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## South Africa: The alien tree species threat to grassland biodiversity

Invasion of habitats by alien plants is one of the causes of the extinction of native species. Some plant species have developed the capacity to adapt to new sites and to displace the original vegetation cover. This phenomenon has been widely recorded and it is known as "bioinvasion". Needless to say that invasive species constitute a threat for biodiversity at the local and regional level, since the spread of newcomers alters the richness and abundance of the flora and fauna of the original ecosystem.

This is what has been happening in South Africa, with the aggravating factor that the country is home to unique and endemic species and that it hosts high levels of biodiversity. . With a land surface area of 1,221,000 hectares South Africa contains almost 10% of the world's total known bird, fish and plant species, and over 6% of the world's mammal and reptile species. In regards to biodiversity, grasslands are one of the most important ecosystems in South Africa, but they are being invaded by tree monocultures. Nowadays there exist some 1.5 million hectares of tree plantations, mostly composed of eucalyptus and pine trees, as well as a lesser area of Australian wattle. They are concentrated in the higher rainfall areas of the provinces of Kwazulu-Natal and Mpumalanga. Even though conservation efforts worldwide have been mostly focused on tropical ecosystems, it is to be underscored that grasslands, typical of the temperate areas, present high levels of biodiversity and endemism. The destruction of South Africa's grasslands is taking place because of the effects of large-scale tree monocultures on the original ecosystem --including plants, soils and water-- as well as through the substitution of native grass species by alien plant invasions in areas outside the plantations themselves. The changes in the composition of the primary producers --plants-- imply a complete change in the food pyramid, and many animals are either forced to migrate or their populations get drastically reduced or even disappear.

In South Africa, grassland areas invaded by trees are called "jungle gum" and "jungle wattle", and already occupy 1.6 million hectares. As their name expresses, the predominant trees are "gums" --the generic term used for eucalyptus in the country-- and "wattle", that comprise several species of Australian acacia. After strong protests from civil society, --organized in the NGO coalition Timberwatch-- against the tree monoculture model, the authorities appear to have begun to react. Although the real solution would be to prohibit these destructive plantations in the whole territory of the country, the inclusion of several species widely used for plantations as "invaders" in the amendments recently proposed to the Conservation of Agricultural Resources Act of 1983 are to be considered a step forward. In effect, several species of Acacia, as well as Eucalyptus grandis, Eucalyptus saligna, Pinus elliottii, Pinus taeda, Pinus pinaster, Pinus patula, and Pinus radiata, among others, have been included in "Category 2: plants that are useful for commercial plant production purposes but are proven plant invaders under uncontrolled conditions outside demarcated areas." The new norm also establishes compulsory steps to be undertaken in order to eradicate them.

Nevertheless, and even with the official recognition of the threat that it means to biodiversity, soil and water resources, the tree monoculture model in South Africa is far from being suppressed. Additionally, Timberwatch has recently warned that one of the major plantation companies --SAPPI--

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is carrying out field tests with genetically engineered eucalyptus, which would mean an even more serious threat to biodiversity.

The country --and particularly the South African government-- needs to choose between the conservation of the country's biodiversity --to a large extent hosted by grasslands-- and the occupation of land by large-scale tree monocultures. There is no place for the conservation of grasslands within the context of the expansion of alien tree monocultures.