



COALITION
FOR WILDLIFE
CORRIDORS

2023



KALLAR CORRIDOR PROFILE

Suggested citation:

Rutuja Bhatade¹, D. Boominathan¹, Nitin Sekar¹, Somreet Bhattacharya¹, Arpit Deomurari¹, Sanket Bhale¹ and Prachi Thatte¹. Kallar Corridor Profile. Coalition for Wildlife Corridors. 2023

Author affiliations:

¹World Wide Fund for Nature-India (WWF-India)

Design and illustrations:

Rucha Bhawe, WWF-India

Cover design and illustrations:

Aditi Rajan, Wildlife Conservation Society-India (WCS-India)

Raiva Singh, WWF-India

Acknowledgments:

We are thankful to the Conservator of Forests, Coimbatore Circle and District Forest Officer, Coimbatore Forest Division for constant encouragement to develop corridor profile for Kallar. We are grateful to Ajith Kumar (Centre for Wildlife Studies), Sanchaya Sharma (WWF-India) and Vidushi Pant (WWF-India) for providing their valuable inputs throughout the process of drafting the profile and to Shradha Kapoor (WWF-India) for proof-reading and language editing the document. The hydrology section of the profile was added based on critical contributions by Arjit Mishra and Devanand M. R. from WWF-India. We are grateful to Selvaganesh K, the Coordinator for Coimbatore City Bird Atlas and eBird regional reviewer for Tamil Nadu, for providing us with the ebird checklist for the Kallar Corridor. We would like our thanks to B.J. Ganesh and R.Saranraj the field officer of WWF-India in the Western Ghats Nilgiri Landscape and the Assistant Conservator of Forests, Coimbatore forest division, Forest Range officers of Mettupalayam and Sirumgai ranges for the on ground support and providing us with the necessary information.

The template for detailed corridor profile was developed by Anubhav Vanamamalai (Centre for Wildlife Studies), Amrita Neelakantan (Network for Conserving Central India), Upasana Ganguly (Wildlife Trust of India), Pranav Chanchani (WWF-India) and Prachi Thatte (WWF-India). The criteria for delineating crude corridor boundary were developed by Anubhav Vanamamalai (Centre for Wildlife Studies), Pranav Chanchani (WWF-India), Prachi Thatte (WWF-India), Divya Vasudev (Conservation Initiative), Varun Goswami (Conservation Initiatives), Tarsh Thekaekara (The Shola Trust), Tara Rajendran (WWF-India), and Tyler Creech (Centre for Large Landscape Conservation).

This profile was developed by:



For more profiles visit: <http://corridorcoalition.org/CWC/>

KALLAR CORRIDOR PROFILE



**COALITION
FOR WILDLIFE
CORRIDORS**

Content

1. Corridor Significance	6
1.1 Importance of core habitats connected	
1.2 Wildlife utilising the corridor	
2. Corridor Characteristics	10
2.1 Boundaries	
2.2 Physical characteristics and hydrology	
2.3 Land-use within corridor	
2.4 Critical corridor areas	
3. Stakeholders and Management	20
3.1 Land tenure and land holding	
3.2 Settlements and communities	
4. Challenges	22
4.1 Linear Infrastructure	
4.2 Land-use change	
4.3 Human-wildlife conflict	
5. Recommendations	25
6. Conservation Success and Ongoing Activities	27
6.1 Government activities	
6.2 Non-government organisation activities	
7. Bibliography	29
7.1 Literature	
7.2 Resource checklist	
7.3 News articles	
8. Supplementary Information	33

Corridor Overview

Kallar Corridor, located at the foothills of the Nilgiri mountains, connects two parts of the largest elephant range (Elephant Range 7) in India. The slopes of the Nilgiris act as a natural barrier to elephant movement on one side of the corridor and anthropogenic development on the other side. It leaves a narrow patch of habitat for the movement of animals. Apart from elephants, this corridor

is also used by several other mammals, including but not limited to, tiger, leopard, sloth bear and striped hyena. Electric fences around farms and institutions that overlap with the corridor, and increased traffic on the national highway (NH-181) passing through the corridor, impedes animal movement. They are a major concern, especially for elephants.



Area of natural habitat
High
86 %



Area under forest department
High
75 %



Threatened species richness
Medium
52 species/km²



Average human population
Medium
342 persons/km²



Human modification index
Medium
0.48



Natural habitat fragmentation index
Low
0.76



Landscape complexity index
Medium
0.74



Land use change index
Low
0.76

Habitat connected: Northern and Southern cluster of Elephant Range 7

Area of corridor: 149 km²

Focal species: Elephant

Major threats: Linear infrastructure, land use change

CWC members: WWF-India



A 100m resolution Land Use Land Cover layer from Copernicus Global Land Service (2019) was used to calculate the amount of natural habitat. This layer cannot reliably distinguish between forests and plantations. Fine-scale land-use data classified based on ground-truthed points would provide a more accurate estimate of the indicators. To know more about indicators and how they were calculated, please refer to the supplementary information.

1 Corridor Significance

In the early 1980s, E.R.C. Davidar identified a part of what we now call the Kallar Corridor as being critical for elephant connectivity in the Nilgiris and called it the Jaccanaire-Hulikal Durgam corridor (Arivazhagan and Ramakrishnan, 2010; Davidar et al., 2012). This Jaccanaire-Hulikal Durgam corridor overlapped with the road

that goes from Mettupalayam to Udhagamandalam Road via Coonoor (a part of NH-181) at the beginning of the ghat section. The corridor drew attention of researchers and conservationists after radio-telemetry studies were conducted by the Bombay Natural History Society in 1995. The data from the collared female named

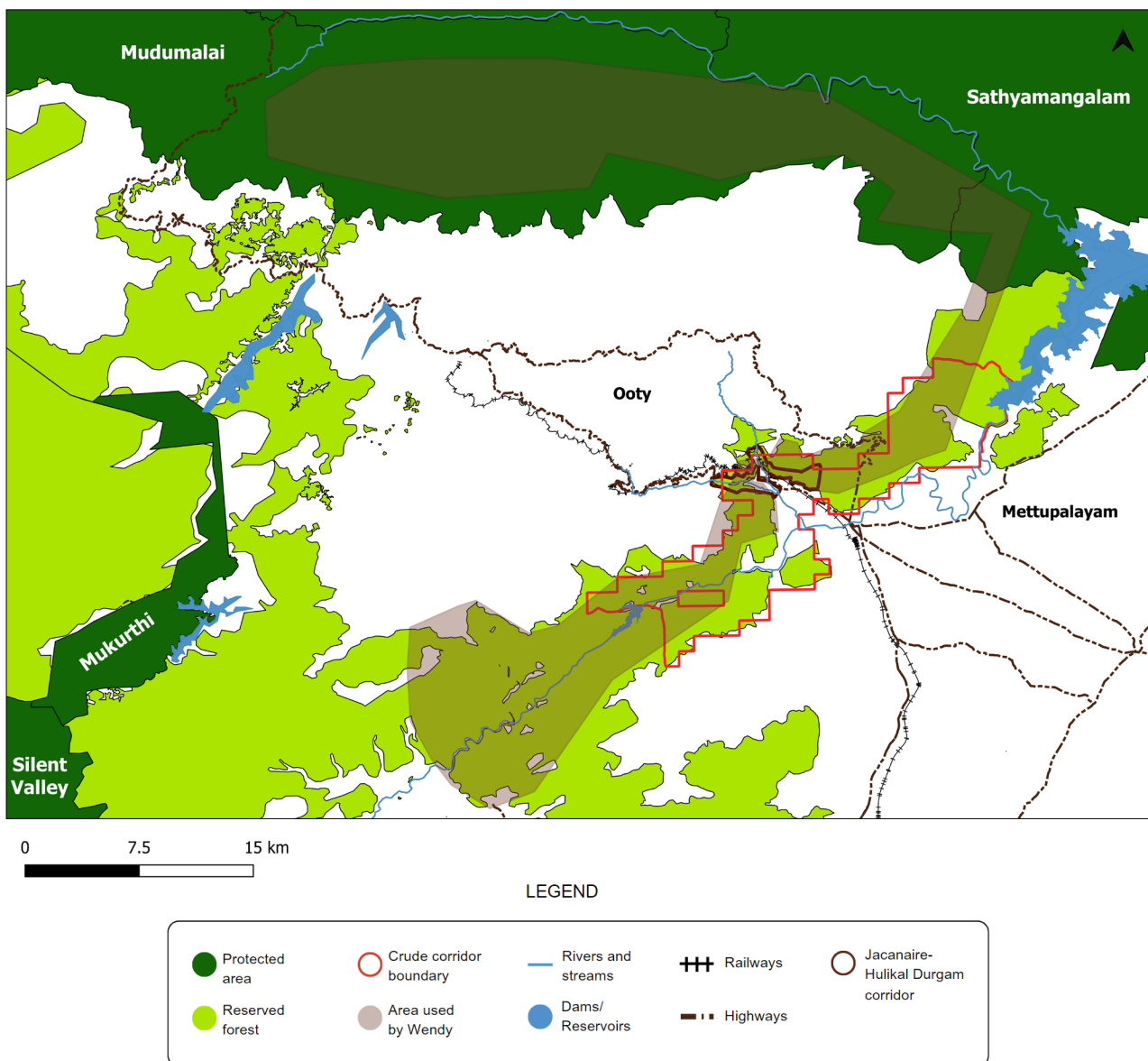


Figure 1: Area used by a herd of female elephants, led by collared female named Wendy, when it moved from Mudumalai Tiger Reserve towards Mukurthi National Park via Kallar corridor (Source: BNHS 1991).

Wendy, who led a herd of female elephants, indicated that the herd moved from Mudumalai through the Sathyamangalam forest division to Coimbatore (south) using the foothills of the highly undulating mountains, passing close to the Kallar village and a hairpin bend of the Mettupalayam-Coonoor highway. While the initially identified Jaccanaire-Hulikal Durgam corridor was a small patch around the Mettupalayam-Udhagamandalam highway, over time, changes in surrounding land use patterns and anthropogenic development led to increased impediments to wildlife movement on either side. This prominent, still narrow, area is now known as the Kallar Corridor.

Research over the last two decades has established the Kallar Corridor as a crucial link connecting the Brahmagiri-Nilgiris-Eastern Ghats elephant population with the Nilambur-Silent Valley-Coimbatore population; forming Northern and Southern clusters, respectively, within the Elephant Range 7 (Baskaran et al., 1995; Johnsingh and Williams, 1999; Sukumar and Easa, 2006; Ramakrishnan and Ramkumar, 2007; Ramkumar et al., 2017; Midha et al., 2018, Trumpet, 2022). These two populations together support ~8000 elephants, up to 16% of the world's population of wild Asian elephants (Synchronised All-India Elephant Population Estimation India, 2017; Trumpet, 2022).



Common banded peacock
(*Papilio crino*)

Ramakrishnan and Ramkumar (2007) suggest that the elephants show strong fidelity towards using this corridor mainly due to the prevalence of browsing resources like *Albizia amara*, *Bauhinia racemosa*, *Acacia insia*, *Zizyphus species*, *Atalantia monophylla* (Kattu elumichai) and fruit species such as jackfruit, mango, tamarind, among others. Other than resources, the fidelity is likely due to impediments to movement on either side of the corridor. Since this corridor lies along the southeastern foothills of the Nilgiri mountains, on the western side lies the steep slopes which are unsuitable for elephant movement (Walls et al., 2006; Yoganand et al., 2007; WWF-India, 2009; Evans et al., 2018; Puyravaud, J.P. et al., 2022). Whereas, on the eastern side, built-up areas have left a narrow passage for the movement of wildlife (Johnsingh and Williams, 1999). Given its significance, this corridor is a crucial link for maintaining landscape-scale connectivity and lies in the buffer zone of the Nilgiri Biosphere Reserve (NBR) on the Tamil Nadu side.

1.1 Importance of core habitats connected

Northern Cluster:

The Northern Cluster includes five tiger reserves (Sathyamangalam, Biligiri Rangaswamy Temple, Mudumalai, Bandipur and Nagarahole); four wildlife sanctuaries (Wayanad, Malai Mahadeshwara, Brahmagiri and Cauvery); and four forest divisions (Erode, Gudalur, Wayanad and Nilgiris Division). Elephants in the northern habitat can access the Eastern and Western Ghats through the Moyar valley pass. The diverse forest types include deciduous forests, dry thorns, tropical hill forests, semi-evergreen and patches of grasslands. There are several tribal settlements (Irula, Soliga, Kurumba, Paniya, Kattu Naicka settlements) and revenue villages within this habitat. The river Moyar passing through this habitat is a major source of water for wildlife.

Southern Cluster:

The Southern Cluster includes the forest divisions of Coimbatore, Palakad, Mannarkad and Attapadi territorial forest divisions and Silent Valley National Park. The southern habitat extends till the Palghat gap. The vegetation found here includes dry thorn, dry and moist deciduous, semi-evergreen and shola grasslands. Numerous Irula tribal hamlets are found in this area. Two rivers, namely river Bhavani and Noyyal, pass through this habitat. The former originates from the western Nilgiri hills and flows north eastwards along the corridor, while the latter originates from the Siruvani hills and flows through the southern portion of this region.



1.2 Wildlife utilising the corridor

Based on telemetry data, Baskaran et. al. (1995) reported that elephants use this corridor for seasonal movement, especially during summers. Visual observations by officials of the forest department also suggested that elephants use this corridor during the summer season to reach Bhavanisagar Reservoir (Ramkumar, 2019; Thomas, 2019) located in the northern portion of the corridor, where they congregate in large numbers (150-200 individuals) around the water bodies. However, recent camera trapping exercises by WWF-India revealed year-round use of the corridor by elephants.

Apart from the elephants, other mammals using the corridor include the tiger (*Panthera tigris*), leopard (*Panthera pardus*) Indian gaur (*Bos gaurus*), wild pig (*Sus scrofa*), sambar (*Rusa unicolor*), chital (*Axis axis*), black naped hare (*Lepus nigricollis*), barking deer (*Muntiacus muntjac*), Indian giant squirrel (*Ratufa indica*), mouse deer (*Moschiola indica*), south-eastern langur (*Semnopithecus priam*), bonnet macaque (*Macaca radiata*), striped hyena (*Hyaena hyaena*), dhole (*Cuon alpinus*), sloth bear (*Melurus ursinus*), jungle cat (*Felis chaus*), common mongoose (*Herpestes edwardsii*), stripe necked mongoose (*Herpestes vitticollis*), small Indian civet (*Viverricula indica*) and Indian crested porcupine (*Hystrix indica*) (Manoj et. al., 2016; Unpublished data, WWF-India, 2020).



Dhole
(*Cuon alpinus*)

A total of 200 butterfly species (The Nature and Butterfly Society Survey Report, 2019 and 2022) and 269 bird species, including 53 migrants and 14 endemic species of the Western Ghats, namely Malabar parakeet (*Psittacula columboides*), Malabar whistling thrush (*Myophonus horsfieldii*), Malabar trogon (*Harpactes fasciatus*), Malabar woodshrike (*Tephrodornis sylvicola*), Nilgiri flycatcher (*Eumyias albicaudatus*), Nilgiri flowerpecker (*Dicaeum concolor*), white-cheeked barbet (*Psilopogon viridis*), Malabar barbet (*Psilopogon malabaricus*), crimson-backed sunbird (*Leptocoma minima*), flame-throated bulbul (*Rubigula gularis*), rufous babbler (*Argya subrufa*), yellow-throated bulbul (*Pycnonotus xantholaemus*), white-bellied blue flycatcher (*Cyornis pallidipes*) have been recorded from the corridor (Ebird hotspot, 2022).

2 Corridor Characteristics

2.1 Boundaries

The Kallar Corridor runs in the northeast-southwest direction for 27 km. The width of the corridor areas that can be used by elephants is as low as 140 m in parts of the corridor. Delineating the precise boundaries of a corridor is

often a challenge. In order to delineate a crude boundary, we used a 1 km² grid and selected grids with some evidence of elephants' use. On the northwestern side, areas with high slopes mark the corridor boundary (Figure 2), while the

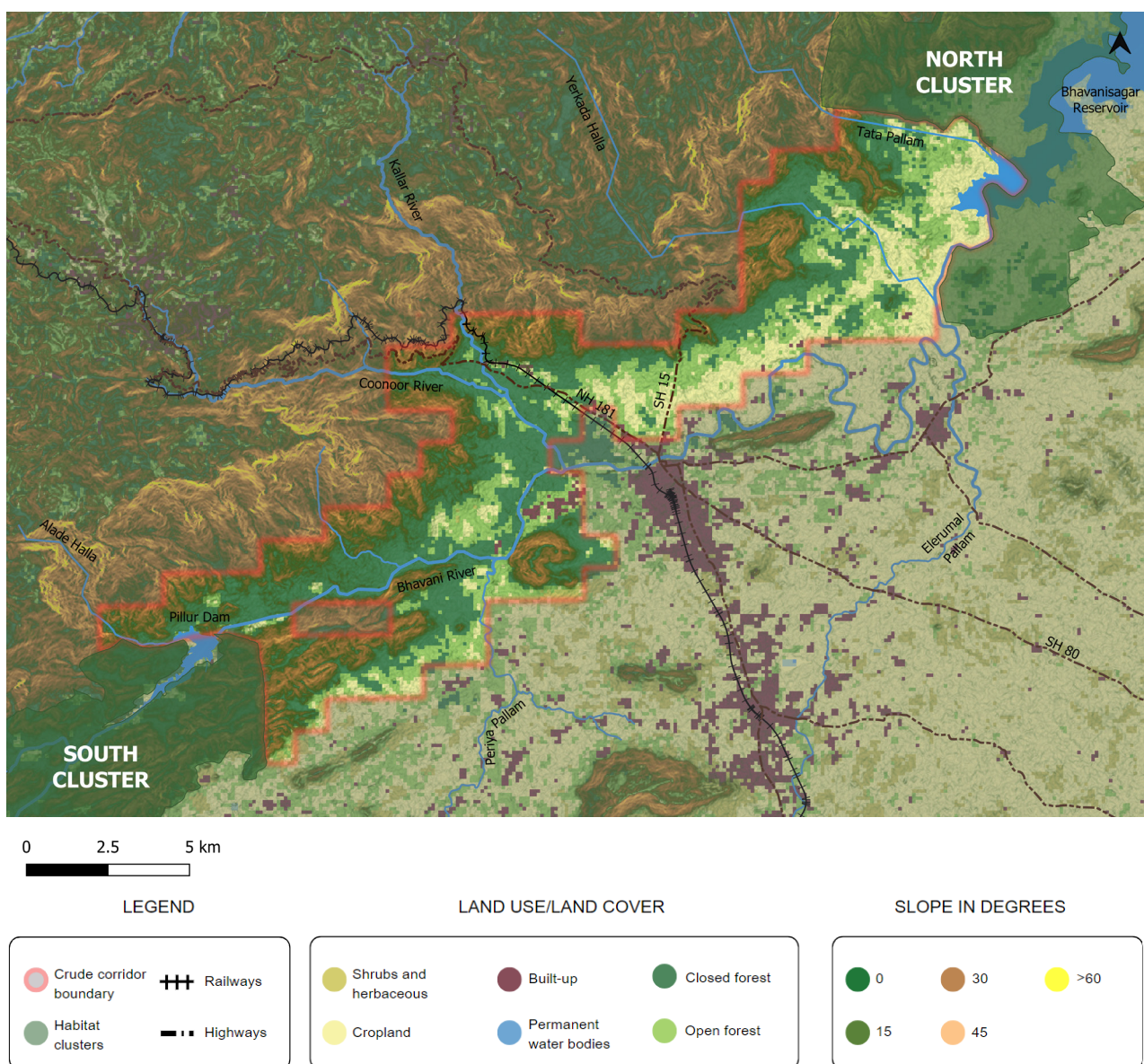


Figure 2: Map showing a crude boundary of the Kallar corridor along with the Nilgiri slopes, rivers, highways and railway network

southeastern side followed the boundary of the revenue areas used by the elephants (Figures 2 and 3).

The crude corridor covers an area of ~149 km², most of which falls within the Mettupalayam tehsil of the Coimbatore district of Tamil Nadu, with some part of the eastern end of the corridor

overlapping with the Sathyamangalam tehsil of the same district. Coonoor and Kotagiri tehsils of the Nilgiris district lie along the northwestern boundary of the corridor (Figure 3). Administratively, the Sirumugai and Mettupalayam ranges of the Coimbatore forest division comprise most of the forest areas in the corridor (Figure 4).

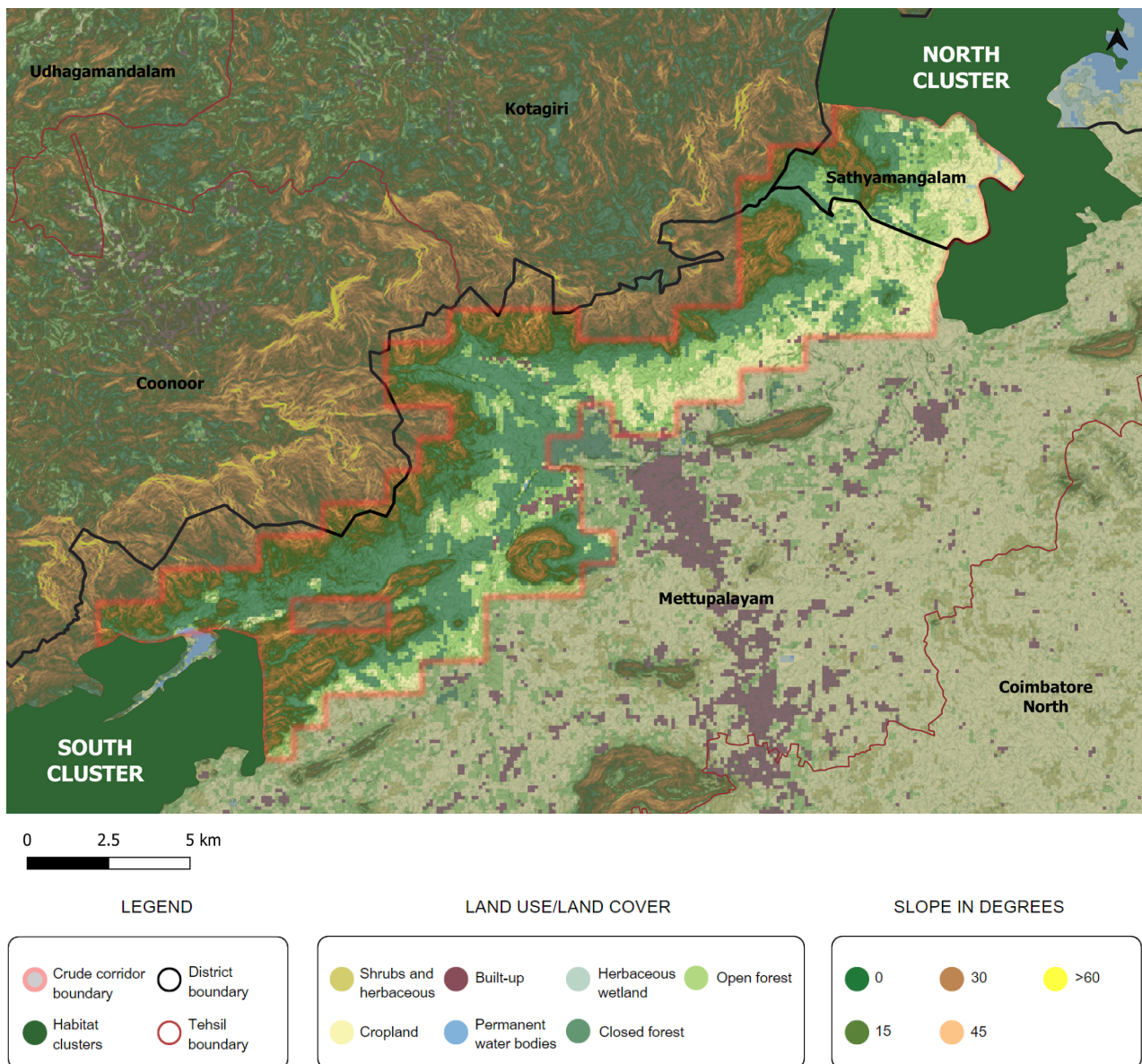


Figure 3: Administrative areas - district and tehsils overlapping with the corridor area. Coimbatore district: Mettupalayam tehsil; Nilgiris district: Coonoor and Kotagiri tehsils.

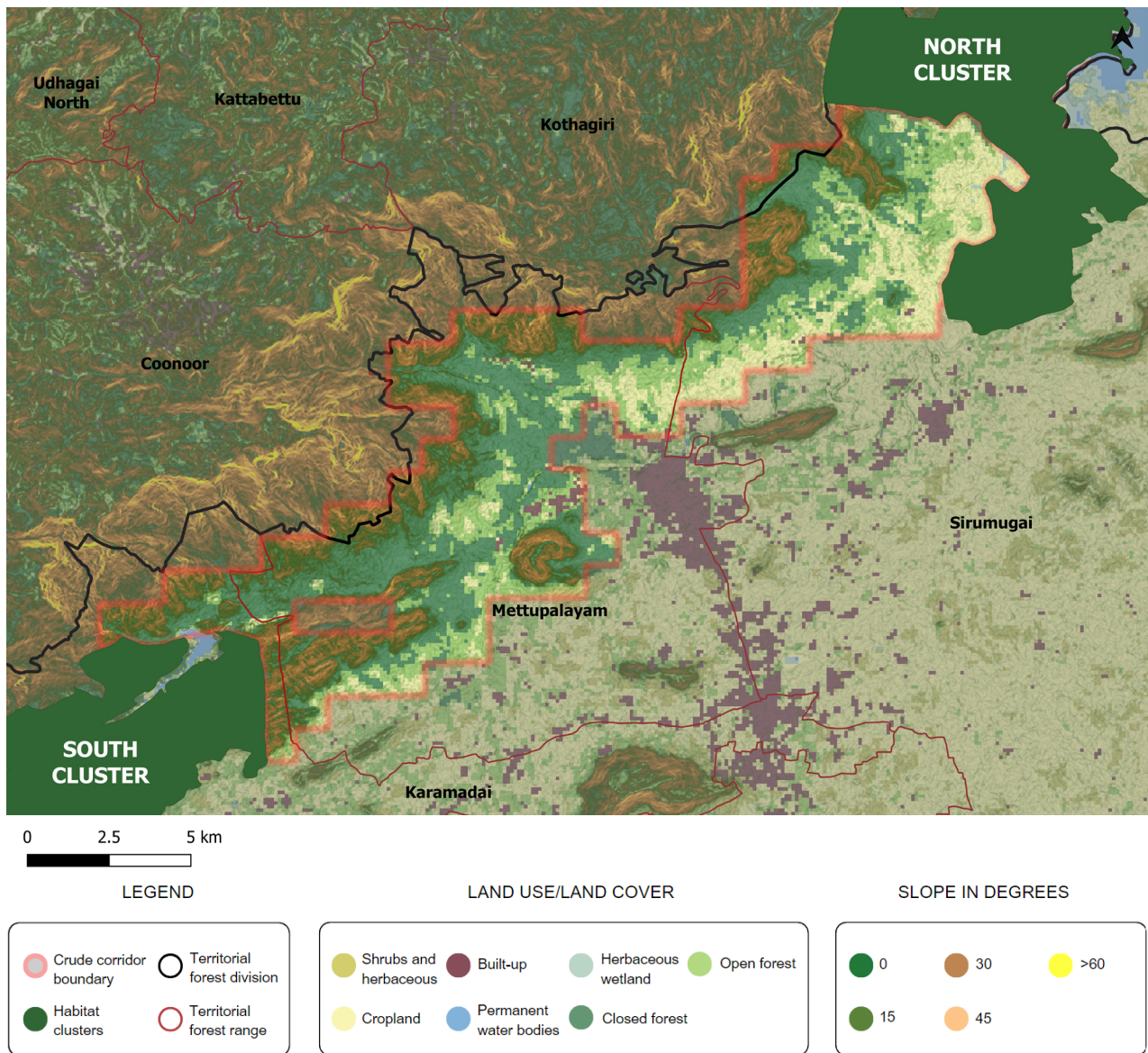


Figure 4: Coimbatore territorial forest division and Ranges within the corridor boundary. Coimbatore forest division: Sirumugai, Mettupalayam and Karamadai ranges; Nilgiris forest division: Coonoor and Kothagiri ranges.

2.2 Physical characteristics and hydrology

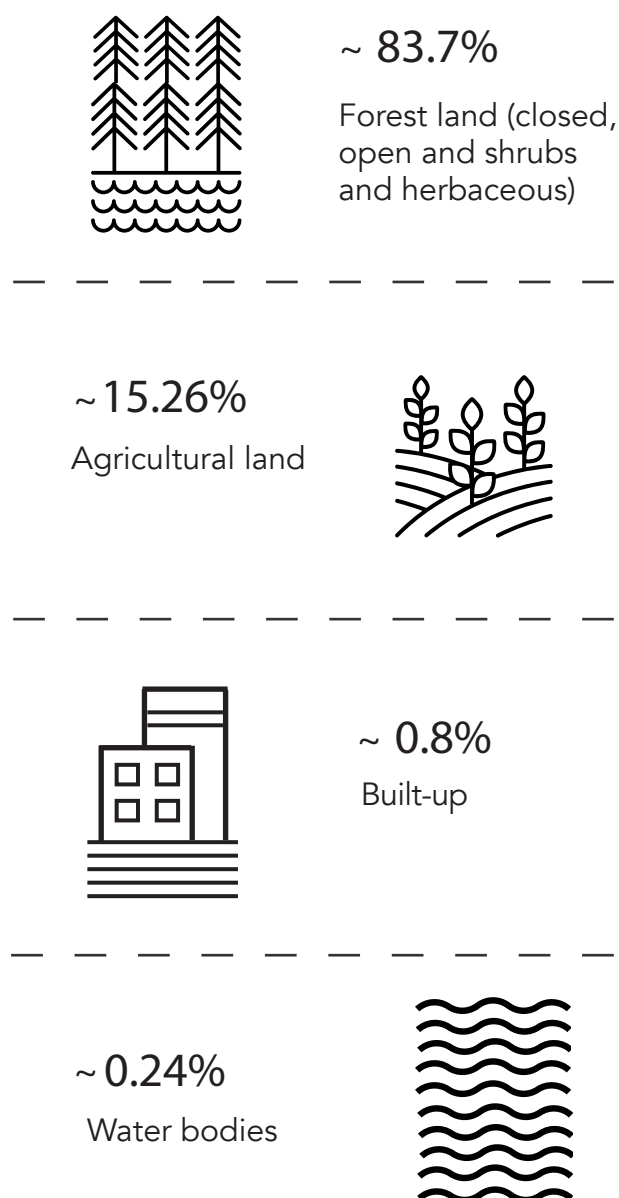
The corridor's northwestern boundary is lined by the southeastern slopes of the Nilgiri mountains (0-40°). The vegetation along the slopes and the foothills is characterised by tropical thorn and dry deciduous forests (Ravisankar et al., 2019).

The corridor is located within the

Cauvery river basin. The Bhavani river, a perennial tributary of the Cauvery river, flows along the corridor, with Pillur dam and Bhavanisagar reservoir located on the river at opposite ends of the corridor. Bhavanisagar reservoir is the second-largest earthen dam in the world and is the primary source of irrigation for the vast swathes of land in Erode and

Tirupur districts. Alade Halla, Coonoor river, Kallar river, Periya pallam, Elerumal pallam, Yerkada Halla and Thatta pallam, are the tributaries joining the Bhavani river within the corridor (Figure 2). The average annual rainfall in the region is 1307 mm, and the banks of the Bhavani river are prone to flooding during high rainfall.

2.3 Land use within corridor



Most of the area within this corridor is forested along the slopes of the Nilgiri mountains, followed by agriculture and built-up in the plain areas. Agriculture in the corridor is largely dependent on the perennial rivers – Bhavani, Coonoor, Kallar and Yerkada Halla. There are several banana plantations across the corridor. Mettupalayam town is situated on the eastern side of the corridor. Built-up areas within and along the corridor boundary include Swami Satchidananda Jothi Niketan School, Black Thunder Park, Forest College and Research Institute (FCRI), Kallar horticulture farm and villages.

2.4 Critical corridor areas

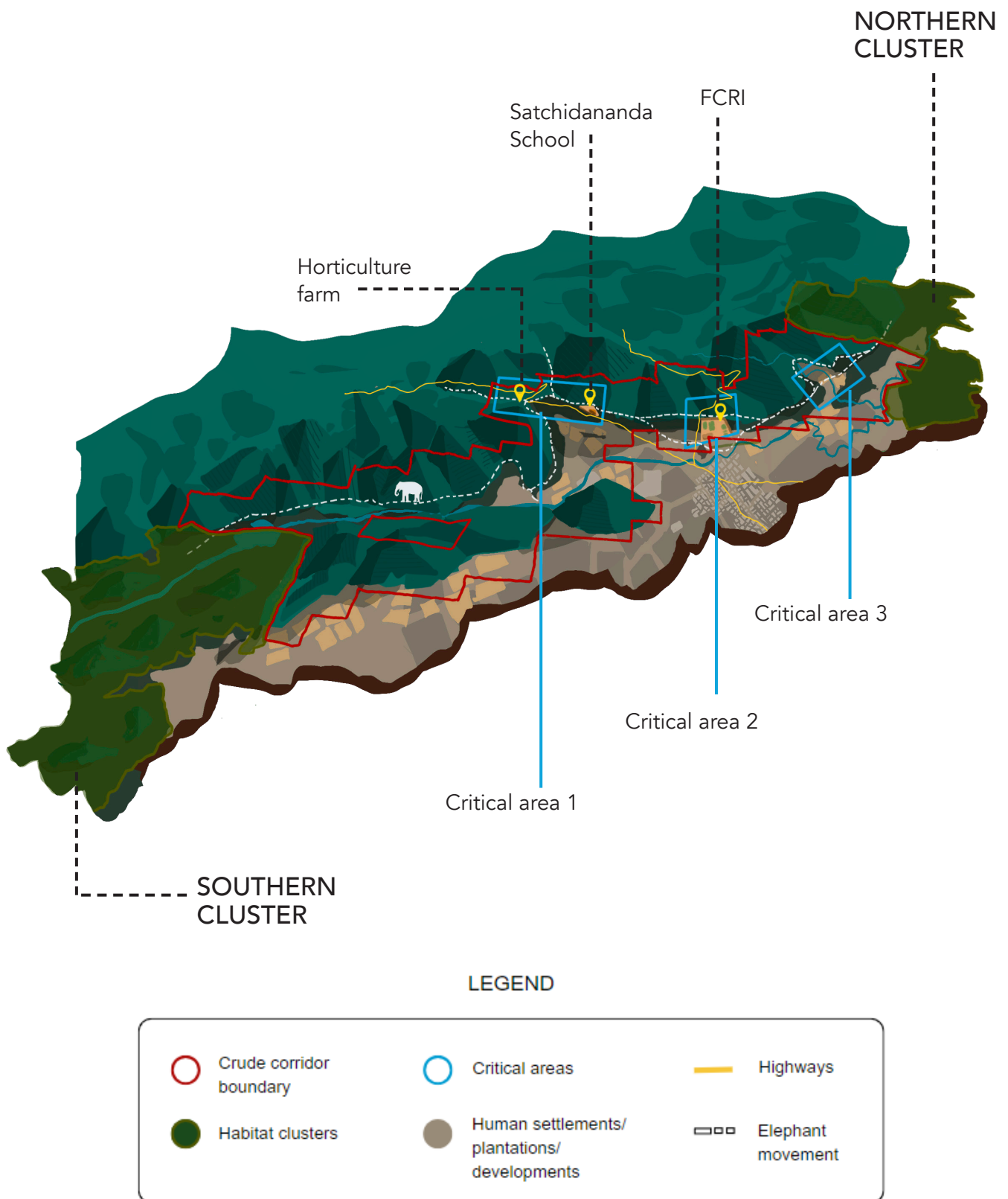


Figure 5: Critical corridor areas within the Kallar Corridor. FCRI stands for Forest College and Research Institute. Note: Land use/land cover shown in this image is indicative.

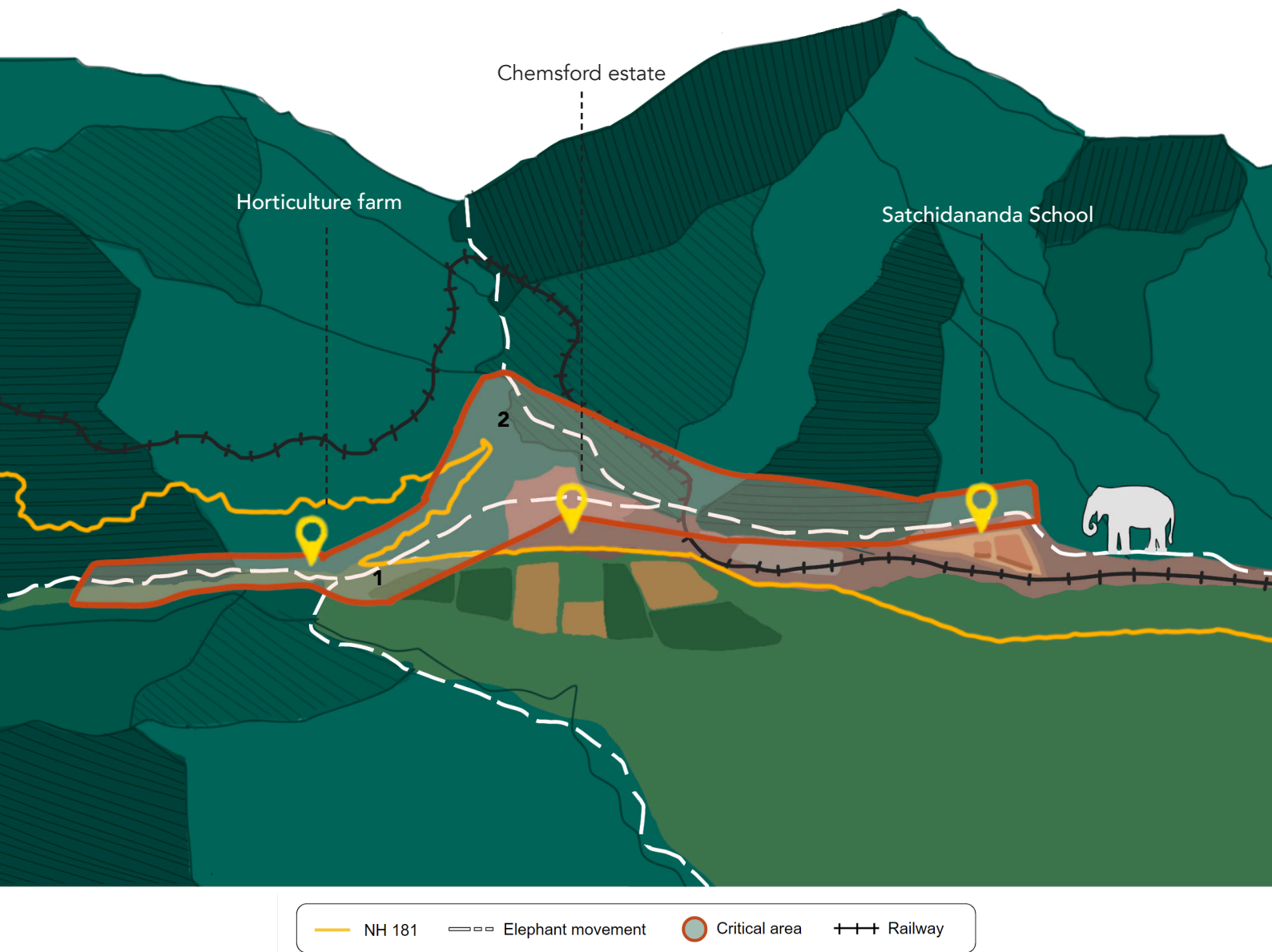


Figure 5a: Map representing critical area 1. Numbers 1 and 2 in the map represent the first and second hairpin bend, respectively.

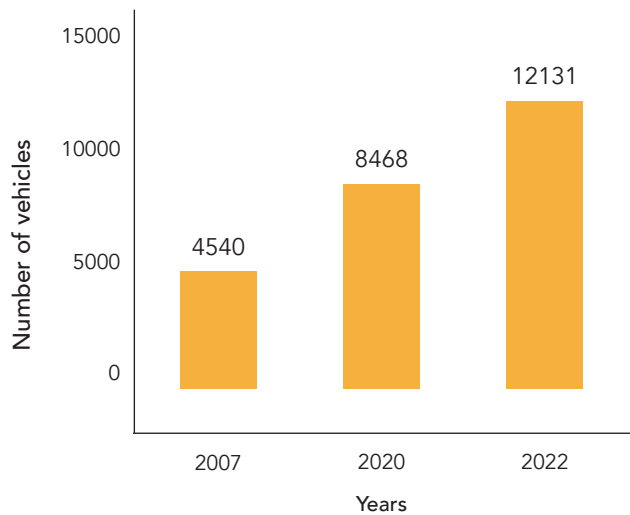
Critical area 1:

The area between Swami Satchidananda Jothi Niketan School and the state government horticultural farm in Mettupalayam forms critical area 1. This area overlaps with the Jaccanaire, Kallar and Hulikal Durgam beats of the Mettupalayam range of the Coimbatore territorial forest division. The Kallar, Kallar Pudur and Samathuvapuram hamlets are close to this area. A single railway track and the NH-181 connecting Mettupalayam and Ooty pass through

this critical area.

Surveys over the last 15 years show that the traffic intensity on the highway has tripled since 2007 (Figure 4). Yoganand et al. (2007) witnessed an increase in elephant movement along the sides of the highway.

A green tax toll booth constructed by the Nilgiris district between the Forest check post and first hairpin bend of NH-181 of NH-181 often created temporary traffic congestion during toll collection.



Average number of vehicles crossing the green tax collection toll booth every day

After several efforts, the toll booth was shifted from the current location to Dhooripalam in early 2023.

Towards the east of NH-181, the elephant movement within this critical area gets channelled through a bottleneck formed between the steep slopes of Nilgiris on one side and the Swami Satchidananda Jothi Niketan School on the other, leaving a gap of only 140 m between the two for elephants to move.

Other developments around this critical area include the Black Thunder Park and brick-making factories. Conversion of forest patches into plantations over the years and installation of electric fences have created impediments for animals along their historic routes across the flat





Figure 5b: Map representing critical area 2

areas on either side of NH-181 within the critical area 1. Puyravaud et al., (2022) modelled elephant movement across the NBR and found that the flat areas along the slopes within this critical area that fall outside the NBR boundary and are not managed by the forest department are crucial for maintaining connectivity across the biosphere reserve.

Critical area 2:

This area is located within the Odanthurai beat of the Sirumugai range. State highway SH-15 passes through this area for 2 km covering the region between the Odanthurai forest checkpost and the foothills. The Forest College and Research Institute (FCRI) is located adjacent to SH-15 and is 350 m from the Odanthurai forest checkpost. Along the perimeter of the land allotted

to FCRI (~500 acres), there are elephant proof trenches and electric fences. The 1 km long trench runs parallel to the SH-15 leaving a narrow flat patch of only 0.4 km for the animals to traverse along the highway.

Critical area 3:

This area is located in the corridor's northernmost portion, close to the Bhavanisagar reservoir and is part of the

Uliyur beat of the Sirumugai range. This area overlaps with the Alur Vayal banana plantations. There has been a drastic increase in banana plantations over the years due to water availability in this region. This has led to the installation of electric fences around the fields, rivers, and water bodies, impeding the movement of animals. This often forces the elephants to take a very narrow route along the lower slopes of the Nilgiri mountains.

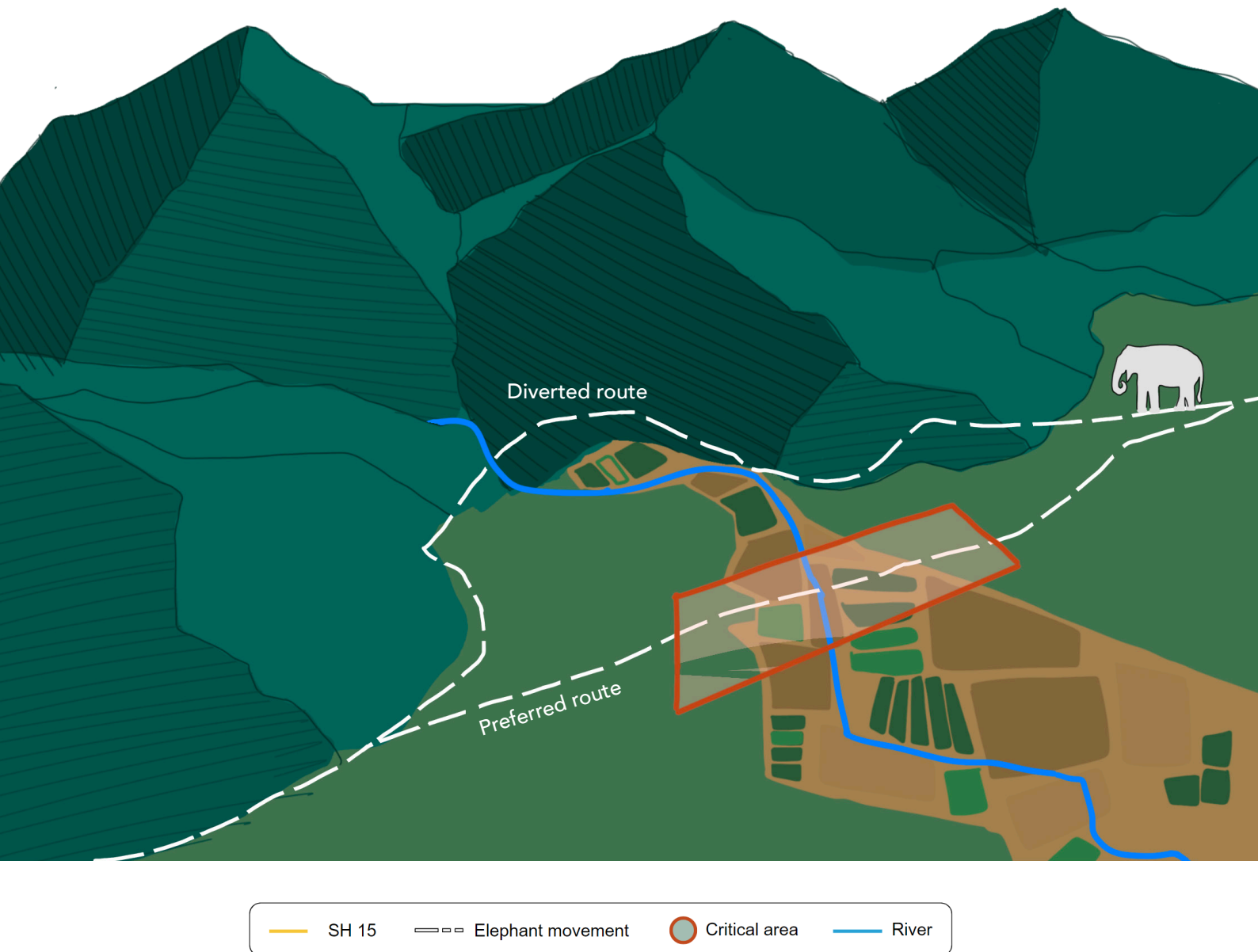


Figure 5c: Map representing critical area 3

3 Stakeholders and Management

3.1 Land tenure and holding

The Tamil Nadu Forest Department (TNFD) manages 75% of the area of the corridor. It has leased around 500 acres of the Odanthurai Reserve Forest to Tamil Nadu Agricultural University in 1975, which set up FCRI. The Kallar Garden, situated towards the southwest of the corridor, is spread across 21.8 acres and belongs to the horticultural department. Kallar Reserve

Forest land was transferred to the agricultural department to establish this garden - 10 acres were handed over in 1901, while the remaining 11.8 acres were transferred in 1940. Although located in the Coimbatore district, the Nilgiri district manages the horticultural garden. The 92 ha land south of NH-181, between Kallar bridge (Dhooripalam) and the first hairpin bend, is privately owned and used for banana, areca nut and teak plantation.



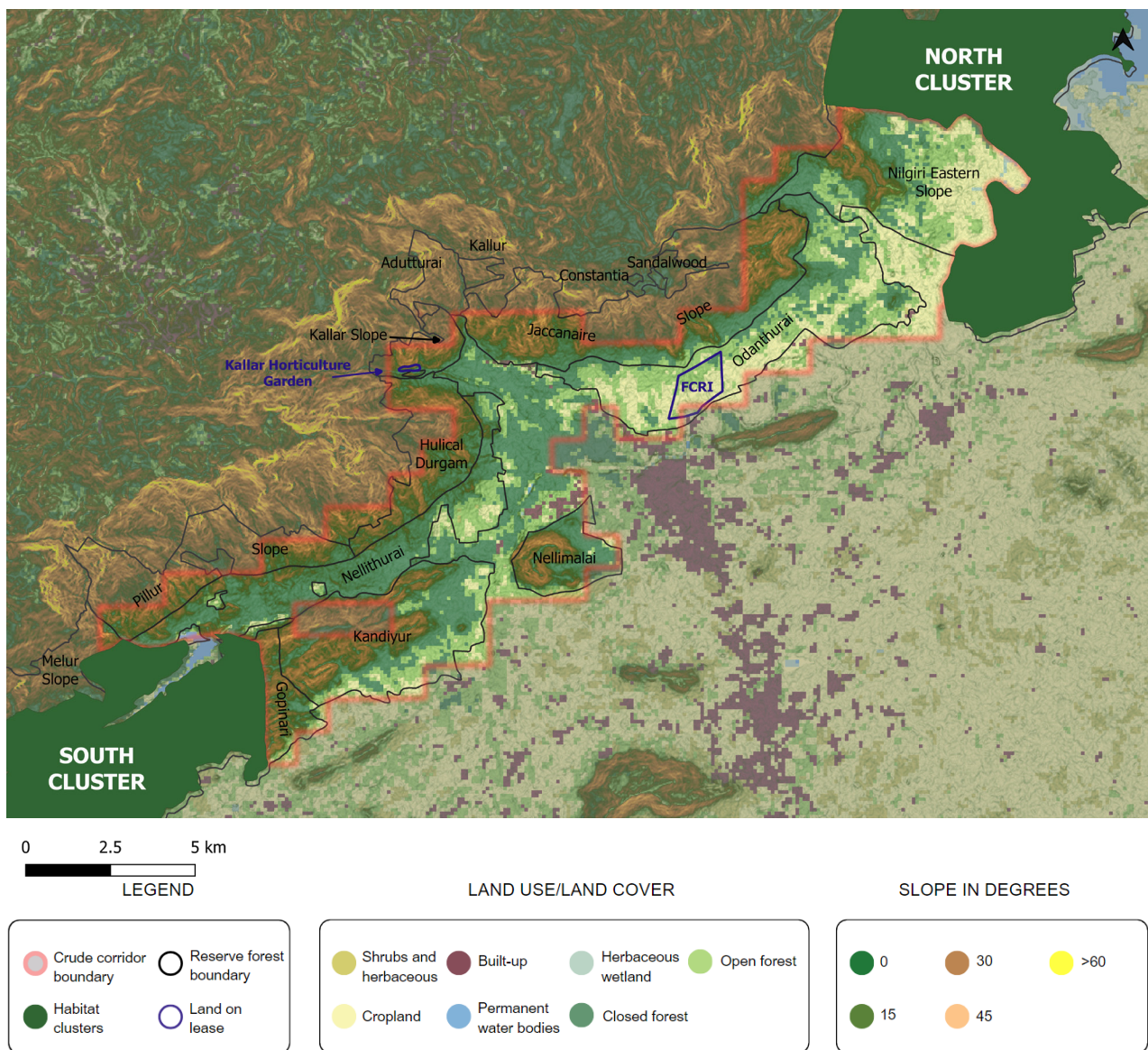


Figure 6: Map showing area under Reserved Forests and forest area given on lease to FCRI and Kallar horticultural garden.

3.2 Settlements and Communities

The average population density within the corridor is ~342 people/km². However, this is not evenly distributed across but concentrated along the southeastern boundary. There are ten villages inside the corridor - Nelliithurai, Kallar, Kallar Pudur, Odanthurai, Ramasamynagar, Oomapalayam, Vedarcolony, Lingapuram (Gandhavayal), Uliyur and Samathuvapuram (Ramkumar et al.,

2017 and village list from Coimbatore forest division) (Figure 6). Among these Kallar and Kallar Pudur are quite old tribal hamlets which have grown from a handful of households to more than 400 after the tribal resettlement initiative in 2000. (Ramakrishnan and Ramkumar, 2007; Thirumaran and Renganathan, 2014; Ramkumar et al., 2017). Following the resettlement program, there has been an influx of non-tribal populations

from nearby areas.

People residing in this corridor work primarily as labourers at farms, with the railways, at mills and cattle breeding companies. A 2009 survey shows that around 83% of the people in Kallar village worked as labourers (WWF-India, 2009). A self-help group (SHG) run by local women has been granted land on lease by the forest department within the Mettupalayam Range, to

collect Non-Timber Forest Products (NTFP) from the forest. This collection of NTFP, including tamarind, soap nut, kadukai, phoenix palm and gooseberry, among others, usually occurs between January and June (WWF-India, 2009; Thirumaran and Renganathan, 2014). Apart from NTFP, villagers also use the forested areas for cattle grazing (Thirumaran and Renganathan, 2014).

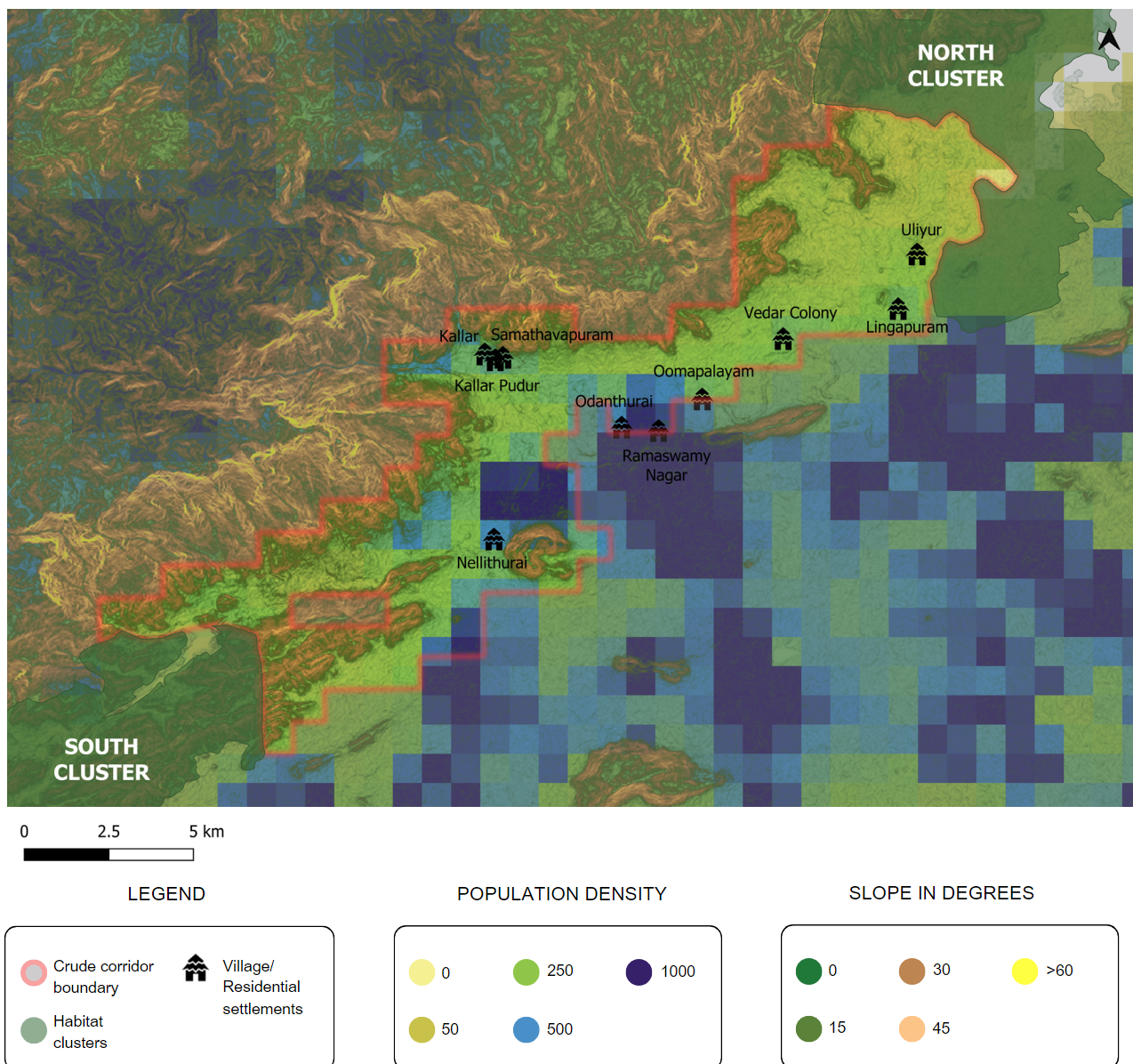


Figure 7: Map representing population density across the corridor along with village locations

4 Challenges

4.1 Linear Infrastructure

National and state highways (NH-181 and SH-15) of ~10 km and ~5 km pass through the corridor. Challenges associated with the presence of these highways are discussed in detail in the Critical Areas section (1 and 2). A ~5 km long stretch of the railway line connecting Mettupalayam to Ooty also passes through the corridor (Figure

2). The railway line is a mountainous railway track that runs two trains in a day with a minimum speed of 40 km/hour. The stretches of roads and railways along the slopes of the mountains, with multiple bends, make it difficult for wildlife to cross, especially along the bends.



4.2 Land use change



Banana plantations across the hill forests which forms a part of Kallar corridor in the south eastern slopes of Nilgiri Landscape

© D. Boominathan

Private estates that have been historically used by elephants make up the eastern edge of this corridor. Though these areas were extensively farmed for areca nuts, the use of fences was limited. Over time, there has been a gradual shift in the land use pattern as landowners started leasing their lands to local farmers for cultivation of banana, plantain, mango, coconut, and areca nuts (Ramkumar et al., 2017). Moreover, some owners sold their lands owing to the increase

in tourism in this area. Consequently, farmhouses, huge hotels, and restaurants have cropped up adjacent to the national highway passing through the corridor. To prevent crop-raiding and straying of animals inside these private properties, the owners have installed electric fences and constructed cemented compound walls across the periphery. These measures have obstructed the original movement paths of animals, particularly elephants (Midha et al., 2016, Midha et al., 2018).

4.3 Human-wildlife conflict

One of the most prevalent problems in this corridor is the conflict between humans and elephants. Between 1994-2020, 16 elephant deaths happened due to high-voltage electrical lines and 39 human deaths by elephants

have been reported. Most human deaths occurred while people were safeguarding crops or chasing off elephants, followed by elephants wandering through villages. (Midha et al., 2018; WWF-India unpublished data).

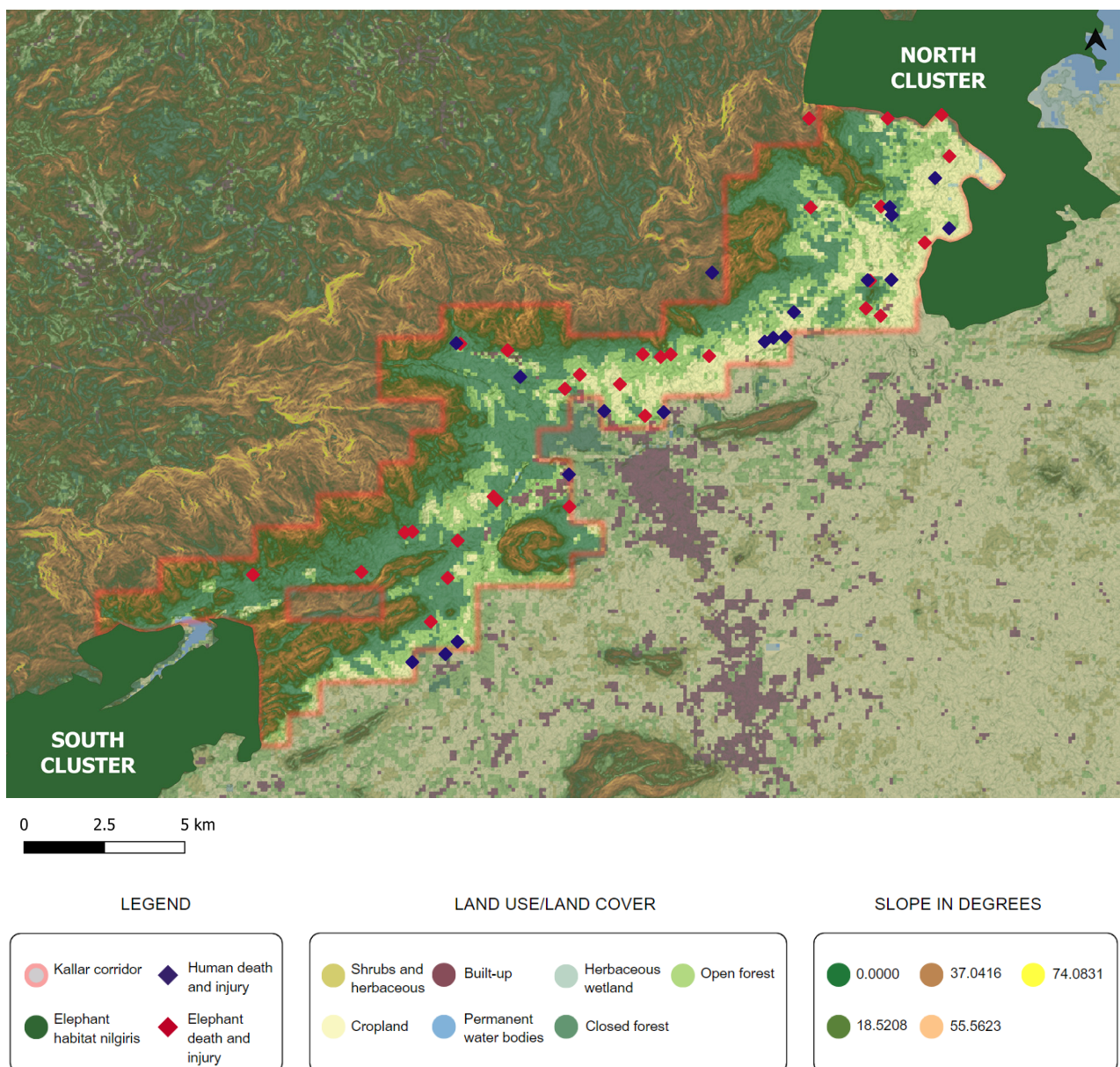


Figure 8: Map showing human and elephant death and injuries data from 2010-2020.

5 Recommendations

1. Construction of a flyover on NH-181 from Dhooripalam to the second hairpin bend is the key mitigation measure necessary to ensure safe passage for the elephants without having to cross a busy road. The flyover design should follow the “Eco-friendly measures to mitigate impacts of linear infrastructure on wildlife” guidelines provided by Wildlife Institute of India (WII, 2016). The National Highways Authority of India (NHAI) is developing a detailed project report (DPR) for the construction of this highway.” Before the DPR is approved, it should ideally be presented to the stakeholders for their feedback.
2. Speed breakers must be constructed on NH-181 at the identified six locations where animal crossings are reported in high numbers (Thomas, 2022).
3. Formal recognition of the corridor, including areas critical for elephant movement (that are not under the forest department), would be essential to ensure that the land use within the corridor remains permeable to elephant movement in the future. Until then, continuous monitoring of the corridor especially of the critical areas needs to be carried out.



Black-hooded oriole
(*Oriolus xanthonus*)



Leopard
(*Panthera pardus*)

4. If formal recognition and land-use regulation or modification to maintain permeability is not an option, land acquisition is sometimes considered as a viable option for securing corridors (IUCN NL, 2014; Kamal et.al., 2014; Liu et al., 2018; Midha et al., 2018). Ramakrishnan and Ramkumar (2007) proposed this as an option for the land within the critical area 1. They estimated that only 12 acres of land is under the jurisdiction of the forest department within the critical area, whereas around 103.05 acres of land is privately owned. The feasibility of land acquisition in the Kallar Corridor might be low and requires multiple assessments, including the willingness of people staying in and around it, land tenure within the corridor and understanding the market value of the land.
5. Relocation of the Kallar horticultural garden from critical area 1 is essential. For both widening the crossing path and decreasing the vehicular pressure for animal movement.
6. Trenches and electric fences placed around farms, buildings and along rivers that impede elephant movement must be removed or realigned to ensure they are not barriers to elephant movement.

6 Conservation Success and Ongoing Activities

6.1 Government Activities

The Tamil Nadu Forest Department (TNFD) has used the recommendations from earlier studies carried out in the corridor, to develop the following proposals for implementing mitigation measures in the long run.

Proposal for Construction of Flyover:

In 2014, a field visit to critical area 1 was organised by the TNFD for the higher officials of the major stakeholders (TNFD, Revenue Department, NHAI and WWF-India) to understand and discuss the associated challenges in this region. After the field visit, the representative

officials submitted a proposal to the Tamil Nadu State Government for the construction of a 1.6 km flyover from the Kallar bridge to the second hairpin bend in the corridor. In response, in 2015, the officials of the Tamil Nadu State Government and NHAI presented a budget of INR 160 crores for the construction of the flyover. This budget did not get approval and the project failed. But the continuous efforts of the officials from the above-mentioned stakeholders led the State Government to approve the proposal and sanction funds to NHAI for the preparation of a DPR for the construction of the flyover in 2021 (DTNNext, 2021; Subburaj, 2021).



Field visit to the corridor by stakeholder officials from Tamil Nadu Forest Department (TNFD), National Highways Authority of India (NHAI), Revenues Department and WWF-India in 2014

Private Land Acquisition:

Acquisition of private lands and declaration of private forest under Tamil Nadu Preservation of Private Forest Act, 1949 was first recommended by Yoganand et al., 2007 since the elephant movement was greatly affected by the barriers in private lands. It is an act to prevent the indiscriminate destruction of private forests and interference with customary and prescriptive rights therein. In 2021, the forest department submitted a proposal to the District Collector to notify the private lands in the corridor as a 'Private Forest'. After verification of the significance of the corridor, the District Collector passed an order, to notify a total of 50.79 hectares of private land as 'Private Forest' out of the proposed 70.79 hectares situated on either sides NH-181. Thus, upon the declaration of the Act, the electric fences from the private forest were removed, and the land was taken under forest protection (Chandrakumar, 2021; Thomas, 2021).



Malabar Trogon
(*Harpactes fasciatus*)

the proposed flyover. They have been lobbying with stakeholders to implement various mitigation plans and continuously taking follow-ups and presenting them. Along with TNFD, WWF-India plan to conduct a wildlife occupancy survey in the delineated corridor in 2023.

6.2 Non-Government Organisation Activities

WWF-India: Since 2007, the Western Ghats Nilgiri Landscape team of WWF-India has been documenting and monitoring the wildlife movement around the Kallar Corridor. They identified critical areas around NH-181 for land acquisition to construct

Wildlife Trust of India (WTI): WTI has been working in the corridor in collaboration with OSAI, a Coimbatore-based organisation, that they have recognised by them as a "Green Corridor Champion" for the Kallar Corridor.

7 Bibliography

7.1 Literature

Arivazhagan, C., Ramakrishnan, B., 2010. Conservation perspective of Asian elephants (*Elephas maximus*) in Tamil Nadu, Southern India. *IJBT* 1:15-22.

Baskaran, N., Balasubramanian, M., Swaminathan, S. and Desai, A. A., 1995. Home range of elephants and its implications for the management of Nilgiri Biosphere Reserve, India. In *A Week with Elephants* (eds Daniel, J. C. and Datye, H. S.), Bombay Natural History Society and Oxford University Press, Bombay, 296-313.

Davidar, E.R.C., Davidar, Peter, Davidar, Priya, Puyravaud, J.-P., 2012. Elephant *Elephas maximus* Linnaeus (Proboscidea: Elephantidae) migration paths in the Nilgiri Hills, India in the late 1970s. *J. Threat. Taxa* 04, 3284–3293. <https://doi.org/10.11609/JoTT.03008.3284-93>

Evans, L.J., Asner, G.P., Goossens, B., 2018. Protected area management priorities crucial for the future of Bornean elephants. *Biol. Conserv.* 221, 365–373. <https://doi.org/10.1016/j.biocon.2018.03.015>

IUCN NL, 2014. Saving species by connecting habitats: Small grants for the purchase of Nature. National Committee of The Netherlands, IUCN Netherlands, Amsterdam.

Johnsingh, A.J.T., Williams, A.C., 1999. Elephant corridors in India: lessons for other elephant range countries. *Oryx* 33, 210–214. <https://doi.org/10.1046/j.1365-3008.1999.00063.x>

Kamal S., Grodzińska-Jurczak M. and Brown B., 2015. Conservation on private land: a review of global strategies with a proposed classification system, *Journal of Environmental Planning and Management*, 58:4, 576-597. <http://doi.org/10.1080/09640568.2013.875463>



Liu, C., Newell, G., White, M., and Bennett, A. F., 2018. Identifying wildlife corridors for the restoration of regional habitat connectivity: A multispecies approach and comparison of resistance surfaces. PLoS ONE, 13 (11). <https://doi.org/10.1371/journal.pone.0206071>

Manoj, K, Raghavan, R, Allwin, B, 2016. Assessment of the distribution of herbivores in the elephant corridors, Mettupalayam forest range, Tamil Nadu, India. Poult Fish Wildl Sci 4: 165. <http://doi.org/10.4172/2375-446X.1000165>

Midha, N., Krishna Kumar, N., Boominathan, D., Thomas, S., Jain, C., 2018. Kallar elephant corridor in the Western Ghats, India: Trend of human interface vis-a-vis feasibility of wildlife-friendly flyover and land acquisition. Curr. Sci. 115, No. 12, 2211-2218. <https://doi.org/10.18520/cs/v115/i12/2211-2218>

Midha, N., Kumar, K., Boominathan, D., Thomas, S., Shethia, Y., Ghosh, D., 2016. Securing Kallar corridor for elephants of the Nilgiri Eastern Ghats. Final Report. World Wide Fund for Nature - India, New Delhi.

Ministry of Environment, Forest and Climate Change, 2017. All-India Synchronized Elephant Population Estimation India. Government of India, New Delhi.

Puyravaud, J.P.; Cushman, S.A., Reddy, P.A., Boominathan, D., Sharma, R., Arumugam, N., Selvan, K.M., Mohanraj, N., Arulmozhi, S., Rahim, A., et al., 2022. Fencing can alter gene flow of Asian elephant populations within protected areas. Conservation 2, 709–725. <https://doi.org/10.3390/conservation2040046>

Ramakrishnan, B., Ramkumar, K., 2007. Land acquisition perspectives of elephant corridors in the Coimbatore and Sathyamangalam forest divisions, Tamil Nadu, South India. Final Report. Wildlife Trust of India, New Delhi.

Ramkumar, K., Varma, S., Easa, P.S., Venkataraman, A., Ramakrishnan, B., Tiwari, S.K., Menon, V. and Sukumar, R., 2017. Elephant corridors of Southern India. In Right of Passage: Elephant Corridors of India [2nd Edition] Menon, V., Tiwari, S.K., Ramkumar K., Kyarong, S., Ganguly, U. and Sukumar, R. (Eds.), Conservation Reference Series 3, Wildlife Trust of India, New Delhi.



Ravisankar, U., Sekhar, C., Baranidharan, K., Vidhyavathi, A., 2019. Status of elephant corridors in Tamil Nadu. *J. Entomol. Zool. Stud.* 7(3): 887-893.

Sukumar, R., Easa, P.S., 2006. Elephant Conservation in South India: issues and recommendations. *Gajah* 25, 71-86.

Thirumaran, D.K., Renganathan, A.R., 2014. Socio-Economic assessment and planning in corridor conservation initiative. Assessment at Kallar elephant corridor. *Int. J. Eng. Res. Technol.*, 3(11), 1142–1146.

Trumpet Vol. III. Issue 1-2, 2022. A newsletter published by Project Elephant Division and Elephant Cell, Wildlife Institute of India.

Wall, J.; Douglas-Hamilton, I.; Vollrath, F., 2006. Elephants avoid costly mountaineering. *Curr. Biol.*, Vol. 16, No. 14, R527–R529. <https://doi.org/10.1016/j.cub.2006.06.049>

WII, 2016. Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife. Wildlife Institute of India, Dehradun, India

WWF-India, 2009. Kallar elephant corridor in the Coimbatore Forest Division, Tamil Nadu, Southern India. (Final Report). World Wide Fund for Nature - India, New Delhi.

Yoganand, K., R. Renganathan, N. Krishnakumar, J. Vinothkumar and M. Irfan-Ullah. (2007). Conservation assessment and planning of Kallar elephant corridor, Nilgiris landscape. Project Report; Ashoka Trust for Research in Ecology and the Environment, Bangalore and World Wide Fund for Nature - India, New Delhi.

7.2 Resource checklist

eBird hotspots: [Jaganari Slopes] [Kallar Horticultural Garden] [Vedar Colony] [Satchidananda Jothi Nikethan International School] [Thuri Palam] [Forest college to Kotagiri 1st HB] [Gandhavayal, Near Lingapuram, Sirumugai] [Bhavanisagar Backwaters, Pethikuttai] [Kallar Reserve Forest] Website URL: <https://ebird.org/india/barchart?byr=1900&eyr=2022&bmo=1&emo=12&r=L15723497,L4231587,L3884769,L4920192,L4214979,L3605987,L3959825,L14377764,L5010315> Accessed on: 07.04.2022



7.3 News articles

Chandrakumar, M., 2021. 50.79ha in Kallar elephant corridor announced as a private forest by the Coimbatore district administration. Times Now News. <https://www.thehindu.com/news/cities/Coimbatore/50-hectares-in-the-critical-kallar-elephant-corridor-declared-as-private-forest/article34776060.ece>

Ramkumar, P., 2019. Keep away from elephants, say Sirumugai forest ranger. The Times of India. <https://timesofindia.indiatimes.com/city/coimbatore/keep-away-from-elephants-say-sirumugai-forest-rangers/articleshow/69032612.cms>

Thomas, W., 2019. Sirumugai residents told to be wary of elephants. The Hindu. <https://www.thehindu.com/news/cities/Coimbatore/sirumugai-residents-told-to-be-wary-of-elephants/article26936205.ece>

Thomas, W., 2021. 50 hectares in the critical Kallar elephant corridor declared as private forest. The Hindu. <https://www.thehindu.com/news/cities/Coimbatore/50-hectares-in-the-critical-kallar-elephant-corridor-declared-as-private-forest/article34776060.ece>

Thomas W., 2022. Proposal for speed breakers for safe animal crossing on Mettupalayam – Kallar stretch yet to get nod. The Hindu. <https://www.thehindu.com/news/cities/Coimbatore/proposal-for-speed-breakers-for-safe-animal-crossing-on-mettupalayam-kallar-stretch-yet-to-get-nod/article66040690.ece>

DTNext, 2021. Flyover at Kallar jumbo corridor soon, says Highways Minister EV Velu. <https://www.dtnext.in/News/TamilNadu/2021/12/21070739/1334998/Flyover-at-Kallar-jumbo-cocorridor-soon-says-Highways-.vpf>

Subburaj, A., 2021. Tamil Nadu: Flyover to facilitate elephant movement. The times of India. <https://timesofindia.indiatimes.com/city/coimbatore/flyover-to-facilitate-elephant-movement/artislide/88131623.cms>



8 Supplementary information

Estimation of principal indicators:

Seven principal indicators, namely area of natural habitat, area under forest department, threatened species richness, average human population, human modification index, landscape

complexity index, and natural habitat fragmentation index, were calculated to provide the overall status of the corridor. The method of estimating the value of each indicator is available online at <http://corridorcoalition.org/CWC/about.html>





**COALITION
FOR WILDLIFE
CORRIDORS**



**COALITION
FOR WILDLIFE
CORRIDORS**

The Coalition for Wildlife Corridors is a collaborative network of people and organizations working to advance connectivity conservation in India.



@cocoforwild



@cocoforwild



corridorcoalition.org



coalitionforwildlifecorridors@gmail.com