

## **PhD Dissertation Defense**

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**Title:** Forest Resilience For Healthy Livelihoods And Ecosystem Services: A Transdisciplinary Analysis Of Driver-Pressure-State-Impact-Response To Forests Of The Congo Basin

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### **ABSTRACT**

This dissertation tests the resilience of forests by assessing changes in forest cover, forest provisions, and trends in forest management. Forest resilience can best be explained through the concept of elasticity. The elasticity of forests is dependent on a multitude of human activities and attitudes; forests are common goods. The forests of the Congo Basin are not used sustainably. Deforestation is occurring and is altering the natural functioning and services of the ecosystem. Alteration of ecosystem services provided by forests is adversely impacting highly vulnerable human populations who rely on their proper functioning. Current management does not use an existing framework that clearly addresses broadly, the historical and cultural complexities that are persistent in Central African societies and that also include, from a micro scale, the detailed voices of local communities. Without such a holistic framework, it is difficult to evaluate the effectiveness or harmfulness associated with current management strategies in responding to deforestation at the various levels. Multi-stakeholder data was collected and used to evaluate their role in the state of the Congo Forest, disseminating information using the Driver-Pressure-State-Impact-Response (DPSIR) framework, created by the European Environmental Agency, in order to understand and address the many problems associated with

gentrification of forests. Transdisciplinary research methods and techniques were used to gather qualitative and quantitative data to explore local to international perspectives on knowledge of forests and effectiveness of current strategies in sustaining these forests for livelihoods and ecosystem services. My work uses local population perception to assess state changes by analyzing causes and effects of forest loss and how management responds to both. Results highlight that local populations are highly environmentally literate and their knowledge is a useful tool for identifying and determining environmental changes, such as reduced lake health, animal health, and plant health. The process of this research itself interfaces science and policy and recommendations provided are operational and applied. Next steps should address how to make effective payments to communities in preventing deforestation, and at magnified scales, what are the implications of the loss of these forest goods and services in the context of one health.