
GE trees: when scientists mutate into publicists

The Convention on Biological Diversity's (CBD) mandate is to protect the world's biodiversity. Strong campaigning from an increasing number of NGOs and IPOs raised the threats posed to forest biodiversity by genetically engineered trees. The issue was discussed and addressed by the Convention, that agreed about the need to take a precautionary approach regarding the release of GE trees into the environment.

The CBD's stance has been welcomed by organizations concerned about the fate of the world's forests and its peoples but is being strongly opposed by those who stand to gain from the GE tree business.

A recent article from four pro-GE tree scientists illustrates how unscientific some people can be when trying to put their case forward. The article, produced by Stephen Strauss, Huimin Tan, Wout Boerjan and Roger Sedjo is titled "Strangled at birth? Forest biotech and the Convention on Biological Diversity".

The article is quite long and detailed, which shows the importance that the pro-GE tree lobby gives to the CBD's stance on the issue. At the same time, the article shows how far these scientists are willing to go in order to defend their positions. What follows are a few examples to illustrate this, but we encourage people involved in the issue to analyze the article in full at http://www.globaljusticeecology.org/stopgetrees_news.php?ID=294

The title tends to make people believe that GE tree have been "Strangled at birth" by the CBD. However, the authors forget to say that GE tree research is being carried out in at least 20 countries and that field trials already exist in at least 11 countries (see details in http://www.wrm.org.uy/subjects/GMTrees/Information_sheets.html). What the CBD is doing is simply to apply the precautionary approach to avoid the possibility of irreversible impacts on biodiversity resulting from those GE trees. That is to say, that the CBD is complying with its mandate.

The CBD's position is in fact strengthened by what the article says. Strauss et al provide the arguments for doing so.

They say that "Perhaps the most credible science-based concerns about GM trees relate to their potential for wide dispersal of seeds and pollen when they are allowed to flower." They add that "There is wide agreement from scientists that until very strong containment genes are developed, socially accepted and their efficiency verified in the field, **some level of gene dispersal** —either from pollen, seeds or vegetative propagules—**is certain in most forestry species**. Moreover, the distances over which dispersal can occur are large, on the order of kilometers or more." [emphasis added] To make matters worse, they add that "The limited level of domestication of most tree species contributes to this concern, as propagules are generally fit enough to survive in wild or feral environments."

The above should be enough for most scientists to desist in carrying out such a dangerous activity, but not for Strauss et al.

Among the many arguments they use to justify their research and open air field trials, the following is a good example of their unscientific approach. They say that “**very few** GM species are under commercial development that are sexually compatible with wild forests, **or will be used in or very near to wild forests**, and thus it will be **extremely rare** that transgenes could introgress into wild tree genomes **to a significant degree**, and thus become common in wild ecosystems.” [emphasis added]

For people who try to prove all their points by emphasizing that they are scientists –as these four do throughout the article- the above paragraph proves exactly the opposite: a totally unscientific approach.

1) The difference between hypotheses and fact is blurred and the former are shown as synonymous to the latter. Evidence:

- science cannot know if GM species “will be used in or very near to wild forests”, because this will be defined by companies and governments
- science cannot know if “it will be extremely rare that transgenes could introgress into wild tree genomes to a significant degree” or not
- there is no quantification regarding the meaning of “extremely rare” or “to a significant degree”

2) There is confusion regarding species and forests

- GM species can be sexually compatible or incompatible with natural tree species but not with “wild forests”
- The use of the undefined expression “wild forests” might mean that their only concern refers to contamination of species living in “primary” forest and not to the species themselves

3) Existing evidence is hidden

- the most common genus being genetically engineered is poplar (several species). However, the article fails to mention that there is already evidence of GE contamination of “wild” (native) poplars in China.
- The article fails to mention that the two main other trees being genetically manipulated are pine (which grows in many “wild” forests around the world) and eucalyptus (native to Australia and grown in a very large number of countries in the world). In both cases, seed and pollen dispersal would be inevitable and no scientist can prove that eucalyptus forests in Australia would be safe from GE contamination
- They say that “The area planted with GM forest [sic] trees is likely to remain relatively small; forest plantations [sic] comprise only 5% of the world's forest cover”. They fail to mention that the area of plantations, according to FAO, covers a total of 270 million hectares! To describe such an area as “relatively small” is unscientific, to say the least.

Similar examples abound throughout the article, but perhaps one of the most enlightening is the following: “... there may be potential benefits for wild tree species from some kinds of GM trees; for example, a wild tree might benefit by acquiring a trait enhancing stress resistance and thus acquire resilience in the face of new forms of biotic or abiotic stresses, perhaps brought on by rapid climate change”.

The above of course acknowledges the fact that GE tree contamination will occur, if GE trees are released. At the same time it is difficult to understand -unless the authors have a PhD in futurology- how science can determine if “wild” trees may benefit or not from acquiring new traits or if the species with “enhanced resistance” will not endanger forest biodiversity precisely because of the new trait.

In sum, the article ends up proving that NGO arguments for calling on a ban on GE trees are scientifically correct and helps to strengthen the CBD’s call for a precautionary approach.

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(1) Strangled at birth? Forest biotech and the Convention on Biological Diversity
Nature Biotechnology 27, 519 - 527 (2009). Steven H. Strauss, Huimin Tan, Wout Boerjan & Roger Sedjo