



CONSERVATION POLICY IN BRIEF

SEPTEMBER 2014 | N°.24
conservation-strategy.org

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CONSERVATION
STRATEGY FUND

PAVE THE IMPENETRABLE? AN ECONOMIC ANALYSIS OF POTENTIAL IKUMBA - RUHIJA ROAD ALTERNATIVES IN AND AROUND UGANDA'S BWINDI IMPENETRABLE NATIONAL PARK

In July 2012, the Uganda National Road Authority (UNRA) advertised a request for expressions of interest to design and construct 1,900 kilometres (km) of strategic roads in the country. The objectives of this investment by the Ugandan government are:

1. To promote equal access to economic and social development opportunities across the country;
2. To improve the quality of the national road network and improve connectivity to all areas of the country; and
3. To promote the continual improvement of the national road sector in Uganda.



One of the proposed projects is an upgrade of the road from the Ikumba junction on the Kabale – Kisoro road, through Ndego gate, Ruhija, Kitahuriira, Hamayanja and then to Buhoma. Approximately 13 km of the Ikumba – Ruhija section of the proposed road passes through Bwindi Impenetrable National Park (BINP), one of the last remaining habitats of about half the world's population of the critically endangered mountain gorilla (*Gorilla beringei beringei*), one of Uganda's main tourist attractions, and a globally recognized UNESCO World Heritage Site. Another 12 km of the road runs along the park boundary. Specific objectives for the project that includes the Ikumba – Ruhija section are:

1. To improve the performance of the tourism sector by easing access to the tourist attractions in the region;
2. To improve access to goods/passenger transport services, and reduce transport costs along the route;
3. To improve access to social and economic development opportunities along the route; and
4. To ensure no roadside communities become worse off as a result of the road upgrading works.

If the upgrade comes to fruition under the proposed plan, evidence suggests that the gorilla population will be affected in two ways: 1) gorillas will actively avoid areas of high human activity; and 2) gorilla mortality from disease, poaching, and

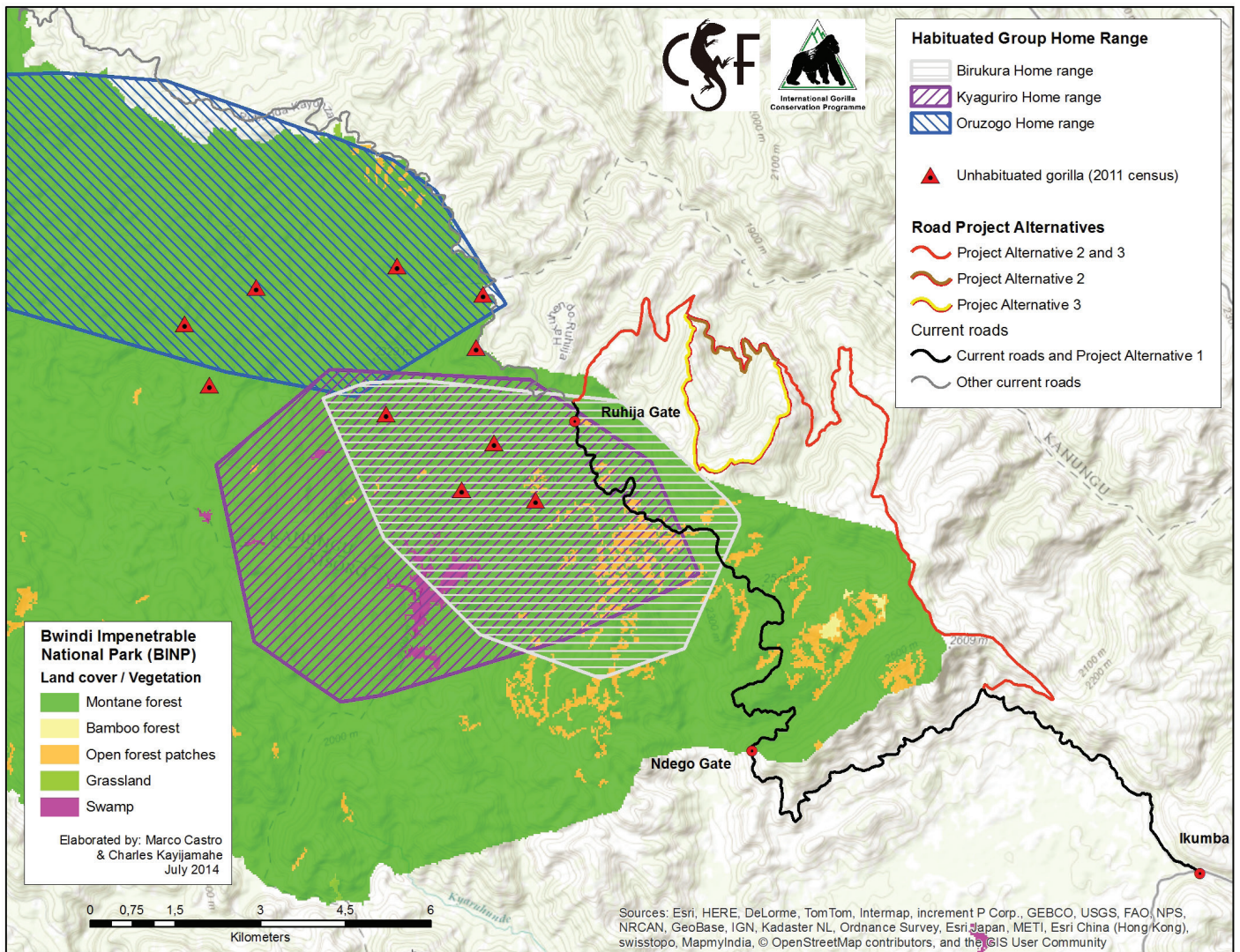


Figure 1 Road project alternatives through and around BINP, habituated gorilla home ranges (2007-2012), and location of individual unhabituated gorillas discovered during census (2011).

vehicle collisions will increase. Given BINP's importance to Uganda's development and conservation objectives, the International Gorilla Conservation Programme (IGCP) and the Uganda Chapter of Poverty and Conservation Learning Group (Ug-PCLG) have proposed, in consultation with local communities and engineers, two road alternatives that would reroute the Ikumba – Ruhija road section outside of BINP.

The two alternatives follow the same route outside of the park except that Alternative 3 follows a mountain ridge in order to avoid steeper terrain. The two routes, in addition to the current route slated for an upgrade, can be seen in Figure 1 below. To support the decision-making process, Conservation Strategy Fund (CSF) and IGCP studied the potential economic costs and benefits associated with the proposed upgrade of the current road through BINP compared to the two proposed alternative routes.

Given the Ikumba – Ruhija road's specific objectives, this study analysed road alternatives in terms of:

1. Overall economic performance;
2. Performance in reduced transport costs (benefits) versus construction and maintenance costs;
3. Effects on rural communities living around the park;
4. Impacts on tourism revenues; and
5. Ability to offset construction and maintenance costs via revenue generated by increased or induced tourism.

Results

The results of our analysis show that road alternatives outside BINP would have better overall economic performance than upgrading the route through the park. This conclusion rests on: lowered overall risks to the gorilla population, lowered risks to specific groups upon which lucrative tourism activity depends, as well as on the greater number of people and communities who would benefit from routes outside the park.

These benefits outweigh the higher construction costs of the alternative routes. When the risk to gorilla populations and associated loss of tourism revenues is included, upgrading the current road option through the park is estimated to cost the Ugandan economy approximately twice as much as the alternatives, considering only permit revenue losses, and some additional US \$214 million in lost tourism revenue at the national level over the next 20 years (in present value terms). Furthermore, both the national and specific objectives under which the Ikumba – Ruhija road improvement was proposed are best met by alternatives that divert vehicles outside of the park.

The specific findings of this report are as follows:

- For all three road options, road maintenance and construction costs outweigh benefits generated from reduced transport costs (time, vehicle operation and maintenance costs). Therefore, without the incorporation of other social or environmental benefits and costs, all projects would represent a net cost ranging from US \$-13.7 million to US \$-18.4 million (in present value terms). Upgrading the current road through the park presents the lowest net cost with a net present value (NPV) of US \$-13.7 million. Project Alternative 2, which circumvents the park and passes through the surrounding communities, has the next lowest cost at US \$-16.7 million. Alternative 3, which follows the mountain ridge, is the most expensive at US \$-18.4 million.

- While the alternatives outside the park may have higher construction costs than upgrading the existing road within the park, they would serve 19,000 people (6,000 more people than the current road) and deliver a greater improvement in mobility per capita, as there is currently no road serving most of the communities east of BINP. The goal of improving access would be furthered by including the paving of the current road up to Mukiyorere, 3 km from the proposed point of diversion, within the construction of the project alternatives that circumvent the park. This addition would serve both the communities to the east and south of BINP, bringing the estimated number of people served by a paved road to 25,000 at a cost of just US \$2.0 million.

- Tourism linked to the Ikumba – Ruhija road is centred on gorilla trekking. Upgrading the current road through BINP has the risk of changing gorilla behavior and ranging patterns during and after construction phases, which could potentially lead to losses as high as US \$15.7 million in permit revenue, US \$26.5 million to the Bwindi-region economy, and US \$214.2 million to Uganda's economy over the next 20 years. Choosing to build either of the two road project alternatives would avoid such risks to the economy.

- The current state of the Ikumba – Ruhija road is not a limiting factor in the growth of tourism in BINP. Under current tourism growth rates in BINP, tourist numbers will have increased beyond the current maximum

number of permits to habituated gorilla groups before the construction of the new road would be completed in 2018; tourism numbers will therefore be limited by the capacity of the gorilla population based on established best practices and the road would not be able to bring in greater numbers of new visitors. Road-induced tourism revenues to the Ugandan economy are therefore predicted to be insufficient to offset the costs of the road upgrade project.

- Given the limited benefits to tourism from the road investment and the likely economic losses due to disruptions to gorilla behaviour and home range, the precautionary principle should be applied to ensure that the Ugandan government safeguards its tourism economy, which is currently highly dependent upon this iconic species.

Considering the above findings, and that the present limiting factor for tourism growth in Bwindi is the number of gorilla permits available, any tourism investment in the area should focus on guaranteeing the protection of the current gorilla population and its potential to grow. Therefore, we recommend that only road alternatives outside the park be further explored through detailed design analysis, and that the most appropriate of the routes be developed to ensure the maximum socioeconomic return from the road investment. Such a strategy would provide the same improvement in access for the tourism industry as the upgrade of the existing road, and would more than compensate higher upfront costs by mitigating potential negative impacts on the gorilla population and tourism revenue. This strategy would also improve access to markets and important services like health and education for a total of 19,000 to 25,000 people (6,000 to 12,000 more people than would be served by the upgrade of the current road).

This document was made possible by the support of the American People through the United States Agency for International Development and its program on Biodiversity Understanding in Infrastructure and Landscape Development (BUILD). The views expressed herein are of the author (s) and do not necessarily reflect views of USAID or of the United States Government. We would also like to thank Pippa Howard, Guy Parker, John Reid, Aaron Bruner, Kim Bonine and Aja Heisler for their thoughtful review.

Notes:

1. Conservation Strategy Fund
2. International Gorilla Conservation Programme (a coalition programme of Fauna & Flora International and WWF)

