

## Biodiversity row reignited by money for Kew

A £21.5 million (\$33 million) grant made in October from Britain's national lottery fund to the Royal Botanic Gardens, Kew (London) reopened the debate on the value and ownership of genetic resources just as government representatives were discussing details of the Convention on Biological Diversity (CBD) at a meeting in Buenos Aires in November. Nongovernmental organizations (NGOs) have accused biotechnology and pharmaceutical companies of exploiting a loophole in the CBD in order to access Third World resources through botanical gardens rather than through the country of origin. The companies have denied this.

Botanical gardens have found themselves wedged between industry and the NGOs as a result of an exemption in the CBD agreed at the Earth Summit in 1992 in Rio de Janeiro, Brazil. Companies based in countries where the government has ratified the CBD must abide by the convention. One of its requirements is to ensure "fair and equitable" distribution of benefits from the exploitation of genetic resources. But *ex situ* collections of genetic material such as those held in botanical or zoological gardens made before 1992 are exempt. As Kerry ten Kate of the Royal Botanic Gardens, Kew bluntly puts it, "As a botanic garden, we do not have an obligation to anyone."

Companies do want to work with the botanical gardens. There are just under 1800 worldwide, maintaining more than 4 million plants. As a source of biodiversity, they have the advantages in cost and administration over primary prospecting. It is easier and cheaper to approach a botanical garden than to do deals with perhaps 30 different countries. The worst outcome from the whole debate for the companies, according to Malcolm Morville, CEO of Phytera (Worcester, MA), would be the restriction of access to what are the best kept, and most pristine collections (in scientific terms) available: "To actually not use that as an access point makes no medical sense and no scientific sense," he says.

The issue was highlighted this year when

a proposed agreement between Phytera and Frankfurt Palm House was criticized by the European Group for Ecological Action (Bonn) for not considering benefits for the country of origin. Then, in August, another NGO, the Rural Advancement Foundation

International (RAFI, Ottawa, Canada) accused Phytera and five more companies—Shaman (South San Francisco, CA), Pfizer (New York), Merck (Whitehouse Station, NJ), GlaxoWellcome (London), and SmithKline Beecham (London)—of "making a bid" for the genetic resources of botanical gardens.

Pfizer's \$2 million agreement with the New York Botanical Garden (NYBG, New York) was singled out for particular

criticism by RAFI because of a deal that NYBG has with the botanical gardens of Hawaii, which gives NYBG access to plants from outside the US. However, both Pfizer and Hans Beck, the assistant curator of the Institute of Economic Botany at NYBG, say that their deal encompasses only plants of US origin.

Other companies, too, deny that they are exploiting the 1992 exemption. Phytera's Morville says that all Phytera's agreements with botanical gardens, governments, and everybody are "in total and full compliance" with the CBD. "We do not have a single agreement that does not reward or seek to reward the country of origin," he says. The company's agreements with botanical gardens include research payment to the garden, and milestone and/or royalty payments to the garden and the country of origin. Stephen King, vice president of ethnobotany and conservation at Shaman, says that all the company's agreements—which are primarily with governments and institutes—fall within the CBD.

Many of the apparent difficulties have arisen because there are many ways of interpreting the requirements of the CBD and many different circumstances to which the CBD must apply. Kew's Kerry ten Kate believes that the Buenos Aires meeting and future CBD discussion must try to lay down some firm ground rules. But she admits that it may be "very messy and difficult. There is going to be no perfect right answer."

In the meantime, each botanical garden

can devise its own set of rules for agreements with companies, and most have developed or are developing policies that conform to the CBD. . . "Hard and fast rules cannot apply (and hence work) in all cases," says NYBG's Beck. NYBG has tried to develop "site-specific items that emphasize equity to source country or institutional collaborators." Kew Gardens will provide samples free of charge to companies or universities for their sole use, according to Roger Smith, head of seed conservation. If a potentially interesting compound is isolated, the recipient then has to negotiate with Kew on royalties or other forms of return. Kew shares the return with the country of origin.

Kerry ten Kate emphasizes that money is not the only—or even the best—form of reward. "You only get money when, with a very small probability, one of these things hits lucky. Then you only get it 20 years or so down the road when . . . it's on the market. For botanical gardens and countries of origin, it's far more important to get other benefits up front like training and technology transfer."

In their turn, the companies are constructing their own arrangements. Phytera outlines the benefit to the country of origin in "country of origin" clauses in agreements with botanical gardens, or in separate letters of agreement with the country or payment direct to the country of origin. Shaman gives 15% of the exploration costs of a sampling expedition to the native communities, upon which Shaman relies for knowledge of plants. The company also enables technology transfer, by donating equipment so that institutes in the country can isolate pure compounds and license them to other companies. In the long-term, a proportion of any profits Shaman makes supports The Healing Forest Conservancy, a nonprofit foundation established by Shaman to undertake conservation work in developing countries. Xenova (Slough, UK), which is exploring both fungal and plant resources, has agreements that include training of personnel and provision of equipment to developing countries.

The Buenos Aires conference did not resolve the discussion; benefit-sharing is already on the agenda for the fourth conference in 1997. But the CBD has at least brought the two both sides together, an inconceivable prospect before the CBD, according to Kew's Smith. "There will be some acrimony. . . [but] it is a struggle well worth engaging in, to find out from developing countries what they truly want."

Sylvia Davidson

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**Seeds of discontent: Part of the collection at Kew Gardens.**

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