment with the latest Android versions and corresponding Google policies, it is imperative to routinely update both the MStrIPES desktop and mobile applications. Simultaneously, ongoing efforts are directed towards the enhancement of desktop software, leveraging an advanced database architecture to adeptly accommodate extensive datasets. Furthermore, a cloud-based web analytics and camera trap image recognition software designed to fortify phase IV and nationwide monitoring initiatives is currently ongoing development.

Our commitment to progress is evident in the substantial transformations implemented throughout the three phases spanning just over a decade. In Phase I (2012 - 2016), GPS-based patrolling was employed, but field-collected information necessitated manual entry into the desktop system. Transitioning into Phase II (2016 - 2021), a mobile application was developed to streamline the collection and scrutiny of information, thereby markedly enhancing data utilization.



In January 2021, the commencement of Phase III marked an ambitious endeavor to update MStrIPES mobile applications in response to the evolving Android environment and Google security policies. Concurrently, desktop software and web analytics are undergoing refinement, leveraging advanced databases to adeptly accommodate multi-scale data. This strategic initiative reflects our ongoing commitment to technological advancement and the optimization of information management processes.

The start of the Phase III was followed by the All India Tiger Estimation training later in the same year. The entirety of Phase I data for AITE 2022 was meticulously collected through MStrIPES android apps, employing approximately 23,900 Android phones. This not only mitigated human errors but also streamlined data collection efforts significantly. Subsequently, acknowledging the challenges faced by forest departments in data collection and report generation, we initiated comprehensive training and on-site assistance for frontline staff across all Tiger Reserves, commenced in September 2023.

In adherence to the directive outlined in the NTCA letter (5-1/2021-NTCA), detailed training sessions were conducted for field staff, equipping them with the requisite skills to effectively utilize the MStrIPES mobile app and desktop software. This comprehensive training effort was meticulously documented in a site-wise report, ensuring clarity and consistency in implementation procedures.



Training summary

The capacity-building training conducted from August 28 to October 26, 2023, serves as an extension of our unwavering commitment to law enforcement and the preservation of our forests, providing a glimpse into the ecological richness within the protected areas of the country. The primary objectives of this training included ensuring the successful implementation of M-STrIPES across all tiger reserves in India. This encompassed providing frontline staff with a comprehensive orientation on recent developments in the applications, covering both Desktop and patrol applications, addressing challenges encountered by Forest Department staff and officials in utilizing the applications, and orienting computer operators and biologists to the intricacies of the M-STrIPES Desktop version.

Throughout this endeavor, our team traveled extensively, covering a total of thirty-two tiger reserves and four protected areas across the country, including Gandhisagar WLS (Madhya Pradesh), Madhav National Park (Madhya Pradesh), Athgarh Division (Odisha), and Umred Forest Division (Maharashtra). We take pride in personally training more than 2613 individuals, expressing confidence that our trainees will, in turn, contribute to educating others within the department.

During the training sessions, we engaged with a highly inquisitive frontline staff, addressing numerous questions about the application's utilization. Difficulties encountered in the field and while using the applications were diligently addressed by our team. We received valuable suggestions on improving the user-friendliness of the applications, and the comprehensive list of suggestions from the field has been forwarded to our development team, who have initiated the necessary enhancements.



Feedback forms collected from participants across the field underscored the training's impact on our frontline staff, highlighting its essential nature. The team has been responsive to queries received at the headquarters regarding the application's utilization. Looking ahead, we are eager to continue supporting the forest department in their journey to enhance the management of protected areas and conserve our invaluable biological treasures. The report mentions the issues faced site-wise and the suggestions received have been compiled towards the end of the report.



SITE-WISE TRAINING SCHEDULE

Number	PA Name	Training Date
1	Rajaji Tiger Reserve	28-08-2023 to 29-08-2023
2	Pilibhit Tiger Reserve	04-09-2023 to 05-09-2023
3	Dudhwa Tiger Reserve	06-09-2023 to 08-09-2023
4	Corbett Tiger Reserve	12-09-2023 to 15-09-2023
5	Ranthambore Tiger Reserve	06-10-2023 to 08-10-2023
6	Sariska Tiger Reserve	10-10-2023 to 15-10-2023
7	Bandhavgarh Tiger Reserve	25-09-2023 to 27-09-2023
8	Sanjay Dubri Tiger Reserve	29-09-2023 to 01-10-2023
9	Panna Tiger Reserve	03-10-2023 to 05-10-2023
10	Madhav National Park	07-10-2023
11	Kahna Tiger Reserve	31-08-2023 to 02-09-2023
12	Pench Tiger Reserve (MP)	04-09-2023 to 06-09-2023
13	Satpuda Tiger Reserve	08-09-2023 to 10-09-2023
14	Achanakmar Tiger Reserve	28-08-2023 to 29-08-2023
15	Bor Tiger Reserve	16-10-2023
16	Tadoba-Andhari Tiger Reserve	18-10-2023 to 20-10-2023
17	Navegon-Nagzira Tiger Reserve	22-10-2023 to 23-10-2023
18	Pench Tiger Reserve (MH) & Umred Forest Division	25-10-2023 to 27-10-2023
19	Athgarh Division	18-10-2023
20	Gandhisagar Wildlife Sanctuary	18-10-2023 to 20-10-2023



Number	PA Name	Training Date
21	Kali Tiger Reserve	28-08-2023 to 29-08-2023
22	Bhadra Tiger Reserve	31-08-2023 to 01-09-2023
23	Nagarhole Tiger Reserve	04-09-2023 to 05-09-2023
24	BRT Tiger Reserve	07-09-2023 to 08-09-2023
25	Bandipur Tiger Reserve	11-09-2023 to 12-09-2023
26	Mudumalai Tiger Reserve	13-09-2023 to 15-09-2023
27	Sathyamangalam Tiger Reserve	16-09-2023 to 18-09-2023
28	Anamalai TR and Coimbatore (T.)	26-09-2023 to 27-09-2023
29	Parambikulam Tiger Reserve	29-09-2023 to 30-09-2023
30	Srivilliputur-Megamalai Tiger Reserve	02-10-2023 to 03-10-2023
31	Periyar Tiger Reserve	05-10-2023 to 06-10-2023
32	Kalakkad-Mundanthurai Tiger Reserve	09-10-2023 to 10-10-2023
33	Nagar-Srisaillam Tiger Reserve	16-10-2023 to 17-10-2023
34	Amrabad Tiger Reserve	19-10-2023 to 20-10-2023
35	Kawal Tiger Reserve	26-10-2023



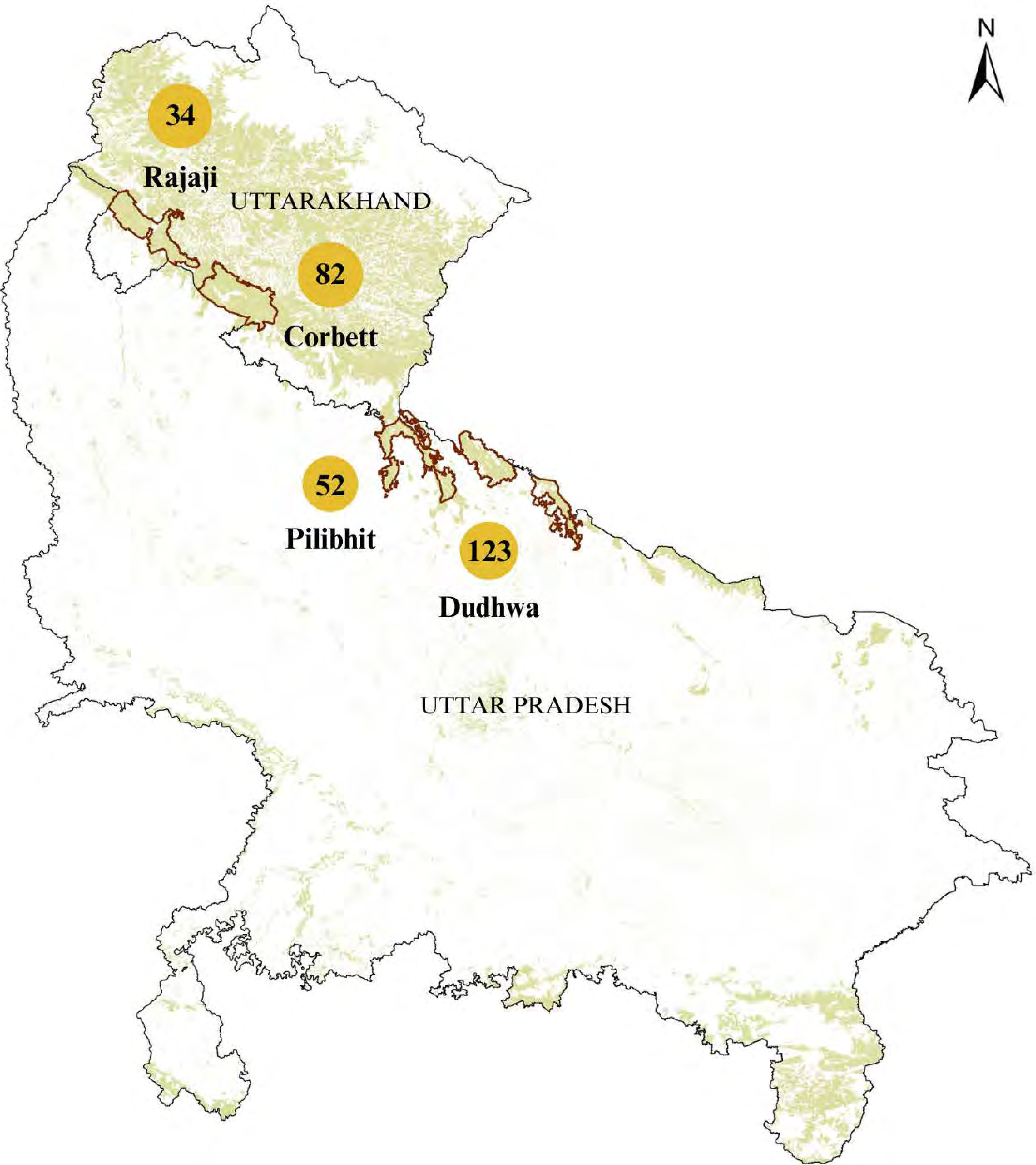


NORTH ZONE

Corbett Tiger Reserve, Rajaji Tiger Reserve, Dudhwa Tiger Reserve, Katarniaghat Wildlife Sanctuary,
Pilibhit Tiger Reserve

Uttarakhand, Uttar Pradesh

TRAINING LOCATIONS WITH THE NUMBER OF PARTICIPANTS



TR\PA Boundary

State Boundary

0 100 200

kilometers

CORBETT TIGER RESERVE - Uttarakhand

Corbett Tiger Reserve covers an area of 1288.32 km², which includes 520.82 km² of Corbett National Park. It is the largest source population for tigers in Shivalik-Gangetic landscape and responsible for the remarkable recovery of tiger population in this landscape (Bisht et al. 2019).

Tiger reserve notification year: 2007
MSTripES implementation year: 2013

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
82	Both	Yes	No	While on a phone call, the track does not get properly recorded.	While using the desktop version, the laptop crashes often and hangs most of the time.

Image: The Mstripes team with the trainees





MSTripes apps and Desktop training in Corbett Tiger Reserve



RAJAJI TIGER RESERVE - Uttarakhand

Rajaji Tiger Reserve is spread over three districts of Uttarakhand, viz. Haridwar, Dehradun and Pauri Garhwal. It is named after the famous freedom activist and first Governor General of independent India, Shri Rajgopalachari. It was formally granted the status of a tiger reserve in April 2015 and has an area of approximately 1150 km².

Tiger reserve notification year: 2015
MSTripES implementation year: 2018

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
34	Old	Yes	Yes	Phone hangs while using the application	Application crashes

Image: The Mstripes team with the trainees





DUDHWA TIGER RESERVE- Uttar Pradesh

Spread in Lakhimpur Kheri District of Uttar Pradesh, India and having an area of 680 km², Dudhwa National Park has a number of large wetlands and alluvial grasslands.

Katerniaghat Wildlife Sanctuary is located along the India-Nepal border in Bharaich District of Uttar Pradesh. Katerniaghat also serves as a conduit for the movement of tigers, elephants and rhinoceros. This park is the only representative area of terai in Uttar Pradesh and is important for protecting floodplain fauna and flora.

niaghat Wildlife Sanctuary is located along the India-Nepal border in Bharaich District of Uttar Pradesh. Katerniaghat also serves as a conduit for the movement of tigers, elephants and rhinoceros.

Tiger reserve notification year: 2010

MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions for Dudhwa National Park

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
85	Old	Yes	Yes	Camera not working properly in the app.	Sometimes the desktop has trouble updating the database.

Table: Details of MSTrIPES mobile and desktop versions for Katarniaghat WLS

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
38	Both	Yes	Yes	Phone gets heated up very quickly and the phone hangs frequently while the app is running.	We need immediate updation of shapefile as our boundary conflicts with the international border of Nepal.



MSTrIPES apps and Desktop training in Dudhwa Tiger Reserve



PILIBHIT TIGER RESERVE - Uttar Pradesh

Pilibhit Tiger Reserve covers an area of 1074 km² and is located in Pilibhit District of Uttar Pradesh, India. The forests of the Surai range in the Terai East Forest Division in the north west, and with Kishanpur Wildlife Sanctuary in the south-east are connected with this tiger reserve. Pilibhit Tiger Reserve was a reserve forest before being declared as a tiger reserve. The reserve also has a small area of grassland and various canals, rivers and a reservoir.

Tiger reserve notification year: 2014

MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
32	Old	Yes	Yes	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen.	Make the software bilingual

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Pilibhit Tiger Reserve



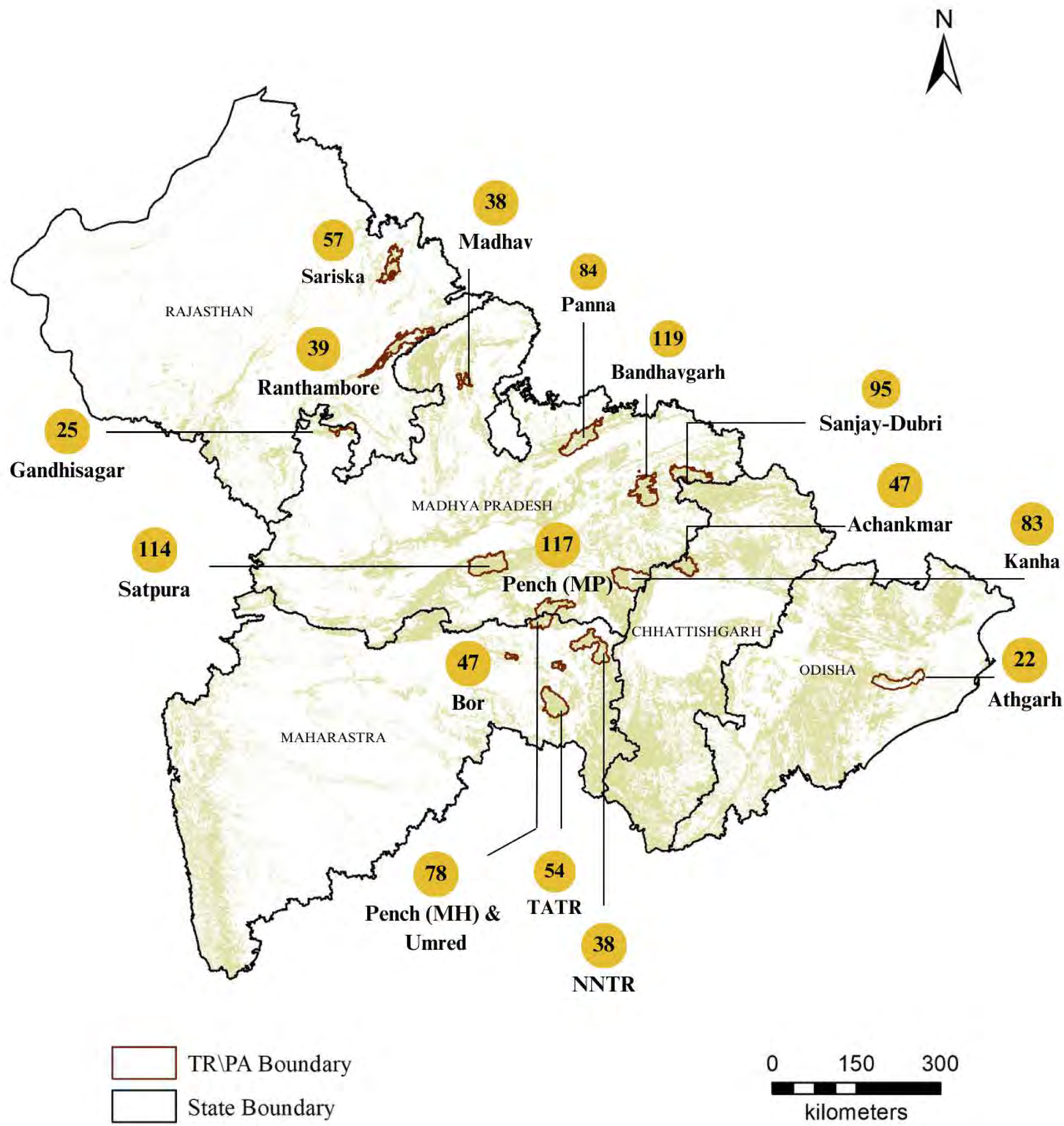


CENTRAL ZONE

Achanakmar Tiger Reserve, Bandhavgarh Tiger Reserve, Gandhi Sagar Wildlife Sanctuary, Kanha Tiger Reserve, Madhav National Park, Panna Tiger Reserve, Pench Tiger Reserve (MP), Sanjay Dubri Tiger Reserve, Satpura Tiger Reserve, Bor Tiger Reserve, Navegon-Nagzira Tiger Reserve, Pench Tiger Reserve (MH) & Umred Forest Division, Tadoba-Andhari Tiger Reserve, Athgarh Wildlife Sanctuary, Ranthambore Tiger Reserve, Sariska Tiger Reserve

Chhattishgarh, Madhya Pradesh, Maharashtra, Odisha & Rajasthan

TRAINING LOCATIONS WITH THE NUMBER OF PARTICIPANTS



ACHANAKMAR TIGER RESERVE - Chhattisgarh

Achanakm²ar Tiger Reserve is situated in the eastern part of the Maikal hills of the Satpura ranges spread across Mungeli and Bilaspur districts of Chhattisgarh. It is spread across a 914 km² area consisting of a 626.2 km² core and a 287.8 km² buffer. It was established in 1975.

Tiger reserve notification year: 2007

MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
47	New	Yes	Yes	Straight Lines were created in tracks.	Ecological data was not visible after updating the desktop. (Resolved)

Image: The Mstripes team with the trainees





MSTripes apps and Desktop training in Achanakmar Tiger Reserve



BANDHAVGARH TIGER RESERVE -

Madhya Pradesh

The Bandhavgarh Tiger Reserve, is situated on the northeastern border of the state, along the northern slopes of the eastern Satpura Mountain range. It covers a total area of 1536.94 km². The tiger population at Bandhavgarh has increased since the last cycle of the National Tiger Estimation Exercise in 2018 (AITE Tiger Report, 2022).

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
119	Both	Yes	Yes	Wrong Patrolling distance is shown due to GPS issues.	Computer hangs if there is a lot of data. There are problems if the old data is still there.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Bandavgarh Tiger Reserve



GANDHISAGAR WILDLIFE SANCTUARY -

Madhya Pradesh

Gandhi Sagar Wildlife Sanctuary is situated in northwestern Madhya Pradesh, with one of its boundaries running along the border of Rajasthan. The sanctuary was notified in 1974 and is spread over an area of 368 km². Its vast expanse lies within the Mandsaur and Neemuch districts of Madhya Pradesh. River Chambal flows through the sanctuary, dividing it into two parts. A major part of the sanctuary consists of vast open landscapes with sparse vegetation and rocky terrain, with small patches of dense forests.

MSTrIPES implementation year: 2023

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
30	None	No	Yes	None	None

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Gandhi Sagar WLS



KANHA TIGER RESERVE - Madhya Pradesh

Kanha Tiger Reserve, situated in the Mandla and Balaghat districts of Madhya Pradesh, India, is situated within the Maikal hills of the Satpura range. The reserve boasts a diverse landscape comprising Dadars (flat hilltops), grassy areas, dense forests, and riverine forests. It is divided into three zones: the core zone, known as Kanha National Park, covering an area of 917.43 km²; the buffer zone spanning 1134.39 km²; and the microsatellite core, represented by Phen Wildlife Sanctuary, encompassing an area of 110.740 km².

Tiger reserve notification year: 2007

MSTripES implementation year: 2017

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
83	New	Yes	Yes	GPS Stability issue faced in Samsung mobile. Mobile phone gets heat up after using for long time	Analysis takes time in some systems.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Kanha Tiger Reserve



MADHAV NATIONAL PARK - Madhya Pradesh

The Madhav National Park is situated on the northern fringe of the Central Highlands of India forming a part of the Upper Vindhyan Hills intermixed with plateaus, and valley sections. The slopes are generally gentle and rarely steep. Spreading over an area of almost 355 km², Madhav National Park is a fascinating mix of natural splendors of history and architectural wonders.

MSTripES implementation year: 2023

Table: Details of MSTripES mobile and desktop versions.

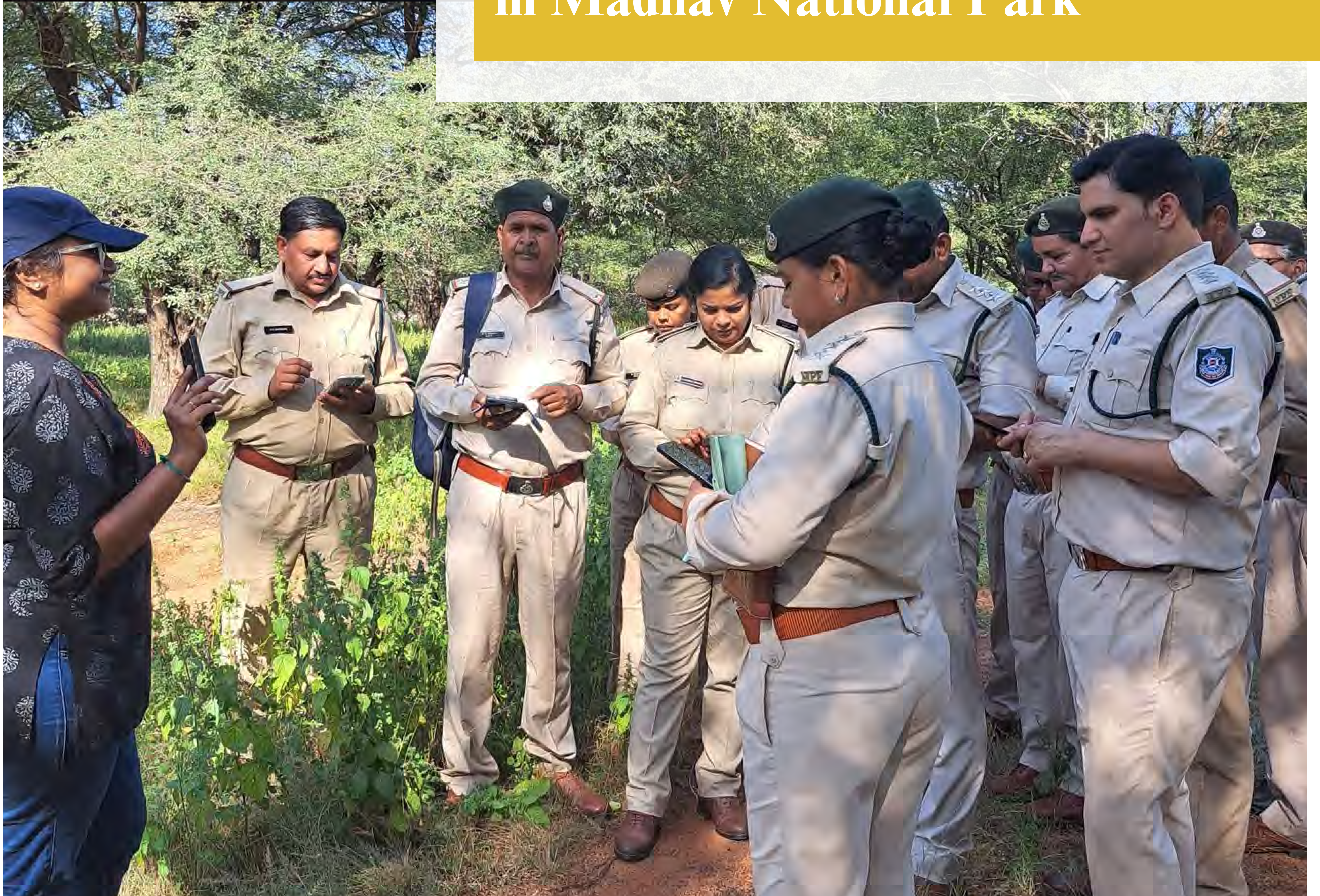
No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
68	Not used	No	No	App works very slowly in old phones	None

Image: The Mstripes team with the trainees





MSTripes apps and Desktop training in Madhav National Park



PANNA TIGER RESERVE - Madhya Pradesh

Located in Madhya Pradesh, India, amidst the Vindhya Mountain ranges, Panna Tiger Reserve is positioned in regions that play a crucial role in enriching the reserve's biodiversity and offering diverse habitats for a variety of plants and animals. The reserve comprises a central area spanning 542.66 km² and an additional buffer area covering 1002.42 km².

Tiger reserve notification year: 2007

MSTripES implementation year: 2017

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
84	New	Yes	Yes	There is no option of changing the mode of patrolling without terminating the ongoing patrol track.	Computer memory gets filled very fast and the system hangs frequently.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Panna Tiger Reserve



PENCH TIGER RESERVE - Madhya Pradesh

The Pench Tiger Reserve is situated on the southern slope of the Satpura-Maikal landscape and is associated with Rudyard Kipling's famous work, "The Jungle Book." The reserve is believed to have inspired Kipling's setting for the story and is often referred to as "Mowgli Land". The reserve is situated in Seoni and Chhindwara districts in southern Madhya Pradesh. The total area of the reserve is 1179.632 km², which comprises Pench Priyadarshini National Park (292.86 km²) and Pench Mowgli Wildlife Sanctuary (118.47 km²) as the core zones and an additional buffer zone with an area of 768.302 km².

Tiger reserve notification year: 2007

MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
117	Both	Yes	Yes	Straight Lines in tracks. GPS Stability issue faced in some mobile handsets. Photos were deleted from the mobile before submitting the data	Data analysis process takes a long time in some systems.

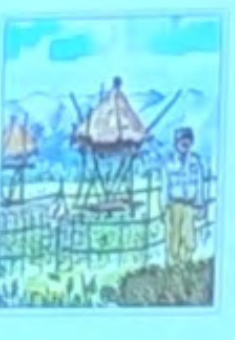
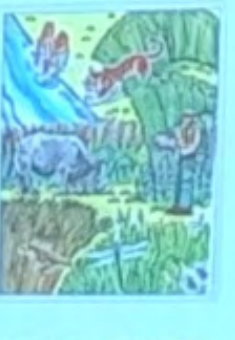

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Pench Tiger Reserve



Program component			
3 Mobile apps, desktop and central server			
			
Administrative Module	Patrol Module	Ecology Module	Polygon Module
<ul style="list-style-type: none"> Registration Data Management Backup 	<ul style="list-style-type: none"> Technology assisted Patrol Law enforcement Adaptive Management 	<ul style="list-style-type: none"> Systematic sampling Spatio-temporal change Species management 	

SANJAY-DUBRI TIGER RESERVE - Madhya Pradesh

Sanjay-Dubri Tiger Reserve, situated in the north-eastern part of Madhya Pradesh's Siddhi district, shares its border with Guru Ghasidas National Park in Chhattisgarh. The Tiger Reserve has an area of 1674.511 km². This includes Sanjay National Park and Dubri Wildlife Sanctuary as the core or critical tiger habitat zone (812.581 km²) and the forested areas of Siddhi and Shahdol districts as the buffer zone (861.930 km²).

Tiger reserve notification year: 2011
MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
95	New	Yes	Yes	After we give permission to modify the system setting, the brightness level is reduced so much that it becomes impossible to see.	The desktop version does not work in Windows 7.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Sanjay-Dubri Tiger Reserve



SATPURA TIGER RESERVE - Madhya Pradesh

Satpura Tiger Reserve (STR) is situated in the central Indian highlands within the Deccan peninsular biogeographic zone. It is situated in the Hoshangabad district of Madhya Pradesh, India. The reserve encompasses a total area of 2133.30 km², which includes Satpura National Park, Bori Wildlife Sanctuary, and Panchmarhi Wildlife Sanctuary as the core habitat, along with the peripheral area of 794.04 km² consisting of Hoshangabad Division, Rampur Bhatodi Project Division, and west Chhindwara Division as the buffer zone.

Tiger reserve notification year: 2007

MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
114	New	Yes	Yes	Screen dimming prevented further use. App crashed after walking some km ² s. In some phones backup database file got deleted because of some junk cleaner app	Data analysis process takes a long time in some systems. Ram and C drive space was not enough in one system.

Image: The Mstripes team with the trainees





MSTrIPESs apps and Desktop training in Satpura Tiger Reserve



BOR TIGER RESERVE - Maharashtra

Bor Tiger Reserve is situated in the Wardha district of eastern Maharashtra. Bor is spread over an 816.27 km² area, encompassing a core area of 138.12 km² and a buffer area of 678.15 km². It is fragmented into two parts by the Bor Dam reservoir.

Tiger reserve notification year: 2012
MSTripES implementation year: 2016

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
47	GPS Based Patrolling	No	Yes (Only for the ecological module)	---	The import process is slow and the application crashes sometimes.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Bor Tiger Reserve



NAVEGAON-NAGZIRA TIGER RESERVE -

Maharashtra

The Navegaon Nagzira Tiger Reserve (NNTR) is situated in the easternmost part of the state of Maharashtra. s. NNTR comprises of Navegaon National Park (129.55 km²), Nagzira Wildlife sanctuary (152.41 km²), Navegaon Wildlife sanctuary (122.76 km²), New Nagzira Wildlife Sanctuary (151.33 km²) and Kota Wildlife 2 2 Sanctuary (97.62 km²), resulting in a total area of 653.67 km² . The Tiger Reserve has witnessed wildlife recovery, including a small breeding tiger population.

Tiger reserve notification year: 2013

MSTrIPES implementation year: 2017

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
33	GPS based patrol	No	Yes (Only for an ecological module)	-	-

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in NNTR



PENCH TIGER RESERVE AND UMRED PAONI KARHANDLA WILDLIFE SANCTUARY - Maharashtra

Pench Tiger Reserve is situated in the Satpura Maikal hills of Nagpur district, Maharashtra. It spans an area of 741.22 km², consisting of a 257.26 km² core and a 483.96 km² buffer. Umred Paoni Karhandla Wildlife Sanctuary (UPK WLS) is situated in Bhandara and Nagpur districts in eastern Maharashtra. On the north-eastern boundary, it's connected to the Wainganga River. It is spread across 189 km².

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2016

Table: Details of MSTrIPES mobile and desktop versions.

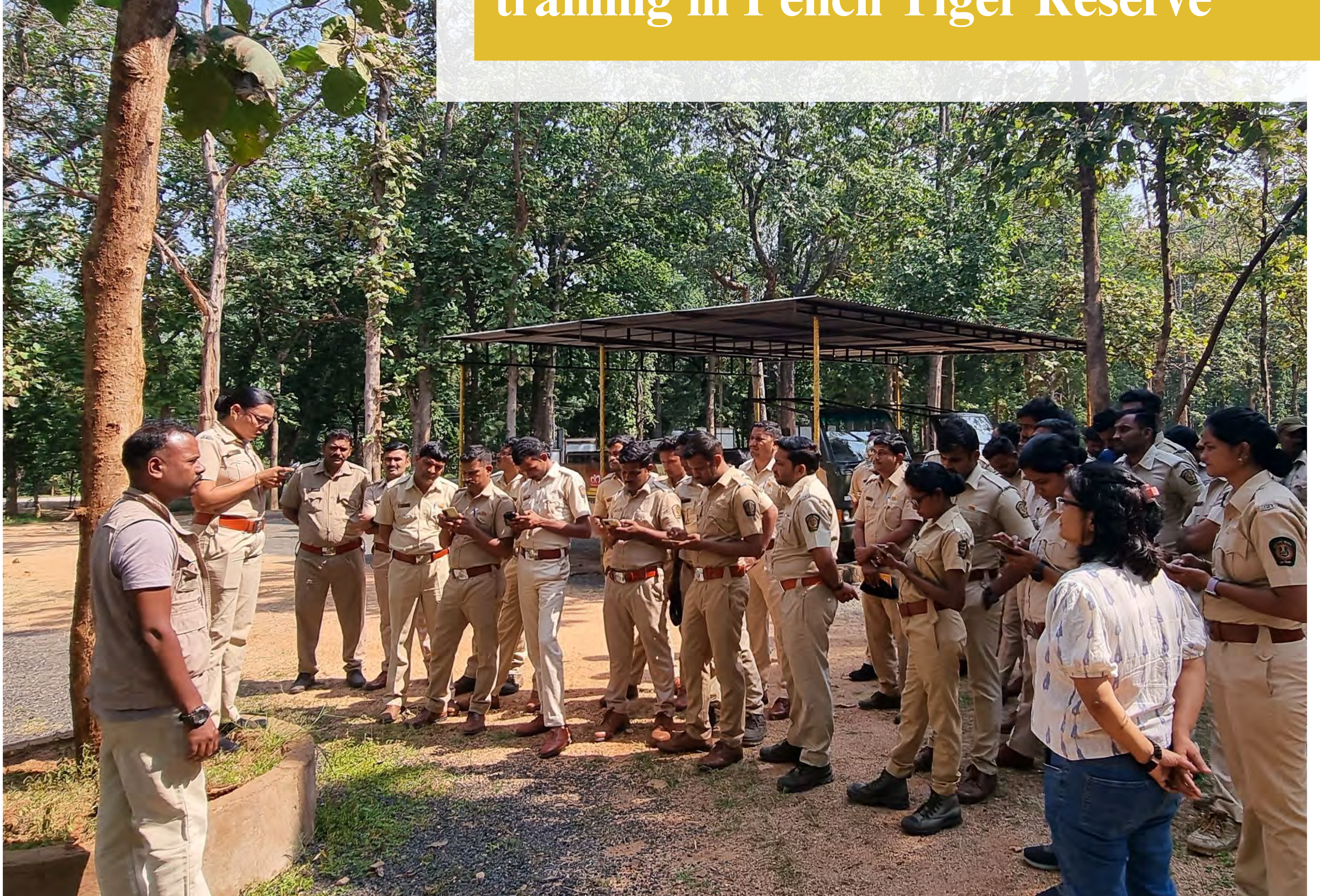
No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
78	Pench-New Umred-GPS	Yes	Yes	Cattle Option is absent and Application crashes	Mobile Data import process is slow.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Pench Tiger Reserve



TADOBA-ANDHARI TIGER RESERVE- Maharashtra

Tadoba-Andhari Tiger Reserve (TATR), situated in the Chandrapur district of Maharashtra, It is spread across a 1727 km² area consisting of a 625.82 km² core and an 1101.77 km² buffer. Tadoba acts as a source population in this landscape, and is surrounded by a number of forest divisions namely Chandrapur, Bhramhapuri, and Central Chanda forest divisions.

Tiger reserve notification year: 1993
MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
54	Both	Yes	Yes	Discrepancy in Recorded Distance.Mobile Device Overheating in vivo mobile phones.Server down during the registration.	The analysis Section not working properly.Error in the analysis if data is imported from both old and new versions.

Image: The Mstripes team with the trainees





MSTripES apps and Desktop training in TATR



ATHGARH WILDLIFE SANCTUARY - Odisha

Athgarh Forest Division situated in Cuttack district is surrounded by Satkosia Tiger Reserve in the West, Cuttack Forest Division and City Forest Division in the East, Chandaka Wild Life Sanctuary, Nayagarh Forest Division and some part of Mahanadi Wildlife Division in the South and Dhenkanal Forest Division in the North. Athgarh Forest Division has mainly peninsular sal forest, dry mixed-deciduous forest, small patches of semi-evergreen forest and scrub forest.

MSTrIPES implementation year: 2023

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
22	New	Yes	Yes	Mobile application based patrolling need to be implemented and Range wise training required	Mobile application based patrolling need to be implimented and Range wise training required

Image: The Mstripes team with the trainees





MSTripES apps and Desktop training in Athgarh Tiger Reserve



RANTHAMBHORE TIGER RESERVE - Rajasthan

The core area of Ranthambhore Tiger Reserve is composed of Ranthambhore National Park (392 km²), Sawai Mansingh Sanctuary (290 km²) while Kailadevi Wildlife Sanctuary (630 km²) has been designated as the buffer zone of Ranthambhore. The reserve was one of the first few Tiger Reserves in India which was selected for implementation of

M-STrIPES in 2013, however, due to different constraints, it was not implemented fully. Since 2017-18, attempts have been made by the WII to train the forest department to use M-STrIPES software for tiger monitoring and daily patrolling. Presently, Ranthambore TR is using M-STrIPES and willing to improve the usage in order to make information-based conservation decisions.

Tiger reserve notification year: 2007

MSTrIPES implementation year: 2013

Table: Details of MStrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
39	New	Yes	Yes	GPS stability uses faces and many times the server is down while doing registration or re registration in the app.	Data is not showing in the desktop after successfully importing the mobile data into desktop (RESOLVED)

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Ranthambore Tiger Reserve



SARISKA TIGER RESERVE - Rajasthan

Sariska Tiger Reserve, situated in Rajasthan’s Alwar district, is part of the Aravali mountain system. The reserve spreads across 881 km² and is surrounded by human settlements. With an area of 1203.34 km² (core 881.11 km² and buffer 322.23 km²), the reserve is stretched out throughout the fragmented hill forests of Aravalli. Sariska was included in the list of tiger reserves by the Government of India in 1978 as the 11th Tiger Reserve. Sariska faced significant challenges to its biodiversity. One of the most notable setbacks was the extinction of tigers from the reserve by the year 2005. In 2013, Sariska was among the early sites selected for the MStrIPES implementation in the list of Tiger Reserves. However, the full implementation of MStrIPES in Sariska Tiger Reserve took place in 2018. Unfortunately, due to certain constraints, it was not fully operational, leading to the forest department discontinuing its use in 2021. The aim was to reinstate the patrolling system, address issues raised by the forest staff, and provide training on the application and software.

Tiger reserve notification year: 2007
MStrIPES implementation year: 2014

Table: Details of MStrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
57	No	Yes	Yes	The screen brightness has been reduced to a point where the app is no longer visible. Many staff do not have mobile phones for patrolling.	No track information showing in Analysis (RESOLVED). Data is not showing after importing mobile data into the backup successfully (RESOLVED).



MSTrIPES apps and Desktop training in Sariska Tiger Reserve



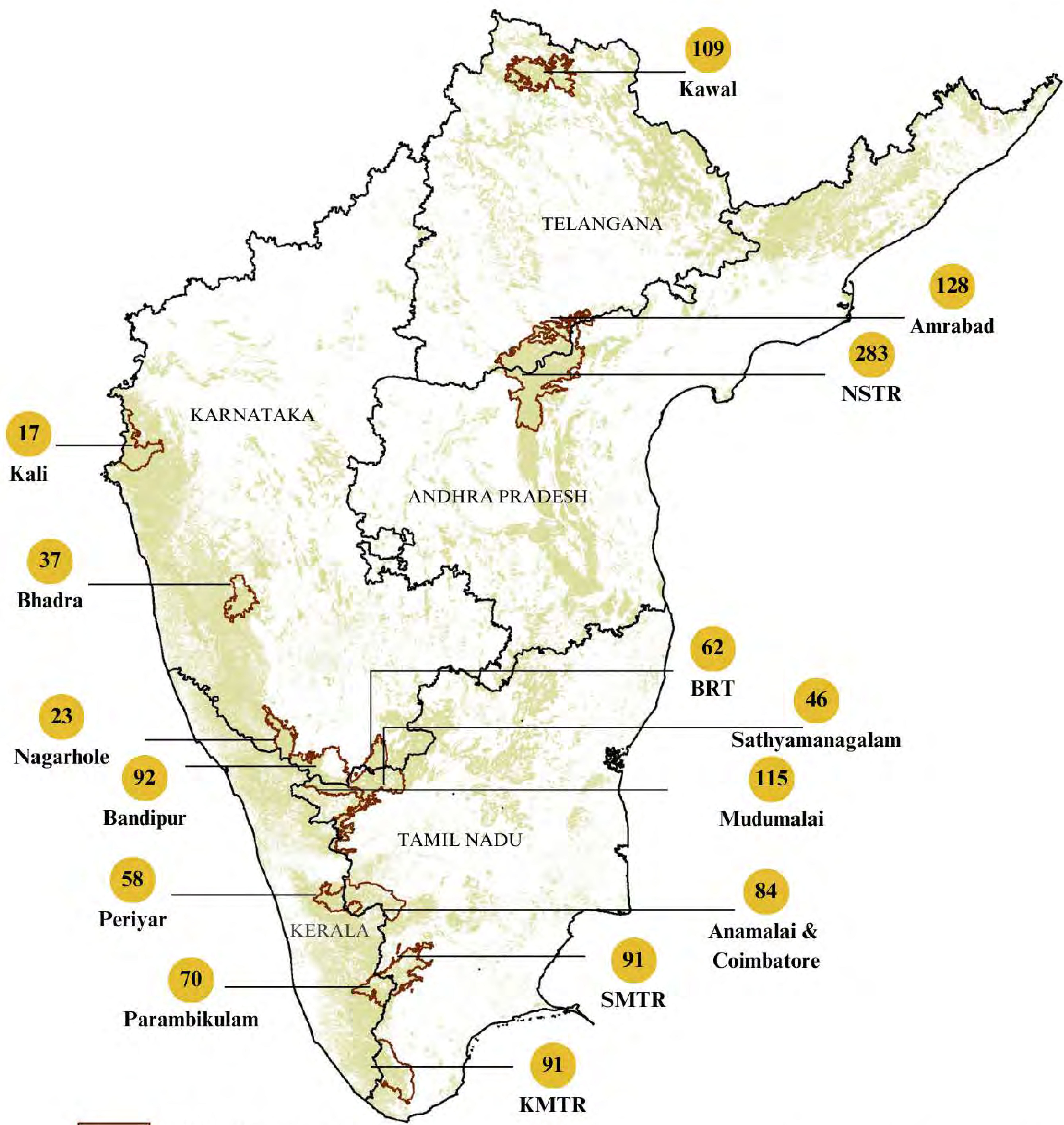


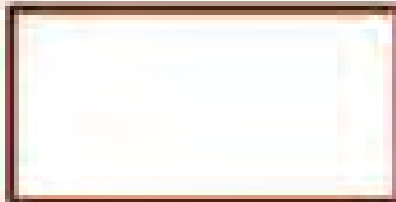
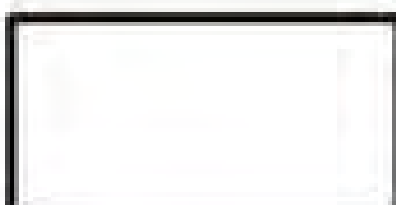
SOUTH ZONE

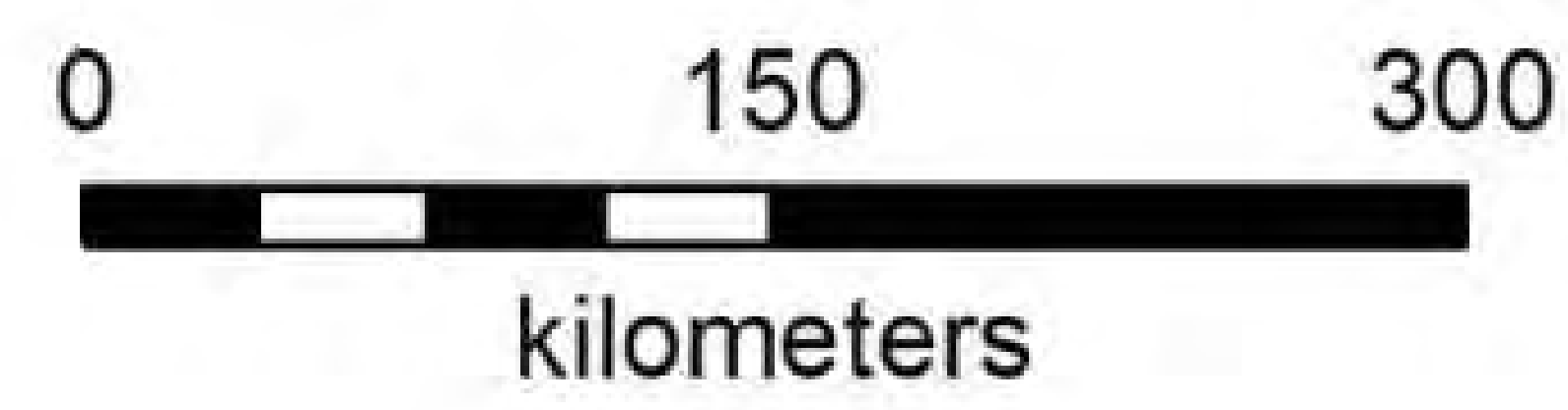
NSTR, Bhadra Tiger Reserve, Bandipur Tiger Reserve, BRT Tiger Reserve, Kali Tiger Reserve, Nagarhole Tiger Reserve, Anamalai Tiger Reserve and Coimbatore (T.), KMTR, Mudumalai Tiger Reserve, Sathyamangalam Tiger Reserve, SMTR, Parambikulam Tiger Reserve, Periyar Tiger Reserve, Amrabad Tiger Reserve, Kawal Tiger Reserve

Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana

TRAINING LOCATIONS WITH THE NUMBER OF PARTICIPANTS



 TR/PA Boundary
 State Boundary



NAGARAJUNASAGAR SRISAILAM TIGER RESERVE - Andhra Pradesh

The Nagarjunsagar Srisailam Tiger Reserve is located in the Nallamala Hills Ranges, which is an offshoot of the southern Eastern Ghats, within the state of Andhra Pradesh. This reserve holds the distinction of being India's largest Tiger Reserve, with a total area of 3296.31 km², encompassing both core and buffer zones.

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2013

Table: Details of MSTrIPES mobile and desktop versions.

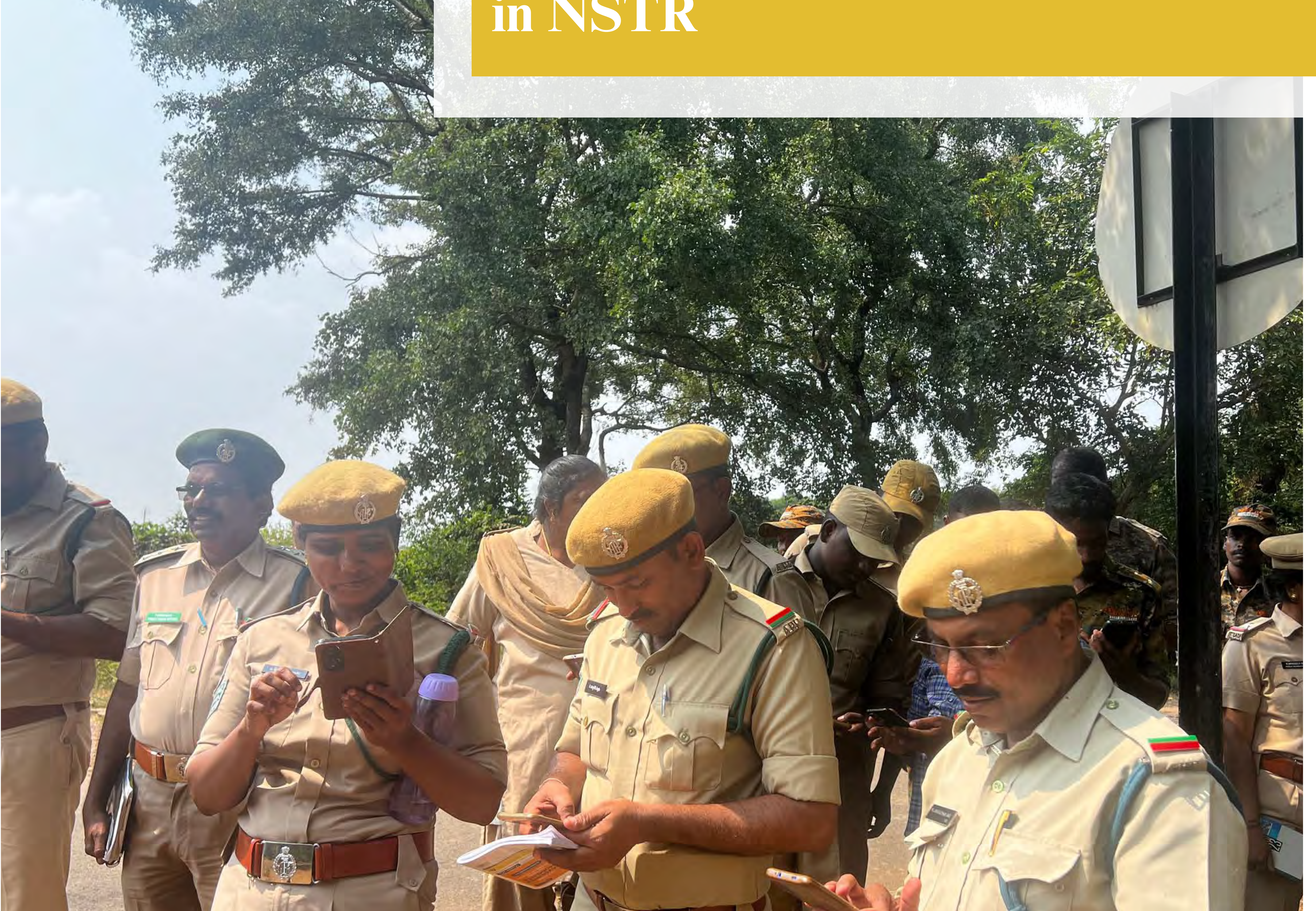
No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
283	Both	YES	YES	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen and GPS Stability issue faced in some mobile handsets. If photo is taken in landscape mode in the app, the app does not save the photograph or it crashes.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in NSTR



BHADRA TIGER RESERVE - Karnataka

Bhadra Tiger Reserve is located in the Western Ghats of Karnataka, spreading over Chikmagalur (Chikmagalur, Narashimarajapura and Tarikere Taluk) and Shimoga (Bhadravathi Taluk) districts. The area of the Tiger Reserve Core/Critical Tiger habitat is 500.16 Sq km², with a Buffer/Peripheral area is 571.84 Sq km² while the total is 1072.00 Sq km².

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2016-2017

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
37	Both	YES	YES	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen.	Time features should be added in both patrol analysis.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Bhadra Tiger Reserve



BANDIPUR TIGER RESERVE - Karnataka

The Bandipur Tiger Reserve is a vast and important conservation area in southern Karnataka, India. It encompasses a total area of 1,456.30 km², of which 872.24 km² are designated as core critical tiger habitat. The remaining 118.279 km² serve as a buffer peripheral area.

Tiger reserve notification year: 2007

MSTripES implementation year: 2017

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
92	Both	YES	YES	App doesn't support efficiently in all devices and crashes frequently when a photo is taken in a Redmi 7 handset.	Some issues were faced during the intial installation stage due to presence of Anti - Virus (RESOLVED)

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Bandipur Tiger Reserve



BILIGIRI RANGASWAMY TEMPLE TIGER RESERVE - Karnataka

The Biligiri Rangaswamy Temple (BR Hills) Tiger Reserve is a vast and important conservation area in India, encompassing 574 km² of lush greenery and diverse wildlife. Home to a variety of endangered species, including tigers, elephants, and leopards, the reserve plays a crucial role in preserving the delicate balance of the ecosystem. The Area of the Tiger Reserve Core Area : 359.10 km² Buffer Area : 215.72 km² Total : 574.82 km².

Tiger reserve notification year: 2007
MSTripES implementation year: 2020

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
62	Both	YES	YES	The app crashes whenever a phone call is received, there should be provison for the app to work in the background.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in BRT



KALI TIGER RESERVE - Karnataka

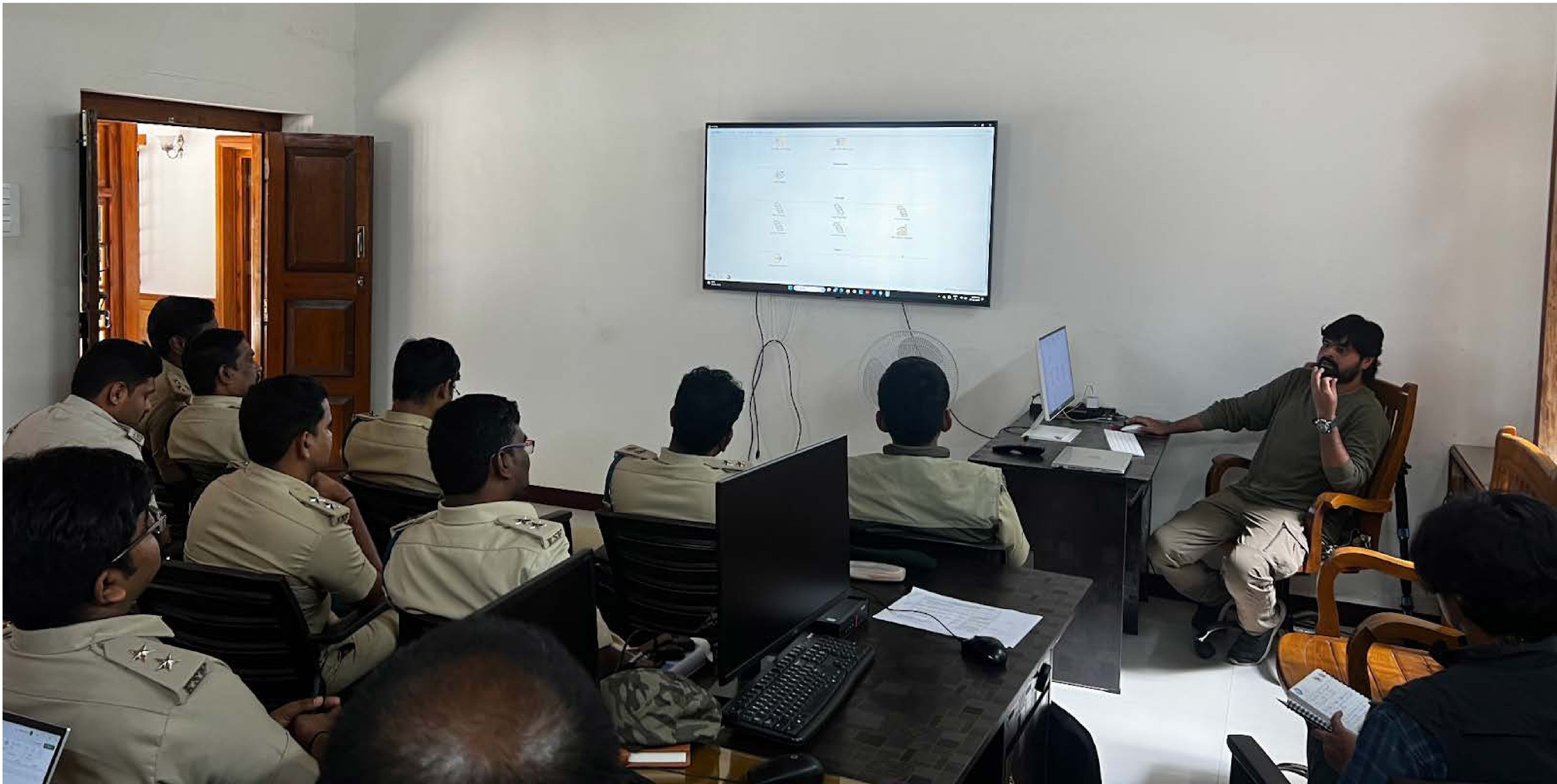
Dandeli-Anshi Tiger Reserve comprises two important protected areas of the region viz., Dandeli Wildlife Sanctuary and Anshi National Park. The Tiger Reserve (1097.51 km²) is situated in the northern part of the Western Ghats landscape in the state of Karnataka. It is contiguous with the protected areas of Goa and the forest divisions of Haliyal, Karwar, Belagavi and Yellapura in Karnataka.

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2016-2017

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
17	New	YES	YES	Phone gets heated up doing patrolling. Ecological app took a long time to load.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Kali Tiger Reserve



NAGARAHOLE TIGER RESERVE - Karnataka

Encompassing the districts of Mysore and Kodagu in Karnataka, India, lies the Nagarahole Tiger Reserve, named after the meandering Nagarahole River that traverses the protected area before converging with the Kabini River. The reserve comprises 643.35 km² of core critical tiger habitat, 200.57 km² of buffer peripheral area, and 1205.76 km² in total.

Tiger reserve notification year: 2007

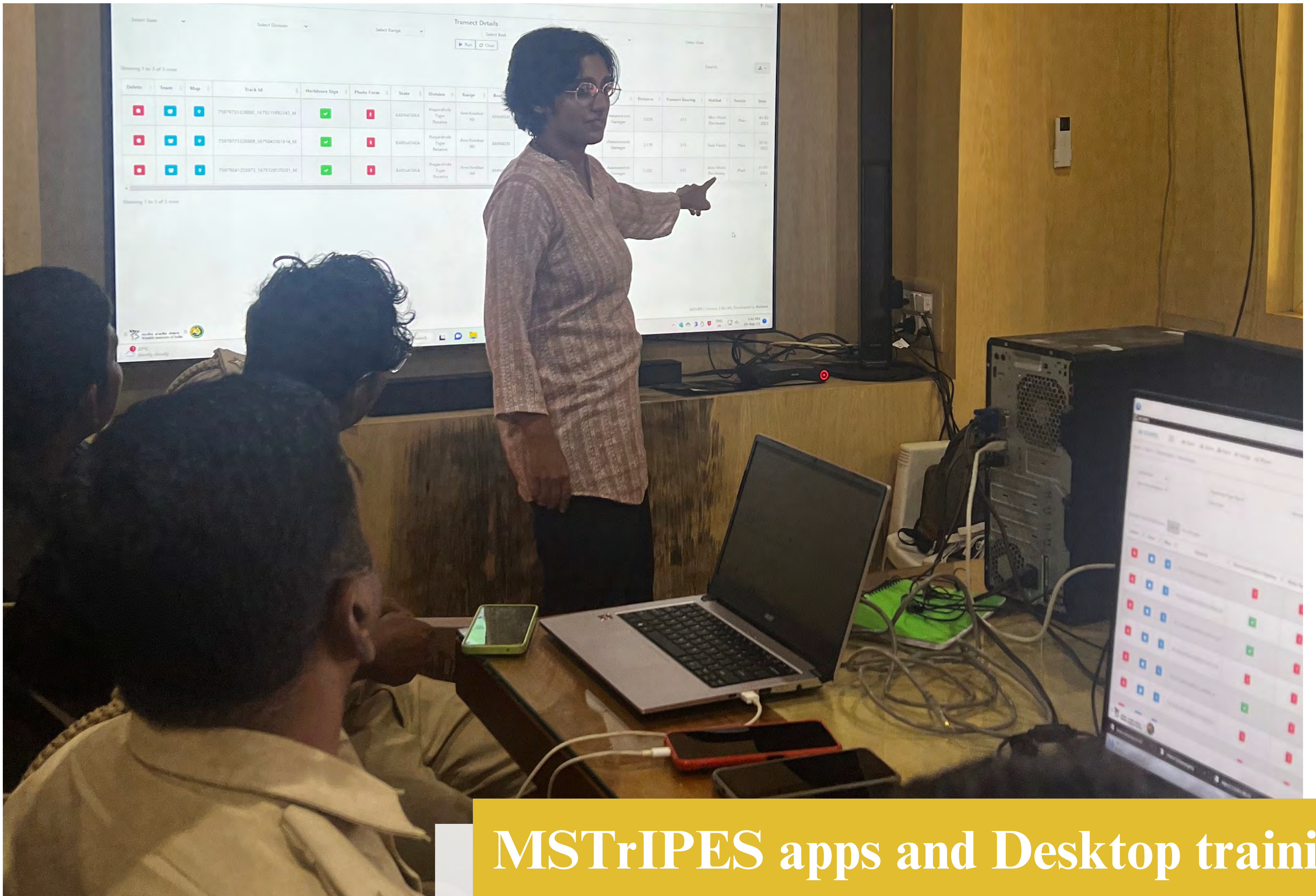
MSTripES implementation year: Ecology Module- 2018, Patrol Module- 2020

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
23	Both	YES	YES	App crashes and goes back to the home screen. Ecological app took a long time to load.	No issues

Image: The Mstripes team with the trainees





MSTripES apps and Desktop training in Nagarahole Tiger Reserve



ANAMALAI TIGER RESERVE AND COIMBATORE FOREST DIVISION - Tamilnadu

The Anamalai Tiger Reserve (ATR) is a sprawling and significant conservation area situated on the southern fringes of the South Western Ghat landscape in India. It encompasses a total area of 1479.87 km², comprising 958.59 km² of core critical tiger habitat and 521.28 km² of buffer peripheral area.

Tiger reserve notification year: 2007
MSTripES implementation year: 2018

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
84	Both (coimbatore was using for the first time)	YES	YES	App forms straight lines and they lose the actual effort walked.	They mentioned that most of the tracks get lost because they mainly patrol out of boundary for conflict mitigation.

Image: The Mstripes team with the trainees



KALAKKAD MUNDANTHURAI TIGER RESERVE - Tamilnadu

The Kalakkad Mundanthurai Tiger Reserve in Tamil Nadu, situated in the South Western Ghats, is a component of the interstate Agasthyamalai Biosphere Reserve. The tiger reserve comprises a core/critical tiger habitat spanning 895.00 km² and a buffer/peripheral area covering 706.54 km², resulting in a total area of 1601.54 km².

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2019

Table: Details of MSTrIPES mobile and desktop versions.

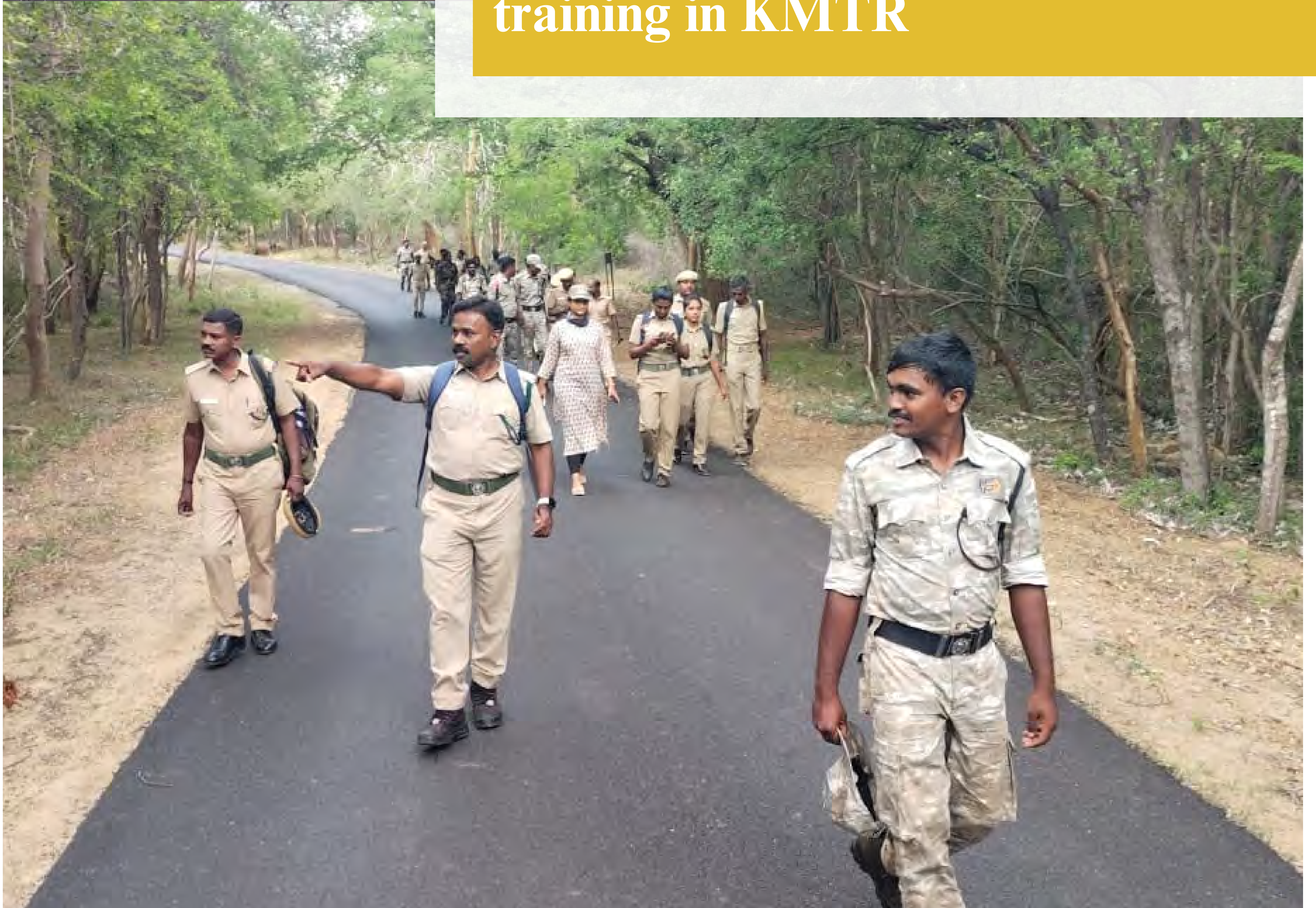
No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
91	New	YES	YES	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen.	No Issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in KMTR



MUDUMALAI TIGER RESERVE - Tamilnadu

The Mudumalai Tiger Reserve is a significant conservation area nestled at the convergence of Kerala, Karnataka, and Tamil Nadu in southern India. It sprawls across 688.59 km², encompassing 321 km² of core critical tiger habitat and an additional 367.59 km² of buffer peripheral area.

Tiger reserve notification year: 2007
MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
115	Both	YES, GPS based patrolling takes place in the buffer ranges.	YES	GPS Stability issue faced and the brightness becomes too dim and prevents from using the app in some mobile handsets.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Mudumalai Tiger Reserve



SATHYAMANGALAM TIGER RESERVE -

Tamilnadu

The Sathyamangalam Tiger Reserve, encompassing an area of 1408.4 km², is an integral component of the Nilgiri landscape cluster of the Western Ghats. The reserve's core area, spanning 793.49 km², forms an impenetrable fortress for tigers, providing them with ample space to roam and breed.

Tiger reserve notification year: 2013
MSTripES implementation year: 2017 - 2018

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
46	Both	YES	YES	App crashes frequently when photo is taken (Redmi 7, 8, 9)	No issues

Image: The Mstripes team with the trainees





MSTripES apps and Desktop training in Sathyamangalam Tiger Reserve



SRIVILLIPUTHUR - MEGAMALAI TIGER RESERVE - Tamilnadu

The SMTR is situated in the southern part of the Western Ghats and is connected to the Periyar Tiger Reserve, Ranni, and Konni divisions in Kerala. Covering an expanse of 1,016.57 km², it encompasses the Srivilliputhur Grizzled Giant Squirrel Sanctuary and Megamalai Wildlife Sanctuary, now collectively known as the Srivilliputhur-Megamalai Tiger Reserve.

Tiger reserve notification year: 2007
MSTripES implementation year: 2018

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
91	Both	YES	YES	GPS takes considerable time to stabilize and form straigth lines in high altitude area and areas with dense canopy.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in SMTR



PARAMBIKULAM TIGER RESERVE - Kerala

The Parambikulam Tiger Reserve is located in the scenic and vast Anamalai-Nelliampathy region of the Western Ghats Mountains, spanning across the Palakkad and Thrissur districts in Kerala. The tiger reserve comprises a core/critical tiger habitat covering 390.89 square kilometers and a buffer/peripheral area extending over 252.77 km², resulting in a total area of 643.66 km².

Tiger reserve notification year: 2009
MSTripES implementation year: 2020

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
70	An old version (2.0/2.1) was being used.	YES	YES	They have received the new version and so far no issues are mentioned.	No issues

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Parambikulam Tiger Reserve



PERIYAR TIGER RESERVE - Kerala

The Periyar Tiger Reserve in Kerala encompasses an area of 881 square kilometers for the core/critical tiger habitat and an additional 44 km² for the buffer zone, resulting in a total area of 925 km².

Tiger reserve notification year: 2007
MSTripES implementation year: 2018

Table: Details of MSTripES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
58	New	YES	YES	GPS takes considerable time to stabilize in areas/APC inside dense evergreen forest.	The distance obtained through Patrol details and graph generated day wise shows different patrol distance. (RESOLVED)

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Periyar Tiger Reserve



AMRABAD TIGER RESERVE - Telangana

The Amrabad Tiger Reserve was initially a part of the Greater Nagarjuna Srisailem Tiger Reserve before the reorganization of Andhra Pradesh. It is located in the Nallamala Hills of the Eastern Ghats within Telangana State. The core area of the reserve spans a total of 2166.37 km².

Tiger reserve notification year: 2015

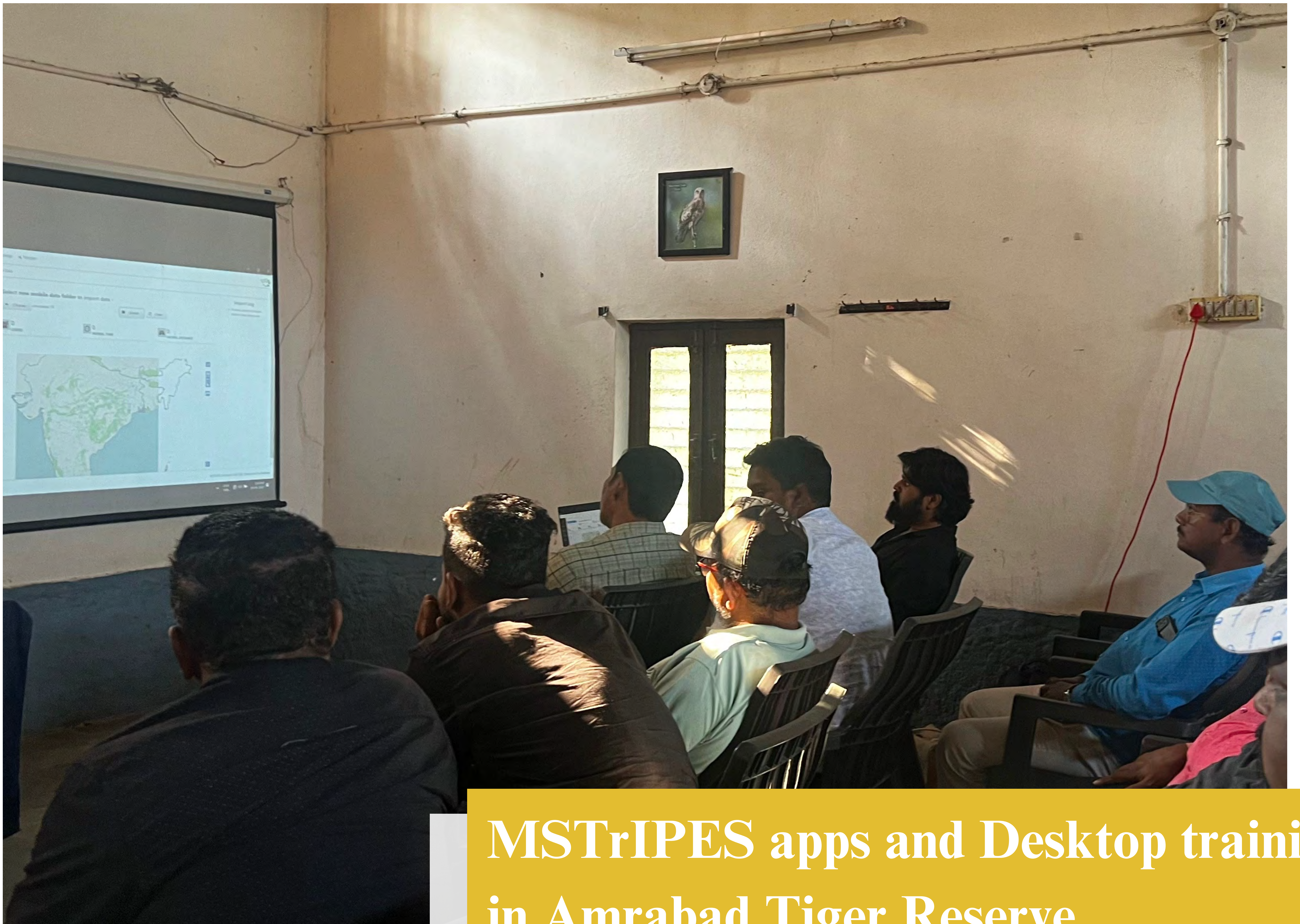
MSTrIPES implementation year: Patrol - 2016 and Ecology 2021-2022

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
128	Both	YES	YES	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen and GPS Stability issue faced in some mobile handsets.	Many times desktop software does not work and error messages show that 'site can't be reached'.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Amrabad Tiger Reserve



KAWAL TIGER RESERVE - Telangana

The Kawal Tiger Reserve is situated in the north-eastern part of Telangana, specifically in the Mancherial (Old Adilabad) district. Serving as a vital watershed for the southward-flowing rivers Godavari and Kadam, this tiger reserve spans an area of 2015.44 km². Within this total area, 892.23 km² are designated as critical core habitat for the tiger and an area of 1123.21 km² of surrounding forest is designated as buffer area.

Tiger reserve notification year: 2012
MSTrIPES implementation year: 2018

Table: Details of MSTrIPES mobile and desktop versions.

No of people trained	Mobile Version Used before training	Equipment Used		Issues	
		Mobile	Desktop	Mobile	Desktop
109	Both	YES	YES	MSTrIPES app creates straight lines instead of actual tracks after minimizing or locking the screen and GPS Stability issue faced in some mobile handsets.	Many times desktop software does not work and error messages show that 'site can't be reached'.

Image: The Mstripes team with the trainees





MSTrIPES apps and Desktop training in Kawal Tiger Reserve



The list of suggestions we received from across the field during training with regards to the Mobile App and Desktop Software.



Mobile App: Patrol and Ecology

- Instead of fetching the date and time of patrolling from the device setting, it should be mandated and selected from the satellite.
- Like the mandatory team member selfie photo, the app should ask for the team member photos randomly during the patrolling. Unless the team photo is taken at that time, the app should not be allowed to proceed further.
- The edit data feature should display the waypoint GPS location of the recorded observations in respective forms but cannot be edited by the users.
- During patrolling, the app crashes multiple times after receiving the phone calls, and on continuing the old patrol, 'No patrol record found' message appears.
- If a photo is taken in landscape mode in the app, the app does not save the photograph or it crashes.
- In many models of Redmi and Realme mobiles, the app crashes while taking the photos, whereas the app of older version (2.0) works fine.
- Many GPS tracking apps (A-GPS Tracker, GPS Essential, Locus... etc.) create actual tracks where the user has walked even after minimizing or locking the screen from power button, whereas MStrIPES app creates straight lines instead of actual tracks.
- Even after patrolling a few kilometers, sometimes the distance of the trail shows '0' km² in mobile and desktop software, whereas the entire track appears on the map.
- If possible, the mobile patrol backup should also be password protected.
- Track ID and details of forms should also be stamped on the photo, captured by the mobile application during patrolling. This information should be saved in the metadata property of the image.

- In case the app crashes during the patrolling, a log file should be generated automatically which can be sent through the help option.
- The feature to attach files (image, video, text file) should be provided in the help option of the mobile app.
- Table does not refresh automatically and shows multiple entries of trails after deleting individual trails from edit data.
- Some photos clicked by the patrol app do not have date, time GPS location stamp on them whereas the photos are saved in the image folder of the backup folder.
- Auto sync option should be provided to send the mobile data instead of manually sending the data to range/ division.
- Mobile apps should be uploaded on the google play store and users should be notified when updates are available
- Add cattle's/livestock's in domestic animals species list in "animal mortality" form.
- Provide option to export patrol tracks as kml/gpx file from mobile application.
- In Ecological application in 3B form remove the human settlement form recurring at every 400 meters.
- The screen dimming is preventing the user from accessing the app. Henceforth, there can be a provision to give how much screen dimness is required.

The list of suggestions we received from across the field during training with regards to the Desktop Software.



MSTrIPES Desktop

- In Patrol spatial analysis tracks should be exported by user name. Addition of user name is required in spatial analysis same as non-spatial analysis.
- Multiple admin scale and user selection should be provided in analysis.
- Features to export observations recorded in simple form with their GPS coordinates (opportunistic camera icon) should also be provided.
- If the database file (.db) of mobile backup is corrupt or blank, the data importing process stops without showing any error message. (eg. Kawal TR- Indanpally section, Chitaguda Section)
- Time features should be added in the patrol analysis (Spatial/ Non-spatial), so that patrol effort can be monitored based on time selection.
- To delete data from patrol details and import GIS data, multiple selection checkboxes should be provided.
- In non-spatial analysis, a feature to generate administrative scale wise (Division/Range/Section) patrol efforts should be provided. (Parambikulam TR and Periyar)
- Only the features selected in the analysis should be shown in the legend. (eg. Water hole form- water quality)
- Addition of google earth/ open street map on analysis map page is required, which can be enabled/disabled by the user.
- Editable text box should be given on the exported map so that the user can enter the title or details of map (eg. Administrative unit, period of patrolling).
- Option to add shapefile/ kml layer should be given on the spatial analysis page.

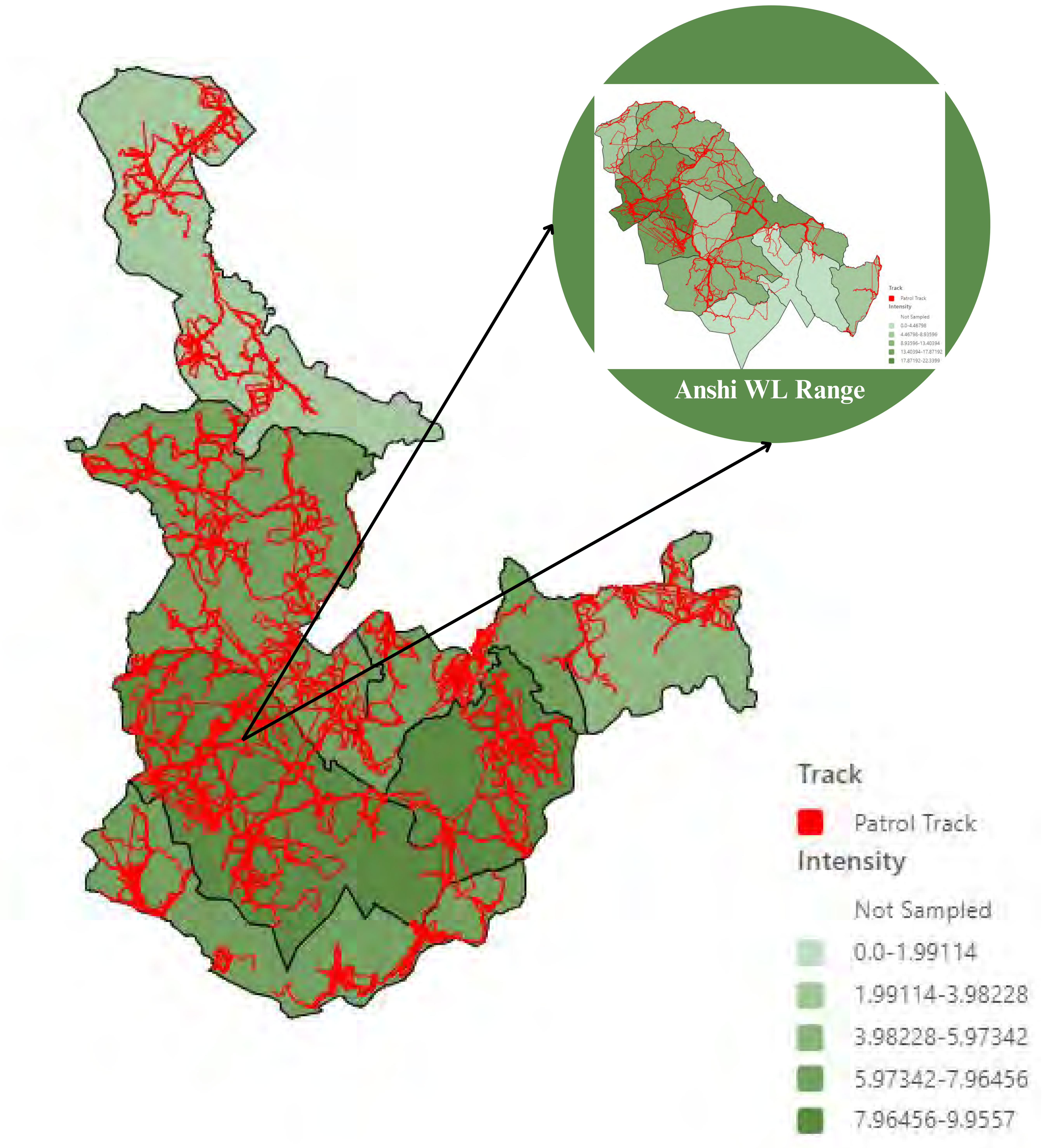
- When analyzing multiple species, the species should be shown with different colors for different species.
- Administrative unit's filter should be given to take desktop backup.
- Indexing features should not be mandatory to run.
- The header should be frozen and the scroll bar should be placed on the top
- Provide features to change the colour of the administrative boundaries/ tracks in the maps for better visualization rather than make it default.
- Speed checking features for patrol walk methods should be provided.
- Make the desktop version bilingual in Hindi-English.

Kali Tiger Reserve - Nov 2023

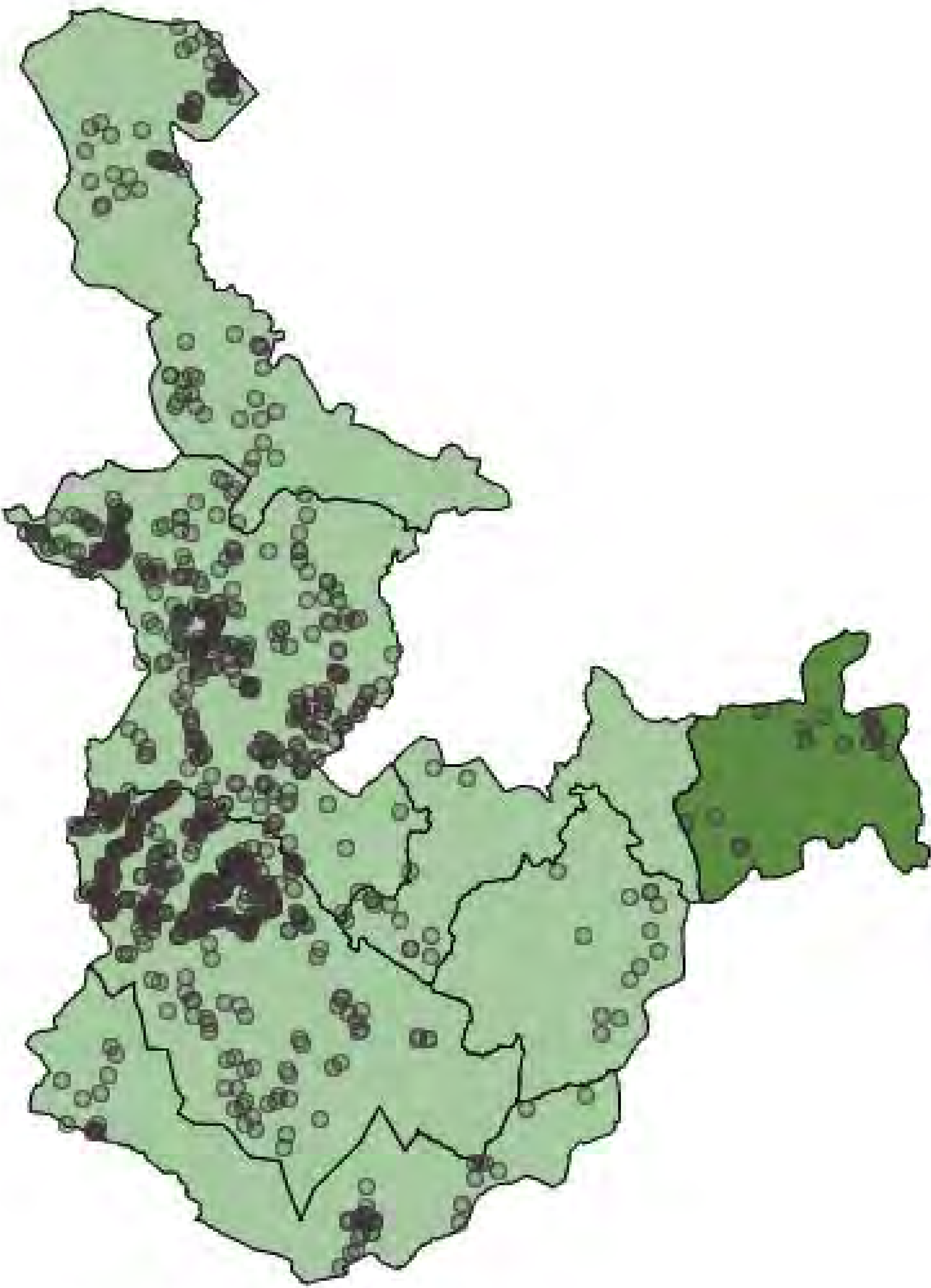
PATROL TRACKS AND INTENSITY

Division level

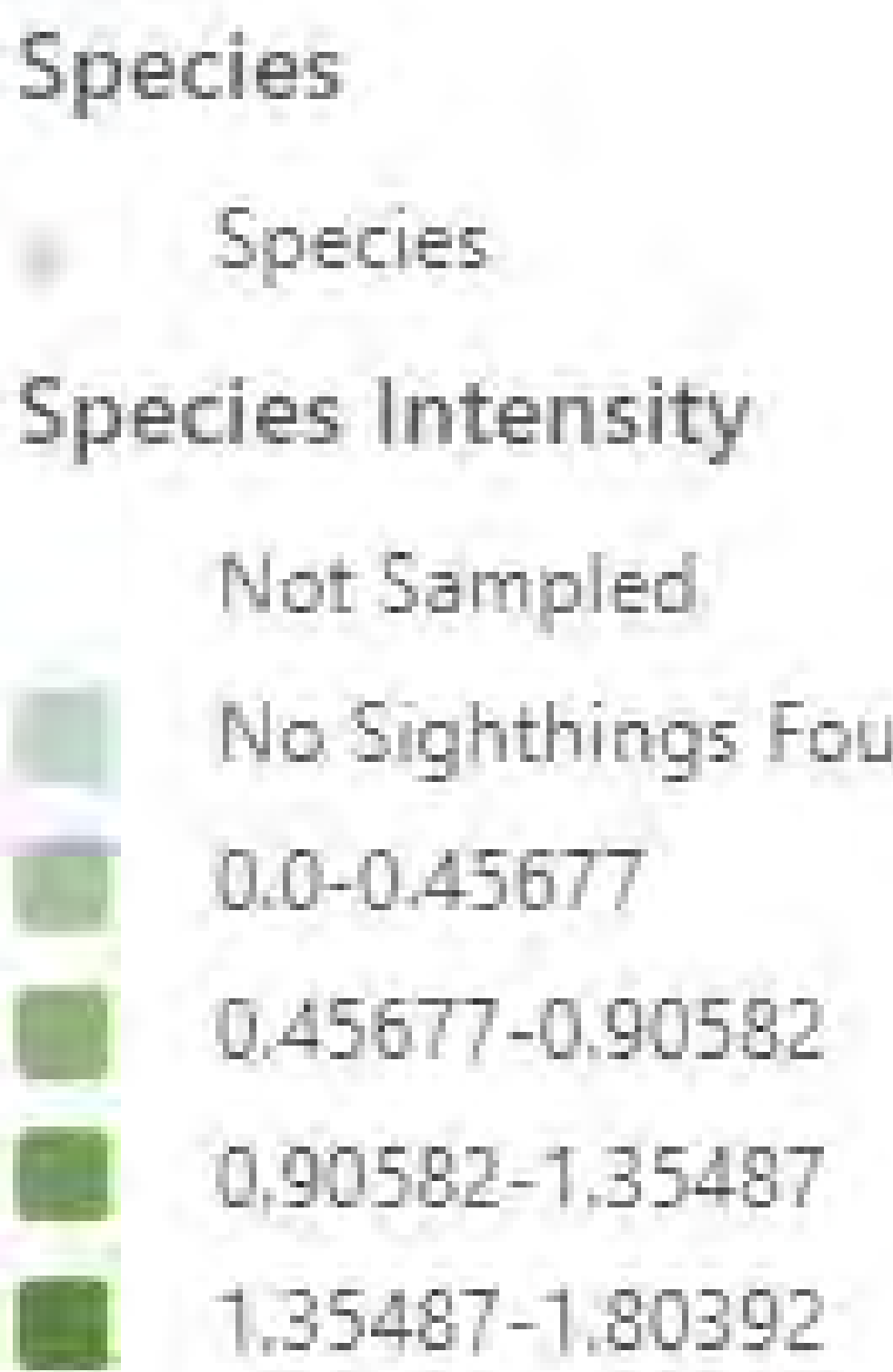
Range level



ANIMAL TRACKS AND SIGNS

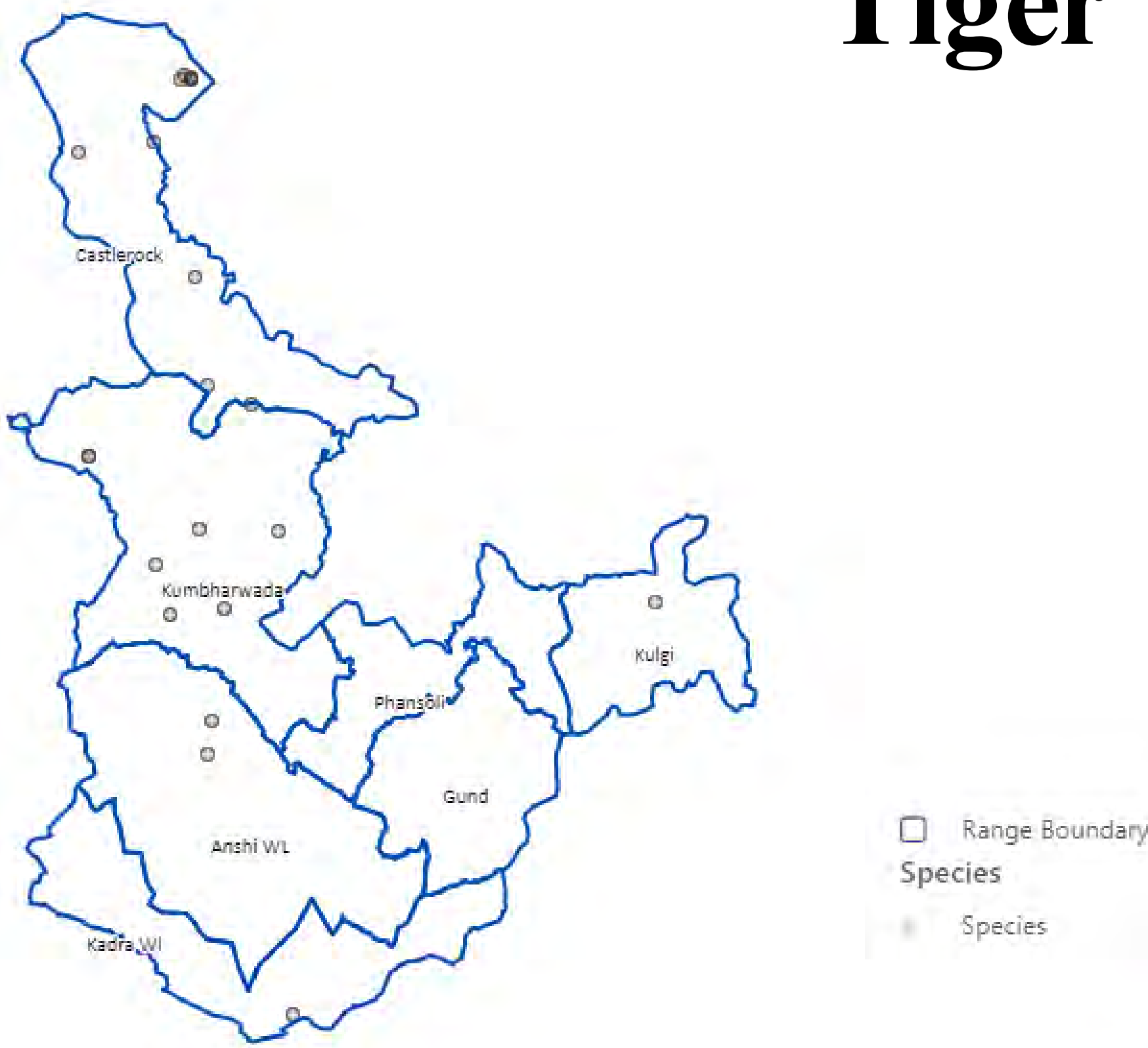


Species Presence and Intensity

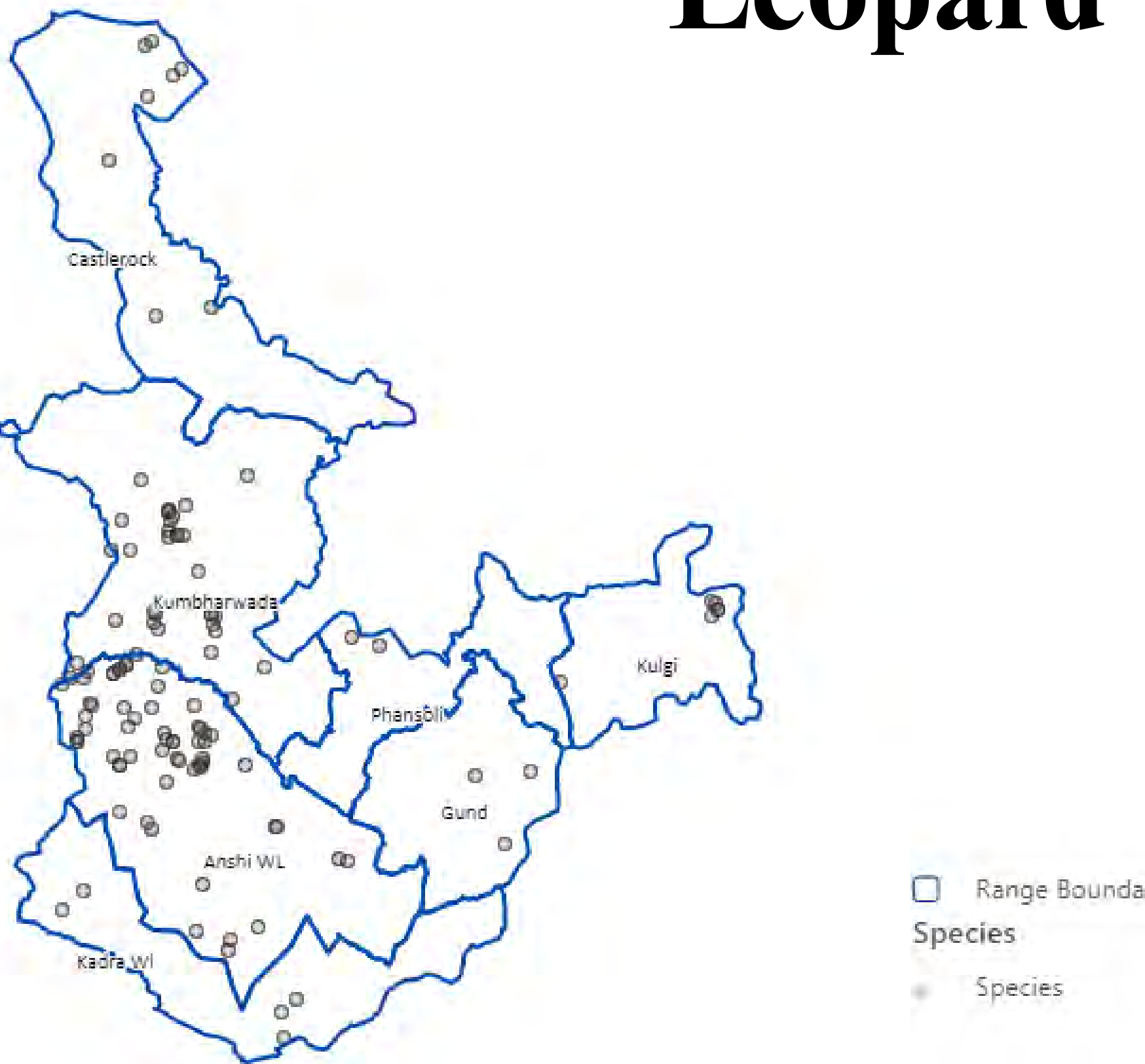


Individual species presence

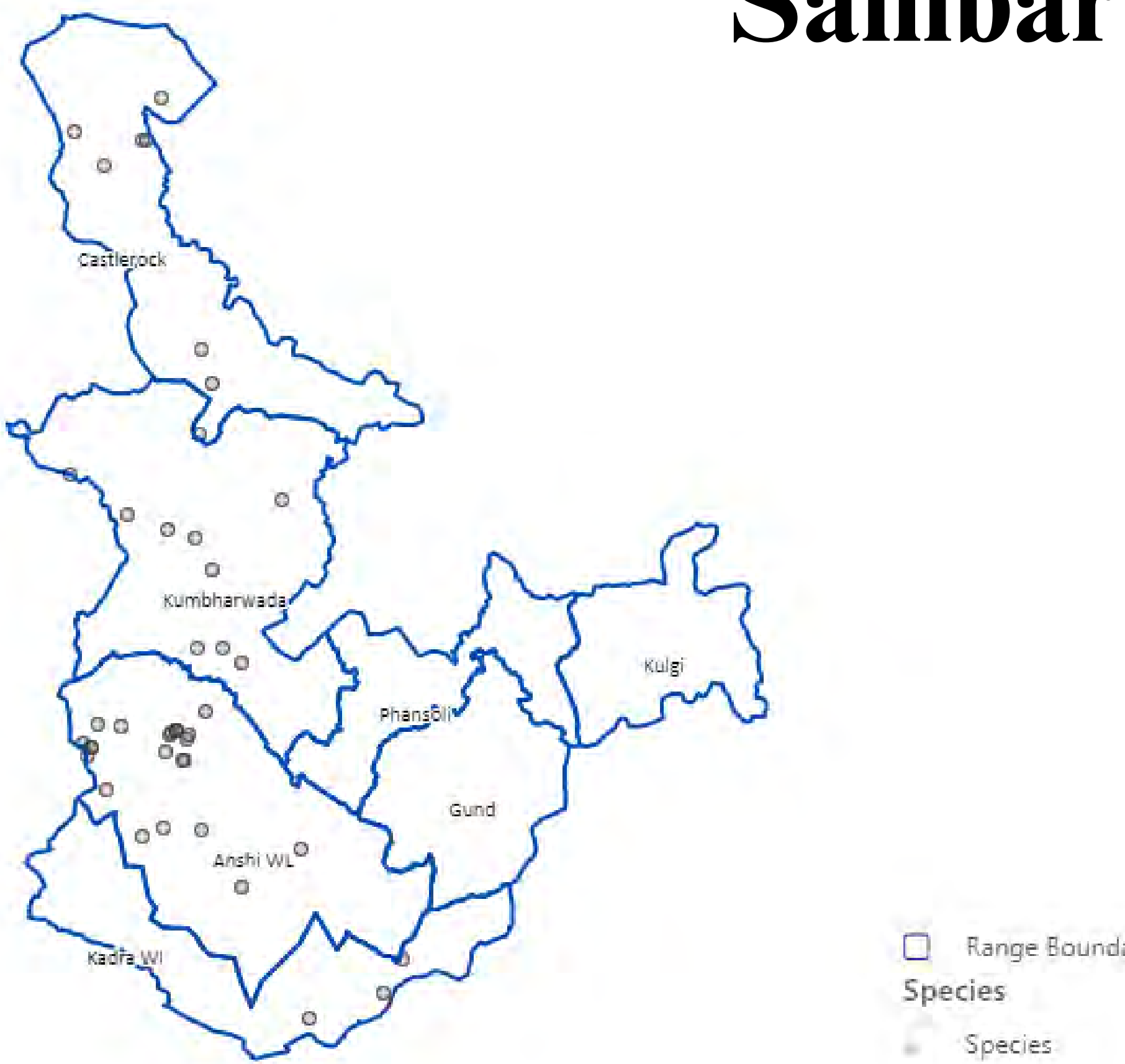
Tiger



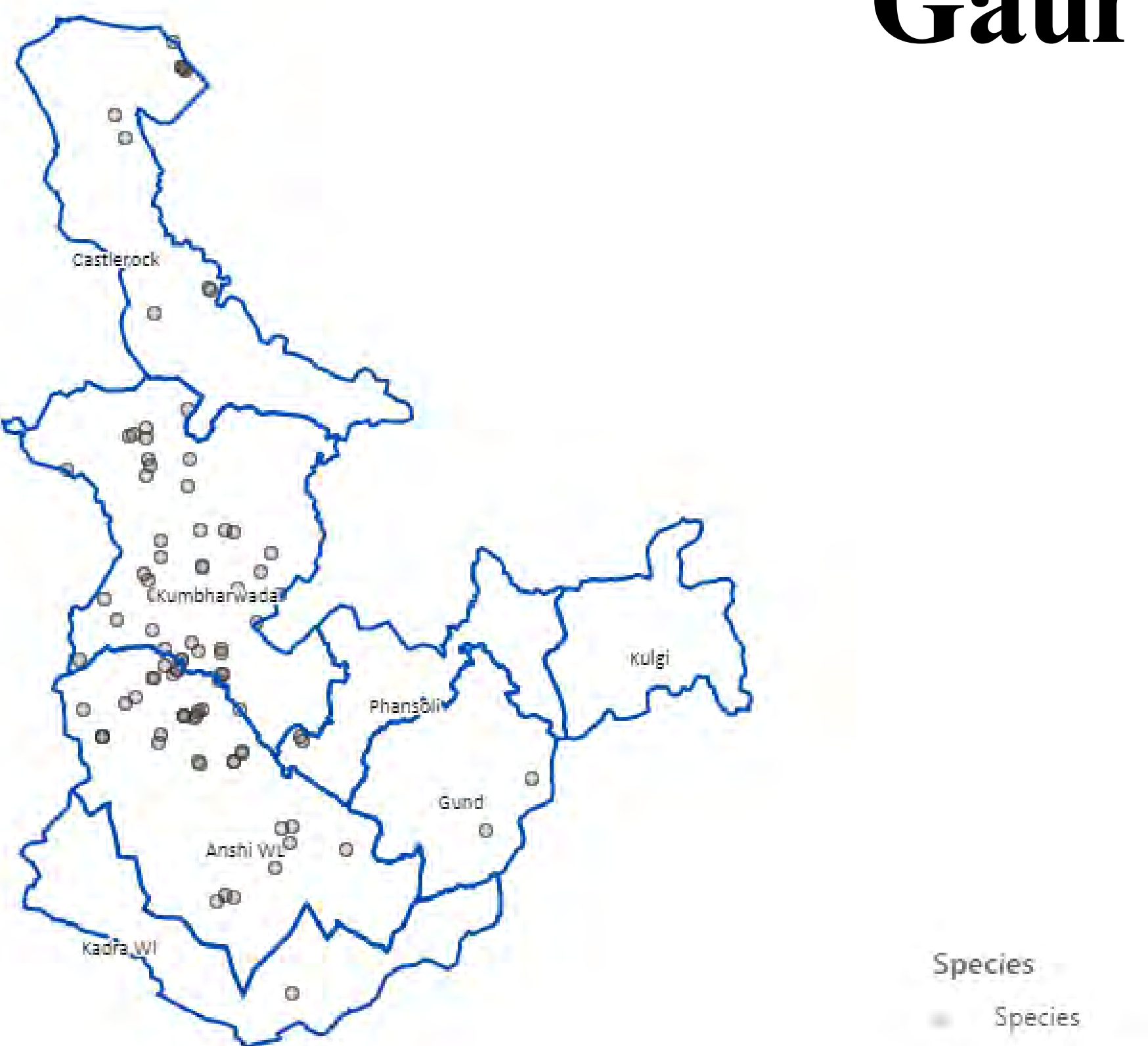
Leopard



Sambar

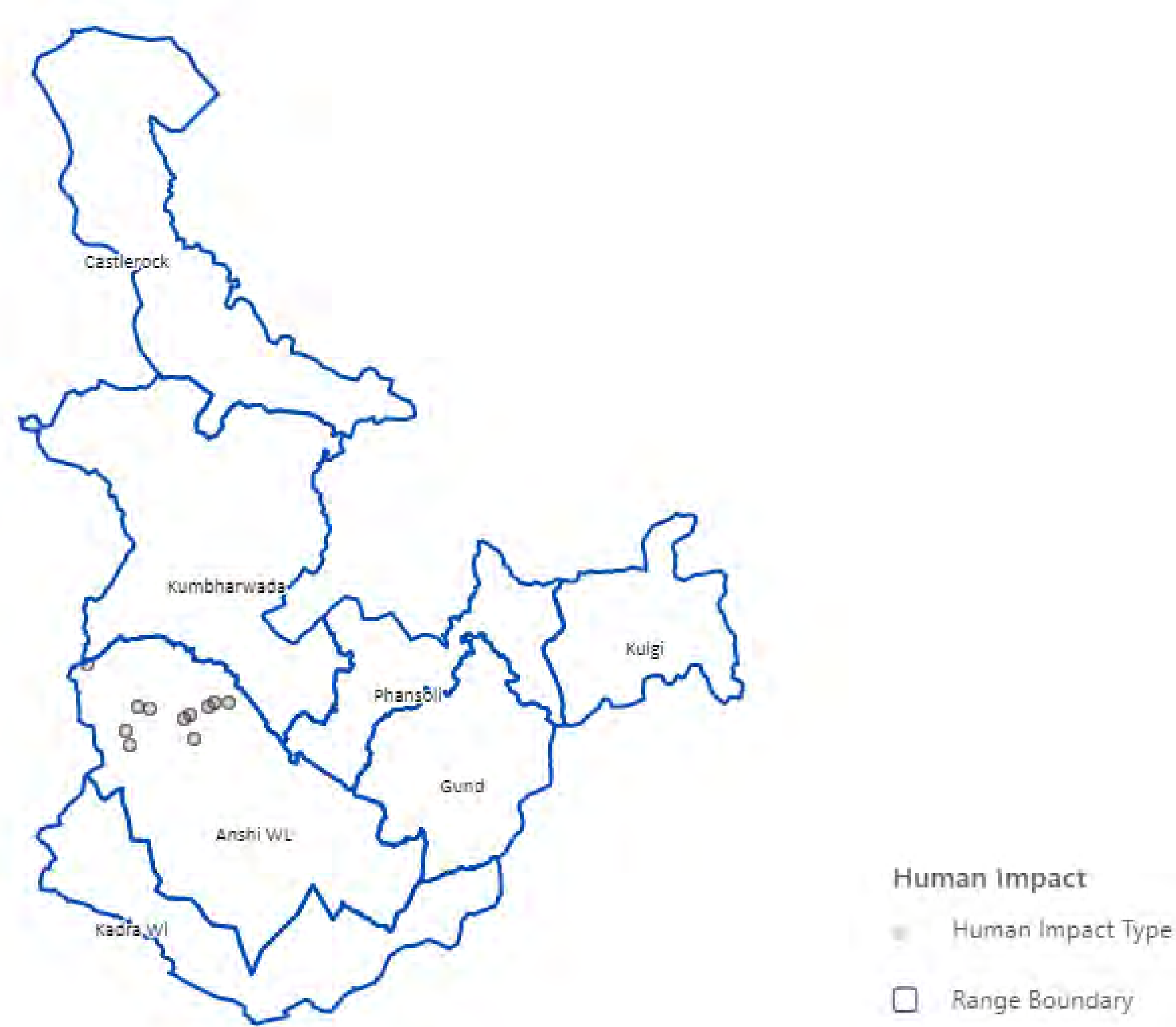


Gaur

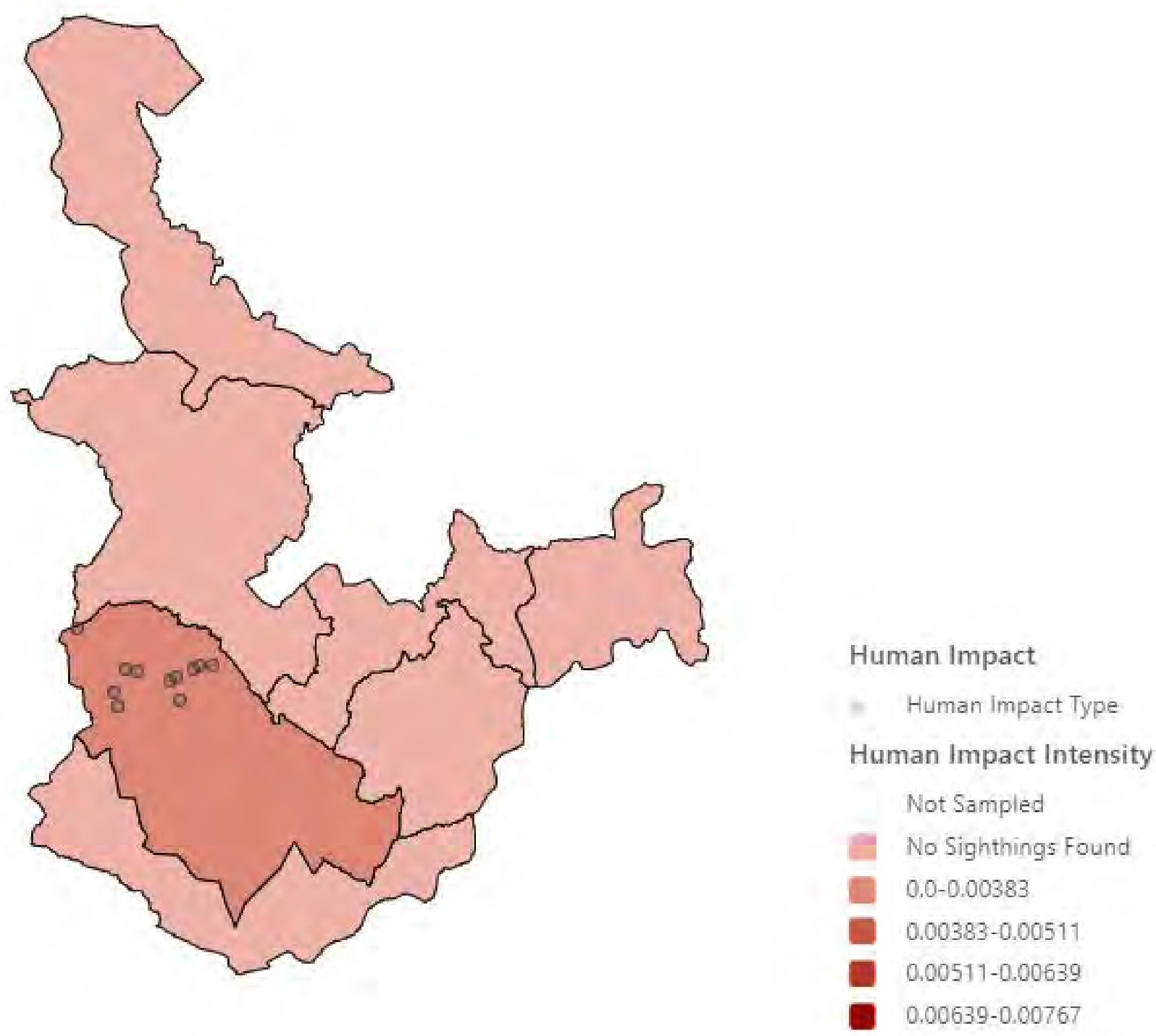


HUMAN IMPACT

Presence

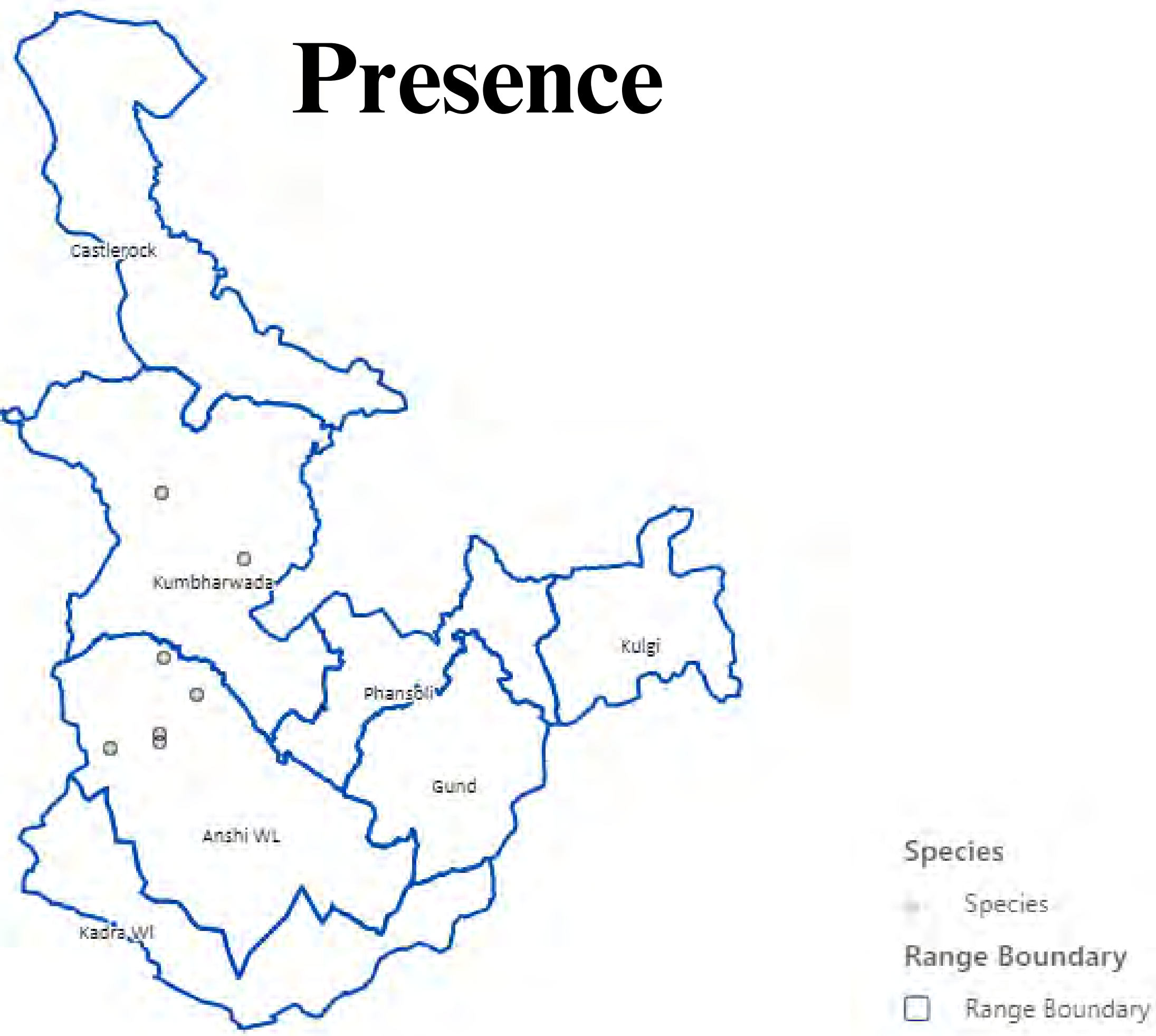


Intensity

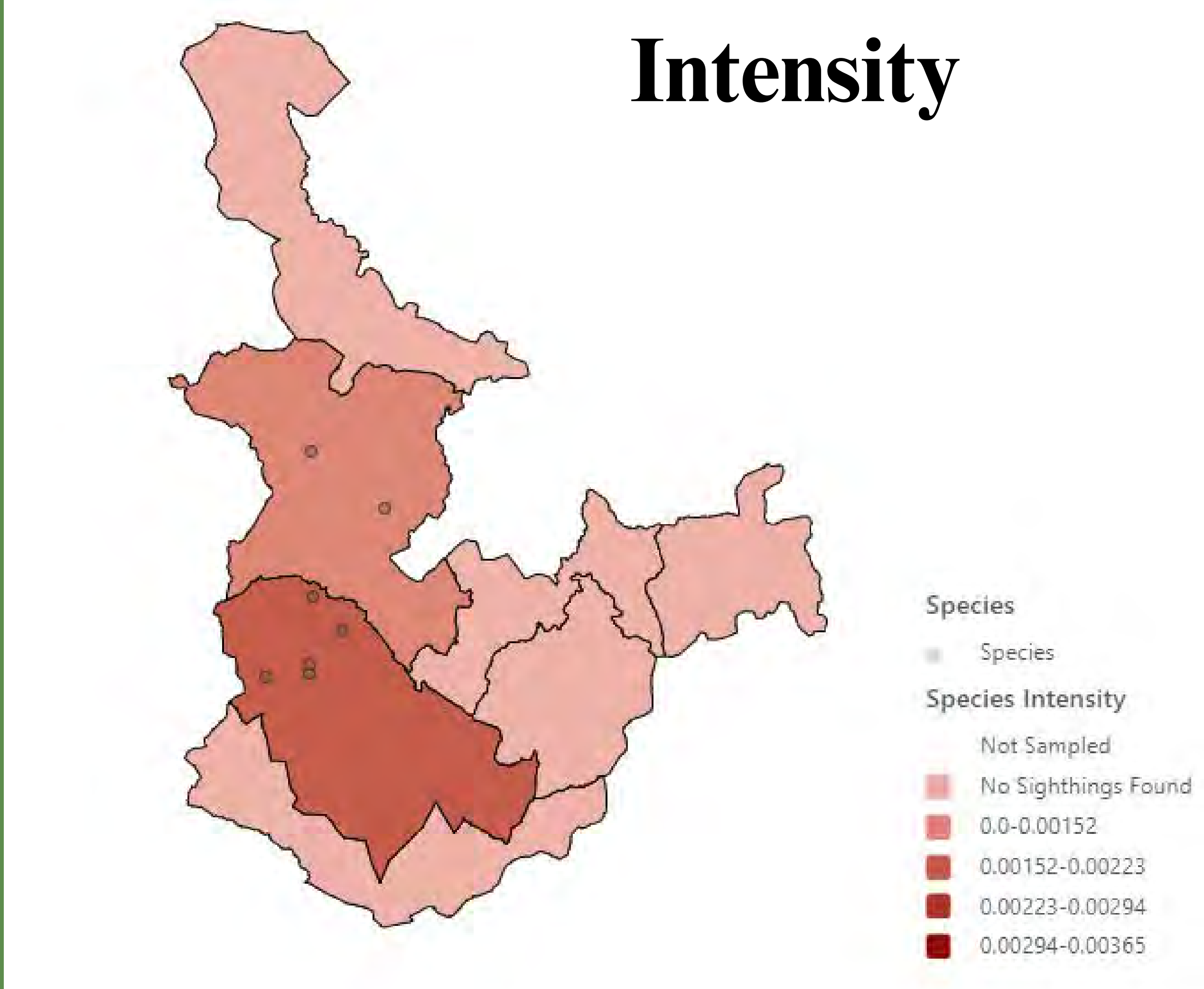


ANIMAL MORTALITY

Presence

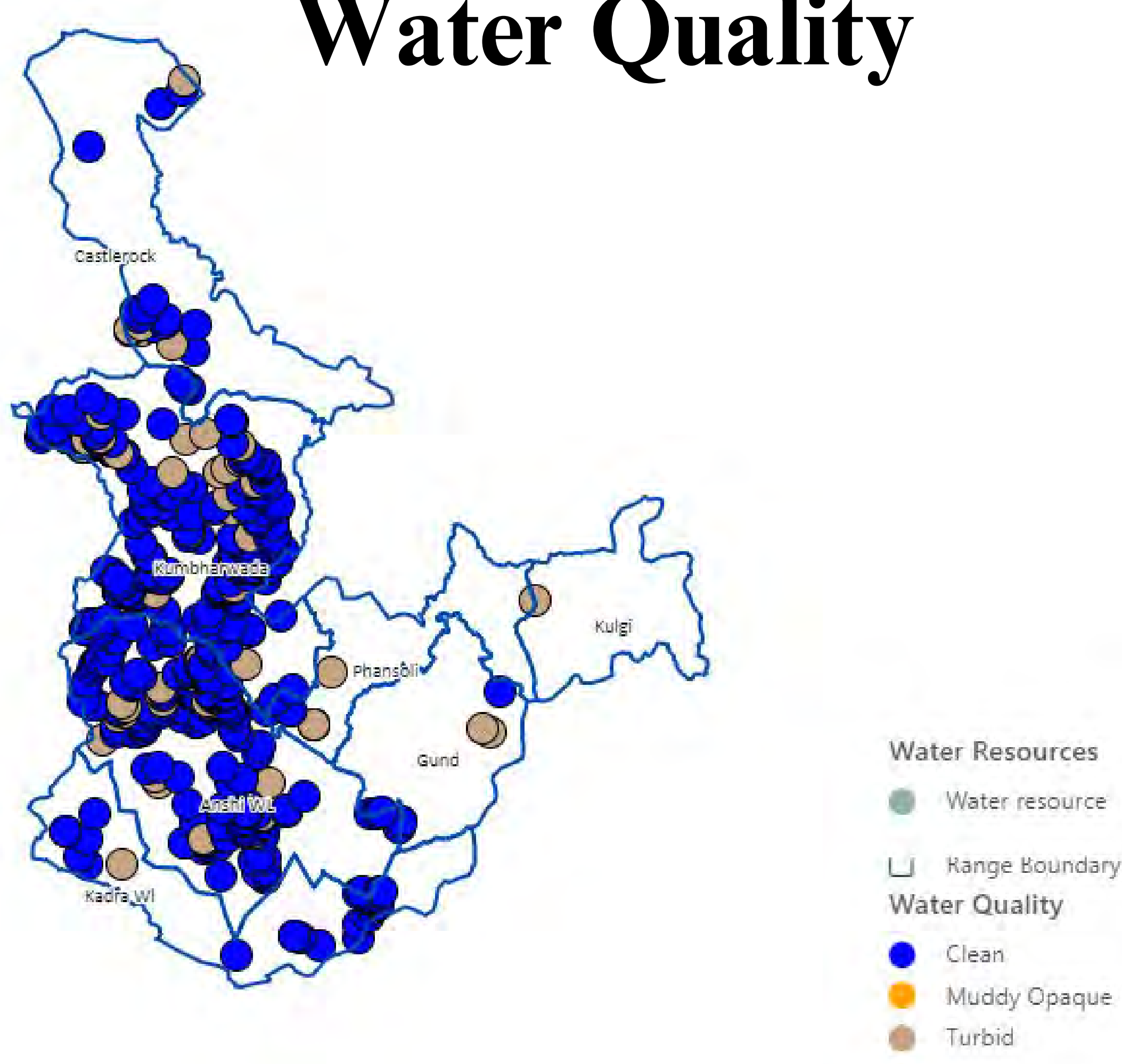


Intensity

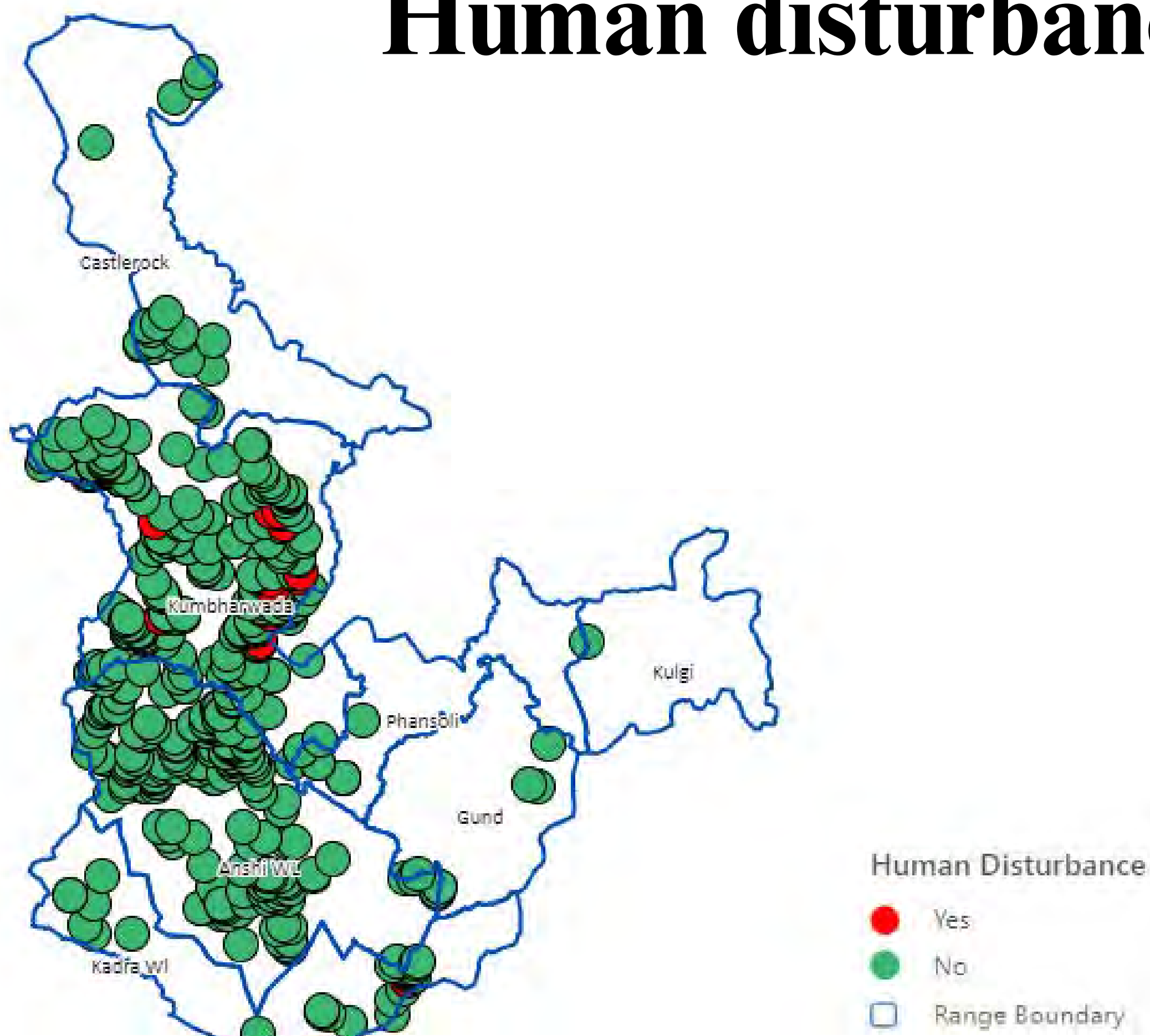


WATER RESOURCE

Water Quality

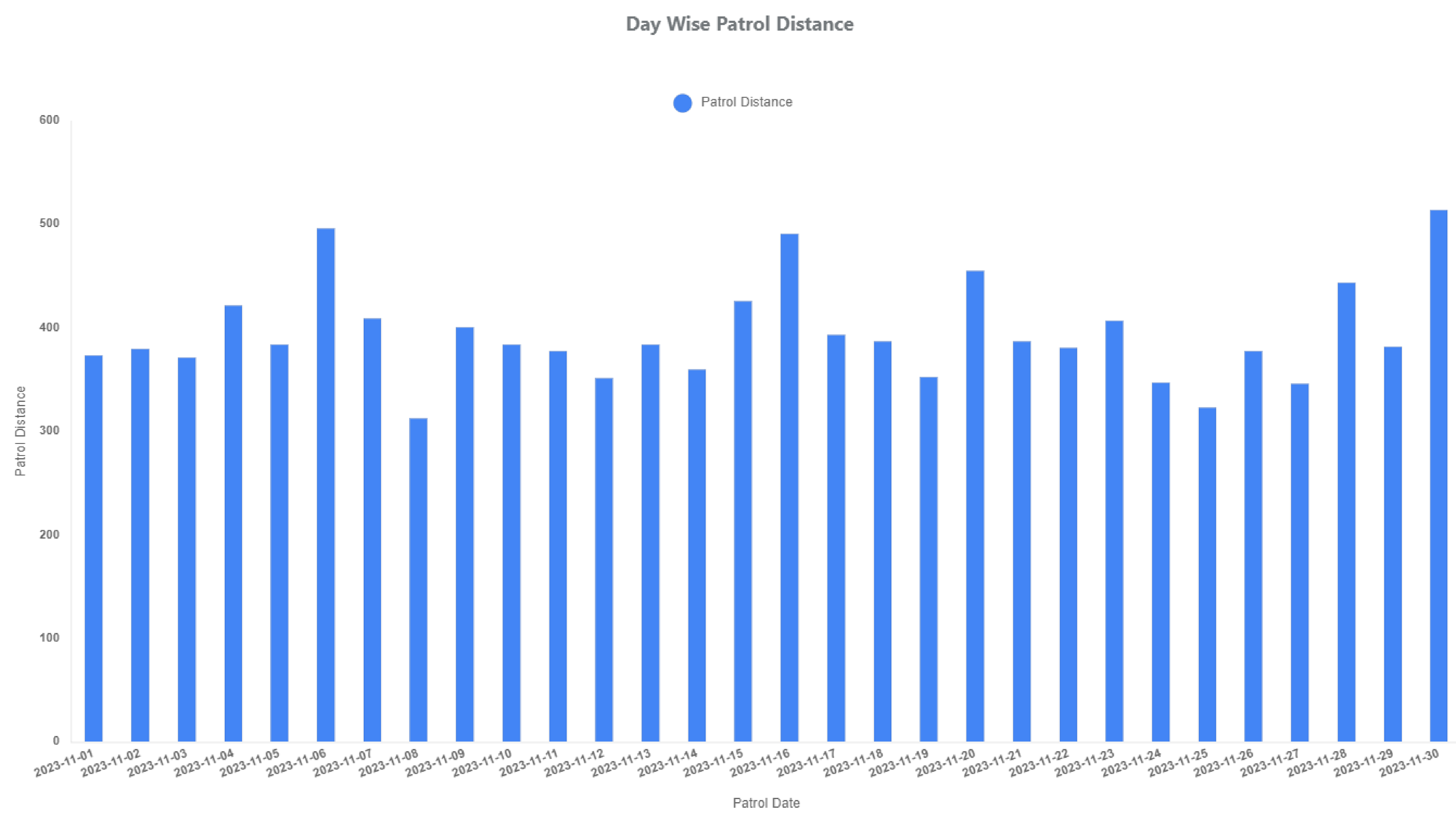


Human disturbance

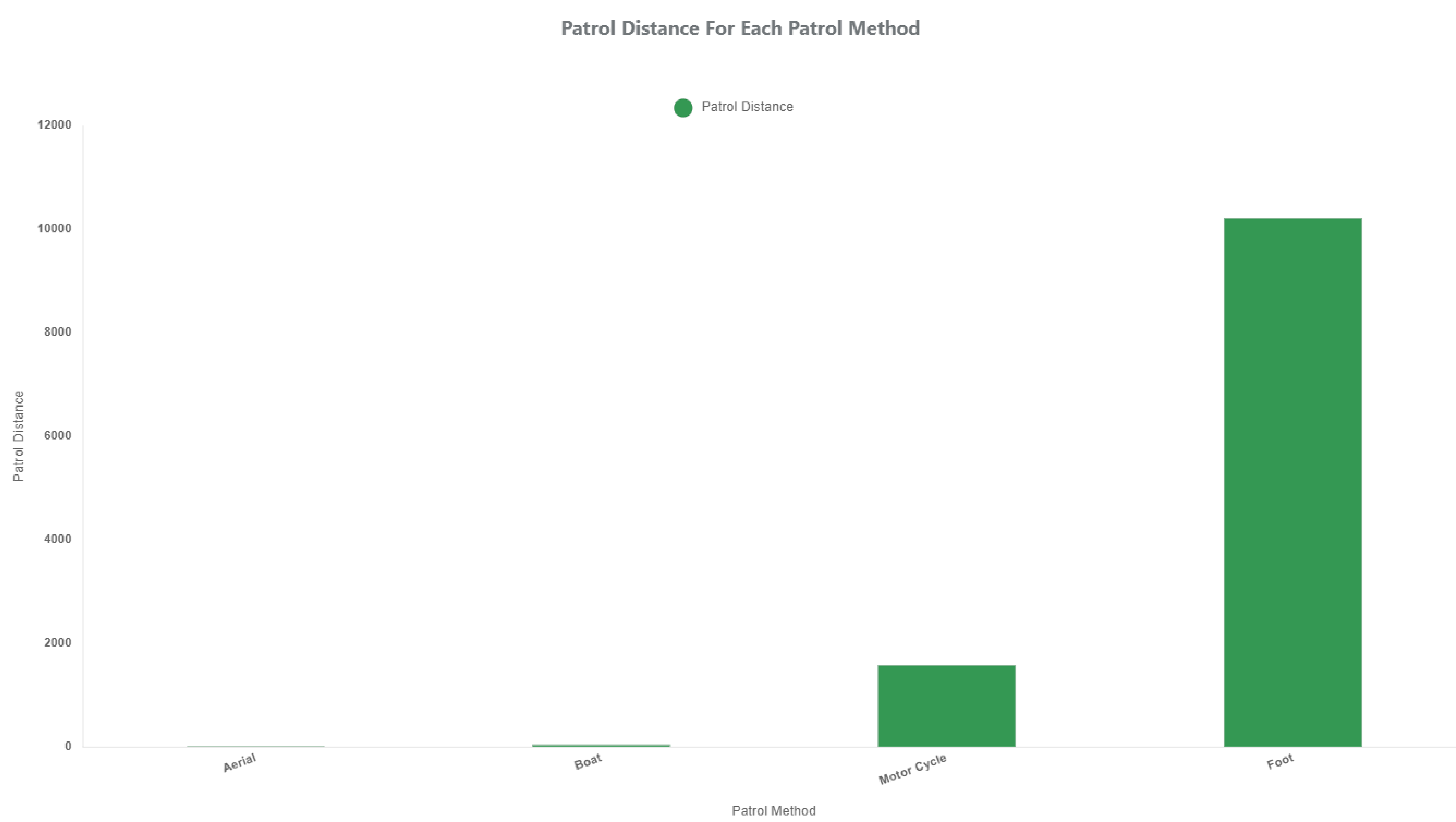


Non-spatial Analysis

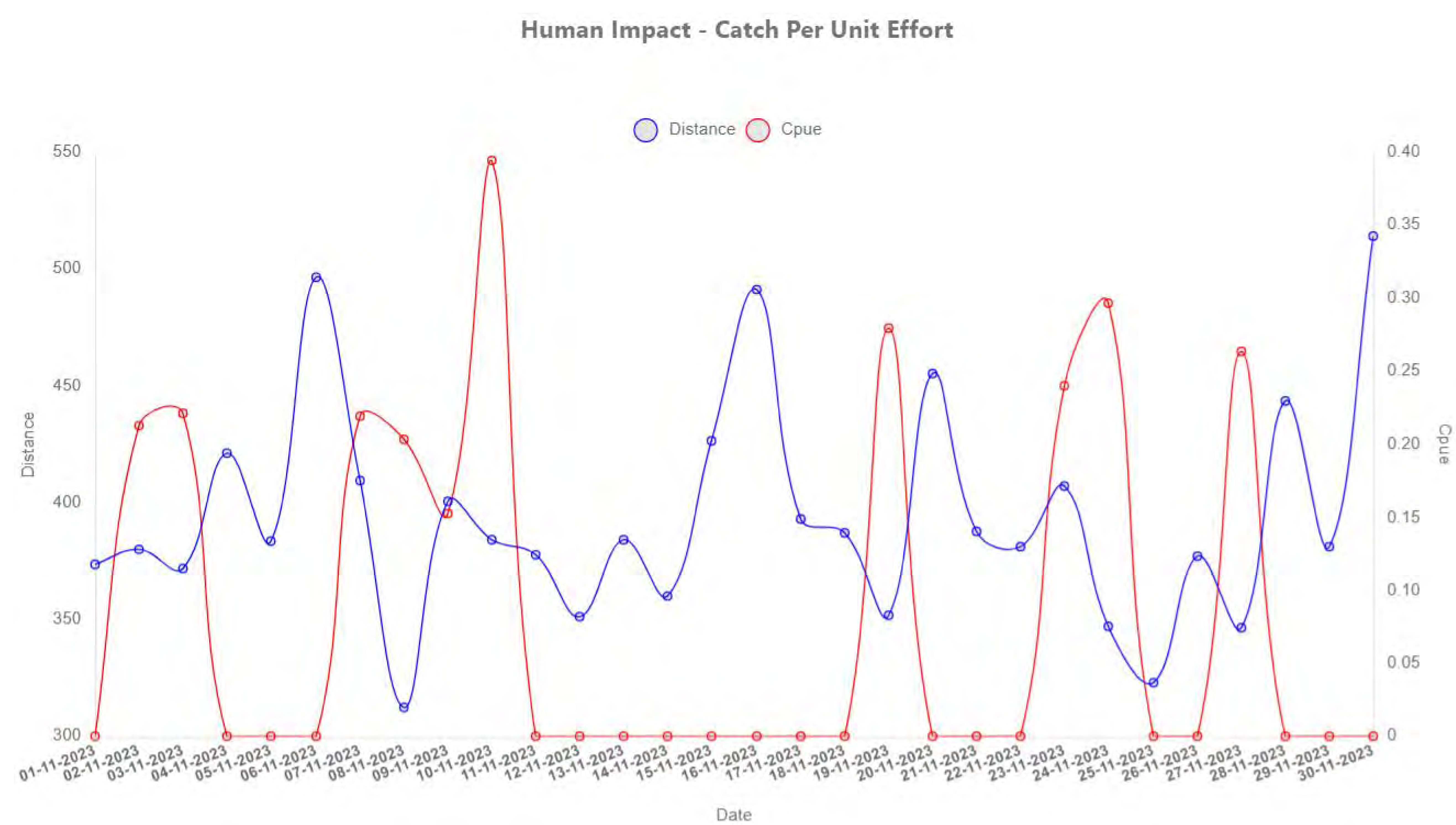
Day-wise Patrol effort (km)



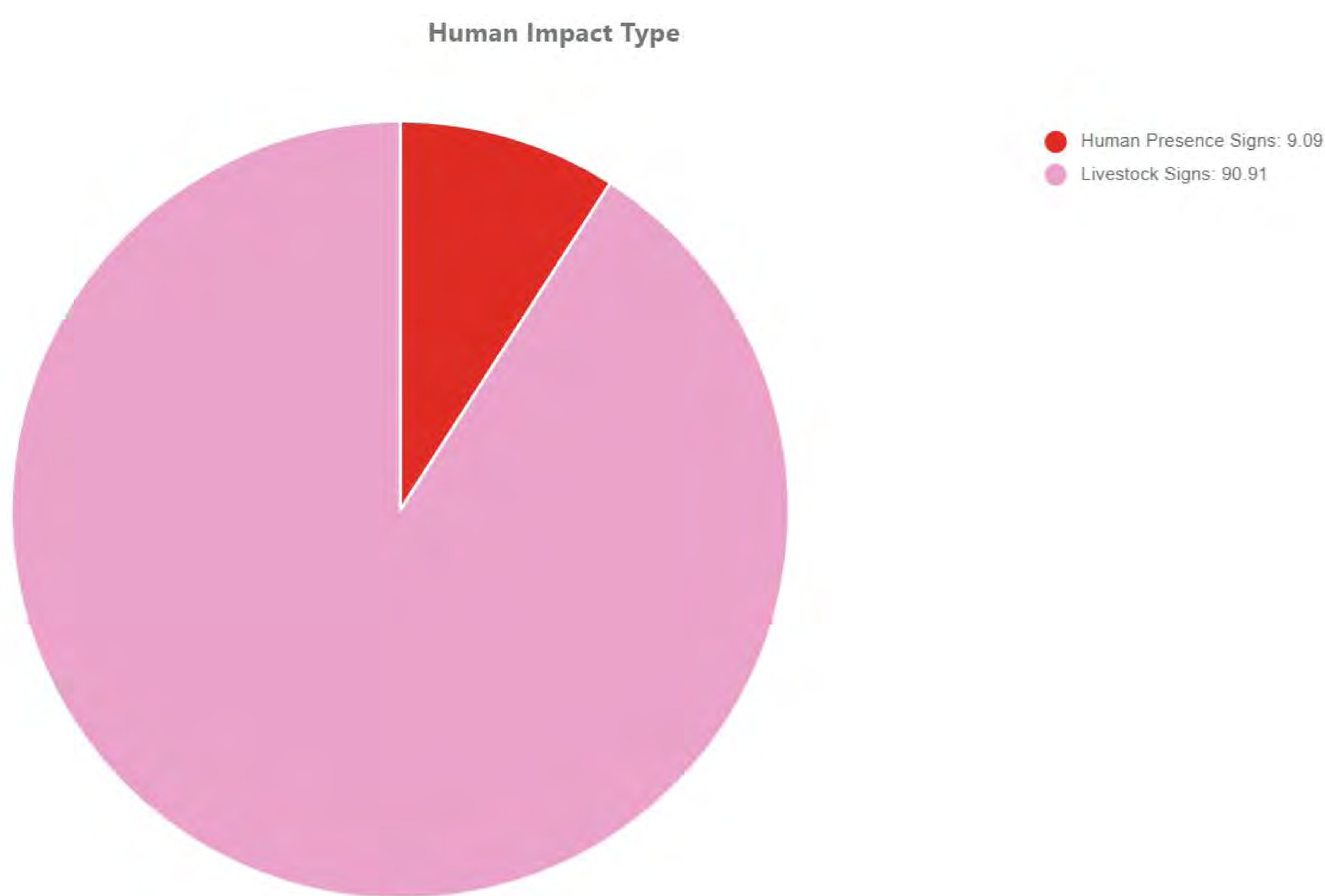
Patrol distance (km) vs Patrol method



Human Impact - Catch Per Unit Effort



Human Impact type

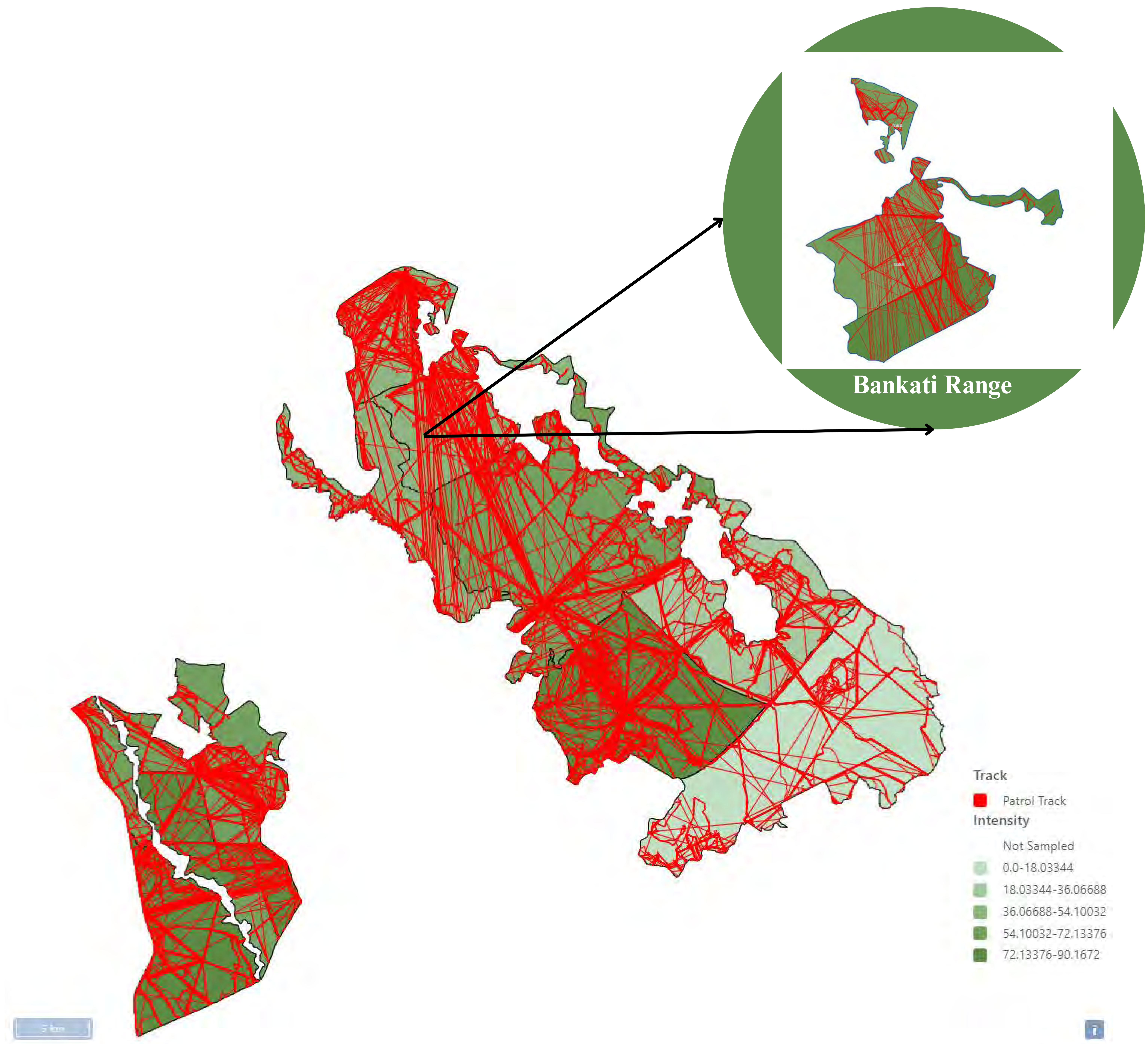


Dhudwa Tiger Reserve - Nov 2023

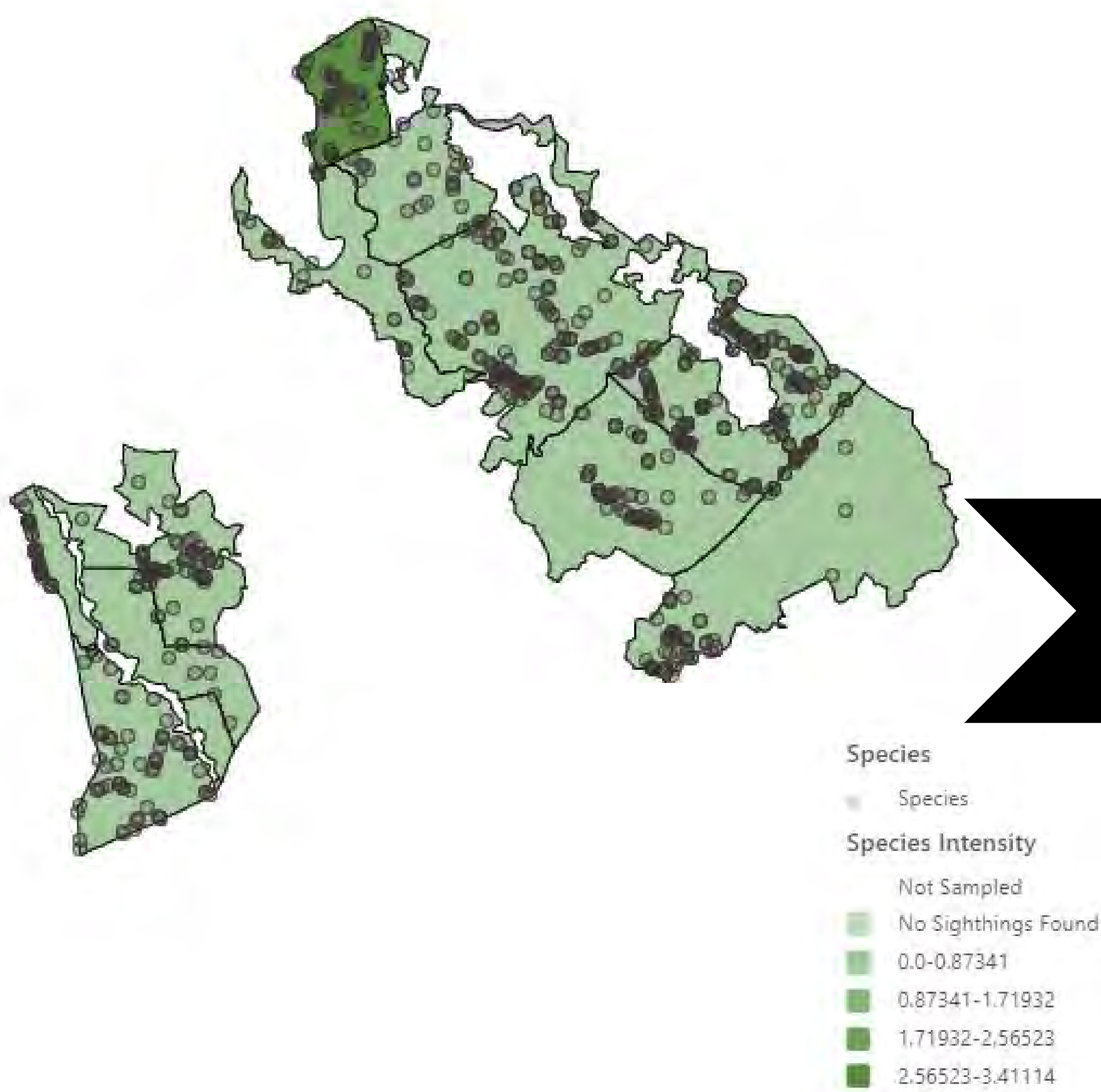
PATROL TRACKS AND INTENSITY

Division level

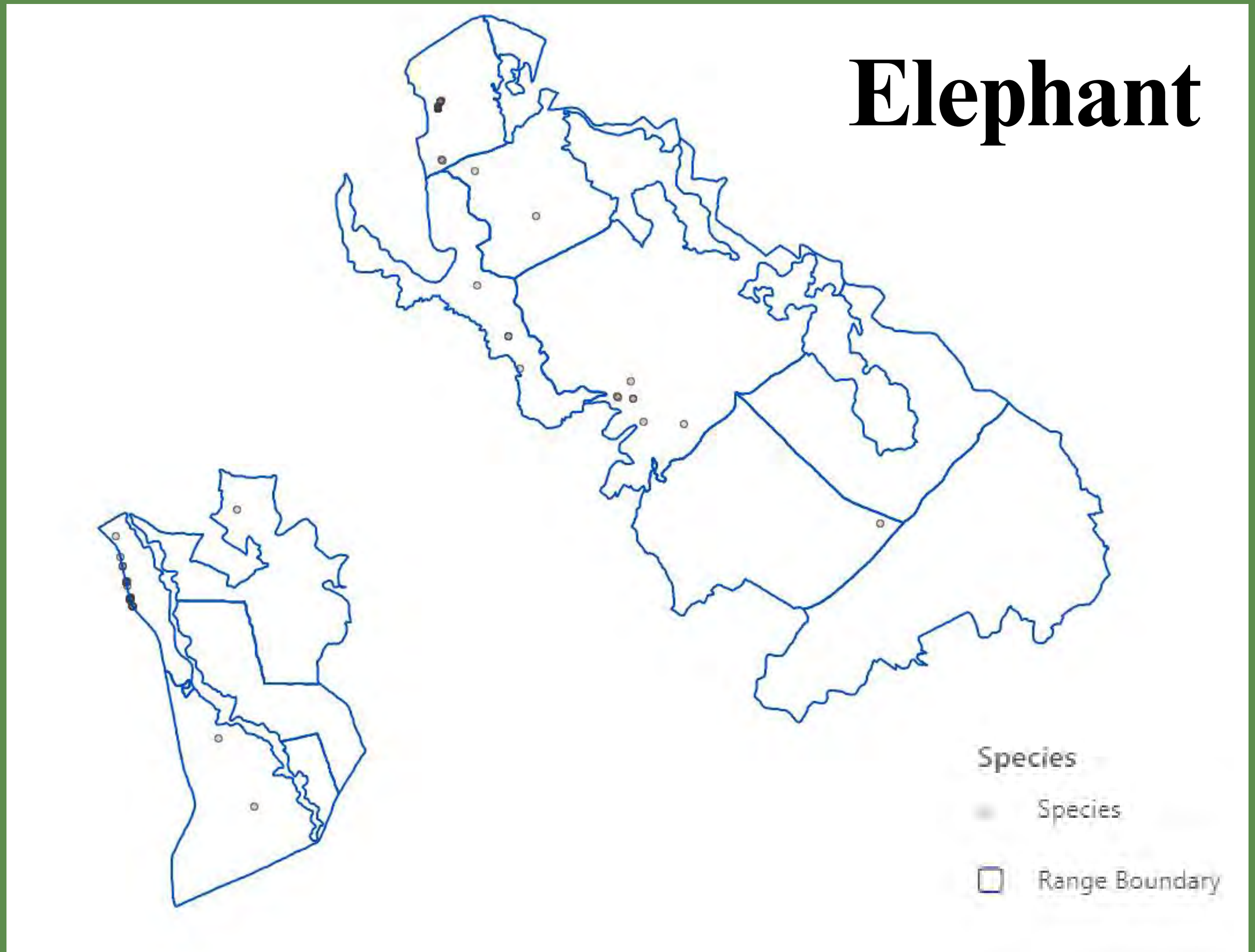
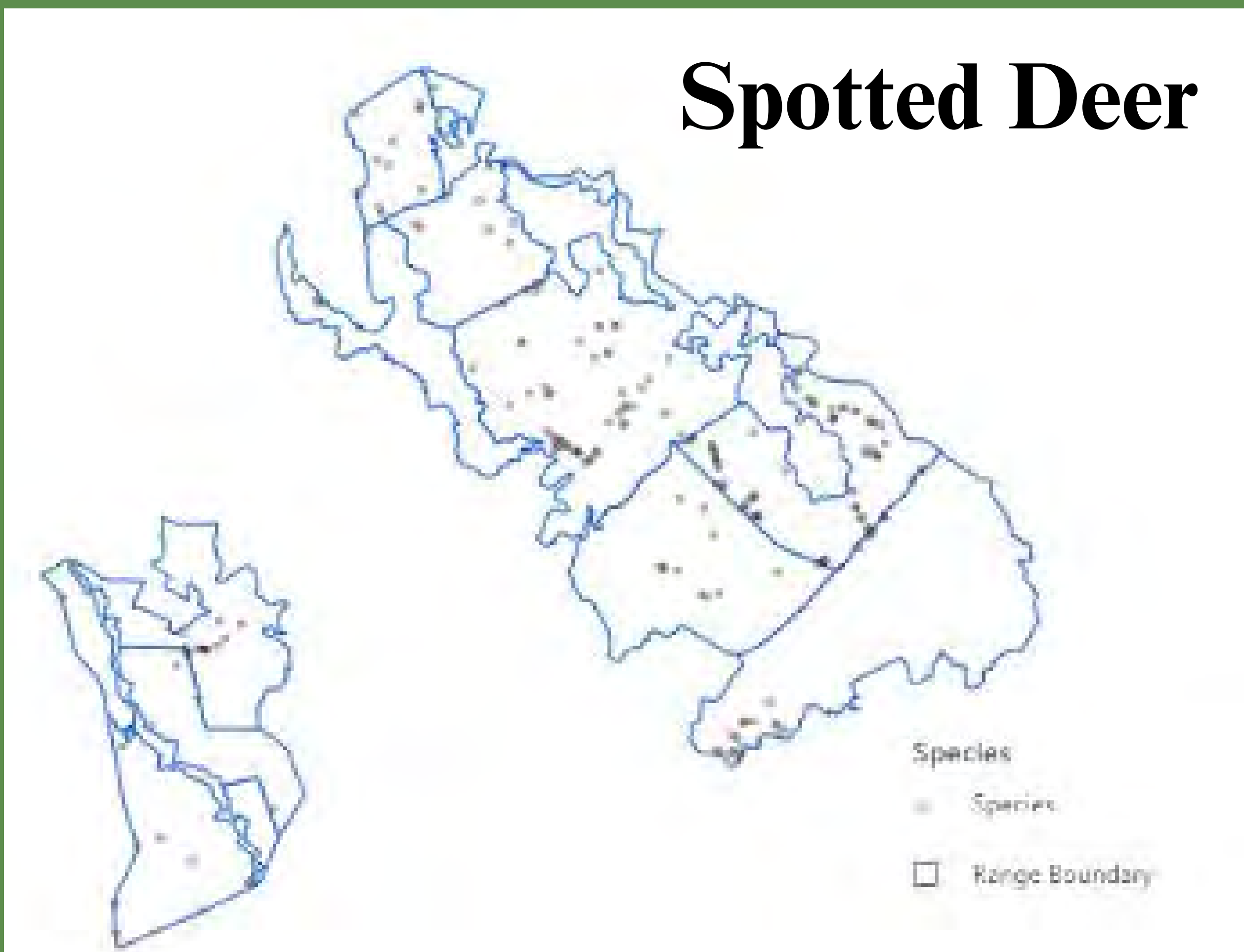
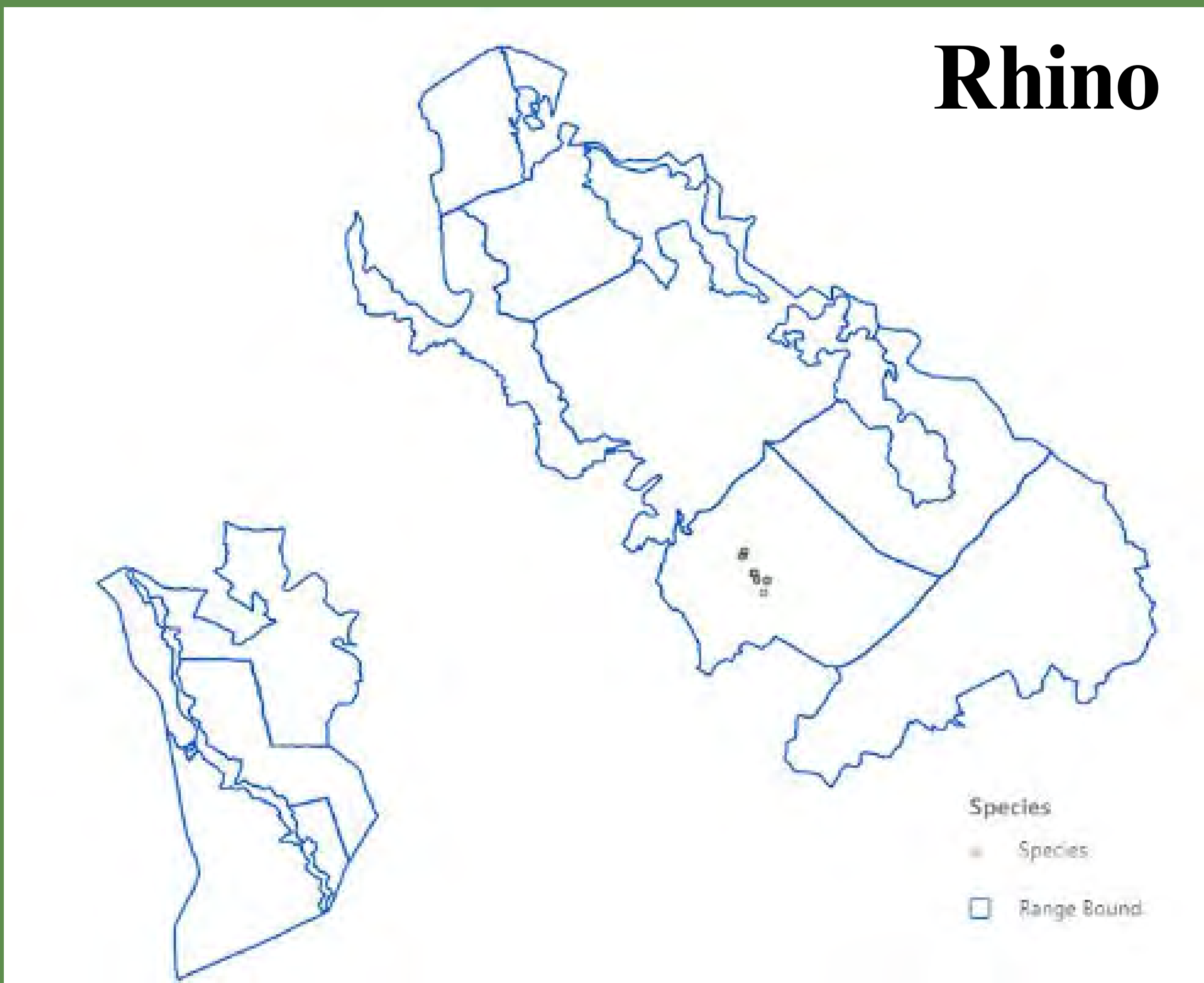
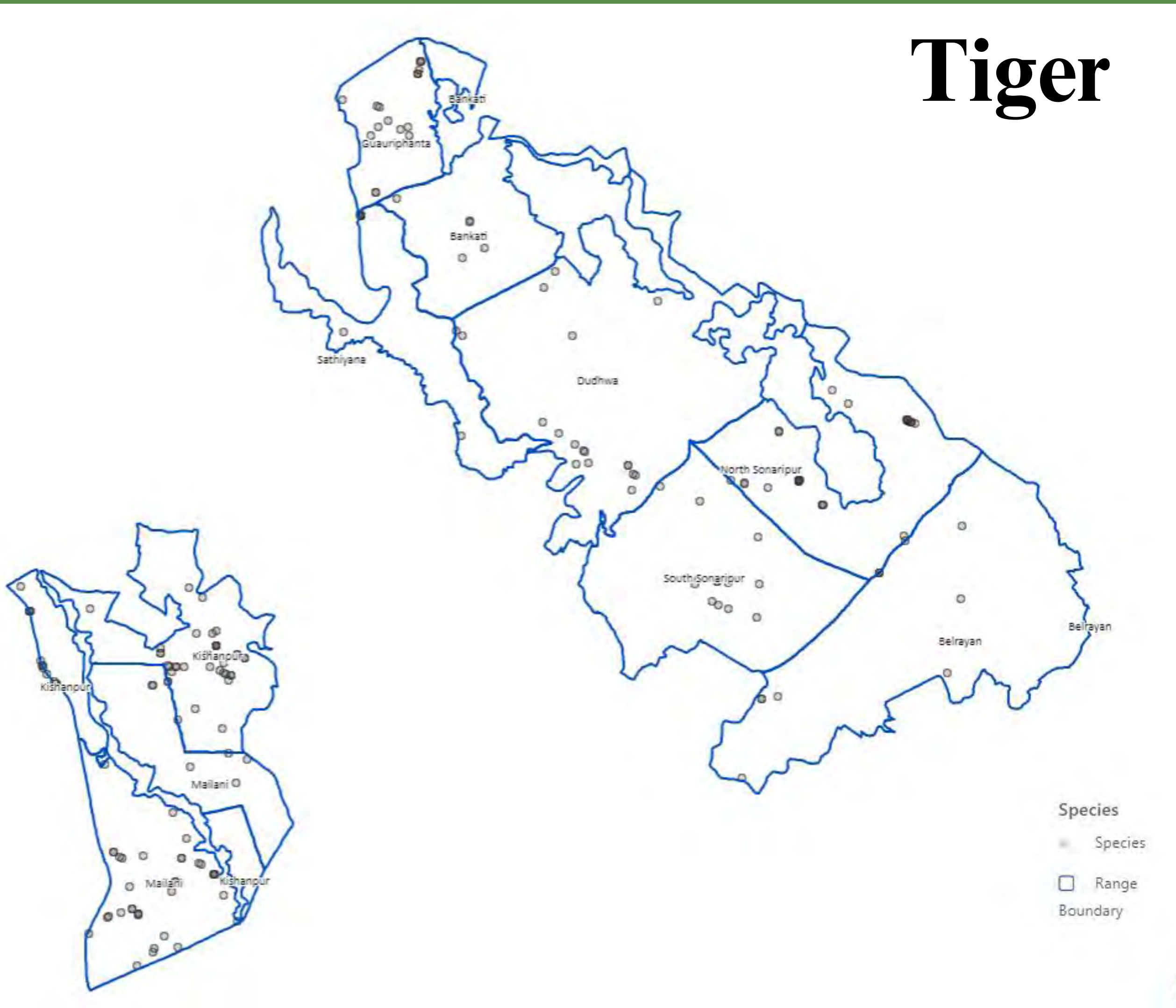
Range level



ANIMAL TRACKS AND SIGNS

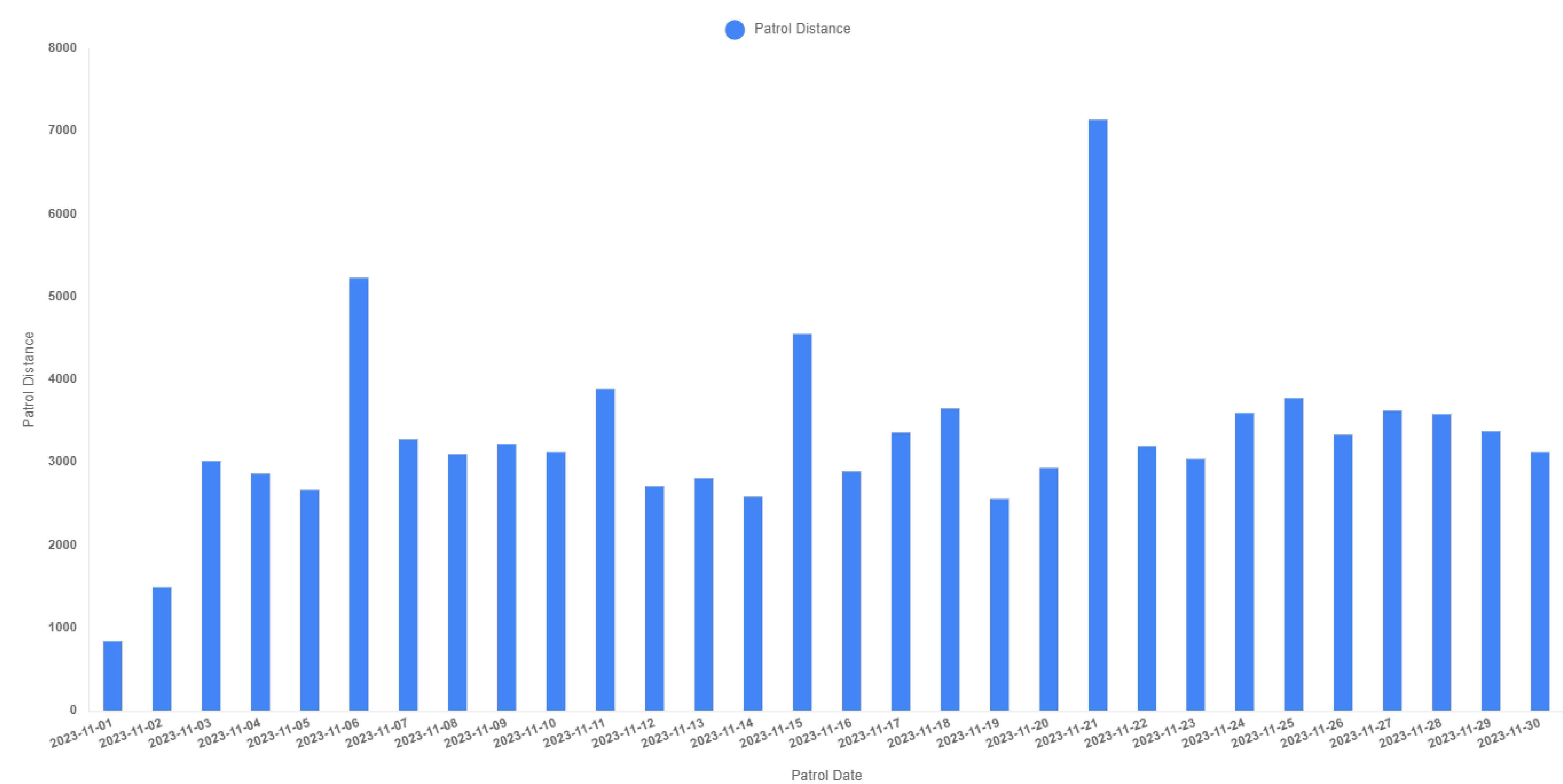


Species Presence and Intensity

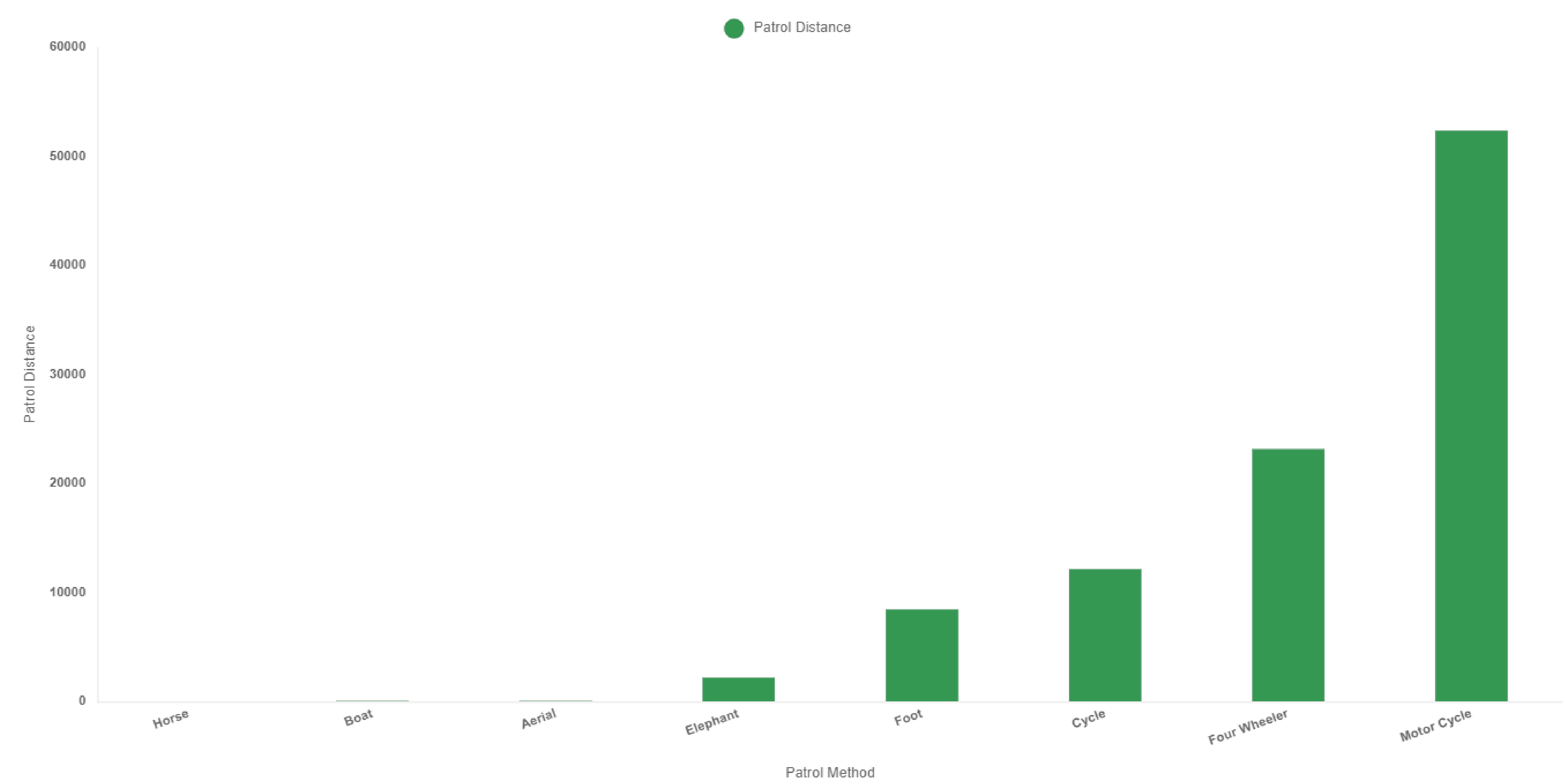


Non-spatial Analysis

Day-wise Patrol effort (km)

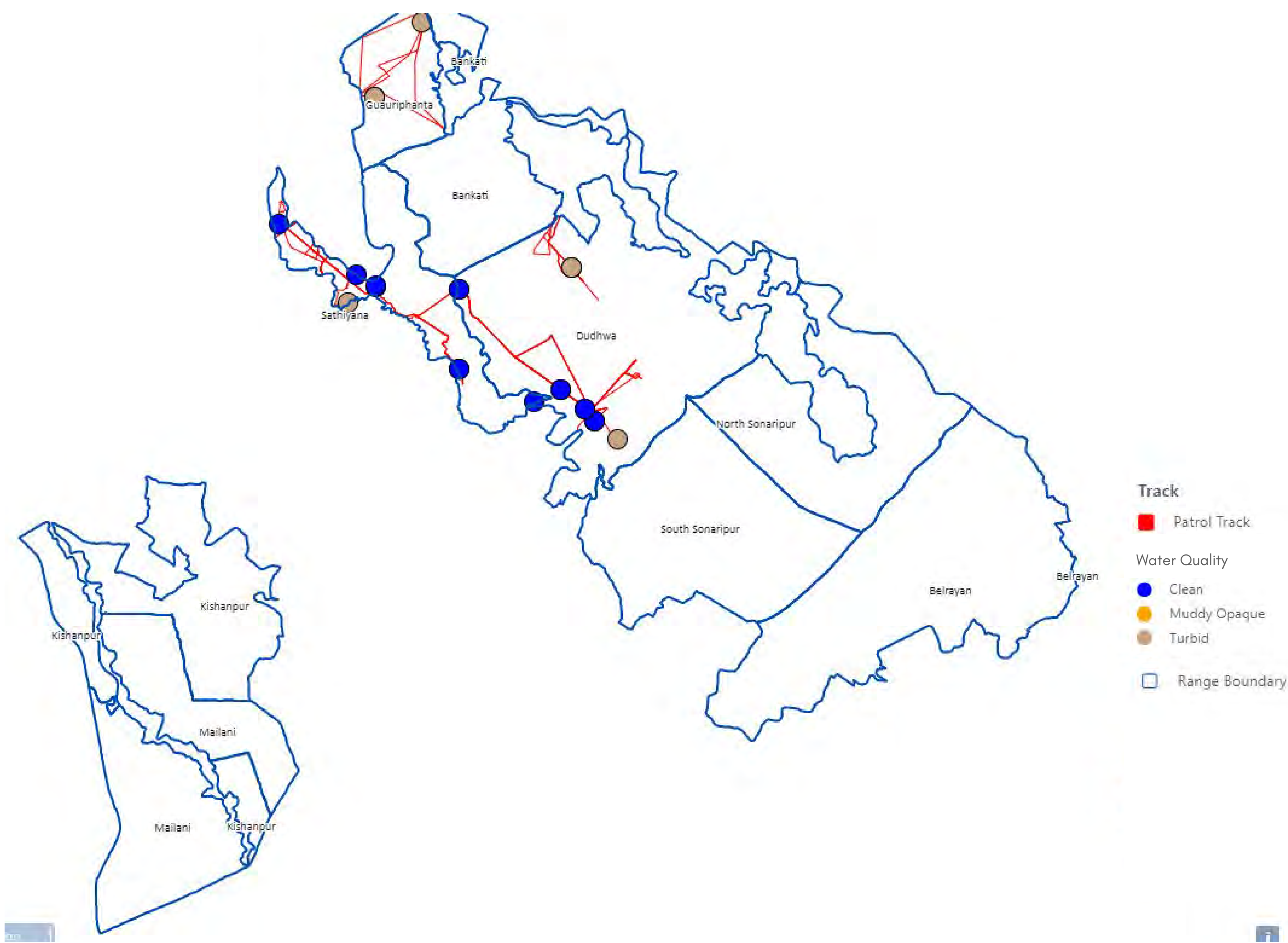


Patrol distance (km) vs Patrol method



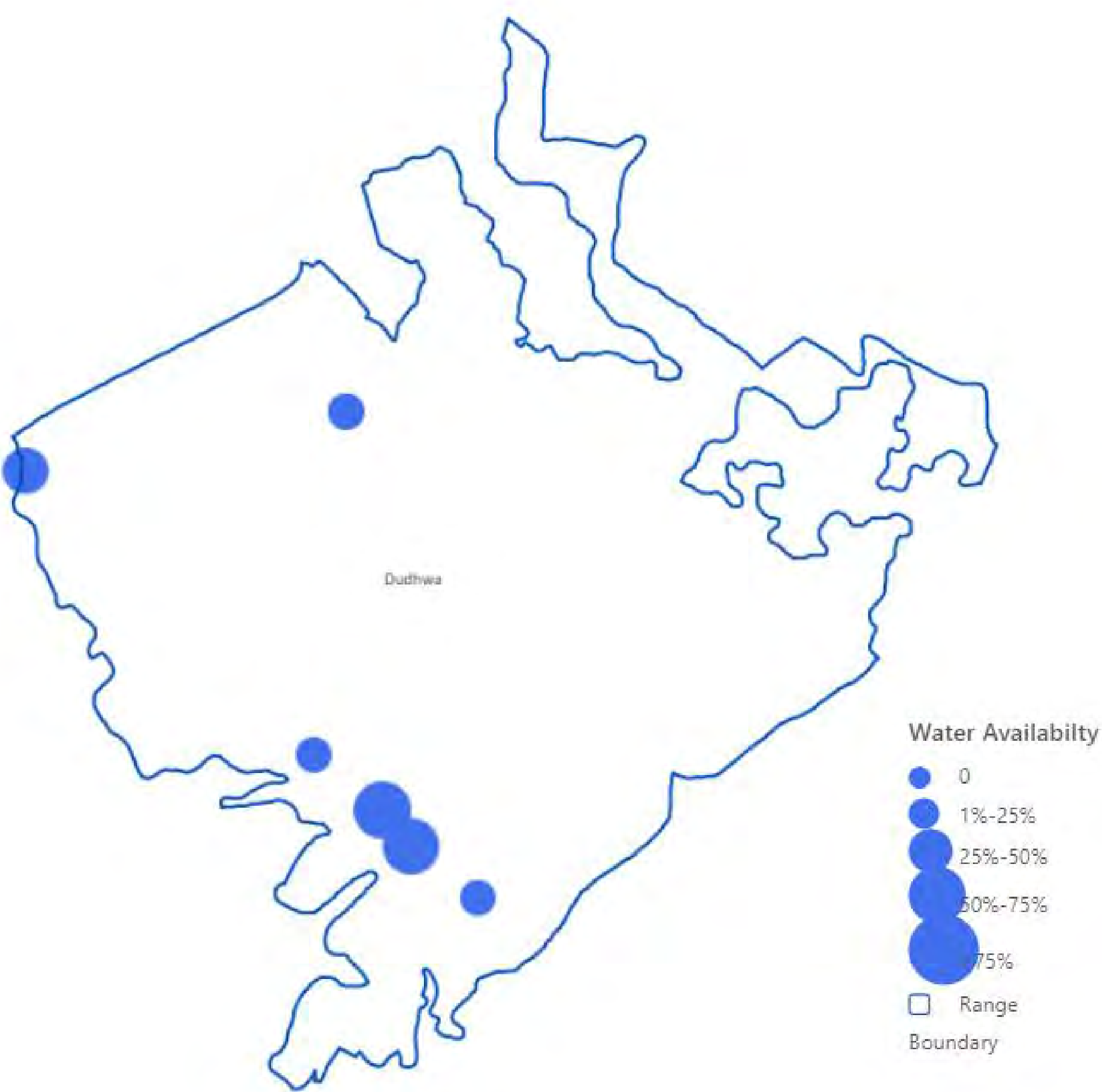
WATER RESOURCE

Division level

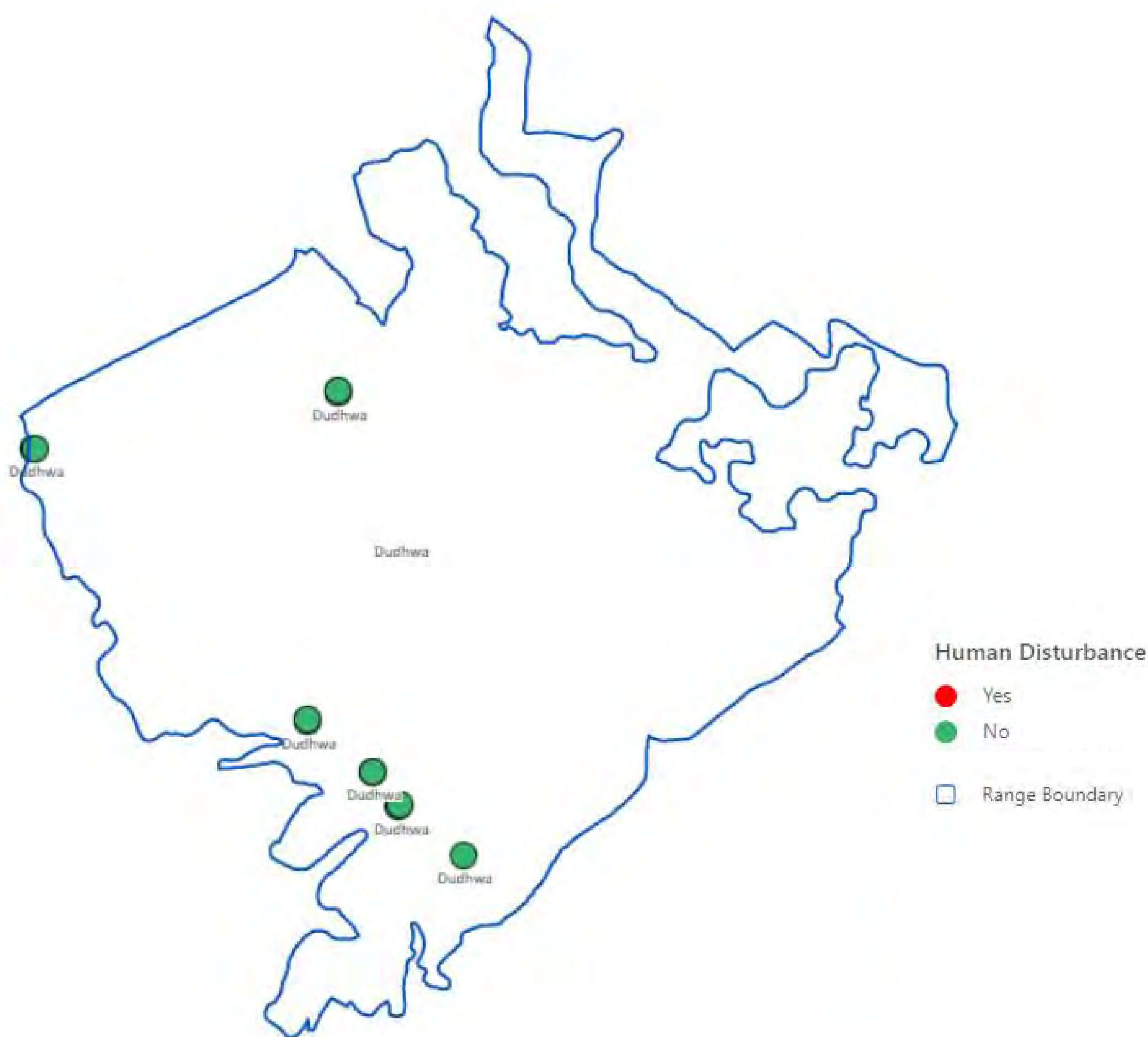


Water Quality

Range level



Water Percentage



Human disturbance

Amrabad Tiger Reserve - Oct 2023

PATROL TRACKS AND INTENSITY

Division level

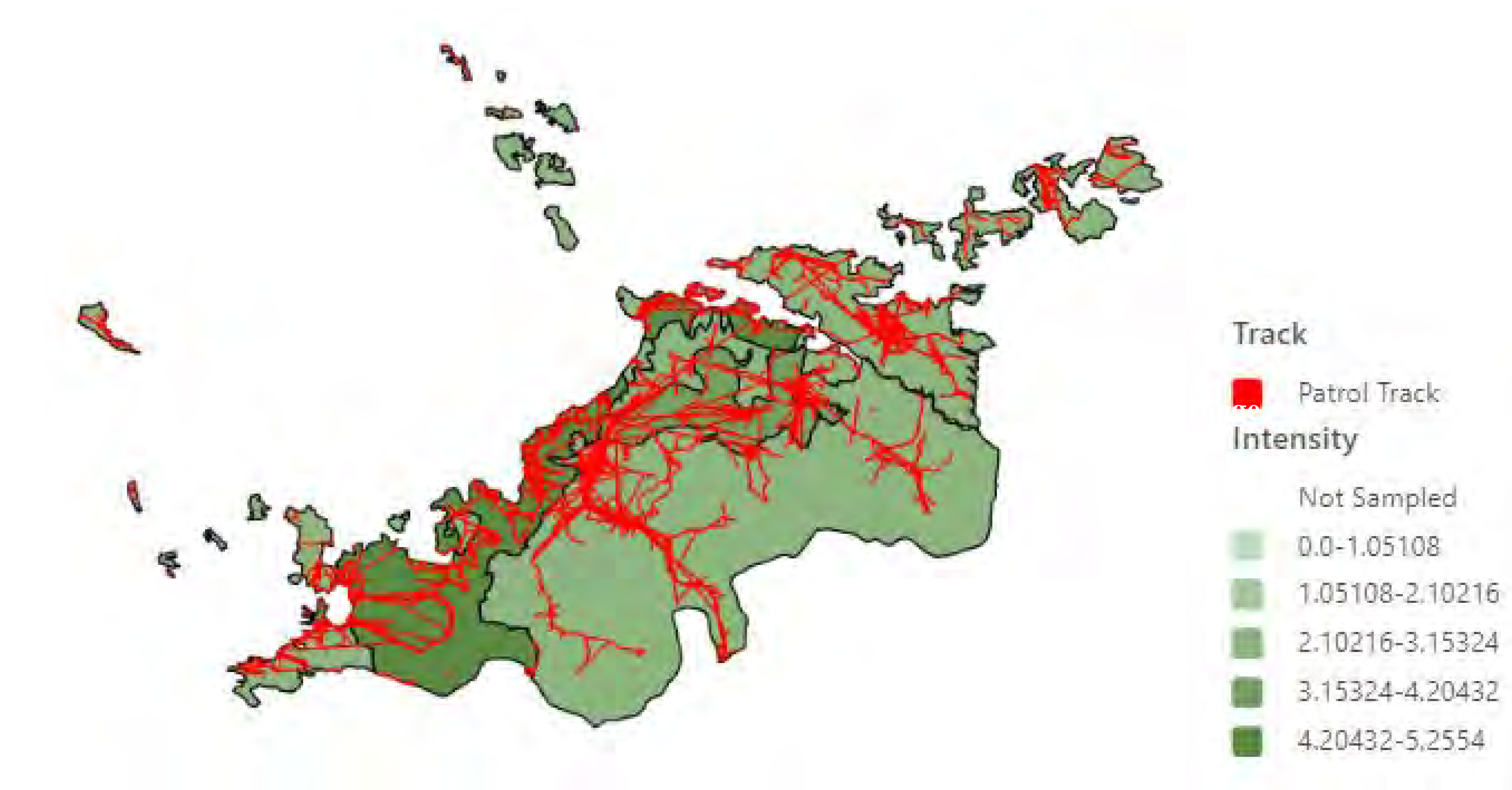
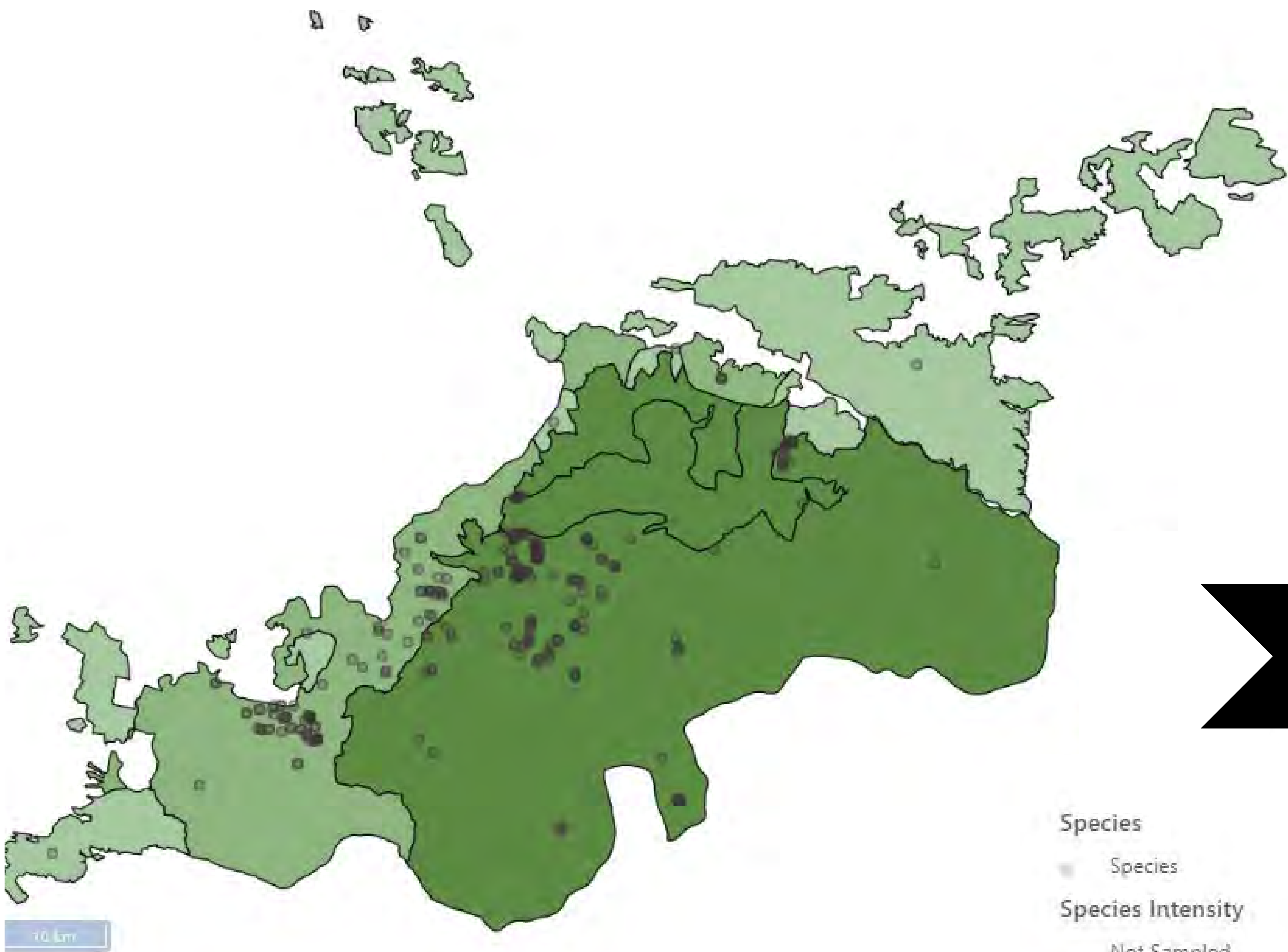


Table representing patrol distance and intensity

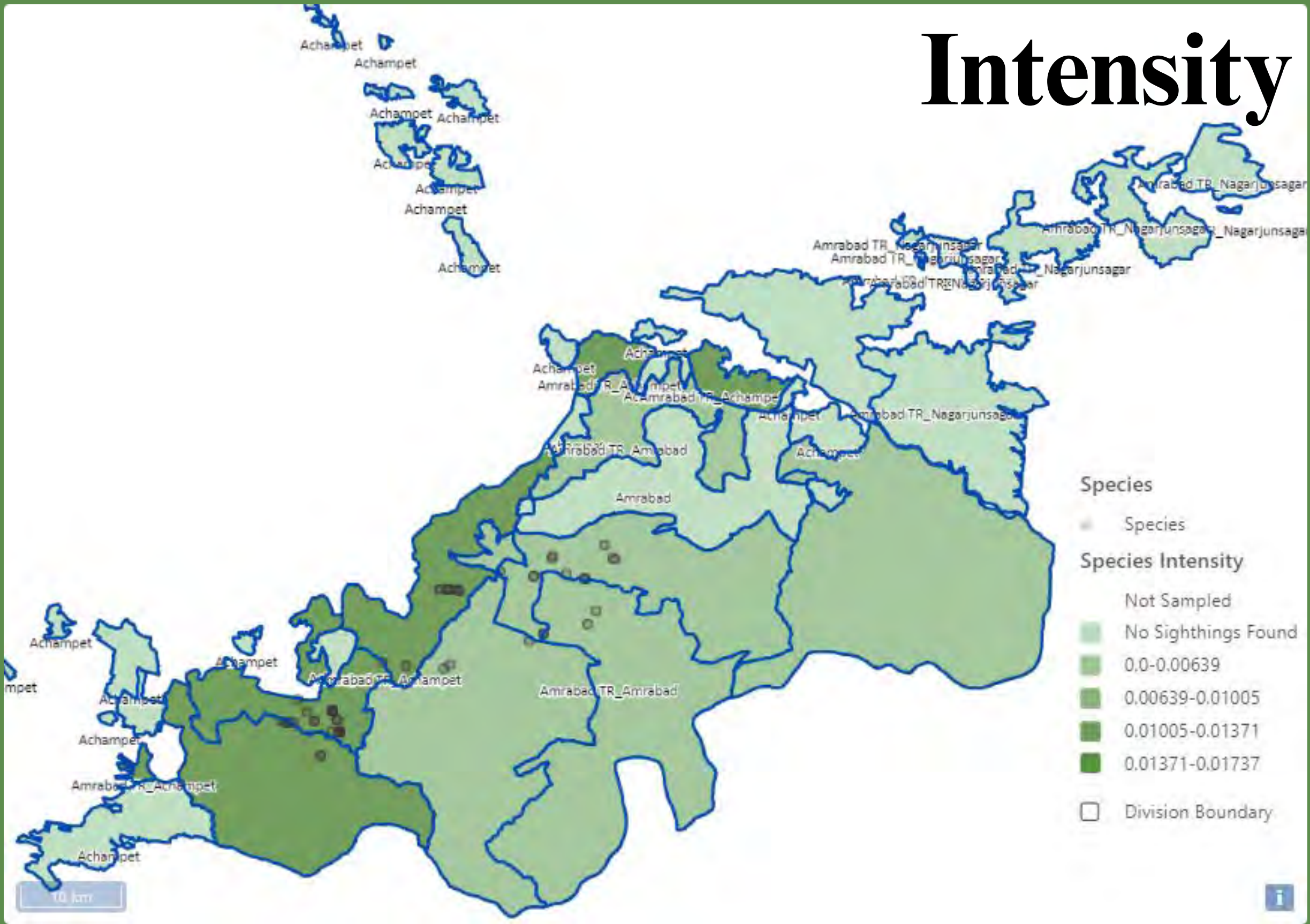
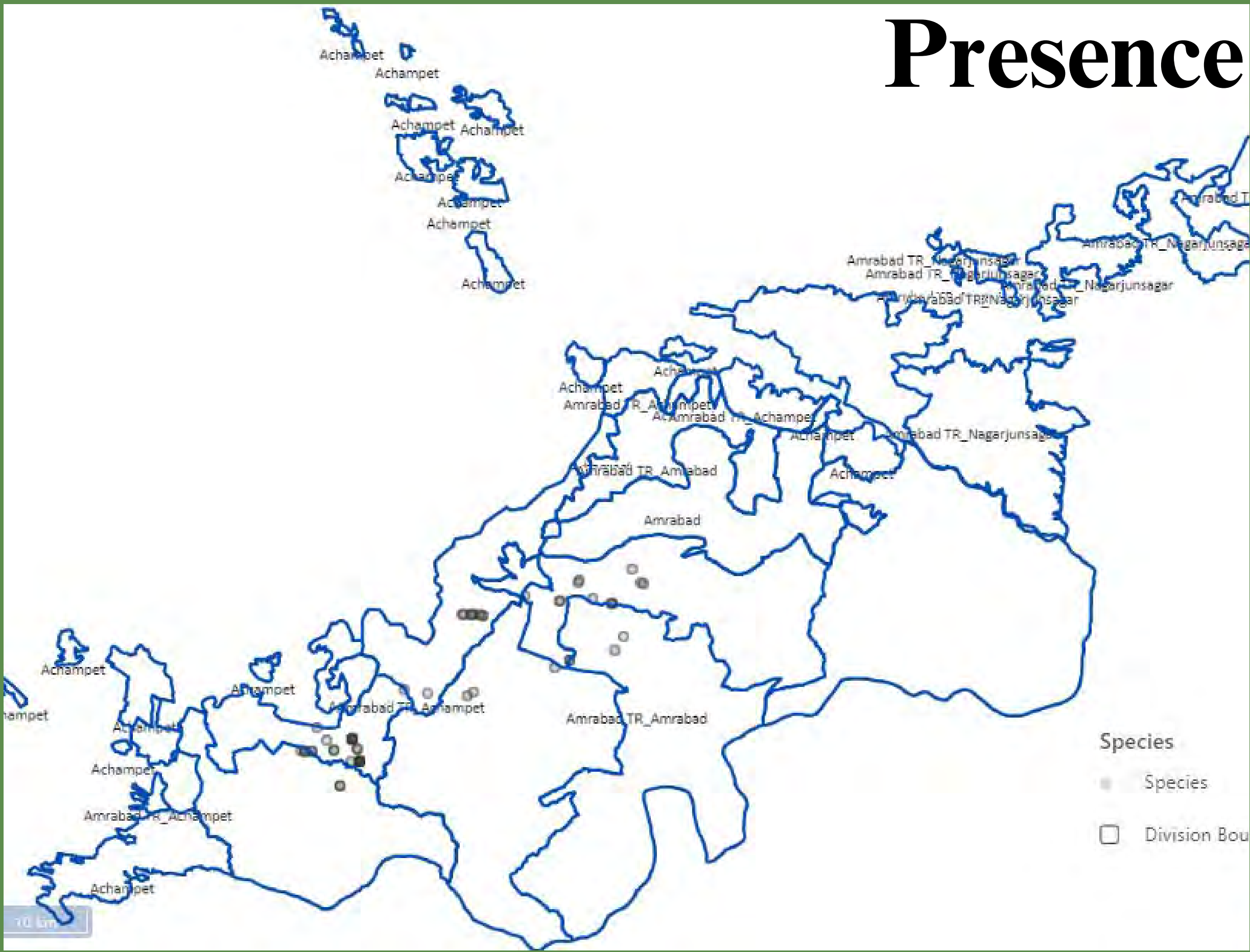
Division	Patrol Distance	Area	Intensity
Amrabad TR_Amrabad	4840.1046	1762.5485	2.7461
Amrabad TR_Achampet	3281.1413	624.3318	5.2554
Amrabad TR_Nagarjunsagar	1422.938	532.1107	2.6741
Achampet	933.3908	326.3228	2.8603
Amrabad	777.5817	225.9546	3.4413

ANIMAL TRACKS
AND SIGNS

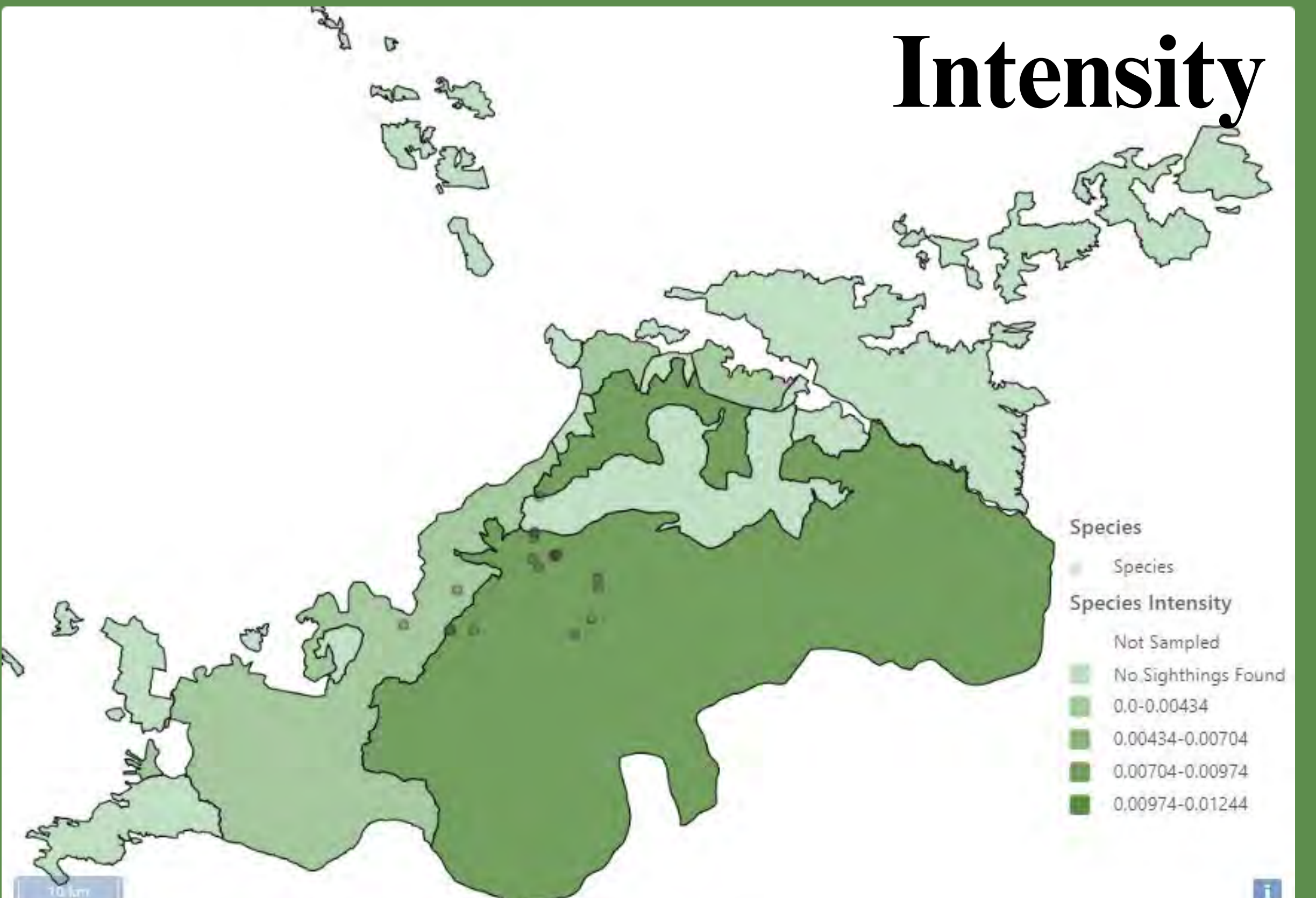
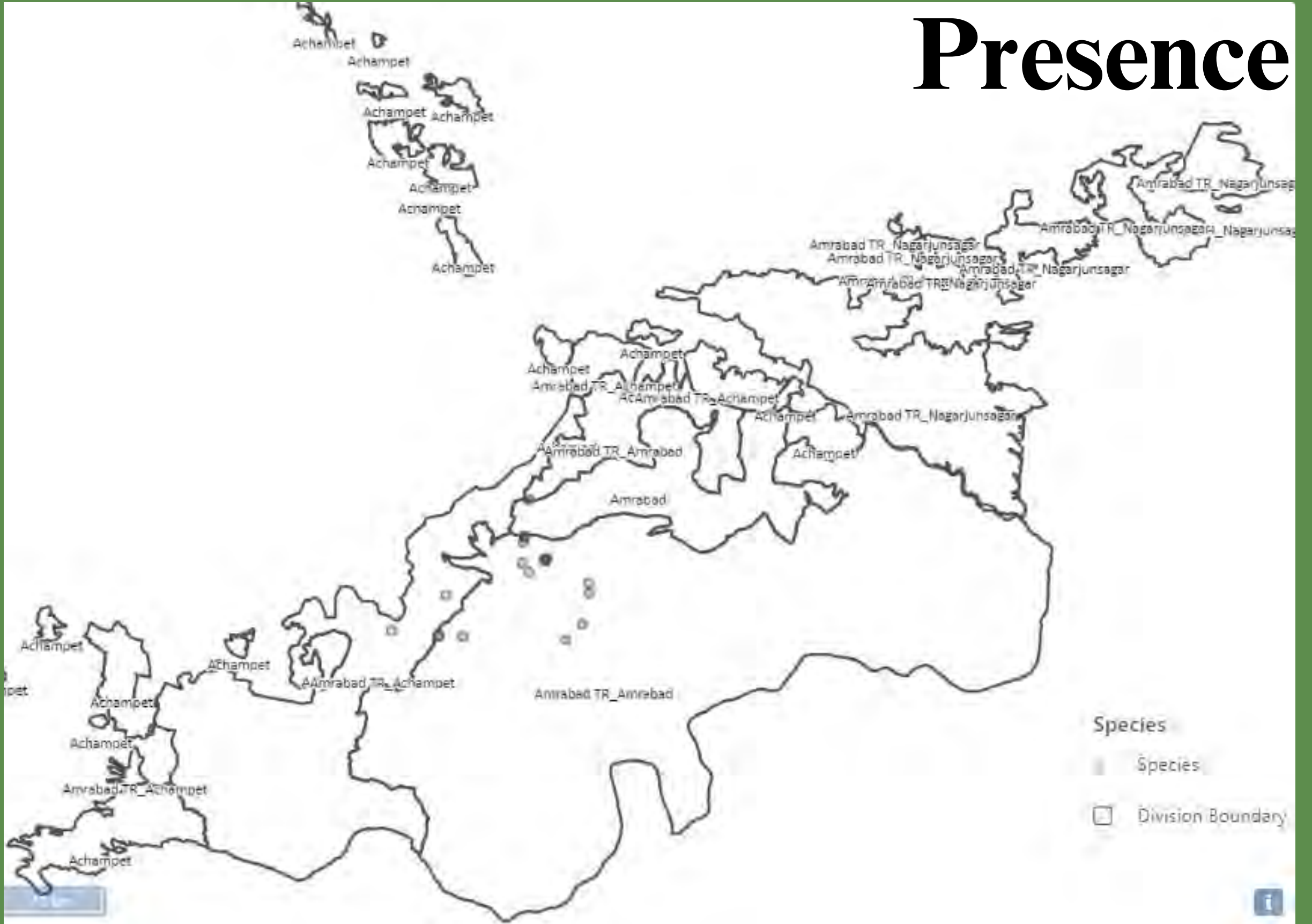


Species Presence and Intensity

Individual species presence
and intensity

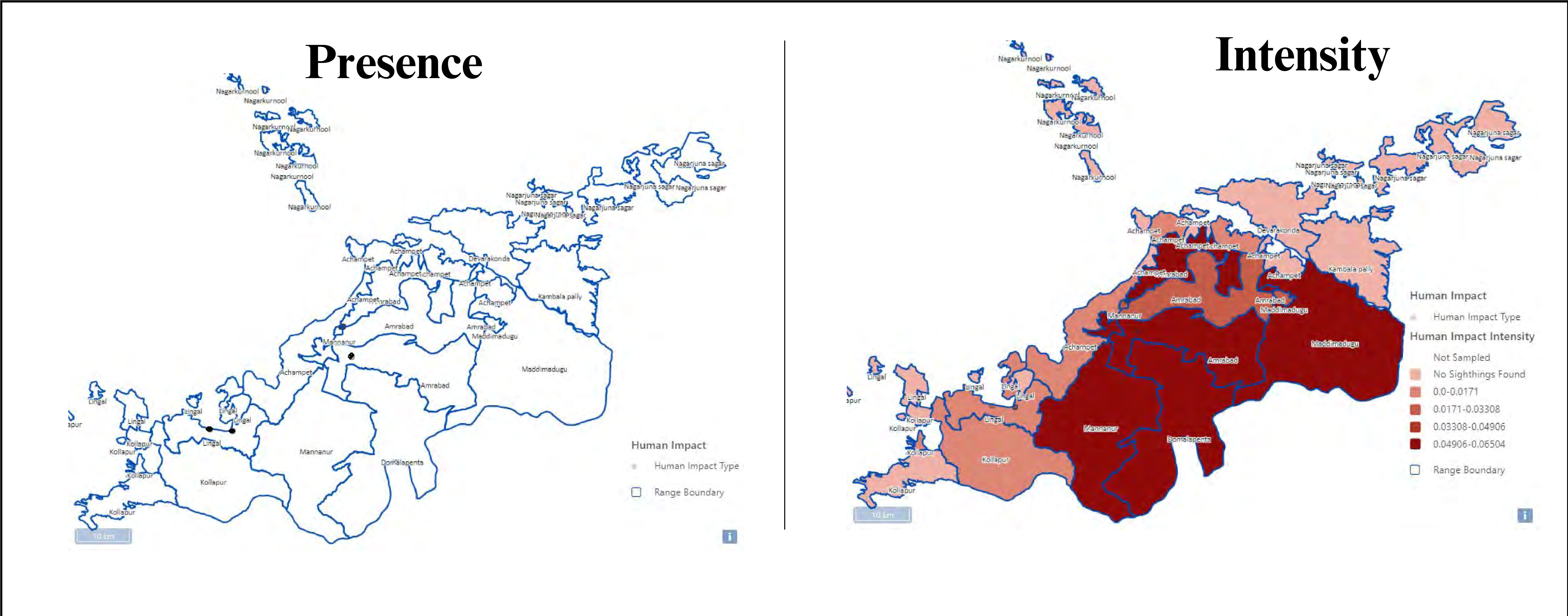


Tiger

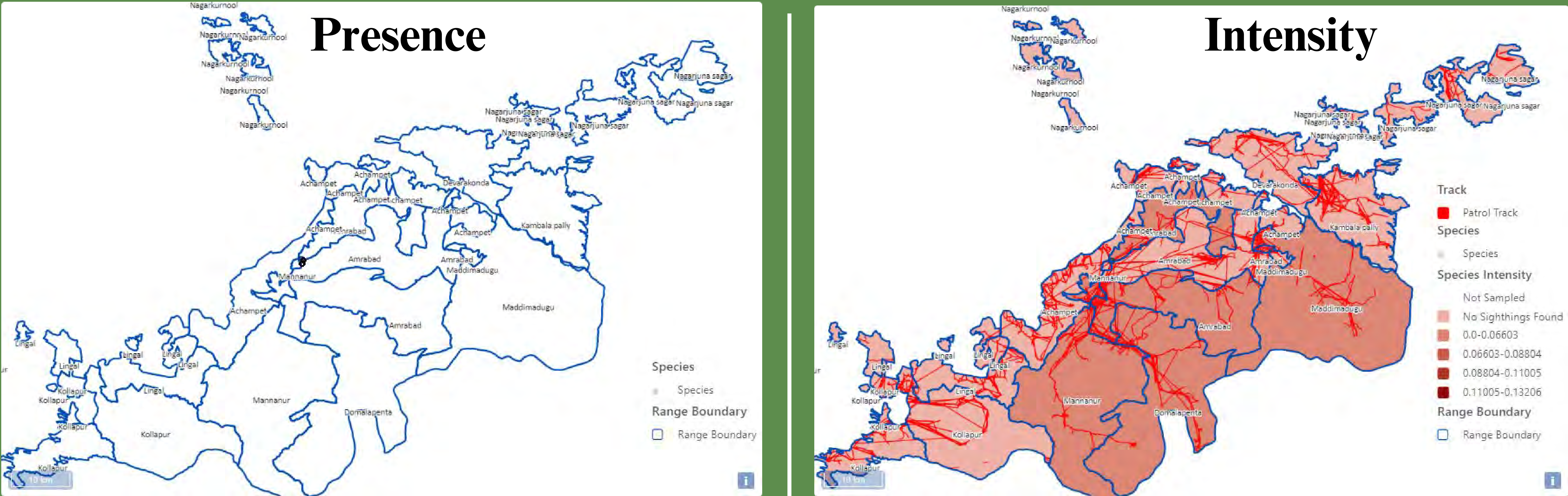


Sambar

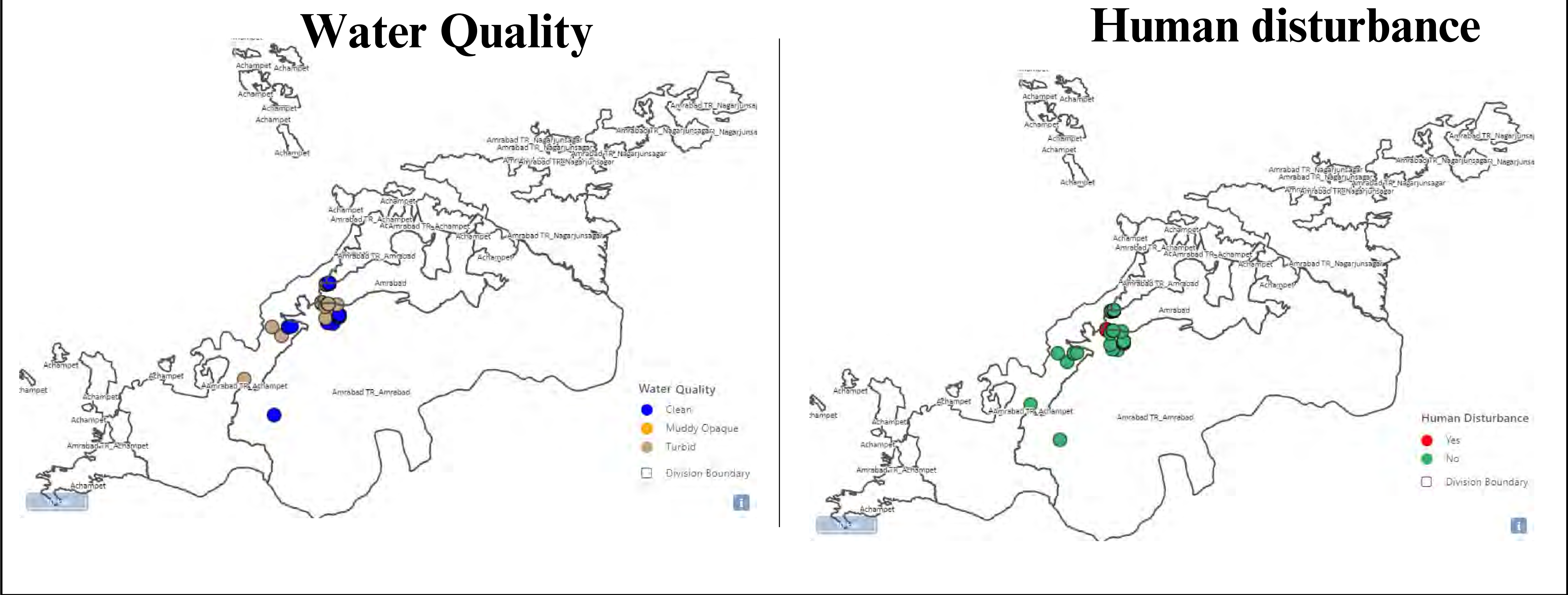
HUMAN IMPACT



ANIMAL MORTALITY

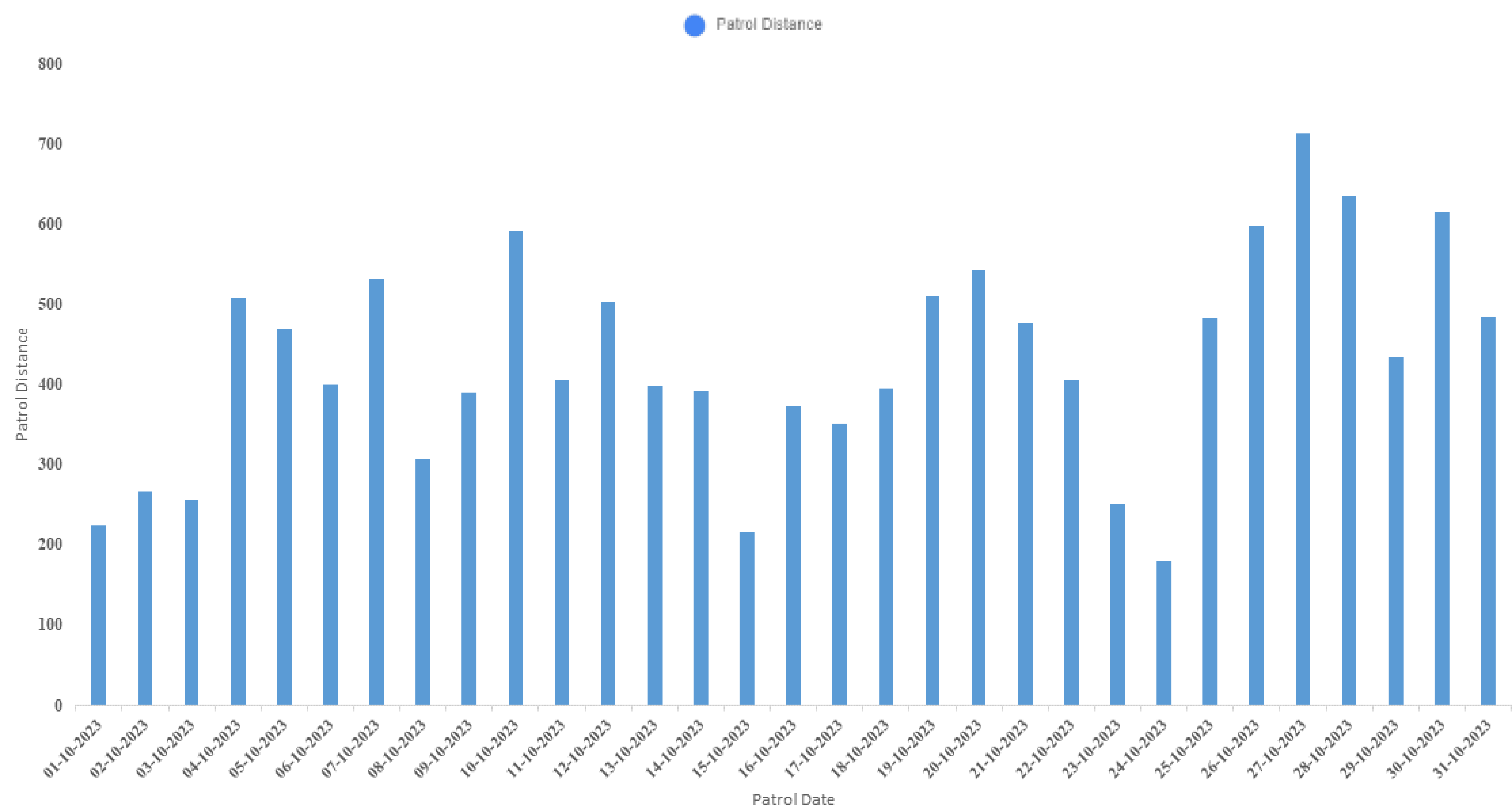


WATER RESOURCE

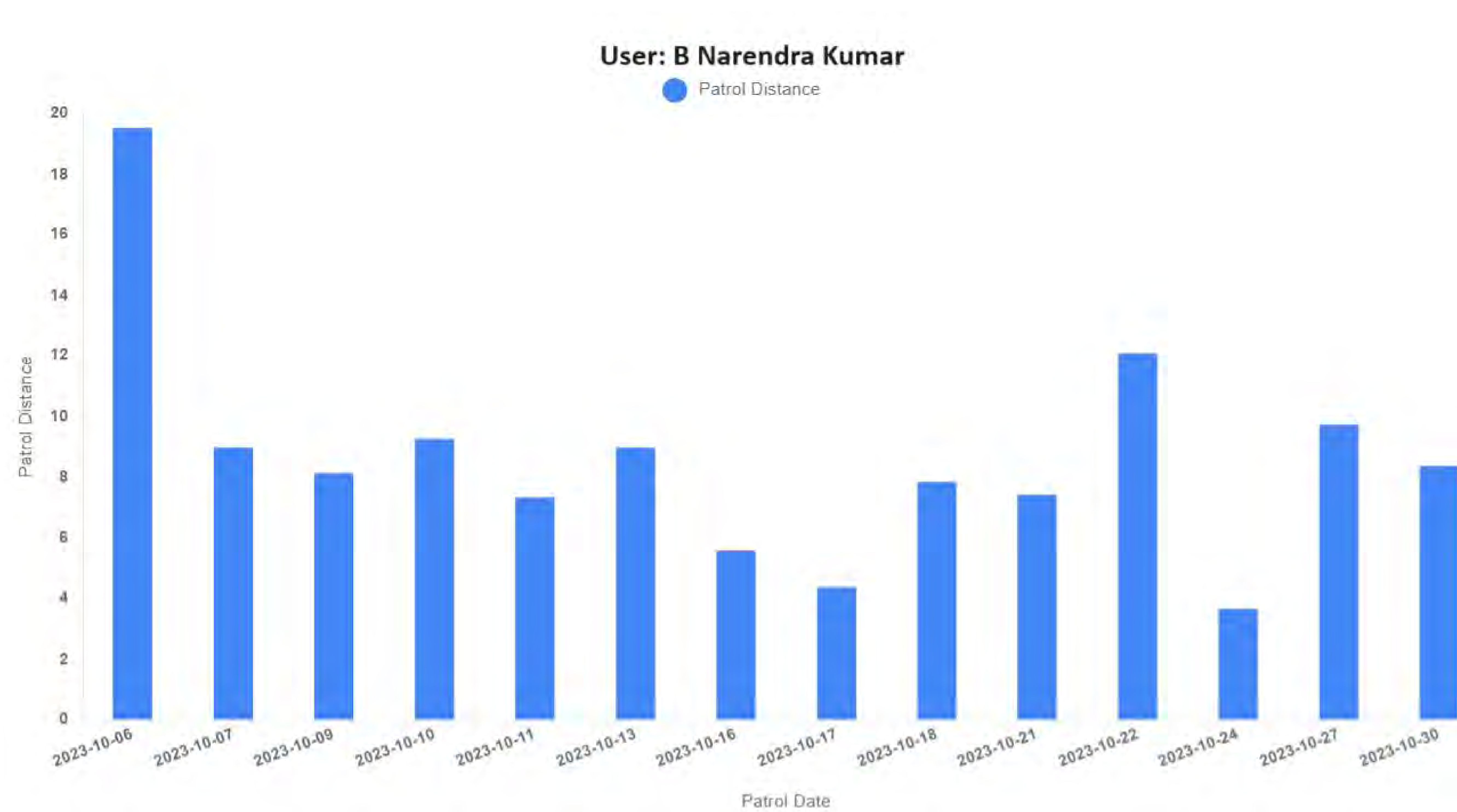


Non-spatial Analysis

Day-wise Patrol effort (km)

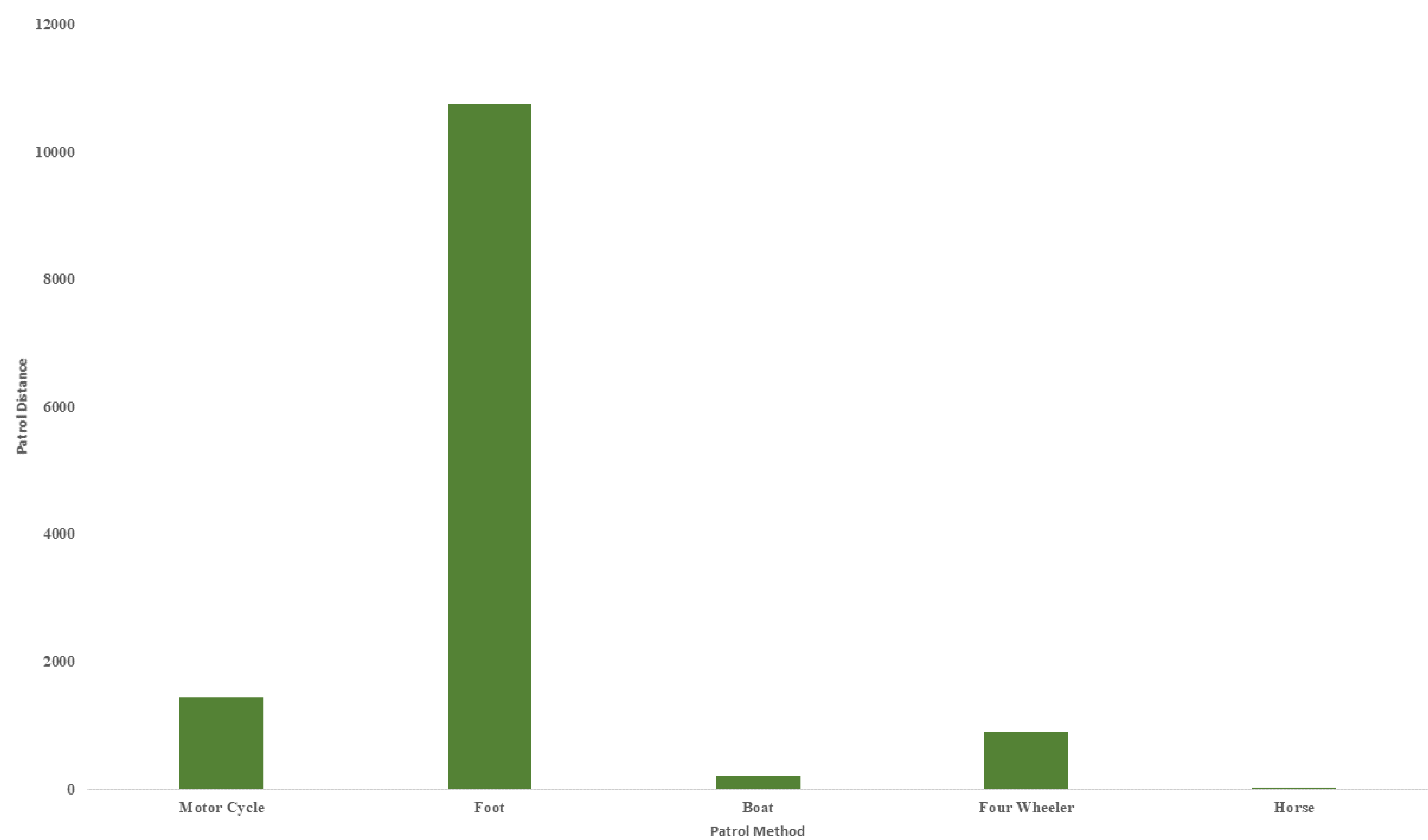


Day-wise Patrol effort (km) by individual user

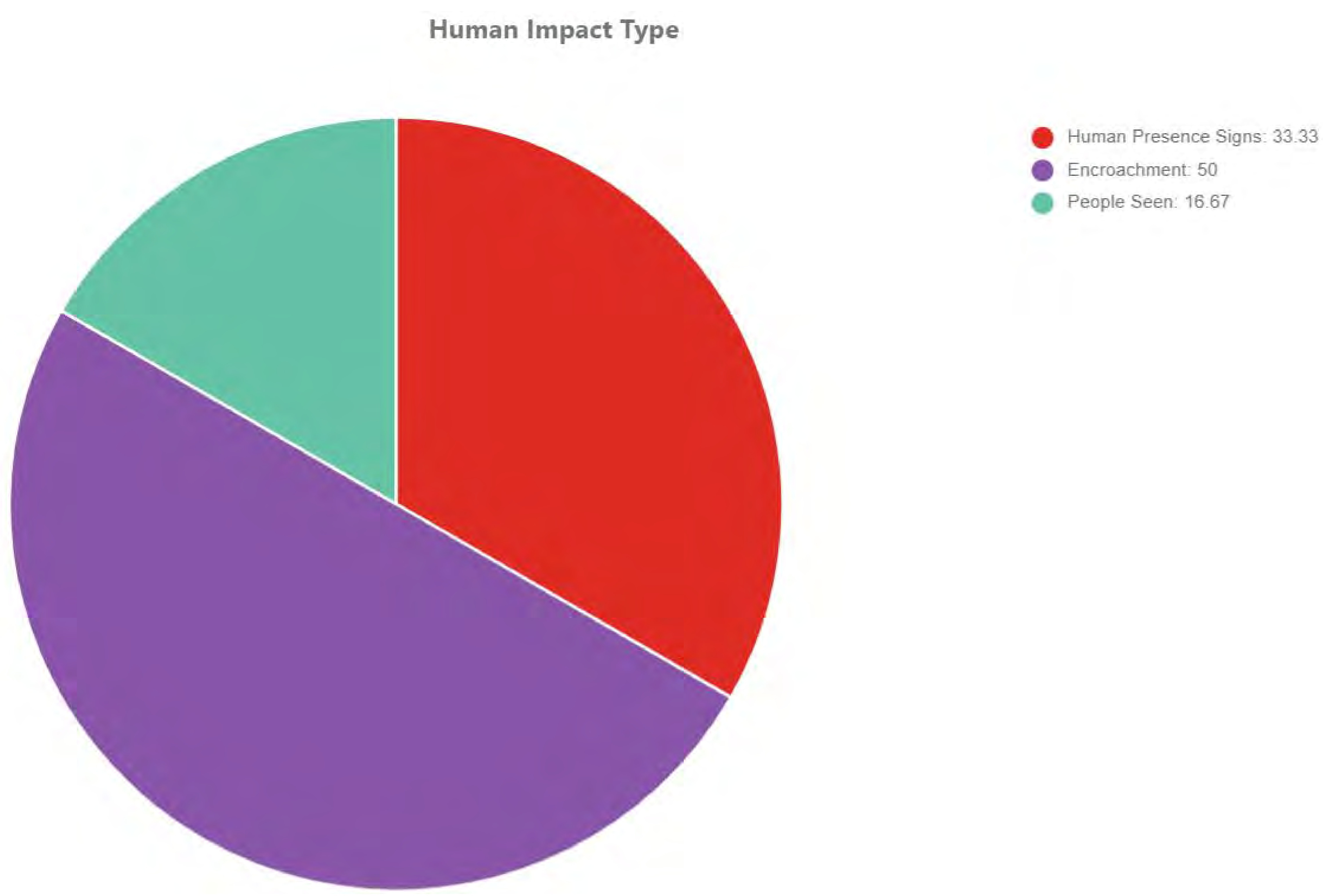


Non-spatial Analysis

Patrol distance (km) vs Patrol method



Human Impact type

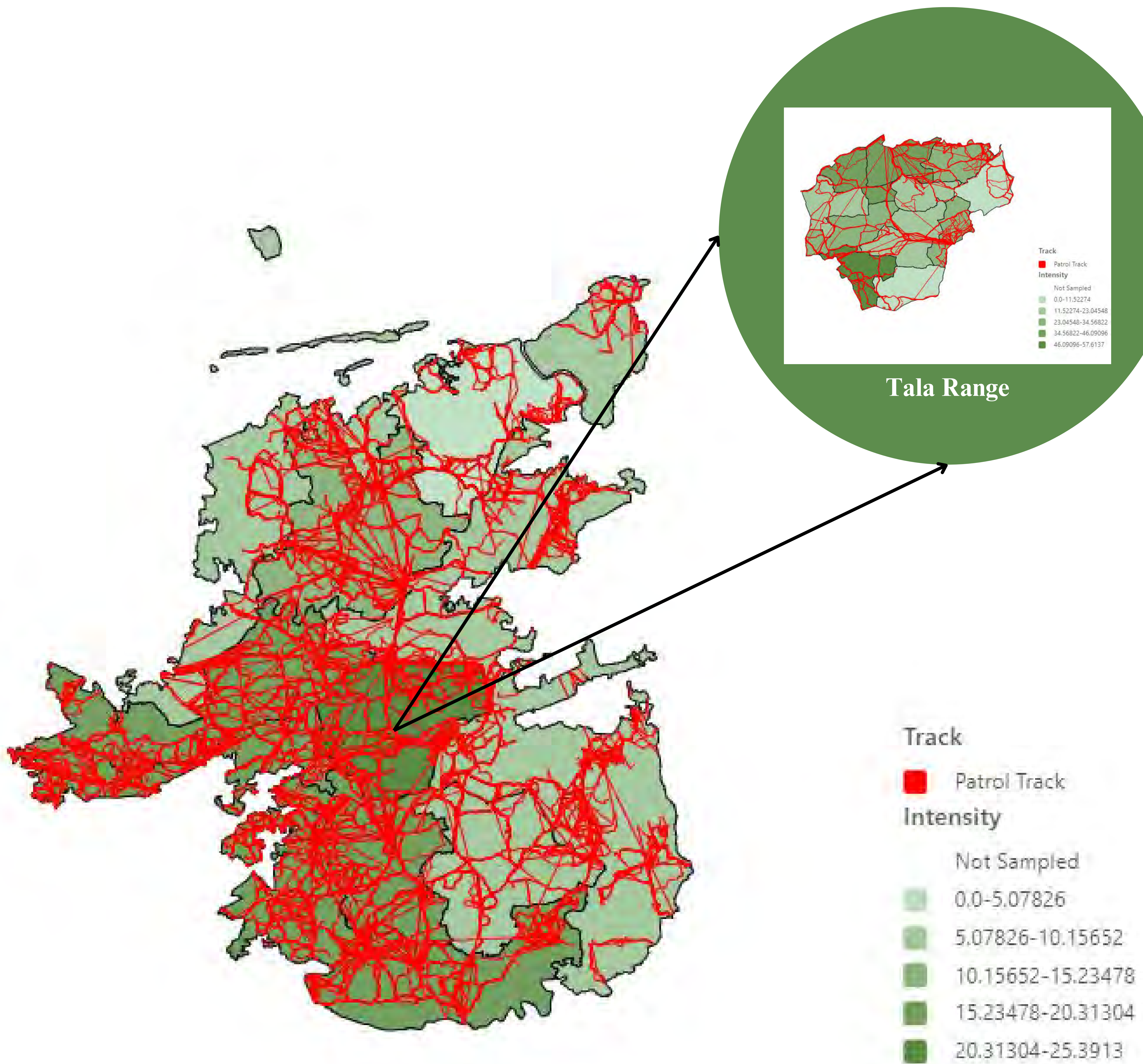


Bhandhavgarh Tiger Reserve - Oct 2023

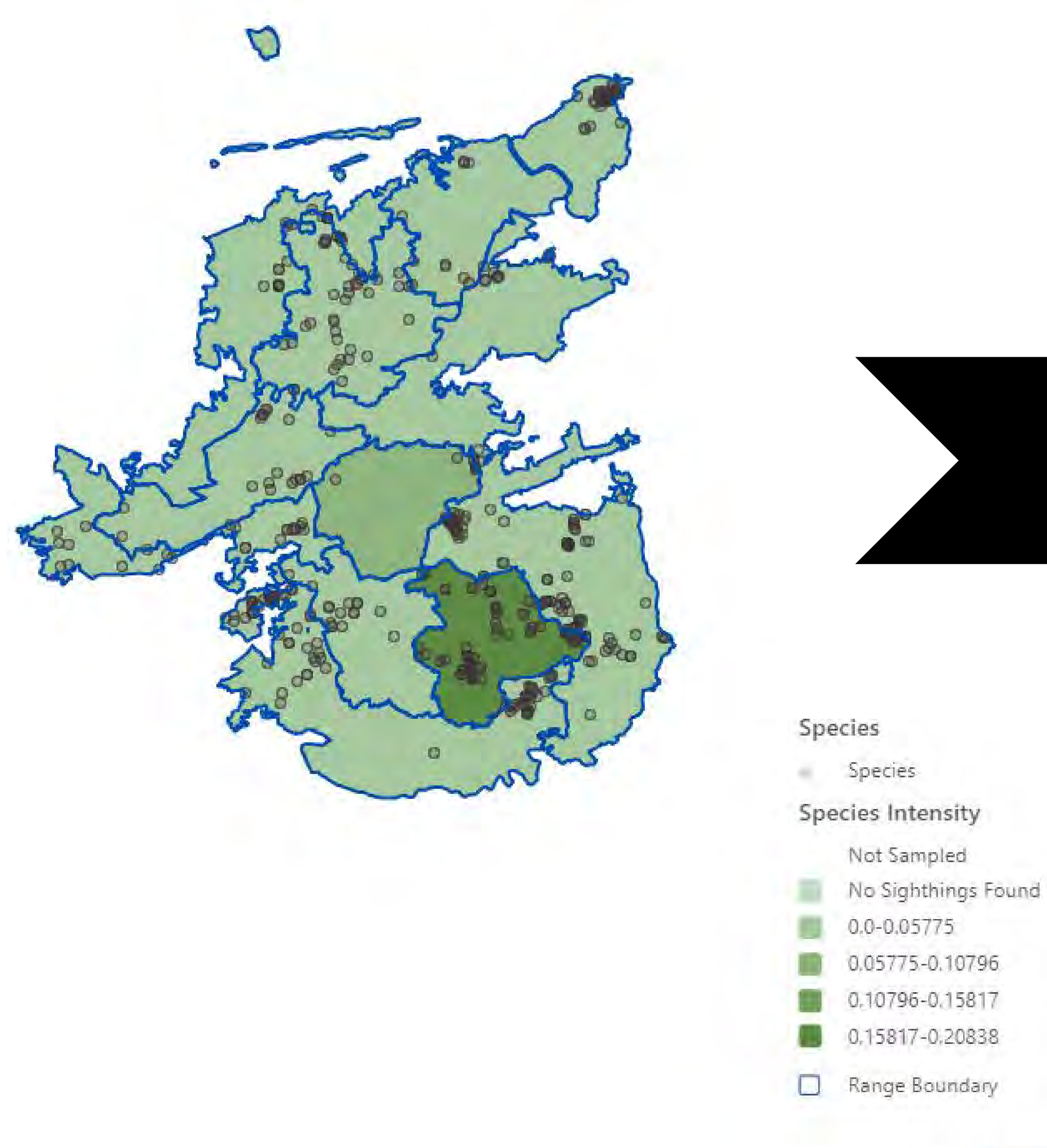
PATROL TRACKS AND INTENSITY

Division level

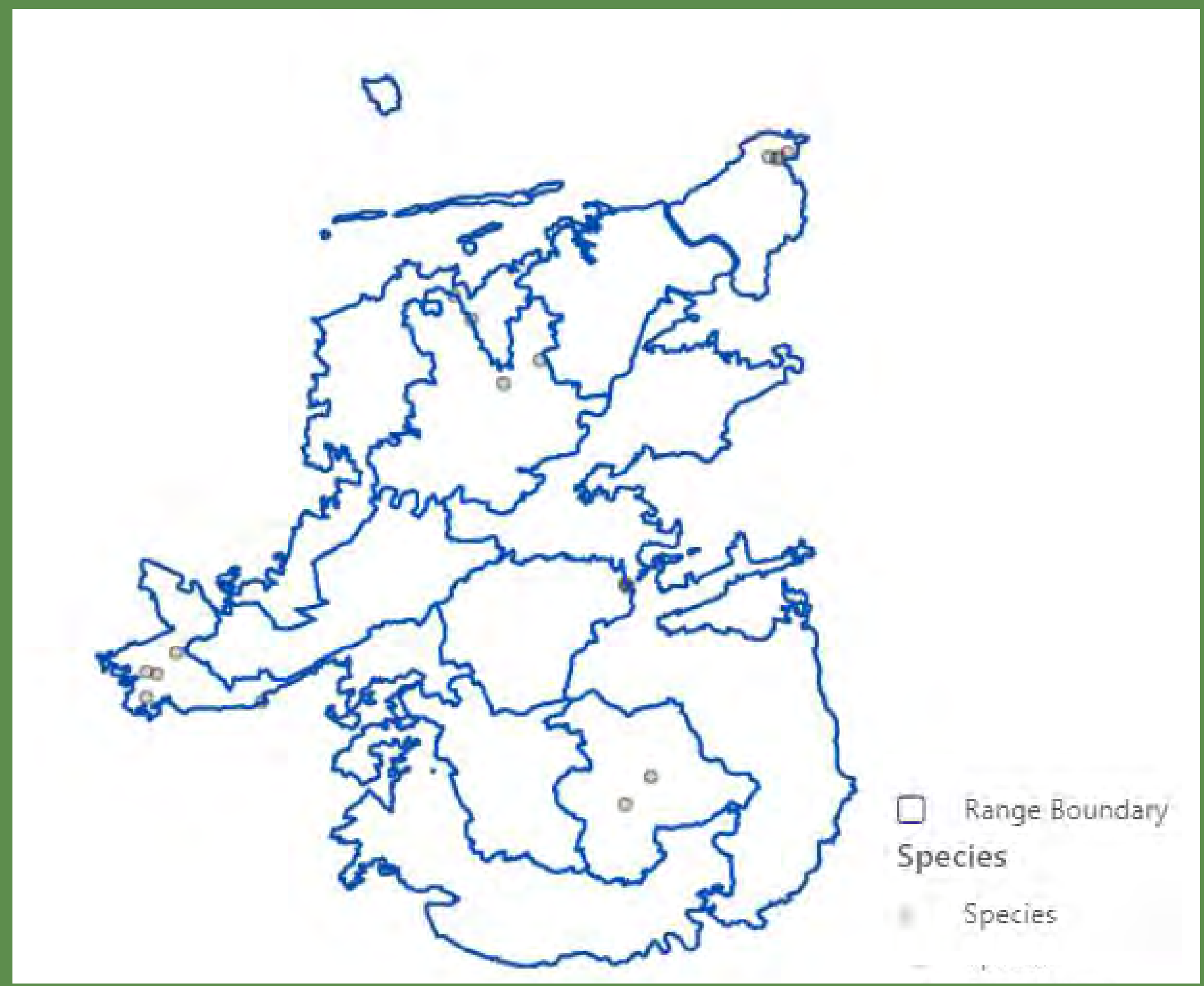
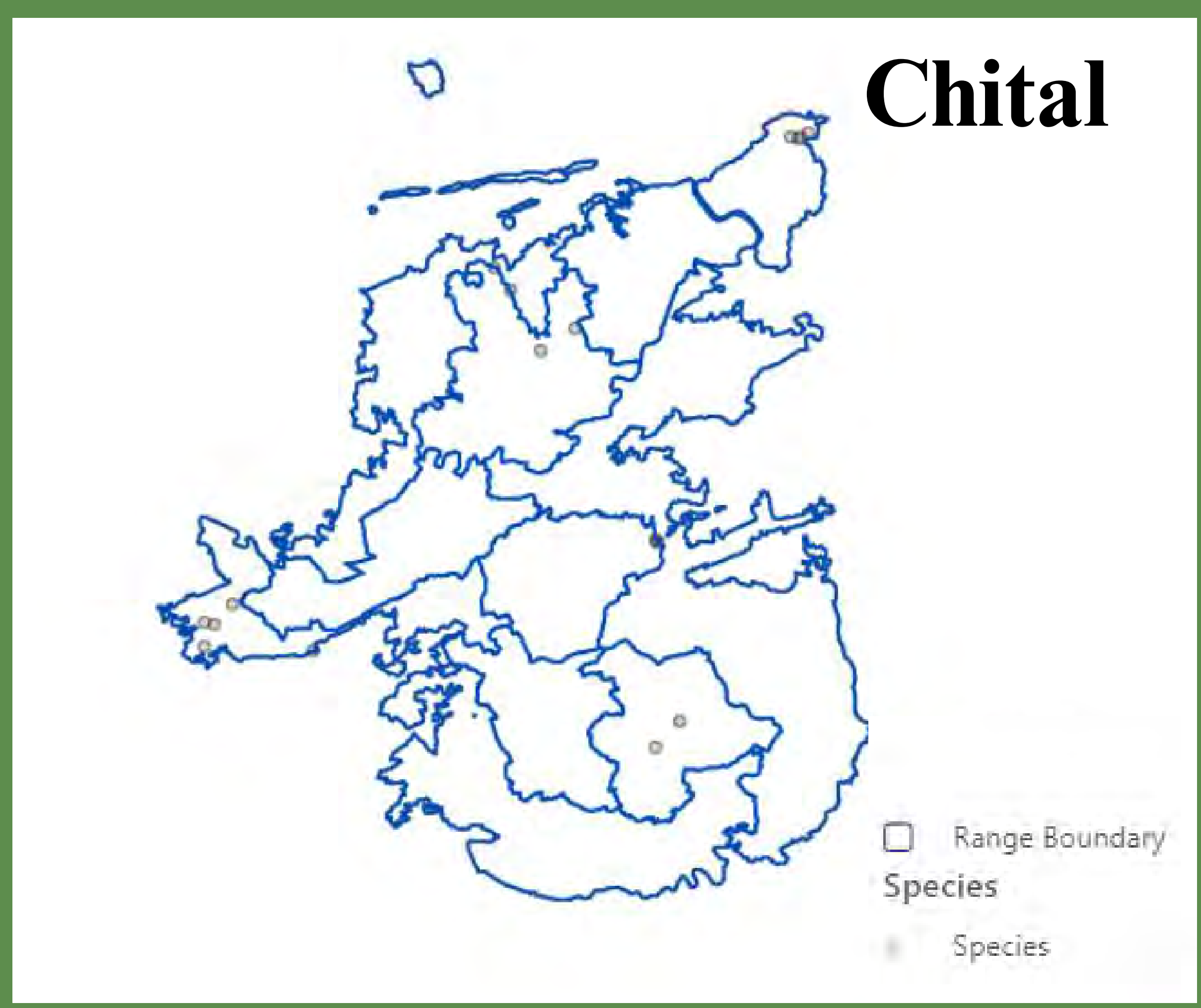
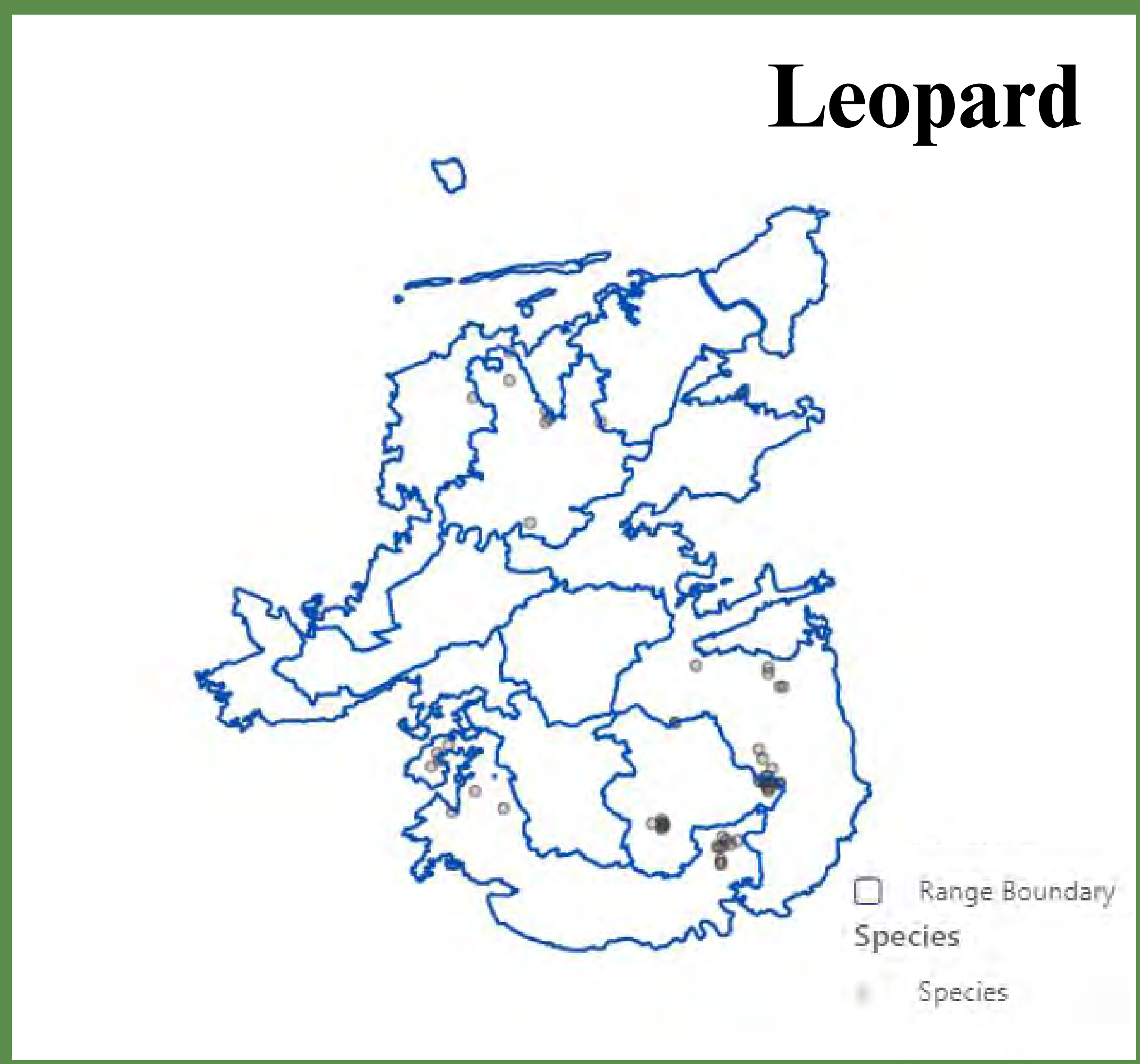
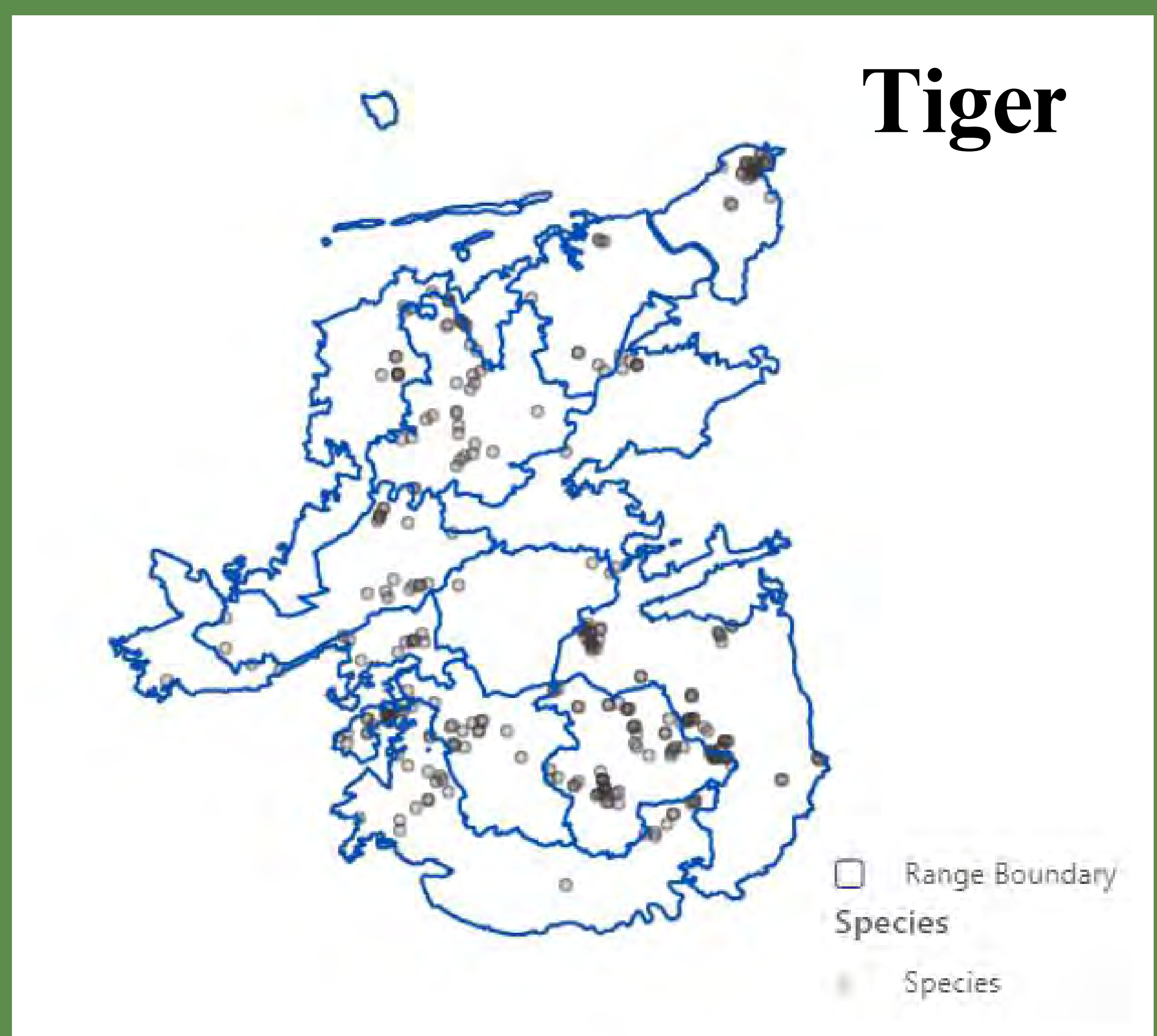
Range level



ANIMAL TRACKS AND SIGNS

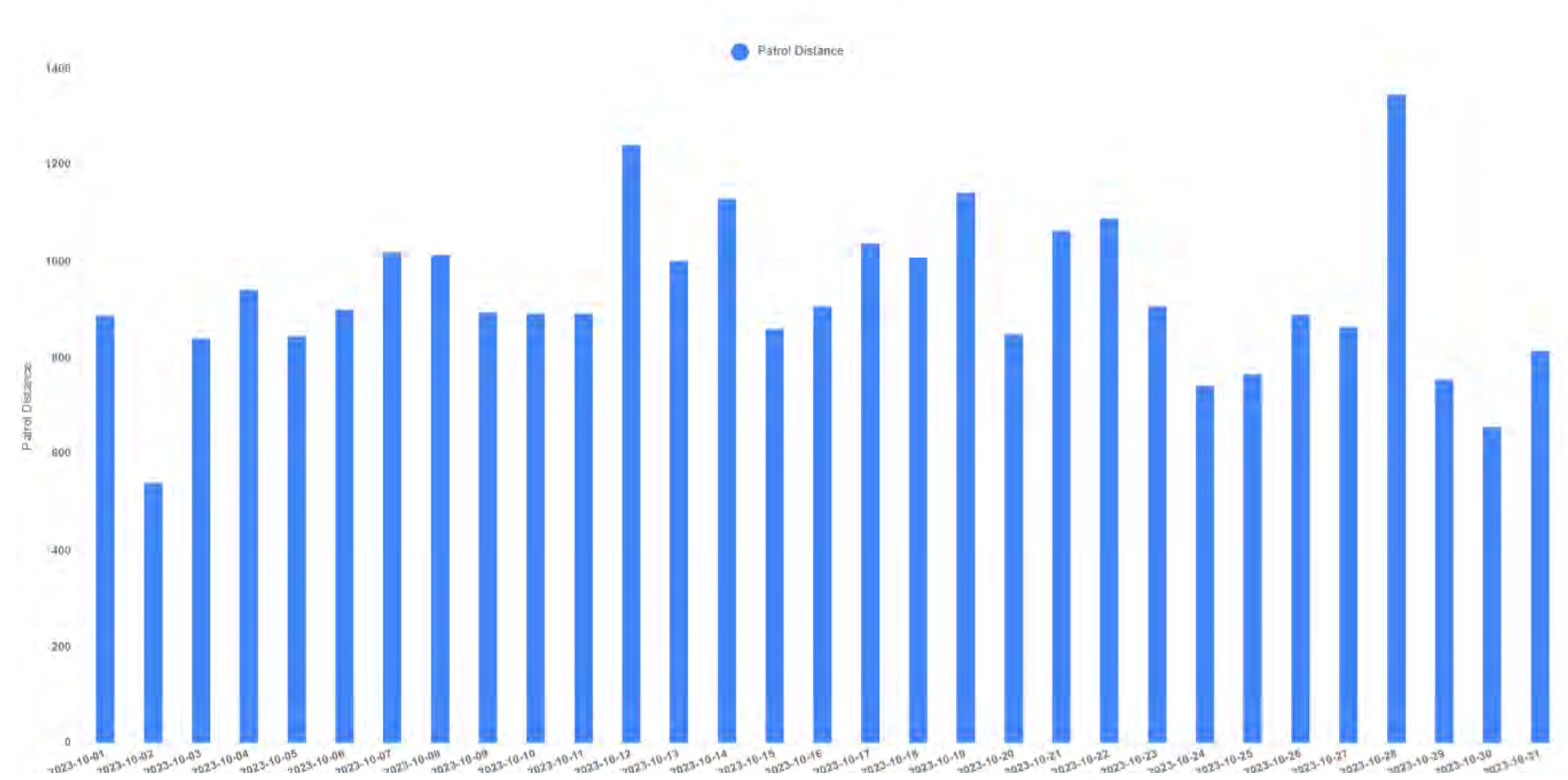


Individual species presence

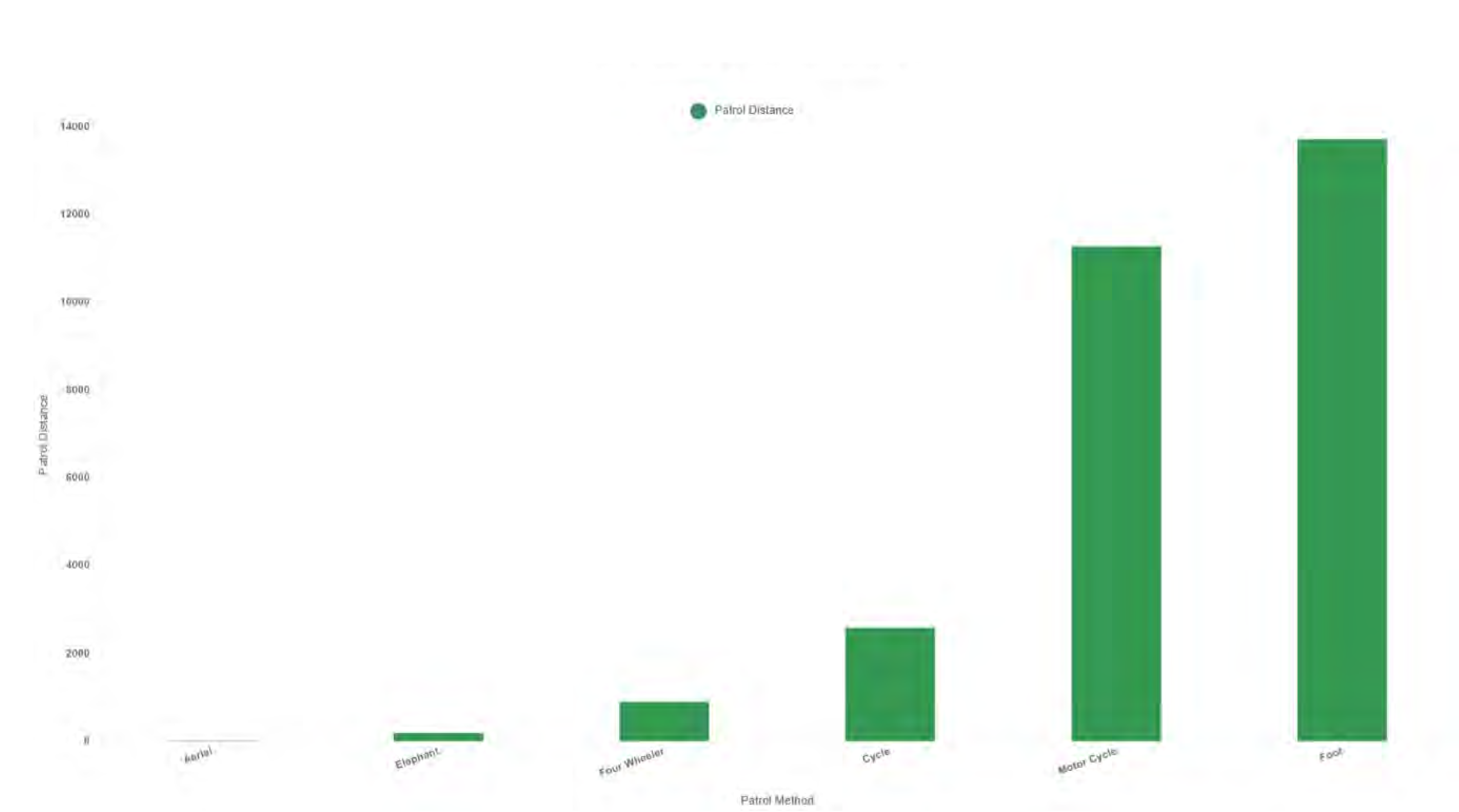


Non-spatial Analysis

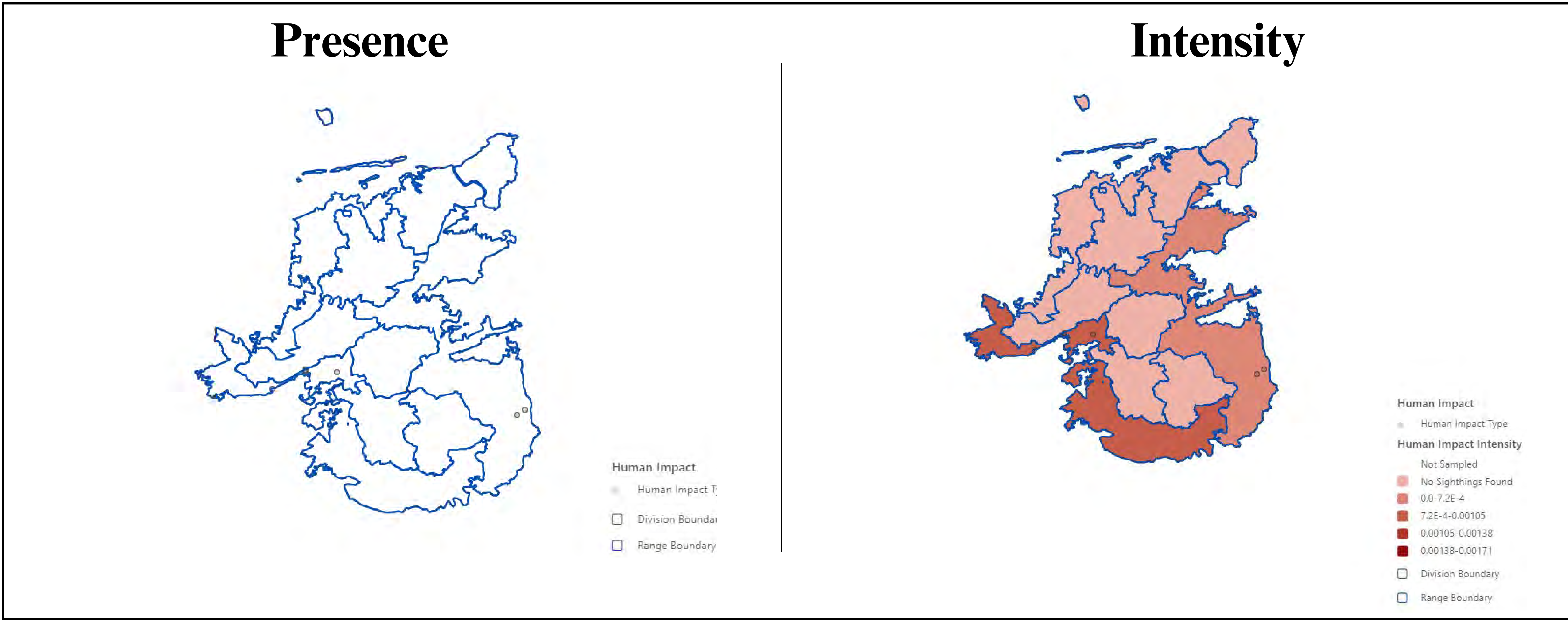
Day-wise Patrol effort (km)



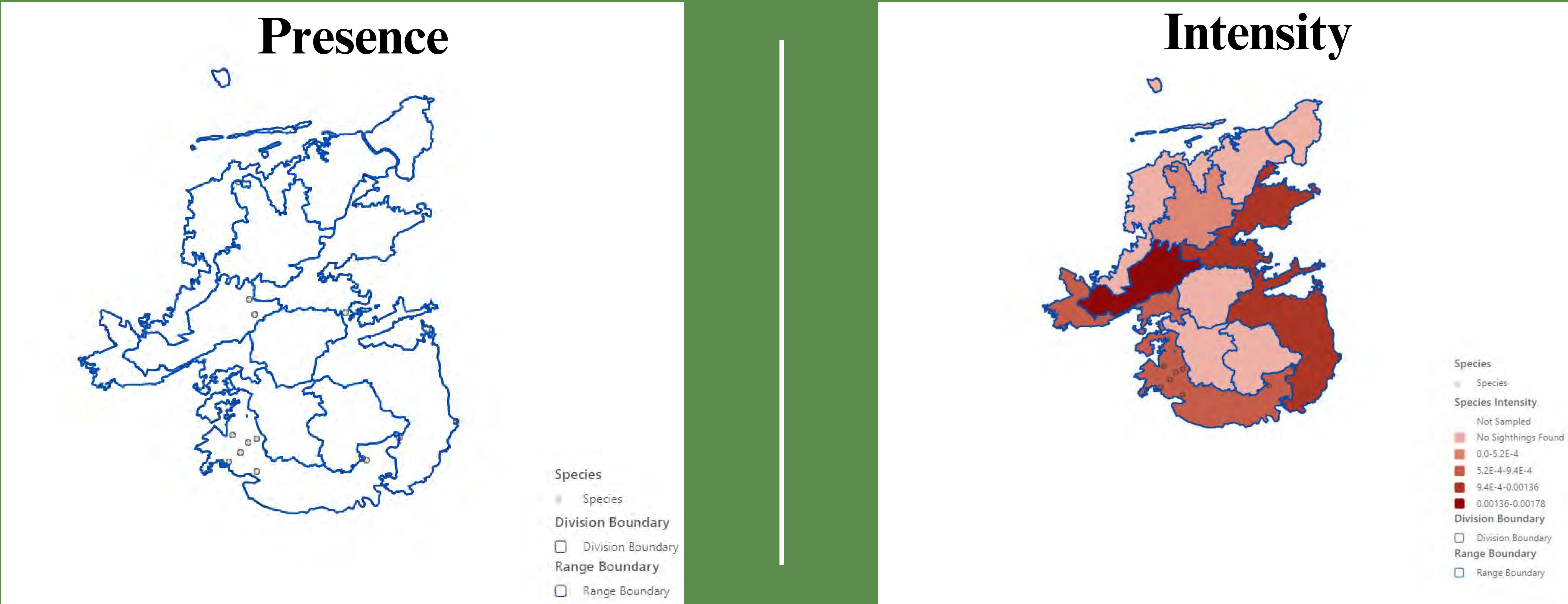
Patrol distance (km) vs Patrol method



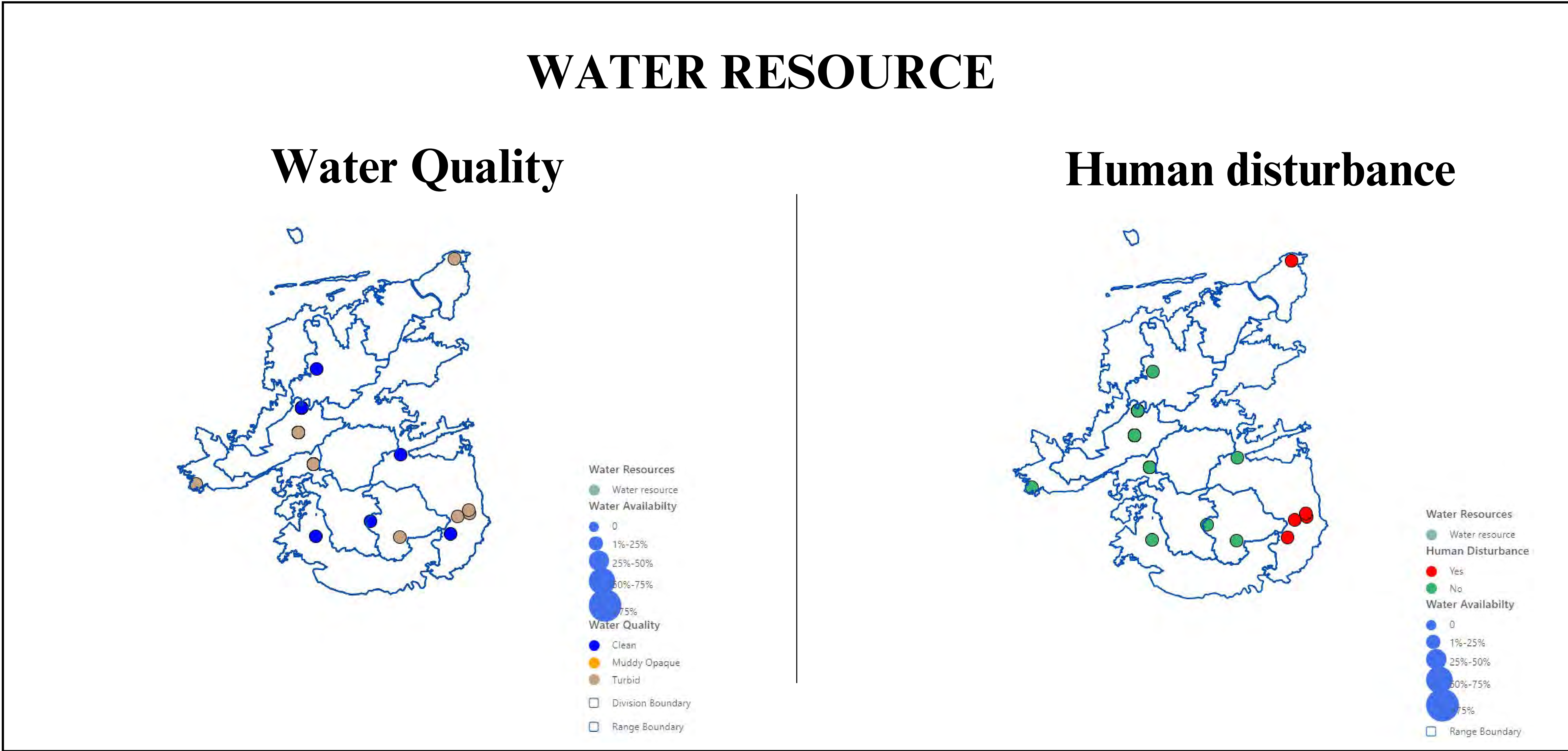
HUMAN IMPACT



ANIMAL MORTALITY

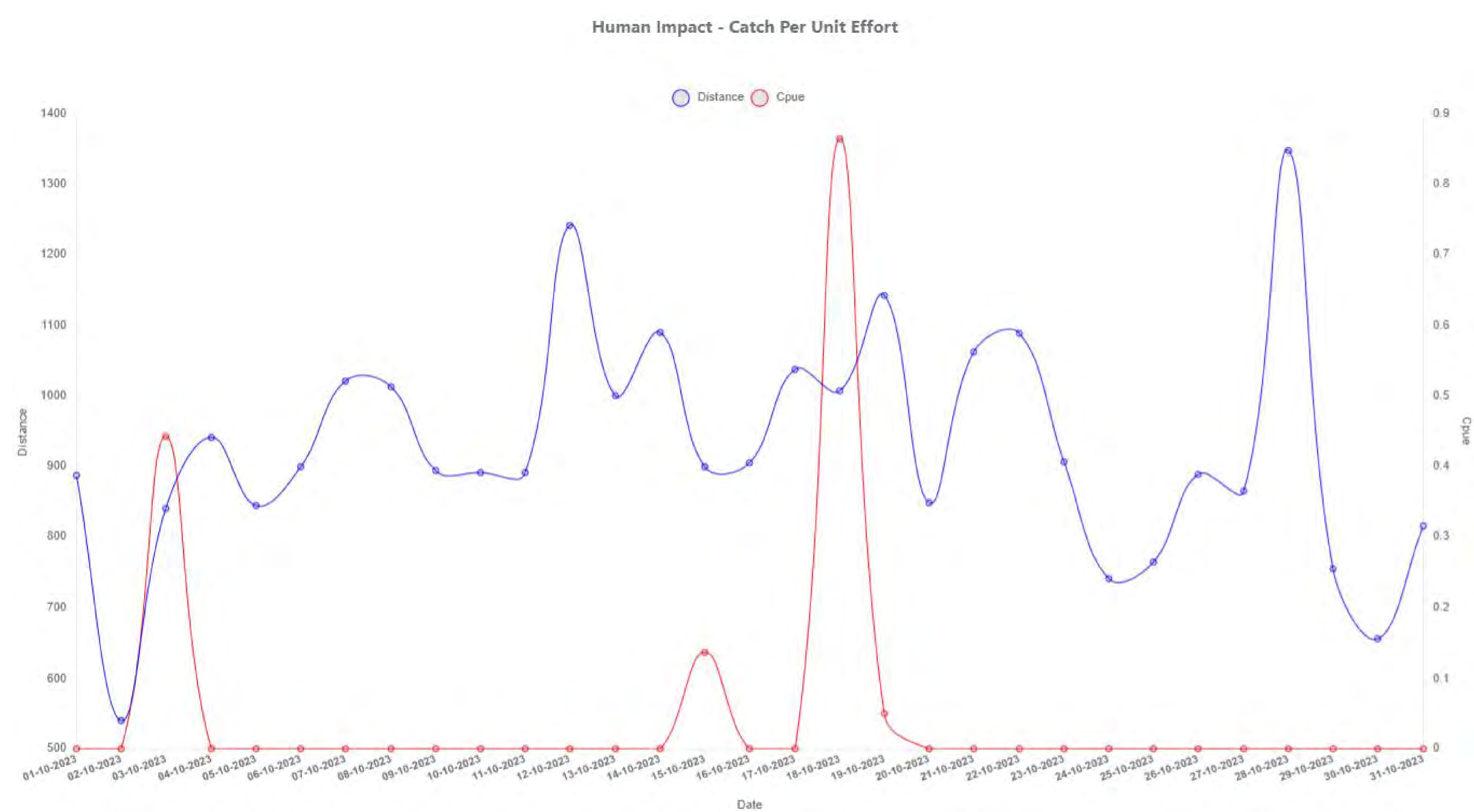


WATER RESOURCE

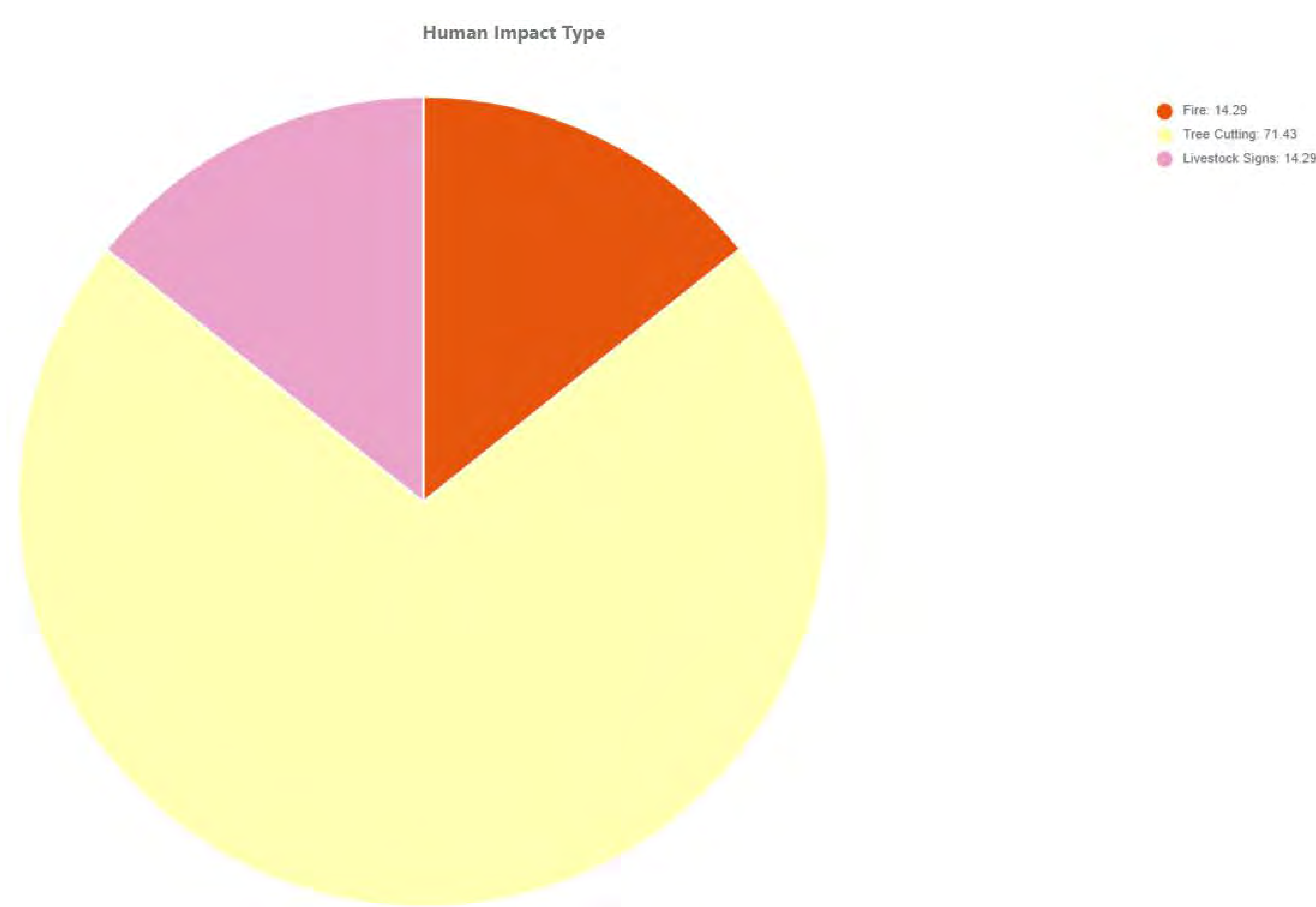


Non-spatial Analysis

Human Impact - Catch Per Unit Effort



Human Impact type





सत्यमेव जयते
Government of Rajasthan

