

## Projecting deforestation patterns in Tam Dao National Park, Vietnam

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Tam Dao National Park (TDNP) is the last remaining primary forest that supports some of highest levels of recorded biodiversity in Vietnam. Deforestation due to illegal logging and agricultural extension is a major problem hampering biodiversity conservation efforts in the park. Yet vulnerable areas to forest conversions are poorly understood in the area. In this paper, we predict vulnerable areas to deforestation in the park and its surrounding areas. Multi-perception neural network (MLPNN) and Markov chain (M) model (MLPNN-M) was parameterized to predict the spatial patterns of forest conversions, and then the simulation results were used to identify such vulnerable areas. The MLPNN-M model predicted increasing pressure on the remaining primary forest within the park as well as secondary forest in its surrounding areas. Our results can be used to identify where future biodiversity conservation and forest management efforts should be prioritized. It also provides a baseline assessment for the monitoring of the remaining forests in the TDNP.

Keywords: Artificial neural network, Markov chain, Deforestation, Protected area