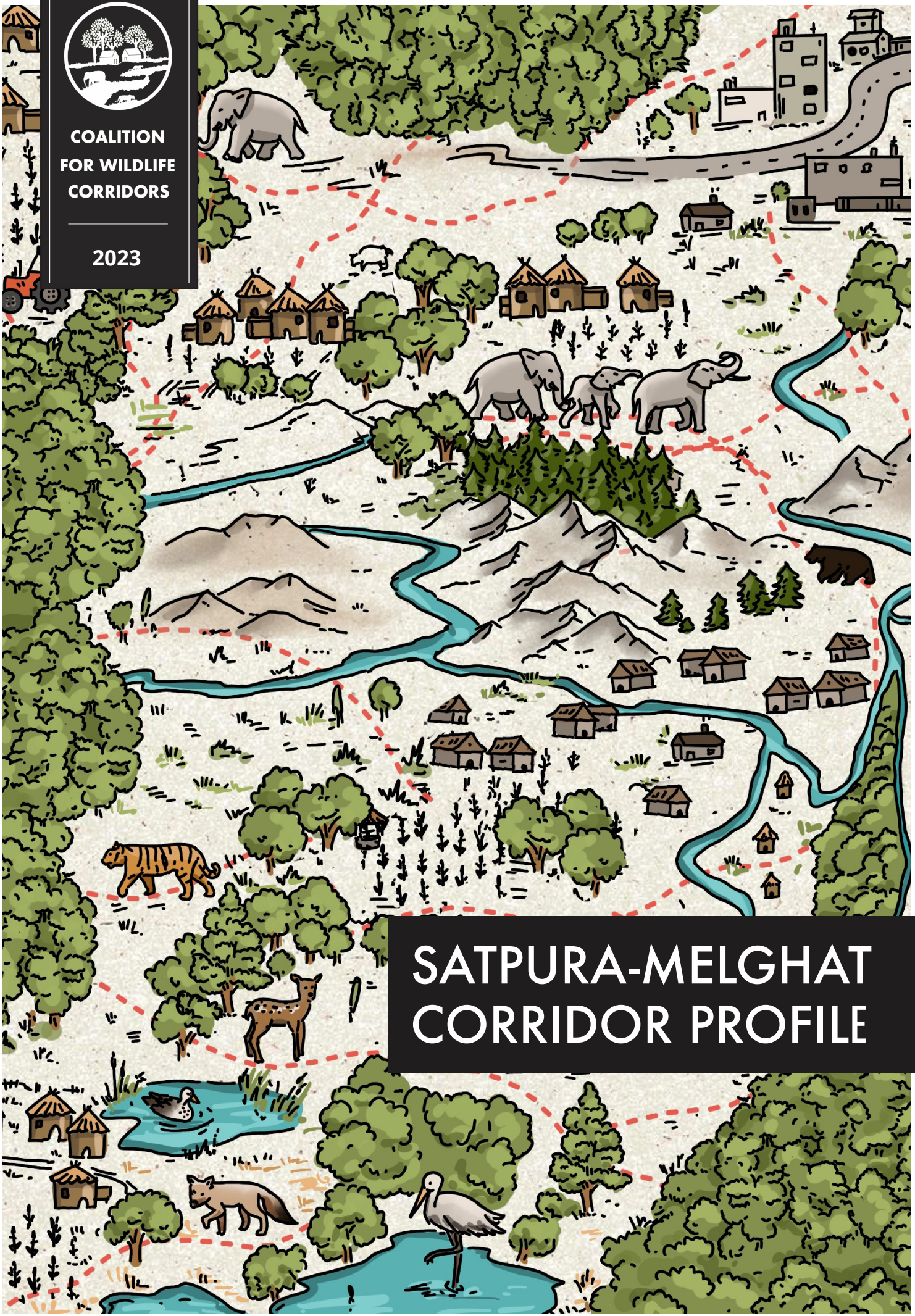
COALITION
FOR WILDLIFE
CORRIDORS

2023



SATPURA-MELGHAT CORRIDOR PROFILE

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SATPURA - MELGHAT
CORRIDOR PROFILE

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CORRIDORS

Content

Corridor Overview

The Satpura-Melghat Corridor connects the source tiger populations of Satpura Tiger Reserve in Madhya Pradesh and Melghat Tiger Reserve in Maharashtra and also forms important links with the Satpura-Pench and Melghat-Bor corridors. It is characterized by highly undulating terrain with dry deciduous forests, interspersed with farmlands. The corridor area is majorly inhabited by the tribal community (54 %) with Korku and Gond being the main tribes. This corridor offers excellent habitat for wildlife, including endangered species such as the Bengal tiger, Dhole, and Forest owlet. However, linear infrastructure, such as national and state highways, railway lines, and developmental projects such as thermal power plants, dams and Central Proof Establishment Range can affect the movement of free-ranging animals within the corridor area.

Area of natural habitat
High
60.57 %

Area under forest department
Medium
61 %

Threatened species richness
Low
26 species/km²

Human population
Medium
177 persons/km²

Human modification index
Medium
0.44

Natural habitat fragmentation index
Low
0.77

Landscape complexity index
Medium
0.93

Landuse change index
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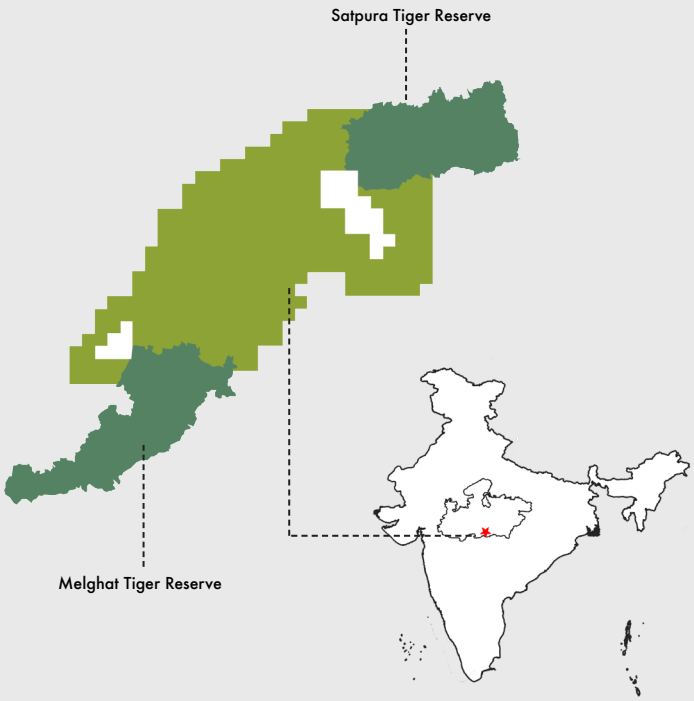
Habitat connected: Satpura and Melghat Tiger Reserves

Area of corridor: 7,325 km²

Focal species: Tiger, leopard, sloth bear

Major threats: Linear infrastructure; habitat degradation and fragmentation

CWC members: Wildlife Research and Conservation Society, Wildlife Conservation Trust



1 Corridor Significance

1.1 Importance of core habitats connected

Satpura Tiger Reserve (STR):
This tiger reserve is located in the Hoshangabad District of Madhya Pradesh in India, and has a population of about 40 tigers (Jhala et al., 2020). It has a core area of ~1339.26 km^2 and an additional area of ~794.04 km^2 forming a buffer zone. Bori Wildlife Sanctuary, Pachmarhi Wildlife Sanctuary, and Satpura National Park are the three protected areas that are included in the core area of the STR. The vegetation in this region comprises tropical dry to moist deciduous forest. Declared as the first biosphere reserve of Madhya Pradesh in 1999, STR is home to 42 threatened species. The biodiversity found here includes 52 species of mammals, 300 species of birds, and 31 species of reptiles.

Melghat Tiger Reserve (MTR):
This tiger reserve is located in Amravati District of Maharashtra bordering Madhya Pradesh in the North and East, and supports an estimated 46 tigers (Jhala et al., 2020). It has a core area of 1500.50 km^2, and an additional area of 528.56 km^2 forming a buffer zone. This tiger reserve consists of five protected areas - Gugamal National Park, Melghat Sanctuary, Narnala Sanctuary, Wan Sanctuary, and Ambabarwa Sanctuary. The vegetation in this region comprises tropical dry deciduous forests. The reserve has around 80 species of mammals, 263 species of birds, including the rare and endangered forest owlet, and 54 species of reptiles.

1.2 Wildlife utilising the corridor

Habitat-use surveys and genetic studies provide evidence of use of this corridor by tigers (*Panthera tigris*), leopards (*Panthera pardus*), and sloth bears (*Melursus ursinus*) (Dutta et al., 2013; Sharma et al., 2013; Yumnam et al., 2014; Kulkarni et al., 2021).

Striped Hyena
(Hyaena hyaena)

Several threatened carnivores such as dhole (*Cuon alpinus*) and striped hyena (*Hyaena hyaena*) as well as herbivores such as gaur (*Bos gaurus*), sambar (*Rusa unicolor*), and four-horned antelope (*Tetracerus quadricornis*) are found in this corridor (Kulkarni et al., 2021). Other species reported from the corridor include Indian grey wolf (*Canis lupus pallipes*), jackal (*Canis aureus*), rhesus macaque (*Macaca mulatta*), langur (*Semnopithecus sp.*), chinkara (*Gazella bennettii*), blackbuck (*Antilope cervicapra*), muntjac (*Muntiacus muntjak*), and nilgai (*Boselaphus tragocamelus*) (Kulkarni et al., 2021). The rare and endangered forest owlet (*Athene blewitti*) is also reported from parts of this corridor (Mehta et al., 2008). This corridor also supports different taxa of birds from passerine to migratory birds; some of the bird species found here include Indian blackbird (Turdus merula), ruddy shelduck (Tadorna ferruginea), northern pintail (Anas acuta), crested serpent eagle (Spilornis cheela), changeable hawk eagle (Nisaetus cirrhatus), honey buzzard (Pernis apivorus), brown fish owl (Bubo zeylonensis), and rock eagle owl (Bubo bengalensis), and several migratory cuckoos.

However, systematic information on other taxa of reptiles, amphibians, and fishes is not readily available. This will need further assessments through focussed biodiversity assays in the future.

Brown Fish Owl
(Bubo zeylonensis)

1.3 Importance for landscape-scale connectivity

The presence of tiger populations in the Satpura-Melghat region is contingent on maintaining habitat connectivity through functional corridors. Dutta et al., (2016) find the Satpura-Melghat corridor to have high centrality, implying that this corridor is important for supporting tiger movement across the Central Indian landscape. Modelling to predict tiger movement patterns and connectivity across the Central Indian landscape (based on data from Thatte et al., 2018) reveals an elaborate network of potential animal movement

pathways spanning forests and other land-use types between the Satpura-Pench and Satpura-Melghat corridors (Figure 1). Several news articles document evidence of tigers using these links (Times of India, 2021). A recent record of a radio-collared tigress traveling around 250 km from STR to reach Ambabarwa Wildlife Sanctuary, which is a part of MTR (Times of India, 2022) provides evidence that the corridor is functional and stresses the importance of protecting this corridor to ensure the functionality is maintained. Parts of the Satpura-Melghat corridor also overlap with the East-West oriented Satpura-Pench corridor, which further elevates the importance of this corridor, given that it may enable tiger dispersal between multiple protected areas.

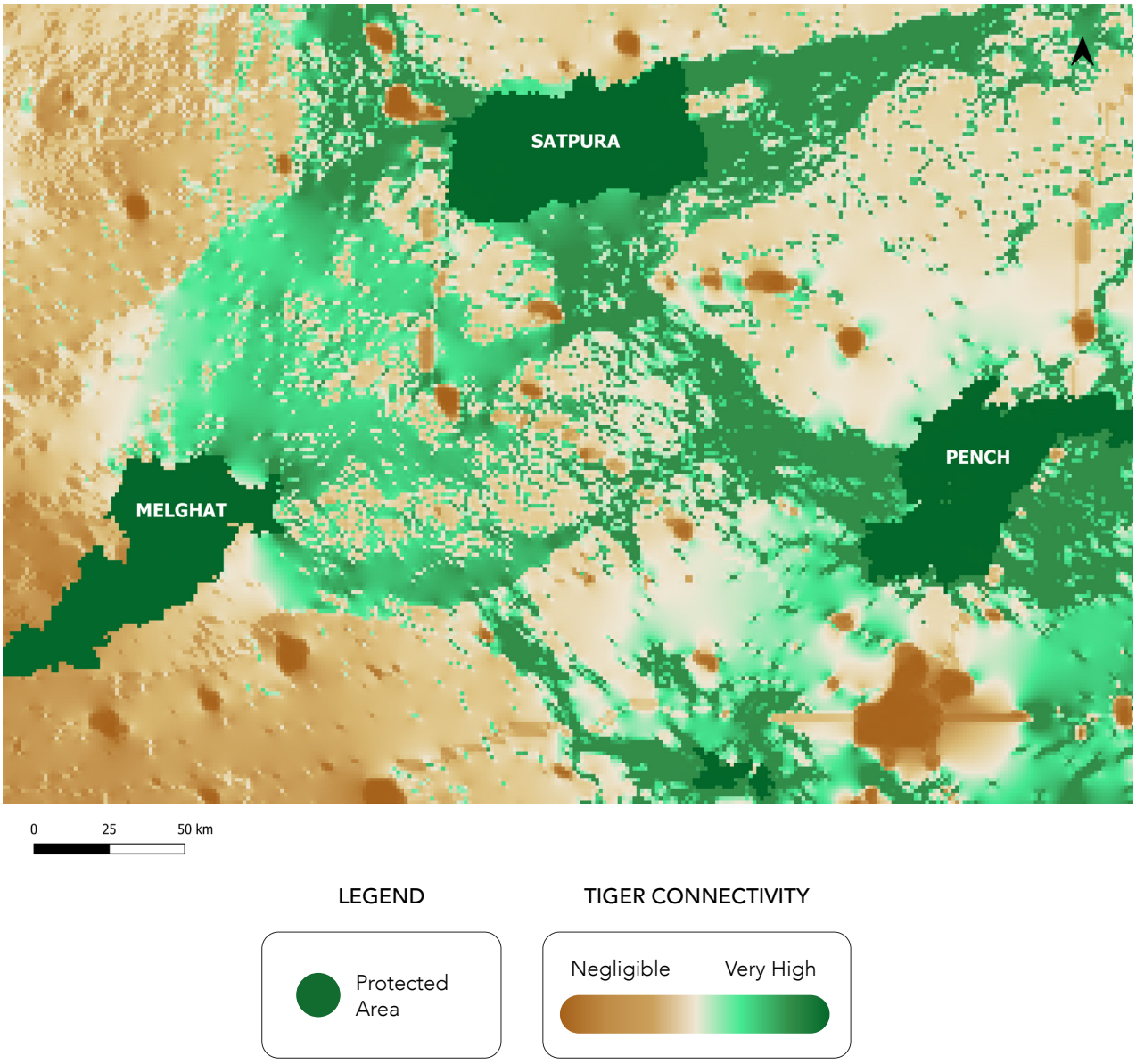


Figure 1: Tiger connectivity in the Pench-Satpura-Melghat region. Connectivity map was generated using a circuit theory based approach and a base map from Thatte et al., (2018). Green regions depict the areas most likely used by dispersing tigers and the brown regions depict areas that impede movement.

2 Corridor Characteristics

2.1 Boundaries

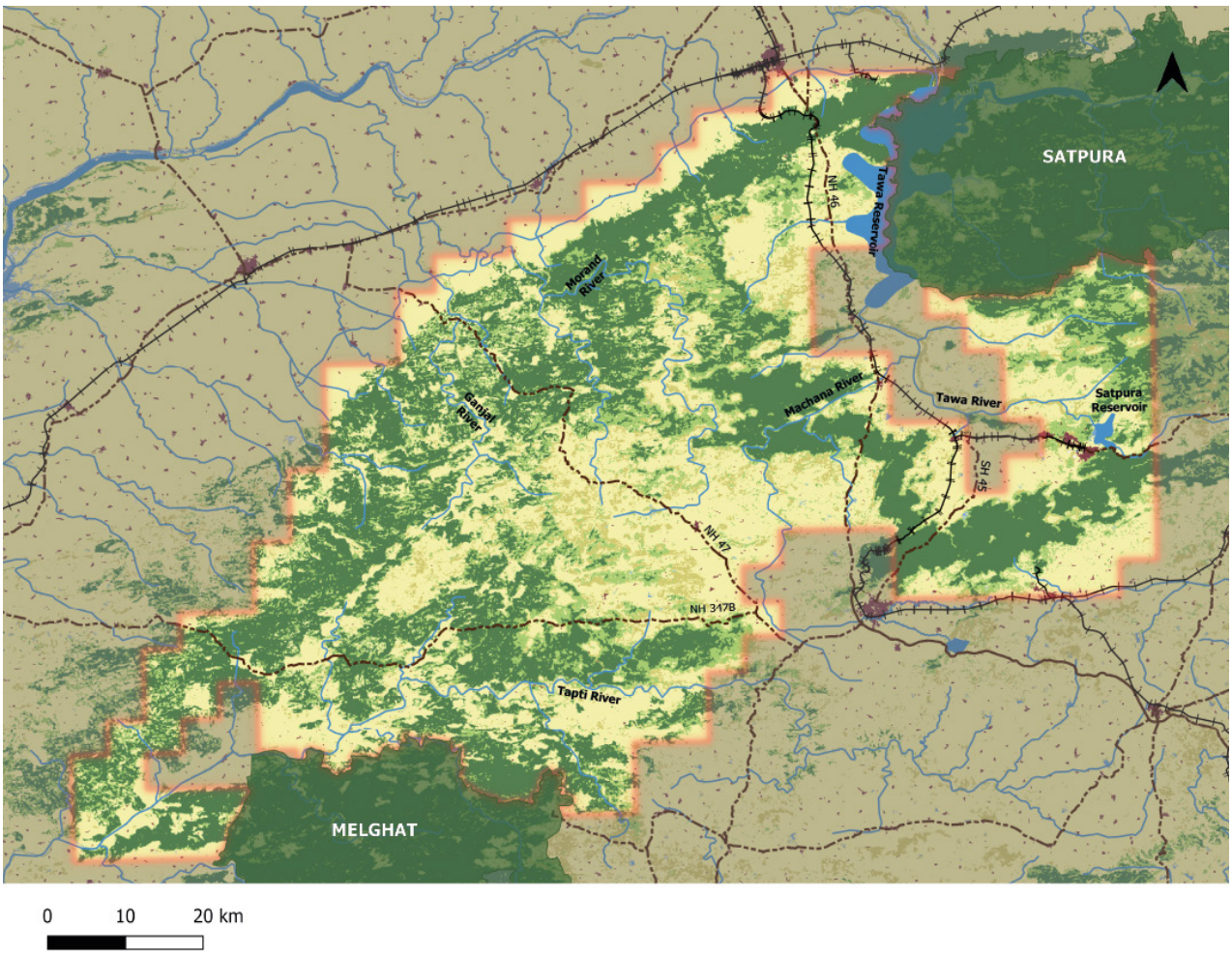


Figure 2: Map showing a crude boundary of the corridor between Satpura and Melghat tiger reserves along with the river and road networks

Delineating precise boundaries of a corridor is often a challenge. We carried out crude delineation of the corridor boundary using a circuit-theory based modelling approach (Figure 2) (Delineation details included in supplementary information). While crude boundaries have been

delineated for the corridor, there are several movement paths and areas around the corridor that are likely to be important for connectivity across the landscape. There are links that connect the Satpura-Melghat corridor to the Satpura-Pench corridor and Melghat-Bor corridor (Figure 1). The corridor starts along the northern part of MTR and splits into two arms towards STR - one arm joining the western side of STR and the other connecting the southern side of STR. The corridor is spread across the Hoshangabad, Harda, Khandwa, North Betul, South Betul, West Betul, and Melghat territorial forest divisions (Figure 3).

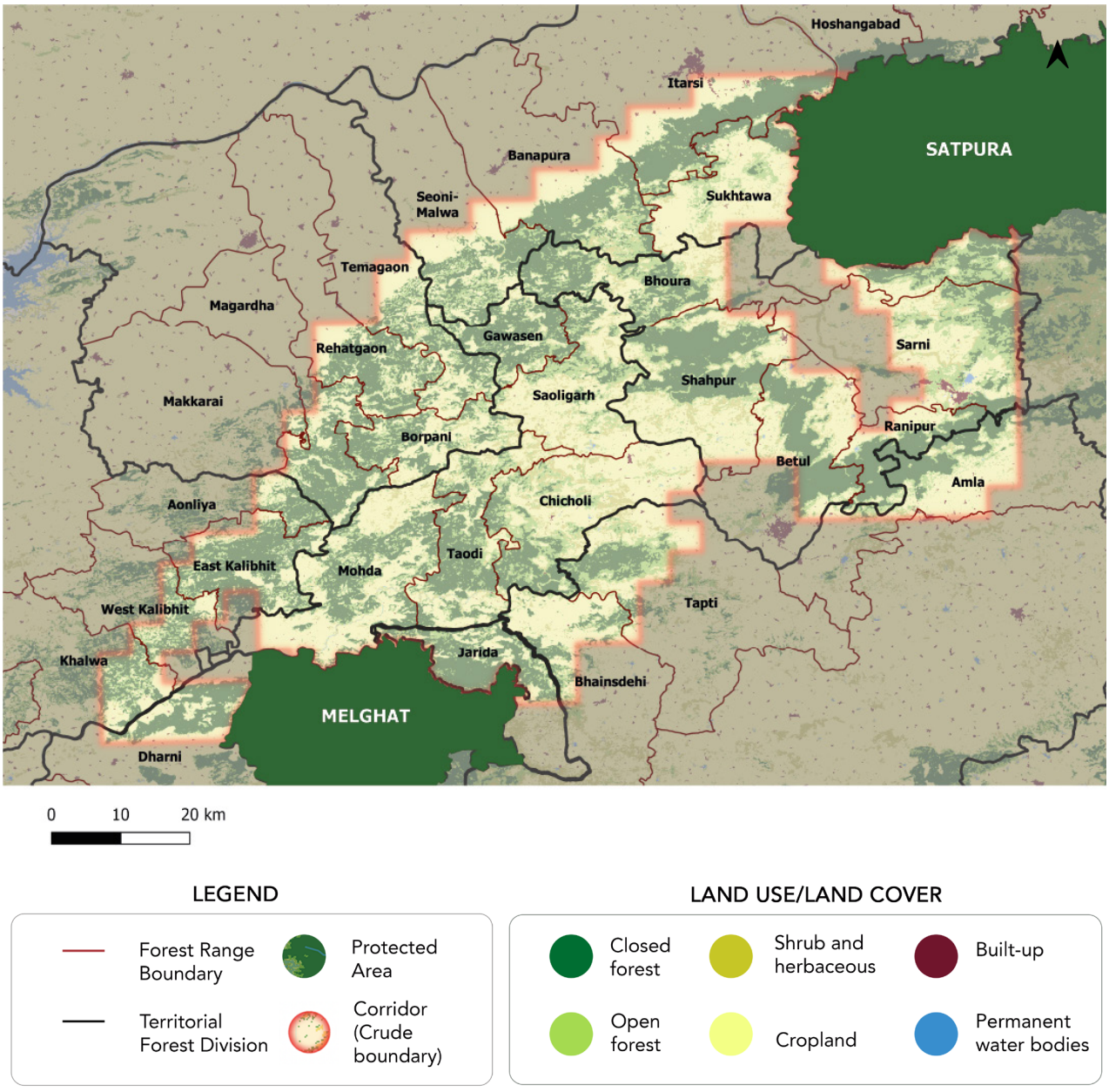


Figure 3: Administrative map representing the territorial forest divisions overlapping the Satpura-Melghat Corridor

Table 1: List of territorial forest divisions and the corresponding ranges that overlap with the Satpura-Melghat Corridor

Territorial Forest Division	Range Name
Hoshangabad	Hoshangabad, Itarsi, Banapura, Seoni Malwa, Sukhtawa
Harda	Temagaon, Rehatgaon, Borpani, Magardha, Makkarai
North Betul	Sarni, Ranipur, Betul, Shahpur, Bhoura
South Betul	Amla, Tapti, Bhainsdehi
West Betul	Gawasen, Saoligarh, Chicholi, Taodi, Mohda
Khandwa	Aonliya, East Kalibhit, West Kalibhit, Khalwa
Melghat Territorial	Dharni, Jarida

Table 2. List of districts, tehsils, and tehsil area overlapping the Satpura-Melghat Corridor

District Name	Tehsil Name	Tehsil Area (in km^2)
Betul	Bhainsdehi	1482.66
Betul	Betul	341.72
Betul	Chicholi	722.29
Betul	Ghoda dongri	964.36
Betul	Shahpur	759.54
Betul	Amla	175.13
Harda	Sirali	25.12
Harda	Harda	27.79
Harda	Rehatgaon	851.40
Hoshangabad	Seoni malwa	536.72
Hoshangabad	Itarsi	543.65
Hoshangabad	Dolariya	0.22
Chhindwara	Jamai	1.55
East Nimar	Khalwa	538.84
Amravati	Dharni	150.66
Amravati	Chikhaldara	203.89

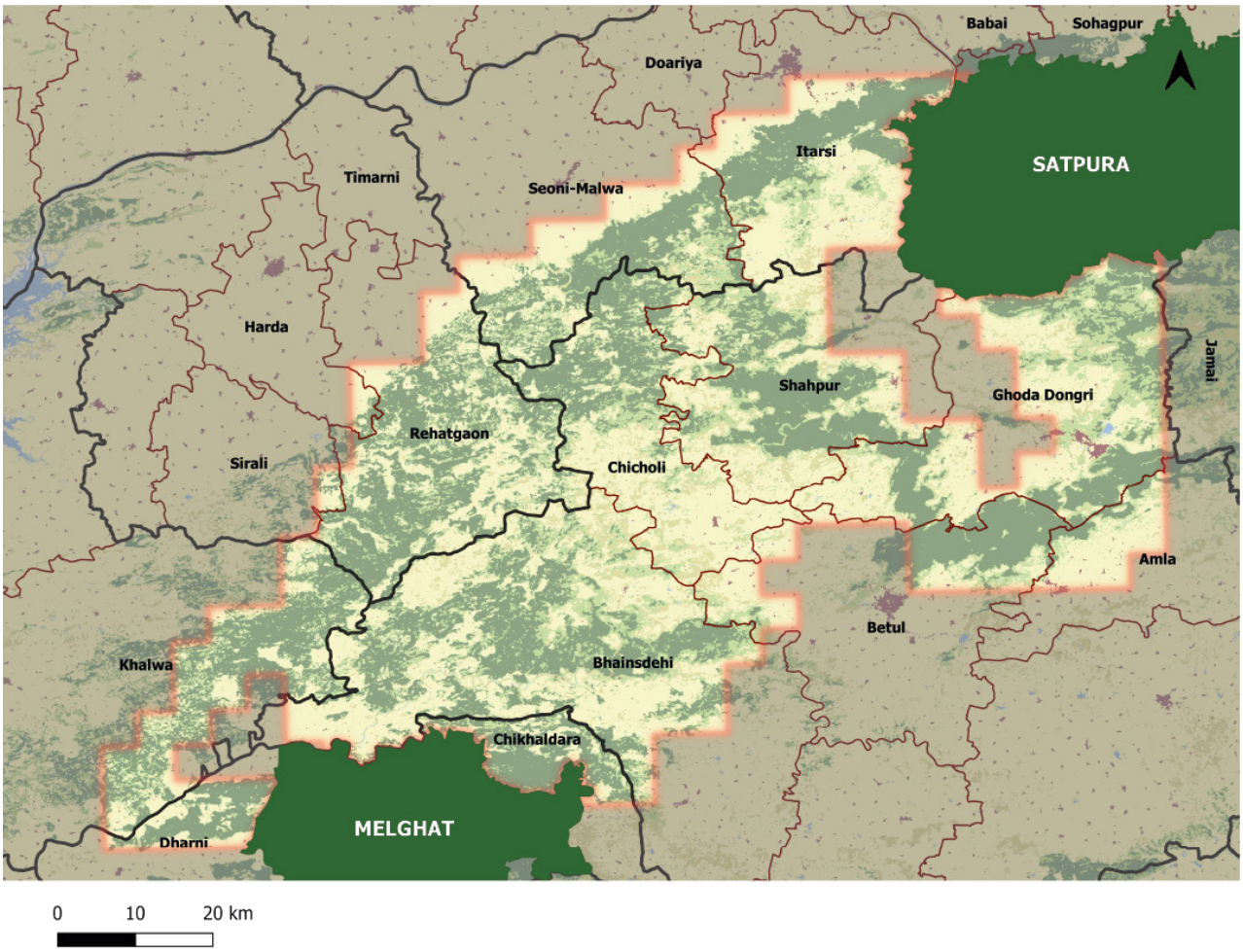


Figure 4. Administrative map representing the districts and tehsils overlapping the Satpura-Melghat Corridor. Betul district: Bhainsdehi, Betul, Chicholi, Ghoda dongri, Shahpur, and Amla tehsils; Harda district: Sirali, Harda, and Rehatgaon tehsils; Hoshangabad district: Seoni malwa, Itarsi, and Dolariya tehsils; Chhindwara district: Jamai tehsil; East Nimar district: Khalwa tehsil; and Amravati district: Dharni and Chikhaldara tehsils

2.2 Physical characteristics

The Satpura-Melghat Corridor is located in Satpura Hills in the central Indian plateau and encompasses a total area of around 7325 km^2. The corridor is mainly characterized by hilly terrain with steep mountains (316–865 m). Vegetation found in the corridor comprises dry deciduous forests interspersed with agricultural tracts (Dutta et al., 2016). Some of the commonly found tree species in this region include teak (*Tectona grandis*),

mahua (*Madhuca longifolia*), tendu (*Diospyros melanoxylon*), saaj or Indian laurel (*Terminalia elliptica*), palash (*Butea monosperma*), arjun (*Terminalia arjuna*), lendia (*Lagerstroemia parviflora Roxb.*), dudhai *(Wrightia tinctoria*), and dhawda or axle wood tree (*Anogeissus latifolia*).

2.3 Hydrology

The average annual rainfall in the region is 1265 mm, and all rivers flowing in the corridor area are prone to flooding as a result of quick response to the rainfall events.

The corridor area is drained by the Tapi, Narmada, and Godavari river basins, which drain 66 %, 32 %, and 2 % of the total corridor area, respectively. The headwater of the Tapi river is located within the corridor area. The Tapi river runs across a length of 92 km and is joined by nine tributaries within the corridor area, which include the Ganjal, Chamal, Tingriya, Khursi, Khal, Betul, Labada, Gadhakha, and Nishana. It is a non-perennial river as the drainage area includes shallow valleys, and the flow in the river is primarily contributed by rainfall. The corridor is also drained by five tributaries of the Narmada river, namely the Tawa, Mancha, Morand, Ganjal, and Bhaji. There is a major intervention in the Tawa river, Satpura Reservoir, which has a water extent area of 1000 ha. Another reservoir—the Tawa Reservoir—forms the northern boundary of the corridor area. A small area of the corridor also contributes to the headwaters of the Wainganga river.

Steppe Eagle
(Aquila nipalensis)

2.4 Land use within corridor

Most of the area within this corridor (~60 % of the total area) is forested, and another 39 % of the area is under agriculture. There are two major cropping seasons in the corridor area: Rabi (October–May) and Kharif (June–October). Agriculture in this region is largely dependent on monsoon owing to water scarcity, especially in the Hoshangabad, Harda, and North Betul divisions. These divisions are located within the Narmada basin, where intensified irrigation during the Rabi season is a major cause of water

scarcity (Clark et al., 2016, Kulkarni et al., 2021). Major crops grown in the corridor are wheat, chickpea (chana), and green gram (moong) in the Rabi season and paddy, maize, sorghum (jowar), soybean, and pigeon pea (toor) in the Kharif season. The major non-timber forest products (NTFP) that are harvested by tribals during March-April include mahua flowers and tendu leaves. Mahua flowers are either used for self-consumption or sold in the market, whereas tendu leaves are primarily used in manufacturing *beedi*, a thin cigarette wrapped in tendu leaves.

Only 0.4 % of the corridor constitutes urban area. Sarni is the biggest town within the corridor and has a thermal power plant, the Satpura thermal power station (Figure 5), and a dam on the Tawa River. Betul, a major city and the district headquarters, is situated close to the southern boundary of the corridor. Due to the combined effects of urbanisation and forest degradation, the corridor has a gap in structural connectivity to the north and west of Betul town. There are a few forest patches in this gap, which can likely serve as stepping stone habitats if they are protected and restored. Chicholi, Khalwa, and Rehatgaon are small towns inside the corridor, whereas Ghodadongri and Shahpur are small towns situated at the boundary of the corridor.

Satpura-Melghat Corridor is a multi-use landscape with agricultural fields (wheat crop field) adjacent to forest land © Kaushal Chauhan

2.5 Critical corridor areas

Critical corridor areas are those areas which encompass a diversity of species along with human-induced hurdles to wildlife movement by acting as potential barriers. These barriers include linear intrusions such as broad gauge railway lines, roads, and human settlements. We identified an area as critical if two or more studies provide evidence to support it. Here, we outline seven critical areas (Figure 5) which need further attention from policy makers and conservationists to strengthen the connectivity of the Satpura-Melghat Corridor.

Box 1:

This area lies in the Itarsi range (Najarpur, West Bhirjdev, Saheli, and Gomti beats) and Sukhtawa range (Nayapur, Kelsa, and Taku beats) of the Hoshangabad territorial forest division. The railway line connecting Betul and Itarsi, the national highways connecting Betul to Obedullaganj and Gwalior (NH46) pass through this area. Central Proof Establishment Range at Taku (Itarsi) (Figure 5) might act as a potential barrier to the movement of tiger and other species (Dutta et al., 2018). This area can be considered as a bottleneck where movement of dispersing animals gets funneled through a narrow area (Figure 5). Dutta et al., 2016 identify this area to have multiple pinch points - narrow constricted areas through which movement of dispersing animals gets channelled due to lack of areas favourable for dispersal around them. Loss of permeability through these pinch points can have a disproportionate impact on connectivity. Despite the limitations (presence of Itarsi-Betul railway line, NH46) in this area, 10 mammal species were observed here through sign surveys (Kulkarni et al., 2021).

There has also been an expansion of a four-lane highway (NH 46) by National Highway Authority of India (NHAI) for the Betul-Obedullaganj section. However, the Madhya Pradesh High Court issued a notice to NHAI in response to a PIL asking whether NHAI had obtained clearance from National Tiger Conservation Authority and National board for Wildlife for this expansion. As stated in the article NHAI has updated that all the requisite permission except fro NTCA's for construction of road from Betul-Obedullaganj has been obtained (Times of India, 2022)

Box 2:

This area falls in the Shahpur range (parts of East Baretha, Bancha, and Khari beats) and Betul range (parts of East Kharagondi, West Kharagondi, Umarvani, and Dharakhoh beats) of the North Betul territorial division. The national highway connecting Betul to Gwalior (NH46) and the railway line connecting Betul with Itarsi passes through this area and acts as a potential barrier to wildlife movement (Dutta et al., 2018). The area corresponding to

Box 2 has evidence of dhole activity, along with other mammals. In 2020, a tiger from MTR used sugarcane fields as a refuge near Umarvani beat and crossed NH46 to reach STR (Kulkarni et al., 2022). Satpura Thermal Power Plant (STPP) is also located in Sarni range next to Betul, which can also act as a potential barrier for animal movement.

Box 3:

This area falls in the Temagaon range of Harda territorial division, Seoni Malwa range of Hoshangabad territorial division, and Gawasen and Saoligarh ranges of West Betul territorial division. Uskali and Kapni beats of Harda; Amakatara, Kothi, Dekna and Noniya beats of Hoshangabad; and Khokhrakhera, Gawasen, Tanda, Kurasana, Amapura, Ajai, Chirapatla, and Alamgarh beats of West Betul fall in this critical corridor area. The national highway connecting Betul and Indore (NH47), which passes through this area, has moderate intensity of vehicular traffic that leads to occasional wildlife casualties (Kulkarni et al., 2021). Further expansion of NH47 to four lanes has been proposed in this area by NHAI (Pariwakam et al., 2019), which can pose a major hurdle for wildlife movement (Dutta et al., 2018). This area supports all major mammal species found in central India (Kulkarni et al., 2021).

Box 4:

This area falls in the Shahpur range of North Betul territorial division and Saoligarh range of West Betul territorial division. Nimiya, Sangwani, Parsada, Barjorpur, Selda, West Tara and Tara beats fall in this area. Visually, this area seems to have relatively poor structural connectivity compared to the entire corridor, often restricting the permeability to wildlife (Dutta et al., 2015; Dutta et al., 2018). The land use type primarily includes farmlands and human settlements. The main villages include Kajli, Sitadongri, Tendukheda Ryt, and Dundar, which have high

Satpura thermal power station, Sarni. © Kaushal Chauhan

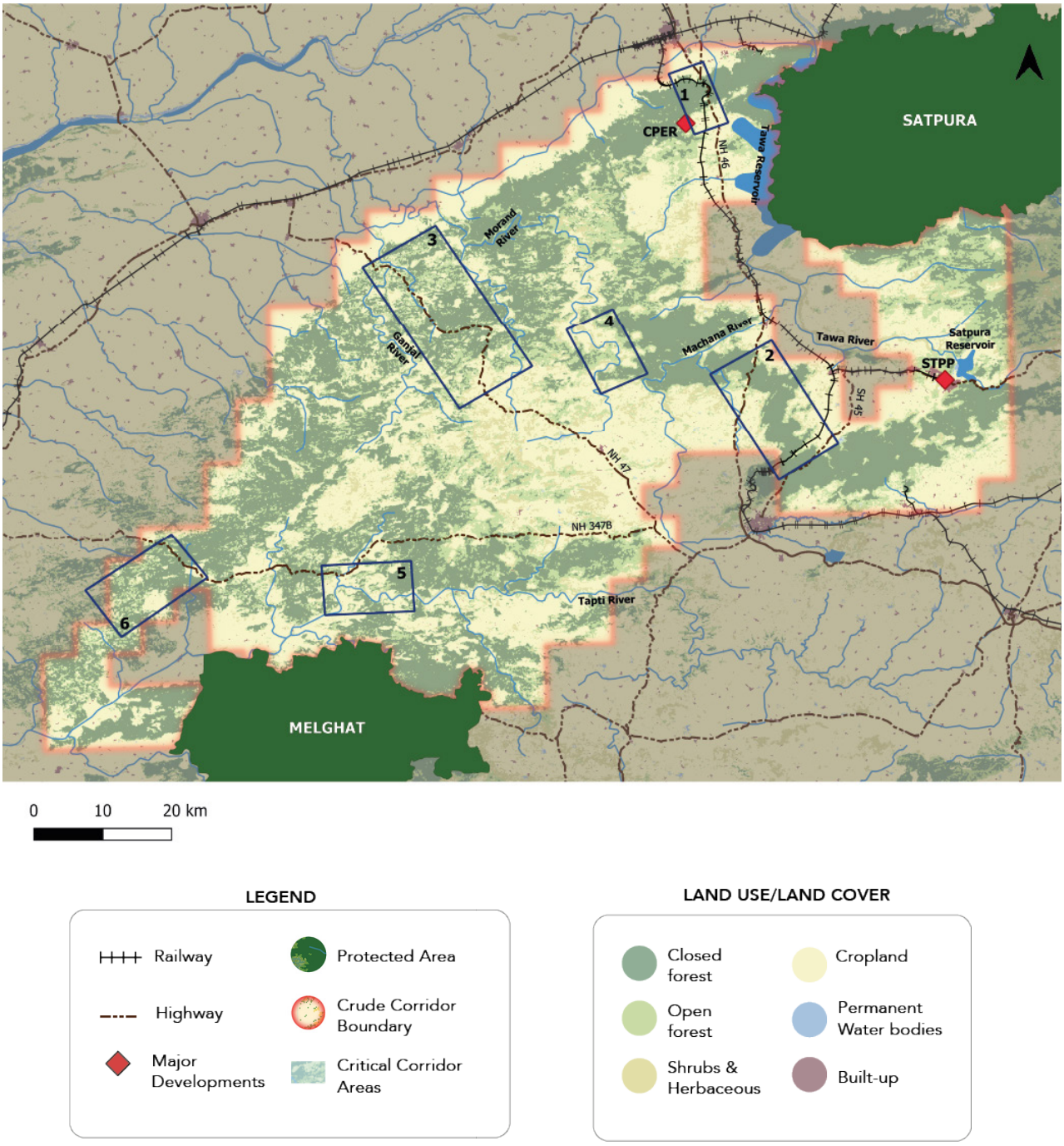


Figure 5. Critical areas (represented by Boxes 1–7) in the Satpura-Melghat Corridor. Two major developmental projects, namely Central Proof Establishment range (CPER) and Satpura Thermal Power Plant (STPP), are located within the corridor

degrees of human modification (Figure 6) (Kennedy et al., 2019).

Box 5:

This area lies in the Mohda and Taodi ranges of West Betul territorial division. The major villages include Kiding Ryt, Labada Ryt, Naharpur, and Dabida. This mosaic area falls near the state border between Madhya Pradesh and Maharashtra, and it is largely interspersed with agricultural land along the shore of Tapti river, with presence of human habitation. The degree of human modification is moderate with varying village sizes (Census of India, 2011). This also accounts for past poaching incidents of tigers which were reported

by the forest department in this region (Kulkarni et al., 2021). In addition, the Tapti river may become a temporary barrier for animals moving in and out of MTR during monsoons.

Box 6:
This area falls in the Khandwa division across East Kalbhit and West Kalibhit ranges. A survey led by Wildlife Research & Conservation Society documented endangered forest owlet in this region (Mehta et al., 2008). A wildlife sanctuary has long been proposed in this region, which can help protect both endangered birds and mammals in this area (Times of India, 2019).

NH 46, passing through the critical area represented in Box1, is being expanded without any mitigation measures (April, 2022). © Prachi Thatte

3 Stakeholders and Management

3.1 Land tenure, holding, and legal status

Most of the forested land in the corridor area is under the administration of the Forest Department. The remaining land is variously owned and managed by diverse government agencies, or is privately-owned revenue land. In terms of major industry and institutional establishments within the corridor, the Ordnance Factory and Central Proof Establishment range at Itarsi is one key establishment that is spread across 165 ha of hilly and forested terrain. It is managed by the Ministry of Defense and is used for quality assurance services for arms, ammunition, equipment, and stores supplied to armed forces. Other establishments include the Rajabarari estate, a private land holding society situated near Rajabarari village of Harda forest division spread across 32.32 km^2 out of which 17.84 km^2 is declared as protected teak forest by the Government of Madhya Pradesh (The Asian Age, 2010).

Within the corridor area, a new wildlife sanctuary spanning 425 km^2 has been long proposed in the Kalibhit region of Khandwa division (Times of India, 2019).

Livestock in the corridor © Pavan Chikkanarayanaswamy

3.2 Settlements and Communities

The Satpura-Melghat Corridor has an average population density of 177 persons/ km^2 with around 732 villages, a few small towns, and no major cities. Around 54 % of the population belongs to tribal communities and ~9 % belongs to scheduled castes. The major tribal communities in the corridor are Korku and Gond, along with a sparse population of Rathiya. The other main community is Yadav (listed as other backward classes or OBC) (Kulkarni et al., 2021). Adivasi communities residing in the corridor are largely dependent on agrarian practices, daily labour, and NTFP collection.

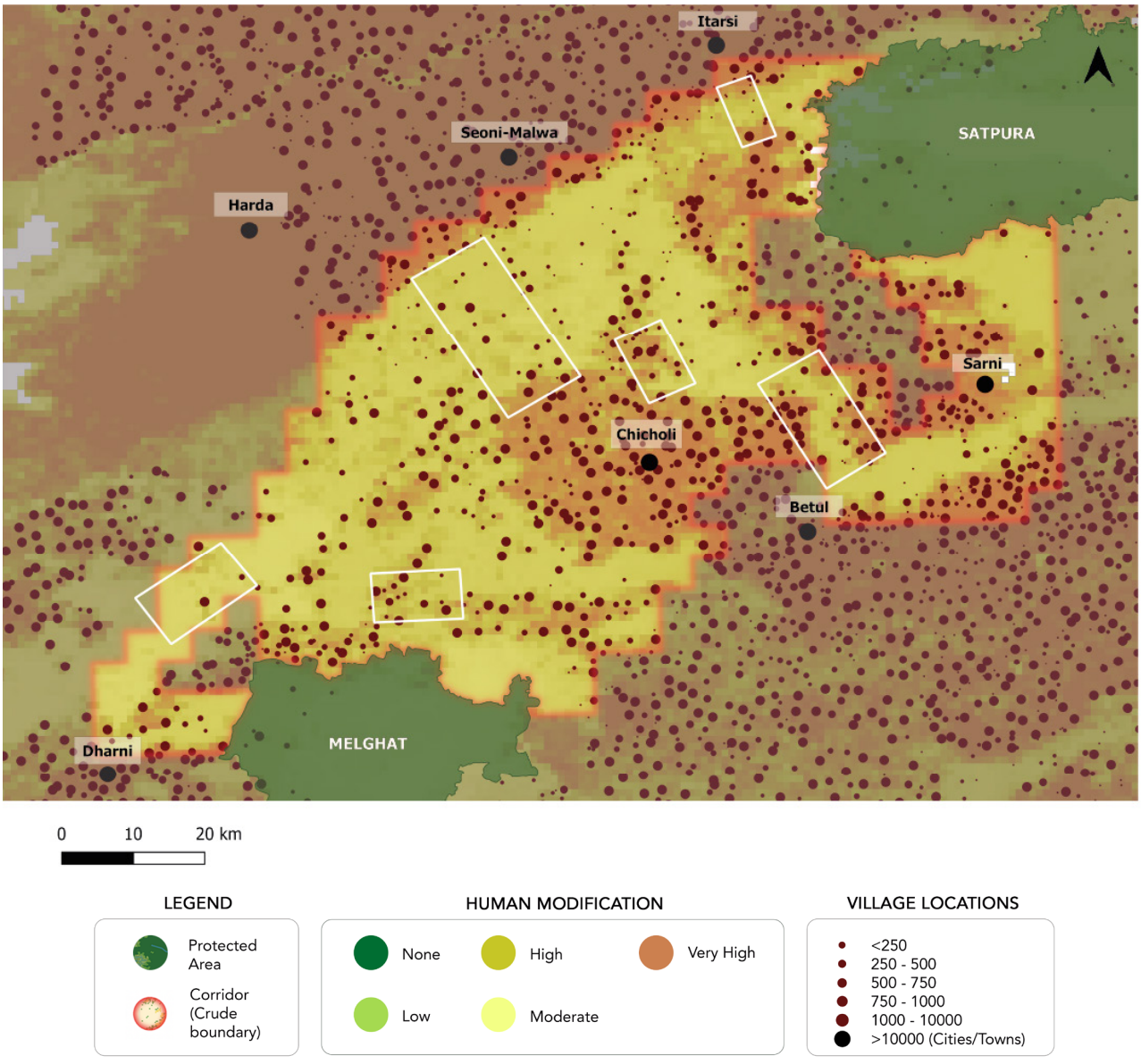


Figure 6. Map showing the extent of human modification across the corridor based on Kennedy et al. (2019) and locations and sizes of villages within the corridor. We did not have locations of villages within Harda district. White boxes represent critical areas

4 Challenges

4.1 Infrastructure

The average density of linear infrastructure in the Satpura-Melghat Corridor is around 51.74 m/km$^{2.}$ Linear infrastructure, such as road networks and railway lines, has a negative impact on the movement of wildlife in the corridor. For example, a tiger cub was run over by a train near Itarsi in May 2021 (Times of India, 2021).

Railway:

The total length of railway lines passing through the corridor is 147 km. This includes two broad gauge railway lines running from Itarsi to Nagpur via Betul and Itarsi to Jabalpur.

Roads:

The total length of all national highways passing through the corridor area (NH59A, NH46, NH347B, and NH548 C) is around 219 km, whereas the total length of state highways traversing the corridor (SH26, SH41, SH45, and MSH6) is around 37 km. Developmental projects in the corridor include the widening of National Highway NH59A to four lanes at two sections (Wildlife Conservation Trust, 2019). The road has also been considered for upgradation with paved shoulders by the Public Works Department of the Government of Madhya Pradesh, which will further restrict wildlife movement (Wildlife Conservation Trust, 2019, unpublished). The expansion of road networks will further restrict movement of wildlife and create more patchy, discontinuous habitat. Roadkills of the golden jackal and various species of civets are routinely reported from the corridor area, especially on the stretch of NH59A passing through the corridor. Even the vulnerable sloth bear has been reportedly roadkilled on NH46. Mitigation measures to counter wildlife-vehicle collisions in the corridor area are insufficient; there is a lack of wildlife crossing sign boards and wildlife underpasses on the highways intersecting the corridor. The main highways that pose threats to connectivity in the corridor area include NH59A, NH46, and SH26.

Cheetal
(Axis axis)

4.2 Human-wildlife conflict

A majority of the human-wildlife conflict (based on pilot survey conducted in 19 villages of the corridor) involves sloth bears, with most of the conflict resulting in human injury. The frequency of human fatalities is low (Kulkarni et al., 2021). Apart from government compensatory schemes for wildlife-inflicted injuries and deaths, there are no other interventions for human-wildlife conflict in this corridor. Crop damage due to wild boars and other ungulates is another concern faced by farmers in this corridor, however the actual extent of conflict has not been systematically mapped or quantified.

4.3 Illegal activities

Animal poaching and teak logging are illegal activities that have been reported from this corridor (Kulkarni et al., 2021). Tiger, leopard, blackbuck, wild boar, and sambar are among the species reported in poaching incidents. Certain regions of the corridor face deforestation and fragmentation due to forest encroachment, however the reported intensity of forest encroachment is low (Kulkarni et al., 2021).

Asiatic wild dog
(Cuon alpinus)

5 Recommendations

1. Budget allocation for the monitoring and conservation of wildlife populations and communication between the Forest Department from the concerned tiger reserves (STR, MTR and PTR) with the Forest Department from territorial divisions is required to maintain an active plan towards wildlife use of this corridor. Budget should be allocated to territorial divisions for wildlife management and wildlife monitoring within the corridor.

2. Satpura-Pench and Satpura-Melghat corridors have several connections between them (Section 1.3). Hence, from a conservation planning perspective, it would be pertinent to consider both these corridors as inter-connected linkages, so that the branches connecting the two corridors that are used by wildlife also get conserved. This will require congruence between the tiger conservation plans of STR, MTR, and PTR, along with working plans of the territorial forest divisions that overlap with the two corridors.

3. There is no information on the presence of stepping stones within the corridor that can serve as habitat and support resident populations of tiger and dhole. Presence of resident populations of these species in the corridors should be assessed that can further help in identifying priority areas.

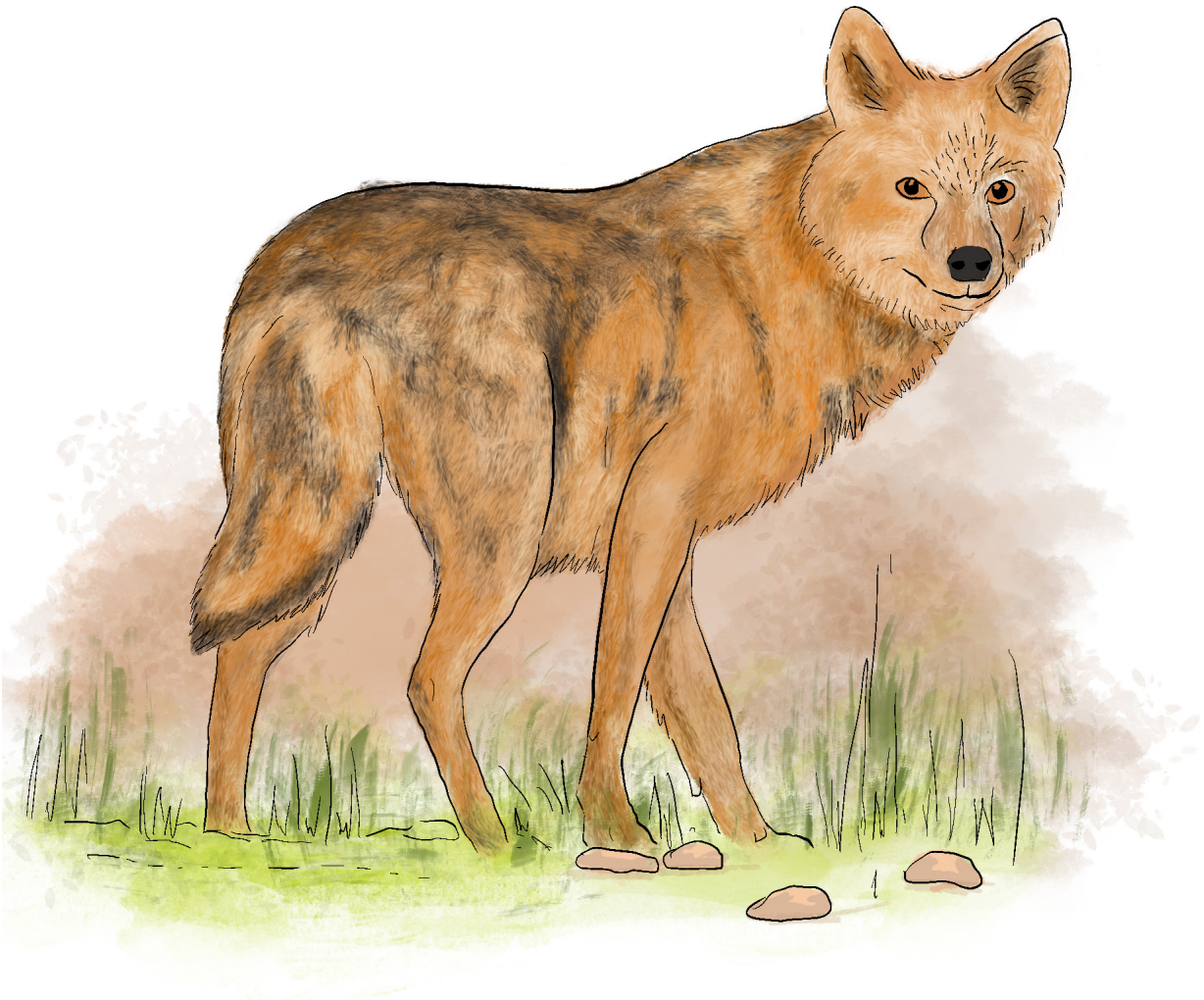
4. A mandate that can equip the territorial Forest Department towards better wildlife monitoring should be prepared. This can be done by organising workshops for the Forest Department personnel regarding camera traps deployment, wildlife monitoring (regular patrolling, sign surveys, line transects, etc.) up to range/beat level, and undertaking basic biodiversity surveys up to range/beat level once or twice a year. Furthermore, wildlife management recommendations should be incorporated in the working plans.

5. A dedicated focus with respect to occurrence of wildlife across Betul town (Critical area represented by Box 2 in Figure 5) can be incorporated since north and west of Betul has a few patches of stepping stone habitat for movement of wide ranging species from STR to MTR.

6. Central Indian landscape including Satpura-Melghat Corridor has been reported to have considerable grazing pressure (Mehta et al., 2008; Mondal and Southworth, 2010). Understanding how livestock densities and grazing

pressure impacts grasslands and wild herbivore species will be helpful for management of the corridor (Kulkarni et al., 2021).

7. The long proposed wildlife sanctuary spanning 425 km^2 in the Kalibhit region of Khandwa division should be given priority with further biodiversity assays (Times of India, 2019). The region can be assessed for presence of the endangered forest owlets (Mehta et al., 2008).



Golden jackal
(Canis aureus)

6 Opportunities

This corridor has potential for community-based conservation. Opportunities for ecotourism are limited, since wildlife sightings are poor. A shift in focus towards developing sustainable agroforestry could be considered. The ongoing timber harvesting in the forests of the Satpura-Melghat Corridor by the Forest Department can be made more sustainable by modifying the timber harvesting practices to include wildlife conservation considerations.

Mixed Forest in the Satpura Melghat Corridor landscape, Hoshangabad division © Kaushal Chauhan

7 Ongoing Conservation Activities

Government Schemes:
The main government-managed conservation activities in the corridor are Van Suraksha Samiti and Shyama Prasad Mukherjee Samiti (Kulkarni et al., 2021). Under Van Suraksha Samiti scheme of Madhya Pradesh, the government sanctions money for community development through the sale of sustainably-harvested timber. The Shyama Prasad Mukherjee Samiti scheme of Maharashtra provides financial support to villages for its development whilst promoting conservation-related activities.

Wildlife Conservation Trust (WCT):
WCT is actively involved in conservation-related activities in the corridor area. In 2019, the organisation identified and recommended the construction of 13 underpasses across National Highway 59A in West Betul division (WCT Report, 2019, unpublished). In addition, a study on linear infrastructure in the corridor is being planned by the WCT.

Mixed Forest in the Jarida range © Pavan Chikkanarayanaswamy

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9 Supplementary Information

Delineation of the crude corridor boundary:

The indicators and the quantitative description in the corridor profile have been calculated using a crude corridor boundary. Circuit theory based modelling approach was used to identify the corridor based on resistance surface generated using genetic data (Thatte et. al., 2018). The cumulative current output values were classified into 10 quantiles and top four quantiles were chosen. Corridors were also identified based on the same resistance surface separately using linkage mapper for comparison. While most of the areas identified by the two approaches overlapped, linkage mapper did not identify some areas that are known to be used by wildlife. Hence, the two outputs were combined and overlaid with the least-cost-corridor identified in (Qureshi et al., 2014). A 5 km x 5 km grid was overlaid on the combined output and grid cells that overlapped with the identified potential corridor areas were selected and dissolved to get the final boundary represented on the map (Figure 2).

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

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

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