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## GOVT MOVES TO DIVERSIFY GENETICS OF NARRA, RATTAN

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The government has embarked on a robust “genetic diversity” program of the endangered narra and industrial tree rattan as a commitment to conserve forests amid seemingly irreversible deforestation that threatens economic resources. The Ecosystems Research and Development Bureau (ERDB) has started carrying out DNA analysis of the economically important tree species as a long-term support to the National Greening Program (NGP) of the Department of Environment and Natural Resources (DENR). The ERDB is under the DENR. “Assessment of genetic variation among and within populations is essential for the success of any tree breeding and selection programs. It holds vast potentials for the preservation of the forest ecosystems,” said Sofio Quintana, PhD, ERDB director. Ilocos Sur, Cebu, Iloilo, Marinduque, Nueva Vizcaya and Quezon have so far been identified as potential sources of good planting materials for narra reforestation. Narra’s timber is prominent among importers in Asia, Europe, the United States and Australia, which “accept large volumes of sawn timber at high prices, \$600 per cubic meter if it were available,” according to the book Species Profiles for Pacific Island Agroforestry. Narra is also known for its medicinal, ornamental and nitrogen-fixing functions. ERDB’s project, “2018 Genetic Diversity: A Key Component for Conserving Philippine Forest Trees,” aims to identify trees with molecular markers that indicate high survival rate as part of planting the targeted 1.5 billion trees under the NGP. “With the increase in global average temperatures, some species of forest trees fail to cope up to such changes. With more genetic variations, it is more likely that some individuals possess alleles [alternative form of genes] that better suit the environment,” said ERDB authors Karol Josef Lucena, Jordan Abellar and Jorge Cyril Viray. Having less genetic diversity leads to uniformity, with a population having individuals less likely to adapt and survive in the changing environment. In order for plant geneticists to tell apart genetic variations, they use segments of DNA (deoxyribonucleic acid) sequence of the individuals to mine them out despite the limited availability of whole genome sequences from forest trees species. These segments of DNA are called DNA-based molecular markers that are widely used in studying genetic diversity, as well as for identification of species. According to Abellar, ERDB biologist, after collecting the plant material (leaf, stem or root), careful optimization of protocols follows wherein the DNA of the material is isolated. This process is called DNA extraction. The process involves breaking the cell wall and cell membrane (cell lysis), removing the organelles, and destroying the nuclear membrane. After these processes, the “purest” DNA can be extracted. For rattan, the study found Bataan’s population of the species holding the highest genetic diversity and was rendered as a potential source of genes useful for tree improvement and breeding programs. For narra, Ilocos was the most genetically diverse population for the tree.

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