

ASSESSING THE EFFECTIVENESS OF NIPAS IN CONSERVING THE FORESTS OF BATANES

Harry Casimir E. Merida

Institute of Environmental Science and Meteorology, University of the Philippines, Diliman

ABSTRACT. The impact of protected area policy on Batanes in the Philippines was explored in this study. The province is composed of ten islands and the study focuses on Batan, Sabtang, and Itbayat. Batanes was declared as a protected area to protect natural and sociocultural heritage on 2001 through Republic Act (RA) 8991. Portions of the island are defined as no-take zones, termed Strict Protection Zone (SPZ), while the rest are Multiple Use Zones. Landsat image composites from 1989, 1993, 2000, 2007, 2010, and 2016 were geometrically corrected, applied Relative Radiometric Normalization, and classified as Forests, Non-Forests, and Non-Vegetation. A land use map was created to classify agriculture and non-agriculture using phenology through Normalized Difference Vegetation Index. Support Vector Machine was used as the classifier. The final land cover/land use map was created by combining the two maps. Multivariate analysis through Canonical Correspondence Analysis was utilized with a change map (1989 & 2016) and selected anthropogenic and natural variables. The study primarily focused on forests, where most of conservation efforts are located. Results show forests increased post-RA 8991 for all islands (Batan = 2319 ha to 2777 ha; Sabtang = 1496 ha to 2071 ha; Itbayat = 2714 ha to 3982 ha) yet temporal trends show covarying change between Forests and Non-Forests, indicating periods of reforestation and deforestation. The increasing forest cover at Batan is partially attributed to thickening agriculture hedgerows comprised of trees, particularly *Calophyllum inophyllum*. In Itbayat, Non-Forest and Forest showed inverse trends caused by indigenous swidden agriculture as the forests are the main farming resource of the island. Analysis at SPZs showed smaller rates of forest conversion although the forest coverage generally remained the same throughout the study period. Most of the remaining forests are at the mountains for Batan and Sabtang and within each island's SPZ, while most of Itbayat's forests are used for agriculture. However, the actual SPZ in Batan is likely overestimated as the land use map showed that two zones in the middle of the island contain around 103.59 ha and 27.63 ha of agriculture. Canonical Correspondence Analysis indicates that the primary driver of forest change to all islands is accessibility due to natural barriers or anthropogenic use; high slope and elevation (natural) help retain the Forests of Batan and Sabtang while Itbayat's forests are mainly located at low elevations and are closely related to agriculture, thus forests are not retained and may be converted for farming (anthropogenic). Overall, the study showed that Forests in the province are preserved due to its inaccessibility and placing these areas under SPZ may help retain these forests. However, this also shows that the SPZs may have been located for convenience. Although additional policies that restrict accessibility may help reduce forest conversion, a common ground should be agreed as Philippine indigenous people law (RA 8371) lists the province as an ancestral domain thus allowing the indigenous community exercise rights that could be contrary to the context of conservation, particularly at the island of Itbayat which has a Certificate of Ancestral Domain Title and relies on forests for agriculture. Rules and regulations should be introduced to identify and resolve potential conflicts.