

# MAAP #100: Western Amazon – Deforestation Hotspots 2018 (a regional perspective)



Base Map. Deforestation Hotspots in the western Amazon. Data: Hansen/UMD/Google/USGS/NASA, GFW, SERNANP, SNAP, SINAP, SERNAP, RAISG

For the 100th MAAP report, we present our first large-scale **western Amazon** analysis: Colombia, Peru, Ecuador, Bolivia, and western Brazil (see Base Map).

We use the new **2018** data for forest cover loss, generated by the [University of Maryland](#) (Hansen et al 2013) and presented by [Global Forest Watch](#).

These data indicate **2.5 million acres of forest cover loss** in the western Amazon in 2018.\*

We conducted an additional analysis that indicates, of this total, **1.9 million acres were primary forest**.\*

To identify **deforestation hotspots** consistently across this vast landscape, we conducted a kernel density analysis (see Methodology).

The **Base Map** shows the hotspots in yellow, **orange** and **red**, indicating areas with medium, high, and very high forest loss concentrations, respectively.

Next, we focus on five zones of interest (**Zooms A-E**) in Colombia, Brazil, Bolivia, and Peru. For all images, please *click to enlarge*.

**\*Forest Cover Loss:** 5 acres per minute. Almost half (49%) occurred in Brazil, followed by Peru (20%), Colombia (20%), Bolivia (8%), and Ecuador (3%). see Annex.

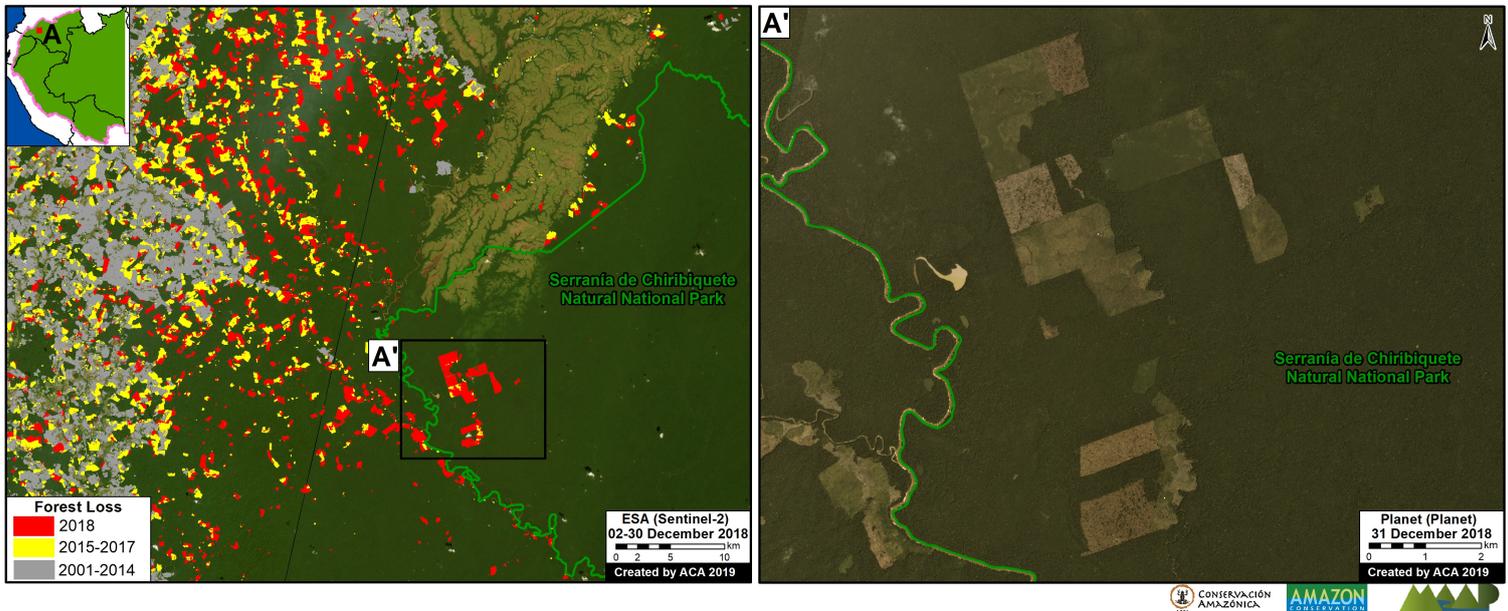
**\*\*Primary Forest Loss:** 3.5 acres per minute. Over half (53%) occurred in Brazil, followed by Peru (20%), Colombia (18%), Bolivia (7%), and Ecuador (2%). see Annex.

## Colombia

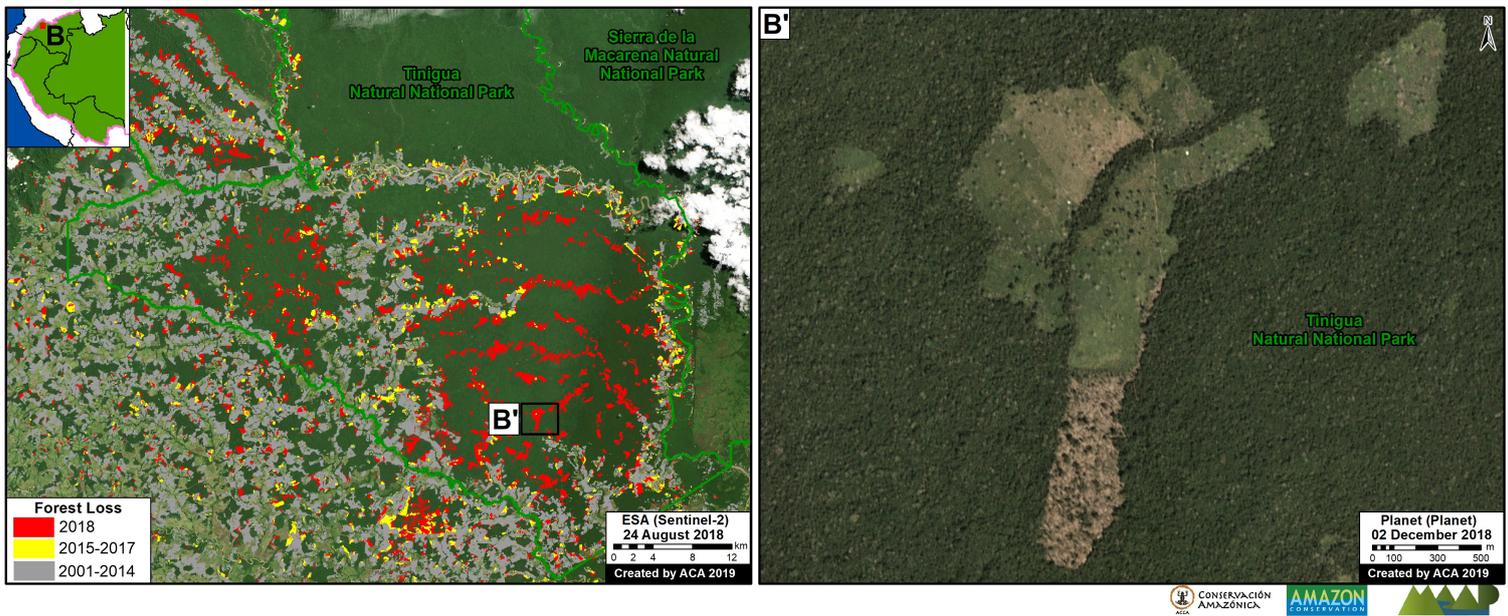
The largest concentration of 2018 forest loss is in the northeast **Colombian Amazon** (494,000 acres). Out of this total, 11% (56,800 acres) occurred in national parks. National experts indicate that **land grabbing** has emerged as a leading direct driver of deforestation (Arenas 2018). See [MAAP #97](#) for more information.

**Zoom A** shows the forest loss expanding towards western **Chiribiquete National Park**, including distinct deforestation in this protected area during 2018.

**Zoom B** shows the extensive 2018 deforestation (30,000 acres) within **Tinigua National Park**. A [recent news report](#) indicates that cattle ranching is one of the factors related to this deforestation.



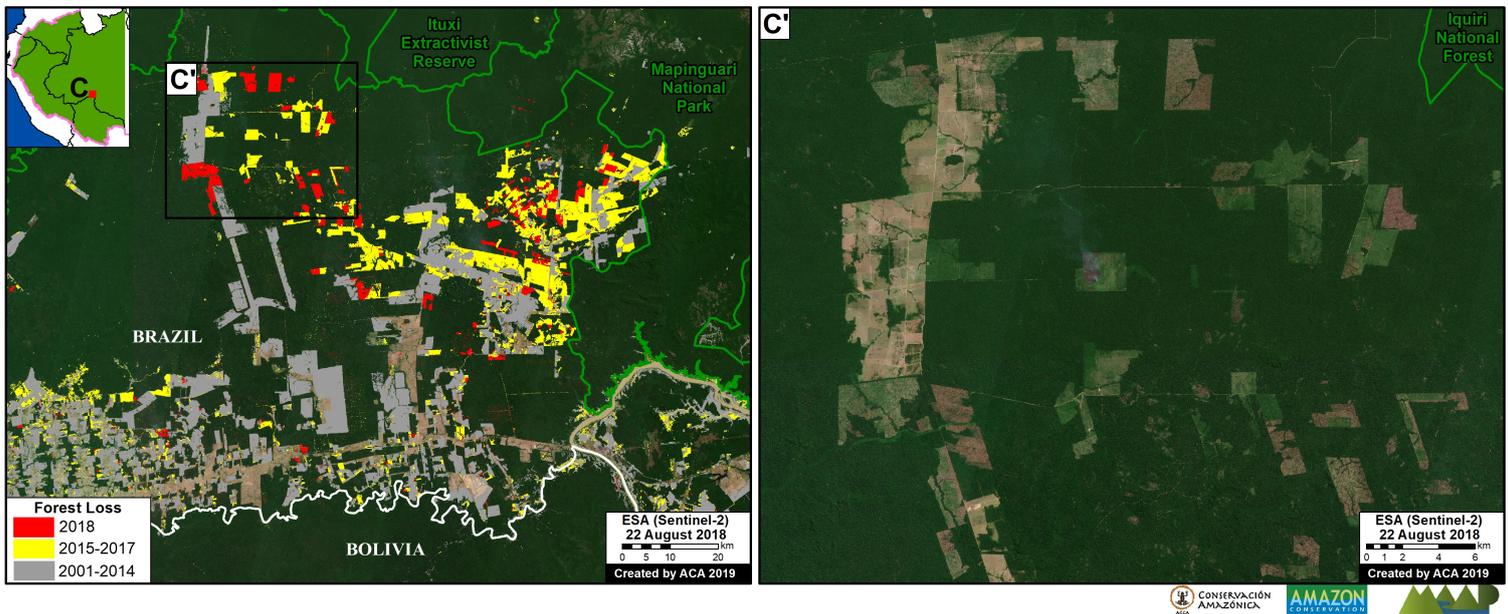
Zoom A. Colombia-Chiribiquete. Data: Hansen/UMD/Google/USGS/NASA, SINAP, Planet, ESA



Zoom B. Colombia – Tinigua. Data: Hansen/UMD/Google/USGS/NASA, SINAP, Planet, ESA

## Brazil (border with Bolivia)

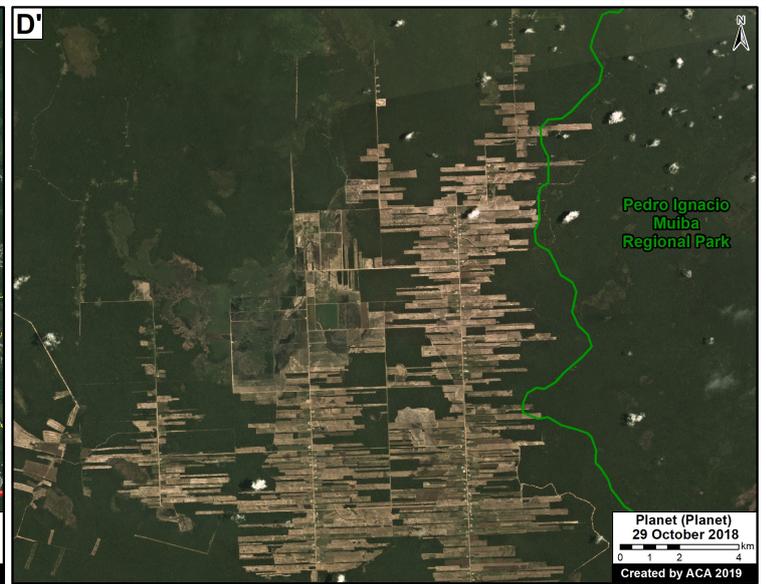
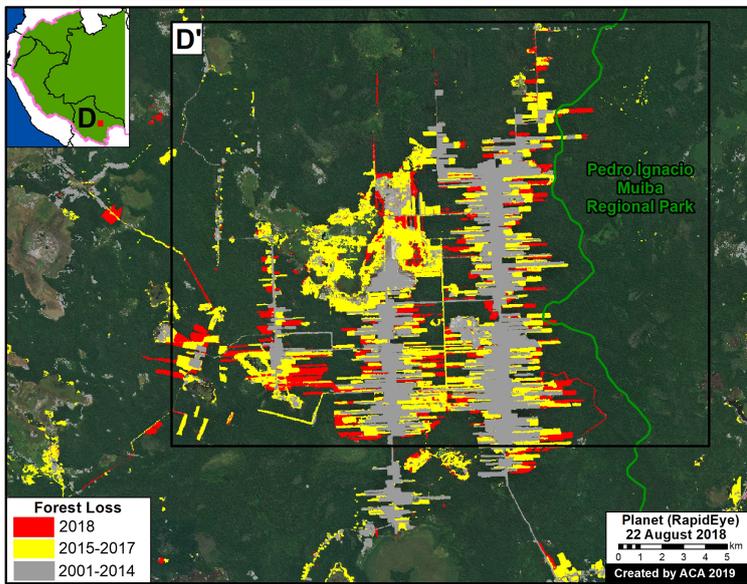
Another important result is the contrast between northern Bolivia (Pando department) and adjacent side Brazil (states of Acre, Amazonas, and Rondônia). **Zoom C** shows several deforestation hotspots on the Brazilian side, while the Bolivian side is much more intact.



Zoom C. Brazil, Bolivia border. Data: Hansen/UMD/Google/USGS/NASA, ESA, RAISG

## Bolivia

In Bolivia, the major forest loss hotspots are further south. **Zoom D** shows the recent deforestation (5,000 acres in 2018) due to agricultural activity associated with one of the first major **Mennonite settlements** in Beni department (Kopp 2015). The other Mennonite settlements are located further south.



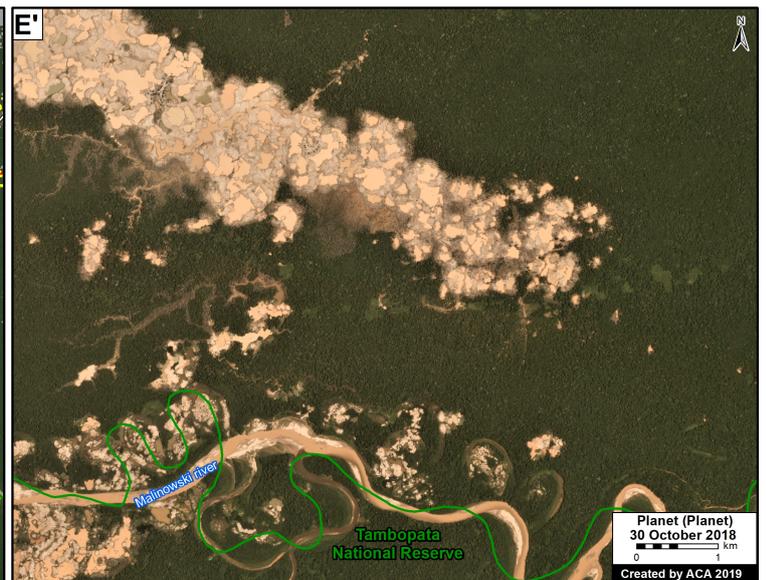
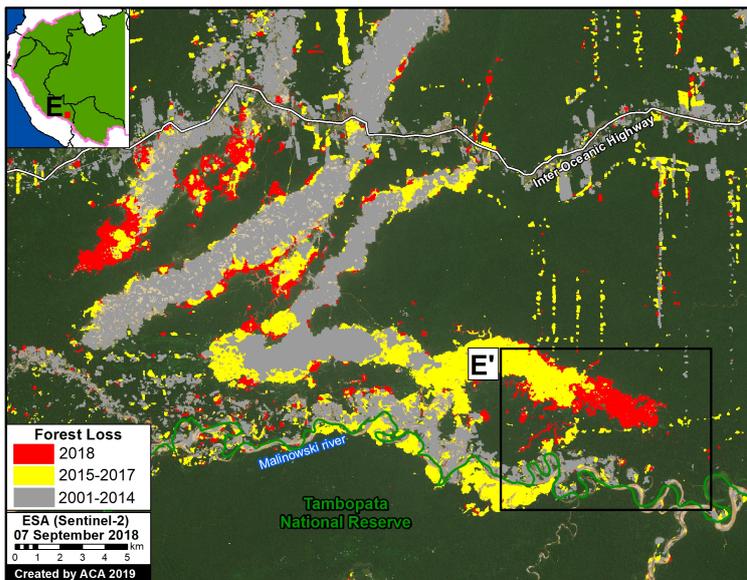
Zoom D. Bolivia, Black River Mennonite settlement. Data: Hansen/UMD/Google/USGS/NASA, SERNAP, Planet

## Peru

The Hansen data indicates over 200,000 acres of forest loss during 2018 in the Peruvian Amazon. One of the most important deforestation drivers, especially in southern Peru, is **gold mining**. We estimate 23,000 acres of gold mining deforestation during 2018 in the southern Peruvian Amazon (see [MAAP #96](#)).

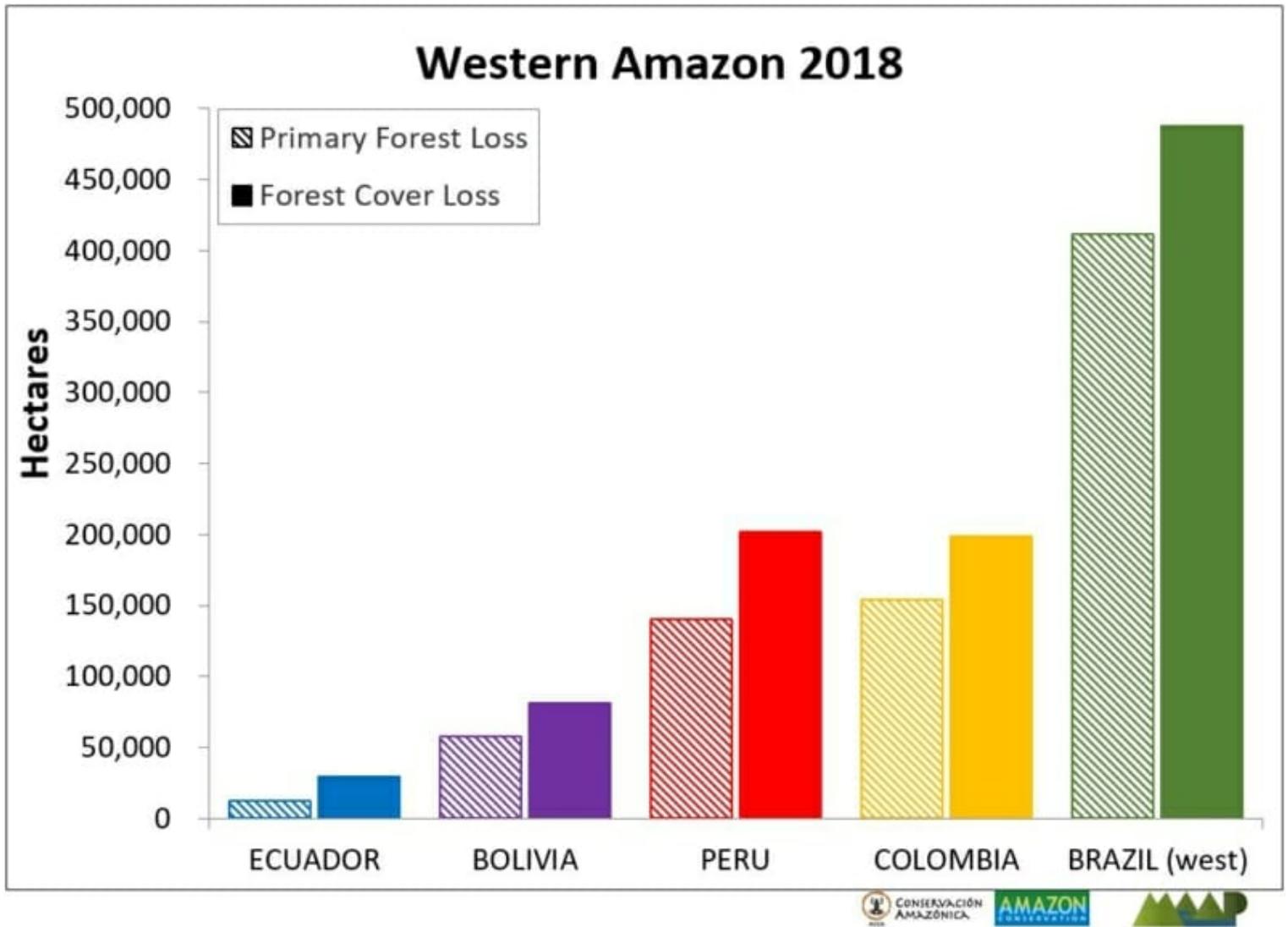
**Zoom E** shows the most emblematic case of gold mining deforestation: the area known as La Pampa.

It is important to emphasize, however, that in February 2019 the Peruvian government launched “**Operation Mercury 2019**” (Operación Mercurio 2019), a multi-sectoral and comprehensive mega-operation aimed at eradicating illegal mining and associated crime in La Pampa, as well as promote development in the region.



Zoom D. Peru - La Pampa. Data: Hansen/UMD/Google/USGS/NASA, SERNAP, Planet

## Annex



Annex. Forest cover and primary forest loss in the western Amazon. Data: Hansen/UMD/Google/USGS/NASA, Global Forest Watch.

## Methods

The 2018 forest loss data presented in this report were generated by the [Global Land Analysis and Discovery](#) (GLAD) laboratory at the University of Maryland (Hansen et al 2013) and presented by [Global Forest Watch](#). Our study area is strictly what is presented in the Base Map: the areas within the Amazonian biogeographic boundary of the western Amazon.

Specifically, for our estimate of forest cover loss, we multiplied the annual "forest cover loss" data by the density percentage of the "tree cover" from the year 2000 (values >30%).

For our estimate of primary forest loss, we intersected the forest cover loss data with the additional dataset "primary humid tropical forests" as of 2001 (Turubanova et al 2018). For more details on this part of the methodology, see the [Technical Blog](#) from Global Forest Watch (Goldman and Weisse 2019).

All data were processed under the geographical coordinate system WGS 1984. To calculate the areas in metric units the UTM (Universal Transversal Mercator) projection was used: Peru and Ecuador 18 South, Colombia 18 North, Western Brazil 19 South and Bolivia 20 South.

Lastly, to identify the deforestation hotspots, we conducted a kernel density estimate. This type of analysis calculates the magnitude per unit area of a particular phenomenon, in this case forest cover loss. We conducted this analysis using the Kernel Density tool from Spatial Analyst Tool Box of ArcGIS. We used the following parameters:

Search Radius: 15000 layer units (meters)  
Kernel Density Function: Quartic kernel function  
Cell Size in the map: 200 x 200 meters (4 hectares)  
Everything else was left to the default setting.

For the Base Map, we used the following concentration percentages: Medium: 10%-20%; High: 21%-35%; Very High: >35%.

## References

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## Citation

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