Comprehensive Biodiversity Conservation Plan

Report Submitted to the Regional Office, MoEFCC, Bhubaneshwar

September 2023

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Cover photo: Little Owl, Trans-Himalayas, North Sikkim

Photo credit: Mr. Lakpa Tenzing Sherpa, Yuksom, Gyalshing district

Back cover photo: *Rhododendron glaucophyllum* - Sikkim is home to as many as 38 species of Rhododendrons

Photo credit: Dr. Sandeep Tambe, Forest and Environment Department, Government of Sikkim

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FOREST AND ENVIRONMENT DEPARTMENT
GOVERNMENT OF SIKKIM
GANGTOK

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Executive summary

The Comprehensive Biodiversity Conservation Plan has been prepared in response to the four new linear infrastructure projects being constructed by the Powergrid Corporation of India, Energy and Power Department, Government of Sikkim and the Border Roads Organization in Mangan and Namchi districts of Sikkim with a declared financial outlay of Rs 1160.772 crores. The two roads are required for providing defence purpose connectivity for rapid movement of troops, transportation of commodities, armaments and other essential facilities to defence needs. They roads give connectivity to the Indo-China border and are hence, important from strategic point of view. Instead of a piecemeal approach, a comprehensive proposal has been prepared to account for the cumulative impacts and to also ensure transparency and efficiency during execution. The Khangchendzonga landscape in the Eastern Himalaya is the third highest landscape globally and the highest and steepest terrain in the country. This area is also a biodiversity hotspot spanning across both the greater Himalaya and the Trans-Himalaya and lies in the fringe of the Khangchendzonga National Park - a UNESCO designated world heritage site. This landscape harbours significant biodiversity including several rare, endangered and threatened species. This region also forms the corridor of the Royal Bengal Tiger and there is evidence of it migrating from the neighbouring Neora Valley National Park in West Bengal.

The main thrust of this proposal is to mitigate the threats to biodiversity arising out of the new linear infrastructure coming up and the consequent rise in human presence. The main threats perceived are rising human wildlife conflict and predation by feral dogs. While the main gaps are limited infrastructure, human capacity and research inputs. The project aims to address these threats and gaps by developing an integrated biodiversity management plan. The main components of this plan are human wildlife conflict management, strengthening forest protection, strengthening participatory conservation, strengthening forest protection infrastructure, reducing wildlife predation by feral dogs, strengthening ex-situ conservation, mitigation of biodiversity loss due to project-driven landslides and erosion, promoting technology in forestry operations, building capacity, educational campaigns and research and knowledge management. The total budget of this plan amounts to Rs 29.02 crore for a period of 3 years. The monitoring mechanism has also been spelt out. The wildlife passage plan adapted to this steep mountain terrain is also provided along with the non-structural mitigation and management measures. The plan has been approved by the Chief Wildlife Warden for onward submission to the Regional Office of MoEFCC.

1. Unique context and biodiversity values

The impacted area spans across the northern and central part of the Khangchendzonga landscape in the Eastern Himalaya which is the third highest landscape globally and the highest and steepest terrain in the country. This area is also a biodiversity hotspot spanning across both the greater Himalaya and the trans-Himalaya and lies in the fringe of the Khangchendzonga National Park a UNESCO designated world heritage site. Consequently, it is designated as a separate biogeographic province 1D by the Wildlife Institute of India. The area also forms the headwaters of the river Teesta and is dotted with several glaciers and high-altitude lakes many of which are regarded as sacred. Improved ecological health of this ecosystem translates to sufficient water in the rivers and streams even in the lean season, which sustains agricultural and horticulture crops, directly translating to food and health security of the downstream towns and villages This area is also contiguous with the Tibetan Plateau with the altitude ranging from between 4000m and 5500m. The vegetation here is sparse, devoid of trees, dominated by graminoids, forbs and a few shrubs. The biodiversity significance of the area is unmatched. This area harbours globally significant biodiversity including snow leopard, two third of the country's Tibetan gazelle, one third of the Tibetan argali, the only population of southern Kiang, the only breeding population of the black-necked crane in the eastern Himalaya along with several other rare, endangered and threatened species. This region also forms the corridor of the Royal Bengal Tiger and there is evidence of it migrating from the neighbouring Neora Valley National Park in West Bengal. The Himal is also a repository of valuable medicinal plants, which form the basis for the indigenous systems of medicine. Most of the peaks, lakes, rivers and caves here are considered sacred and are visited by pilgrims to pay homage. These areas are also under heavy defence deployment with extensive presence of the Indian Army and the Indo Tibetan Border Police (ITBP). After the 2017 Doklam and 2020 Galwan incidents along the Sino-Indian border, the border areas have been further reinforced with more troops and development of new infrastructure. Dogs being camp followers have benefitted from this development and their population has increased several-fold. Due to its remoteness, harsh climate and lack of infrastructure this area has a weak presence of the forest department. The detailed list of biodiversity elements (flora and fauna) is provided for in Annexure-I.

Figure 1: Endangered biodiversity of the Sikkim Trans-Himalaya

Tibetan gazelle

Tibetan argali (Nayan)

Southern Kiang

Black-necked crane

2. Proposed linear infrastructure projects

There are a total of 4 linear infrastructure projects being implemented one each by Powergrid Corporation of India, Energy and Power Department, Government of Sikkim and two by the Border Roads Organization (BRO) for which this Comprehensive Biodiversity Conservation Plan has been prepared. The roads are required for providing defence purpose connectivity for rapid movement of troops, transportation of commodities, armaments and other essential facilities to defence needs. These roads give connectivity to the Indo-China border and are hence, important from strategic point of view. The details of these diversions is placed below. The map of these projects is also provided in Annexure-II. Two percent of the total project cost is taken as the amount chargeable on BC plan as in indicated in the last column of Table 1 below:

Table 1: Details of the 4 linear infrastructure projects

Rs in crores

No	Proposal Name	User agency	Area (Ha)	Category	Declared Length (km)	RoW (m)	Declared Project Cost	Amount chargeable on BC Plan i.e. 2.5% of the project cost
1	Construction of 220KV D/C (Twin Moose) transmission line from 500MW LTHPL Teesta VI HEP to Rangpo Pooling Sub station of POWERGRID under consultancy project to Lanco Teesta Hydra Power limited by Powergrid corporation of India Limited in the South District of Sikkim.	Powergrid corporation of India Limited	30.1919	Transmission Line	12.5	35	81.72	2.04

2	Diversion of forest land for laying of 220kV D/C Singhik to Chungthang TL in North Sikkim under CSSTDS by Energy & Power Department, Govt. of Sikkim	Energy & Power Departme nt, Govt. of Sikkim	26.8	Transmission Line	27.7	35	34.3520	0.86
3	Construction/ Improvement of NH 310AG to NHDL specification with paved shoulders from Naku of Design KM 0+000 to Nakula of design KM 09+152 on EPC Mode in Sikkim under Project Swastik of BRO	BRO	27.8349	Road upgradation	9.152	24	480.70	12.02
4	Diversion of 116.1 ha forest land for widening/upgradation of existing road (NH 310A) to NHDL specification with paved shoulder from Yumthang of Design km 52+808 to Yume Samdang Border (Zero point) of design 84.160 km by BRO in Sikkim	BRO	116.1	Road upgradation	32	24	564.00	14.10
					Total		**1160.772**	**29.02**

The justification for preparing a Comprehensive Biodiversity Conservation Plan instead of four separate biodiversity conservation plans is as follows:

- Comprehensive projects with pooled resources enable perspective planning and adopt a more diagnostic approach with a futuristic outlook
- Economy of scale becomes a reality as many functions such as procurement, research, planning and evaluation can be integrated
- The cumulative impact of projects is often much more than the sum of the individual impacts as these projects have a cascading effect on biodiversity
- Implementing several projects with similar components in the same geographical area run the risk of duplicacy and overlap
- Review of previous plans by WII also highlights the need for adopting an integrated approach of a Comprehensive Biodiversity Conservation Plan

The justification for charging 2.5% of the project cost for the BC plan is provided below:

- **Special biogeographic status of the area:** The area impacted by the road is a special Biogeographic Province 1D as classified by the Wildlife Institute of India whose extent is limited to only about 1000 km^2. It is the only significant expanse of the unique cold desert ecosystem in the eastern Himalayas.
- **Globally significant biodiversity:** This area is a repository of significant populations of several endangered species and houses two third of the country's Tibetan gazelle, one third of the Tibetan argali, the only population of southern Kiang, the only breeding population

of the black-necked crane in the eastern Himalaya along with several other rare, endangered and threatened species. This region also forms the corridor of the Royal Bengal Tiger and there is evidence of it migrating from the neighbouring Neora Valley National Park in West Bengal.

- **Area impacted versus area diverted:** While the compensatory conservation budgets are assessed in proportion of the forest area diverted or as a ratio of the project costs, what we need to assess is the area impacted and the biodiversity value of the region at stake. In this case, globally significant biodiversity values are at stake and also the area impacted is much more than the area diverted. The hill cutting, slope destabilization, rock blasting, muck disposal, establishing labour camps, increased human presence, unsuitable waste disposal and others will result in a long-term disturbance and damage to biodiversity.

3. **Process followed**

Instead of piecemeal preparation of biodiversity conservation plan for the four linear infrastructure projects separately, an integrated biodiversity conservation plan has been prepared to ensure that the cumulative impacts of these linear infrastructure intrusions are addressed in a comprehensive manner. The implementation of this comprehensive plan will also be efficient as the activities will all be integrated without the risk of duplicacy or overlap. A participatory process involving consultations and field visits by scientists and field managers was followed for the preparation of this biodiversity conservation plan. Also, consultations were organized by the department with other stakeholders, forest wildlife divisions, forest territorial divisions, FCA wing and others before finalizing this plan. The details of the cross drainage structures from the user agency was obtained, following which this plan was finalized.

4. Threats, gaps and proposed strategy

The eleven components of this plan are human wildlife conflict, participatory conservation, forest protection, strengthening forest protection infrastructure, wildlife predation by feral dogs, ex-situ conservation, mitigation of biodiversity loss due to project related driven landslides and erosion, awareness and capacity building, promoting technology in forestry operations, educational campaigns and research and knowledge management.

4.1 Human-wildlife conflict management

Rising instances of human-wildlife conflict specially crop damage and livestock kills are being reported from the state. Crop damage by wild boar and Assamese macaque, and livestock kills by Himalayan Black Bear are reported frequently from this area. Also, at times cases of grievous human injury by Himalayan Black Bear sometimes even leading to death are reported from the forest fringe villages. Other than these animals, there are also stray incidences involving the common leopard, leopard cat, martens, civets, barking deer, snakes and squirrels as well. The scale of damage caused due to conflict is considerable and the resentment of the local populace towards wildlife and the Forest department is an understatement. There are several cases of local agriculturalists completely abandoning farming and animal husbandry due to the losses incurred because of conflict. This is a very serious threat, since livelihood options in the mountains are limited and for most farming is the only source of sustenance.

Figure 2: Grievous injury to humans caused by Himalayan Black Bear are rising

4.1.1 Anticipated impacts

Linear infrastructure intrusions into natural ecosystems such as roads, highways and transmission lines create disturbance to the wildlife habitats and to wildlife as well. The actual area impacted by linear projects is far more compared to area diverted. There is a direct loss of habitat during establishment and maintenance of linear project. This may happen due to clearing of vegetation, dumping of excavated earth and material movement of heavy vehicles and earth movers, creation of labour camps etc. The effect of these disturbances may persist in the landscape for years to decades. This results in higher instances of human-wildlife conflict as wildlife corridors and habitats get disturbed. Hence, there is a need to strengthen the preparedness of the forest department to deal with more instances of crop damage, livestock kills and human injury. Latest technology needs to be adopted to help in preventing and providing early warning. Also, wildlife deterrent devices and better equipment is needed to tackle human wildlife conflict.

4.1.2 Mitigation strategy

Hence, the proposed strategy is two-pronged namely: 1) Procurement of improved technology devices for monitoring problem animals such as satellite collars, camera traps, drones, accessories etc. including trainings and 2) Procurement and deployment of wildlife deterrent equipment such as Aniders, Fox lights, Smart sticks, Cages, Snake tongs, helmets, face shields, search lights etc. including trainings. The total cost of this human wildlife conflict management component comes to Rs 3.00 crore as detailed in Section 5.

Figure 3: Transportation of cages with the animal in hilly terrain is a herculean task

Figure 4: Livestock kills by Himalayan Black Bear in winter are rising

4.2 Participatory biodiversity conservation

Most of forests have been brought under the Joint Forest Management (JFMC/EDC) network. The main threats being unplanned trekking tourism, hunting and trapping of wild animals, smuggling of medicinal and aromatic plants, wildlife predation by feral dogs and lack of awareness amongst the security forces. Effective conservation of the high mountains by forest staff alone is very difficult due to its high altitude, remoteness, tough terrain, harsh climate and limited resources available. Further lack of adequate infrastructure and facilities make every patrolling visit more like an expedition, with a large contingent of support staff and resultant high attendant costs. The JFMC/EDC are not as vibrant as they were during the 2000-2010 period. Hence, there is a need to revitalize these community-based institutions.

Figure 5: Participatory conservation institutions such as JFMC/EDC need to be revitalized

4.2.1 Anticipated impacts

Linear infrastructure projects open up biodiversity rich areas to the outside world by making the access and exploitation easy. Biodiversity resources that were earlier not easily accessible now become a commodity to be traded in the market. Regulatory and enforcement agencies are not able to move fast enough due to which pristine areas get depleted of biological resources. Many pristine areas of Sikkim which was earlier inaccessible, will now get opened up for easy access to the outside world and subsequently also for tourism. With growing defence establishments, rising population of feral dogs, threat of trapping and hunting wildlife, accelerating impacts of climate change and other threats, the there is a need to strengthen the participatory conservation framework. The existing JFMC/EDC are too weak to tackle this new threat and hence they need to be strengthened.

4.2.2 Mitigation Strategy

A total of 50 community organizations (30 JFMC + 20 EDC) will be strengthened by reconstituting, institution building, capacity building and exposure visits. These institutions need be broad-based, follow democratic decision making and eventually contribute in biodiversity monitoring and surveillance. They will be trained in record keeping, accounting, forest monitoring and supported with exposure visits both within and outside the state. They will also be provided with field equipment such as high-altitude trekking gears, field jackets, shoes etc. Entry-point activities (EPA) will also be carried out as a confidence-building measure. The EPA will comprise of social assets such as tents, furniture, sound system, diesel generator sets etc. which will also be useful for future trainings, meetings and social events in the village level. The total cost of this participatory biodiversity conservation component comes to Rs 2.00 crore as detailed in Section 5.

4.3 Strengthening Forest protection

The forest areas comprise mostly of temperate oak forests and subalpine conifer forests. Also due to natural calamities, landslides are very common impacting forests and nearby human habitations. The geology of the eastern Himalayas is weak as the mountains are young-fold. The situation is further aggravated due to the steep terrain and heavy annual precipitation of more than 250 cm. The forests specially in the 1000-2000 m zone are susceptible to forest fire. Though hunting of wildlife has come down over the last few decades, sporadic events from armed trans-border hunters, local bush meat hunting and tree felling does get reported once in a while.

4.3.1 Anticipated impacts

The wildlife predation by feral dogs, increased instances of hunting and poaching, laying traps and snares, deepening human wildlife conflict, high probability of smuggling of medicinal plants, more frequent road kills, greater probability of forest fire etc. which will need better preparedness of the forest staff. Thus, the regular monitoring of these areas, which were earlier not easily accessible, will become an absolute necessity due to the presence of heavy earth moving machineries, people and labour camps. Business as usual will result in irreversible biodiversity loss. Also, natural calamities such as landslides and forest fires will increase due to road building activity for which mitigation measures will need to be put in place. Threats from trans-border hunting and local bush meat hunting need to be also countered. The forest staff too need to be better equipped in terms of equipment, mobility, capability, communication and infrastructure.

Figure 6: Illegal felling of trees in the reserve forests

4.3.2 Mitigation strategy

The mitigation strategy will involve fencing and protective works and equipping frontline forest staff with vehicles so that they can respond to crisis in a timely manner. Natural calamities such

as forest fire will need to be addressed. Fencing and protective works at the vulnerable points will also be needed to secure forests and forest infrastructure from biotic and natural drivers. Hence, the total investment planned in the forest protection component is Rs 6.15 crore as detailed in Section 5.

Figure 7: Patrolling by forest staff takes on the shape of an expedition in this landscape

4.4 Strengthening forest protection infrastructure

The remote valleys and mountains in many locations do not have a physical presence of the forest department. Forest infrastructure in many of the remote locations is non-existent as in many valleys there is not a single forest office or residence for forest personnel. As a result, forest protection and enforcement is sporadic and uneven. This lack of infrastructure also impacts the operationalization of research studies, biodiversity monitoring and sterilization programs. Also, existing infrastructure comprising of offices and residences of frontline staff at the division and range level is in a dilapidated condition and needs upgradation.

4.4.1 Anticipated impacts

Lack of infrastructure directly results in uneven monitoring, delayed response, high transportation costs as there are no 'boots on the ground'. The biodiversity in this landscape was till date protected due to lack of easy access and transportation. Linear infrastructure projects open up biodiversity rich areas to the outside world by making the access and exploitation easy. Regulatory and enforcement agencies are typically not able to move fast enough due to which pristine areas get depleted of biological resources. Now with these new roads, it is anticipated that pristine forest areas will get opened up for visitors and tourists. Biodiversity resources that were earlier not easily accessible now become a commodity to be traded in the market if adequate care is not taken. The trans-Himalayan region of Sikkim which was earlier inaccessible, will now get opened up for easy access to the outside world and subsequently also for tourism.

4.4.2 Mitigation Strategy

Hence, the imperative for biodiversity conservation is to renovate and strengthen forest complexes at state, division and range level including staff quarters and checkposts. This will include renovation of existing infrastructure and creation of new infrastructure. The forest complex concept will enable staff from various divisions such as Territorial, Wildlife, Environment, Social Forestry etc. to stay together and will result in sharing of manpower, equipment and skills and thereby strengthen forest and wildlife protection. The total cost of this forest protection infrastructure component comes to Rs 9.60 crore as detailed in Section 5.

4.5 Reducing wildlife predation by feral dogs

The rising populations of feral dogs in forest areas in the state of Sikkim specially in the north and eastern part is of great concern. In areas that are of high biodiversity significance, reports of wildlife depredation by these dogs have become frequent. These dogs are known to hunt in packs and have been reported to prey upon wildlife such as blue sheep, Tibetan gazelle, Himalayan marmot, musk deer, Himalayan goral, serow, red panda, etc. The population of these dogs is closely linked to the camps of military and paramilitary forces, as these dogs are known to feed on the improperly disposed food waste.

Figure 8: Feral dogs in the same niche occupied by the endangered snow leopard

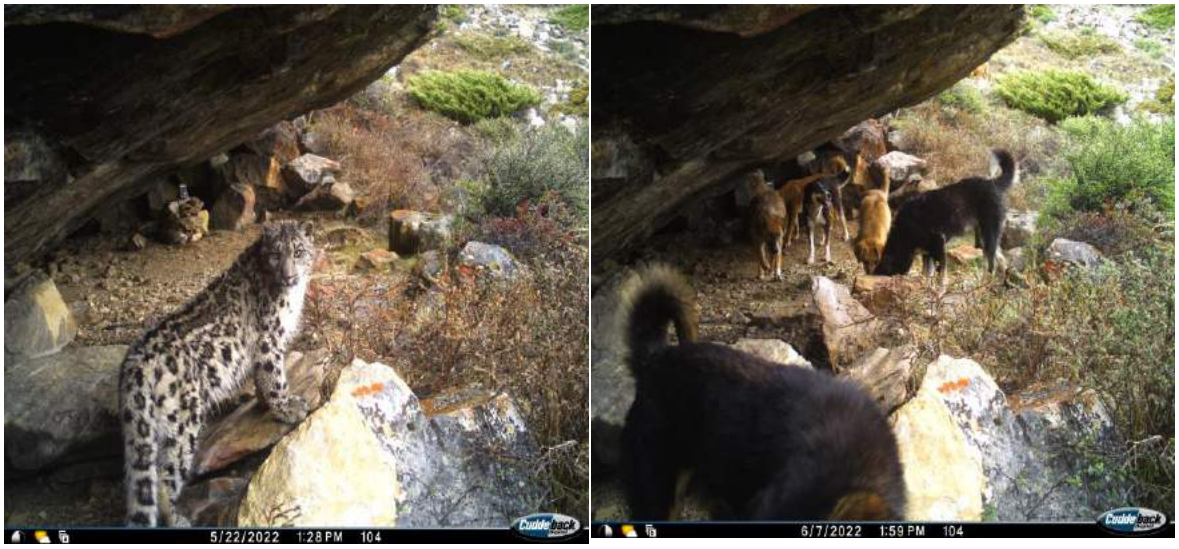


Figure 9: Feral dogs in the same niche occupied by the endangered musk deer

4.5.1 Anticipated impacts

The Chhombo chu valley which has an established road network with defence establishments for several decades now. This valley provides an interesting insight regarding the impacts of roads and highways on biodiversity. There are close to 600 feral dogs in this valley who hunt in packs and prey upon wildlife. Now that other areas are also being opened up and provided easy access with motorable road, the future scenario in the absence of mitigation measures will be similar. Source dog populations from the nearby towns and villages will now be able to easily disperse and occupy this new territory. The mammals and birds will be easy game for these ferocious predators who hunt in packs. Participatory research by ATREE found that in this landscape the feral dogs cause severe fatalities to yak calves. This has led to high economic losses to pastoralists, with an estimated 40% of yak calves being lost every year.

Figure 10: Ghoral killed by feral dogs in the upper reaches of Gangtok district in Nov, 2022

4.5.2 Mitigation strategy

The strategy proposed is to ensure proper disposal of food waste from the security establishments by pilot technology demonstration of the Organic Waste Converter (OWC). Due to the cold and wet weather of Sikkim, conventional composting techniques do work, and hence technological interventions are needed. The OWC works on the food dehydrator technique and can convert 100 kg of food waste into soil supplement in 16 hours. The total cost of procuring 4 OWCs to reduce wildlife predation by feral dogs component comes to Rs 0.24 crore as detailed in Section 5. The expected outcomes of this component is a reduction in the population of feral dogs in forests and a significant reduction in wildlife predation in the forest areas.

4.6 Ex-situ biodiversity conservation

The Himalayan Zoological Park (HZP) is the only ex-situ conservation facility in the state situated at Bulbuley in close vicinity of Gangtok. It was established in 1997 and spreads across 230 ha. It is an ideal location for ex-situ conservation of globally threatened and endangered wildlife. Also, it has ample scope for expansion, adding new enclosures and wild animals. The zoo now has a collection of 78 specimens belonging to 18 species. The animals of interest under captivity are Red Panda, the State animal of Sikkim, clouded leopard, Common Leopard, Himalayan Black Bear, Large Indian Civet, Palm Civet, Leopard Cat, the Yak, Goral, Himalayan Thar, Blue Sheep etc. Birds consist of the Kalij Pheasant Schedule-I species and the rest are exotic species such as Golden, Silver and Lady Amherst's Pheasants. There is a need to strengthen the ex-situ conservation infrastructure for conservation and education purposes.

4.6.1 Anticipated impacts

Growing linear infrastructure in the form roads and highways will result in fragmentation of habitat. Roads result in both direct impacts such as road kills, damage to habitat, opening up of pristine habitat as well as indirect impacts. These effects include noise, artificial light, barriers to movement and edges associated with roads. Due to this it is anticipated that there will be rising instances of problem animals such as common leopards, Himalayan black bear, macaques and others entering into habitations and causing loss to crop, livestock and humans. Hence, the zoo will need to be better equipped to deal with rising instances of dealing with problem animals including rescue and rehabilitation.

4.6.2 Mitigation strategy

Strengthening infrastructure and equipment in the zoo will be needed to support rehabilitation and subsequent release of problem animals. Capture and rehabilitation of wildlife, especially problem animals will also need to be carried out. Strengthening of infrastructure, equipment, capabilities and consumables will be needed for rescue, rehabilitation and release of the problem animals. Sterilization and animal birth control facilities will also need to be upgraded to meet the growing demand.

Hence, the total investment planned in the ex-situ biodiversity conservation component is Rs 3.00 crore as detailed in Section 5.

4.7 Mitigation of biodiversity loss due to project driven landslides and erosion

This component will protect the valley side damage due to hill road construction comprising of managing surface runoff, treating minor landslides and slope stabilization. Due to the steep terrain of the site, often road cutting spoils roll down the valley side causing damage to the valley side slope. Also, the improper siting of cross drainage structures results in aggregation of surface runoff and its discharge along unnatural sites causing damage to the slope. The total investment planned in this component is Rs 1.50 crore as detailed in Section 5.

4.8 Building awareness and capacity building

Various stakeholders have an impact on this landscape such as the defence establishment, tourism personnel, nomadic pastoralists and the local community. Sensitizing these stakeholders and building capacity can play an important role in the implementation of this biodiversity plan as well as future conservation. The forest department personnel have expertise and experience in managing forested habitats, but their skills will also need to be upgraded.

Figure 11: Awareness programs for the forest fringe local communities

4.8.1 Anticipated impacts

Development of roads and highways in this landscape will result in new types of threats such as wildlife predation by feral dogs, increased instances of hunting and poaching, deepening human wildlife conflict, high probability of smuggling of medicinal plants, more frequent road kills etc., which will need better awareness and capacity amongst the stakeholders. Business as usual will result in irreversible biodiversity loss. Improper food waste management will result in a proliferation of feral dogs and their predation of native wildilfe.

4.8.2 Mitigation strategy

The mitigation strategy will need sensitization of the defence forces and training of forest frontline staff on biodiversity conservation in this unique landscape. The defence forces establishment keep on getting transferred every few years, hence this has to be an ongoing exercise. The defence forces need to manage their food waste responsibly, stop feeding the feral dogs, respect the endangered biodiversity, protect the wetlands and ensure that there is no sporadic hunting of wildlife. The local youth will need to be trained on ecotourism with skills in sustainable birding, butterfly tourism and botanical tours so as to create an incentive for conservation. The local community-based institutions such as JFMC/EDC and others too needs to be sensitized and their capacity built. The frontline staff need to be trained to take up higher responsibilities by building capacity. The staff can be sponsored to attend various trainings and workshops including the WII Certificate course, Induction trainings, wildlife immobilization

trainings and various other trainings and workshops. Exposure visits of students from the fringe villages will also help in creating awareness and local stewardship for the natural heritage.

Hence, the total investment planned in the awareness and capacity building component is Rs 0.75 crore as detailed in Section 5.

Figure 12: Exposure visit of students to forest areas help in creating local stewardship

4.9 Promoting technology in forestry operations

Forest utilization operations in mountain terrain are labour intensive and in earlier days were facilitated with the engagement of captive labour in the form of Taungyadars. Now with all-round economic development, there is acute shortage of labour in regular forest management operations such as logging, afforestation, habitat management etc. Hence, there is a need to usher in modernization and promotion of technology use in forestry operations. Also, porta cabins will be installed in key locations for biodiversity monitoring. These cabins will be provided with water connection, water storage tanks, solar lighting and toilet. This modernization and mechanization will help in making the forestry operations more effective and efficient as well.

4.9.1 Anticipated impacts

These linear projects will result in openings in the forest canopy which often results in the growth of secondary species such as *Viburnum* sp., *Symplocos* sp., invasive bamboo such as *Yushania maling* etc. There will be a need to restore these forests in future as well as to remove these invasives. Due to shortage of labour, and the large extent of coverage of these secondary species and invasives it will be difficult to contain this problem.

4.9.2 Mitigation strategy

The mitigation strategy will involve purchase of mechanized augurs, mechanized bush cutters, mechanized saws, smart sensors and other modern equipment to facilitate forestry operations and for surveillance. This will enable cost effectiveness and efficiency in forestry management activities such as utilization, afforestation and habitat management.

Hence, the total investment planned in promoting technology for forestry operations component is Rs 1.40 crore as detailed in Section 5.

4.10 Education and outreach campaigns

Increased penetration of linear infrastructure projects in forestry ecosystems will result in habitat damage to wildlife leading to more frequent interactions between humans and wildilfe. Often human perceptions towards wildlife are biased as their role in the overall ecosystem is not fully understood. Also, some human behaviour which may appear benevolent and compassionate such as “feeding wild animals” may actually result in unintended consequences. In remote locations, there may be some ingrained cultural practices that may be deleterious to conservation and hence, behavioural change will be needed.

4.10.1 Anticipated impacts

In future, wild animals such as common leopards, Himalayan black bears, macaques, civets, martens etc. will come in close contact with humans. The common tendency amongst the local community is to insist for capture-relocation which may have unintended consequences. For example, relocating leopards will result in removal of a predator from the local ecosystem and result in growth in population of its prey species such as wild pig, porcupine, deer, peafowl etc. thereby causing more crop damage. Also, feeding macaques may appear to be a compassionate and generous activity, but in the long term the monkeys lose their fear of humans and also increases their reliance on human food instead of foraging in the wild. This results in rising instances of house raiding, bites etc.

4.10.2 Mitigation strategy

Changing human behaviour is not easy, but with the right tools, one can effect change over time. An education and outreach campaign helps inform the public about a given issue and to help motivate them to change their behaviour. It is proposed to organize public education and outreach programs to highlight the importance of predators to farming communities, refrain from feeding wild animals when they venture onto roads or in human habitations and to take greater responsibility for protection of forests and wildlife.

Hence, the total investment planned in education and outreach campaign component is Rs 0.90 crore as detailed in Section 5.

4.11 Research and knowledge management

There is limited knowledge and data on the high altitudes and trans-Himalayan ecosystems. The population, distribution and threats faced by flora and fauna is yet to be scientifically

assessed. Action research that provides knowledge for decision making is needed to plan conservation action as well as assess the impact of biodiversity conservation interventions.

Figure 13: WWF Research team installing camera traps jointly with forest staff

4.11.1 Anticipated impacts

There is a significant gap in the knowledge about the presence, distribution, population size, habitat preference and movement patterns of many mammal species along with the prevalence of illegal activities like poaching, medicinal plant collection, etc. Long term, year-round monitoring stations can fill these knowledge gaps, providing useful data for relevant conservation actions and interventions. Also, habitat preference and movement patterns of snow leopards at a fine scale is not known. The lack of this information affects the quality of the species-specific conservation actions. There is limited baseline data available for wild ungulates and feral dogs. Hence, we are unable to quantify changes in population over time, and also aid in framing conservation objectives, assess their feasibility, concentrate efforts, and define a time-period within which progress can be evaluated. The lack of this information restricts the understanding of the population trends for wild ungulates and the effectiveness of the birth-control efforts for the feral dogs.

4.11.2 Mitigation strategy

The action research proposed jointly with WWF-India and others comprises of three studies which will be taken up jointly with forest department namely 1) Long term biological monitoring: The long-term biological monitoring will be carried out by setting up around 200 camera traps that will be kept functional all year round. These will be used to estimate the population size, distribution, habitat preference and movement patterns of targeted wildlife species. These will also be used to know the degree of human presence in some remote areas

and the detection of poaching instances. Population estimation surveys for wild ungulates and free-ranging dogs on previously identified and fixed routes once every year to estimate the population size of the wild ungulates and free-ranging dogs. These studies will help monitor the impact of the proposed interventions and create a credible baseline for evidence-based policy making an annual population estimation exercise is proposed in partnership with WWF India.

The department also plans to take up habitat monitoring of important floral species and recovery programs. Also, procurement of equipment for field kits, camera traps, surveillance cams etc. for inhouse biodiversity monitoring and research is also included. Hence, the total investment planned in the research and knowledge management component is Rs 0.30 crore as detailed in Section 5.

Figure 14: WWF Research team conducting the snow leopard population census in Sikkim

5. Budgetary plan

The plan is prepared for a duration of 3 years keeping in mind the time taken for projects to take off after a preparatory phase.

Table 2: Summary table of the components with budget

Rs in lakhs

No.	Component	Budget
A	**Human Wildlife Conflict Management**	300
B	**Participatory Biodiversity Conservation**	200
C	**Strengthening Forest Protection**	615
D	**Strengthening Forest Protection Infrastructure**	960
E	**Reducing Wildlife Predation by Feral dogs**	24
F	**Strengthening Ex-situ Biodiversity Conservation**	300
G	**Mitigation of biodiversity loss due to project driven landslides and erosion**	150
H	**Awareness and Capacity building**	75
I	**Promoting Technology in Forestry Operations**	140
J	**Education and Outreach Campaigns**	90
K	**Research and Knowledge Management**	30
	Subtotal	**2884**
	Administrative costs	10
	Monitoring and evaluation	8
	Total	**2902**

Table 3: Detailed table of the plan components with budget

Rs in lakhs

No.	Activity	Unit cost		Units		Budget
A	**Human Wildlife Conflict Management**					
1	Procurement of improved technology devices for monitoring problem animals such as satellite collars, camera traps, drones, surveillance equipment, accessories etc. including AMC and trainings	50	Per year	3	Years	150

2	Procurement and deployment of Wildlife deterrent equipment such as Aniders, Fox lights, Smart sticks, Cages, Snake tongs, helmets, face shields, search lights etc. including AMC and trainings	50	Per year	3	Years	150
B	**Participatory Biodiversity Conservation**					
3	Strengthening of JFMC/EDCs by reconstituting, institution building, capacity building and exposure visits. They will be trained in record keeping, accounting, forest monitoring and supported with exposure visits both within and outside the state. They will also be provided with field equipment such as high-altitude trekking gears, field jackets, shoes etc.	2	per JFMC/EDC	50	JFMC/EDC	100
4	Entry Point Activity (EPA) as a confidence building measure comprising of social assets such as tents, furniture, sound system, diesel generator sets etc. which will also be useful for future trainings, meetings and social events in the village level. A total of 30 JFMCs and 20 EDCs will be covered	2	per JFMC/EDC	50	JFMC/EDC	100
C	**Strengthening Forest Protection**					
4	Fencing and protective works for securing forests and forest infrastructure from biotic and natural drivers	100	per year	3	years	300
5	Procurement of vehicles for frontline staff (Bolero/Camper)	15	per vehicle	18	vehicles	270
6	Procurement of patrolling bikes	1.5	per vehicle	30	bikes	45
D	**Strengthening Forest Protection Infrastructure**					
7	Renovation of forest complex at state, division and range level including staff quarters and checkposts. This will include renovation of existing infrastructure and/or creation of new infrastructure	120	Average per complex	8	complexes	960

E	**Reducing Wildlife Predation by Feral dogs**					
8	Piloting Organic Waste Composters (OWC) for defence establishments as a technology demonstration for food waste management in high altitude areas including AMC	8	per composter	3	composters	24
F	**Strengthening Ex-situ Biodiversity Conservation**					
9	Strengthening infrastructure and equipment in the zoo to support rehabilitation and subsequent release of problem animals	80	Per year	3	years	240
10	Capture and rehabilitation of wildlife, especially problem animals	20	Per year	3	years	60
G	**Mitigation of biodiversity loss due to project driven landslides and erosion**					
11	Surface runoff management through catchwater drains and stabilization of landslip areas	50	per year	3	years	150
H	**Awareness and Capacity building**					
12	Sensitization workshop for various stake holders including defence establishments on environmental issues such as waste management etc.	1	per workshop	6	workshops	6
13	Sensitization workshop on sustainable tourism stakeholders and others.	1	per workshop	6	workshops	6
14	Capacity building for nature-based tourism such as birding, butterfly watching and botanical tours at district level.	3	per training of 3 days	12	trainings	36
15	Capacity building for tourism taxi drivers on code of conduct for tourists at district level.	1	per workshop	12	trainings	12
16	Sensitization, awareness and exposure visits on biodiversity of Sikkim to students	2	per program	3	programs	6
17	Training of frontline staff on biodiversity assessment, conservation, enforcement, rescue and release, human wildlife conflict, participatory conservation, immobilization etc.	3	per training of 3 days	3	trainings	9
I	**Promoting Technology in Forestry Operations**					

18	Purchase of mechanized augurs, mechanized bush cutters, mechanized saws, smart sensors and other modern equipment to facilitate forestry operations and wildlife surveillance. Also furnished porta cabins will be installed with basic amenities to strengthen biodiversity monitoring	70	per year	2	years	140
J	**Education and Outreach Campaigns**					
19	Community education, promotion and behavioural change interventions, awareness material, posters, short videos to help protect forests and wildlife	30	per year	3	years	90
K	**Research and Knowledge Management**					
20	Wildilfe studies of predators, prey and their threats, including baseline assessments jointly with WWF and others	10	per year	3	years	30
	Subtotal					**2884**
21	Administrative costs					10
22	Monitoring and evaluation					8
	Total					**2902**

The justification of the budget is provided below:

- **Special biogeographic status of the area:** The area impacted by the road is a special Biogeographic Province 1D as classified by the Wildlife Institute of India whose extent is limited to only about 1000 km^2. It is the only significant expanse of the unique cold desert ecosystem in the eastern Himalayas.
- **Globally significant biodiversity:** This area is a repository of significant populations of several endangered species and houses two third of the country's Tibetan gazelle, one third of the Tibetan argali, the only population of southern Kiang, the only breeding population of the black-necked crane in the eastern Himalaya along with several other rare, endangered and threatened species. This region also forms the corridor of the Royal Bengal Tiger and there is evidence of it migrating from the neighbouring Neora Valley National Park in West Bengal.
- **Area impacted versus area diverted:** While the compensatory conservation budgets are assessed in proportion of the forest area diverted or as a ratio of the project costs, what we need to assess is the area impacted and the biodiversity value of the region at stake. In this case, globally significant biodiversity values are at stake and also the area impacted is much more than the area diverted. The hill cutting, slope destabilization, rock blasting, muck disposal, establishing labour camps, increased human presence, unsuitable waste disposal and others will result in a long-term disturbance and damage to biodiversity.

6. Monitoring mechanism

The operational mechanism proposed to implement this plan is by having a committee at state level comprising of the heads of Forest, Environment, Wildlife, FCA, research NGOs and others. The committee will be headed by the Secretary with CEO CAMPA as the member secretary. The terms of reference of this committee will be to plan the implementation modalities, partitioning of the programme components across different geographies, circles and divisions, preparation of the APO and overall planning, monitoring, evaluation and other related matters. Items requiring centralized purchase for the purpose of economy of scale and standardization will also be done by this committee. The studies will provide a good indication of the key performance indicators namely the population of the impacted biodiversity and status of the threats on an annual basis. Also, since these studies will be taken up independently, it will also function as an independent evaluation of the project impact.

Figure 15: Mountain road construction is a challenging task and conventional wildlife over passes are not feasible

7. Wildlife Passage Plan

The landscape impacted in Sikkim by these six roads comprises of two ecosystems the Greater Himalaya and the Trans-Himalaya. Road construction in this mountain terrain is a challenging task and will involve hill cutting on steep slopes. This wildlife passage plan has been prepared keeping in mind the topographic constraints of this landscape.

- In the Greater Himalayan part, the terrain is amongst the highest, steepest and most rugged in the country. It is also characterized by young-fold mountains with weak geology and a dense drainage network. In this mountainous landscape, as there will be steep cuts along the hill side during road construction, the larger animals are expected to move along the drainage areas such as *jhoras* and streams. On the Trans-Himalayan portion which is a cold desert, the roads will pass through the southern portion of the Tibetan plateau which is a vast, arid upland with rolling hillocks and devoid of forests or trees. The visibility on this landscape is unobstructed and the alignment will run across a relatively less dense drainage network. In this relatively flat terrain, there is less hindrance perceived to animal movement in the proposed alignment.
- Therefore, the bridges across these drainages should be of adequate width and height in order to act as underpasses for wildlife. Considering the topographic constraints, the locations may be decided jointly by the User Agency and the DFO-Mangan. The height of the underpass/minor bridge may be up to 3-5 m and the span of the underpass/minor bridge may be kept up to 20-30 m for such underpass. The guidelines for animal passage have been provided in the publication "Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife" prepared by WII under technical advice of MoEF&CC, NTCA and NHAI. Wildlife passage plan for linear infrastructure has been made mandatory by NBWL which has prescribed these guidelines in several instances while according clearances to linear infrastructure projects. Ministry of Road Transport & Highways vide letter No. RW-NH-11013/02/2019-S&R (P&B) dated 29th May 2019 has also advocated the prescriptions to all implementing agencies to implement mitigation strategies as per said guidelines. On smaller drainage lines, the box culverts will need to be constructed of atleast 3 meter width and vertical clearance to provide safe passage for smaller mammals, amphibians, reptiles etc. These bridges and culverts will have sufficient space between the abutments and the watercourse to enable animals to pass safely during high water levels. Also, ledges will be incorporated in the bridge and culvert design as appropriate. These bridges and culvers will assist in safe passage of animals including large animals in the region.
- Also, the roads under construction do not connect any heavily populated habitations and are primarily for use for defence purposes. Hence, the traffic on these roads is going to be naturally regulated.
- The siting and design of these bridges and culverts for both these ecosystems is provided for in Annexure-III.

8. Non-structural mitigation and management measures

The following non-structural mitigation and management measures for road construction and power transmission lines construction are also recommended:

8.1 Road construction

- Typically, road construction in the mountains involves extensive damage to the valley side as the excavated material is thrown on the downhill side. This adverse impact of the road construction should be taken care by cut and fill method. The muck excavated should be used for filling embankments, retaining walls and should be used for other construction structures and the remaining muck generated should be disposed in proposed dumping sites only.

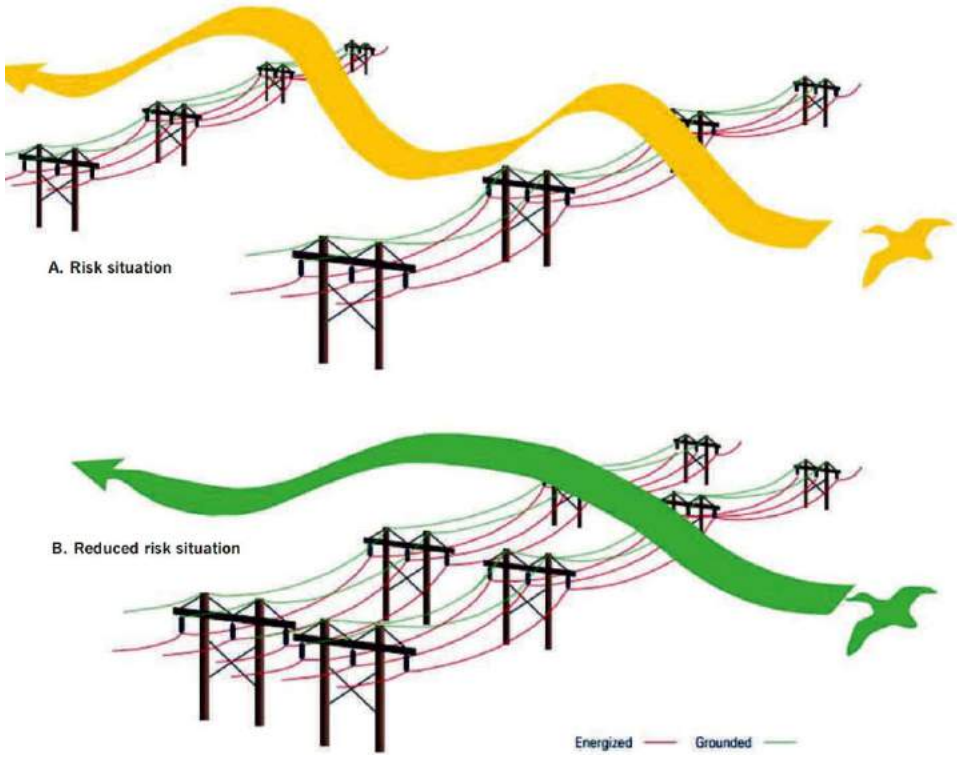
- Adequate funds need to be kept in the plan for transportation and carriage of the excavated material to the dumping site.
- To avoid frequent repairs and disturbances, carriageway pavement inside forest area should be rigid, having well planned road side drainage and utility ducts.
- User agency will make provision of vegetative or mechanical canopy closure option for movement of arboreal wildlife.
- User agency will install overhead signboard at every 500 meter in the forest area about animal crossing, restriction on feeding animal, garbage dumping, parking, honking, etc. specifically keeping in mind the tourists who may visit the area. These signages need to specify the code of conduct and important biodiversity of the areas, speed limit etc.
- Enough speed breakers/rumble strips should be constructed at regular intervals to prevent road accidents and wildlife collisions.
- Post completion of the road, the monitoring and maintenance of mitigation structure will be done jointly on advice of forest department and at cost of user agency.
- Traffic should not be allowed on this road for civilians between sunset to sunrise as animal movements are high during these hours and will result in collisions and mortality.
- No labour shall trespass in forest area apart from the designated construction site.
- No damage to any wildlife including habitat shall be done in the neighbouring area.
- The user agency will report all road kills or accident of any wild animals and deposit the carcasses to the office of the concerned DFO wildlife to be dealt according to the prevailing laws.
- Dumping of solid and liquid waste shall be scientifically dealt with by the User Agency in order to avoid feral/free ranging dogs to gather in the area.
- There should be no defacing of rocks and other natural formations.
- The local names of the places should not be distorted. No unusual naming of the natural area like lakes and peaks and mountains etc., which is not in the interest of local community, should be done.
- Construction of religious structures shall not be allowed.
- The Army/paramilitary personnel at all levels should be sensitised regarding the protection and conservation of the natural habitat of the area.
- The user agency shall ensure that the labourers do not indulge in illegal collection of medicinal plants or floral species.
- A monitoring committee shall be constituted under chairmanship of the concerned DFO (Territorial) with the DFO Wildlife, DFO KNP (if there is jurisdiction) and representatives of the User Agency as members. This Committee shall submit monthly report to the CF Wildlife/CF KNP on progress of work and compliance of the conditions laid out under this report as well as other if any.
- The User Agency shall abide by all the directions of the Hon'ble Supreme Court, provisions of the Wild Life (Protection) Act, 1972, directions of the Ministry of Environment Forest and Climate Change and conditions imposed by the monitoring committee headed by the DFO (Territorial) from time to time.
- The activities shall be liable to periodic check by officers of the Forest Department. The officers may order stoppage of work if it is found that any of the above provisions have not been complied with.

- An annual compliance certificate on the stipulated conditions shall be submitted by the project proponent to the Secretary, Forest and Environment Department, Government of Sikkim.
- Completion certificate will be issued only after written certification from chairman of monitoring committee countersigned by Secretary, Forest and Environment Department that all the conditions are satisfactorily complied with.

8.2 Power transmission lines construction

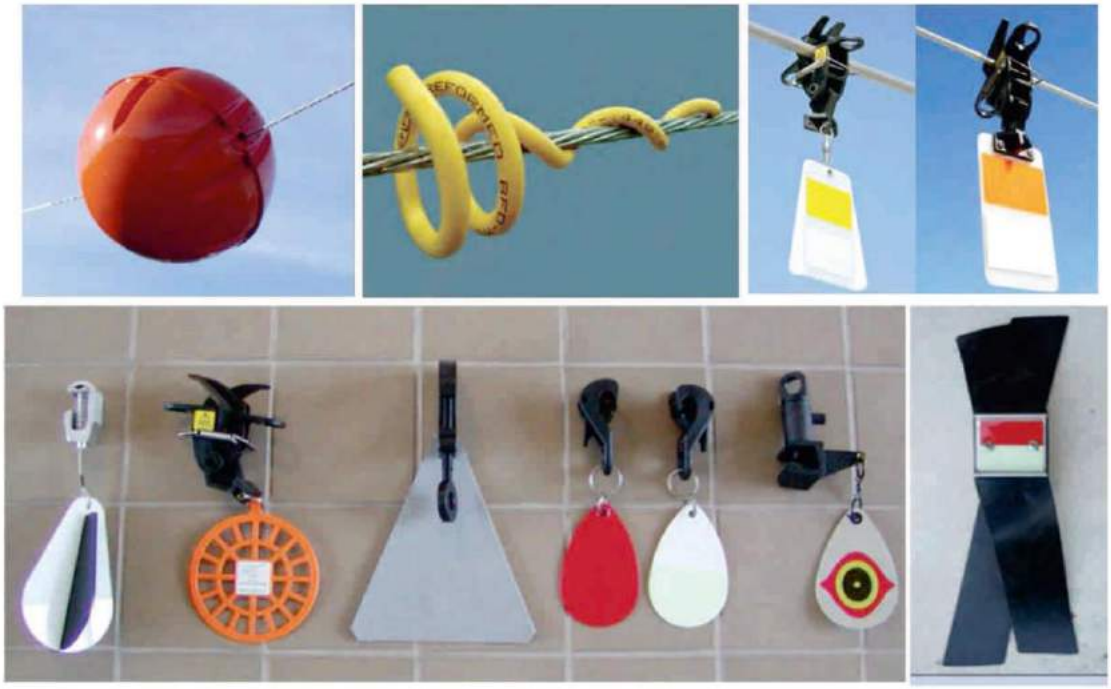
- The guidelines for animal passage have been provided in the publication "Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife" prepared by WII under technical advice of MoEF&CC, NTCA and NHAI. The Chapter 12 of these guidelines lay down the steps to be taken to mitigate the impacts of powerlines on birds. These need to be strictly adhered to.
- The proposed transmission line should be located adjacent to the existing corridor to minimize additional clearing. Utilize the existing access road system to the extent possible to reduce the need for new access roads. New powerline corridors should be placed close to an existing corridor where feasible, so that birds already accustomed to the presence of powerlines in the area will be able to see the collective obstacle as well as have a better chance of avoiding the second powerline if it is of the same, or lower, height.

Figure 16: Recommended placement of multiple powerline corridors that will reduce the risk of bird collisions



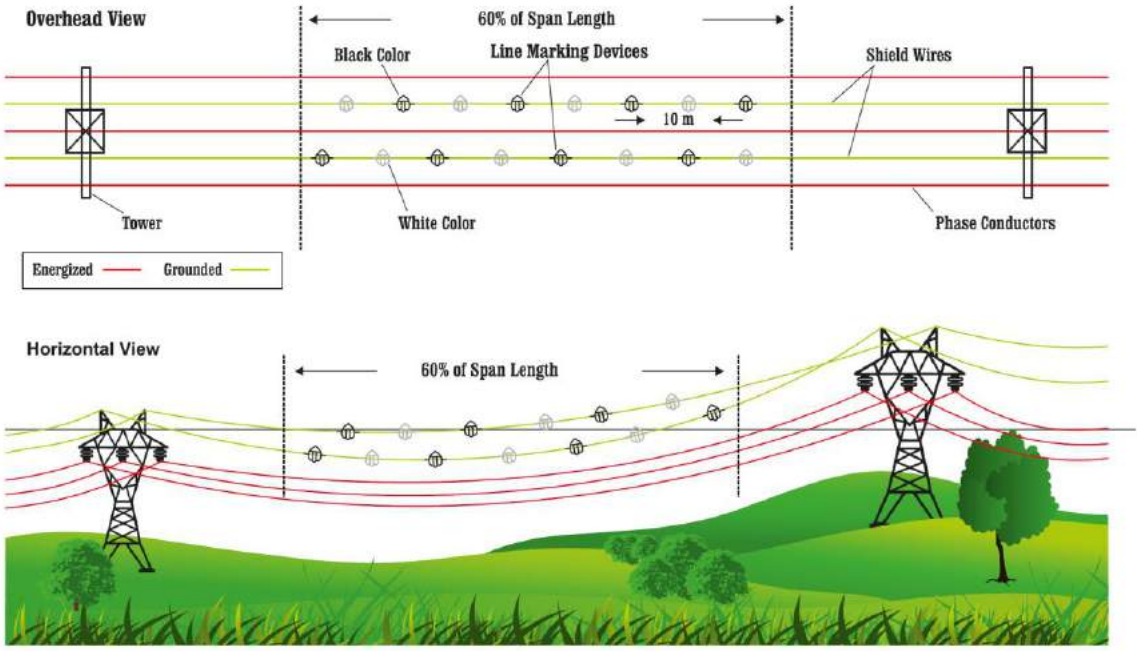
- Placement of multiple, vertical layers of conductor wires should be minimised. Alternatively, the conductor wires should be placed closer together, vertically, so as to enhance the visibility of an obstruction to birds.
- Birds frequently collide with the earth wires installed at the top of transmission lines, as it is less visible and smaller in diameter. Where the earth wires cannot be removed, using line marker devices should increase their visibility. Marker devices are available in several colours and are visible to birds from a long distance. Many types of marker devices are available, such as spheres, swinging plates, spiral vibration dampers, strips, flight diverters, bird flappers, ribbons, tapes, flags, and crossed bands.

Figure 17: Range of marker devices used on wires to improve their visibility to birds.



- Most bird collisions occur at night. To prevent collisions, line markers should be as large as possible and, importantly, should be visible at night. The spacing between them should not be more than 5 to 10 m. Marker devices should be chosen to contrast as much as possible with the background colours.

Figure 18: Design and configuration of markers to reduce bird collisions



- The personnel at all levels should be sensitised regarding the protection and conservation of the natural habitat of the area.
- Towers need to be placed outside of stream riparian areas and utilize natural landscape features to span the conductor over existing shrub and riparian zones to avoid cutting of trees. Keep vegetation clearing to the minimum required to maintain safety and operational standards. Avoid tree removal to the extent possible.
- Anti- Climbing Devices (ACD) need to be used at the four corners gates of the towers and fenced by using barbed wire and accessories.
- The user agency shall ensure that the labourers do not indulge in illegal collection of medicinal plants or floral species.
- A monitoring committee shall be constituted under chairmanship of the concerned DFO (Territorial) with the DFO Wildlife, DFO KNP (if there is jurisdiction) and representatives of the User Agency as members. This Committee shall submit monthly report to the CF Wildlife/CF KNP on progress of work and compliance of the conditions laid out under this report as well as other if any.
- The User Agency shall abide by all the directions of the Hon'ble Supreme Court, provisions of the Wild Life (Protection) Act, 1972, directions of the Ministry of Environment Forest and Climate Change and conditions imposed by the monitoring committee headed by the DFO (Territorial) from time to time.
- The activities shall be liable to periodic check by officers of the Forest Department. The officers may order stoppage of work if it is found that any of the above provisions have not been complied with.
- An annual compliance certificate on the stipulated conditions shall be submitted by the project proponent to the Secretary, Forest and Environment Department, Government of Sikkim.

- Completion certificate will be issued only after written certification from chairman of monitoring committee countersigned by Secretary, Forest and Environment Department that all the conditions are satisfactorily complied with.

9. Key references

- ATREE (2020). Designing a comprehensive human-wildlife conflict (HWC) management strategy in select districts/landscapes of Sikkim.
- Snow Leopard Population Estimation of India (SPAI) (2023). Forest and Environment Department and WWF India, Gangtok, Sikkim.
- WII (2016). Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife. Wildlife Institute of India, Dehradun, India.

FOREST AND ENVIRONMENT DEPARTMENT
GOVERNMENT OF SIKKIM
GANGTOK

Ref. No: 03/CWLW/2023 **Date:**

To,

The APCCF -cum- Nodal Officer FCA,
Forest and Environment Department
Government of Sikkim, Gangtok

Subject: Approval and Forwarding of the Comprehensive Biodiversity Conservation Plan

Sir,

This is with reference to the Comprehensive Biodiversity Conservation Plan prepared in response to the four linear infrastructure projects being constructed by the Powergrid Corporation of India, Energy and Power Department, Government of Sikkim and the Border Roads Organization in Mangan and Namchi districts of Sikkim with a declared financial outlay of Rs 1160.772 crores. The strategy to have one Comprehensive Biodiversity Conservation Plan instead of four separate plans is commendable as it will result in a perspective approach, economy of scale and avoidance of risk of overlap. The nine main components of this plan namely reducing human wildlife conflict, strengthening forest protection, strengthening participatory conservation, strengthening forest protection infrastructure, reducing wildlife predation by feral dogs, strengthening ex-situ conservation, mitigation of biodiversity loss due to project-driven landslides and erosion, building capacity and knowledge management are very relevant to this landscape to mitigate the anticipated impacts due to these four linear infrastructure projects. It is recommended that the user agencies take all due diligence measures to contain the impact of the construction activities to the Right of Way diverted. The wildlife passage plan as well as the non-structural mitigation measures are also detailed in this plan.

This Comprehensive Biodiversity Conservation Plan (CBCP) having an outlay of Rs 29.02 crore for a period of three years is approved and recommended for onward submission to the Regional Office of the Ministry of Environment, Forest and Climate Change, Government of India.

Yours faithfully,

(Dr. Sandeep Tambe, IFS)
Chief Wildlife Warden
cwlwsikkim@gmail.com

Annexure-I: Biodiversity checklist of Sikkim

Sikkim is a remote border area and not intensively explored as yet. Hence, the available scientific information is provided below as compiled largely from secondary sources by the Wildlife Institute of India. More studies are needed, to ground-truth this information.

A. List of avifauna

S.No.	ORDER	FAMILY	COMMON NAME	*SCIENTIFIC NAME*	REFERENCE
1	ANSERIFORMES	Anatidae	Bar-headed Goose	*Anser indicus*	Avibase,ebird
2	ANSERIFORMES	Anatidae	Greylag Goose	*Anser anser*	Avibase
3	ANSERIFORMES	Anatidae	Goosander	*Mergus merganser*	Avibase,ebird
4	ANSERIFORMES	Anatidae	Common Shelduck	*Tadorna tadorna*	Avibase,ebird
5	ANSERIFORMES	Anatidae	Ruddy Shelduck	*Tadorna ferruginea*	Avibase,ebird
6	ANSERIFORMES	Anatidae	Common Pochard	*Aythya farina*	Avibase,ebird
7	ANSERIFORMES	Anatidae	Baer's Pochard	*Aythya baeri*	Avibase
8	ANSERIFORMES	Anatidae	Ferruginous Duck	*Aythya nyroca*	Avibase
9	ANSERIFORMES	Anatidae	Tufted Duck	*Aythya fuligula*	Avibase,ebird
10	ANSERIFORMES	Anatidae	Northern Shoveler	*Spatula clypeata*	Avibase
11	ANSERIFORMES	Anatidae	Gadwall	*Mareca strepera*	Avibase
12	ANSERIFORMES	Anatidae	Eurasian Wigeon	*Mareca Penelope*	Avibase,ebird
13	ANSERIFORMES	Anatidae	Mallard	*Anas platyrhynchos*	Avibase,ebird
14	ANSERIFORMES	Anatidae	Northern Pintail	*Anas acuta*	Avibase,ebird
15	ANSERIFORMES	Anatidae	Common Teal	*Anas crecca*	Avibase
16	GALLIFORMES	Phasianidae	Common Hill Partridge	*Arborophila torqueola*	Avibase,ebird
17	GALLIFORMES	Phasianidae	Rufous-throated Hill Partridge	*Arborophila rufogularis*	Avibase
18	GALLIFORMES	Phasianidae	Common Quail	*Coturnix coturnix*	Avibase
19	GALLIFORMES	Phasianidae	Tibetan Snowcock	*Tetraogallus tibetanus*	Avibase,ebird
20	GALLIFORMES	Phasianidae	Snow Partridge	*Lerwa lerwa*	Avibase,ebird
21	GALLIFORMES	Phasianidae	Red Junglefowl	*Gallus gallus*	Avibase,ebird
22	GALLIFORMES	Phasianidae	Himalayan Monal	*Lophophorus impejanus*	Avibase,ebird
23	GALLIFORMES	Phasianidae	Satyr Tragopan	*Tragopan satyra*	Avibase,ebird
24	GALLIFORMES	Phasianidae	Kalij Pheasant	*Lophura leucomelanos*	Avibase,ebird
25	GALLIFORMES	Phasianidae	Tibetan Partridge	*Perdix hodgsoniae*	Avibase
26	GALLIFORMES	Phasianidae	Blood Pheasant	*Ithaginis cruentus*	Avibase,ebird
27	PHOENICOPTERIFORMES	Podicipedidae	Great Crested Grebe	*Podiceps cristatus*	Avibase,ebird
28	COLUMBIFORMES	Columbidae	Rock Dove	*Columba livia*	Avibase,ebird
29	COLUMBIFORMES	Columbidae	Hill Pigeon	*Columba rupestris*	Avibase,ebird
30	COLUMBIFORMES	Columbidae	Snow Pigeon	*Columba leuconota*	Avibase,ebird
31	COLUMBIFORMES	Columbidae	Freckled Pigeon	*Columba hodgsonii*	Avibase,ebird
32	COLUMBIFORMES	Columbidae	Ashy Pigeon	*Columba pulchricollis*	Avibase,ebird
33	COLUMBIFORMES	Columbidae	Oriental Turtle Dove	*Streptopelia orientalis*	Avibase,ebird
34	COLUMBIFORMES	Columbidae	Spotted-necked Dove	*Streptopelia chinensis*	Avibase,ebird

35	COLUMBIFORMES	Columbidae	Laughing Dove	*Streptopelia senegalensis*	Avibase,ebird
36	COLUMBIFORMES	Columbidae	Barred Cuckoo Dove	*Macropygia unchall*	Avibase,ebird
37	COLUMBIFORMES	Columbidae	Pin-tailed Green Pigeon	*Treron apicauda*	Avibase,ebird
38	COLUMBIFORMES	Columbidae	Wedge-tailed Green Pigeon	*Treron sphenurus*	Avibase,ebird
39	COLUMBIFORMES	Columbidae	Emerald Dove	*Chalcophaps indica*	Avibase,ebird
40	COLUMBIFORMES	Columbidae	Mountain Imperial Pigeon	*Ducula badia*	Avibase,ebird
41	PTEROCLIFORMES	Pteroclidae	Tibetan Sandgrouse	*Syrrhaptes tibetanus*	Avibase,ebird
42	**CAPRIMULGIFORMES**	**Podargidae**	Hodgson's Frogmouth	*Batrachostomus hodgsoni*	Avibase
43	CAPRIMULGIFORMES	Caprimulgidae	Grey Nightjar	*Caprimulgus indicus*	Avibase,ebird
44	CAPRIMULGIFORMES	Apodidae	Crested Treeswift	*Hemiprocne coronata*	Avibase
45	CAPRIMULGIFORMES	Apodidae	White-throated Needletail	*Hirundapus caudacutus*	Avibase,ebird
46	CAPRIMULGIFORMES	Apodidae	Silver-backed Needletail	*Hirundapus cochinchinensis*	Avibase
47	CAPRIMULGIFORMES	Apodidae	Himalayan Swiftlet	*Aerodramus brevirostris*	Avibase,ebird
48	CAPRIMULGIFORMES	Apodidae	Alpine Swift	*Tachymarptis melba*	Avibase
49	CAPRIMULGIFORMES	Apodidae	Fork-tailed Swift	*Apus pacificus*	Avibase
50	CAPRIMULGIFORMES	Apodidae	House Swift	*Apus nipalensis*	Avibase,ebird
51	CAPRIMULGIFORMES	Apodidae	Little Swift	*Apus affinis*	Avibase
52	CAPRIMULGIFORMES	Apodidae	Blyth's Swift	*Apus leuconyx*	ebird
53	CUCULIFORMES	Cuculidae	Greater Coucal	*Centropus sinensis*	Avibase
54	CUCULIFORMES	Cuculidae	Green-billed Malkoha	*Phaenicophaeus tristis*	Avibase,ebird
55	CUCULIFORMES	Cuculidae	Jacobin Cuckoo	*Clamator jacobinus*	Avibase,ebird
56	CUCULIFORMES	Cuculidae	Common Koel	*Eudynamys scolopaceus*	Avibase
57	CUCULIFORMES	Cuculidae	Asian Emerald Cuckoo	*Chrysococcyx maculatus*	Avibase,ebird
58	CUCULIFORMES	Cuculidae	Banded Bay Cuckoo	*Cacomantis sonneratii*	Avibase,ebird
59	CUCULIFORMES	Cuculidae	Plaintive Cuckoo	*Cacomantis merulinus*	Avibase,ebird
60	CUCULIFORMES	Cuculidae	Grey-bellied Cuckoo	*Cacomantis passerinus*	Avibase,ebird
61	CUCULIFORMES	Cuculidae	Drongo Cuckoo	*Surniculus lugubris*	Avibase,ebird
62	CUCULIFORMES	Cuculidae	Large Hawk Cuckoo	*Hierococcyx sparverioides*	Avibase,ebird
63	CUCULIFORMES	Cuculidae	Common Hawk Cuckoo	*Hierococcyx varius*	Avibase,ebird
64	CUCULIFORMES	Cuculidae	Whistling Hawk Cuckoo	*Hierococcyx nisicolor*	Avibase,ebird
65	CUCULIFORMES	Cuculidae	Indian Cuckoo	*Cuculus micropterus*	Avibase,ebird
66	CUCULIFORMES	Cuculidae	Common Cuckoo	*Cuculus canorus*	Avibase,ebird
67	CUCULIFORMES	Cuculidae	Himalayan Cuckoo	*Cuculus saturatus*	Avibase,ebird
68	CUCULIFORMES	Cuculidae	Lesser Cuckoo	*Cuculus poliocephalus*	Avibase,ebird
69	GRUIFORMES	Rallidae	Slaty-legged Crake	*Rallina eurizonoides*	Avibase
70	GRUIFORMES	Rallidae	Ruddy-breasted Crake	*Zapornia fusca*	Avibase
71	GRUIFORMES	Rallidae	Black-tailed Crake	*Zapornia bicolor*	Avibase
72	GRUIFORMES	Rallidae	Common Moorhen	*Gallinula chloropus*	Avibase
73	GRUIFORMES	Rallidae	Common Coot	*Fulica atra*	Avibase,ebird

74	GRUIFORMES	Gruidae	Black-necked Crane	*Grus nigricollis*	Avibase,ebird
75	PELECANIFORMES	Ardeidae	Cinnamon Bittern	*Ixobrychus cinnamomeus*	Avibase,ebird
76	PELECANIFORMES	Ardeidae	Indian Pond Heron	*Ardeola grayii*	Avibase
77	PELECANIFORMES	Ardeidae	Great Egret	*Ardea alba*	Avibase
78	PELECANIFORMES	Ardeidae	Little Egret	*Egretta garzetta*	Avibase
79	PELECANIFORMES	Phalacrocoracidae	Great Cormorant	*Phalacrocorax carbo*	Avibase,ebird
80	PELECANIFORMES	Phalacrocoracidae	Indian Cormorant	*Phalacrocorax fuscicollis*	Avibase
81	CHARADRIIFORMES	Haematopodidae	Ibisbill	*Ibidorhyncha struthersii*	Avibase,ebird
82	CHARADRIIFORMES	Recurvirostridae	Pied Avocet	*Recurvirostra avosetta*	Avibase,ebird
83	CHARADRIIFORMES	Charadriidae	Kentish Plover	*Charadrius alexandrinus*	Avibase
84	CHARADRIIFORMES	Charadriidae	Lesser Sand Plover	*Charadrius mongolus*	Avibase,ebird
85	CHARADRIIFORMES	Charadriidae	River Lapwing	*Vanellus duvaucelii*	Avibase
86	CHARADRIIFORMES	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*	Avibase,ebird
87	CHARADRIIFORMES	Jacanidae	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Avibase
88	CHARADRIIFORMES	Scolopacidae	Eurasian Curlew	*Numenius arquata*	Avibase
89	CHARADRIIFORMES	Scolopacidae	Eurasian Woodcock	*Scolopax rusticola*	Avibase,ebird
90	CHARADRIIFORMES	Scolopacidae	Solitary Snipe	*Gallinago solitaria*	Avibase,ebird
91	CHARADRIIFORMES	Scolopacidae	Wood Snipe	*Gallinago nemoricola*	Avibase
92	CHARADRIIFORMES	Scolopacidae	Jack Snipe	*Lymnocryptes minimus*	Avibase,ebird
93	CHARADRIIFORMES	Scolopacidae	Terek Sandpiper	*Xenus cinereus*	Avibase,ebird
94	CHARADRIIFORMES	Scolopacidae	Common Redshank	*Tringa totanus*	Avibase,ebird
95	CHARADRIIFORMES	Glareolidae	Oriental Pratincole	*Glareola maldivarum*	Avibase
96	CHARADRIIFORMES	Laridae	Brown-headed Gull	Avibase,ebird	
97	CHARADRIIFORMES	Laridae	Black-headed Gull	*Chroicocephalus ridibundus*	Avibase,ebird
98	CHARADRIIFORMES	Laridae	Pallas's Gull	*Ichthyaetus ichthyaetus*	Avibase,ebird
99	CHARADRIIFORMES	Laridae	River Tern	*Sterna aurantia*	Avibase
100	ACCIPITRIFORMES	Accipitridae	Oriental Honey Buzzard	*Pernis ptilorhynchus*	Avibase,ebird
101	ACCIPITRIFORMES	Accipitridae	Jerdon's Baza	*Aviceda jerdoni*	Avibase,ebird
102	ACCIPITRIFORMES	Accipitridae	Bearded Vulture	*Gypaetus barbatus*	Avibase,ebird
103	ACCIPITRIFORMES	Accipitridae	Crested Serpent Eagle	*Spilornis cheela*	Avibase,ebird
104	ACCIPITRIFORMES	Accipitridae	Short-toed Eagle	*Circaetus gallicus*	Avibase
105	ACCIPITRIFORMES	Accipitridae	Red-headed Vulture	*Sarcogyps calvus*	Avibase
106	ACCIPITRIFORMES	Accipitridae	Himalayan Vulture	*Gyps himalayensis*	Avibase,ebird
107	ACCIPITRIFORMES	Accipitridae	White-rumped Vulture	*Gyps bengalensis*	Avibase
108	ACCIPITRIFORMES	Accipitridae	Griffon Vulture	*Gyps fulvus*	Avibase
109	ACCIPITRIFORMES	Accipitridae	Cinereous Vulture	*Aegypius monachus*	Avibase
110	ACCIPITRIFORMES	Accipitridae	Mountain Hawk Eagle	*Nisaetus nipalensis*	Avibase,ebird
111	ACCIPITRIFORMES	Accipitridae	Rufous-bellied Eagle	*Lophotriorchis kienerii*	Avibase,ebird
112	ACCIPITRIFORMES	Accipitridae	Black Eagle	*Ictinaetus malaiensis*	Avibase,ebird

113	ACCIPITRIFORMES	Accipitridae	Steppe Eagle	*Aquila nipalensis*	Avibase,ebird
114	ACCIPITRIFORMES	Accipitridae	Eastern Imperial Eagle	*Aquila heliaca*	Avibase
115	ACCIPITRIFORMES	Accipitridae	Golden Eagle	*Aquila chrysaetos*	Avibase,ebird
116	ACCIPITRIFORMES	Accipitridae	Bonelli's Eagle	*Aquila fasciata*	Avibase
117	ACCIPITRIFORMES	Accipitridae	Booted Eagle	*Hieraaetus pennatus*	Avibase
118	ACCIPITRIFORMES	Accipitridae	Hen Harrier	*Circus cyaneus*	Avibase,ebird
119	ACCIPITRIFORMES	Accipitridae	Pied Harrier	*Circus melanoleucos*	Avibase
120	ACCIPITRIFORMES	Accipitridae	Crested Goshawk	*Accipiter trivirgatus*	Avibase,ebird
121	ACCIPITRIFORMES	Accipitridae	Shikra	*Accipiter badius*	Avibase
122	ACCIPITRIFORMES	Accipitridae	Besra	*Accipiter virgatus*	Avibase,ebird
123	ACCIPITRIFORMES	Accipitridae	Eurasian Sparrowhawk	*Accipiter nisus*	Avibase,ebird
124	ACCIPITRIFORMES	Accipitridae	Northern Goshawk	*Accipiter gentilis*	Avibase,ebird
125	ACCIPITRIFORMES	Accipitridae	Pallas's Fish Eagle	*Haliaeetus leucoryphus*	Avibase
126	ACCIPITRIFORMES	Accipitridae	White-tailed Sea Eagle	*Haliaeetus albicilla*	Avibase
127	ACCIPITRIFORMES	Accipitridae	Black Kite	*Milvus migrans*	Avibase,ebird
128	ACCIPITRIFORMES	Accipitridae	Eurasian Buzzard	*Buteo buteo*	Avibase,ebird
129	ACCIPITRIFORMES	Accipitridae	Himalayan Buzzard	*Buteo refectus*	Avibase,ebird
130	ACCIPITRIFORMES	Accipitridae	Long-legged Buzzard	*Buteo rufinus*	Avibase
131	ACCIPITRIFORMES	Accipitridae	Upland Buzzard	*Buteo hemilasius*	Avibase,ebird
132	STRIGIFORMES	Strigidae	Collared Owlet	*Glaucidium brodiei*	Avibase,ebird
133	STRIGIFORMES	Strigidae	Asian Barred Owlet	*Glaucidium cuculoides*	Avibase,ebird
134	STRIGIFORMES	Strigidae	Little Owl	*Athene noctua*	Avibase,ebird
135	STRIGIFORMES	Strigidae	Mountain Scops Owl	*Otus spilocephalus*	Avibase,ebird
136	STRIGIFORMES	Strigidae	Collared Scops Owl	*Otus bakkamoena*	Avibase,ebird
137	STRIGIFORMES	Strigidae	Northern Long-eared Owl	*Asio otus*	Avibase
138	STRIGIFORMES	Strigidae	Brown Wood Owl	*Strix leptogrammica*	Avibase,ebird
139	STRIGIFORMES	Strigidae	Tawny Owl	*Strix aluco*	Avibase
140	STRIGIFORMES	Strigidae	Himalayan Owl	*Strix nivicolum*	ebird
141	STRIGIFORMES	Strigidae	Rock Eagle Owl	*Bubo bengalensis*	Avibase
142	STRIGIFORMES	Strigidae	Spot-bellied Eagle Owl	*Bubo nipalensis*	Avibase,ebird
143	TROGONIFORMES	Trogonidae	Red-headed Trogon	*Harpactes erythrocephalus*	Avibase,ebird
144	BUCEROTIFORMES	Upupidae	Common Hoopoe	*Upupa epops*	Avibase,ebird
145	PICIFORMES	Indicatoridae	Yellow-rumped Honeyguide	*Indicator xanthonotus*	Avibase,ebird
146	PICIFORMES	Picidae	White-browed Piculet	*Sasia ochracea*	Avibase,ebird
147	PICIFORMES	Picidae	Speckled Piculet	*Picumnus innominatus*	Avibase,ebird
148	PICIFORMES	Picidae	Rufous Woodpecker	*Micropternus brachyurus*	Avibase,ebird
149	PICIFORMES	Picidae	Greater Yellow-naped Woodpecker	*Chrysophlegma flavinucha*	Avibase,ebird
150	PICIFORMES	Picidae	Lesser Yellow-naped Woodpecker	*Picus chlorolophus*	Avibase,ebird
151	PICIFORMES	Picidae	Grey-headed Woodpecker	*Picus canus*	Avibase,ebird

152	PICIFORMES	Picidae	Great Slaty Woodpecker	*Mulleripicus pulverulentus*	Avibase
153	PICIFORMES	Picidae	Bay Woodpecker	*Blythipicus pyrrhotis*	Avibase,ebird
154	PICIFORMES	Picidae	Greater Flame-backed Woodpecker	*Chrysocolaptes guttacristatus*	Avibase,ebird
155	PICIFORMES	Picidae	Grey-capped Pygmy Woodpecker	*Dendrocopos canicapillus*	Avibase,ebird
156	PICIFORMES	Picidae	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Avibase,ebird
157	PICIFORMES	Picidae	Crimson-breasted Woodpecker	*Dendrocopos cathpharius*	Avibase,ebird
158	PICIFORMES	Picidae	Darjeeling Woodpecker	*Dendrocopos darjellensis*	Avibase,ebird
159	PICIFORMES	Picidae	Rufous-bellied Woodpecker	*Dendrocopos hyperythrus*	Avibase,ebird
160	PICIFORMES	Ramphastidae	Great Barbet	*Psilopogon virens*	Avibase,ebird
161	PICIFORMES	Ramphastidae	Lineated Barbet	*Psilopogon lineatus*	Avibase
162	PICIFORMES	Ramphastidae	Golden-throated Barbet	*Psilopogon franklinii*	Avibase,ebird
163	PICIFORMES	Ramphastidae	Blue-throated Barbet	*Psilopogon asiaticus*	Avibase,ebird
164	PICIFORMES	Ramphastidae	Blue-eared Barbet	*Psilopogon australis*	Avibase
165	CORACIIFORMES	Meropidae	Chestnut-headed Bee-eater	*Merops leschenaulti*	Avibase
166	CORACIIFORMES	Meropidae	Blue-tailed Bee-eater	*Merops philippinus*	Avibase,ebird
167	CORACIIFORMES	Coraciidae	Indian Roller	*Coracias benghalensis*	Avibase
168	CORACIIFORMES	Coraciidae	Dollarbird	*Eurystomus orientalis*	Avibase
169	CORACIIFORMES	Alcedinidae	Common Kingfisher	*Alcedo atthis*	Avibase
170	CORACIIFORMES	Alcedinidae	Crested Kingfisher	*Megaceryle lugubris*	Avibase,ebird
171	CORACIIFORMES	Alcedinidae	Ruddy Kingfisher	*Halcyon coromanda*	Avibase
172	CORACIIFORMES	Alcedinidae	White-throated Kingfisher	*Halcyon smyrnensis*	Avibase,ebird
173	FALCONIFORMES	Falconidae	Collared Falconet	*Microhierax caerulescens*	Avibase,ebird
174	FALCONIFORMES	Falconidae	Common Kestrel	*Falco tinnunculus*	Avibase,ebird
175	FALCONIFORMES	Falconidae	Amur Falcon	*Falco amurensis*	Avibase
176	FALCONIFORMES	Falconidae	Merlin	*Falco columbarius*	Avibase
177	FALCONIFORMES	Falconidae	Eurasian Hobby	*Falco subbuteo*	Avibase
178	FALCONIFORMES	Falconidae	Oriental Hobby	*Falco severus*	Avibase
179	FALCONIFORMES	Falconidae	Laggar Falcon	*Falco jugger*	Avibase
180	FALCONIFORMES	Falconidae	Saker Falcon	*Falco cherrug*	Avibase,ebird
181	FALCONIFORMES	Falconidae	Peregrine Falcon	*Falco peregrinus*	Avibase,ebird
182	PSITTACIFORMES	Psittaculidae	Slaty-headed Parakeet	*Psittacula himalayana*	Avibase,ebird
183	PSITTACIFORMES	Psittaculidae	Red-breasted Parakeet	*Psittacula alexandri*	Avibase
184	PSITTACIFORMES	Psittaculidae	Alexandrine Parakeet	*Psittacula eupatria*	Avibase
185	PSITTACIFORMES	Psittaculidae	Vernal Hanging Parrot	*Loriculus vernalis*	Avibase
186	PASSERIFORMES	Pittidae	Blue-naped Pitta	*Pitta nipalensis*	Avibase
187	PASSERIFORMES	Pittidae	Indian Pitta	*Pitta brachyura*	Avibase
188	PASSERIFORMES	Pittidae	Hooded Pitta	*Pitta sordida*	Avibase
189	PASSERIFORMES	Eurylaimidae	Long-tailed Broadbill	*Psarisomus dalhousiae*	Avibase,ebird
190	PASSERIFORMES	Campephagidae	Grey-chinned Minivet	*Pericrocotus solaris*	Avibase,ebird

191	PASSERIFORMES	Campephagidae	Short-billed Minivet	*Pericrocotus brevirostris*	Avibase,ebird
192	PASSERIFORMES	Campephagidae	Long-tailed Minivet	*Pericrocotus ethologus*	Avibase,ebird
193	PASSERIFORMES	Campephagidae	Scarlet Minivet	*Pericrocotus flammeus*	Avibase,ebird
194	PASSERIFORMES	Campephagidae	Rosy Minivet	*Pericrocotus roseus*	Avibase
195	PASSERIFORMES	Campephagidae	Black-winged Cuckooshrike	*Lalage melaschistos*	Avibase,ebird
196	PASSERIFORMES	Vireonidae	Black-headed Shrike-babbler	*Pteruthius rufiventer*	Avibase,ebird
197	PASSERIFORMES	Vireonidae	Himalayan Shrike-babbler	*Pteruthius ripleyi*	Avibase
198	PASSERIFORMES	Vireonidae	Blyth's Shrike-babbler	*Pteruthius aeralatus*	Avibase,ebird
199	PASSERIFORMES	Vireonidae	Green Shrike-babbler	*Pteruthius xanthochlorus*	Avibase,ebird
200	PASSERIFORMES	Vireonidae	Black-eared Shrike-babbler	*Pteruthius melanotis*	Avibase,ebird
201	PASSERIFORMES	Vireonidae	Erpornis	*Erpornis zantholeuca*	Avibase,ebird
202	PASSERIFORMES	Oriolidae	Maroon Oriole	*Oriolus traillii*	Avibase,ebird
203	PASSERIFORMES	Oriolidae	Slender-billed Oriole	*Oriolus tenuirostris*	Avibase,ebird
204	PASSERIFORMES	Vangidae	Bar-winged Flycatcher-shrike	*Hemipus picatus*	Avibase,ebird
205	PASSERIFORMES	Aegithinidae	Common Iora	*Aegithina tiphia*	Avibase,ebird
206	PASSERIFORMES	Dicruridae	Black Drongo	*Dicrurus macrocercus*	Avibase,ebird
207	PASSERIFORMES	Dicruridae	Ashy Drongo	*Dicrurus leucophaeus*	Avibase,ebird
208	PASSERIFORMES	Dicruridae	Crow-billed Drongo	*Dicrurus annectens*	Avibase
209	PASSERIFORMES	Dicruridae	Bronzed Drongo	*Dicrurus aeneus*	Avibase,ebird
210	PASSERIFORMES	Dicruridae	Lesser Racket-tailed Drongo	*Dicrurus remifer*	Avibase,ebird
211	PASSERIFORMES	Dicruridae	Hair-crested Drongo	*Dicrurus hottentottus*	Avibase,ebird
212	PASSERIFORMES	Rhipiduridae	White-throated Fantail	*Rhipidura albicollis*	Avibase,ebird
213	PASSERIFORMES	Laniidae	Brown Shrike	*Lanius cristatus*	Avibase,ebird
214	PASSERIFORMES	Laniidae	Long-tailed Shrike	*Lanius schach*	Avibase,ebird
215	PASSERIFORMES	Laniidae	Grey-backed Shrike	*Lanius tephronotus*	Avibase,ebird
216	PASSERIFORMES	Corvidae	Rufous Treepie	*Dendrocitta vagabunda*	Avibase,ebird
217	PASSERIFORMES	Corvidae	Grey Treepie	*Dendrocitta formosae*	Avibase,ebird
218	PASSERIFORMES	Corvidae	Collared Treepie	*Dendrocitta frontalis*	Avibase,ebird
219	PASSERIFORMES	Corvidae	Red-billed Chough	*Pyrrhocorax pyrrhocorax*	Avibase,ebird
220	PASSERIFORMES	Corvidae	Alpine Chough	*Pyrrhocorax graculus*	Avibase,ebird
221	PASSERIFORMES	Corvidae	Yellow-billed Blue Magpie	*Urocissa flavirostris*	Avibase,ebird
222	PASSERIFORMES	Corvidae	Red-billed Blue Magpie	*Urocissa erythroryncha*	Avibase,ebird
223	PASSERIFORMES	Corvidae	Common Green Magpie	*Cissa chinensis*	Avibase,ebird
224	PASSERIFORMES	Corvidae	Eurasian Jay	*Garrulus glandarius*	Avibase,ebird
225	PASSERIFORMES	Corvidae	Eurasian Magpie	*Pica pica*	Avibase
226	PASSERIFORMES	Corvidae	Eurasian Nutcracker	*Nucifraga caryocatactes*	Avibase,ebird
227	PASSERIFORMES	Corvidae	Common Raven	*Corvus corax*	Avibase,ebird
228	PASSERIFORMES	Corvidae	House Crow	*Corvus splendens*	Avibase,ebird
229	PASSERIFORMES	Corvidae	Large-billed Crow	*Corvus macrorhynchos*	Avibase,ebird

230	PASSERIFORMES	Monarchidae	Black-naped Monarch	*Hypothymis azurea*	Avibase
231	PASSERIFORMES	Dicaeidae	Yellow-bellied Flowerpecker	*Dicaeum melanozanthum*	Avibase,ebird
232	PASSERIFORMES	Dicaeidae	Yellow-vented Flowerpecker	*Dicaeum chrysorrheum*	Avibase
233	PASSERIFORMES	Dicaeidae	Pale-billed Flowerpecker	*Dicaeum erythrorhynchos*	Avibase
234	PASSERIFORMES	Dicaeidae	Plain Flowerpecker	*Dicaeum minullum*	Avibase
235	PASSERIFORMES	Dicaeidae	Scarlet-backed Flowerpecker	*Dicaeum cruentatum*	Avibase
236	PASSERIFORMES	Dicaeidae	Fire-breasted Flowerpecker	*Dicaeum ignipectus*	Avibase,ebird
237	PASSERIFORMES	Nectariniidae	Little Spiderhunter	*Arachnothera longirostra*	Avibase
238	PASSERIFORMES	Nectariniidae	Streaked Spiderhunter	*Arachnothera magna*	Avibase,ebird
239	PASSERIFORMES	Nectariniidae	Fire-tailed Sunbird	*Aethopyga ignicauda*	Avibase,ebird
240	PASSERIFORMES	Nectariniidae	Black-throated Sunbird	*Aethopyga saturata*	Avibase,ebird
241	PASSERIFORMES	Nectariniidae	Green-tailed Sunbird	*Aethopyga nipalensis*	Avibase,ebird
242	PASSERIFORMES	Nectariniidae	Mrs. Gould's Sunbird	*Aethopyga gouldiae*	Avibase,ebird
243	PASSERIFORMES	Nectariniidae	Crimson Sunbird	*Aethopyga siparaja*	Avibase,ebird
244	PASSERIFORMES	Irenidae	Orange-bellied Leafbird	*Chloropsis hardwickii*	Avibase,ebird
245	PASSERIFORMES	Prunellidae	Altai Accentor	*Prunella himalayana*	Avibase,ebird
246	PASSERIFORMES	Prunellidae	Alpine Accentor	*Prunella collaris*	Avibase,ebird
247	PASSERIFORMES	Prunellidae	Maroon-backed Accentor	*Prunella immaculata*	Avibase,ebird
248	PASSERIFORMES	Prunellidae	Robin Accentor	*Prunella rubeculoides*	Avibase,ebird
249	PASSERIFORMES	Prunellidae	Rufous-breasted Accentor	*Prunella strophiata*	Avibase,ebird
250	PASSERIFORMES	Prunellidae	Brown Accentor	*Prunella fulvescens*	Avibase,ebird
251	PASSERIFORMES	Estrildidae	White-rumped Munia	*Lonchura striata*	Avibase,ebird
252	PASSERIFORMES	Estrildidae	Scaly-breasted Munia	*Lonchura punctulata*	Avibase,ebird
253	PASSERIFORMES	Passeridae	House Sparrow	*Passer domesticus*	Avibase,ebird
254	PASSERIFORMES	Passeridae	Russet Sparrow	*Passer cinnamomeus*	Avibase,ebird
255	PASSERIFORMES	Passeridae	Eurasian Tree Sparrow	*Passer montanus*	Avibase,ebird
256	PASSERIFORMES	Passeridae	Chestnut-shouldered Bush Sparrow	*Gymnoris xanthocollis*	Avibase
257	PASSERIFORMES	Passeridae	Black-winged Snowfinch	*Montifringilla adamsi*	Avibase,ebird
258	PASSERIFORMES	Passeridae	White-rumped Snowfinch	*Onychostruthus taczanowskii*	Avibase,ebird
259	PASSERIFORMES	Passeridae	Rufous-necked Snowfinch	*Pyrgilauda ruficollis*	Avibase,ebird
260	PASSERIFORMES	Passeridae	Blanford's Snowfinch	*Pyrgilauda blanfordi*	Avibase,ebird
261	PASSERIFORMES	Motacillidae	Olive-backed Pipit	*Anthus hodgsoni*	Avibase,ebird
262	PASSERIFORMES	Motacillidae	Rosy Pipit	*Anthus roseatus*	Avibase,ebird
263	PASSERIFORMES	Motacillidae	Upland Pipit	*Anthus sylvanus*	Avibase,ebird
264	PASSERIFORMES	Motacillidae	Richard's Pipit	*Anthus richardi*	Avibase
265	PASSERIFORMES	Motacillidae	Paddyfield Pipit	*Anthus rufulus*	Avibase
266	PASSERIFORMES	Motacillidae	Blyth's Pipit	*Anthus godlewskii*	Avibase,ebird
267	PASSERIFORMES	Motacillidae	Long-billed Pipit	*Anthus similis*	Avibase
268	PASSERIFORMES	Motacillidae	Western Yellow Wagtail	*Motacilla flava*	Avibase

269	PASSERIFORMES	Motacillidae	Eastern Yellow Wagtail	*Motacilla tschutschensis*	ebird
270	PASSERIFORMES	Motacillidae	Grey Wagtail	*Motacilla cinerea*	Avibase,ebird
271	PASSERIFORMES	Motacillidae	Citrine Wagtail	*Motacilla citreola*	Avibase,ebird
272	PASSERIFORMES	Motacillidae	White-browed Wagtail	*Motacilla maderaspatensis*	Avibase,ebird
273	PASSERIFORMES	Motacillidae	White Wagtail	*Motacilla alba*	Avibase,ebird
274	PASSERIFORMES	Fringillidae	Collared Grosbeak	*Mycerobas affinis*	Avibase,ebird
275	PASSERIFORMES	Fringillidae	Spot-winged Grosbeak	*Mycerobas melanozanthos*	Avibase,ebird
276	PASSERIFORMES	Fringillidae	White-winged Grosbeak	*Mycerobas carnipes*	Avibase,ebird
277	PASSERIFORMES	Fringillidae	Common Rosefinch	*Erythrina erythrina*	Avibase,ebird
278	PASSERIFORMES	Fringillidae	Scarlet Finch	*Haematospiza sipahi*	Avibase,ebird
279	PASSERIFORMES	Fringillidae	Streaked Rosefinch	*Carpodacus rubicilloides*	Avibase,ebird
280	PASSERIFORMES	Fringillidae	Great Rosefinch	*Carpodacus rubicilla*	Avibase,ebird
281	PASSERIFORMES	Fringillidae	Red-fronted Rosefinch	*Carpodacus puniceus*	Avibase
282	PASSERIFORMES	Fringillidae	Crimson-browed Finch	*Carpodacus subhimachalus*	Avibase,ebird
283	PASSERIFORMES	Fringillidae	Himalayan White-browed Rosefinch	*Carpodacus thura*	Avibase,ebird
284	PASSERIFORMES	Fringillidae	Beautiful Rosefinch	*Carpodacus pulcherrimus*	Avibase
285	PASSERIFORMES	Fringillidae	Dark-rumped Rosefinch	*Carpodacus edwardsii*	Avibase,ebird
286	PASSERIFORMES	Fringillidae	Pink-browed Rosefinch	*Carpodacus rodochroa*	Avibase,ebird
287	PASSERIFORMES	Fringillidae	Spot-winged Rosefinch	*Carpodacus rodopeplus*	Avibase
288	PASSERIFORMES	Fringillidae	Brown Bullfinch	*Pyrrhula nipalensis*	Avibase,ebird
289	PASSERIFORMES	Fringillidae	Red-headed Bullfinch	*Pyrrhula erythrocephala*	Avibase,ebird
290	PASSERIFORMES	Fringillidae	Grey-headed Bullfinch	*Pyrrhula erythaca*	Avibase
291	PASSERIFORMES	Fringillidae	Blanford's Rosefinch	*Agraphospiza rubescens*	Avibase
292	PASSERIFORMES	Fringillidae	Golden-naped Finch	*Pyrrhoplectes epauletta*	Avibase,ebird
293	PASSERIFORMES	Fringillidae	Dark-breasted Rosefinch	*Procarduelis nipalensis*	Avibase,ebird
294	PASSERIFORMES	Fringillidae	Plain Mountain Finch	*Leucosticte nemoricola*	Avibase,ebird
295	PASSERIFORMES	Fringillidae	Brandt's Mountain Finch	*Leucosticte brandti*	Avibase,ebird
296	PASSERIFORMES	Fringillidae	Yellow-breasted Greenfinch	*Chloris spinoides*	Avibase,ebird
297	PASSERIFORMES	Fringillidae	Twite	*Linaria flavirostris*	Avibase
298	PASSERIFORMES	Fringillidae	Red Crossbill	*Loxia curvirostra*	Avibase,ebird
299	PASSERIFORMES	Fringillidae	Red-fronted Serin	*Serinus pusillus*	Avibase
300	PASSERIFORMES	Fringillidae	Tibetan Siskin	*Spinus thibetanus*	Avibase,ebird
301	PASSERIFORMES	Emberizidae	Crested Bunting	*Melophus lathami*	Avibase
302	PASSERIFORMES	Emberizidae	Little Bunting	*Schoeniclus pusillus*	Avibase,ebird
303	PASSERIFORMES	Emberizidae	Yellow-breasted Bunting	*Schoeniclus aureolus*	Avibase
304	PASSERIFORMES	Stenostiridae	Fairy-fantail	*Chelidorhynx hypoxanthus*	Avibase,ebird
305	PASSERIFORMES	Stenostiridae	Grey-headed Canary-flycatcher	*Culicicapa ceylonensis*	Avibase,ebird
306	PASSERIFORMES	Paridae	Fire-capped Tit	*Cephalopyrus flammiceps*	Avibase
307	PASSERIFORMES	Paridae	Yellow-browed Tit	*Sylviparus modestus*	Avibase,ebird

308	PASSERIFORMES	Paridae	Sultan Tit	*Melanochlora sultanea*	Avibase,ebird
309	PASSERIFORMES	Paridae	Coal Tit	*Periparus ater*	Avibase,ebird
310	PASSERIFORMES	Paridae	Rufous-vented Tit	*Periparus rubidiventris*	Avibase,ebird
311	PASSERIFORMES	Paridae	Fulvous Tit	*Lophophanes dichrous*	Avibase,ebird
312	PASSERIFORMES	Paridae	Groundpecker	*Pseudopodoces humilis*	Avibase,ebird
313	PASSERIFORMES	Paridae	Green-backed Tit	*Parus monticolus*	Avibase,ebird
314	PASSERIFORMES	Paridae	Cinereous Tit	*Parus cinereus*	Avibase
315	PASSERIFORMES	Paridae	Black-lored Tit	*Machlolophus xanthogenys*	Avibase
316	PASSERIFORMES	Paridae	Yellow-cheeked Tit	*Machlolophus spilonotus*	Avibase,ebird
317	PASSERIFORMES	Alaudidae	Tibetan Lark	*Melanocorypha maxima*	Avibase
318	PASSERIFORMES	Alaudidae	Hume's Short-toed Lark	*Calandrella acutirostris*	Avibase,ebird
319	PASSERIFORMES	Alaudidae	Greater Short-toed Lark	*Calandrella brachydactyla*	Avibase,ebird
320	PASSERIFORMES	Alaudidae	Mongolian Short-toed Lark	*Calandrella dukhunensis*	ebird
321	PASSERIFORMES	Alaudidae	Horned Lark	*Eremophila alpestris*	Avibase,ebird
322	PASSERIFORMES	Alaudidae	Oriental Sky Lark	*Alauda gulgula*	Avibase,ebird
323	PASSERIFORMES	Cisticolidae	Striated Prinia	*Prinia crinigera*	Avibase
324	PASSERIFORMES	Cisticolidae	Hill Prinia	*Prinia atrogularis*	Avibase,ebird
325	PASSERIFORMES	Cisticolidae	Rufescent Prinia	*Prinia rufescens*	Avibase
326	PASSERIFORMES	Cisticolidae	Ashy Prinia	*Prinia socialis*	Avibase
327	PASSERIFORMES	Cisticolidae	Common Tailorbird	*Orthotomus sutorius*	Avibase,ebird
328	PASSERIFORMES	Locustellidae	Lanceolated Warbler	*Locustella lanceolata*	Avibase
329	PASSERIFORMES	Locustellidae	Brown Bush Warbler	*Locustella luteoventris*	Avibase
330	PASSERIFORMES	Locustellidae	Spotted Bush Warbler	*Locustella thoracica*	Avibase
331	PASSERIFORMES	Locustellidae	Russet Bush Warbler	*Locustella mandelli*	Avibase
332	PASSERIFORMES	Locustellidae	Striated Grassbird	*Megalurus palustris*	Avibase
333	PASSERIFORMES	Acrocephalidae	Thick-billed Warbler	*Arundinax aedon*	Avibase
334	PASSERIFORMES	Acrocephalidae	Booted Warbler	*Iduna caligata*	Avibase
335	PASSERIFORMES	Acrocephalidae	Sykes's Warbler	*Iduna rama*	Avibase,ebird
336	PASSERIFORMES	Acrocephalidae	Blyth's Reed Warbler	*Acrocephalus dumetorum*	Avibase
337	PASSERIFORMES	Pnoepygidae	Pygmy Wren Babbler	*Pnoepyga pusilla*	Avibase,ebird
338	PASSERIFORMES	Pnoepygidae	Scaly-breasted Wren Babbler	*Pnoepyga albiventer*	Avibase,ebird
339	PASSERIFORMES	Hirundinidae	Northern House Martin	*Delichon urbicum*	Avibase
340	PASSERIFORMES	Hirundinidae	Asian House Martin	*Delichon dasypus*	Avibase,ebird
341	PASSERIFORMES	Hirundinidae	Nepal House Martin	*Delichon nipalense*	Avibase,ebird
342	PASSERIFORMES	Hirundinidae	Red-rumped Swallow	*Cecropis daurica*	Avibase,ebird
343	PASSERIFORMES	Hirundinidae	Barn Swallow	*Hirundo rustica*	Avibase,ebird
344	PASSERIFORMES	Hirundinidae	Eurasian Crag Martin	*Ptyonoprogne rupestris*	Avibase,ebird
345	PASSERIFORMES	Hirundinidae	Plain Martin	*Riparia chinensis*	Avibase
346	PASSERIFORMES	Hirundinidae	Pale Martin	*Riparia diluta*	Avibase

347	PASSERIFORMES	Pycnonotidae	White-throated Bulbul	*Alophoixus flaveolus*	Avibase
348	PASSERIFORMES	Pycnonotidae	Ashy Bulbul	*Hemixos flavala*	Avibase,ebird
349	PASSERIFORMES	Pycnonotidae	Mountain Bulbul	*Ixos mcclellandii*	Avibase,ebird
350	PASSERIFORMES	Pycnonotidae	Black Bulbul	*Hypsipetes leucocephalus*	Avibase,ebird
351	PASSERIFORMES	Pycnonotidae	Striated Bulbul	*Pycnonotus striatus*	Avibase,ebird
352	PASSERIFORMES	Pycnonotidae	Black-crested Bulbul	*Rubigula flaviventris*	Avibase,ebird
353	PASSERIFORMES	Pycnonotidae	Red-whiskered Bulbul	*Pycnonotus jocosus*	Avibase
354	PASSERIFORMES	Pycnonotidae	Himalayan Bulbul	*Pycnonotus leucogenys*	Avibase,ebird
355	PASSERIFORMES	Pycnonotidae	White-eared Bulbul	*Pycnonotus leucotis*	Avibase
356	PASSERIFORMES	Pycnonotidae	Red-vented Bulbul	*Pycnonotus cafer*	Avibase,ebird
357	PASSERIFORMES	Phylloscopidae	Yellow-browed Warbler	*Abrornis inornatus*	Avibase,ebird
358	PASSERIFORMES	Phylloscopidae	Hume's Leaf Warbler	*Abrornis humei*	Avibase,ebird
359	PASSERIFORMES	Phylloscopidae	Lemon-rumped Warbler	*Abrornis chloronotus*	Avibase,ebird
360	PASSERIFORMES	Phylloscopidae	Buff-barred Warbler	*Abrornis pulcher*	Avibase,ebird
361	PASSERIFORMES	Phylloscopidae	Ashy-throated Warbler	*Abrornis maculipennis*	Avibase,ebird
362	PASSERIFORMES	Phylloscopidae	Dusky Warbler	*Phylloscopus fuscatus*	Avibase
363	PASSERIFORMES	Phylloscopidae	Smoky Warbler	*Phylloscopus fuligiventer*	Avibase,ebird
364	PASSERIFORMES	Phylloscopidae	Sulphur-bellied Warbler	*Phylloscopus griseolus*	Avibase
365	PASSERIFORMES	Phylloscopidae	Tickell's Leaf Warbler	*Phylloscopus affinis*	Avibase,ebird
366	PASSERIFORMES	Phylloscopidae	White-spectacled Leaf Warbler	*Seicercus affinis*	Avibase,ebird
367	PASSERIFORMES	Phylloscopidae	Grey-cheeked Leaf Warbler	*Seicercus poliogenys*	Avibase,ebird
368	PASSERIFORMES	Phylloscopidae	Golden-spectacled Leaf Warbler	*Seicercus burkii*	Avibase,ebird
369	PASSERIFORMES	Phylloscopidae	Whistler's Leaf Warbler	*Seicercus whistleri*	Avibase,ebird
370	PASSERIFORMES	Phylloscopidae	Chestnut-crowned Leaf Warbler	*Seicercus castaniceps*	Avibase,ebird
371	PASSERIFORMES	Phylloscopidae	Greenish Leaf Warbler	*Seicercus trochiloides*	Avibase,ebird
372	PASSERIFORMES	Phylloscopidae	Large-billed Leaf Warbler	*Seicercus magnirostris*	Avibase,ebird
373	PASSERIFORMES	Phylloscopidae	Yellow-vented Leaf Warbler	*Seicercus cantator*	Avibase,ebird
374	PASSERIFORMES	Phylloscopidae	Blyth's Leaf Warbler	*Seicercus reguloides*	Avibase,ebird
375	PASSERIFORMES	Phylloscopidae	Western Crowned Leaf Warbler	*Seicercus occipitalis*	Avibase
376	PASSERIFORMES	Phylloscopidae	Grey-hooded Leaf Warbler	*Seicercus xanthoschistos*	Avibase,ebird
377	PASSERIFORMES	Scotocercidae	Slaty-bellied Tesia	*Tesia olivea*	Avibase,ebird
378	PASSERIFORMES	Scotocercidae	Grey-bellied Tesia	*Tesia cyaniventer*	Avibase,ebird
379	PASSERIFORMES	Scotocercidae	Chestnut-crowned Bush Warbler	*Cettia major*	Avibase
380	PASSERIFORMES	Scotocercidae	Grey-sided Bush Warbler	*Cettia brunnifrons*	Avibase,ebird
381	PASSERIFORMES	Scotocercidae	Chestnut-headed Tesia	*Cettia castaneocoronata*	Avibase,ebird
382	PASSERIFORMES	Scotocercidae	Pale-footed Bush Warbler	*Hemitesia pallidipes*	Avibase
383	PASSERIFORMES	Scotocercidae	Yellow-bellied Warbler	*Abroscopus superciliaris*	Avibase,ebird
384	PASSERIFORMES	Scotocercidae	Rufous-faced Warbler	*Abroscopus albogularis*	Avibase
385	PASSERIFORMES	Scotocercidae	Black-faced Warbler	*Abroscopus schisticeps*	Avibase,ebird

386	PASSERIFORMES	Scotocercidae	Leafworker	*Phyllergates cucullatus*	Avibase,ebird
387	PASSERIFORMES	Scotocercidae	Broad-billed Warbler	*Tickellia hodgsoni*	Avibase,ebird
388	PASSERIFORMES	Scotocercidae	Brown-flanked Bush Warbler	*Horornis fortipes*	Avibase,ebird
389	PASSERIFORMES	Scotocercidae	Hume's Bush Warbler	*Horornis brunnescens*	Avibase,ebird
390	PASSERIFORMES	Scotocercidae	Aberrant Bush Warbler	*Horornis flavolivaceus*	Avibase,ebird
391	PASSERIFORMES	Aegithalidae	White-browed Tit Warbler	*Leptopoecile sophiae*	Avibase
392	PASSERIFORMES	Aegithalidae	Black-throated Tit	*Aegithalos concinnus*	Avibase,ebird
393	PASSERIFORMES	Aegithalidae	Black-browed Tit	*Aegithalos iouschistos*	Avibase,ebird
394	PASSERIFORMES	Sylviidae	Fire-tailed Myzornis	*Myzornis pyrrhoura*	Avibase,ebird
395	PASSERIFORMES	Sylviidae	Golden-breasted Fulvetta	*Lioparus chrysotis*	Avibase,ebird
396	PASSERIFORMES	Sylviidae	White-browed Fulvetta	*Fulvetta vinipectus*	Avibase,ebird
397	PASSERIFORMES	Sylviidae	Greater Rufous-headed Parrotbill	*Psittiparus ruficeps*	Avibase
398	PASSERIFORMES	Sylviidae	Grey-headed Parrotbill	*Psittiparus gularis*	Avibase
399	PASSERIFORMES	Sylviidae	Great Parrotbill	*Conostoma aemodium*	Avibase,ebird
400	PASSERIFORMES	Sylviidae	Brown Parrotbill	*Cholornis unicolor*	Avibase,ebird
401	PASSERIFORMES	Sylviidae	Fulvous-fronted Parrotbill	*Suthora fulvifrons*	Avibase
402	PASSERIFORMES	Sylviidae	Black-throated Parrotbill	*Suthora nipalensis*	Avibase,ebird
403	PASSERIFORMES	Sylviidae	Lesser Rufous-headed Parrotbill	*Chleuasicus atrosuperciliaris*	Avibase,ebird
404	PASSERIFORMES	Zosteropidae	Striated Yuhina	*Yuhina castaniceps*	Avibase
405	PASSERIFORMES	Zosteropidae	Black-chinned Yuhina	*Yuhina nigrimenta*	Avibase,ebird
406	PASSERIFORMES	Zosteropidae	Stripe-throated Yuhina	*Yuhina gularis*	Avibase,ebird
407	PASSERIFORMES	Zosteropidae	Whiskered Yuhina	*Yuhina flavicollis*	Avibase,ebird
408	PASSERIFORMES	Zosteropidae	Rufous-vented Yuhina	*Yuhina occipitalis*	Avibase,ebird
409	PASSERIFORMES	Zosteropidae	White-naped Yuhina	*Yuhina bakeri*	Avibase,ebird
410	PASSERIFORMES	Zosteropidae	Oriental White-eye	*Zosterops palpebrosus*	Avibase,ebird
411	PASSERIFORMES	Timaliidae	Rufous-throated Wren Babbler	*Spelaeornis caudatus*	Avibase,ebird
412	PASSERIFORMES	Timaliidae	Elachura	*Elachura formosa*	Avibase,ebird
413	PASSERIFORMES	Timaliidae	Coral-billed Scimitar Babbler	*Pomatorhinus ferruginosus*	Avibase,ebird
414	PASSERIFORMES	Timaliidae	Slender-billed Scimitar Babbler	*Pomatorhinus superciliaris*	Avibase,ebird
415	PASSERIFORMES	Timaliidae	White-browed Scimitar Babbler	*Pomatorhinus schisticeps*	Avibase,ebird
416	PASSERIFORMES	Timaliidae	Streak-breasted Scimitar Babbler	*Pomatorhinus ruficollis*	Avibase,ebird
417	PASSERIFORMES	Timaliidae	Rusty-cheeked Scimitar Babbler	*Erythrogenys erythrogenys*	Avibase,ebird
418	PASSERIFORMES	Timaliidae	Grey-throated Babbler	*Stachyris nigriceps*	Avibase,ebird
419	PASSERIFORMES	Timaliidae	Wedge-billed Babbler	*Stachyris humei*	Avibase
420	PASSERIFORMES	Timaliidae	Chestnut-capped Babbler	*Timalia pileata*	Avibase
421	PASSERIFORMES	Timaliidae	Golden Babbler	*Cyanoderma chrysaeum*	Avibase,ebird
422	PASSERIFORMES	Timaliidae	Rufous-capped Babbler	*Cyanoderma ruficeps*	Avibase,ebird
423	PASSERIFORMES	Timaliidae	Buff-chested Babbler	*Cyanoderma rufifrons*	Avibase
424	PASSERIFORMES	Pellorneidae	White-hooded Babbler	*Gampsorhynchus rufulus*	Avibase

425	PASSERIFORMES	Pellorneidae	Yellow-throated Fulvetta	*Schoeniparus cinereus*	Avibase,ebird
426	PASSERIFORMES	Pellorneidae	Rufous-winged Fulvetta	*Schoeniparus castaneceps*	Avibase,ebird
427	PASSERIFORMES	Pellorneidae	Puff-throated Babbler	*Pellorneum ruficeps*	Avibase,ebird
428	PASSERIFORMES	Pellorneidae	Long-billed Wren Babbler	*Rimator malacoptilus*	Avibase,ebird
429	PASSERIFORMES	Leiothrichidae	Brown-cheeked Nun Babbler	*Alcippe poioicephala*	Avibase
430	PASSERIFORMES	Leiothrichidae	Nepal Nun Babbler	*Alcippe nipalensis*	Avibase,ebird
431	PASSERIFORMES	Leiothrichidae	Striated Laughing-thrush	*Grammatoptila striata*	Avibase,ebird
432	PASSERIFORMES	Leiothrichidae	Cutia	*Cutia nipalensis*	Avibase,ebird
433	PASSERIFORMES	Leiothrichidae	Lesser Necklaced Laughing-thrush	*Garrulax monileger*	Avibase,ebird
434	PASSERIFORMES	Leiothrichidae	White-crested Laughing-thrush	*Garrulax leucolophus*	Avibase,ebird
435	PASSERIFORMES	Leiothrichidae	Spotted Laughing-thrush	*Garrulax ocellatus*	Avibase,ebird
436	PASSERIFORMES	Leiothrichidae	Rufous-chinned Laughing-thrush	*Garrulax rufogularis*	Avibase
437	PASSERIFORMES	Leiothrichidae	Greater Necklaced Laughing-thrush	*Garrulax pectoralis*	Avibase,ebird
438	PASSERIFORMES	Leiothrichidae	White-throated Laughing-thrush	*Garrulax albogularis*	Avibase,ebird
439	PASSERIFORMES	Leiothrichidae	Grey-sided Laughing-thrush	*Garrulax caerulatus*	Avibase,ebird
440	PASSERIFORMES	Leiothrichidae	Rufous-necked Laughing-thrush	*Garrulax ruficollis*	Avibase,ebird
441	PASSERIFORMES	Leiothrichidae	Scaly Laughing-thrush	*Trochalopteron subunicolor*	Avibase,ebird
442	PASSERIFORMES	Leiothrichidae	Blue-winged Laughing-thrush	*Trochalopteron squamatum*	Avibase,ebird
443	PASSERIFORMES	Leiothrichidae	Streaked Laughing-thrush	*Trochalopteron lineatum*	Avibase,ebird
444	PASSERIFORMES	Leiothrichidae	Striped Laughing-thrush	*Trochalopteron virgatum*	Avibase
445	PASSERIFORMES	Leiothrichidae	Variegated Laughing-thrush	*Trochalopteron variegatum*	Avibase
446	PASSERIFORMES	Leiothrichidae	Black-faced Laughing-thrush	*Trochalopteron affine*	Avibase,ebird
447	PASSERIFORMES	Leiothrichidae	Chestnut-crowned Laughing-thrush	Avibase,ebird	
448	PASSERIFORMES	Leiothrichidae	Long-tailed Sibia	*Heterophasia picaoides*	Avibase
449	PASSERIFORMES	Leiothrichidae	Rufous Sibia	*Heterophasia capistrata*	Avibase,ebird
450	PASSERIFORMES	Leiothrichidae	Grey Sibia	*Heterophasia gracilis*	Avibase
451	PASSERIFORMES	Leiothrichidae	Silver-eared Mesia	*Leiothrix argentauris*	Avibase,ebird
452	PASSERIFORMES	Leiothrichidae	Red-billed Leiothrix	*Leiothrix lutea*	Avibase,ebird
453	PASSERIFORMES	Leiothrichidae	Rufous-backed Sibia	*Leioptila annectens*	Avibase
454	PASSERIFORMES	Leiothrichidae	Red-tailed Minla	*Minla ignotincta*	Avibase,ebird
455	PASSERIFORMES	Leiothrichidae	Red-faced Liocichla	*Liocichla phoenicea*	Avibase,ebird
456	PASSERIFORMES	Leiothrichidae	Hoary-throated Barwing	*Sibia nipalensis*	Avibase,ebird
457	PASSERIFORMES	Leiothrichidae	Blue-winged Minla	*Siva cyanouroptera*	Avibase,ebird
458	PASSERIFORMES	Leiothrichidae	Chestnut-tailed Minla	*Chrysominla strigula*	Avibase,ebird
459	PASSERIFORMES	Leiothrichidae	Rusty-fronted Barwing	*Actinodura egertoni*	Avibase,ebird
460	PASSERIFORMES	Regulidae	Goldcrest	*Regulus regulus*	Avibase,ebird
461	PASSERIFORMES	Certhiidae	Rusty-flanked Treecreeper	*Certhia nipalensis*	Avibase,ebird
462	PASSERIFORMES	Certhiidae	Sikkim Treecreeper	*Certhia discolor*	Avibase,ebird
463	PASSERIFORMES	Certhiidae	Hodgson's Treecreeper	*Certhia hodgsoni*	Avibase,ebird

464	PASSERIFORMES	Sittidae	Chestnut-bellied Nuthatch	*Sitta castanea*	Avibase,ebird
465	PASSERIFORMES	Sittidae	White-tailed Nuthatch	*Sitta himalayensis*	Avibase,ebird
466	PASSERIFORMES	Sittidae	Velvet-fronted Nuthatch	*Sitta frontalis*	Avibase,ebird
467	PASSERIFORMES	Sittidae	Beautiful Nuthatch	*Sitta formosa*	Avibase
468	PASSERIFORMES	Sittidae	Wallcreeper	*Tichodroma muraria*	Avibase,ebird
469	PASSERIFORMES	Troglodytidae	Eurasian Wren	*Troglodytes troglodytes*	Avibase,ebird
470	PASSERIFORMES	Sturnidae	Brahminy Starling	*Sturnia pagodarum*	Avibase
471	PASSERIFORMES	Sturnidae	Chestnut-tailed Starling	*Sturnia malabarica*	Avibase
472	PASSERIFORMES	Sturnidae	Common Myna	*Acridotheres tristis*	Avibase,ebird
473	PASSERIFORMES	Sturnidae	Spot-winged Starling	*Saroglossa spilopterus*	Avibase,ebird
474	PASSERIFORMES	Sturnidae	Hill Myna	*Gracula religiosa*	Avibase,ebird
475	PASSERIFORMES	Cinclidae	White-throated Dipper	*Cinclus cinclus*	Avibase,ebird
476	PASSERIFORMES	Cinclidae	Brown Dipper	*Cinclus pallasii*	Avibase,ebird
477	PASSERIFORMES	Muscicapidae	Oriental Magpie Robin	*Copsychus saularis*	Avibase,ebird
478	PASSERIFORMES	Muscicapidae	Dark-sided Flycatcher	*Muscicapa sibirica*	Avibase,ebird
479	PASSERIFORMES	Muscicapidae	Asian Brown Flycatcher	*Muscicapa dauurica*	Avibase
480	PASSERIFORMES	Muscicapidae	Rusty-tailed Flycatcher	*Muscicapa ruficauda*	Avibase
481	PASSERIFORMES	Muscicapidae	Ferruginous Flycatcher	*Muscicapa ferruginea*	Avibase,ebird
482	PASSERIFORMES	Muscicapidae	Pale Blue Flycatcher	*Cyornis unicolor*	Avibase,ebird
483	PASSERIFORMES	Muscicapidae	Large Blue Flycatcher	*Cyornis magnirostris*	Avibase
484	PASSERIFORMES	Muscicapidae	Blue-throated Blue Flycatcher	*Cyornis rubeculoides*	Avibase,ebird
485	PASSERIFORMES	Muscicapidae	White-gorgetted Flycatcher	*Anthipes monileger*	Avibase,ebird
486	PASSERIFORMES	Muscicapidae	Rufous-bellied Niltava	*Niltava sundara*	Avibase,ebird
487	PASSERIFORMES	Muscicapidae	Vivid Niltava	*Niltava oatesi*	Avibase
488	PASSERIFORMES	Muscicapidae	Large Niltava	*Niltava grandis*	Avibase,ebird
489	PASSERIFORMES	Muscicapidae	Small Niltava	*Niltava macgrigoriae*	Avibase,ebird
490	PASSERIFORMES	Muscicapidae	Asian Verditer Flycatcher	*Eumyias thalassinus*	Avibase,ebird
491	PASSERIFORMES	Muscicapidae	Lesser Shortwing	*Brachypteryx leucophris*	Avibase,ebird
492	PASSERIFORMES	Muscicapidae	Himalayan Shortwing	*Brachypteryx cruralis*	ebird
493	PASSERIFORMES	Muscicapidae	Gould's Shortwing	*Heteroxenicus stellatus*	Avibase,ebird
494	PASSERIFORMES	Muscicapidae	Indian Blue Robin	*Larvivora brunnea*	Avibase,ebird
495	PASSERIFORMES	Muscicapidae	White-bellied Redstart	*Luscinia phaenicuroides*	Avibase,ebird
496	PASSERIFORMES	Muscicapidae	Little Forktail	*Enicurus scouleri*	Avibase,ebird
497	PASSERIFORMES	Muscicapidae	Black-backed Forktail	*Enicurus immaculatus*	Avibase
498	PASSERIFORMES	Muscicapidae	Slaty-backed Forktail	*Enicurus schistaceus*	Avibase,ebird
499	PASSERIFORMES	Muscicapidae	White-crowned Forktail	*Enicurus leschenaulti*	Avibase
500	PASSERIFORMES	Muscicapidae	Spotted Forktail	*Enicurus maculatus*	Avibase,ebird
501	PASSERIFORMES	Muscicapidae	Blue-fronted Robin	*Cinclidium frontale*	Avibase,ebird
502	PASSERIFORMES	Muscicapidae	Blue Whistling Thrush	*Myophonus caeruleus*	Avibase,ebird

503	PASSERIFORMES	Muscicapidae	White-tailed Rubythroat	*Calliope pectoralis*	Avibase
504	PASSERIFORMES	Muscicapidae	Siberian Rubythroat	*Calliope calliope*	Avibase
505	PASSERIFORMES	Muscicapidae	White-tailed Robin	*Myiomela leucura*	Avibase,ebird
506	PASSERIFORMES	Muscicapidae	White-browed Bush Robin	*Tarsiger indicus*	Avibase,ebird
507	PASSERIFORMES	Muscicapidae	Golden Bush Robin	*Tarsiger chrysaeus*	Avibase,ebird
508	PASSERIFORMES	Muscicapidae	Himalayan Bluetail	*Tarsiger rufilatus*	Avibase,ebird
509	PASSERIFORMES	Muscicapidae	Rufous-breasted Bush Robin	*Tarsiger hyperythrus*	Avibase,ebird
510	PASSERIFORMES	Muscicapidae	Taiga Flycatcher	*Ficedula albicilla*	Avibase,ebird
511	PASSERIFORMES	Muscicapidae	Snowy-browed Flycatcher	*Ficedula hyperythra*	Avibase,ebird
512	PASSERIFORMES	Muscicapidae	Rufous-gorgetted Flycatcher	*Ficedula strophiata*	Avibase,ebird
513	PASSERIFORMES	Muscicapidae	Ultramarine Flycatcher	*Ficedula superciliaris*	Avibase,ebird
514	PASSERIFORMES	Muscicapidae	Little Pied Flycatcher	*Ficedula westermanni*	Avibase,ebird
515	PASSERIFORMES	Muscicapidae	Slaty-blue Flycatcher	*Ficedula tricolor*	Avibase,ebird
516	PASSERIFORMES	Muscicapidae	Pygmy Blue Flycatcher	*Ficedula hodgsoni*	Avibase,ebird
517	PASSERIFORMES	Muscicapidae	Slaty-backed Flycatcher	*Ficedula sordida*	Avibase
518	PASSERIFORMES	Muscicapidae	Sapphire Flycatcher	*Ficedula sapphira*	Avibase,ebird
519	PASSERIFORMES	Muscicapidae	Blue-fronted Redstart	*Phoenicurus frontalis*	Avibase,ebird
520	PASSERIFORMES	Muscicapidae	White-throated Redstart	*Phoenicurus schisticeps*	Avibase,ebird
521	PASSERIFORMES	Muscicapidae	Plumbeous Water Redstart	*Rhyacornis fuliginosa*	Avibase,ebird
522	PASSERIFORMES	Muscicapidae	White-capped Water Redstart	*Chaimarrornis leucocephalus*	Avibase,ebird
523	PASSERIFORMES	Muscicapidae	Hodgson's Redstart	*Phoenicurus hodgsoni*	Avibase,ebird
524	PASSERIFORMES	Muscicapidae	Black Redstart	*Phoenicurus ochruros*	Avibase,ebird
525	PASSERIFORMES	Muscicapidae	Daurian Redstart	*Phoenicurus auroreus*	Avibase
526	PASSERIFORMES	Muscicapidae	Güldenstädt's Redstart	*Phoenicurus erythrogastrus*	Avibase,ebird
527	PASSERIFORMES	Muscicapidae	Blue-capped Rock Thrush	*Monticola cinclorhyncha*	Avibase,ebird
528	PASSERIFORMES	Muscicapidae	Chestnut-bellied Rock Thrush	*Monticola rufiventris*	Avibase,ebird
529	PASSERIFORMES	Muscicapidae	Blue Rock Thrush	*Monticola solitarius*	Avibase,ebird
530	PASSERIFORMES	Muscicapidae	Eastern Stonechat	*Saxicola maurus*	Avibase,ebird
531	PASSERIFORMES	Muscicapidae	Pied Bush Chat	*Saxicola caprata*	Avibase
532	PASSERIFORMES	Muscicapidae	Grey Bush Chat	*Saxicola ferreus*	Avibase,ebird
533	PASSERIFORMES	Muscicapidae	Northern Wheatear	*Oenanthe oenanthe*	Avibase,ebird
534	PASSERIFORMES	Muscicapidae	Isabelline Wheatear	*Oenanthe isabellina*	Avibase,ebird
535	PASSERIFORMES	Muscicapidae	Desert Wheatear	*Oenanthe deserti*	Avibase,ebird
536	PASSERIFORMES	Turdidae	Grandala	*Grandala coelicolor*	Avibase,ebird
537	PASSERIFORMES	Turdidae	Long-tailed Thrush	*Zoothera dixoni*	Avibase,ebird
538	PASSERIFORMES	Turdidae	Plain-backed Thrush	*Zoothera mollissima*	Avibase,ebird
539	PASSERIFORMES	Turdidae	Dark-sided Thrush	*Zoothera marginata*	Avibase,ebird
540	PASSERIFORMES	Turdidae	Long-billed Thrush	*Zoothera monticola*	Avibase,ebird
541	PASSERIFORMES	Turdidae	Scaly Thrush	*Zoothera dauma*	Avibase,ebird

542	PASSERIFORMES	Turdidae	Purple Cochoa	*Cochoa purpurea*	Avibase,ebird
543	PASSERIFORMES	Turdidae	Green Cochoa	*Cochoa viridis*	Avibase
544	PASSERIFORMES	Turdidae	Orange-headed Thrush	*Geokichla citrina*	Avibase,ebird
545	PASSERIFORMES	Turdidae	Grey-winged Blackbird	*Turdus boulboul*	Avibase,ebird
546	PASSERIFORMES	Turdidae	Tickell's Thrush	*Turdus unicolor*	Avibase,ebird
547	PASSERIFORMES	Turdidae	Eyebrowed Thrush	*Turdus obscurus*	Avibase,ebird
548	PASSERIFORMES	Turdidae	Kessler's Thrush	*Turdus kessleri*	Avibase,ebird
549	PASSERIFORMES	Turdidae	Tibetan Blackbird	*Turdus maximus*	Avibase,ebird
550	PASSERIFORMES	Turdidae	White-collared Blackbird	*Turdus albocinctus*	Avibase,ebird
551	PASSERIFORMES	Turdidae	Chestnut Thrush	*Turdus rubrocanus*	Avibase,ebird
552	PASSERIFORMES	Turdidae	Dusky Thrush	*Turdus eunomus*	Avibase,ebird
553	PASSERIFORMES	Turdidae	Black-throated Thrush	*Turdus atrogularis*	Avibase,ebird
554	PASSERIFORMES	Turdidae	Red-throated Thrush	*Turdus ruficollis*	Avibase,ebird

Taxonomy based on Avibase data

B. List of mammals

S.No.	ORDER	FAMILY	COMMON NAME	SCIENTIFIC NAME	IUCN STATUS
1	Cetartiodactyla	Bovidae	Tibetan argali	*Ovis ammon hodgsonii*	NT
2	Cetartiodactyla	Bovidae	Tibetan gazelle	*Procapra picticaudata*	NT
3	Cetartiodactyla	Bovidae	Chiru	*Pantholops hodgsonii*	NT (locally extinct)
4	Cetartiodactyla	Bovidae	Himalayan tahr	*Hemitragus jemlahicus*	NT
5	Cetartiodactyla	Bovidae	Mainland serow	*Naemorhedus sumatraensis*	VU
6	Cetartiodactyla	Bovidae	Himalayan Goral	*Naemorhedus goral*	NT
7	Cetartiodactyla	Bovidae	Gaur	*Bos gaurus*	VU
8	Cetartiodactyla	Bovidae	Takin	Budorcas taxicolor	VU
9	Cetartiodactyla	Cervidae	Indian muntjac	*Muntiacus muntjak*	LC
10	Cetartiodactyla	Moschidae	Himalayan musk deer	*Moschus chrysogaster*	EN
11	Cetartiodactyla	Moschidae	Black musk deer	*Moschus fuscus*	EN
12	Cetartiodactyla	Suidae	Wild pig	*Sus scrofa*	LC
13	Cetartiodactyla	Equidae	Kiang	*Equus kiang polygodon*	LC
14	Primates	Cercopithecidae	Assamese macaque	*Macaca assamensis*	NT
15	Primates	Cercopithecidae	Rhesus Monkey	*Macaca mulatta*	LC
16	Primates	Cercopithecidae	Tarai Gray Langur	Semnopithecus hector	NT
17	Primates	Cercopithecidae	Central Himalayan langur	*Semnopithecus schistaceus*	LC
18	Rodentia	Sciuridae	Particoloured Flying Squirrel	*Hylopetes alboniger*	LC
19	Rodentia	Sciuridae	Spotted Giant Flying Squirrel	*Petaurista elegans*	LC
20	Rodentia	Sciuridae	Woolly Flying Squirrel	*Eupetaurus cinereus*	EN
21	Rodentia	Sciuridae	Black Giant Squirrel	*Ratufa bicolor*	NT
22	Rodentia	Sciuridae	Bhutan Giant Flying Squirrel	*Petaurista nobilis*	NT

23	Rodentia	Sciuridae	Red Giant Flying Squirrel	*Petaurista petaurista*	LC
24	Rodentia	Sciuridae	Pallas's Squirrel	*Callosciurus erythraeus*	LC
25	Rodentia	Sciuridae	Orange-bellied Himalayan squirrel	*Dremomys lokriah*	LC
26	Rodentia	Sciuridae	Hoary-bellied Himalayan squirrel	*Callosciurus pygerythrus*	LC
27	Rodentia	Sciuridae	Five-striped palm squirrel	*Funambulus pennantii*	LC
28	Rodentia	Sciuridae	Himalayan Striped Squirrel	*Tamiops mcclellandii*	LC
29	Rodentia	Sciuridae	Himalayan marmot	*Marmota himalayana*	LC
30	Rodentia	Hystricidae	Malayan Porcupine	*Hystrix brachyura*	LC
31	Rodentia	Hystricidae	Himalayan crestless porcupine	*Hystrix brachyura*	LC
32	Rodentia	Muridae	Sikkim rat	*Rattus sikkimensis*	LC
33	Pholidota	Manidae	Chinese pangolin	*Manis pentadactyla*	CR
34	Lagomorpha	Ochotonidae	Large-eared pika	*Ochotona macrotis*	LC
35	Lagomorpha	Ochotonidae	Moupin’s pika	*Ochotona thibetana*	LC
36	Lagomorpha	Ochotonidae	Forrest’s pika	*Ochotona forresti*	LC
37	Lagomorpha	Ochotonidae	Plateau pika	*Ochotona curzoniae*	LC
38	Lagomorpha	Ochotonidae	Indian Hare	*Lepus nigricollis*	LC
39	Lagomorpha	Ochotonidae	Woolly Hare	*Lepus oiostolus*	LC
40	Chiroptera	Rhinolophidae	Pearson’s Horseshoe Bat	*Rhinolophus pearsonii*	LC
41	Carnivora	Felidae	Tiger	*Panthera tigris*	EN
42	Carnivora	Felidae	Snow leopard	*Panthera uncia*	VU
43	Carnivora	Felidae	Common leopard	*Panthera pardus*	VU
44	Carnivora	Felidae	Jungle cat	*Felis chaus*	LC
45	Carnivora	Felidae	Leopard cat	*Prionailurus bengalensis*	LC
46	Carnivora	Felidae	Marbled Cat	*Pardofelis marmorata*	NT
47	Carnivora	Felidae	Eurasian Lynx	*Lynx lynx*	LC
48	Carnivora	Felidae	Fishing Cat	*Prionailurus viverrinus*	VU
49	Carnivora	Ursidae	Asiatic black bear	*Ursus thibetanus*	VU
50	Carnivora	Ailuridae	Red panda	*Ailurus fulgens*	EN
51	Carnivora	Canidae	Wild dog	*Cuon alpinus*	EN
52	Carnivora	Canidae	Tibetan wolf	*Canis lupus chanco*	LC
53	Carnivora	Canidae	Tibetan fox	Vulpes ferrilata	LC
54	Carnivora	Canidae	Red fox	*Vulpes vulpes*	LC
55	Carnivora	Canidae	Golden jackal	*Canis aureus*	LC
56	Carnivora	Viverridae	Himalayan palm civet	*Paguma larvata*	LC
57	Carnivora	Viverridae	Large Indian civet	*Viverra zibetha*	LC
58	Carnivora	Viverridae	Small Indian civet	*Viverricula indica*	LC
59	Carnivora	Viverridae	Common Palm Civet	*Paradoxurus hermaphroditus*	LC
60	Carnivora	Viverridae	Binturong	*Arctictis binturong*	VU

61	Carnivora	Mustelidae	Himalayan yellow throated marten	*Martes flavigula*	LC
62	Carnivora	Mustelidae	Greater hog-badger	*Arctonyx collaris*	VU
63	Carnivora	Mustelidae	Stone marten	*Martes foina*	LC
64	Carnivora	Mustelidae	Large-toothed Ferret Badger	*Melogale personata*	LC
65	Carnivora	Mustelidae	Eurasian otter	*Lutra lutra*	NT
66	Carnivora	Mustelidae	Oriental small-clawed Otter	*Aonyx cinereus*	VU
67	Carnivora	Mustelidae	Siberian weasel	*Mustela sibirica*	LC
68	Carnivora	Mustelidae	Mountain Weasel	*Mustela altaica*	NT
69	Carnivora	Mustelidae	Short-tailed Weasel	*Mustela ermine*	LC
70	Carnivora	Mustelidae	Yellow-bellied Weasel	*Mustela kathiah*	LC
71	Carnivora	Mustelidae	Black-striped Weasel	*Mustela strigidorsa*	LC
72	Carnivora	Prionodontidae	Spotted linsang	*Prionodon pardicolor*	LC
73	Carnivora	Herpestidae	Small indian mongoose	Herpestes auropunctatus	LC
74	Carnivora	Herpestidae	Crab eating mongoose	Herpestes urva	LC
75	Carnivora	Herpestidae	Indian grey mongoose	Herpestes edwardsii	LC

C. List of reptiles

S. No.	Family	Common Name	Species	IUCN
1	Gekkonidae	Common House Gecko	Hemidactylus frenatus	LC
2	Gekkonidae	Bowring's Smooth Gecko	Hemidactylus bowringii	LC
3	Gekkonidae	Fox Gecko	Hemidactylus garnotii	LC
4	Gekkonidae	Flat-tailed house gecko	Cosymbotus platyurus	LC
5	Gekkonidae	Khasi Hills bent-toed Gecko	Cyrtodactylus khasiensis	DD
6	Gekkonidae	Sikkimese Bent-toed Gecko	Cyrtodactylus gubernatoris	DD
7	Agamidae	Changeable Lizard	Calotes versicolor	LC
8	Agamidae	Jerdon's Forest Lizard	Calotes jerdoni	LC
9	Agamidae	Three Keeled Mountain Lizard	Oriotaris tricarinata	LC
10	Agamidae	Variegated Mountain Lizard	Japalura variegate	LC
11	Scincidae	Indian Forest Skink	Sphenomorphus indicus	LC
12	Scincidae	Spotted Forest Skink	Sphenomorphus maculatus	LC
13	Scincidae	Keeled Indian Mabuya	Mabuya carinata	LC
14	Scincidae	Sikkim Ground Skink	Asymblepharus sikimmensis	LC
15	Lacertidae	Sikkim Grass Lizard	Takydromus sikkimensis	EN
16	Anguidae	Burmese Glass Lizard	Ophisaurus gracilis	LC
17	Varanidae	Bengal Monitor Lizard	Varanus bengalensis	NT
18	Typhlopidae	Wall's Worm Snake	Typhlops oligolepis	DD
19	Typhlopidae	Jerdon's Blind Snake	Typhlops jerdoni	LC
20	Typhlopidae	Brahminy Blindsnake	Ramphotyphlops braminus	LC
21	Boidae	Indian Rock Python	Python molurus	NT
22	Boidae	Rough-tailed Sand Boa	Eryx conicus	NT
23	Colubridae	Green Trinket Snake	Elaphe prasina	LC

24	Colubridae	Copper-head Trinket Snake	Coelognathus radiatus	LC
25	Colubridae	Elaphe hodgsonii	Orthriophis hodgsonii	LC
26	Colubridae	Eastern Trinket Snake	Orthriophis cantoris	LC
27	Colubridae	Black-banded Trinket Snake	Oreocryptophis porphyraceus	LC
28	Colubridae	Cave Racer	Orthriophis taeniurus	VU
29	Colubridae	Trinket Snake	Coelognathus helena	LC
30	Colubridae	Montane Slug-eating Snake	Pareas monticola	LC
31	Colubridae	Mountain Slug Snake	Pareas macularius	LC
32	Colubridae	Indian Egg-eater	Elachistodon westermanni	LC
33	Colubridae	Oriental Ratsnake	Ptyas mucosa	LC
34	Colubridae	Javan Rat Snake	Ptyas korros	NT
35	Colubridae	Green Rat Snake	Ptyas nigromarginata	LC
36	Colubridae	Banded Racer	Argyrogena fasciolata	LC
37	Colubridae	Stolickza's Ringneck	Liopeltis stoliczkae	LC
38	Colubridae	Himalayan Stripe-necked Snake	Liopeltis rappi	LC
39	Colubridae	White-barred Kukri Snake	Oligodon albocinctus	LC
40	Colubridae	Nagarkot Kukri Snake	Oligodon erythrogaster	NT
41	Colubridae	Bluebelly Kukri Snake	Oligodon melaneus	DD
42	Colubridae	Walnut Kukri Snake	Oligodon juglandifer	VU
43	Colubridae	Daudin's Bronzeback	Dendrelaphis tristis	LC
44	Colubridae	Common Bronzeback	Dendrelaphis pictus	LC
45	Colubridae	Wall's Bronzeback	Dendrelaphis cyanochloris	LC
46	Colubridae	Gore's Bronzeback	Dendrelaphis gorei	LC
47	Colubridae	Ornate Flying Snake	Chrysopelea ornata	LC
48	Colubridae	Twin-spotted Wolf Snake	Lycodon jara	LC
49	Colubridae	Common Wolf Snake	Lycodon aulicus	LC
50	Colubridae	Banded Wolf Snake	Lycodon fasciatus	LC
51	Colubridae	Gammie's Wolf Snake	Dinodon gammiei	NT
52	Colubridae	Northern Large-toothed Snake	Dinodon septentrionalis	LC
53	Colubridae	Chequered Keelback	Xenochrophis piscator	LC
54	Colubridae	St John's Keelback Water Snake	Xenochrophis sanctijohannis	LC
55	Colubridae	Collared Black-headed Snake	Sibynophis collaris	LC
56	Colubridae	Striped Keelback	Amphiesma parallelum	DD
57	Colubridae	Buff Striped Keelback	Amphiesma stolatum	LC
58	Colubridae	Himalayan Keelback	Amphiesma platyceps	LC
59	Colubridae	Red-necked Keelback	Rhabdophis subminiatus	LC
60	Colubridae	Himalayan Keelback	Rhabdophis himalayanus	LC
61	Colubridae	Large-eyed False Cobra	Pseudoxenodon macrops	LC
62	Colubridae	Blackbelly Worm-eating Snake	Trachischium fuscum	LC

63	Colubridae	Rosebelly Worm-eating Snake	Trachischium guentheri	VU
64	Colubridae	Yellowbelly Worm-eating Snake	Trachischium tenuiceps	DD
65	Colubridae	Indian Gamma Snake	Boiga trigonata	LC
66	Colubridae	Tawny Cat Snake	Boiga ochraceus	LC
67	Colubridae	Eastern Cat Snake	Boiga gokool	LC
68	Colubridae	Many-banded Tree Snake	Boiga multifasciata	LC
69	Colubridae	Gray Cat Snake	Boiga ocellata	LC
70	Colubridae	Forsten's Cat Snake	Boiga forsteni	LC
71	Colubridae	Common Mock Viper	Psammodynastes pulverulentus	LC
72	Colubridae	Gunther's Whip Snake	Ahaetulla prasina	LC
73	Colubridae	River Vine Snake	Ahaetulla fronticincta	LC
74	Elapidae	King Cobra	Ophiophagus hannah	VU
75	Elapidae	Monocled Cobra	Naja kaouthia	LC
76	Elapidae	Banded Krait	Bungarus fasciatus	LC
77	Elapidae	Himalayan Krait	Bungarus bungaroides	LC
78	Elapidae	Lesser Black Krait	Bungarus lividus	LC
79	Elapidae	Greater Black Krait	Bungarus niger	LC
80	Elapidae	Common Krait	Bungarus caeruleus	LC
81	Elapidae	MacLelland's Coral Snake	Sinomicrurus macclellandi	LC
82	Viperidae	Russell's Viper	Daboia russelii	LC
83	Viperidae	Himalayan Pit-viper	Gloydius himalayanus	LC
84	Viperidae	Common Bamboo Viper	Trimeresurus gramineus	LC
85	Viperidae	Chinese Mountain Pit Viper	Ovophis monticola	LC
86	Viperidae	Jerdon’s pitviper	Protobothrops jerdonii	LC
87	Viperidae	Pope's Pit Viper	Trimeresurus popeiorum	LC
88	Viperidae	Redtail (Bamboo) Pit Viper	Trimeresurus erythrurus	LC
89	Viperidae	White-lipped Tree Viper	Trimeresurus albolabris	LC
90	Viperidae	Gumprecht's Pit Viper	Trimeresurus gumprechti	LC
91	Viperidae	Trimeresurus sp		

Source:

1. Chettri, B., Bhupathy, S., & Acharya, B. K. (2011). An overview of the herpetofauna of Sikkim with emphasis on the elevational distribution pattern and threats and conservation issues. *Biodiversity of Sikkim: exploring and conserving a global hotspot. Gangtok: Information and Public Relations Department, Government of Sikkim*, 233-254.

D. List of amphibians

S. No.	Order	FAMILY	*SCIENTIFIC NAME*	IUCN
1	Anura	Bufonidae	*Duttaphrynus himalayanus*	LC
2	Anura	Bufonidae	*Duttaphrynus melanostictus*	LC
3	Anura	Bufonidae	*Duttaphrynus stuarti*	DD
4	Anura	Bufonidae	*Bufo stomaticus*	LC
5	Anura	Bufonidae	Scutiger sikimmensis	LC

6	Anura	Dicroglossidae	*Euphlyctis cyanophlyctis*	LC
7	Anura	Dicroglossidae	*Fejervarya limnocharis*	LC
8	Anura	Dicroglossidae	*Fejervarya nepalensis*	LC
9	Anura	Dicroglossidae	*Fejervarya teraiensis*	LC
10	Anura	Dicroglossidae	*Hoplobatrachus tigerinus*	LC
11	Anura	Dicroglossidae	*Nanorana annandalii*	NT
12	Anura	Dicroglossidae	*Nanorana blanfordii*	LC
13	Anura	Dicroglossidae	*Nanorana ercepeae*	NT
14	Anura	Dicroglossidae	*Nanorana gammii*	NT
15	Anura	Dicroglossidae	*Nanorana liebigii*	LC
16	Anura	Dicroglossidae	*Nanorana minica*	VU
17	Anura	Dicroglossidae	*Nanorana polunini*	LC
18	Anura	Dicroglossidae	*Ingerana borealis*	VU
19	Anura	Dicroglossidae	*Ombrana sikimensis*	LC
20	Anura	Dicroglossidae	*Sphaerotheca breviceps*	LC
21	Anura	Microhylidae	*Microhyla ornata*	LC
22	Anura	Megophryidae	*Megophrys boettgeri*	LC
23	Anura	Megophryidae	*Megophrys major*	LC
24	Anura	Megophryidae	*Megophrys parva*	LC
25	Anura	Megophryidae	*Megophrys robusta*	DD
26	Anura	Megophryidae	*Scutiger sikimensis*	LC
27	Anura	Megophryidae	*Scutiger boulengeri*	LC
28	Anura	Ranidae	*Amolops afghanus*	LC
29	Anura	Ranidae	*Amolops formosus*	NE
30	Anura	Ranidae	*Amolops gerbillus*	LC
31	Anura	Ranidae	*Amolops himalayanus*	LC
32	Anura	Ranidae	*Amolops marmoratus*	LC
33	Anura	Ranidae	*Amolops monticola*	LC
34	Anura	Ranidae	*Clinotarsus alticola*	LC
35	Anura	Ranidae	*Amolops assamensis*	DD
36	Anura	Ranidae	*Hylarana taipehensis*	LC
37	Anura	Rhacophoridae	*Philautus annandalii*	LC
38	Anura	Rhacophoridae	*Philautus argus*	DD
39	Anura	Rhacophoridae	*Philautus dubius*	DD
40	Anura	Rhacophoridae	*Philautus microdiscus*	DD
41	Anura	Rhacophoridae	*Philautus jerdonii*	DD
42	Anura	Rhacophoridae	*Chiromantis simus*	LC
43	Anura	Rhacophoridae	*Polypedates leucomystax*	LC
44	Anura	Rhacophoridae	*Polypedates maculatus*	LC
45	Anura	Rhacophoridae	*Polypedates himalayanus*	
46	Anura	Rhacophoridae	*Polypedates megacephalus*	LC

47	Anura	Rhacophoridae	*Polypedates taeniatus*	LC
48	Anura	Rhacophoridae	*Frankixalus jerdonii*	DD
49	Anura	Rhacophoridae	*Raorchestes annandalii*	LC
50	Anura	Rhacophoridae	*Rhacophorus bipunctatus*	LC
51	Anura	Rhacophoridae	*Rhacophorus tuberculatus*	DD
52	Anura	Rhacophoridae	*Rhacophorus reinwardtii*	NT
53	Anura	Rhacophoridae	*Rhacophorus maximus*	LC
54	Gymnophiona	Salamandridae	*Tylototriton verrucosus*	NT
55	Urodela	Ichthyophiidae	*Ichthyophis sikkimensis*	DD
56	Urodela	Ichthyophiidae	*Ichthyophis glutinosus*	VU
57	Urodela	Ichthyophiidae	*Ichthyophis monochrous*	DD

Source:

1. Chettri, B., Bhupathy, S., & Acharya, B. K. (2011). An overview of the herpetofauna of Sikkim with emphasis on the elevational distribution pattern and threats and conservation issues. *Biodiversity of Sikkim: exploring and conserving a global hotspot. Gangtok: Information and Public Relations Department, Government of Sikkim*, 233-254.
2. Subba, B., Aravind, N. A., & Ravikanth, G. (2017). Amphibians of the Sikkim Himalaya, India: an annotated checklist. Check List, 13(1), 2033-2033.
3. Acharya, B. K., & Chettri, B. (2012). Effect of climate change on birds, herpetofauna and butterflies in Sikkim Himalaya: a preliminary investigation. Climate change in Sikkim: patterns, impacts and initiatives. Gangtok: Information and Public Relations Department, 141-60.
4. ENVIS CENTRE SIKKIM. http://sikenvis.nic.in/WriteReadData/UserFiles/file/List%20of%20Amphibians%20of%20Sikkim.pdf

D. List of plants

S.No.	Plant Group	Family	Species & Authority
1	**Dicots**	DILLENIACEAE	Dillenia indica L.
2		DILLENIACEAE	Dillenia pentagyna Roxb.
3		MAGNOLIACEAE	Magnolia campbelli Hook. f. & Thomson
4		MAGNOLIACEAE	Magnolia globosa Hook. f. & Thomson
5		MAGNOLIACEAE	Magnolia hodgsonii (Hook. f. & Thomson) H. Keng
6		MAGNOLIACEAE	Magnolia insignis Wall.
7		MAGNOLIACEAE	Magnolia pterocarpa Roxb.
8		MAGNOLIACEAE	Michelia cathcartii Hook. f. & Thomson
9		MAGNOLIACEAE	Michelia champaca L.
10		MAGNOLIACEAE	Michelia doltsopa Buch. - Ham. ex DC.
11		MAGNOLIACEAE	Michelia glabra P.Pann.
12		MAGNOLIACEAE	Michelia kisopa Buch.-Ham. ex DC.
13		MAGNOLIACEAE	Michelia punduana Hook. f. & Thomson
14		MAGNOLIACEAE	Michelia velutina DC.
15		TETRACENTRACEAE	Tetracentron sinense Oliver
16		ANNONACEAE	Miliusa globosa (DCJPani gr. & S.C.Mishra
17		ANNONACEAE	Miliusa longiflora (Hook. f. & Thomson)
18		ANNONACEAE	Miliusa macrocarpa Hook. f. & Thomson
19		BERBERIDACEAE	Mahonia acanthifolia G.Don
20		BERBERIDACEAE	Mahonia sikkimensis Takeda
21		LARDIZABALACEAE	Decaisnea insignis (Griffith) Hook. f. & Thomson

22		CAPPARACEAE	Capparis cantoniensis Lour.
23		CAPPARACEAE	Capparis multiflora Hook. f. & Thomson
24		CAPPARACEAE	Capparis olacifalia Hook. f. & Thomson
25		CAPPARACEAE	Crateva religiosa Forster f.
26		CAPPARACEAE	Crateva unilocuiaris Buch.-Ham.
27		VIOLACEAE	Rinorea bengalensis (Wall.) 0. Kuntze
28		BIXACEAE	Bixa orellana L.
29		FLACOURTIACEAE	Casearia glomerata Roxb. ex DC.
30		FLACOURTIACEAE	Casearia graveolens Dalz.
31		FLACOURTIACEAE	Casearia kurzii C.B.Clarke
32		FLACOURTIACEAE	Casearia tomentosa Roxb.
33		POLYGALACEAE	Polygala arillata D.Don
34		CLUSIACEAE	Calophyllum polyanthum Wall.
35		CLUSIACEAE	Garcinia anomala P1anch. & Triana
36		CLUSIACEAE	Garcinia cowa Roxb. ex DC.
37		CLUSIACEAE	Garcinia stipulata T. Anderson
38		CLUSIACEAE	Garcinia xanthochymus Hook f.
39		CLUSIACEAE	Mesua ferrea L.
40		CLUSIACEAE	Mesua floribunda (Wall.) Kosterm.
41		THEACEAE	Camellia kissi Wall.
42		THEACEAE	Eurya acuminata DC.
43		THEACEAE	Eurya cavinervis Vesque
44		THEACEAE	Eurya cerasifolia (D. Don) Kobuski
45		THEACEAE	Eurya japonica Thunb.
46		THEACEAE	Gordonia excelsa Blume
47		THEACEAE	Schima wallichii (DC.) Korth.
48		THEACEAE	Ternstroemia Mutis ex L.f.
49		ACTINIDIACEAE	Saurauia fasciculata Wall.
50		ACTINIDIACEAE	Saurauia griffithi Dyer
51		ACTINIDIACEAE	Saurauia macrotricha Kurz ex Dyer
52		ACTINIDIACEAE	Saurauia napaulensis DC.
53		ACTINIDIACEAE	Saurauia punduana Wall.
54		ACTINIDIACEAE	Saurauia roxburghii Wall.
55		STACHYURACEAE	Stachyurus himalaicus Hook. f. & Thomson
56		DIPTEROCARPACEAE	Shorea robusta Gaertn.
57		MALVACEAE	Kydia calycina Roxb.
58		MALVACEAE	Nayariophyton ziziphifolium (Griff.) D.G. Long & A.G Miller
59		MALVACEAE	Thespesia lampas (Cav.) Dalzell & Gibson
60		BOMBACACEAE	Bombax ceiba L.

61		BOMBACACEAE	Ceiba pentandra (L.) Gaertn.
62		STERCULIACEAE	Abroma augusta (L.) L.f.
63		STERCULIACEAE	Eriolaena hookeriana Wright & Am.
64		STERCULIACEAE	Eriolaena wallichii DC.
65		STERCULIACEAE	Firmiana colorata (Roxb.) R. Br.
66		STERCULIACEAE	Firmiana fulgens (Wall. ex Master) Comer
67		STERCULIACEAE	Pterospermum acerifolium (L.) Willd.
68		STERCULIACEAE	Pterygota alata (Roxb.) R.Br.
69		STERCULIACEAE	Reevesia pubescens Master
70		STERCULIACEAE	Reevesia wallichii R. Br.
71		STERCULIACEAE	Sterculia hamiltonii (Kuntze) Adelbert
72		STERCULIACEAE	Sterculia kingii Prain
73		STERCULIACEAE	Sterculia roxburghii Wall.
74		STERCULIACEAE	Sterculia villosa Roxb. ex W.W.Smith
75		TILIACEAE	Grewia abutilifolia Vent.
76		TILIACEAE	Grewia eriocarpa A. Juss.
77		TILIACEAE	Grewia optiva Burret
78		TILIACEAE	Grewia rothii DC.
79		TILIACEAE	Grewia sepiaria G.Don
80		TILIACEAE	Grewia serrulata DC.
81		TILIACEAE	Microcos paniculata L.
82		ELAEOCARPACEAE	Elaeocarpus aristatus Roxb.
83		ELAEOCARPACEAE	Elaeocarpus floribundus Blume
84		ELAEOCARPACEAE	Elaeocarpus lanceifolius Roxb.
85		ELAEOCARPACEAE	Elaeocarpus serratus L.
86		ELAEOCARPACEAE	Elaeocarpus sikkimensis Masters
87		ELAEOCARPACEAE	Elaeocarpus sphaericus (Gaertn.) K.Schum.
88		ELAEOCARPACEAE	Elaeocarpus tectorius (Lour.) Poiret
89		ELAEOCARPACEAE	Elaeocarpus varunus Buch.-Ham. Ex Master
90		ELAEOCARPACEAE	Sloanea dasycarpa (Benth.) Hemsl.
91		ELAEOCARPACEAE	Sloanea sterculiacea (Benth.) Rehder &Wilson var. assamaica (Benth.) Coode
92		ELAEOCARPACEAE	Sloanea sterculiacea (Benth.) Rehder & Wilson var. sterculiacea
93		ELAEOCARPACEAE	Sloanea tomentosa (Benth.) Rehder & Wilson
94		RUTACEAE	Acronychia pedunculata (L.) Miq.
95		RUTACEAE	Aegle marmelos (L) Correa
96		RUTACEAE	Citrus reticulate Blanco
97		RUTACEAE	Micromelum integerrimum (Co1ebr.)
98		RUTACEAE	Melicope lunu-ankenda (Gaertn.) Hartley
99		RUTACEAE	Murraya koenigii (L.) Spreng.

100		RUTACEAE	Murraya paniculata (L.)Jack
101		RUTACEAE	Skimmia arborescens Gamble
102		RUTACEAE	Skimmia aureola (DC.) Walp. subsp. multinervia (Huang) Taylor & Airy Shaw
103		RUTACEAE	Tetradium fraxinifolium (Hook.) Hartley
104		RUTACEAE	Tetradium glabrifolium (Benth.) Hartley
105		RUTACEAE	Tetradium ruticarpum (Juss.) Hartley
106		RUTACEAE	Zanthoxylum acanthopodium DC.
107		RUTACEAE	Zanthoxylum armatum DC.
108		RUTACEAE	Zanthoxylum myriacanthum Hook. f.
109		RUTACEAE	Zanthoxylum ovalifolium Wight
110		RUTACEAE	Zanthoxylum rhesta (Roxb.) DC.
111		SIMAROUDACEAE	Ailanthus integrifolia Lam.
112		SIMAROUDACEAE	Brucea mollis Wall. ex Kurz.
113		SIMAROUDACEAE	Picrasmajavanica Blume
114		BURSERACEAE	Canarium strictum Roxb.
115		BURSERACEAE	Garugafloribunda Decne.
116		BURSERACEAE	Garuga pinnata Roxb.
117		MELIACEAE	Aglaia perviridis Hiern
118		MELIACEAE	Aglaia spectabilis (Miq.) Jain & Bennet
119		MELIACEAE	Aphanamixis polystachya (Wall.)
120		MELIACEAE	Azadirachta indica Juss.
121		MELIACEAE	Chisocheton cumingianus (C.DC.)Hanns
122		MELIACEAE	Chukrasia tabularis Juss.
123		MELIACEAE	Cipadessa baccifera (Roth) Miq.
124		MELIACEAE	Dysoxylum binectariferum (Roxb.) Beddome
125		MELIACEAE	Dysoxylum excelsum Blume
126		MELIACEAE	Dysoxylum mollissimum Blume
127		MELIACEAE	Dysoxylum reticulatum King
128		MELIACEAE	Heynea trijuga Roxb.
129		MELIACEAE	Melia azedarach L.
130		MELIACEAE	Sphaerosacme decandra (Wall.) Penn.
131		MELIACEAE	Toona ciliata Roem.
132		MELIACEAE	Toona microcarpa (C. DC) Harms
133		MELIACEAE	Toona sureni (Blume) Merr.
134		MELIACEAE	Walsura tubulata Hiem
135		MELIACEAE	Walsura robusta Roxb.
136		OLACEAE	Olax acuminata Wall. ex Benth.
137		ICACINACEAE	Platea latifolia Blume
138		ICACINACEAE	Nothapodytes foetida (Wright) Sleumer

139		OPILIACEAE	Lepionurus sylvestris Blume
140		AQUIFOLIACEAE	Ilex dipyrena Wall.
141		AQUIFOLIACEAE	Ilex fragilis Hook. f.
142		AQUIFOLIACEAE	Ilex godajam (Colebr.) Hook.f.
143		AQUIFOLIACEAE	Ilex hookeri King
144		AQUIFOLIACEAE	Ilex kingiana Cockerell
145		AQUIFOLIACEAE	Ilex sikkimensis Kurz
146		CELASTRACEAE	Bhesha robusta (Roxb.) Ding
147		CELASTRACEAE	Cassine glauca (Rottb.) Kuntze
148		CELASTRACEAE	Euonymus hamiltonianus Wall.
149		CELASTRACEAE	Lophopetalum wightianum Am.
150		CELASTRACEAE	Maytenus hookeri Loes.
151		CELASTRACEAE	Maytenus kurzii Bennet & Sahni
152		CELASTRACEAE	Maytenus rufa (Wall.) Kara
153		CELASTRACEAE	Maytenus sikkimensis (Prain) Raju & Babu
154		CELASTRACEAE	Microtropis discolor (Wall.) Wall.
155		CELASTRACEAE	Siphonodon celastrineus Griff.
156		RHAMNACEAE	Hovenia acerba Lindley
157		RHAMNACEAE	Ziziphus incurva Roxb.
158		RHAMNACEAE	Ziziphus mauritiana Lam.
159		SAPINDACEAE	Lepisanthes rubiginosa (Roxb.) Leenb.
160		SAPINDACEAE	Sapindus detergens Wall.
161		HIPPOCASTANACEAE	Aesculus assamica Wall.
162		HIPPOCASTANACEAE	Aesculus indica (Carnbess.) Hook.f.
163		ACERACEAE	Acer cappadocicum Gled.
164		ACERACEAE	Acer campbellii Hook. f. & Thomson ex Hiern
165		ACERACEAE	Acer caudatum Wall.
166		ACERACEAE	Acer oblongum Wall. ex DC.
167		ACERACEAE	Acer osmastonii Gamble
168		ACERACEAE	Acer hookeri Miq.
169		ACERACEAE	Acer laevigatum Wall.
170		ACERACEAE	Acer pectinatum Wall. ex Pax
171		ACERACEAE	Acer sikkimense Miq.
172		ACERACEAE	Acer stachyophyllum Hiern
173		ACERACEAE	Acer sterculiaceum Wall.
174		ACERACEAE	Acer thomsonii Miq.
175		STAPHYLEACEAE	Turpinia nepalensis Wight & Am.
176		STAPHYLEACEAE	Turpinia pomifera (Roxb.) DC.
177		SABIACEAE	Meliosma dilleniifolia (Wight & Am.) Walp.

178		SABIACEAE	Meliosma pinnata (Roxb.) Maxim.
179		SABIACEAE	Meliosma simplicifolia (Roxb.) Walp. var. thomsonii (Brandis) Beuseicon
180		ANACARDIACEAE	Choerospondias axillaris (Roxb.) Burtt & Hill
181		ANACARDIACEAE	Drimycarpus racemosus (Roxb.) Hook. f.
182		ANACARDIACEAE	Lannea coromandelica (Houtt.) Merr.
183		ANACARDIACEAE	Mangifera indica L.
184		ANACARDIACEAE	Mangifera sylvatica Roxb.
185		ANACARDIACEAE	Rhus griffithii Hook. f.
186		ANACARDIACEAE	Rhus hookeri Sahni & Bahadur
187		ANACARDIACEAE	Rhus chinensis Mill.
188		ANACARDIACEAE	Rhus succedanea L.
189		ANACARDIACEAE	Semecarpus anacardium L.f.
190		ANACARDIACEAE	Spondias pinnata (L.f.) Kurz
191		MORINGACEAE	Moringa oleifera L am.
192		FABACEAE (s.l.)	Acacia auriculiformis A. Cunn. & Benth.
193		FABACEAE (s.l.)	Acacia catechu (L.f.) Willd.
194		FABACEAE (s.l.)	Acacia decurrens Willd.
195		FABACEAE (s.l.)	Acacia famesiana (L.) Willd.
196		FABACEAE (s.l.)	Acacia lenticularis Benth.
197		FABACEAE (s.l.)	Acacia melanoxylum R.Br.
198		FABACEAE (s.l.)	Acrocarpus fraxinifolius Am.
199		FABACEAE (s.l.)	Adenanthera pavonina L.
200		FABACEAE (s.l.)	Albizia chinensis (Osbeck.) Merr.
201		FABACEAE (s.l.)	Albizia gamblei Prain
202		FABACEAE (s.l.)	Albizia julibrissin Durazz.
203		FABACEAE (s.l.)	Albizia lebbeck (L.) Benth.
204		FABACEAE (s.l.)	Albizia lucidior (Steud.) Hara
205		FABACEAE (s.l.)	Albizia odoratissima (L.f.) Benth.
206		FABACEAE (s.l.)	Albizia procera (Roxb.) Benth.
207		FABACEAE (s.l.)	Archidendron monadelphum (Roxb.) I.C. Nielson
208		FABACEAE (s.l.)	Archidendron clypearia (Jack) I.C.Neilsen
209		FABACEAE (s.l.)	Bauhinia malabarica Roxb.
210		FABACEAE (s.l.)	Bauhinia purpurea L.
211		FABACEAE (s.l.)	Bauhinia variegata L.
212		FABACEAE (s.l.)	Butea monosperma (Lam.) Kuntze
213		FABACEAE (s.l.)	Cassia fistula L.
214		FABACEAE (s.l.)	Dalbergia assamica Benth.
215		FABACEAE (s.l.)	Dalbergia latifolia Roxb.
216		FABACEAE (s.l.)	Dalbergia rimosa Roxb.

217		FABACEAE (s.l.)	Dalbergia sericea G. Don
218		FABACEAE (s.l.)	Dalbergia sissoo DC.
219		FABACEAE (s.l.)	Delonix regia (Hook.) Raf.
220		FABACEAE (s.l.)	Erythrina stricta Roxb.
221		FABACEAE (s.l.)	Erythrina arborescens Roxb.
222		FABACEAE (s.l.)	Erythrina variegata L.
223		FABACEAE (s.l.)	Leucaena leucocephala (Lam.) de Wit
224		FABACEAE (s.l.)	Ormosia glauca Wall.
225		FABACEAE (s.l.)	Pongamia pinnata (L.) Pierre
226		FABACEAE (s.l.)	Ougeinia oojeinensis Hochr.
227		FABACEAE (s.l.)	Samanea saman (Jacq.) Merr.
228		FABACEAE (s.l.)	Tamarindus indicus L.
229		ROSACEAE	Cotoneaster bacillaris Lindl.
230		ROSACEAE	Cotoneaster frigidus Lindl.
231		ROSACEAE	Docynia indica (Wall.) Decne.
232		ROSACEAE	Eriobotrya hookeriana Decne.
233		ROSACEAE	Eriobotrya dubia (Lindley) Decne.
234		ROSACEAE	Eriobotrya petiolata Hook. f.
235		ROSACEAE	Malus pumila Mill.
236		ROSACEAE	Malus sikkimensis (Wenz.) Koehne
237		ROSACEAE	Photinia integrifolia Lindl.
238		ROSACEAE	Prunus arborea (Blume) Kalkman
239		ROSACEAE	Prunus armeniaca L.
240		ROSACEAE	Prunus carmesina Hara
241		ROSACEAE	Prunus cerasoides D. Don
242		ROSACEAE	Prunus cerasus L.
243		ROSACEAE	Prunus ceylanica (Wight) Miq.
244		ROSACEAE	Prunus cornuta (Royle) Steud.
245		ROSACEAE	Prunus domestica L.
246		ROSACEAE	Prunus napaulensis (Ser.) Steud.
247		ROSACEAE	Prunus persica (L.) Batsch
248		ROSACEAE	Prunus rufa Hook. f.
249		ROSACEAE	Prunus undulata D. Don
250		ROSACEAE	Prunus venosa Koehne
251		ROSACEAE	Pyrus pashia D.Don
252		ROSACEAE	Pyrus communis L.
253		ROSACEAE	Sorbus arachnoidea Koehne
254		ROSACEAE	Sorbus ferruginea (Wenz.) Rehder
255		ROSACEAE	Sorbus foliolosa (Wall.) Spach

256		ROSACEAE	Sorbus griffithii (Decne.) Rehder
257		ROSACEAE	Sorbus hedlundi A.Schneid.
258		ROSACEAE	Sorbus insignis (Hook, f.) HedL
259		ROSACEAE	Sorbus kurzii (Prain) A.Schneid.
260		ROSACEAE	Sorbus microphylla Wenz.
261		ROSACEAE	Sorbus pratti Koehne
262		ROSACEAE	Sorbus rhamnoides (Decne.) Rehder
263		ROSACEAE	Sorbus rufopilosa A.Schneid.
264		ROSACEAE	Sorbus thibetica (Cardot) Hand-Mazz.
265		ROSACEAE	Sorbus thomsonii (Hook, f.) Rehder
266		ROSACEAE	Sorbus vestita (G.Don) Lodd.
267		ROSACEAE	Sorbus wallichii (Hook. f.)Yu
268		HYDRANGEACEAE	Hydrangea heteromala D.Don
269		HYDRANGEACEAE	Hydrangea robusta Hook. f. & Thomson
270		ITEACEAE	Itea macrophylla Roxb.
271		HAMAMELIDACEAE	Exbucklandia populnea (R. Br. ex. Griff.) R.Br.
272		RHIZOPHORACEAE	Carallia brachiata (Lour.) Merr.
273		COMBRETACEAE	Anogeissus acuminata (DC.) Guill. & Perr.
274		COMBRETACEAE	Terminalia alata Roth
275		COMBRETACEAE	Terminalia bellirica (Gaertn.) Roxb.
276		COMBRETACEAE	Terminalia catappa L.
277		COMBRETACEAE	Terminalia chebula Retz.
278		COMBRETACEAE	Terminalia crinata (Gaertn.) Roxb.
279		COMBRETACEAE	Terminalia myriocarpa Van Heurck & A. Muell.
280		MYRTACEAE	Callistemon citrinus (Curtis) Skeel
281		MYRTACEAE	Eucalyptus tereticornis W.W.Smith
282		MYRTACEAE	Eugenia bracteata (Willd.) Roxb.
283		MYRTACEAE	Psidium guajava L.
284		MYRTACEAE	Syzygium balsameum (Wight)Cowan & Cowan
285		MYRTACEAE	Syzygium claviflorum (Roxb.) Cowan & Cowan
286		MYRTACEAE	Syzygium cumini (L.) Skeel
287		MYRTACEAE	Syzygium formosum (WalL) Masam.
288		MYRTACEAE	Syzygium jambos (L.) Alston
289		MYRTACEAE	Syzygium kurzii (Duthie) N.P. Balakr.
290		MYRTACEAE	Syzygium leptantha Benth.
291		MYRTACEAE	Syzygium operculatum (Roxb.) Neidenzu
292		MYRTACEAE	Syzygium praecox (Roxb.) Rathakr. & Nair
293		MYRTACEAE	Syzygium ramosissimum (Blume) N.P. Balakr.
294		MYRTACEAE	Syzygium tetragonum (Wight) Walp.

295		MYRTACEAE	Syzygium venosum DC.
296		LECYTHIDACEAE	Careya arborea Roxb.
297		LECYTHIDACEAE	Careya herbacea Roxb.
298		LYTHRACEAE	Lagerstroemia minuticarpa Debb. ex P.C. Kanjilal
299		LYTHRACEAE	Lagerstroemia parviflora Roxb.
300		LYTHRACEAE	Lagerstroemia reginae Roxb.
301		SONNERATIACEAE	Duabanga grandiflora (DC.) Walp.
302		DATISCACEAE	Tetrameles nudiflora R. Br.
303		ARALIACEAE	Aralia foliosa Seem.
304		ARALIACEAE	Brassaiopsis glomerulata (Blume) Regel
305		ARALIACEAE	Brassaiopsis hainla (D. Don) Seem.
306		ARALIACEAE	Brassaiopsis hispida Seem.
307		ARALIACEAE	Brassaiopsis mitis C.B.Clarke
308		ARALIACEAE	Gamblea ciliata C.B.Ciarke
309		ARALIACEAE	Heteropanax fragrans Seem.
310		ARALIACEAE	Macropanax dispermus (Blume) Kuntze
311		ARALIACEAE	Macropanax undulatus (G.Don) Seem.
312		ARALIACEAE	Merrilliopanax alpinus (C.B.Clarke) Shang
313		ARALIACEAE	Pentapanax fragrans (D. Don) Ha
314		ARALIACEAE	Pentapanax leschenaultia Seem.
315		ARALIACEAE	Pentapanax racemosus Seem.
316		ARALIACEAE	Schefflera eleta (D. Don) Harms
317		ARALIACEAE	Schefflera impressa (C.B.Clarke) Harms
318		ARALIACEAE	Trevesia palmata (Roxb.)Vis.
319		CORNACEAE	Benthamidia capitata (Wall.) Kara
320		CORNACEAE	Mastixia arborea C.B. Clarke
321		CORNACEAE	Mastixia pentandra Blume subsp. chinensis (Merr.) Mathews
322		CORNACEAE	Swida controversa (Hemsl.) Sojak
323		CORNACEAE	Swida macrophylla (Wall.) Sojak
324		TORICELLIACEAE	Toricellia tillifolia DC.
325		ALANGIACEAE	Alangium alpinium (C.B.Clarke) W.W. Smith & Cave
326		ALANGIACEAE	Alangium chinense (Lour.) Harms
327		ALANGIACEAE	Alangium salviifolium (L.f.) Wangerin
328		NYSSACEAE	Nyssa javanica Wengerin
329		CAPRIFOLIACEAE	Viburnum coriaceum Blume
330		CAPRIFOLIACEAE	Viburnum erubescens DC.
331		CAPRIFOLIACEAE	Viburnum grandiflorum DC.
332		CAPRIFOLIACEAE	Viburnum mullaha D.Don
333		SAMBUCACEAE	Sambucus javanica Reinw. ex Blume

334		RUBIACEAE	Canthium glabrnm Blume
335		RUBIACEAE	Catunaregam longispina (Link) Tirveng.
336		RUBIACEAE	Cephalanthus tetrandra (Roxb.)Ridsdale exBakh. f.
337		RUBIACEAE	Gardenia turgida Roxb.
338		RUBIACEAE	Haldinia flaccidum Wall.
339		RUBIACEAE	Haldinia cordifolia (Roxb.)Ridsdale
340		RUBIACEAE	Hymenodictyon orixense (Roxb.) Mabberlev
341		RUBIACEAE	Hyptianthera stricta (W.W.Smith) Wight & Arn.
342		RUBIACEAE	Khasiaclunea oligocephala (Havil.) Ridsdale
343		RUBIACEAE	Meyna spinosa Roxb. ex Link
344		RUBIACEAE	Mitragyna rotundifolia (Roxb.) Kuntze
345		RUBIACEAE	Morinda angustifolia Roxb.
346		RUBIACEAE	Neolamarckia cadamba (Roxb.) Bosser
347		RUBIACEAE	Neonauclea grijfithii Hook. f.
348		RUBIACEAE	Pavetta tomentosa Roxb. ex Sm.
349		RUBIACEAE	Psydrax kingii (Hook.f.) D.M. Bridson & L.S.Springate
350		RUBIACEAE	Tamilnadia uliginosa (Retz.) Tirveng. & Sastre
351		RUBIACEAE	Tarrenoidea wallichii (Hook. f.) Tirveng. & Sastre
352		RUBIACEAE	Wendlandia grandis (Hook, f.) Cowan
353		RUBIACEAE	Wendlandia heynei (A.Roem. & Schultes) Santapau & Merchant
354		RUBIACEAE	Wendlandia pendula (Roxb.) DC.
355		RUBIACEAE	Wendlandia puberula DC.
356		RUBIACEAE	Wendlandia sikkimensis Cowan
357		RUBIACEAE	Wendlandia tinctoria (Roxb.) DC.
358		RUBIACEAE	Wendlandia wallichii Wight & Arn.
359		RUBIACEAE	Wendlandia coriacea (Wall.) DC.
360		ASTERACEAE (COMPOSITAE)	Vernonia talaumifolia Hook. f. & Thomson
361		ASTERACEAE (COMPOSITAE)	Vernonia volkameriifolia DC.
362		ERICACEAE	Enkianthus deflexus (Griff.) C.K.Schneid
363		ERICACEAE	Lyonia ovalifolia (Wall.) Drude
364		ERICACEAE	Lyonia villosa (Hook. f. ex C.B. Clarke) Hand-Mazz.
365		ERICACEAE	Pieris formosa (Wall.) D.Don
366		ERICACEAE	Rhododendron arboreum Sm.
367		ERICACEAE	Rhododendron arboretum Sm. subsp. cinnamomeum (G. Don) Tagg
368		ERICACEAE	Rhododendron arboreum Sm. subsp. cinnamomeum (G. Don) Tagg var. roseum Lindl.
369		ERICACEAE	Rhododendron arboreum Sm.subsp. delavayi (Franch.) D.F.Chamber1ain
370		ERICACEAE	Rhododendron barbatum Wall. ex G.Don
371		ERICACEAE	Rhododendron argipeplum Balfour f. & Cooper

372		ERICACEAE	Rhododendron campanulatum D.Don
373		ERICACEAE	Rhododendron falconeri Hook. f.
374		ERICACEAE	Rhododendron cinnabarinum Hook. f. subsp. cinnabarinum
375		ERICACEAE	Rhododendron grande Wight
376		ERICACEAE	Rhododendron griffithianum Wight
377		ERICACEAE	Rhododendron hodgsonii Hook. F.
378		ERICACEAE	Rhokdodendron kendrikii Nuttal
379		ERICACEAE	Rhododendron niveum Hook.f
380		ERICACEAE	Rhododendron thomsonii Hook.f.
381		MYRSINACEAE	Embelia tsjeriam-cottam A. DC.
382		MYRSINACEAE	Maesa argentea (Wall.) A. DC.
383		MYRSINACEAE	Maesa chisia D.Don
384		MYRSINACEAE	Maesa macrophylla (Wall.) A. DC.
385		MYRSINACEAE	Maesa montana A. DC.
386		MYRSINACEAE	Myrsine semiserrata Wall.
387		MYRSINACEAE	Rapanea capitellata (Wall.) Mez.
388		SAPOTACEAE	Diploknema butyracea (Roxb.) H.J.Lam
389		SAPOTACEAE	Mimusops elengi L.
390		SAPOTACEAE	Sacrosperma arboreum Hook. f.
391		SAPOTACEAE	Xantolis hookeri (C.B.Clarke) Royen
392		EBENACEAE	Diospyros lanceifolia Roxb.
393		EBENACEAE	Diospyros lotus L.
394		EBENACEAE	Diospyros malabarica (Desr.) Kostel.
395		EBENACEAE	Diospyros montana Roxb.
396		STYRACACEAE	Styrax grandiflorus Griff.
397		STYRACACEAE	Styrax serrulatus Roxb.
398		SYMPLOCACEAE	Symplocos caudata Wall.
399		SYMPLOCACEAE	Symplocos cochinchinensis (Lour.) S. Moore
400		SYMPLOCACEAE	Symplocos dryophila C.B.Clarke
401		SYMPLOCACEAE	Symplocos glomerata King ex C.B.Ciarke
402		SYMPLOCACEAE	Symplocos lucida (Thunb.) Siebold & Zucc.
403		SYMPLOCACEAE	Symplocos paniculata (Thunb.) Miq.
404		SYMPLOCACEAE	Symplocos pyrifolia Wall. ex G.Don
405		SYMPLOCACEAE	Symplocos racemosa Roxb.
406		SYMPLOCACEAE	Symplocos ramosissiima Wall. ex. G.Don
407		SYMPLOCACEAE	Symplocos spicata Roxb.
408		SYMPLOCACEAE	Symplocos sumuntia Buch.-Ham. ex D.Don
409		SYMPLOCACEAE	Symplocos theifolia D.Don
410		OLEACEAE	Chionanthus ramiflorus Roxb.

411		OLEACEAE	Fraxinus floribunda Wall.
412		OLEACEAE	Fraxinus paxiana Lingelsh. var. sikkimense Lingelsh.
413		OLEACEAE	Ligustrum compactum (Wall. ex DC.) Hook.f. & Thorn ex Brandis
414		OLEACEAE	Ligustrum confusum Decne.
415		OLEACEAE	Ligustrum robustum (Roxb.) Blume
416		OLEACEAE	Nyctanthes arbor-tristis L.
417		OLEACEAE	Olea dioica Roxb.
418		OLEACEAE	Olea gamblei C.B. Clarke
419		OLEACEAE	Osmanthus fragrans Lour. var. longifolius DC. Hara
420		OLEACEAE	Osmanthus suavis King ex C.B.Clarke
421		APOCYNACEAE	Alstonia neriifolia D.Don
422		APOCYNACEAE	Alstonia scholaris (L.) R.Br.
423		APOCYNACEAE	Cerbera manghas L.
424		APOCYNACEAE	Holarrhena pubescens (Buch.-Ham.) Wall, ex G.Don
425		APOCYNACEAE	Nerium oleander L.
426		APOCYNACEAE	Plumeria rubra L.
427		APOCYNACEAE	Thevetia peruviana (Pers.) Schum.
428		APOCYNACEAE	Wrightia arborea (Dennst.) Mabberly
429		APOCYNACEAE	Wrightia coccinea (Roxb.) Sims
430		APOCYNACEAE	Wrightia sikkimensis Gamble
431		BUDDLEJACEAE	Buddleja colvilei Hook. f. & Thomson
432		BUDDLEJACEAE	Buddleja paniculata Wall.
433		BUDDLEJACEAE	Buddleja macrostachya Benth.
434		GENTIANACEAE	Fagrea obovata Wall.
435		EHRETIACEAE	Cordia grandis Roxb.
436		EHRETIACEAE	Cordia obliqua Willd.
437		EHRETIACEAE	Ehretia serrata Roxb.
438		EHRETIACEAE	Ehretia laevis Roxb.
439		EHRETIACEAE	Ehretia macrophylla Wall.
440		EHRETIACEAE	Ehretia psilosiphon Mill.
441		EHRETIACEAE	Ehretia wallichiana Hook. f. & Thomson
442		SOLANACEAE	Solanum erianthum D.Don
443		SCROPHULARIACEAE	Wightia speciosissima (D.Don) Merr.
444		GESNERIACEAE	Rhynchotechum ellipticum (Wall. ex. D. Dietr.) A.DC.
445		BIGNONIACEAE	Jacaranda mimosifolia D.Don
446		BIGNONIACEAE	Oroxylum indicum (L.) Vent.
447		BIGNONIACEAE	Radermachera sinica (Hance) Hemsley
448		BIGNONIACEAE	Stereospermum colais (Dillwyn) Mabberley
449		BIGNONIACEAE	Stereospermum chelonoides (L.f.) DC.

450		ACANTHACEAE	Phlogacanthus thyrsiflorus (Roxb.) Nees
451		VERBENACEAE	Callicarpa lobata C.B.Clarke
452		VERBENACEAE	Callicarpa longifolia Lam.
453		VERBENACEAE	Callicarpa macrophylla Vahl
454		VERBENACEAE	Callicarpa vestita Wall. ex C.B. Clarke
455		VERBENACEAE	Callicarpa arborea Roxb.
456		VERBENACEAE	Clerodendrum bracteatum Walp.
457		VERBENACEAE	Clerodendrum serratum (L.) Moon
458		VERBENACEAE	Clerodendrum colebrookeanum Walp.
459		VERBENACEAE	Gmelina arborea Roxb.
460		VERBENACEAE	Premna coriacea C.B. Clarke var. oblonga C.B. Clarke
461		VERBENACEAE	Premna flavescens Buch.-Ham. ex C.B.Clarke
462		VERBENACEAE	Premna interrupta Wall. ex Schauer
463		VERBENACEAE	Premna latifolia Roxb.
464		VERBENACEAE	Premna lucidula Miq.
465		VERBENACEAE	Premna barbata Schauer
466		VERBENACEAE	Premna benghalensis C. B.Clarke
467		VERBENACEAE	Premna bracteata Wall. ex C.B. Clarke
468		VERBENACEAE	Tectona grandis L.f.
469		VERBENACEAE	Vitex negundo L.
470		VERBENACEAE	Vitex pinnata L.
471		VERBENACEAE	Vitex quinata (Lour.) Williams
472		VERBENACEAE	Vitex heterophylla Roxb.
473		VERBENACEAE	Vitex peduncularis Schauer
474		LAMIACEAE (LABIATAE)	Leucosceptrum canum Sm.
475		MYRISTICACEAE	Horsfieldia kingii (Hook. f.) Warb.
476		MYRISTICACEAE	Knema tenuinervia W.J.J.O. de Willd.
477		MYRISTICACEAE	Knema erratica (Hook. f. & Thomson) Sinclair
478		MYRISTICACEAE	Knema linifolia Warb.
479		LAURACEAE	Actinodaphne angustifolia (Blume) Nees
480		LAURACEAE	Actinodaphne longipes Kosterm.
481		LAURACEAE	Actinodaphne obovata (Nees) Blume
482		LAURACEAE	Actinodaphne sikkimensis Meisn.
483		LAURACEAE	Alseodaphne owdenii Parker
484		LAURACEAE	Beilschmiedia assamica Meisn.
485		LAURACEAE	Beilschmiedia clarkei Hook. f.
486		LAURACEAE	Beilschmiedia dalzellii (Meisn.) Kosterm.
487		LAURACEAE	Beilschmiedia gammieana Hook. f.
488		LAURACEAE	Beilschmiedia roxburghiana Nees

489		LAURACEAE	Beilschmiedia sikkimensis Hook. f.
490		LAURACEAE	Cinnadenia paniculata (Hook. f.) Kosterm.
491		LAURACEAE	Cinnamomum bejolghota (Ham.) Sweet
492		LAURACEAE	Cinnamomum cecidodaphne Meisn.
493		LAURACEAE	Cinnamomum glanduliferum (Wall.) Meisn.
494		LAURACEAE	Cinnamomum glaucescens (Nees.) Hand-Mazz
495		LAURACEAE	Cinnamomum impressinervium Meisn.
496		LAURACEAE	Cinnamomum tamala (Buch.-Ham.) Nees & Eberm.
497		LAURACEAE	Cinnamomum tenuipilis Kosterm.
498		LAURACEAE	Cryptocarya amygdalina Nees
499		LAURACEAE	Dodecadenia grandiflora Nees
500		LAURACEAE	Lindera assamica (Meisn.) Kurz
501		LAURACEAE	Lindera hamiltonii Kosterm.
502		LAURACEAE	Lindera heterophylla Meisn.
503		LAURACEAE	Lindera latifolia Hook.f
504		LAURACEAE	Lindera neesiana (Wall. ex Nees) Kurz
505		LAURACEAE	Lindera pulcherrima (Nees) Hook. f.
506		LAURACEAE	Litsea albescens (Hook. f.) D.G.Long
507		LAURACEAE	Litsea chartacea (Nees) Hook. f.
508		LAURACEAE	Litsea citrata Blume
509		LAURACEAE	Litsea cubeba (Lour.) Pers.
510		LAURACEAE	Litsea elongata (Nees) Hook.f.
511		LAURACEAE	Litsea glutinosa (Lour.) Robins.
512		LAURACEAE	Litsea hookeri (Meisn.) D.G.Long
513		LAURACEAE	Litsea kingii Hook.f.
514		LAURACEAE	Litsea laeta (Nees) Hook. .
515		LAURACEAE	Litsea monopetala (Roxb.) Pers.
516		LAURACEAE	Litsea pananja (Nees) Hook.f.
517		LAURACEAE	Litsea polyantha Juss.
518		LAURACEAE	Litsea salicifolia (Nees) Hook. f.
519		LAURACEAE	Litsea sikkimensis (Meisn.) D.G.Long
520		LAURACEAE	Machilus edulis King
521		LAURACEAE	Neocinnamomum caudatum (Nees) Merr.
522		LAURACEAE	Neolitsea cuipala (D.Don) Kosterm.
523		LAURACEAE	Neolitsea foliosa (Nees) Gamble
524		LAURACEAE	Persea americana Mill.
525		LAURACEAE	Persea clarkeana (Hook, f.) Kostenn.
526		LAURACEAE	Persea duthiei (Hook. f.) Kosterm.
527		LAURACEAE	Persea fructifera Kosterm.

528		LAURACEAE	Persea gamblei (Hook, f.) Kosterm.
529		LAURACEAE	Persea glaucercens (Nees) D.G.Long
530		LAURACEAE	Persea kurzii (Hook, f.) Kostenn.
531		LAURACEAE	Persea minutiflora Kostcrm.
532		LAURACEAE	Persea odoratissima (Nees) Kosterm.
533		LAURACEAE	Persea robusta (Sm.) Kosterm.
534		LAURACEAE	Phobe attenuata (Nees) Nees
535		LAURACEAE	Phobe halnesiana Brandis
536		LAURACEAE	Phobe lanceolata (Nees) Nees
537		PROTEACEAE	Helicia nilagirica Beddome
538		SANTALACEAE	Pyrularia edulis (Wall.) A. DC.
539		EUPHORBIACEAE	Alchomea mollis Muell.
540		EUPHORBIACEAE	Alchomea tiliifolia (Benth.) Muell.
541		EUPHORBIACEAE	Antidesma acidum Retz.
542		EUPHORBIACEAE	Antidesma acuminatum Wight
543		EUPHORBIACEAE	Antidesma bunius (L.) Spreng.
544		EUPHORBIACEAE	Antidesma ghaesembila Gaertn.
545		EUPHORBIACEAE	Aporosa octandra (D.Don) Vickery
546		EUPHORBIACEAE	Baccaurea ramiflora Lour.
547		EUPHORBIACEAE	Bischofia javanica Blume
548		EUPHORBIACEAE	Bridelia tomentosa Blume
549		EUPHORBIACEAE	Bridelia pubescens Kurz
550		EUPHORBIACEAE	Bridelia retusa (L.) Spreng.
551		EUPHORBIACEAE	Cleidion spiciflorum (Burm. f.) Merr.
552		EUPHORBIACEAE	Croton caudatus Geiseler
553		EUPHORBIACEAE	Croton himalaicus D.G.Long
554		EUPHORBIACEAE	Croton roxburghii N.P.Balakr.
555		EUPHORBIACEAE	Croton tiglium L.
556		EUPHORBIACEAE	Drypetes assamica (Hook.f.) Pax & Hoffman
557		EUPHORBIACEAE	Drypetes indica (Muell.) Pax & Hoffman
558		EUPHORBIACEAE	Drypetes subsessilis (Kurz) Pax & Hoffman
559		EUPHORBIACEAE	Endospermum chinense Benth.
560		EUPHORBIACEAE	Flueggea virosa Willd
561		EUPHORBIACEAE	Flueggea acuminatum Muell.
562		EUPHORBIACEAE	Flueggea assamicum (Muell.) Hook, f.
563		EUPHORBIACEAE	Flueggea daltonii (Muell.) Kurz
564		EUPHORBIACEAE	Glochidion hirsutum (Roxb.) Voigt
565		EUPHORBIACEAE	Glochidion lanceolarium (Roxb.) Voigt
566		EUPHORBIACEAE	Glochidion nubigenum Hook. f.

567		EUPHORBIACEAE	Glochidion sphaerogynum (Muell.) Kurz
568		EUPHORBIACEAE	Glochidion thomsoni Hook. f.
569		EUPHORBIACEAE	Glochidion velutinum Voight
570		EUPHORBIACEAE	Lasiococca symphylliifolia (Gamble) Hook.f.
571		EUPHORBIACEAE	Macaranga denticulata (Blume) Muell.
572		EUPHORBIACEAE	Macaranga gamblei Hook. f.
573		EUPHORBIACEAE	Macaranga indica Wight
574		EUPHORBIACEAE	Macaranga pustulata Hook. f.
575		EUPHORBIACEAE	Mallotus nepalensis Muell.
576		EUPHORBIACEAE	Mallotus oreophilus Muell.
577		EUPHORBIACEAE	Mallotus philippensis (Lam.) Muell.
578		EUPHORBIACEAE	Mallotus repandus (Willd.) Muell.
579		EUPHORBIACEAE	Mallotus roxburghianus Muell.
580		EUPHORBIACEAE	Mallotus tetracoccus (Roxb.) Kurz
581		EUPHORBIACEAE	Ostodes paniculata Blume
582		EUPHORBIACEAE	Phyllanthus acidus (L.) Skeel
583		EUPHORBIACEAE	Phyllanthus emblica L.
584		EUPHORBIACEAE	Sapium baccatum Roxb.
585		EUPHORBIACEAE	Sapium eugeniaefolium Buch.-Ham. ex Hook.f.
586		EUPHORBIACEAE	Sapium insigne (Royle) Benth. ex Hook.f.
587		EUPHORBIACEAE	Suregada multiflora (Juss.) Baillon
588		EUPHORBIACEAE	Trewia nudiflora L.
589		EUPHORBIACEAE	Vernicia cordata (Thunb.) Airy Shaw
590		DAPHNIYLLACEAE	Daphniphyllum himalense (Benth.) Mull.-Arg. var. chartaceum (Rosenthal) Huang
591		DAPHNIYLLACEAE	Boehmeria rugulosa Wedd.
592		DAPHNIYLLACEAE	Boehmeria longifolia (Burm. f.) Wedd.
593		DAPHNIYLLACEAE	Debregeasia wallichiana Wedd.
594		DAPHNIYLLACEAE	Oreocnida frutescens (Thunb.) Miq.
595		DAPHNIYLLACEAE	Dendrocnide sinuata (Blume) Chew.
596		DAPHNIYLLACEAE	Oreocnida rubescens (Blume) Miq.
597		ULMACEAE	Celtis tetrandra Roxb.
598		ULMACEAE	Celtis timorensis Span.
599		ULMACEAE	Gironniera cupsidata (Blume) Kurz
600		ULMACEAE	Gironniera reticulata Thw.
601		ULMACEAE	Gironniera thomsoni King
602		ULMACEAE	Trema orientalis (L.) Blume
603		ULMACEAE	Trema politoria (Planch.) Blume
604		ULMACEAE	Ulmus lanceifolia Roxb. ex WalL
605		MORACEAE	Artocarpus chama Ham.

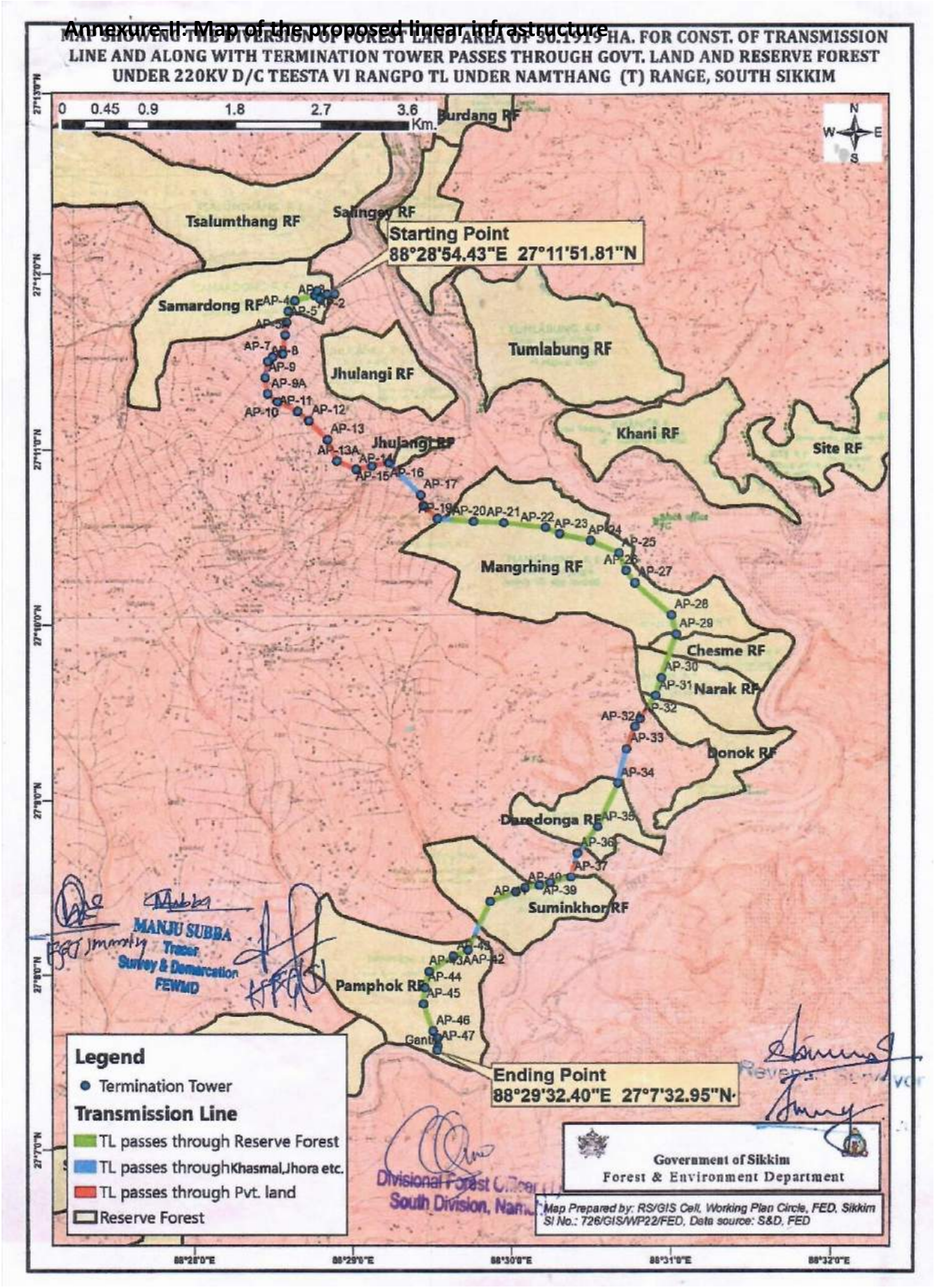
606		MORACEAE	Artocarpus heterophyllum Lam.
607		MORACEAE	Artocarpus lacucha Ham.
608		MORACEAE	Broussonetia papyrifera Vent.
609		MORACEAE	Ficus altisima Blume
610		MORACEAE	Ficus auriculata Lour.
611		MORACEAE	Ficus benghalensis L.
612		MORACEAE	Ficus benjamina L.
613		MORACEAE	Ficus concinna Miq.
614		MORACEAE	Ficus conglobata King
615		MORACEAE	Ficus curtipes Corner
616		MORACEAE	Ficus cyrtophylla Miq.
617		MORACEAE	Ficus drupacea Thunb.
618		MORACEAE	Ficus elastica Hornem.
619		MORACEAE	Ficus geniculata Kurz
620		MORACEAE	Ficus glaberrima Blume
621		MORACEAE	Ficus glabrata H.B. & K.
622		MORACEAE	Ficus hirta Vahl
623		MORACEAE	Ficus hookeriana Corner
624		MORACEAE	Ficus laevis Blume
625		MORACEAE	Ficus maclellandii King var. rhododendrifolia (Miq.) Corner.
626		MORACEAE	Ficus microcarpa L.f.
627		MORACEAE	Ficus neriifolia J.E. Smith
628		MORACEAE	Ficus oligodon Miq.
629		MORACEAE	Ficus prostrata Miq.
630		MORACEAE	Ficus racemosa L.
631		MORACEAE	Ficus religiosa L.
632		MORACEAE	Ficus rumphii Blume
633		MORACEAE	Ficus semicordata J.E. Smith
634		MORACEAE	Ficus subincisa J.E. Smith
635		MORACEAE	Ficus subulata Blume
636		MORACEAE	Ficus tinctoria A.Forst. subsp. parasitica (Willd) Corner
637		MORACEAE	Ficus virensAiton var. sublanceolata (Miq.) Corner
638		MORACEAE	Morus australis Poir.
639		MORACEAE	Morus macroura Miq.
640		MORACEAE	Streblus asper Lour.
641		JUGLANDACEAE	Engelhardia spicata Blume
642		JUGLANDACEAE	Juglans regia L.
643		BETULACEAE	Alnus nepalensis D.Don
644		BETULACEAE	Betula alnoides D.Don

645		BETULACEAE	Betula utilis D.Don
646		BETULACEAE	Carpinus viminea Lindl.
647		BETULACEAE	Corylus ferox Wall.
648		FAGACEAE	Castanea sativa Mill.
649		FAGACEAE	Castanonpsis clarkei King
650		FAGACEAE	Castanopsis armata Spach
651		FAGACEAE	Castanopsis indica Roxb. ex A.DC.
652		FAGACEAE	Castanopsis hystrix A. DC.
653		FAGACEAE	Castanopsis lanceifolia (Roxb.) Hickel et A. Camus
654		FAGACEAE	Castanopsis tribuloides (Sm.) A.DC.
655		FAGACEAE	Lithocarpus elegans (Blume) Hatus ex Soepadmo
656		FAGACEAE	Lithocarpus fenestratus (Roxb.) Rehder.
657		FAGACEAE	Lithocarpus pachyphyllus (Kurz) Rehder
658		FAGACEAE	Quercus glauca Thunb.
659		FAGACEAE	Quercus griffithii Miq.
660		FAGACEAE	Quercus lamellosa Sm.
661		FAGACEAE	Quercus leucotrichophora Camus
662		FAGACEAE	Quercus semiserrata Roxb.
663		FAGACEAE	Quercus thomsoniana A.DC.
664		SALICACEAE	Populus ciliata Royle
665		SALICACEAE	Populus gamblei Dode
666		SALICACEAE	Populus glauca Haines
667		SALICACEAE	Salix babylonica L.
668		SALICACEAE	Salix longifolia Anderson
669		SALICACEAE	Salix myrtillacea Anderson
670		SALICACEAE	Salix obscura Anderson
671		SALICACEAE	Salix tetrasperma Roxb.
672		SALICACEAE	Salix wallichiana Anderson
673		PINACEAE	Abies densa Griff.
674		PINACEAE	Cunninghamia lanceolata (Lamb.) Hook.f.
675		PINACEAE	Cedrus deodara
676		PINACEAE	Larix griffithiana Carriere
677		PINACEAE	Picea spinulosa (Griff.) Henry
678		PINACEAE	Pinus kesiya Gorton
679		PINACEAE	Pinus roxburghii Sarg.
680		PINACEAE	Pinus wallichiana A.B. Jacks.
681		PINACEAE	Tsuga dumosa (D.Don) Eichler
682		TAXODIACEAE	Cryptomeria japonica (L.) D.Don
683		TAXODIACEAE	Taxodium distichum (L.) Rich

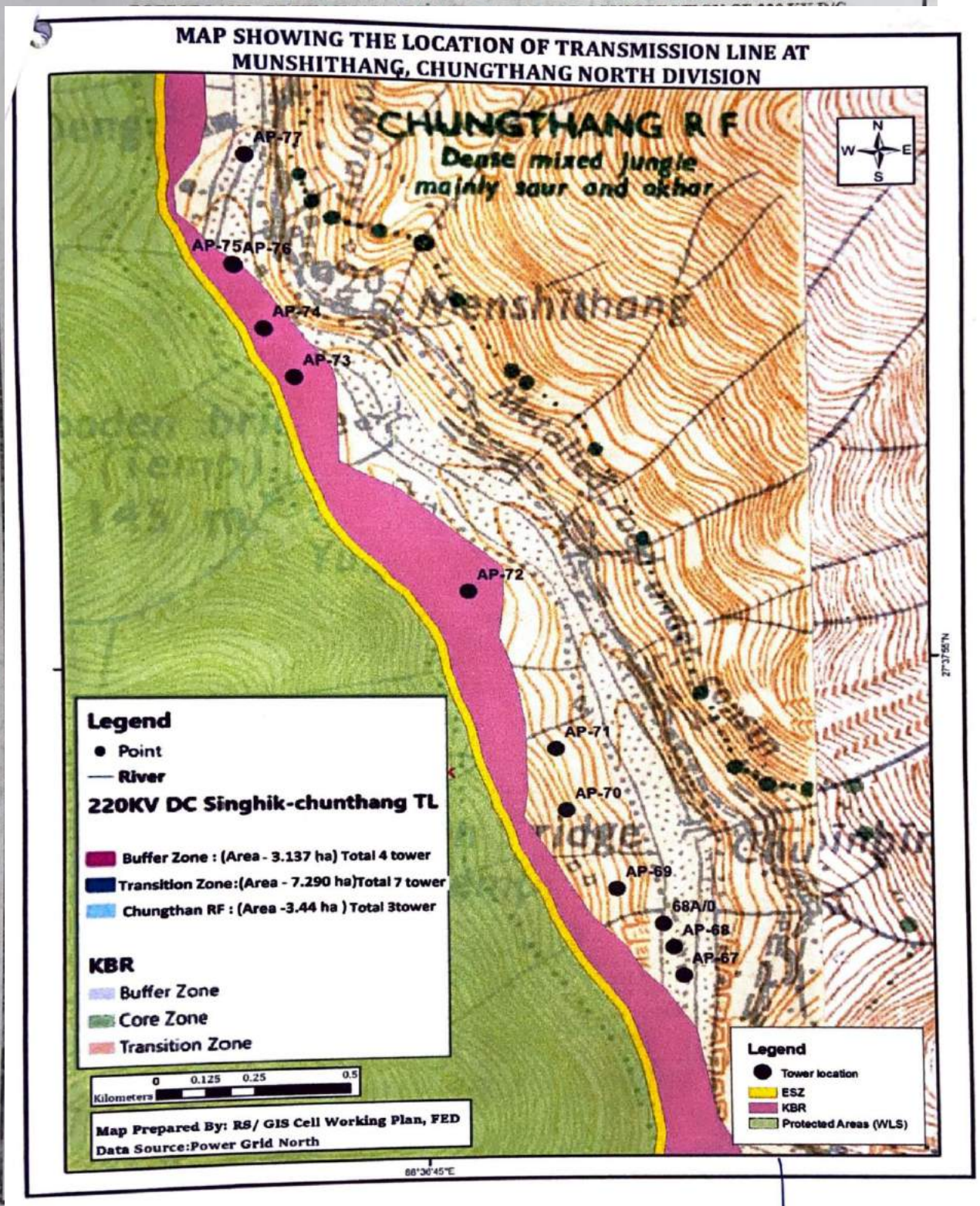
684		CUPRESSACEAE	Juniperus pseudosabina Fischer & Meyer.
685		CUPRESSACEAE	Juniperus recurva D.Don
686		CUPRESSACEAE	Juniperus squamata D. Don
687		CUPRESSACEAE	Thuja orientalis L.
688		PODOCARPACEAE	Podocarpus neriifolius D.Don
689		TAXACEAE	Taxus wallichiana (Zucc.) Pilger
	MONOCOTYLEDONS		
690		ARECACEAE	Areca catechu L.
691		ARECACEAE	Caryota urens L.
692		ARECACEAE	Cocos nucifera L.
693		ARECACEAE	Livistona chinensis (Jacquin) Mart.
694		ARECACEAE	Livistona jenkinsiana Griff.
695		ARECACEAE	Phoenix sylvestris (L.) Roxb.
696		ARECACEAE	Trachycarpus fortunei (Hook.) H. Wendland
697		PANDANACEAE	Pandanus furcatus Roxb.
698		POACEAE (GRAMINAE)	Bambusa bambos (L.) Voss
699		POACEAE (GRAMINAE)	Bambusa balcooa Roxb.
700		POACEAE (GRAMINAE)	Bambusa nutans Wall. ex Munro subsp. cupulata Stapleton
701		POACEAE (GRAMINAE)	Bambusa pallida Munro
702		POACEAE (GRAMINAE)	Bambusa tulda Roxb.
703		POACEAE (GRAMINAE)	Himalayacalamus hookerianus (Munro) Stapleton
704		POACEAE (GRAMINAE)	Cephalostachyum capitatum Monro
705		POACEAE (GRAMINAE)	Cephalostachyum latifolium Monro
706		POACEAE (GRAMINAE)	Dendrocalamus hamitonii Monro
707		POACEAE (GRAMINAE)	Dendrocalamus hookeri Munro
708		POACEAE (GRAMINAE)	Dendrocalamus patellaris Gamble
709		POACEAE (GRAMINAE)	Dendrocalamus sikkimensis Gamble
710		POACEAE (GRAMINAE)	Melocanna baccifera (Roxb) Kurz
711		POACEAE (GRAMINAE)	Phyllostachys assamica Gamble ex Brandis
712		POACEAE (GRAMINAE)	Yushania pantlingii (Gamble) R.B. Majumdar

Source: ENVIS Sikkim

Annexure II: Map of the proposed linear infrastructure

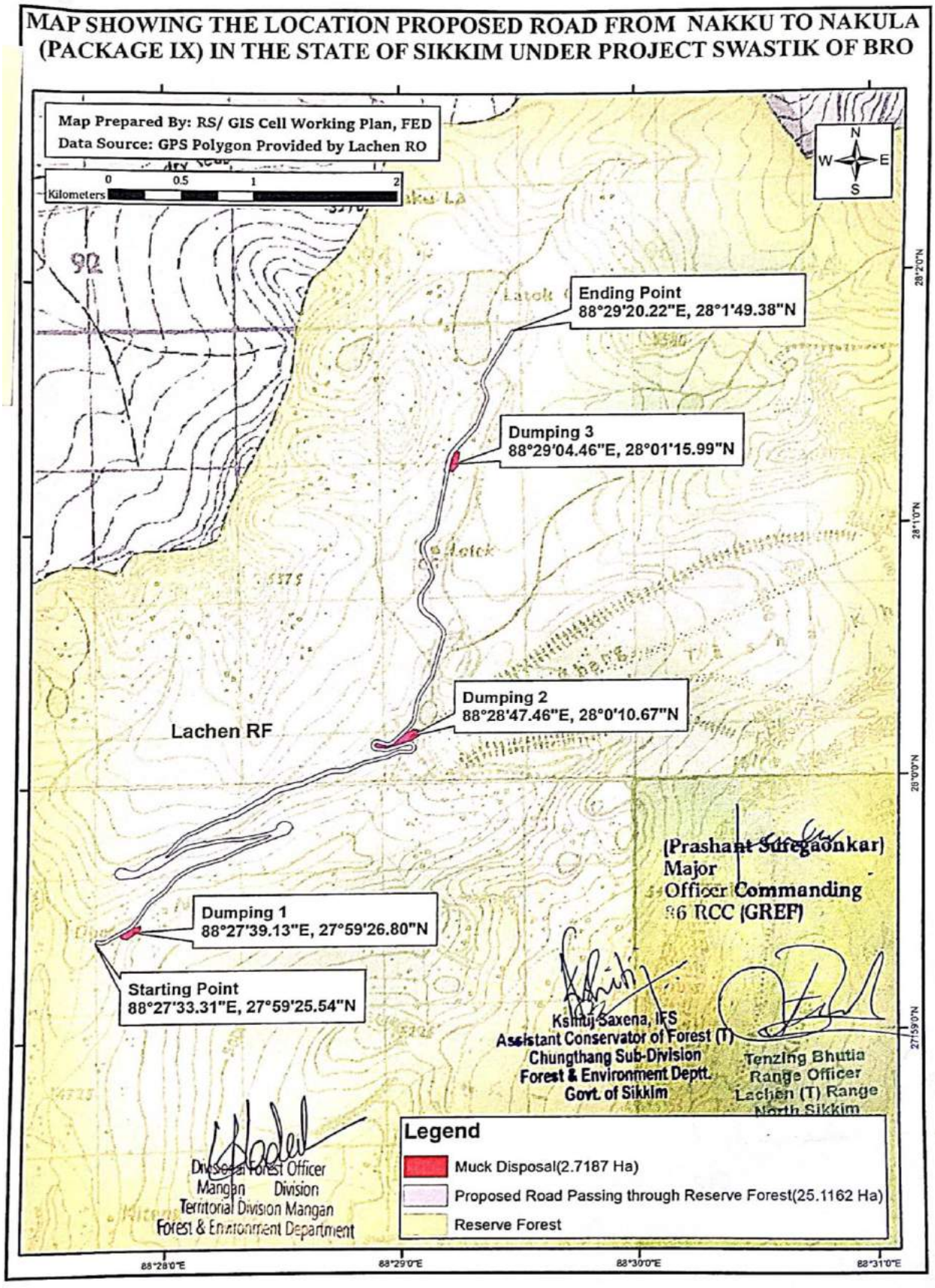


MAP SHOWING THE LOCATION OF DIVERSION OF

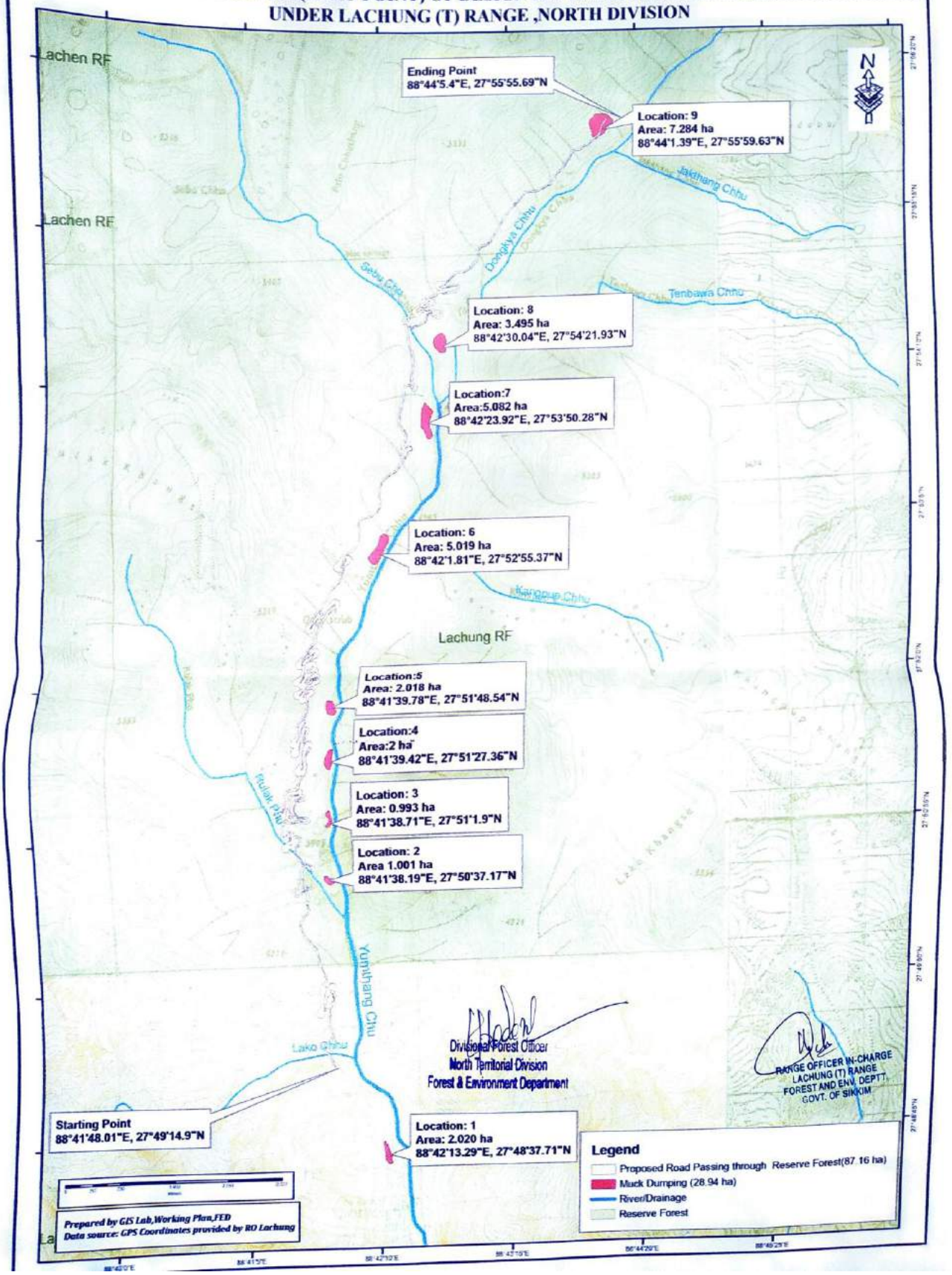


P. Lhamu Bhutia
R.O (KNP/KBR)

MAP SHOWING THE LOCATION PROPOSED ROAD FROM NAKKU TO NAKULA (PACKAGE IX) IN THE STATE OF SIKKIM UNDER PROJECT SWASTIK OF BRO



ERSION OF 116.1 HA FOREST LAND FOR WIDENING/UPGRADATION OF EXISTING ROAD (NH-310A) TO NHDL SPECIFICATION WITH PAVED SHOULDER FROM YUMTHANG OF DESIGN KM 52+808 TO YUMESAMDUNG BORDER (ZERO POINT) OF DESIGN KM 84+160 BY BRO IN THE STATE OF SIKKIM UNDER LACHUNG (T) RANGE ,NORTH DIVISION



Annexure-III: Siting and design of the bridges and culverts