Introduction

In the absence of detailed information about central Africa's rainforests, Global Forest Watch has undertaken to provide a coarse-scale picture of the region's *large tracts of low-access forest*—i.e., forests at least 2 kilometers (km) from public roads and in contiguous blocks of at least 1,000 km^2. To identify blocks of forest relatively undisturbed by commercial-scale activities, we assessed the degree to which these forest tracts were located in protected areas or in areas allocated for logging. This coarse-scale approach offers an indication of which forests are more or less impacted by development, but overall it underestimates human access into forests. Detailed data for Cameroon, unavailable for the rest of central Africa, allowed us to examine the extent to which logging roads and other newly constructed transport routes are opening access into previously remote forest tracts (i.e., those identified in the coarser-scale regional analysis). This two-tiered approach offers insight into the potential condition of forests in logging concessions region-wide and reveals the need for improved roads data.

Why Identify Low-Access Forests in Central Africa?

Forests are accessed by transportation routes including roads, railroads, and rivers that bring human populations into contact with forest ecosystems. In central Africa (Figure 1), new sources of forest access result primarily from road construction to support the logging industry. Access impacts forest ecosystems in two principal ways. First, transport routes have direct ecological effects, such as biomass loss, impeding the movement of animal species, microclimate changes, and other so-called edge effects that take place along the sides of roads. Second, access routes open the forest to human activity, including timber harvesting, bushmeat hunting, gathering of woodfuel, and agricultural conversion of forest land. The impact of access into forests depends largely on the scale of these activities.

In sparsely populated areas used only for subsistence-level human activities, these activities may prove more sustainable in the long run if population density remains low. In areas of high (or growing) population density and/or where access routes are constructed to serve commercial-scale extractive activities, the indirect impacts of access can be much more damaging. In these cases, the opening of access routes can, over time, lead to the hunting out of large forest areas, forest fragmentation (i.e., the breaking up of forest into remnants surrounded by land converted to other uses), and deforestation. In more densely populated areas such as southwest Cameroon, the eastern Democratic Republic of the Congo, and areas surrounding large cities fragmentation and deforestation are taking place on a large scale. In central Africa's low-access forest tracts, population density is very low and, to date, deforestation has been limited. The primary adverse impact of forest access in these regions is widespread defaunation (i.e, removal of animals from the forest faster than their populations can recover) caused by commercial-scale bushmeat hunting.

Improved road networks benefit people, but may harm ecosystems. Improved road networks are essential to economic development and growth. They often indirectly harm the environment, however, as roads provide access to previously undisturbed forest. Road improvement increases opportunities for trade by reducing the time and costs required to transport goods to market. Roads can enable previously isolated communities to gain access to education and medical services as well as