

Cumulative Effects Assessment as a Framework for Prioritizing Mitigation Measures in Remnants of Vegetation

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Remnants of vegetation, to some extent, a result of human development, have vastly been altered and decreased in quality and quantity over the past decades in Australia. In order to rehabilitate these vitally important parts of ecosystems with the usually limited budget and logistical facilities, a sound scientific prioritization scheme is required.

In this study in the Boorowa region to the north west of Canberra, Australia, we used the cumulative effects assessment approach to provide such prioritization scheme. We detected the change in quantity of remnant vegetation that had happened during the years 1973 – 2000 using Landsat MSS and TM Images. We projected the change in quantity over the years 2000 -2027 using a combination of cellular automata and neural network methods. We then used neural network and ground truth to model the structural complexity of the remnants as a measure of quality and linked that to the estimated change in quantity in the past and projected change in the future. Combining the assessed change in quantity and modeled change in quality of vegetation for the past and future provided a basis for prioritization of remnant vegetation for rehabilitation measures.

Key words: Cumulative Effects Assessment, Neural Networks, Remnant Vegetation, Rehabilitation