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**TRANSPLANTATION OF FORESTS AND RECOMPOSITION OF THE RIPARIAN
AREAS**

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This is a method that can contribute to the revitalization of the immense Brazilian
hydrographic basins

Riparian area is the vegetation bordering a water-course. These zones are very important for biodiversity, wildlife habitats and to own water-course maintenance.

Brazil must face the serious problem of degradation that has taken place in its vast and rich hydrographic basins. The solution starts with the replacement of riparian forests water resources, Legal Reserve Areas (LRAs), which has legal support in the Forest Code, Law of 12,651 May 25, 2012. To this end, a new option appears promising.

Forests to be cut with legal authorization for economic purposes or for building roads and hydroelectric stations, secondary forests (capoeiras in adult stage), reforested areas, where seedlings of native trees grow spontaneously, can be sources of botanical material to enrich the LRAs.

Researchers of the Laboratory of Ecology and Forest Restoration of Escola Superior de Agricultura Luiz de Queiroz (Esalq) of the University of São Paulo, at Piracicaba verified that it is effectively possible to transplant herbs, palm trees, vines, bromeliads and orchids from one forest to the other in formation.

The researchers estimate that this material, namely, small seedlings of trees and shrubs, along with topsoil represent 50% of the biological diversity of a forest, and so can complement the planting of seedlings of trees and shrubs in the recovery of riparian forests.

Continuing in their calculations, these researchers estimate that from 80 thousand to 190 thousand seedlings of trees could be taken from just one hectare of adult forest. With this material it would be possible to replant more than 40 hectares. Of the forests if could remove epiphytes (bromeliads and orchids) and vines, which help to restore the interaction between plants, animals and soil in the riparian forests in which they were introduced. Shrubs, herbs, palms, bromeliads and orchids make the areas in restoration more diversified, colorful and flowery that formed only by trees.

Research along these lines indicate three techniques to reuse seeds, seedlings or epiphytes from a kill under the conditions described above. The first is the removal 30 cm layer of top soil, containing seeds, roots and germinative buttons. This soil layer, called the top soil, can be downloaded and spread, forming a coverage of approximately six inches thick in the area that you want to reforest or enrich.

The second consists in removal of seedlings that are prepared by removing the soil and leaving the bare root downloading them into a container with water and taken to a nursery. Are then replanted in plastic bags or in cells. Ecological feasibility, technical and economic of this approach were proven by researcher Cristina Yuri Vidal, in 2008, when transferring 2,106 seedlings (with 1 to 30 cm tall) trees, shrubs, lianas (vines) and herbaceous species from an area of forest being cut on record, South of the State of São Paulo in Brazil. Of the 98 species collected, half was not grown in nurseries and three were at risk of extinction. After seven months in nurseries, 60% of seedlings survived.

In a more comprehensive work, completed in 2011, the researcher Valentina Bianchi collected 43 thousand seedlings of 97 species of trees, lianas and herbaceous species of a forest to be cut in the municipality paulista de Guar and the cultivated in nurseries. In sequence, 400 seedlings of 20 species have been planted in an area undergoing restoration and showed 91% survival rate after one year, which demonstrates the feasibility of introduction of species by means of seedling production of seedlings collected in the areas mentioned above.

The third technique that has been shown to be viable is the transplantation of epiphytes. The biologist Marina Duarte, completed in 2012, a survey in which collected 360 copies of six species of orchids, bromeliads and cactus and the set with strings of sisal in trees of two forests in restoration in the State of São Paulo, with 13 years in Santa Brbara

d'Oeste and another with 23 years in Iracemápolis. After a year of observation of plants, she concluded that the epiphytic transplant is feasible, especially when done at the onset of the rainy season and with the palm fiber reinforcement where the survival rate of epiphytes 63% varied from 100% in 13 years and 55% to 90% in the other. According to the researcher, even when they do not survive for long term epiphytes contribute to enrich the environments in which they are introduced.

For this creative innovation happen it is necessary that government regulators will encourage and support the use of materials in the areas of legal deforestation, through laws, encouraging officials to donate and receive this material.

It is observed that the work developed by the team of Esalq demonstrates feasible for the vast majority of Brazilian municipalities the use of riparian forests in revitalizing its rivers and creeks. This is because it comes to technology that saves time and money on replacement of LRAs. However, in addition to the incentives mentioned above, it is necessary, for success in the performance of this work, which also contains municipalities with the advice of botanists, biologists and agronomists, professionals who can plan and guide the implementation of this forest recovery successfully.

The transplant of forest add to other factors that are at the disposal of the Brazilian municipalities on the important question of recomposition of riparian forests. The Banco Nacional de Desenvolvimento Econômico e Social (BNDES) has funding line with interest subsidized and until those grants, the Amazon Fund, available to fund this work. Another aspect of great community interest is the awareness of the population regarding the problem that environmental education provides. It should not be forgotten that the recovery of riparian forests is more an action for biodiversity conservation. In this last aspect is important to the biological inventory of these areas, thus contributing to the expansion of the existing collections in the country, material essential for the basic science in biology.