RED PANDA CONSERVATION NEPAL
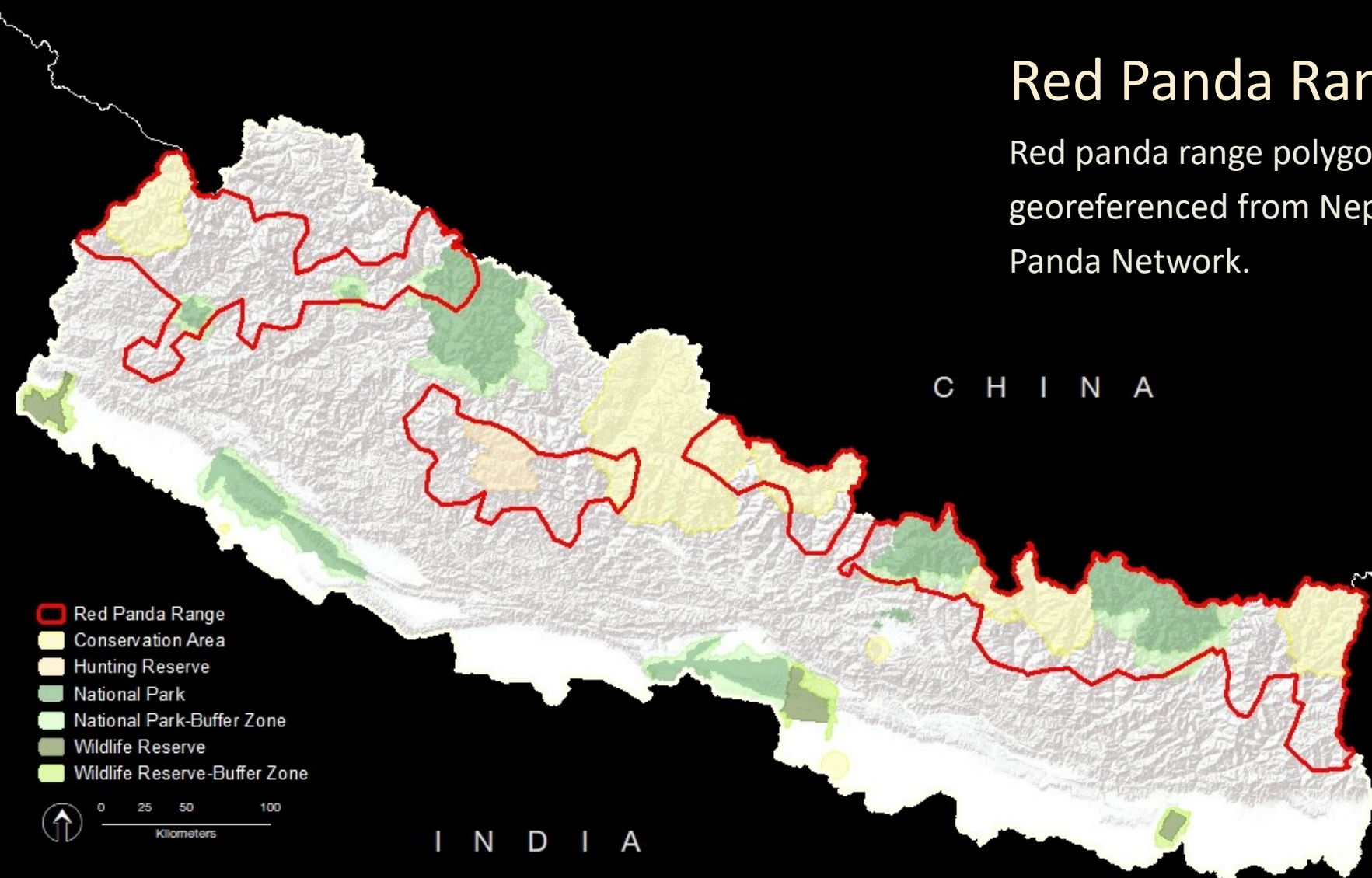
WHY TO CARE?

HABITAT RANGE AND SUITABILITY ANALYSIS

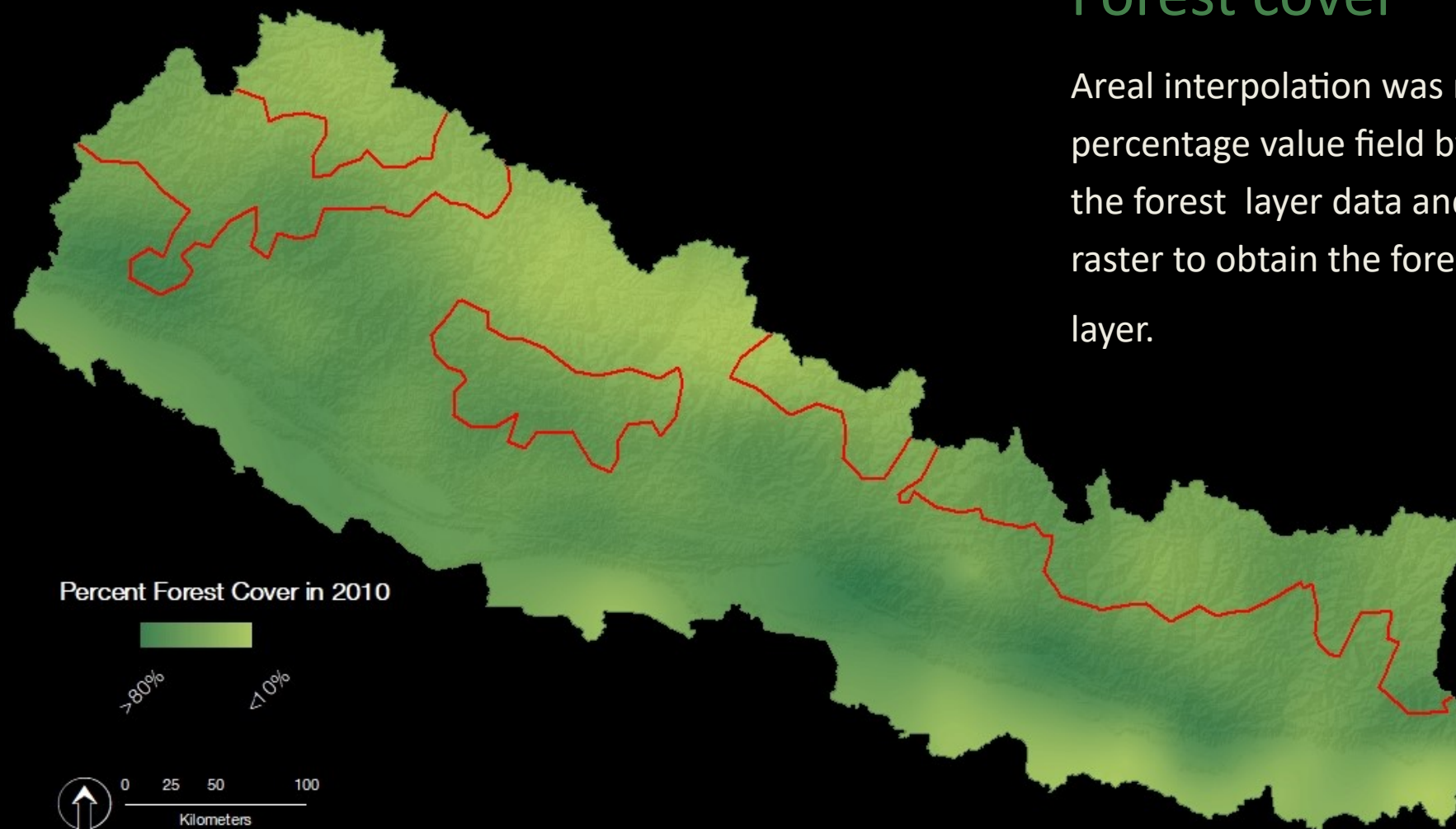Red Panda Pan Range, IUCN , 2015

Red Panda Range

Red panda range polygon was georeferenced from Nepal Red Panda Network.

Red Panda Range
Conservation Area
Hunting Reserve
National Park
National Park-Buffer Zone
Wildlife Reserve
Wildlife Reserve-Buffer Zone

For a landlocked country that has a total of 25% protected lands, its red panda populations are in 11 isolated fragments. This map shows their range and different protected areas in Nepal.
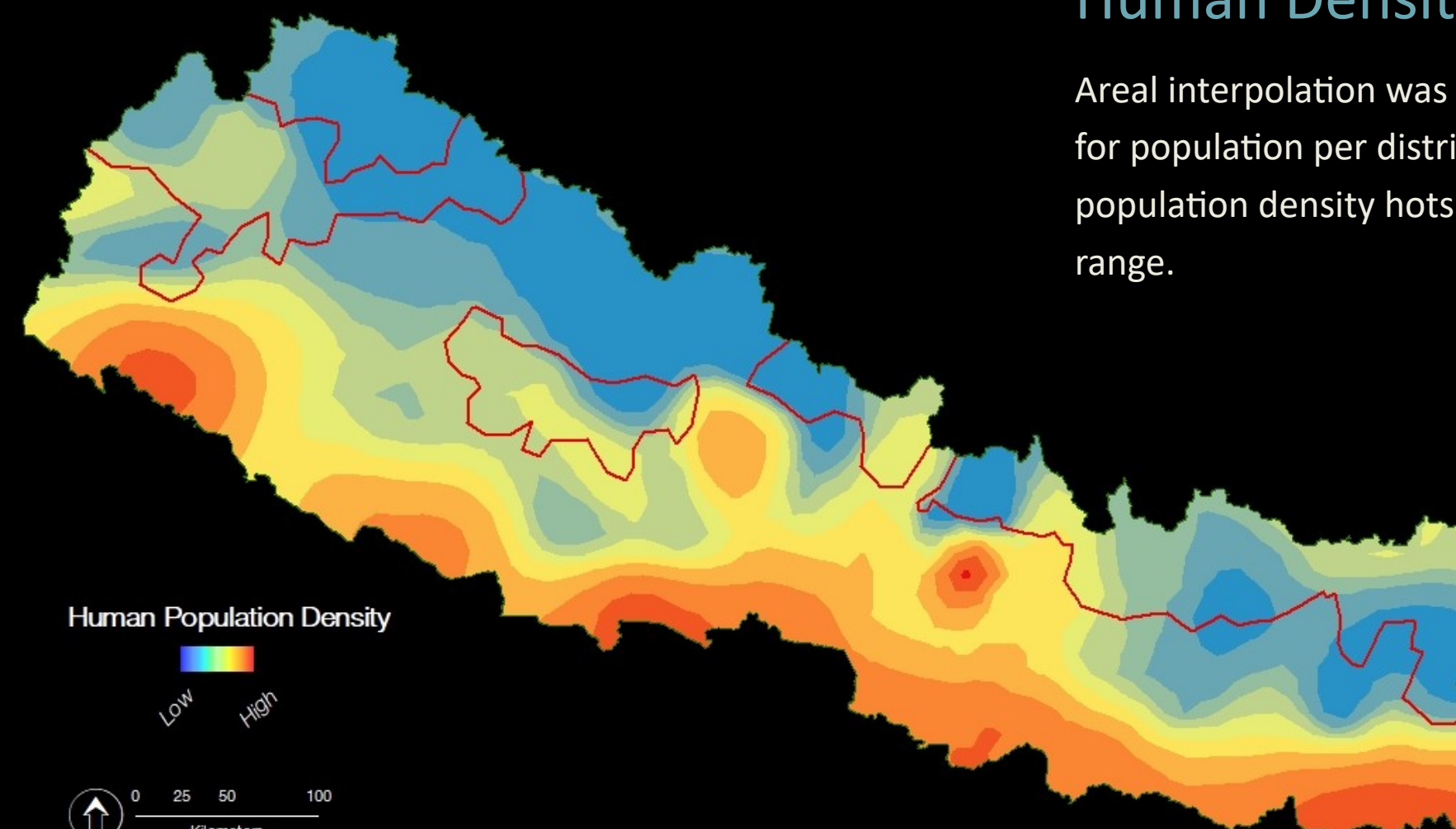
Forest cover

Areal interpolation was run on percentage value field by district for the forest layer data and converted to raster to obtain the forest cover layer.

Percent Forest Cover in 2010

This map shows the forest cover in 2010 when Nepal had 3.89Mha of tree cover, 26% total of the land. In 2017, 2.39kha of tree cover was lost. Red pandas prefer 70 - 80 percent forest cover.
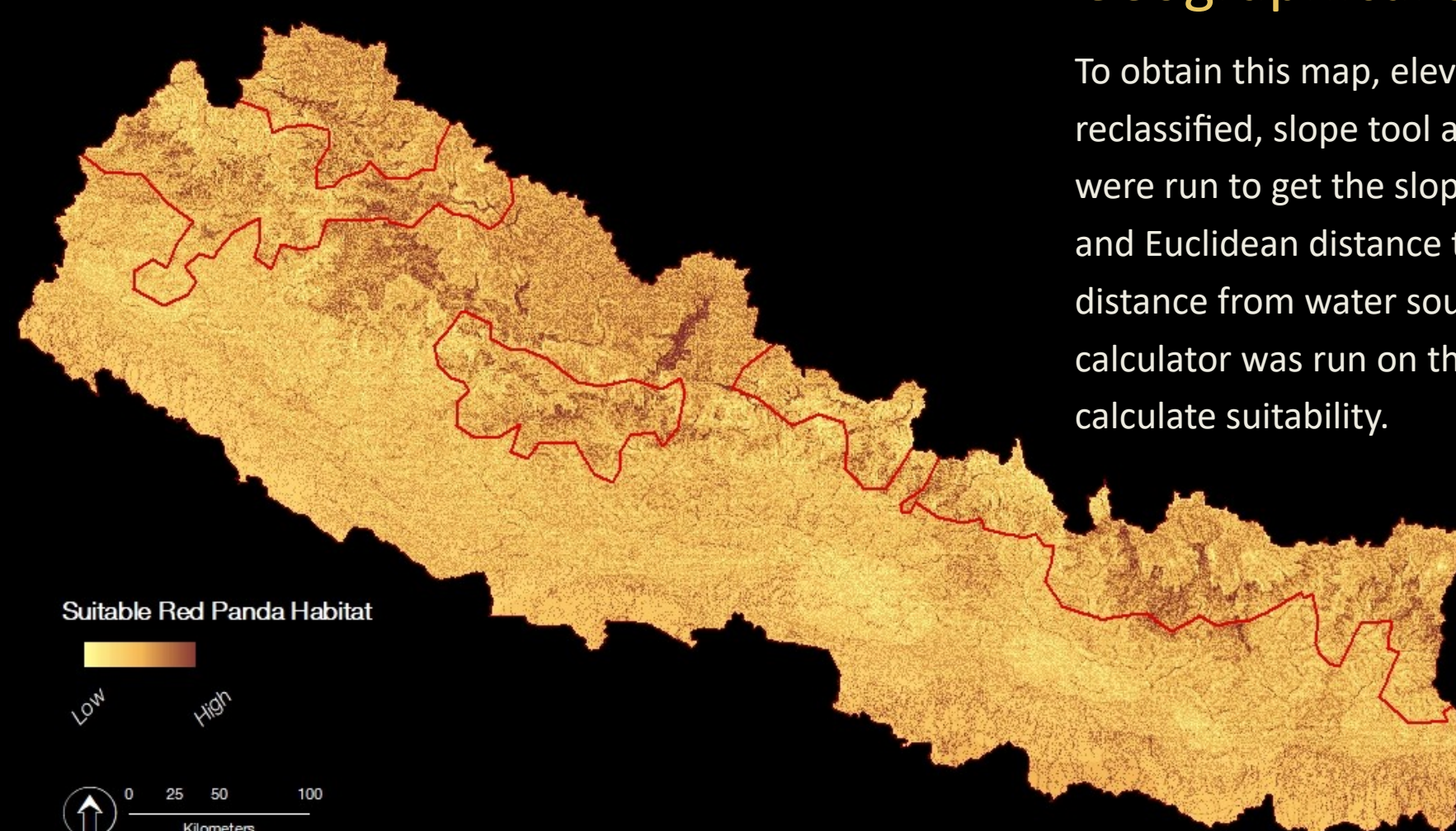
Human Density Hotspots

Areal interpolation was run on vector data for population per district to get the human population density hotspots in the red panda range.

Human Population Density

The temperate forests with understory cover of bamboo grass are integral to the subsistence of local communities. This dependency on red panda habitat presents significant conservation challenges.

Geographical Suitability

To obtain this map, elevation was reclassified, slope tool and aspect tool were run to get the slope and aspect layers and Euclidean distance tool was run to get distance from water sources. Raster calculator was run on these five layers to calculate suitability.

Suitable Red Panda Habitat

This map shows the forest cover in 2010, when, Nepal had 3.89Mha of tree cover, extending over 26% total land. In 2017, 2.39kha of tree cover has been lost. Red pandas prefer 70 - 80 percent forest cover.

INTRODUCTION

Ailurus fulgens fulgens, red panda, is categorized as Endangered in IUCN's National Red List of Mammals, Nepal (2015), with an estimated population size of 317-583 individuals, split across 11 subpopulations through- Annapurnna, Manaslu, Darchula, Dhorpatan, Gaurishankar, Kanchanjungha, Khaptad, Langtang, Rara, Sagarmatha, and Sakhuwasabha. They have been reported from 23 districts, but lack confirmed records. Red Panda populations are suspected to be declining very fast.

MAJOR THREATS

Habitat loss and degradation: Clearing forests for development, livestock grazing, agriculture and manmade fires have led to deforestation. Over- harvesting of bamboo, and trampling have reduced food available for the red pandas.

Poaching and illegal pet trade: Fur trade, Illegal pet markets, and supply to exhibits mainly for breeding occurs more commonly than poaching for body parts, perhaps partly in response to increasing numbers of "cute" images in social media.

Injury and death caused by dogs has been identified as one of the most important causes of death in adult and young red pandas.

Diseases: Red panda have known to be susceptible to a myriad of diseases that humans and domestic animals can transfer, e.g., canine distemper, rabies, parvoviral enteritis, tuberculosis, gastro- intestinal parasitic infections.

Inbreeding: Isolation due to habitat fragmentation and small population size reduces genetic diversity.

CONCLUSION

Red pandas are charismatic animals, rare and distinct, and cloud serve as a flagship species. However, there is not enough study in this species in the wild. Community involvement in red panda conservation is of paramount importance to reduce the anthropogenic threats. Future research involving long term tracking and study programs to assess their true state and disease prevalence is crucial for sustained population viability.
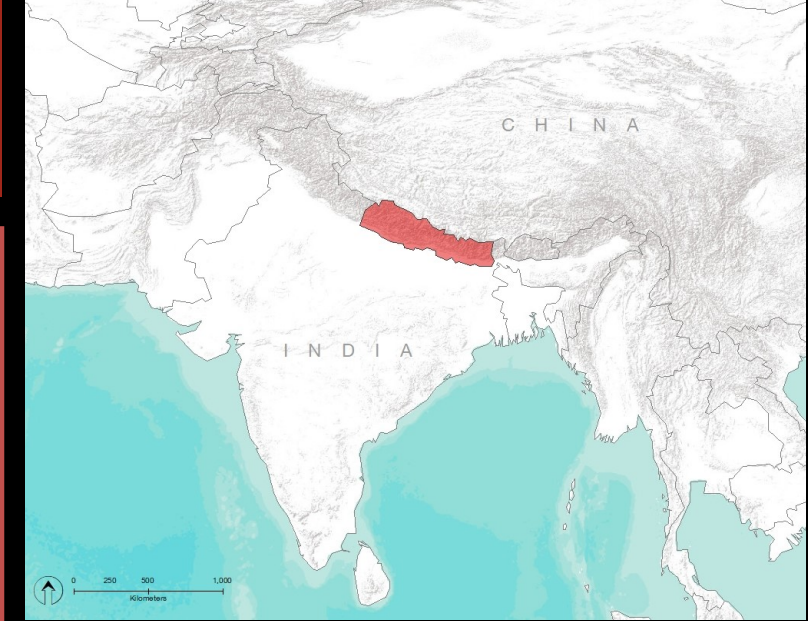
Kritika Dhungana
MCM 591, GIS for Conservation Medicine
December 2018

Projection: Nepal Nagarkot TM
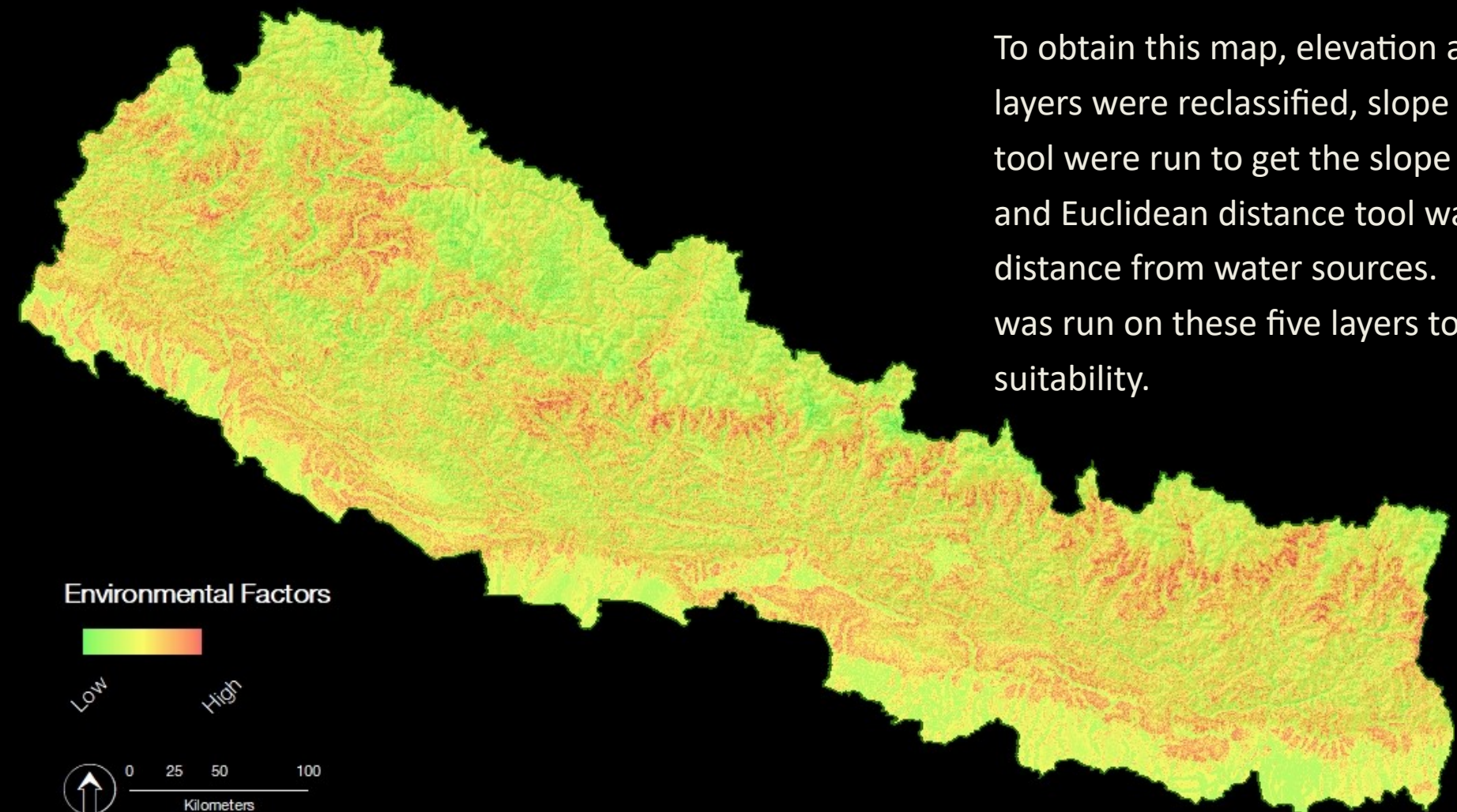**Data Sources:** ESRI, EnergyData.info, GADM, IUCN, ICIMOD, MapCruzin, Protected Planet, WorldPop, Red Panda Network

HOW TO CARE?

IDEAL LOCATIONS TO BUILD A RESEARCH STATION
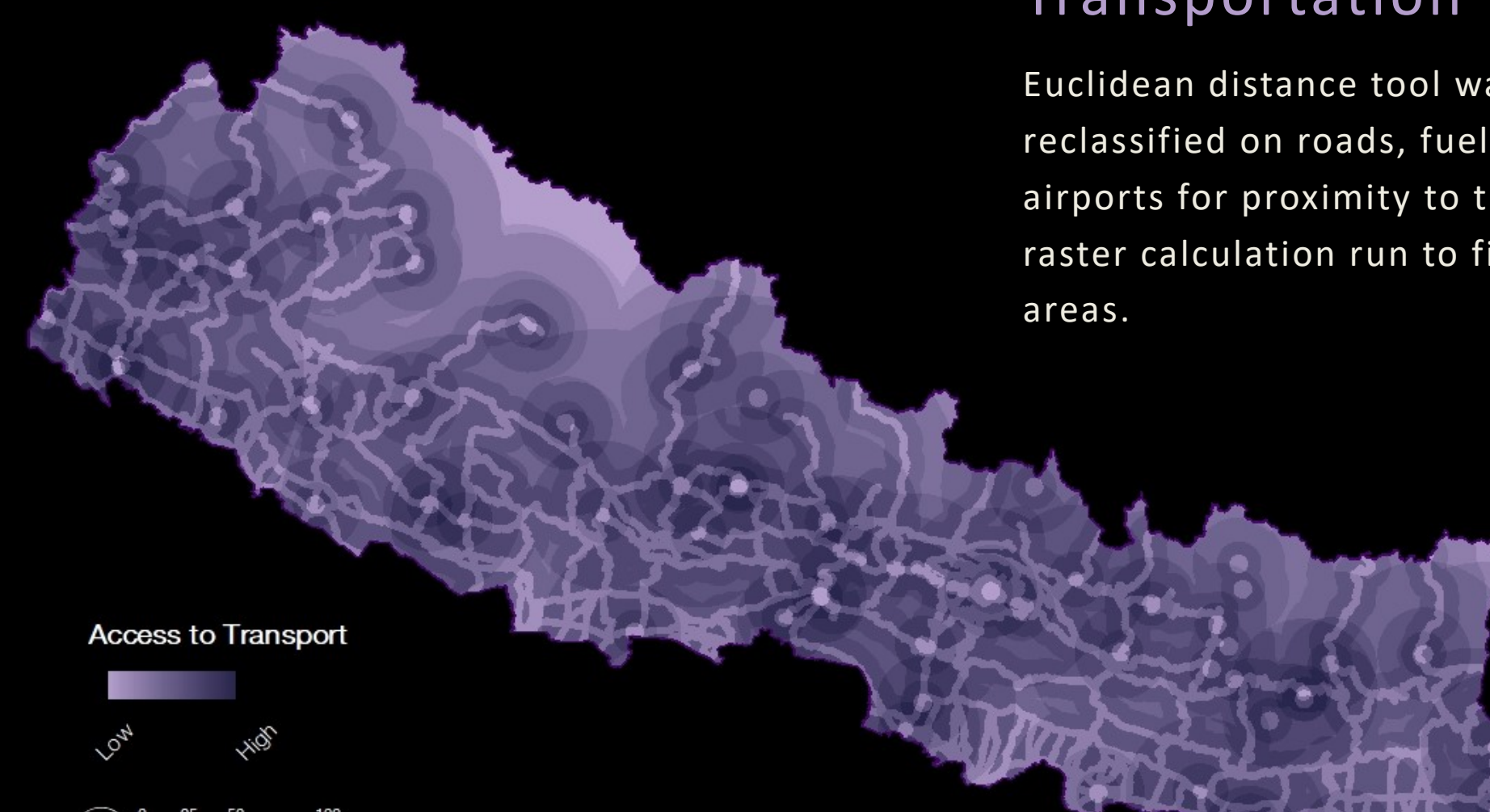

Geographical Suitability

To obtain this map, elevation and land cover layers were reclassified, slope tool and aspect tool were run to get the slope and aspect layers and Euclidean distance tool was run to get distance from water sources. Raster calculator was run on these five layers to calculate suitability.

Environmental Factors

This map shows favorable environments to build a Research and Conservation Station and field relay points.
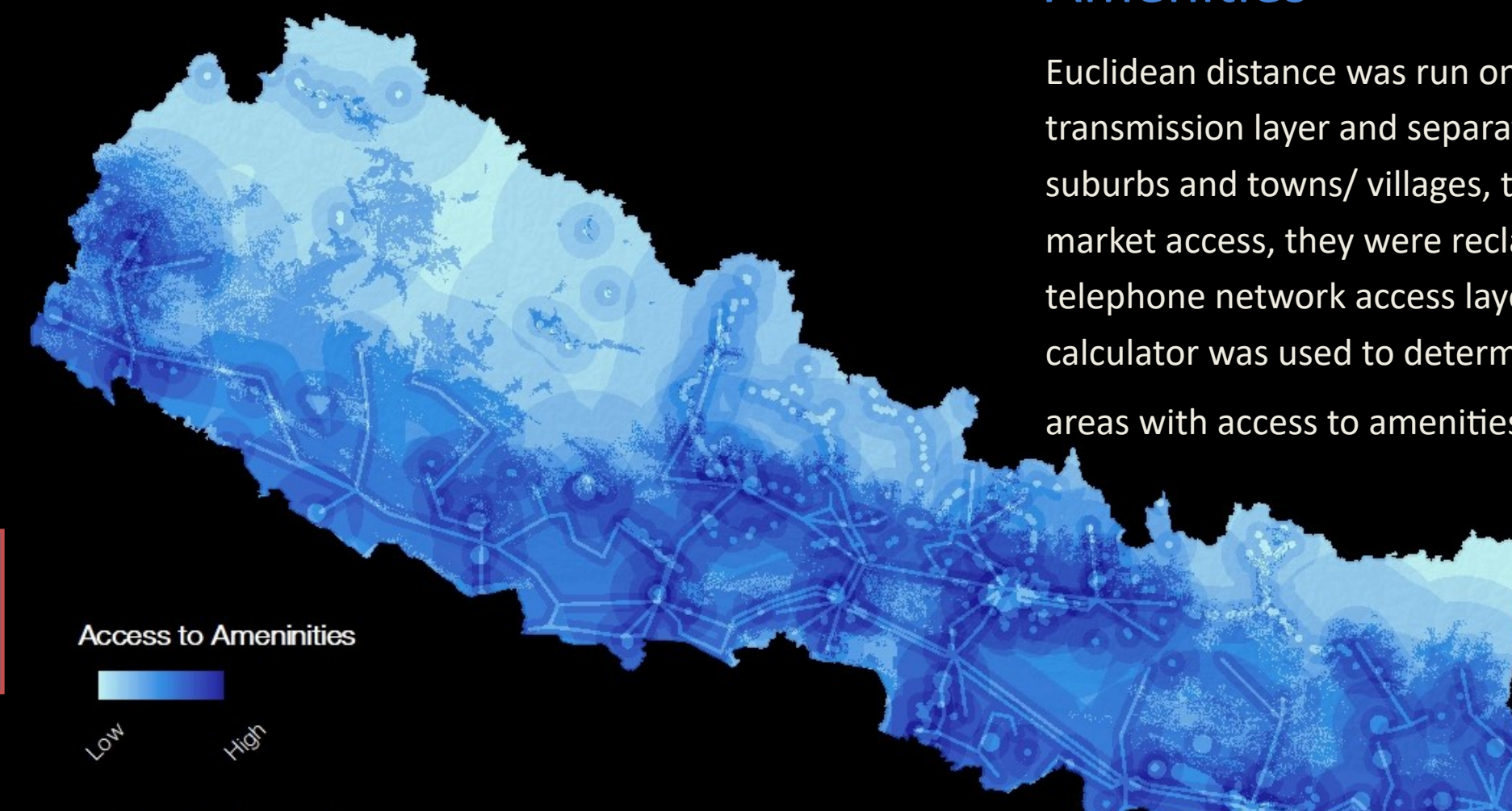
Transportation

Euclidean distance tool was run and reclassified on roads, fuel stations, and airports for proximity to transport and raster calculation run to find suitable areas.

Access to Transport

This map analyses favorable distance form and access to transportation facilities.
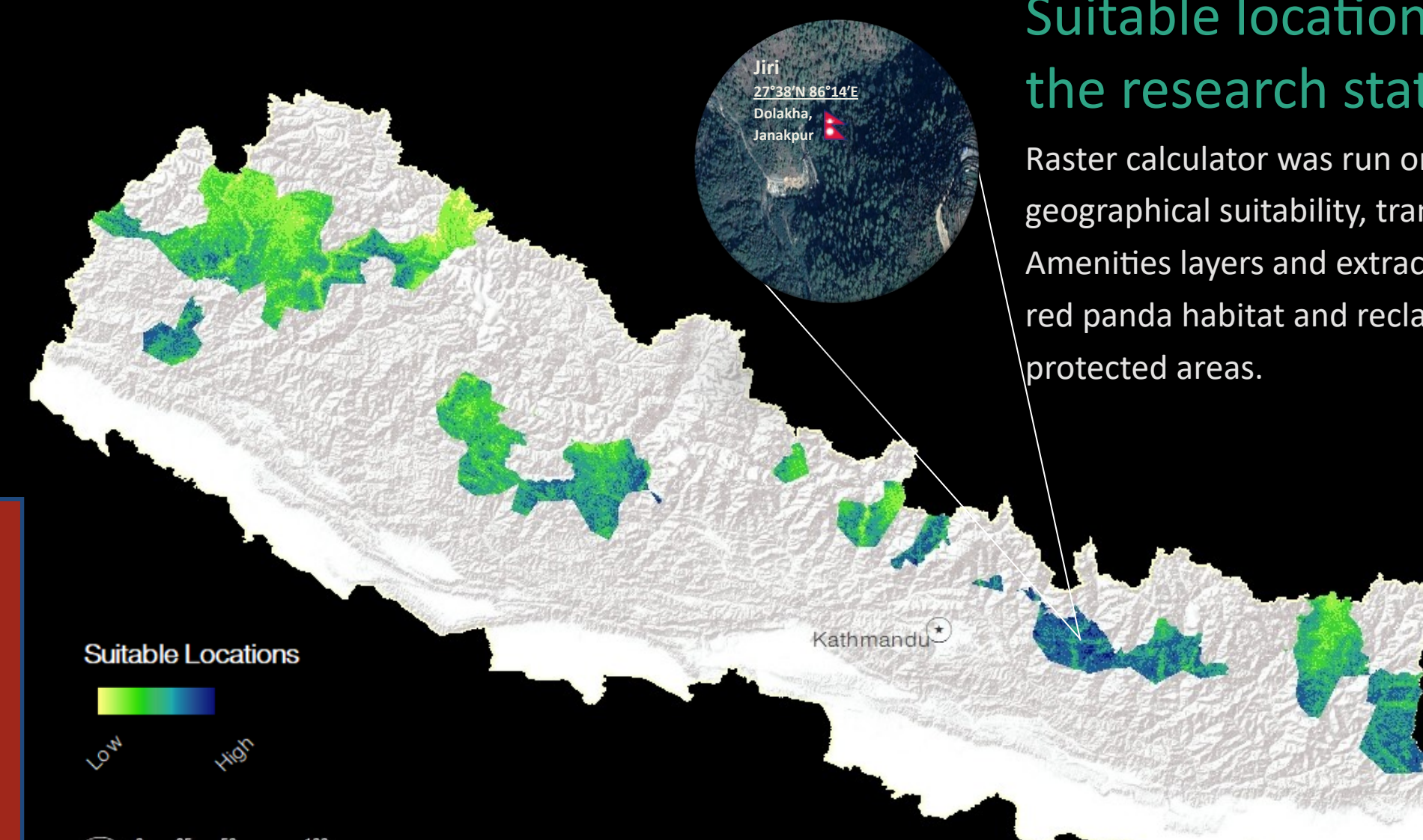
Amenities

Euclidean distance was run on electricity transmission layer and separately on cities/ suburbs and towns/ villages, to find ease of market access, they were reclassified with telephone network access layer, and raster calculator was used to determine suitable areas with access to amenities.

Access to Amenities

This map analyses the availability of facilities like network, electricity and ease of market access.

Suitable locations to build the research station

Raster calculator was run on the geographical suitability, transportation and Amenities layers and extracted by mask to red panda habitat and reclassified to exclude protected areas.

Suitable Locations

This map analyses suitability for a red panda research station and field replay points within red panda habitat.