International Journal of Progressive Sciences and Technologies (IJPSAT)
ISSN: 2509-0119.

https://ijpsat.org/

Vol. 58 No. 1 July 2026, pp. 650-653

Problematic And Approach Of Solutions To Biodiversity Habitat Damage In Kailo Territory

LUNDMU KABINGWA Cyprien

Master's degree in Environmental Sciences" at National Pedagogical University (UPN) in Kinshasa, the Democratic Republic of the Congo.

Corresponding Author : LUNDMU KABINGWA Cyprien,

Abstract: Fragmentation, degradation and loss of natural habitats are now recognized as major threats to biodiversity in Kailo tropical forest. These processes are driven primarily by poverty, land tenure and policy, increasing human population, expansion of settlements and agricultural farms, mining, timber and charcoal exploitation. To understand and characterise the forces driving habitat fragmentation, we analyse how forest degradation through human activities influence the lost of biological biodiversity in Kailo territory. We also explore the consequences of forest fragmentation through mining, timber and charcoal exploitation on the scarcity of ecosystem biodiversity species at the exploitation area. Populations of wildebeest and other herbivores have collapsed to a small fraction of their former abundance largely owing to destruction of their habitats and obstruction of their movements between the forest area and the exploited zone lands. Conserving the key biodiversity areas in the Kailo tropical forest is critical to ensuring the future viability of several key biodiversity area species. Several initiatives, including tree planting has been launched, but growing methods are not mastered by locals who fail to maintain a great spatial coverage. For that, we have proposed an active and participatory educational framework pattern to teach producers sustainaable methods of farming to promote forest natural ressources and biodiversity in Kailo.

Key words: Problematic , Approach of solutions, Biodiversity, Habitat damage.

Introduction

Global biodiversity is changing at an unprecedented speed and scale as a complex response to several human-induced changes in the global environment (Sala et al., 2000). In particular, human-induced fragmentation of landscapes is occurring on scales and at rates that are far greater than normally produced by natural events (Wiens, 1990). Fragmentation is a landscape level process in which a specific habitat is progressively subdivided into smaller and more isolated fragments (McGarigal & Cushman, 2002), with altered adjacency patterns and spatial characteristics (Garrison, 2005). At local scales, fragmentation and loss of natural habitats caused by human activities and changes in land use represent major threats to flora and fauna (Garrison, 2005; Leblois, Estoup, & Streiff, 2006; Ricketts & Imhoff, 2003).

Tropical grasslands and savannas are highly threatened ecosystems as a result of land use changes (Galvin and Reid, 2007, Sala et al., 2000). These global and local land use changes can adversely affect biodiversity through a variety of population and community processes over a range of temporal and spatial scales (Cayuela, Golicher, Benayas, Gonzalez-Espinosa, & Ramirez-Marcial, 2006; Dunning et al., 1995). Yet, while fragmentation and its impacts on biodiversity has been the focus of many investigations (Debinski and Holt, 2000, Fahrig, 2003, McGarigal and Cushman, 2002), relatively few studies have thus far examined fragmentation and its impacts on habitat loss in Kailo tropical forest. Thus, relative to other systems, the effects of fragmentation in Kailo ecosystems

International Journal of Progressive Sciences and Technologies (IJPSAT)
ISSN: 2509-0119.

https://ijpsat.org/
Vol. 58 No. 1 July 2026, pp. 650-653

are still poorly understood (Galvin & Reid, 2007), and little is currently known about the forces driving habitat loss and fragmentation and their ecological and economic consequences to poor communities.

Understanding the principal underlying causes and consequences of fragmentation and habitat loss is fundamental to the effective management and conservation of human-dominated ecosystems, including the Kailo forest which is part of the Democratic Republic of Congo, second complex forest after the amazonian's. First, studies of fragmentation can help enhance our understanding of the mechanisms underlying observed community and population level patterns (Debinski & Holt, 2000). Second, many studies have suggested that if fragmentation assessments involve more than two species with differing habitat relationships then they can provide a sound basis for effective conservation and management of multiple species of conservation concern (Debinski and Holt, 2000, Garrison, 2005; Johnson, Wiens, Milne, & Crist, 1992). Lastly, recent studies further suggest that landscape configuration becomes important at low levels of habitat suitability, with different species disappearing at different thresholds along habitat-loss gradients (Fahrig, 2003, Martensen et al., 2012)

Introduction of the study area

The study was conducted in Kailo territory, one of the seven territories of Maniema province . Kailo Territory is a decentrilized administrative rural commune located in the Maniema Province of the Democratic Republic of the Congo (DRC). Situated in the eastern part of the country, its administrative center is Kailo, and it lies at approximately 2º38'50''South, 26º06'10''East. With a population estimated at 277730 inhabitants from two main ethnics group namely Eastern mongo and Zimba, the area is known as a mining center where cassiterite and wolframite are mainly eploited in more than five mining sites.

Methodology

The Accelerated Method of Research and Participatory Planning coupled with the technique of semi-structured interview were used to achieve our objectives of identifying different core drivers of habitat destruction, raising different impacts of deforestation on biodiverity and proposing a lasting solution of promoting natural ressources and it's biodiversity within the research area. 50 forest operators including chacoal, timber, miners and extensive farmers were interviewed and results of interviewees described in the study findings.

Core Drivers of Habitat Destruction

Study Findings

The sustainable development will be only attained through a change of

behavior.

54% among the 50 interviewed people revealed that non lasting agricultural expansion has been identified as a largest contributor, involving clearing forests and converting natural ecosystems for livestock and crops. Rice, beans, cassava, peanuts, maize, banana are the most produced products for livelihood. Crops of farming have decreased as stated by our interviewees who attributed the decline in fertility and seasonal disturbances to both non sustainable farming practices and climate change.

They also placed Urbanization and Development through growing human settlements and infrastructure expansion such as roads, schools, hospital and chacoal production as the second core habitat destructive mode which they said remove and fragment habitats, preventing species movement.

Meanwhile, 46% others pointed out resource extraction through deforestation for logging,along with mining and drilling, which causes significant environmental degradation causing the lost of significant biodiversity species.

Finally, 60% among mining interviewed actors further highlighted having that their activities have greatly contributed to water pollution while proceeding to the cleasing of cassiterite and wolframite ores. AS exploitation sometimes take place into rivers or along streams, water is polluted affecting fish and other halieutic products in the rivers and streams.

In fact, findings of habitat destruction resulting in the lost of biodiversity contredict Christophe Bouget et al. (2023) studies that revealed increase of some biodiversity species in some specific cases of habitat destruction provoqued by climate change or natural habitat destruction,. They stated that dead wood could create favorable micro habitat for other species such as birds and termites.

However, this increase is dependent of lasting natural ecological conservation method which facilitate the growing of some natural habitat in the area.

The Mechanism of Biodiversity Loss

1. **Direct Destruction:** Immediate removal of ecosystems, such as clear-cutting forests, dredging rivers, or filling in wetlands.
2. **Fragmentation:** Splitting large habitats into smaller, isolated patches makes them less effective at supporting biodiversity, reducing genetic diversity.
3. **Degradation:** Lowering the quality of an ecosystem through pollution or invasive species, making it unsuitable for native organisms.

Consequences for Ecosystems and Humans

The destruction of biodiversity habitats has severe, often irreversible effects on the planet and human society:

- **Extinction Crisis:** Species lose their required habitats, leading to population declines and extinction. Interviewed identified the scarcity of some valuable tree species such as Milicia excelsa, Entandrophragma cylindricum, and Terminalia superba commonly named respectively Iroko, sapelli and Limba species
- **Reduced Ecosystem Services:** Loss of forests and wetlands means reduced water production and regulation and carbon sequestration, leading to accelerated climate change.
- **Disease Spillovers:** Disrupted ecosystems increase contact between wildlife and humans, raising the risk of virus transmission such as ebola disease which is known to be transmitted by monkey manupilation by human beings.
- **Reduced Food Security:** Destruction of natural habitats hurts the pollinators and fish stocks that sustain global food systems. As stated by the majority of our interviewees, food insecurity has emerged in the area because of the declining production of food stuff due to fertility declining and scarcity of pollinators such as bees in their area.

Approach of solutions : Mitigation Efforts

Addressing this crisis requires a multi-pronged approach, including mass andragogical active education strengthening the Convention on Biological Diversity (CBD) and setting more aggressive international conservation targets. Protecting land, reversing deforestation, and regulating land use are critical, as explained in studies on sustainable wildlife protection.

Acknowledgments

We are grateful to both the Academic scientific Reseach Office at the National Pedagigical University (UPN in French accronym) and Professor Monga Kasongo for having accepted to lead our research paper. We also thank anonymous reviewers and the editor for insightful comments and suggestions that helped improve this paper.

References

[1]. Alan, R.L. and Daniel, P. (1987). Ecology of tropical oceans.

[2]. JEAN-THOMAS, L. (2020). MEA CULPA devrait dire l'humanité, Presse Canadienne : Montréal.

[3]. Leveque, C. (1997). Biodiversity,dynamic and conservation. The freshwater fish of tropical.

[4]. Kindu Town Hall Annual Report, 2020 ;

[5]. Ministry of Environment Annual Report, Kinshasa, 2018 ;

[6]. Michel, P. (2004). Environnent right. 5th Ed., Dalloz.

[7]. George, P. (1976). Environment, What do I know? 3rd Edition PUF: Paris,

[8]. J.M. Fryxell *et al.* Causes and consequences of migration by large herbivores