

roots



BOTANIC GARDENS

Education for Sustainability

- Biodiversity, Human Rights and Sustainability
- Environmental Ethics in the West: An Overview
- Exploring Ethical Issues in Botanic Gardens
- Desert Detectives and a New Wildlife Trail
- People and Plants – Training Darwin Mentors
- Botanic Gardens Education Forum

Botanic
Gardens

Conservation

International

Education

Review

June 2001

Environmental
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Forthcoming Issues

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Sustainability

● Editorial

Hoy en día somos más de seis mil millones de habitantes en el planeta, de los cuales dos terceras partes viven en insostenible atraso y pobreza. No menos de mil ochocientos millones son niños y jóvenes. Y en los próximos 50 años, unos trescientos mil millones de nuevos ciudadanos vendrán a compartir nuestro ya muy contaminado y crítico mundo.

En los últimos años, las palabras desarrollo sostenible se han convertido en el paradigma de lo que necesitamos para sobrevivir como civilización, y al mismo tiempo, en el sueño que nadie ha alcanzado porque, entre otras causas, implica un giro radical en las actitudes y patrones de producción y consumo tanto personales como de la sociedad. En otras palabras, se trata de adoptar una nueva ética para vivir de modo sostenible.

A este crucial tema dedica ROOTS el presente número. Es tarea urgente e inmediata preservar el mínimo de condiciones de vida necesarias para todos esos seres humanos que habitarán la Tierra en las próximas décadas. De ahí que el enfoque del problema no pueda quedar en el plano de lo pragmático y lo superficial. Hay que ir a la raíz del problema. Y en esa raíz está precisamente la ética de la sostenibilidad, de cuyo enfoque en el mundo occidental desarrollado nos habla María Luisa Cohen en un bien documentado artículo que nos hace meditar en los aspectos teóricos y prácticos del tema, cuando se requiere con urgencia cambiar patrones de vida y de pensamiento, cuando resulta imperativo alcanzar el desarrollo sostenible y la justicia social imprescindible, sin cometer nuevos errores ecológicos en nombre del 'desarrollo'. Cohen coloca en el centro del problema la necesidad de corregir la actual cosmovisión de la responsabilidad humana para con el

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Today there are over six billion people on the planet, of which two thirds live in unbearable poverty. No fewer than 1.8 billion are children and young people and, in the next 50 years, some 300 billion new citizens will enter and share our already contaminated and critical world.

In the last few years, the words sustainable development have been converted into a paradigm that we need to adopt in order to survive as a civilisation. It implies a radical shift in the attitudes and patterns of production and consumerism within society; in other words, we need to adopt a new ethic of living sustainably.

This issue of Roots is dedicated to this crucial theme. This work is urgent and aims to create the minimum conditions necessary for all human beings that inhabit the Earth in the coming decades. The focus of the problem cannot just continue on a pragmatic and superficial level. We have to get to the root of the problem - the ethics of sustainability. Marisa Luisa Cohen in her article challenges us to think about the theoretical and practical aspects of environmental ethics in the Western developed world. To achieve sustainable development and social justice, without committing new ecological errors in the name of 'development', she argues that there is an urgent requirement to change patterns of living and thinking. Cohen views the nub of the problem as the necessity for us to correct our world vision of human responsibility towards the natural world, without merely reducing it to scientific and technological aspects.

The role of indigenous communities in establishing ethical patterns in plant

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Il y a aujourd'hui six milliards d'habitants sur la planète et les deux tiers d'entre eux vivent dans un état de pauvreté insupportable. Parmi-eux, 1,8 milliard sont des enfants ou des jeunes et dans les 50 prochaines années, près de 300 millions de citoyens vont naître et partager ce monde pourtant déjà si pollué et dans un état critique.

Depuis quelque temps, la philosophie du développement durable est devenue un paradigme qui doit être adopté si notre civilisation veut survivre. Ceci implique une modification radicale de nos attitudes, modes de production et de consommation pour notre société, en d'autres termes, nous devons appliquer une nouvelle éthique garantissant le maintien de la vie.

Ce numéro de Roots est consacré à ce thème crucial. Cette prise de conscience est vitale pour permettre aux êtres humains qui vont partager notre planète dans les décennies à venir de vivre décemment. Les solutions à ce problème ne peuvent être seulement envisagées d'un point de vue pragmatique ou superficiel. Nous devons toucher au cœur du problème: l'éthique de la gestion durable. Marisa Luisa Cohen, dans son article, nous incite à envisager les aspects théoriques et pratiques de l'éthique environnementale dans le monde occidental. Pour atteindre à un développement durable et à une justice sociale, sans commettre de nouvelles erreurs écologiques au nom du développement, elle démontre qu'il est urgent de changer les modes de vie et de pensée. Cohen pense que la solution du problème réside dans la nécessité de modifier notre vision de la responsabilité humaine envers la nature, et de ne pas la réduire simplement à ses aspects scientifiques et technologiques.

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mundo natural, sin reducirla a aspectos meramente científicos y tecnológicos.

El papel de las comunidades autóctonas en el establecimiento de patrones éticos en la conservación de los recursos vegetales de Kenya es tratado por Abel Atiti, relatándonos cómo las diferentes comunidades de este país, portadoras de diversas concepciones culturales y creencias, manifiestan asimismo diferencias en su relación con la naturaleza. De ahí que este autor asigne a la cultura un papel fundamental en la ética ambiental. La modernidad y la erosión cultural que conlleva la occidentalización hacen que, actualmente, en las jóvenes generaciones se manifieste un proceso rápido de pérdida del conocimiento acumulado por las comunidades acerca de la naturaleza, al perderse también las tradiciones, creencias y costumbres locales. Atiti propone una novedosa idea para detener esta pérdida de la memoria histórico-cultural en las comunidades de Kenya: crear en los sitios naturales venerados tradicionalmente por los pobladores (cuya biodiversidad han conservado), jardines comunitarios en los que se mantengan las tradiciones en la relación hombre-sociedad-naturaleza y al mismo tiempo se incorporen a los programas de educación y concientización ambiental dichas tradiciones y conocimientos que aportan tanto a la existencia de una ética ambiental comunitaria.

Sue Baughan y Peter Batty enfocan un crucial problema: ¿es la educación que ofrecemos relevante para la vida real de los niños y jóvenes? Alrededor de un pastel de chocolate, se teje una interesante secuencia de nuevos conocimientos que no se reducen a lo puramente botánico, sino que incursionan en lo social, en lo ético del proceso productivo desde el árbol de cacao hasta la barra de chocolate y sus principales actores, entre ellos el pequeño Ricardo, de la comunidad Ladakhi, que no puede ir a la escuela porque tiene que trabajar para ayudar a su familia pobre. O el proyecto en el cual el jardín botánico de Leicester se transforma en el país Botánica, y se asignan a los niños papeles diversos, de dirigentes gubernamentales, científicos, obreros, curanderos tradicionales, etc.

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conservation in Kenya is addressed by Abel Atiti. Through introducing us to different communities in Kenya, Atiti explains how these communities are holders of diverse cultural conceptions and beliefs, and that this manifests itself in their relationship with nature. As such, Atiti sees the role of culture as fundamental to environmental ethics. Modernity and the erosion of culture that Westernisation conveys, appears to manifest itself particularly in the younger generations. Knowledge accumulated by communities living close to nature is rapidly lost as are the traditions, beliefs and local customs. Atiti proposes a new idea to halt this loss of historical memory: the creation in natural areas (where biodiversity is conserved) of traditional sites of worship for the population, such as communal gardens in which communities maintain their traditions in relation to human-society-nature while, at the same time, incorporating education and environmental awareness raising programmes that support the existence of a communal environmental ethic.

Sue Baughan and Peter Batty highlight a crucial problem. Is the education that we offer relevant to the real life of children and young people? Using a cake, they weave an interesting sequence of new knowledge that cannot be reduced purely to botany. This knowledge penetrates the social aspects of life: the ethics of the productive process. From the cocoa tree to the bar of chocolate the programme looks at the principle actors. Among them young Ricardo, from a community in Ladak, who is unable to go to school because he has to work to help his poor family. In another project, Leicester University Botanic Garden, UK, becomes the country Botánica and assigns different roles to children, government officials, scientists, workers, traditional healers, etc. Together they have to discuss environmental problems about which they must make important decisions. This educational activity facilitates the introduction of ethical principles while at the same time supports the development of knowledge that strengthens these principles.

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Le rôle des communautés indigènes dans l'établissement de nouveaux modèles éthiques pour la conservation des espèces végétales au Kenya est présenté par Abel Atiti. En décrivant différentes communautés, Atiti explique comment ces communautés détiennent des croyances et des conceptions culturelles différentes et comment celles-ci se manifestent dans leur relation avec la nature. Ainsi, Atiti considère que la culture est aussi fondamentale que l'éthique environnementale. La modernité et l'érosion de la culture que le monde occidental véhicule semblent se manifester plus particulièrement auprès des jeunes générations. Les connaissances accumulées par les communautés vivant près de la nature se perdent très vite de même que les traditions, les croyances et les coutumes locales. Atiti propose d'aider à renouer avec la mémoire historique par la création, dans des zones naturelles où la biodiversité est préservée, de sanctuaires pour la population. Il suggère la création de jardins communaux dans lesquels les communautés maintiendraient leurs coutumes environnementales et sociales et propose d'y intégrer des programmes éducatifs visant à accroître la prise de conscience environnementale.

Sue Baughan et Peter Batty mettent en évidence un problème crucial: l'éducation que nous offrons aujourd'hui est-elle adaptée à la vie des enfants et des adolescents? En prenant comme prétexte la fabrication d'un gâteau, ils imaginent une séquence qui fait appel non seulement aux connaissances botaniques mais aussi aux aspects sociaux et à l'éthique des schémas de production. Du cacao à la barre de chocolat, le programme examine les divers acteurs. Parmi eux, Ricardo, un jeune d'une communauté du Ladak est dans l'impossibilité de se rendre à l'école car il doit aider sa famille trop pauvre. Dans un autre projet, le jardin botanique de l'Université de Leicester devient le pays Botánica et différents rôles sont attribués aux enfants: responsables politiques, scientifiques, ouvriers, médecins traditionnels... Ensemble, ils doivent débattre de problèmes environnementaux afin de prendre des décisions importantes. Cette activité aide à faire passer des

● Editorial

y juntos tienen que discutir problemas ambientales que les son consultados, sobre los cuales deben tomar decisiones de trascendencia. Este ejercicio educativo facilita la introducción de principios éticos y a su vez les aporta conocimientos que desarrollan y fortalecen dichos principios.

A la conexión que existe entre los derechos humanos y la conservación de la biodiversidad en el planeta, dedica Tim Hayward, un interesante artículo. En el mundo económicamente globalizado de hoy en día, donde cada vez los ricos son más ricos y los pobres son más pobres (no solo las personas sino también los países), tiene lugar la más grande extinción masiva de especies que haya existido nunca y la desaparición de ecosistemas sustentadores de la vida sobre el planeta. Esta situación lejos de disminuirse, se ha agudizado con el auge del neoliberalismo en el último decenio pese al incremento del grado de conciencia ambiental y compromiso, tanto de personas como de gobiernos. La causa fundamental de tal ecocidio es la actividad irracional de la humanidad bajo un sistema que sólo busca el beneficio económico. El autor nos propone el siguiente ejemplo para ilustrar: las ricas industrias occidentales toman de los pueblos indígenas y de las comunidades biológicas lo que les puede reutilizar, patentando, declarando suyos los derechos de la propiedad intelectual, y vendiendo luego sus productos al país de origen a precios que los pobres no pueden pagar. El elemental derecho humano a una vida digna y segura sólo puede ejercerse en armonía con el medio natural, conservando la diversidad biológica del planeta en todos sus niveles (ecosistemas, poblaciones, especies y diversidad genética). ¿Qué se puede y debe hacer para detener y revertir la pérdida de diversidad biológica? es la pregunta que se hace el autor, quien concluye diciendo que la conservación de la biodiversidad no sólo está ligada a los derechos humanos sino también a las responsabilidades humanas, y que para ello es necesario entender a cuáles intereses se sirve, con cuál enfoque del problema, y cuáles intereses tienen la mayor justicia de su parte.

Angela Leiva Sánchez

■ Editorial

Looking at the connection between human rights and the conservation of biodiversity, Tim Hayward offers us an interesting perspective. In an economically globalized world today, where the rich are becoming richer and the poor poorer (not only people but also countries), the greatest extinction of species and the disappearance of ecosystems that sustains life on planet is currently taking place. This situation far from diminishing, has become more acute with the rise of neoliberalism during the last decade, despite an incremental step in environmental consciousness and commitment by people, including those in government. The fundamental cause of such ecocide is the irrational activity of humanity under a system that only seeks economic benefit. Hayward uses the following example to illustrate his point: rich Western industrial societies take from the indigenous communities biodiversity that they usefully produce, patent it, declare it their intellectual property right, and then later sell their products to the country of origin at prices the people cannot afford. The fundamental right of a dignified and secure life can only be brought about in harmony with the natural environment, conserving the planet's biodiversity at all levels (ecosystems, populations, species and genetic diversity). What can we do to halt and reverse the loss of biological diversity? This is the question that Hayward poses and concludes by saying that biodiversity conservation is not only bound to human rights but it is also the responsibility of humans. For this, it is necessary to understand whose interests it serves and whose interests are seen to have greater justice on their side.

Look for the following symbols...

- English
- ▲ Français
- Español

▲ Editorial

principios éticos tout en consolidant les connaissances qui, à leur tour, viendront étayer ces principes.

En considérant les liens entre les droits de l'homme et la conservation de la biodiversité, Tim Hayward nous offre une approche intéressante. Dans un monde où l'économie est devenue globale, où les riches deviennent plus riches et les pauvres plus pauvres (non seulement les hommes mais aussi les États), on assiste aujourd'hui à l'extinction de plus en plus rapide d'espèces et à la disparition des écosystèmes qui sont les supports de vie sur la planète. La situation, loin de s'améliorer, est de plus en plus critique en raison de l'expansion du néolibéralisme de la dernière décennie et ce, en dépit d'une prise de conscience environnementale et de l'implication grandissante des hommes et de certains gouvernements. La cause fondamentale d'un tel écocide reste l'irrationalité des activités humaines dans un système qui ne vise qu'au bénéfice économique. Hayward utilise l'exemple suivant pour illustrer ce propos: les sociétés occidentales industrialisées prélèvent aux communautés indigènes des ressources, déposent un brevet, en font leur propriété intellectuelle et ensuite revendent les produits manufacturés aux pays d'origine à un prix inaccessible aux populations. Le droit fondamental pour une vie digne et sûre est indissociable du respect du milieu naturel, en conservant la biodiversité à tous les niveaux (écosystèmes, populations, espèces et diversité génétique). Que pouvons-nous faire pour stopper l'érosion de la diversité génétique? C'est la question qu'Hayward pose et il conclue en disant que la conservation de la biodiversité est non seulement liée aux droits de l'homme mais est aussi de la responsabilité de chacun. Pour cela, il est nécessaire de comprendre quels intérêts on sert et ceux qui servent une plus grande justice.

News ^{up date}

■ News

Interpreting Peru

BGCI's Education Officer, Lucy Sutherland, recently visited Lima in Peru to lecture for one week on environmental interpretation to students undertaking a Masters in Ecotourism. This was a joint project with Universidad Nacional Agraria La Molina, Botanic Gardens Conservation International and the University of Greenwich, Chatham UK and was funded by The British Council in Peru. The Masters students were from a variety of professional backgrounds and the course provided them with the opportunity to undertake several group projects that helped them to develop interpretive ideas for self guided trails, conducting guided tours and brochures, as well as being more strategic in their approach to interpretation.

Botanic Gardens Education Forum

Would you like to discuss educational issues with like-minded people? Are you developing a new programme that you'd like advice on? Do you have a success story (or not!) to share? Then bg-ed is for you!

Yahoo! bg-ed is an international discussion forum for educators working in botanic gardens and arboreta. With over 100 members you can be assured of stimulating discussions and good advice on education in botanic gardens.

Initiated by the Education Committee of the American Association of Botanical Gardens and Arboreta (AABGA), the forum has joined forces with BGCI to promote a more

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Interprétation au Pérou

Lucy Sutherland, chargée d'éducation au BGCI, a récemment visité le Pérou pour organiser durant une semaine des conférences sur l'interprétation en environnement auprès d'étudiants préparant une maîtrise en écotourisme. Ce projet est organisé en commun avec l'Universidad Nacional Agraria la Molina, le Botanic Gardens Conservation International et l'University of Greenwich, Chatham en Angleterre, et la été financé par le British Council au Pérou. Les étudiants de maîtrise proviennent de diverses origines professionnelles. Les cours leur ont donné l'opportunité de développer des idées dans les domaines de l'interprétation, de la création de sentiers d'interprétation, de la conduite de visites guidées ou de visites autonomes à l'aide de brochures, et d'adopter une démarche plus stratégique dans leur approche de l'interprétation.

Forum de Discussion sur L'Éducation dans les Jardins Botaniques

Voulez-vous discuter des questions d'éducation avec des personnes intéressées par ces même

● Noticias

Interpretando Perú

La directora de Educación de BGCI Lucy Sutherland, recientemente estuvo en Lima, Perú, impartiendo un seminario de una semana sobre interpretación ambiental, a estudiantes de Maestría en Ecoturismo. Dicho seminario fue en colaboración con la Universidad Nacional Agraria La Molina, Conservación Internacional en Jardines Botánicos y la Universidad de Greenwich, Chatham Reino Unido, y fue auspiciado por el Consejo Británico en Perú. La formación académica de los estudiantes de la maestría era muy diversa, lo que les permitió emprender una serie de proyectos de grupo que les ayudó a desarrollar ideas para senderos interpretativos de autorrecorrido, visitas guiadas y folletos, así como para realizar una planeación más estratégica en su labor de interpretación.

Foro de Educación en Jardines Botánicos

¿Te gustaría discutir de asuntos educativos con gente que concuerde con tus ideas? ¿Estás desarrollando un nuevo proyecto del cual quisieras comentarios o sugerencias? ¿Tienes logros (u obstáculos!) que quisieras compartir? Entonces bg-ed es para ti.

Yahoo!bg-ed es un foro internacional de discusión para educadores que trabajan el jardines botánicos y arboreta. Con más de 100 miembros seguramente encontrarás motivantes discusiones y consejos sobre educación en jardines botánicos.

Iniciado por el Comité de educación de la Asociación Americana de Jardines Botánicos y Arboreta

Left: Students undertaking a Masters in Ecotourism at la Molina University visit a wetland area outside Lima in Peru to discuss environmental interpretation with BGCI's Education Officer, Lucy Sutherland (4th left, back row)

■ News

international debate. How active bg-ed is, will depend on you! The language of the forum is in English but if you need help with translation, you can contact BGCI.

To subscribe visit the website: <http://groups.yahoo.com/group/bg-ed>. Scroll down and on the right hand side of the screen click on 'subscribe'. Follow the instructions on screen. Submit your form and within 24 hours you will receive an email confirming your acceptance to the group. It couldn't be simpler!

We look forward to your participation in future discussions.

People and Plants – Training Darwin Mentors

The Darwin Initiative for the Survival of Species has recently given a grant to BGCI and the Kodaikanal Botanic Garden in Tamil Nadu, India. This grant is to enable to the organisations to develop the capacity of teachers in a remote biodiversity rich part of India, to raise awareness among primary school children and their parents, about the importance of native flora and forests, and the need to use plants sustainably. A series of environmental education training workshops will be run to equip teachers with a range of techniques and methods they can use in their school or in the botanic garden. New resources will be produced to support teachers in developing environmental education programmes. Julia Willison, BGCI's Head of Education, will be managing this project in partnership with Dr V.S. Manickam, the Director of Kodaikanal Botanic Garden.

AUSTRALIA

Children's Garden at the Royal Botanic Gardens Melbourne

A garden specially created for children is the latest development to emerge from the Royal Botanic Gardens Melbourne, Australia. The Ian Potter Foundation Children's Garden is designed to introduce children to the wonderful world of plants in a fun way.

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préoccupations ? Etes-vous en train de mettre au point un nouveau programme et vous aimeriez avoir un avis dessus ? Avez-vous connu une expérience positive (ou négative !) et désirez-vous en faire part ? Alors bg-ed est pour vous !

Yahoo ! bg-ed est un forum de discussion international destiné aux éducateurs qui travaillent dans les jardins botaniques et les arboretums. Avec plus de 100 membres, vous pouvez être sûr d'échanger des discussions stimulantes et d'avoir de bons avis sur l'éducation dans les Jardins Botaniques. Initié par le comité d'éducation de l'American Association of Botanical Gardens and Arborea (AABGA), ce forum joint ses forces à celles du BGCI pour promouvoir un débat plus large au niveau international.

Comment rendre actif ce forum bg-ed ? Cela dépend de vous! La langue du forum est l'anglais, mais si vous avez besoin d'aide pour les traductions, vous pouvez prendre contact avec le BGCI. Pour souscrire à ce forum, effectuez une visite sur le site web : <http://groups.yahoo.com/group/bg-ed>. Faites défiler vers le bas, et sur le côté droit de l'écran, cliquer sur 'souscrire'. Puis suivez les indications sur l'écran. Renvoyez votre formulaire, et sous 24h, vous recevrez un e-mail confirmant votre acceptation au groupe. Cela ne peut pas être plus simple! Nous attendons avec impatience votre participation aux futures discussions.

'Hommes et Plantes', une Formation de Professeurs Relais par la Fondation Darwin

L'Initiative Darwin pour la Survie des Espèces a récemment remis une subvention au BGCI et au Kodaikanal Botanic Garden dans le Tamil Nadu, en Inde. Cette subvention doit permettre à ces organisations d'améliorer les capacités des professeurs, installés dans une partie reculée de l'Inde et riche en biodiversité, à sensibiliser les enfants d'écoles primaires et leurs parents de

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(AABGA), el foro ha unido fuerzas con BGCI para promover un debate más internacional. ¡Qué tan activo sea bg-ed dependerá de ti! El idioma del foro es el inglés, aunque si necesitas traducción puedes contactar a BGCI.

Para suscribirte visita el sitio web: <http://groups.yahoo.com/group/bg-ed>, despliega y al lado derecho de la pantalla haz 'click' en suscribir. Sigue las instrucciones de la pantalla. Envía el formato y en 24 horas recibirás un email confirmando tu ingreso. ¡No podría ser más simple!

Esperamos tu participación en las próximas discusiones.



Gente y plantas- Entrenamiento Darwin para Mentores

La Iniciativa Darwin para la Sobrevivencia de Especies recientemente otorgó una beca para BGCI y el Jardín Botánico Kodaikanal en Tamil Nadu, India. Esta beca permitirá a ambas organizaciones capacitar a maestros de una lejana parte de gran biodiversidad en India, para concientizar a maestros de primaria y padres de familia, sobre la importancia de la flora nativa y las selvas, y la necesidad de utilizarlas sustentablemente. Diversos talleres de educación ambiental brindarán a los maestros una gama de metodologías y técnicas que podrán usar en la escuela y en el jardín botánico. Se producirá nuevo material impreso para apoyar a los maestros en el desarrollo de sus programas de educación ambiental. Julia Willison, Jefa de Educación coordinará este proyecto junto con el Dr. V.S. Manickam, Director del Jardín Botánico Kodaikanal.

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The centrepiece of the new venture is The Magic Pudding sculpture, which is proving to be a natural drawcard for children and adults alike. Sculptor Louis Laumen has translated author and illustrator Sir Norman Lindsay's drawings into bronze. The four characters have a definite Australian flavour – the larrikin tradition (a larrikin is someone that disregards convention, a type of maverick).

Set to become Australia's major environmental education garden for children, it will be a captivating place for children to climb, hide, dream and learn; a place where play is the key to discovery and learning about nature becomes an adventure. The Ian Potter Foundation Children's Garden will be completed by the end of 2003. For further information contact: Carmen Greenway, Marketing Assistant, Royal Botanic Gardens, Private Bag 2000, South Yarra Vic 3141, Australia. Tel: (61) 3 9252 2375 Fax: (61) 3 9252 2476 Email: Carmen.Greenway@rbg.vic.gov.au

CHINA

'Crystal Palace' of the Far East

The new conservatory at the Shanghai Botanical Garden will be inaugurated this year on the National Day of China, October 1. A tropical rainforest and indoor gardens will be created and displayed with more than 3000 varieties of plants. An exhibition of interesting plants and an education programme for children will take place during the opening ceremony. For more information contact: Dr Hu Yonghong, Shanghai Botanical Garden, 1100 Longwu Road, Shanghai 200231, People's Republic of China. Email shbg@uninet.com.cn or noahhu@etang.com

ITALY

Regular Visitors

School visits do not necessarily have to be a 'one off'. Children from a local school visited the Assisi Nature Council gardens weekly during the Spring term to take lessons in botany

▲ Nouvelles

l'importance que représentent la flore et les forêts natives, et les enjeux que constituent l'utilisation durable des ressources végétales.

Une série d'ateliers de formation sur l'éducation à l'environnement sera effectuée pour doter les professeurs d'un éventail de techniques et de méthodes qu'ils pourront utiliser dans leurs écoles ou dans un Jardin Botanique.

De nouveaux outils seront réalisés pour aider les professeurs à développer des programmes d'éducation. Julia Willison, responsable du service éducation au BGCI, conduira ce projet en partenariat avec le Dr V.S. Manickam, Directeur du Kodaikanal Botanic Garden.

AUSTRALIE

Le Jardin des Enfants au Royal Botanic Garden de Melbourne

La dernière réalisation du Royal Botanic Garden de Melbourne en Australie, est un jardin spécialement destiné aux enfants. Le Jardin des Enfants de la fondation Jan Potter à pour vocation d'introduire les enfants dans le monde merveilleux des plantes d'une façon ludique.

● Noticias

AUSTRALIA

Jardín Infantil en los Reales Jardines Botánicos de Melbourne

Un jardín especialmente para niños es el último desarrollo de los Reales Jardines Botánicos de Melbourne, Australia. El Jardín de la Fundación para Niños Ian Potter se ha diseñado para introducir a los niños al maravilloso mundo de las plantas de una manera divertida.

La pieza central de la nueva aventura es la escultura El Budín Mágico que es una representación muy natural del parecido de niños y adultos. El escultor Louis Laumen plasmó los dibujos del ilustrador y autor Sir Norman Lindsay en bronce. Los cuatro personajes tienen todo el sabor australiano – la tradición larrikin (para aquellos no australianos o neozelandeses un larrikin es aquel que no concuerda con lo convencional, un tipo de maverick).

Diseñado como el principal jardín para educación ambiental para niños, será un sitio cautivante para que los niños trepen, se escondan, sueñen y aprendan; un lugar donde el juego es la clave para que el descubrimiento y aprendizaje de la naturaleza sea toda una aventura. El Jardín de la



Left: Norman Lindsey's characters from the Australian children's story The Magic Pudding, have been turned to bronze by Sculptor Louis Laumen and placed in the new children's garden at the Royal Botanic Gardens Melbourne, Australia

■ News

and medieval history as well as taking a role in maintaining the garden by removing flower heads, weeding, airing the ground and using the compost bin. For further information contact: Marisa Cohen, Assisi Nature Council, Casella Postale 107, 06081 Assisi (Pe), Italy. Tel: 39 (075) 813521 Fax: 39 (075) 813521.

KENYA

Further studies

Abel Atiti has been awarded a MacArthur Foundation Scholarship to pursue a Masters degree in Environmental Education studies at Rhodes University in South Africa for the next two years. Abel's study will focus on the development of materials for interpretive environmental education processes in two Kenyan schools. He has already started working with teachers from the two schools to develop through a participatory approach, materials that engage learners in interpretive environmental education processes within their school grounds. For further information contact: Abel Atiti, National Museums of Kenya, Nairobi Botanic Garden, PO Box 40658, Nairobi, Kenya. Fax: (254) 2 741424 Email: batiti@hotmail.com



Right: The first botanic garden in Morocco is taking its role in environmental education seriously as it works in partnership with other environmental organisations and teachers to develop educational resources

MOROCCO

Producing Education Resource Materials

The Botanic Garden of the Institut Agronomique et Vétérinaire Hassan II recently organised a three day workshop (19 – 21 March 2001) in collaboration with SPANA (Society for the Protection of Animals Abroad) and the Association of Teachers of Life and

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Le point central de ce projet en cours de réalisation sera une sculpture du Pudding Magique. Le sculpteur Louis Laumen a su traduire, dans le bronze, les dessins de l'auteur et illustrateur Sir Norman Lindsay. Les quatre personnages ont un goût certain et tout à fait australien pour la tradition du larrikin (pour les non Australiens ou Néo-zélandais, un larrikin est une personne qui transgresse les conventions, une sorte de non-conformiste). Appeler à devenir le jardin éducatif le plus important d'Australie, il sera un endroit enchanteur pour inviter les enfants à escalader, se cacher, rêver et apprendre. Un lieu où jouer est la clef pour apprendre, et où découvrir la nature devient une aventure. Le Jardin des Enfants de la fondation Jan Potter sera achevé avant la fin 2003. Pour plus d'informations, prendre contact avec : Carmen Greenway, Marketing Assistant, Royal Botanic Gardens, Private Bag 2000, South Yarra Vic 3141, Australie. Tel: 61 (39) 252 2375 Fax: 61 (39) 252 2476 Email: Carmen.Greenway@rbg.vic.gov.au

CHINE

Le 'Cristal Palace' du Grand Est

La nouvelle serre du Shanghai Botanical Garden sera inaugurée cette année le 1er octobre, qui est également le jour de la Fête Nationale en Chine. Des jardins d'intérieur et une forêt tropicale seront recréés, et présenteront une collection de plus de 3000 espèces végétales. Une exposition de plantes de collection et des programmes éducatifs pour les enfants seront organisés lors de la cérémonie d'ouverture. Pour plus d'informations, prendre contact avec: Dr Hu Yonghong, Shanghai Botanical Garden, 1100 Longwu Road, Shanghai 200231, People's Republic of China. Email shbg@uninet.com.cn or noahhu@etang.com

ITALIE

Les Visiteurs Réguliers

La découverte d'un jardin par un groupe scolaire ne doit pas forcément

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fundación para Niños Ian Potter se concluirá a fines del 2003. Para mayor información contactar a: Carmen Greenway, Asistente de Promoción, Royal Botanic Gardens, Private Bag 2000, South Yarra Vic 3141, Australia. Tel: 61 (39) 2522375 Fax: 61 (39) 252 2476 Email: Carmen.Greenway@rbg.vic.gov.au

CHINA

El 'Palacio de Cristal' del Lejano Oriente

El nuevo invernadero del Jardín Botánico de Shanghai será inaugurado este año, en el Día Nacional de China, 1 de octubre. Se representará una selva alta y jardines interiores donde se exhibirán más de 3000 variedades de plantas. Durante la ceremonia inaugural se exhibirán plantas interesantes y se realizarán actividades educativas para niños. Para mayor información contactar a: Dr. Hu Yonghong, Shanghai Botanical Garden, 1100 Longwu Road, Shanghai 200231, People's Republic of China. Email shbg@uninet.com.cn o noahhu@etang.com

ITALIA

Los Visitantes Regulares

Las visitas escolares no son necesariamente un día de asueto. Niños de escuelas de la localidad visitaron semanalmente durante el trimestre de primavera el Jardín del Consejo de la Naturaleza de Asís tomando lecciones de botánica e historia medieval y ayudando en las labores de mantenimiento del jardín eliminando las flores secas, desyerbando, removiendo la tierra y utilizando la composta. Para mayor información contactar a Marisa Cohen, Assisi Nature Council, Casella Postale 107 06081 Assisi (Pe), Italy. Tel: 39(075)813521 Fax: 39(075)813521.

KENYA

Continuará sus Estudios

Abel Atiti obtuvo una beca de la Fundación MacArthur para estudiar una Maestría en Educación Ambiental

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Earth Sciences, with financial support of the British Council. This workshop involved 30 school teachers and education inspectors from a range of schools from the Rabat region.

Following the opening of the workshop by the British Ambassador in Morocco, Sir Antony Layden, the participants reviewed a number of documents addressing seven principle themes:

- 1 What is the environment ?
- 2 The forest ecosystem
- 3 The agricultural environment
- 4 The desert environment
- 5 Coastal and marine ecosystems
- 6 The urban environment
- 7 The biodiversity protection and conservation

The participants also analysed A3 format posters and accompanying card activities looking at ways of improving them and exploring appropriate ways to incorporate them into the school curricula.

The remarks and recommendations put forward by the participants will be incorporated into the review of the initial resource material and a final document will be produced and distributed on a large scale by the Ministry of National Education. This education material will also serve as a basis for the environmental education programmes of the three partners. The Botanic Gardens of the Institut Agronomique et Vétérinaire (IAV) Hassan II, SPANA and the Association of Teachers of Life and Earth Sciences have established, in collaboration with the British Council, a partnership with the principal purpose of developing educational resource material for school children. For further information contact: Professor Moh Rejdali, Département de Botanique, Institut Agronomique et Vétérinaire Hassan II, B.P. 6202 Rabat – Instituts Rabat, Morocco. Tel: 212 (7) 774093 Fax: 212 (7) 78110.

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être unique. Chaque semaine durant tout le printemps les enfants d'une école de la ville ont visité les jardins du Nature Council d'Assise. Ils sont venus apprendre sur la botanique, l'histoire médiévale ou encore entretenir le jardin en enlevant les capitules des fleurs fanées et les adventices, aérer le sol, et utiliser le bac à compost. Pour plus d'informations, prendre contact avec Marisa Cohen, Assisi Nature Council, Casella Postale 107, 06081 Assisi (Pe), Italy. Tel: 39 (075) 813521 Fax: 39 (075) 813521.

KENYA

Plusieurs Études en Cours

Abel Atiti a été récompensé par la Mac Arthur Fondation Scholarship afin de poursuivre une maîtrise en éducation à l'environnement à la Rhodes University en Afrique du Sud pour les deux prochaines années. Les études d'Abel seront centrées sur la création de matériels pédagogiques afin de développer l'interprétation à l'environnement dans 2 écoles du Kenya. Abel a déjà entamé un travail avec les professeurs des outils interactifs qui engagent celui qui l'utilise dans un processus d'éducation à l'environnement. Pour plus d'informations, prendre contact avec : Abel Atiti, National Museums of Kenya Nairobi Botanic Garden, PO Box 40658, Nairobi, Kenya. Fax: 254 (2) 741424 Email: batiti@hotmail.com

MAROC

Production de Matériaux Éducatifs Pour Écoliers

Le Jardin Botanique de l'Institut Agronomique et Vétérinaire (IAV) Hassan II, la SPANA (Société Protectrice des Animaux et de la Nature) et l'AESVT (Association des Enseignants des Sciences de la Vie et de la Terre) ont établi, en collaboration avec le British Council à Rabat, un partenariat pour l'élaboration de documents éducatifs destinés aux élèves.

● Noticias



en la Universidad de Rhodes en Sudáfrica los próximos dos años. La tesis de Abel se centrará en el proceso de desarrollo de materiales de interpretación en dos escuelas de Kenya. Ya ha iniciado el trabajo con maestros a través de la acción participativa para elaborar materiales para involucrar a los estudiantes en el aprendizaje en los patios escolares de estas dos escuelas. Para mayor información contactar a: Abel Atiti, Museos Nacionales del Jardín Botánico de Kenya, PO Box 40658, Nairobi, Kenya. Fax: (254) 2 741424 Email: batiti@hotmail.com

MARRUECOS

Elaborando Materiales Educativos

El Jardín Botánico del Instituto Agronómico y Veterinario Hassan II organizaron una importante actividad educativa a través de un taller de tres días (19-21 de marzo, 2001) en colaboración con SPANA (Sociedad Protectora de Animales del Extranjero) y la Asociación de Maestros de Ciencias de la Vida y la Tierra, auspiciado por el Consejo Británico. Este taller se ofreció a 30 maestros e inspectores de diversas escuelas de la región de Rabat.

Después de la inauguración del taller por el Embajador Británico en Marruecos, Sir Antony Layden, los participantes revisaron con gran detalle alrededor de 20 documentos de siete temas principales:

- 1 ¿Qué es el medio ambiente?
- 2 La selva
- 3 El ambiente agrícola
- 4 El desierto

■ News

RUSSIA

Developing Education with the Support of Sponsors

It is getting increasingly difficult for botanic gardens to provide their educational services without the support of sponsoring organisations. This is certainly the case at the Moscow University Botanic Gardens (Apothecary Garden). The oldest botanic garden in Russia has just produced a new leaflet for the general public providing information on the garden's history, collections, reconstruction project and educational activities. Initially produced in Russian, it was then translated into English and released in the same format. These publications, as well as several others have been sponsored by BP who has been supporting the development and implementation of the garden's education programmes for the past three years.

For further information contact:
Alla Andreeva and Artyom Parshin,
Moscow University Botanic Garden
(Apothecary Garden) 129090 Moscow,
Prospect Mira 26, Russia.
Tel: 7 (095) 280 5880, 280 6765
Fax: 7 (095) 937-63-14
Web site: www.hortus.ru
Email: edu-bgmu@mtu-net.ru

Right:
Sponsorship
helps the
Moscow
University
Apothecary
Garden, Russia
to interpret the
garden by
supporting the
production of
visitor
brochures



▲ Nouvelles

Sous le thème pédagogie, ouverture et environnement et après une inauguration par l'Ambassadeur britannique au Maroc, des ateliers ont été organisés en faveur d'un échantillon de professeurs de l'enseignement fondamental pour la présentation et la discussion des matériaux produits et de la possibilité de leur intégration dans les programmes scolaires.

Durant 3 jours (du 19 au 21 mars 2001), les participants ont reçu en détail une vingtaine de documents répartis sur sept principaux thèmes:

- 1 Qu'est ce que c'est l'environnement
- 2 Le milieu forestier
- 3 Le milieu agricole
- 4 Le milieu désertique
- 5 Le milieu côtier et marin
- 6 Le milieu urbain
- 7 Protection et conservation.

Chaque document a été élaboré sous forme d'un poster (format A3) accompagné d'une ou plusieurs fiches d'activités pédagogiques. La version préliminaire qui a été présentée lors de ces ateliers sera modifiée et améliorée selon les remarques et les recommandations des participants. En version finale, les documents seront rassemblés en classeur qui sera reproduit et distribué à plus grande échelle. Les différents partenaires espèrent mener à travers de ce projet une expérience pilote dans le domaine de l'éducation environnementale destinée aux écoliers. Pour de plus amples informations contacter le Professeur Moh Rejdali, Département de Botanique, Institut Agronomique et Vétérinaire Hassan II, B.P. 6202 Rabat Maroc. Tél: 212 (7) 774093 Fax: 212 (7) 781110.

RUSSIE

Développer L'Éducation avec L'Aide des Sponsors

Il devient de plus en plus difficile pour les Jardins Botaniques de financer leur service d'éducation sans l'aide de sponsors. C'est le cas pour le jardin des apothicaires au Jardin Botanique de l'Université de Moscou. Le plus vieux Jardin Botanique de Russie vient d'éditer une nouvelle plaquette destinée

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- 5 Ecosistemas costeros y marinos
- 6 El ambiente urbano
- 7 Protección y conservación de la biodiversidad

Los participantes se centraron en el análisis de los carteles del formato A3 y sus correspondientes tarjetas de actividades analizando cómo mejorarlas y explorando la manera de incorporarlas a la curricula escolar.

Las observaciones y recomendaciones realizadas por los participantes se considerarán en la revisión del los materiales originales. Se publicará un documento final el cual será distribuido por la Secretaria Nacional de Educación. Este materia educativo también servirá de base para los programas de educación ambiental de los tres colaboradores. Los Jardines Botánicos del Instituto Agronómico y Veterinario de Hassan II (IAV), SPANA y la Asociación de Maestros de de Ciencias de la Vida y de la Tierra han establecido junto con el Consejo Británico una colaboración cuyo objetivo principal es desarrollar materiales educativos para niños. Para mayor información contactar a: Profesor Moh Rejdali, Departamento de Botánica, Instituto Agronómico y Veterinario Hassan II, B. P. 6202 Rabat – Institutos Rabat, Marruecos. Tel: 212 (7) 774093 Fax: 212 (7) 781110.

RUSIA

Desarrollo de la Educación Con el Apoyo de Patrocinadores

Cada vez es más difícil para los jardines botánicos proporcionar sus servicios educativos sin el apoyo de instituciones patrocinadoras. Este es el caso de los jardines botánicos de la Universidad de Moscú (Jardines Apotecarios). El jardín botánico más antiguo de Rusia recientemente produjo un nuevo folleto para el público en general que brinda información sobre la historia del jardín, colecciones, proyecto de reconstrucción y actividades educativas. Inicialmente impreso en ruso, se tradujo al inglés y se imprimió

■ News

SOUTH AFRICA

A New Teachers Resource

A teachers handbook entitled *Plants in our Environment* was recently launched by the Botanical and Environmental Education Project (BEEP) in George. The project was coordinated by Ally Ashwell of Enviroeds, and Yvette van Wijk from the Southern Cape Herbarium and Garden Route Botanical Garden, and follows on from the series of environmental education workshops for teachers that were held last year (see *Roots* 20, p.10). For further information contact: Yvette van Wijk, Southern Cape Herbarium and Garden Route Botanical Garden, PO Box 564, George 6530, South Africa. Email: scherb@pixie.co.za

UNITED KINGDOM

Trees of Time and Place

Trees of Time and Place is a programme to encourage everyone in the United Kingdom to grow at least one tree from seed in their lifetime. The simplicity of the core idea behind *Trees of Time and Place* is its strength: choose a tree that has been important to you in your life, gather some seeds from it, sow and care for it, then plant your own personal *Tree of Time and Place* in the year 2000. By using locally collected seeds and planting them locally it is hoped that this programme will encourage a sense of place.

This is a major initiative involving among others, the Wildlife Trust, National Trust, Groundwork and English Nature who are providing expertise and organising events to promote the scheme. It has been backed by Esso and supported by a wide range of other companies including Marks and Spencer and Tarmac.

One of the main aims of *Trees of Time and Place* is to engage urban communities who do not usually become involved in environmental action. The Birmingham Botanical Gardens Study Centre was able to

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au grand public qui apporte des informations sur l'histoire du Jardin, les collections, les projets de restauration, et les activités éducatives. Initialement édité en russe, ce document est maintenant disponible en anglais, et imprimé dans le même format. Ces plaquettes, comme d'autres documents réalisés précédemment, ont été sponsorisées par B.P. qui avait participé au développement et à la mise en œuvre des programmes éducatifs du Jardin au cours des 3 dernières années. Pour plus d'informations, prendre contact avec : Alla Andreeva and Artyom Parshin, Moscow University Botanic Garden (Apothecary Garden) 129090 Moscow, Prospect Mira 26, Russia. Tel: 7 (095) 280 5880, 280 6765 Fax: 7 (095) 937-63-14 Web site: www.hortus.ru Email: edu-bgmu@mtu-net.ru

AFRIQUE DU SUD

Une Nouvelle Ressource pour Les Professeurs

Un livre de poche pour les enseignants intitulé *Les plantes dans leur environnement* a été récemment lancé par le Botanical and Environmental Education Project (BEEP) à George. Ce projet a été conduit par Ally Ashwell de Enviroeds, et Yvette van Wijk du Southern Cape Herbarium and Garden Route Botanical Garden, et prolonge une série d'ateliers qui s'était déroulée l'année dernière sur l'éducation à l'environnement destinées aux enseignants (voir *Roots* no. 20, page 10). Pour plus d'informations, prendre contact avec: Yvette van Wijk, Southern Cape Herbarium and Garden Route Botanical Garden, PO Box 564, George 6530, South Africa. Email: scherb@pixie.co.za

ROYAUME UNI

Trees of Time and Place

Trees of Time and Place est un programme qui encourage chacun dans le Royaume Uni à faire pousser au moins un arbre à partir de la graine durant sa vie. L'idée de base est forte: choisir un arbre qui a été important pour vous dans votre vie, en récolter

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en el mismo formato. Estas publicaciones, al igual que otras más han sido auspiciadas por BP quien ha estado financiando el desarrollo e implementación de los programas educativos de los jardines durante los últimos tres años.

Para mayor información contactar a: Alla Adreeva y Artyom Parshin, Jardín Botánico (Jardín Apotecario) de la Universidad Moscú 129090 Moscow, Prosoect Mira 26, Rusia. Tel: 7 (095) 937 63 14 Web site: www.hortus.ru Email: edu-bgmu@mtu-net.ru

SUDÁFRICA

Nuevo Recurso Para Maestros

Un manual para maestros llamado *Las Plantas en Nuestro Ambiente* se publicó recientemente por el Proyecto de Educación Ambiental y Botánica (BEEP) en George. El proyecto fue coordinado por Ally Ashwell de Enviroeds, e Yvette van Wijk del Herbario del Cabo Sur y el Jardín Botánico Route, y es parte de la serie de talleres de educación ambiental para maestros que se llevaron a cabo el año pasado (véase *ROOTS* 20, p.10). Para mayor información contactar a: Yvette van Wijk, Southern Cape Herbarium and Garden Route Botanical Garden, PO Box 564, George 6530, South Africa. Email: scherb@pixie.co.za



Left: Teachers and facilitators involved in developing 'Plants in Our Environment', with the Garden Route Botanical Garden in South Africa, attend the launch of the book (see page 44)

REINO UNIDO

Árboles del Tiempo y Lugar

Árboles del Tiempo y del Lugar es un programa para promover a los habitantes del Reino Unido a crecer al menos un árbol proveniente de semilla,

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Right: Maria Jose Carrau (left) and Gert Ausloos, attending the 1st European Botanic Garden Educators Congress, take a close look at the large acorn shaped time capsule that is being used to celebrate the success of the Trees of Time and Place programme at the Birmingham Botanical Gardens and Glasshouses, U.K.



contribute towards the initiative through its work with ethnic groups to celebrate the cultural links with trees. Plants that ethnic groups they would be familiar with were used as an initial way of engaging interest. This was shared at a Conference of Providers held at the gardens in June of last year.

To celebrate the success of Trees of Time and Place in the millennium year, four large wooden time capsules in the shape of acorns were made; one representing each country in the U.K. Throughout the year 2000 the sculptures toured various high profile gardens and galleries including Birmingham Botanical Gardens and Glasshouses during the 1st European Botanical Gardens Education Congress in October, before arriving at their final resting place. For England, it was returned to Birmingham Botanical Gardens and Glasshouses where the time capsule was filled with elements that reflected the impact of the campaign along with pledges. The acorn was buried during a special event attended by environmentalists and members of the local community. On the day, a wide range of activities raising awareness of the environment took place.

▲ Nouvelles

quelques graines, les semer et en prendre soin, et alors vous aurez planté votre propre arbre pour l'an 2000. L'usage de graines collectées localement et leur plantation dans les mêmes lieux mettra en avant l'idée de terroir. Ce simple geste peut conforter une idée d'immortalité, induire une culture de soin et rendre une tangible contribution au futur.

Cette initiative importante implique entre autre le Wildlife Trust, le National Trust, Groundwork and English Nature qui ont étudié et organisé des événements pour promouvoir cette action. Elle a été financée par Esso et de nombreuses autres sociétés comme Marks & Spencer et Tarmac.

Un des principaux buts de Trees of Time and Place est d'engager les communautés urbaines qui ne sont pas habituellement impliquées dans des actions environnementales. Le Centre d'Etudes des Jardins Botaniques de Birmingham a grandement contribué à cette initiative à travers le travail fait avec des groupes ethniques pour célébrer les liens culturels avec les arbres. La collection des jardins a été utilisée comme un lien entre les groupes ethniques et les plantes qui leur sont familières et comme un chemin initiatique pour engager l'intérêt. Tout ceci a été développé à la Conférence des Supporters tenue dans les jardins en juin l'année dernière.

Pour fêter la réussite du projet Trees of Time and Place dans cette année du millénaire, on a fait quatre grandes capsules du futur en bois en forme de gland, chacune représentant les régions du Royaume Uni. Tout au long de l'année 2000 les sculptures ont voyagé dans des jardins différents et des galeries renommées incluant le Jardin Botanique et les serres de Birmingham (pendant le 1er Congrès Européen de l'Education dans les jardins botaniques, en octobre) avant d'arriver à leur destination finale. La capsule pour l'Angleterre est retournée aux serres et jardin de Birmingham où elle a été remplie d'éléments symbolisant la campagne et les gages.

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en su vida. Lo simple de la idea central del Tiempo y Lugar es su fuerza: escoge un árbol que haya sido importante para ti en tu vida, colecta algunas de sus semillas, siémbrales y cuídalas, luego trasplanta tu propio árbol del Tiempo y Lugar en el año 2000. Utilizando semillas colectadas localmente esperamos fomentar el sentido de pertenencia a un lugar. Este simple acto transmite algo de inmortalidad, fomenta el cuidado y hace una contribución real para el futuro.

Esta es una gran iniciativa que involucra entre otros, el Fideicomiso de Vida Silvestre, el Fideicomiso Nacional, Groundwork y Naturaleza Inglesa, quienes están aportando experiencia y están organizando eventos para promover este esquema. Ha sido respaldado por Esso y apoyado por una amplia gama de compañías incluyendo Marks and Spencer y Tarmac.

Una de las principales metas de árboles en Tiempo y Lugar es involucrar a la comunidad urbana quien no siempre se involucra en acciones ambientales. El Centro de Estudios de los Jardines Botánicos de Birmingham contribuyó a esta iniciativa a través de su trabajo con grupos étnicos, el cual incluye lazos culturales con los árboles. La colección de los jardines se utilizó para despertar el interés ligando los grupos étnicos con las plantas que les son familiares. Esto se compartió en un Foro de proveedores realizado en los jardines en junio del año pasado.

Para celebrar el éxito de Árboles en Tiempo y Lugar en el año del milenio, cuatro grandes cápsulas del tiempo en forma de bellotas, cada una representando un país del Reino Unido. A lo largo del año 2000 las esculturas se exhibieron en diversos jardines y galerías, incluyendo los Jardines Botánicos e Invernaderos de Birmingham durante el 1 Congreso Europeo de Educación en Jardines Botánicos en octubre, antes de llegar a su destino final. Para Inglaterra la cápsula del tiempo regresó al Jardín Botánico de Birmingham donde se relleno con

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The decision to bury these large seeds not only reinforces the sustainability message but is also expected to create a great deal of interest, provoking debate from both the environmental and arts camps. For further information visit the Trees of Time and Place web site www.totap.org.uk or contact: Bill Graham, Birmingham Botanical Gardens and Glasshouses, Westbourne Road, Edgbaston Birmingham B15 3TR U.K. Tel: 44 (0121) 454 0784 Fax: 44 (0121) 454 7835 Email: botanic@rmplc.co.uk

Celebrating Year of the Artist

The internationally known artists, Mary Butcher and Tim Johnson, have been in residence at Cambridge University Botanic Garden as part of the Year of the Artist. The artists have been using basketmaking, weaving and stitching techniques to create living sculptures out of bamboo, twigs, grasses and fallen flowers, all of which have been found throughout the grounds. For further information contact: Christine Preston, Cambridge University Botanic Garden, Cory Lodge, Bateman Street, Cambridge CB2 1JF, U.K. Tel: 44 (01223) 336265 Fax: 44 (01223) 336278 Email: cmp25@cam.ac.uk



▲ Nouvelles

Pendant un événement spécial assisté par Chris Baines, des environnementalistes et des membres de la communauté locale, le gland a été enterré. Ce même jour il y a eu des animations pour élever la conscience collective sur l'environnement.

Enterrer ces grandes graines non seulement renforce le message de durabilité mais suscite aussi beaucoup d'intérêt et provoque un débat à la fois de la part des environnementalistes et des artistes. Pour plus d'informations, vous pouvez visiter le site web www.totap.org.uk ou contacter: Bill Graham, Birmingham Botanical Gardens and Glasshouses, Westbourne Road, Edgbaston Birmingham B15 3TR U.K. Tel: 44 (0121) 454 0784 Fax: 44 (0121) 454 7835 Email: botanic@rmplc.co.uk

La Célébration de L'Année de L'Artiste

Les artistes de renommée internationale, Mary Butcher et Tim Johnson, ont été hébergés au jardin botanique de l'université de Cambridge à titre de compensation à l'année de l'artiste. Ces artistes ont utilisé la confection des paniers et les techniques artisanales de couture pour créer des sculptures vivantes à partir de bambou, de joncs, d'herbes et de fleurs séchées, ramassées sur le sol. Pour plus d'informations, contacter Christine Preston, Cambridge University Botanic Garden, Cory Lodge, Bateman Street, Cambridge CB2 1JF, U.K. Tel: 44 (01223) 336265 Fax: 44 (01223) 336278 Email: cmp25@cam.ac.uk

BGEN Document de l'année 2000

Les membres du réseau pour l'Education dans les Jardins Botaniques (BGEN) travaillent dans une large gamme d'établissements incluant les jardins botaniques, les arboretums, les parcs, les centres pour l'éducation à l'environnement, les jardins historiques, les musées et les universités. Ils ont un intérêt commun cependant: trouver le meilleur chemin pour éduquer les publics de tout âge

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elementos que reflejaron el impacto de esta campaña y con sus buenos deseos. La 'bellota' fue enterrada en un evento especial con la presencia de Chris Baines, ambientalistas y miembros de la comunidad. Durante el día se desarrollaron una serie de actividades para promover la conciencia ambiental.

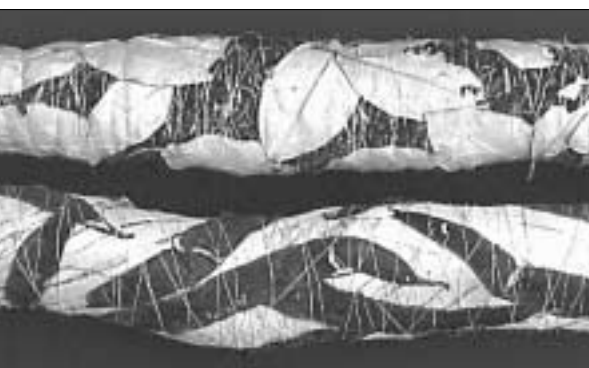
La decisión de enterrar estas enormes semillas no solo refuerza el mensaje de sustentabilidad, sino que también pretende generar un gran interés promoviendo el debate entre los ámbitos ambiental y artístico. Para mayor información visita el sitio web de árbol de Tiempo y Lugar www.totap.org.uk o contacta a Bill Graham, Jardines Botánicos e Invernaderos de Birmingham, Westbourne Road, Edgbaston Birmingham B 15 3 TR U.K. Tel: 44 (0121) 454 0784 Fax: 44 (0121) 454 7835 Email: botanic@rmplc.co.uk



Celebración del Año del Artista

Los artistas reconocidos internacionalmente Mary Butcher y Tim Johnson estuvieron de residencia en el Jardín Botánico de la Universidad de Cambridge como parte del Año del Artista. Los artistas han empleado técnicas de cestería, tejido y costurado para crear esculturas vivientes de bambú, varas, pastos y flores caídas, todas recogidas de los jardines. Para más información contactar a: Christine Preston, Jardín Botánico de la Universidad de Cambridge, Cory Lodge, Bateman Street, Cambridge CB2 1JF, U.K. Tel: 44 (01223) 336265 Fax: 44 (01223) 336278 Email: cmp25@cam.ac.uk

Left: These woven Cycad leaves by Mary Butcher, artist in residence at Cambridge University Botanic Garden, are entitled Pleasure to Pin Thorns in a Stiff Breeze. Photographer – Howard Rice



Above:
Cambridge
University
Botanic Garden
artist in
residence, Tim
Johnson, made
this structure
out of a variety
of materials
including
Eleagnus leaves,
shredded
Bamboo leaves
and Gleditsia
pods.
Photographer –
Howard Rice

BGEN Yearbook 2000

Members of the Botanic Gardens Education Network (BGEN) work in a wide range of settings including botanic gardens, arboreta, parks, environmental education centres, historic designed landscapes, museums and universities. One interest unites all the members: finding the best possible ways to educate people of all ages about the essential role plants play in our daily lives. BGEN was set up more than a decade ago to enable these education practitioners to share experience, information, resources and training, and the Yearbook is an important networking resource. In October 2000, the theme of Partnerships for People and Plants was used to complement the joint BGCI/BGEN First European Botanic Garden Education Congress, held in Birmingham.

Members were invited to contribute articles based on their practical work experience. These contributions were divided into four categories: people and plants; working towards a sustainable future; children's gardens; what do children know about plants? They covered topics as varied as multicultural botany, folklore in environmental education, green housekeeping, sustainable development and school gardens. The articles are informative, inspiring and thought-provoking. The diversity reflects the many different interests and approaches BGEN members bring to their work.

The Yearbook 2000 is now sold out, but it would be possible to print extra copies of the Yearbook 2001 (due for

sur le rôle essentiel que jouent les plantes jouent dans notre vie quotidienne. Le BGEN permet depuis plus de 10 ans à ces praticiens de l'éducation de partager des expériences, des informations, des ressources et des exercices. Cette publication annuelle est une ressource importante pour le réseau. En octobre 2000, le thème du partenariat pour People and Plants a été utilisé pour renforcer le lien entre BGCI et BGEN au 1er congrès européen pour l'Education dans les jardins botaniques tenu à Birmingham.

Les membres étaient invités à intervenir au moyen d'articles basés sur leur expérience pratiques. Ils étaient divisés en 4 catégories: plantes et hommes, travailler ensemble pour un futur durable, les jardins d'enfants et que connaissent nos enfants des plantes? Ils ont envisagé des sujets botaniques aussi variés que multiculturels, le folklore dans l'éducation à l'environnement, l'entretien vert de la maison, le développement durable et les jardins d'école. Ces articles d'information, sont tres interessants et excitants pour les esprits. La diversité reflète les différents intérêts et approches que les membres du BGEN ont apportés par leur travail.

Ce document de l'année 2000 est maintenant épuisé mais il est possible d'imprimer des copies du document de l'année 2001(qui sera publié à l'automne 2001) si certains non-membres du BGEN sont intéressés à commander une copie. Le prix est de 5 £ plus les frais d'envois. Pour réserver une copie, contacter: Tess Darwin Edwards, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR U.K.
Tel: 44 (0131) 248 2962
Fax: 44 (0131) 552 8713
Email: tess.darwin@talk21.com

Exercice en Matière D'Interprétation

Le réseau éducatif des Jardins Botaniques (BGEN), du Royaume Uni, organisera des ateliers pour ses membres et les personnes intéressées par les Nouvelles Idées en matière

Anuario 2000 de la Red de Educación en Jardines Botánicos (BGEN)

Miembros de la Red de Educación en Jardines Botánicos trabajan en una gran variedad de lugares incluyendo jardines botánicos, arboreta, parques, centros de educación ambiental, diseño histórico de paisajes, museos y universidades. Un interés común une a sus miembros: encontrar la manera más adecuada para educar a la gente de todas las edades acerca del rol esencial que juegan las plantas en nuestras vidas. BGEN se inició hace más de una década para permitir a los educadores compartir experiencias, información, recursos y capacitación, y el Anuario es un importante recurso de enlace. En octubre del 2000, el tema Colaboradores, Plantas y Gente se utilizó para complementar el 1 Congreso conjunto BGCI/BGEN de Educación en Jardines Botánicos, realizado en Birmingham.

Se invitó a los miembros a contribuir con artículos basados en su experiencia los cuales se dividieron en cuatro categorías: plantas y gente, trabajando hacia un futuro sustentable, jardines para niños y qué saben los niños de las plantas? Cubrieron aspectos tan variados como botánica multicultural, tradiciones y educación ambiental, enverdeciendo nuestro hogar, desarrollo sustentable y jardines escolares. Los artículos son informativos, hacen pensar e inspirativos. La diversidad de contribuciones los diferentes intereses y aproximaciones del desarrollo de su trabajo de diferentes miembros de BGEN.

El Anuario 2000 ya se ha agotado, pero posiblemente se imprimirán copias extra del Anuario 2001(que debe publicarse en otoño del 2001) por si algún no miembro de BGEN está interesado en ordenar una copia. El costo es de 5 libras más envío. Para solicitar una copia, contacta a: Tess Darwin Edwards, Royal Botanic Garden Edinburgh, 20 A Inverleith Row, Edinburgh EH3 5LR U.K.
Tel: 44 (0131) 248 2962
Fax: 44(0131) 552 8713
Email: tess.darwin@talk21.com

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publication autumn 2001) if any non-BGEN members are interested in ordering a copy. The cost is £5 plus postage. To reserve a copy, contact: Tess Darwin Edwards, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR U.K.
Tel: 44 (0131) 248 2962
Fax: 44 (0131) 552 8713
Email: tess.darwin@talk21.com

Training in Interpretation

The Botanic Gardens Education Network (BGEN) in the U.K. will be conducting a training workshop for its members and interested people on New Ideas in Interpretation. This training workshop is being held at the Eden Project in Cornwall. For further information contact: Tess Darwin Edwards Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR U.K.
Tel: 44 (0131) 248 2962
Fax: 44 (0131) 552 8713
Email: tess.darwin@talk21.com

UNITED STATES

A New Children's Garden in the Making

The Morton Arboretum has recently been awarded a State Museum Education Grant to enhance its outdoor youth education programme. The Arboretum will use the grant to develop the conceptual design for its new Children's Adventure Garden, using a team approach led by US renowned museum education specialist Michael Spock. Other team member's will include a landscape architect, architect and an exhibition and interpretive specialist. Scheduled to open in 2004, the new Children's Adventure Garden is expected to add an exciting new dimension to family science learning and the grant will be used to create a fun environment that invites inquiry, discovery, and play. For further information contact: William Carvell, Director of Education, The Morton Arboretum, 4100 Illinois Route 53, Lisle Illinois 60532-1293 USA.
Tel: 1 (630) 968 0074
Fax: 1 (630) 719 2433
Email: trees@mortonarb.org

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d'interprétation. Cet atelier se tiendra sur le site de Eden Project en Cornouaille. Pour plus d'information, contacter: Tess Darwin Edwards, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR U.K. Tel: 44 (0131) 248 2962
Fax: 44 (0131) 552 8713
Email: tess.darwin@talk21.com

ETATS UNIS

Un Nouveau Jardin Pour Enfants en Chantier

Le Morton Arboretum a récemment reçu un prix pour l'Education dans les musées d'état afin de promouvoir son programme éducatif d'extérieur pour la jeunesse. L'Arboretum utilisera ce prix pour développer le concept de nouveaux jardins des enfants aventuriers, avec la participation de l'équipe conduite par le spécialiste de l'éducation dans les musées américains, Michael Spock.

L'équipe comprendra également un paysagiste, un architecte et un concepteur d'exposition. Prévu pour ouvrir en 2004, le Jardin des enfants aventuriers, donnera une nouvelle dimension à l'apprentissage familial de la science et le prix sera utilisé pour créer un environnement ludique invitant à la recherche, à la découverte et aux jeux. Pour plus d'informations, contacter: William Carvell, Director of Education, The Morton Arboretum, 4100 Illinois Route 53, Lisle Illinois 60532-1293 USA.
Tel: 1 (630) 968 0074
Fax: 1 (630) 719 2433
Email: trees@mortonarb.org

Les Détectives du Désert et un Nouveau Chantier D'Initiation à la Nature

Le Desert Botanical Garden a réalisé un document «découverte du désert» contenant des jeux individuels qui aident les étudiants à découvrir les plantes, la vie sauvage et d'autres exemples d'adaptations à la sécheresse, d'interactions entre les plantes et les animaux ou entre les plantes et les hommes. Ces 3 versions sont disponibles en Anglais et en Espagnol.

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Entrenamiento en Interpretación

La Red de Educación en Jardines Botánicos (BGEN) del Reino Unido ofrecerá un taller de capacitación para sus miembros y personas interesadas en Nuevas Ideas en Interpretación. Este taller tendrá lugar en el Proyecto Eden en Cornwall. Para mayor información contacta a: Tess Darwin Edwards Royal Botanic Garden Edinburgh, 20 A Inverleith Row, Edinburgh EH3 5LR U.K.
Tel: 44 (0131) 248 2962
Fax: 44 (0131) 552 8713
Email: tess.darwin@talk21.com

ESTADOS UNIDOS

Un Nuevo Jardín de Niños en Establecimiento

El Arboretum Morton recientemente recibió una Beca para Educación del Museo del Estado para realizar su programa de educación al aire libre para jóvenes. El Arboretum empleará la beca para elaborar el diseño conceptual para su nuevo Jardín para Niños, con un equipo de personas dirigido por el especialista en educación en museos Michael Spock.

Otros miembros del equipo incluirán un arquitecto del paisaje, un arquitecto, y un especialista en exposiciones e interpretación. Proyectado para abrir en el 2004, se espera que el Nuevo Jardín para Niños agregue una excitante nueva dimensión en el aprendizaje familiar de las ciencias; el subsidio se utilizará para crear un ambiente divertido que invite al cuestionamiento, al descubrimiento y al juego. Para mayor información contacta a: William Carvell, Director de Educación, The Morton Arboretum, 4100 Illinois Route 53, Lisle Illinois 60532-1293 USA.
Tel: 1 (630) 968 0074
Fax: 1 (630) 719 2433
Email: trees@mortonarb.org

Detectives del Desierto y el Nuevo Sendero de Vida Silvestre

El Jardín Botánico del Desierto elaboró las hojas didácticas de Descubrimientos del Detective del

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Desert Detectives and a New Wildlife Trail

The Desert Botanical Garden has developed Desert Detective Discovery Tour Sheets which are self-directing games that help students 'discover' plants, wildlife and other examples of desert plant adaptations, interactions between plants and animals, and interactions between plants and people. All three versions are available in English and Spanish.

The Desert Botanical Garden has also developed a new 1/3 mile Wildflower Trail that features, boulder, desert floor and shady habitats; a bee garden, butterfly garden and hummingbird garden, in addition to 31 trailside

Far Right: Sammy Saguaro Super Sleuth helps children explore plant adaptations at the Desert Botanical Garden

Right: The Desert Wildflower Trail features exhibits and hands-on activities about the wildflowers and pollinators of the North American Deserts

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Le Desert Botanical Garden a aussi développé un nouveau sentier de 1/3 de mile sur les Plantes Sauvages avec des rochers, un sol du désert et des habitats ombragés :jardins d'abeilles, jardins de papillons et jardins de colibris. De plus, 31 autres présentations illustrent les relations entre les fleurs sauvages du désert et leurs pollinisateurs. L'important est que toutes ces présentations sont d'abord testées auprès des visiteurs pour s'assurer qu'elles retiennent leur attention et que le message passe bien. Pour plus d'informations, contacter: Ruth Greenhouse, Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, Arizona 85008 USA Tel: 1 (480) 481 8121.

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Desierto que son juegos autodirigidos que ayudan a los estudiantes a 'descubrir' las plantas, la vida silvestre y ejemplos de adaptaciones de las plantas a la aridez, interacciones entre plantas y animales, o interacciones entre plantas y la gente. Las tres versiones están disponibles en inglés y español.

El Jardín Botánico del Desierto también elaboró un nuevo Sendero de Flores Silvestres de 1/3 de milla que destaca las características de habitats pedregosos, el suelo del desierto y ambientes sombreados; jardineras de plantas para abejas, mariposas y colibríes, además de 31 exhibidores a lo largo del sendero que ilustran la relación entre las flores de las plantas del desierto y sus polinizadores. Cabe

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exhibits that illustrate the relationship between desert wildflowers and their pollinators. Very importantly, all these exhibits were pre-tested with visitors to ensure that they could hold the visitors attention and that they communicated the messages effectively. For further information contact: Ruth Greenhouse, Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, Arizona 85008 USA. Tel: (1) 480 481 8121.

INTERNATIONAL NEWS

IUCN CEC Leadership Changes

Frits Hesselink, who has been the Chair for the IUCN Commission on Education and Communication, has stepped down from his position after serving two terms 1991-2000, the maximum term that a Chair can serve. The new Chair of the Commission, Denise Hamú Marcos de La Penha from Brazil, has been elected by the IUCN Members to succeed him. With formal qualifications including a M.A. in Museum Studies from The George Washington University in the USA, a Baccalaureate in International Relations and fluency in four languages, Ms Hamú is currently the Manager of the National Policy for the Environment Programme, Ministry of the Environment of Brazil. In this position she is responsible for the strategic programme of the Ministry encompassing areas such as the implementation of Agenda 21 and the development of economic instruments for sustainable development. Ms Hamú has over 15 years experience in environmental education and communication both nationally and internationally.

EVENTS

SA to hold 2002 Earth Summit

It is nearly ten years since sustainability was put on the global agenda and now a Review Summit has been planned to assess the outcomes of Rio ten years on. The session offers the opportunity to revitalise the debate, and to secure significant, targeted commitments to

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LES NOUVELLES INTERNATIONALES

Changements à la Direction de la Commission de l'Éducation et de la Communication de l'IUCN

Frits Hesselink, qui a été le président de cette commission a quitté ses fonctions après avoir accompli 2 mandats de 1991 à 2000, maximum qu'un président puisse exercer. La nouvelle présidente de la Commission, Denise Hamu Marcos de la Penha du Brésil, a été élue par les membres de l'IUCN pour le remplacer. Avec entre autres qualifications un diplôme supérieur en études muséologiques de l'Université George Washington aux Etats Unis, un baccalauréat en relations internationales et la pratique de 4 langues, Madame Hamu est habituellement la responsable de la politique nationale pour les programmes environnementaux au Ministère de l'Environnement au Brésil. Par cette position elle est responsable de la stratégie du Ministère regroupant les territoires concernés par l'agenda 21 et les instruments du développement économique pour un développement durable. Madame Hamu a plus de 15 ans d'expérience en éducation environnementale et en communication à la fois sur le plan national et international.

EVENEMENTS

Le Sommet Mondial de 2002 en Afrique du Sud

Voilà près de 10 années que le développement durable est à l'ordre du jour au niveau mondial et maintenant un sommet-bilan a été projeté pour évaluer les résultats de Rio depuis 10 ans. La session offre l'occasion de ranimer le débat et d'assurer les objectifs d'engagement de développement durable. Le Sommet Mondial de 2002 se tiendra à Johannesburg en Afrique du Sud et espère attirer 40 000 participants du monde entier.

Les éducateurs des jardins botaniques seront particulièrement concernés par l'évaluation de la mise en œuvre de

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mencionar que estos exhibidores fueron probados previamente con visitantes para conocer si retenían su atención y si comunicaban los mensajes eficientemente. Para más información contactar a: Ruth Greenhouse, Desert Botanical Garden 1201 N. Galvin Parkway, Phoenix, Arizona 85008 USA Tel: (1) 480 481 8121.

NOTICIAS INTERNACIONALES

Cambio del Director de la Comisión de Comunicación y Educación (CEC) de la Unión Internacional de Conservación de la Naturaleza (IUCN)

Frits Hesselink, quien se ha desempeñado como director de la Comisión de Comunicación y Educación de la IUCN, dejó su puesto después de dos periodos 1991 – 2000, el máximo tiempo que un director puede permanecer. La nueva directora de la Comisión Denise Hamú Marcos de La Penha, de Brasil, fue elegida por los miembros de la IUCN para ocupar el cargo. Sus estudios formales incluyen una Maestría en Museografía de la Universidad George Washington, EUA, un Bachillerato en Relaciones Internacionales y habla cuatro idiomas; la Srita. Hamú fue directora del Programa Nacional de Política Ambiental, de la Secretaría del Medio Ambiente de Brasil. En dicho puesto ella era responsable del programa estratégico de la Secretaría considerando aspectos como la implementación de la Agenda 21 y el desarrollo de instrumentos económicos para el desarrollo sustentable. La Srita. Hamú tiene más de 15 años de experiencia en educación ambiental y comunicación tanto a nivel nacional como internacional.

EVENTOS

Cumbre de la Tierra 2002 en Sudáfrica

Hace casi 10 años que la sustentabilidad se incorporó a la agenda global y ahora se planea una Nueva Cumbre para evaluar los acuerdos de Río de hace 10 años.

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sustainable development. The Earth Summit in September 2002 will be held in Johannesburg, South Africa and is expected to draw 40 000 participants from around the world.

Of particular interest to botanic garden educators will be the assessment of the implementation of Agenda 21. The Local Agenda 21 approach has been recognised as one of the most proactive and successful ways to adapt the goals of Agenda 21 to the local level. Since the 1992 Rio Conference on environment and development, this approach has generated local action plans, implementation activities and tangible results in balancing the economic, environmental and social needs in hundreds of local communities, towns, and cities around the world. A survey in 1997 identified over 1800 local Agenda 21 initiatives at various stages of implementation and found many more to be in-the-works.

The results of the first survey were submitted to the Special Session of the General Assembly to Review progress in implementing Agenda 21 (June 1997, New York). Governments and other participants expressed their appreciation of the results of the survey and the information it provided to the inter-governmental process. This encouraged the CSD Secretariat and ICLEI to launch a second international survey for the ten-year anniversary of Rio in 2002. The second survey, launched in 2000, is measuring the scope of Local Agenda 21 activity around the world ten years after the adoption of Agenda 21; assess the impact of on-going Local Agenda 21 activities; identify tangible outcomes of local agenda 21 activities on environmental, social and economic aspects of sustainable development; and, identify regional and global trends in the context of key sustainable development issues. For further information about Earth Summit 2002 visit the following web site: <http://www.un.org/rio+10/>

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l'Agenda 21. L'approche Agenda 21 Local est reconnue comme le moyen le plus pertinent et efficace de décliner les objectifs d'Agenda 21 au niveau local. Depuis le Congrès de Rio en 1992 sur l'environnement et le développement, cette approche a débouché sur l'élaboration de plans d'action locaux, sur des réalisations concrètes avec des résultats tangibles conciliant les besoins économiques, environnementaux et sociaux dans des centaines de collectivités locales, villes et villages du monde entier. Une enquête de 1997 a recensé plus de 1800 initiatives locales d'Agenda 21 à différents stades de mise en œuvre et beaucoup plus encore en voie de l'être.

Les résultats de la première étude ont été soumis lors de la Session Spéciale de l'Assemblée Générale, pour les travaux de la Revue sur la mise en œuvre de l'Agenda 21 en juin 1997 à New York. Les administrations et les autres participants à la 19^{ème} Session Spéciale de l'Assemblée Générale, pour les travaux de la Revue sur la réalisation des objectifs de l'Agenda 21 ont exprimé leur appréciation des résultats de l'enquête et pour l'information facilitant le travail entre les administrations. Cela a incité le Secrétariat du CSD et l'ICLEI à lancer une seconde enquête internationale pour les 10 ans du Congrès de Rio en 2002. Cette seconde enquête, lancée en 2000, mesure la portée des activités de l'Agenda 21 Local dans le monde entier dix ans après l'adoption de l'Agenda 21; l'évaluation de l'impact des activités en cours de l'Agenda 21 Local; l'identification des résultats concrets des activités de l'Agenda 21 Local sur les aspects environnementaux, sociaux et économiques du développement durable; et, la définition des tendances régionales et mondiales dans les problèmes cruciaux de développement durable. Pour de plus amples informations sur le Sommet Mondial 2002, consulter le site: <http://www.un.org/rio+10/>

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La reunión ofrece la oportunidad de revitalizar el debate y para asegurar compromisos significativos para promover el desarrollo sustentable. La Cumbre de la Tierra se llevará a cabo en 2002 en Johannesburg, Sudáfrica y se esperan 40 000 participantes de todo el mundo.

De especial interés para los educadores de los jardines botánicos será la evaluación de la implementación de la Agenda 21. Se ha reconocido a la Agenda 21 Local como una de las maneras más exitosas y activas para adecuar las metas de la Agenda 21 al nivel local. Desde la Conferencia de Río sobre medio Ambiente y Desarrollo en 1992, esta aproximación ha generado planes locales de acción implementación de actividades y resultados tangibles en el balance de la economía, necesidades sociales y ambientales en cientos de comunidades, pueblos y ciudades alrededor del mundo. Una investigación en 1997 identificó más de 1800 iniciativas de Agendas 21 Locales en diferentes niveles de implementación y encontraron muchas más en proyecto.

Los resultados de la primera investigación fueron sometidos en la Sesión Especial de Revisión de la Asamblea General para supervisar los avances de la implementación de la Agenda 21 (junio 1997, Nueva York).

Gobernantes y otros participantes de la 19^a Sesión Especial de la Asamblea General expresaron su agrado por los resultados de la investigación y la información proporcionada en el proceso intergubernamental. Esto motivó a la Secretaría de la Comisión sobre Desarrollo Sustentable y UCLEI a realizar una segunda investigación internacional con motivo del décimo aniversario de Río en 2002. La segunda investigación iniciada en el 2000, medirá los alcances de la Agenda 21 Local después de los 10 años; evaluará el impacto de sus actividades, identificará productos tangibles sobre aspectos ambientales, sociales o económicos referentes al

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Children's Agenda 21 Poster Competition

This is conceived as a national level competition involving school children between the ages of 7 and 12. The initiative suggests that the National Rio+10 committees or similar coordinating structures invite children, through schools and educators as well as teachers' associations, to submit drawings that capture their sustainable development aspirations, concerns and their understanding of Agenda 21 objectives. The initiative aims to generate an education process through which children learn about Agenda 21 and sustainable development, and to integrate the inter-generational aspects of the sustainable development concept into the Rio+10 preparations. As countries select the winners and submit them to the CSD Secretariat links to the submissions will be provided at <http://www.un.org/rio+10/>. The collection of all winning entries will be exhibited at the Rio+10 summit meeting and also published as a UN publication.

Youth Earth Summit 2001

Peace Child International has organised a Youth Earth Summit to be held from 20 September 2001 in Baku, Azerbaijan. The summit provides an opportunity for young people (15-25) to put forward their ideas and action plans for sustainable development of the planet. Three delegates from each country will be selected by an international organising committee. For further information contact: Azer Bayramov Fax: 994 (12) 239 314 Email: azer-bayramov@usa.net

Staff Appointments

As of January this year Larry DeBuhr left his position at Missouri Botanic Garden to take up the role of Vice President of Education at Chicago Botanic Garden. We would like to congratulate Larry and wish him all the very best in his new role.

The Morton Arboretum has appointed three key educational staff in the past few months: Steven Leonard, Manager of Youth Education, Lisa Berg, the

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Concours de Posters Agenda 21 Pour Enfants

Il est conçu comme un concours au niveau national et concerne les scolaires entre 7 et 12 ans. Cette initiative suggère que des comités de type National Rio+10 ou des structures de coordination similaires invitent les enfants, par le biais des écoles et des éducateurs aussi bien que par celui des organisations d'enseignants, à proposer des dessins mettant en scène leurs aspirations au développement durable ainsi que leurs préoccupations et leur interprétation des objectifs de l'Agenda 21.

Cette initiative vise à générer un travail pédagogique par lequel les enfants intégreront des éléments de l'Agenda 21 et du développement durable ainsi que les aspects inter-générationnels du concept de développement durable mis au point par les commissions Rio+10. Lors de la sélection des lauréats et de leur soumission devant le Secrétariat du CSD, des liens internet pour la participation à ce concours seront disponibles sur <http://www.un.org/rio+10> La liste des lauréats sera présentée à la réunion du Sommet de Rio+10 et également publiée dans une publication des Nations Unies.

Sommet Terre des Jeunes 2001

Peace Child International organise un Sommet de la Terre des Jeunes qui se tiendra à partir du 20 septembre 2001 à Bakou en Azerbaïdjan. Ce sommet donne l'occasion pour les jeunes (15-25ans) de présenter leurs idées et projets pour le développement durable de la planète. Trois délégués de chaque pays seront sélectionnés par un comité international. Pour toutes informations contacter: Azer Bayramov. Fax 994 (12) 239 314 E-mail: azer-bayramov@usa.net

Nominations

En janvier dernier, Larry DeBuhr a quitté son poste du Jardin Botanique du Missouri pour prendre celui de Vice-Président du département éducation au Jardin Botanique de Chicago. Nous aimerions adresser

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desarrollo sustentable; e identificará lineamientos regionales y globales en el contexto de aspectos claves para el desarrollo sustentable. Para mayor información sobre Cumbre de la Tierra 2002 visita este sitio: <http://www.un.org/rio+10/>

Concurso de Carteles Para Niños Agenda 21

Se ha organizado un concurso a nivel nacional para alumnos de entre 7 y 12 años. La iniciativa sugiere que los comités u organismos coordinadores similares de Nacional Rio+10 inviten a los niños a través de sus escuelas y educadores así como asociaciones de maestros, a enviar dibujos que plasmen sus percepciones del desarrollo sustentable, preocupaciones y entendimiento de los objetivos de la Agenda 21. La iniciativa pretende generar un proceso educativo a través del cual los niños aprendan sobre la Agenda 21 y el desarrollo sustentable e integrar aspectos inter-generacionales para preparar el concepto de Rio+10. Durante la selección de los trabajos ganadores y su envío a la Comisión de Desarrollo sustentable estará disponible el link <http://www.un.org/rio+10/>. La colección de los ganadores se exhibirá en la Reunión Cumbre y se editarán en una publicación de las Naciones Unidas.

Reunión Cumbre Juvenil 2001

La organización Internacional Niños por la Paz ha organizado una Reunión Cumbre Juvenil que se llevará a cabo del 2 al 9 de septiembre de 2001 en Baku, Azerbaïdjan. La Cumbre brindará la oportunidad a jóvenes de 15 a 25 años a externar sus ideas y planes de acción para el desarrollo sustentable del planeta. Tres delegados de cada país se seleccionará por el comité organizador internacional. Para mayor información contactar a: Azer Bayramov, Fax: 994(12) 239 314 Email: azer-bayramov@usa.net

Nuevos Nombramientos

Ya que en enero de este año Larry DeBuhr dejó su puesto en el Jardín Botánico de Missouri a cambio del

■ News

Coordinator of School and Youth Programs and Julie Kulak, Coordinator of Botanical Art Education. We would like to wish Steven, Lisa and Julie all the very best with their new roles and we look forward to hearing about their programmes and projects at the Arboretum.

Congratulations

A big congratulations to Chris Millican, Welsh Woman of the Year in Education. This award is in recognition of her outstanding work setting up the education department at the new National Botanic Gardens of Wales. As well as being a personal honour for Chris, this is a welcome acknowledgement of the value of education in botanic gardens.

Apologies

For those with sharp eyes you will have noticed that the photo on page 29 in Roots 21 was upside down! Our apologies.

We would also like to apologise to Maria José Carrau for printing her contact details incorrectly. Maria can be contacted at the Jardí Botànic de València C/ Quart 80, 46008 Valencia, España. Tel: 34(9) 63156818
Fax: 34 (9) 63156826
Email: maria.j.carrau@uv.es

▲ Nouvelles

nos félicitations à Larry en lui souhaitant bonne chance pour ses nouvelles fonctions.

Ces derniers mois, l'Arboretum de Morton a recruté trois responsables éducatifs: Steven Leonard comme responsable pédagogique, Lisa Berg comme coordinatrice des Programmes scolaires et pédagogiques et Julie Kulak comme coordinatrice de l'éducation à l'art. Nous souhaitons bonne chance dans leurs nouvelles fonctions à Steven, à Lisa et à Julie en espérant d'avoir bientôt de leurs nouvelles à propos des projets et programmes à l'Arboretum.

Félicitations

Nous adressons toutes nos félicitations à Chris Millican, nommée Galloise de l'Année en Education. Ce titre récompense son travail remarquable de mise en place du département éducatif du nouveau Jardin Botanique du Pays de Galles. En même temps qu'un honneur personnel pour Chris, ce prix constitue une reconnaissance de la valeur pédagogique des jardins botaniques.

Excuses

D'abord, nous présentons toutes nos excuses à Dawn Sanders à propos d'une photo présentée à l'envers dans son article dans le numéro 21 de Roots.

Toutes nos excuses aussi à Maria José Carrau pour une erreur dans ses coordonnées. Pour contacter Maria, voici la bonne adresse: Jardí Botànic de Valencia C/Quart 80, 46008 Valencia, Espagne.
Tél: 34(9) 631 568 18
Fax: (9) 631 568 26
E-mail: maria.j.carrau@uv.es

● Noticias

nuevo cargo como Vicepresidente de Educación del Jardín Botánico de Chicago, le enviamos nuestras más cordiales felicitaciones y le deseamos lo mejor.

El Arboretum Morton ha incorporado a tres nuevos miembros claves dentro de su personal para educación: Steven Leonard, Director de Educación para Jóvenes, Lisa Berg, Directora del Programa Escolar y Juvenil, y Julie Kulak Coordinadora de Educación en Arte Botánico. Les enviamos a Steven, Lisa y Julie nuestros mejores deseos en sus nuevos cargos y esperamos escuchar algo sobre sus programas y proyectos en el Arboretum.

Felicitaciones

Una gran felicitación a Chris Millican, Welsh Woman en el Año de la Educación. Este merecido reconocimiento lo obtuvo por el establecimiento del departamento de educación en el Nuevo Jardín Botánico Nacional de Wales. Además de ser un honor para Chris, también es un bienvenido agradecimiento sobre el valor de la educación en los jardines botánicos.

Disculpas

Nuestras más sinceras disculpas a Dawn Sanders y que en su artículo de Roots 21 una de sus fotos se imprimió al revés.

Igualmente una disculpa a María José Carrau por los errores en su dirección. Pueden contactar a María José en: Jardí Botànic de València C/Quart 80, 46008 Valencia, España
Tel: 34(9)63156818
Fax: 34 (9) 63156826
Email: maria.j.carrau@uv.es

Biodiversity, Human Rights, and Sustainability

■ Summary

At first sight there seems to be little connection between a botanical interest in plant biodiversity and a concern with human rights. Scientific studies of the conditions for the distribution and flourishing of plant life seem to owe nothing to political endeavours to protect humans from abuses by other humans; and vice versa. Yet both biodiversity and human rights are matters of vital and fundamental concern worldwide; and both stand in need of protection from the threats to them resulting from certain organised human activities. When we seek to understand how and why each is under threat, and what might be done to protect them, significant connections are revealed. In this article I am going to suggest, in fact, that they are inextricably linked in important ways, and that strategies to protect the one need to be linked to strategies of protection for the other.

Biodiversity and Human Rights Under A Common Threat?

There can be little doubt about the reality or seriousness of the threats that biodiversity and human rights are under due to the actions of humans. On the one hand, biological diversity is diminishing at an alarming rate owing largely to the predations of a profit-driven globalized economy: scientists now believe that the world's flora and fauna are disappearing at rates greater than the mass extinction events that punctuate the fossil record (Purvis and Hector 2000). On the other hand, and notwithstanding global endorsement of the United Nations Declaration of Human Rights over the past fifty years, 'man's inhumanity to man', and, we should add, 'to women and

children', continues unabated in the atrocities we continue to witness of oppressive regimes and genocidal ethnic conflicts.

Threats to the one, moreover, are not always unconnected to threats to the other: where, for instance, an indigenous people's traditional way of life, which is dependent on the careful and subtle use of local plant varieties, is undermined by expropriation of their land for logging, ranching or building, the people's livelihood and welfare is undermined, and their protests quashed, at the same time as plant species are put in danger of extinction.

Nevertheless, while concerns with human rights and with biodiversity may sometimes coincide, the reasons why humans put biodiversity at risk often have to do with what they perceive to be their vital and legitimate needs. There is an evident conflict if, for instance, the choice is between developing land for human food and homes or preserving a habitat for some species of plant at the expense of leaving a number of people homeless and without food. So while some peoples may defend their right to reduce the biodiversity of their environment by referring to their right to feed themselves, others defend their right to retain their diverse environment on the same grounds.

It might therefore be thought that bringing human rights into the equation when thinking about strategies for protecting biodiversity only serves to muddy the waters. However, what I am going to suggest is that human rights issues cannot in fact be extricated from the practical issues in protecting biodiversity. This

is so for quite deep reasons that emerge when we consider what is involved in understanding biodiversity and developing strategies for its protection.

What Biological Diversity is and Why it Should be Preserved: Our Radically Incomplete Understanding

The term biodiversity refers to the variety of life forms - the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form - that make up the fabric of the earth's biosphere. Biological diversity is now known to be crucial to the maintenance of ecosystems and organisms generally as well as providing essential services for human's survival and flourishing.

Yet scientists have a radically incomplete understanding of exactly how biodiversity works or what should therefore be done to preserve it. Any attempt to measure biodiversity quickly runs into the problem that it is a fundamentally multidimensional concept. Biodiversity cannot be reduced sensibly to a single indicator, such as species richness: to suppose that conserving overall biodiversity simply means conserving a population of every species, is, in the words of Purvis and Hector (2000) '...rather like having one of each note in the Mozart concerto'. Living processes are interrelated in so many and complex ways that we are hardly beginning to understand.

In fact, we do not even know what is already there. Purvis and Hector estimate that an average day sees the formal description of around 300 new species across the whole range of life,

and suggest that the roughly 1.75 million described species of organism may be only around 10% of the total. In fact, scientists are discovering not only new species, but even hitherto unknown life forms such as microbial communities in rocks deep beneath the earth's surface and self-reproducing entities that have genomes for their habitat (Purvis and Hector 2000). In short, the one thing we know for sure is that there is much greater biological diversity than we know about!

It follows, therefore, that the harm human activities are doing to ecosystems may be correspondingly greater than we already realise. This simply increases the urgency of the basic question: what can and should be done to arrest and reverse the trend?

One thing we know is that to leave the world untouched is not an option. There is now practically no part of the world that has remained unaffected by human interventions into its ecology. Humans cannot know what trajectories ecological relations would take in the absence of human intervention, even in principle, since, on the one hand, humans' impacts have entered into the evolutionary history of ecology, and, on the other, some species extinction and other variations in biodiversity always have occurred anyway, quite independently of human intervention. To preserve biodiversity in any absolute sense is therefore not an option.

This also means there can be no purely objective standards against which to assess strategies for preserving biodiversity. Strategies will always be selective and have a specific focus, implicitly favouring some forms of life over others. Scientific experts themselves admit that they cannot entirely avoid being biased, geographically and taxonomically, in what they take as a focus of importance (Margules and Pressey 2000).

If some bias in the description of biodiversity is unavoidable, though, we can nevertheless identify and evaluate the reasons why a biodiversity preservation policy exhibits one bias

rather than another. This will usually bring us to recognise that particular human interests are operative; and where there are competing views of the appropriate policy, one will therefore normally find competing human interests. As proponents of competing interests vie for a claim to legitimacy, they will take every opportunity to defend their interests in terms of fundamental human rights.

Why Strategies For Preserving Biodiversity Raise Human Rights Issues?

The main focus for conservation strategies throughout the world is on nature reserves. Yet as Margules and Pressey (2000) observe, reserves contain a biased sample of biodiversity: they tend to be concentrated on land that is too remote or unproductive to be important economically; this means that many species occurring in productive landscapes or landscapes with development potential are simply not protected. Moreover, goals such as the protection of grand scenery and wilderness often focus on areas that are remote, rugged and residual from intensive uses, giving them a political advantage over goals such as representativeness, which focus also on disturbed, economically productive landscapes.

Current strategies are thus heavily influenced by economic and political pressures. If strategies for preserving biodiversity cannot be completely divorced from a consideration of human interests, we can still ask whether, from an ethical point of view, some interests are not more legitimate than others. Certainly, some peoples' ways of life do less harm to nature or humans than those of others. While Western science is hardly equal to the task of fully comprehending the impacts of profit-driven technological interventions in global ecology, some people still live within their ecological means and understanding. In cultures of indigenous peoples whose lives are still orientated to the careful observation of their natural environment, the requisite detailed knowledge may be available without any formal training in science as we understand it.

'In Indian Agriculture, women use up to 150 different species of plants (which the biotech industry would call weeds) as medicine, food, or fodder. For the poorest, this biodiversity is the most important resource for survival...What is a weed for Monsanto is a medicinal plant or food for rural people' (Shiva 1999).

Rich Western industries take from indigenous peoples and biological communities what can turn a profit for them, patent it, claiming intellectual property rights in it, and sell back their products at prices the poor cannot afford. Land that once supported local populations in a sustainable manner is turned over to the production of cash crops - such as coffee, tea, cotton, tobacco, animal feed, and so on - yielding a profit for transnational corporations that trade the crops while leaving the local population and their ecology impoverished.

If such practices are not condemned as unjust from within the rich countries that benefit from them, this is at least in part because they take a human right of freedom, as manifest in the exercise of private property rights and rights of free trade, to have priority in practice over rights to subsistence of those who suffer the adverse effects of global economic development.

This order of priorities is to a certain extent challenged, though, by the ideal of sustainable development as advanced by the Brundtland Report. This conception of development requires respect for the rights of the needy; and these are expressly linked to a fundamental right of all humans '...to an environment adequate for their health and well-being' (WCED 1987).

Of course, human rights, even environmental rights, are not a panacea for problems of biodiversity loss. Human interests, even their interests in an adequate environment, do not always coincide with preservation of biodiversity. Some people think human rights do not offer a solution at all, and that their role should actually be reduced in the light of ecological concerns; at the extreme



it is even argued that given the finitude of the earth's resources, it would be better to let those without access to means of subsistence die off in the interests of the planet and of future generations. Yet such proposals are as likely to be as ineffective as they are immoral: for they disregard how the positive contributions of the poor are systematically undermined by the practices of the rich. Therefore, as Charles Zerner (1997), research director of the Rainforest Alliance, has stressed, it is crucial to understand which particular humans' interests are served by which activities affecting biodiversity: we have to ask who benefits from a particular project, how, at whose expense, and who makes decisions for whom. Only if a concern with biodiversity is linked to considerations of human rights can such questions be given the requisite prominence.

Conclusion

The fate of biodiversity and human rights thus seem to be inextricably linked. Although biodiversity may appear to be a matter for objective scientific study, it is in fact imponderably complex; scientific understanding of it is also to some extent, and necessarily, value laden, because some principles are selected over others, and selection is guided by particular human aims. But if a

completely impartial approach to biodiversity is not possible, what needs to be understood is which interests are served by which approach, and which interests have most justice on their side. In that way, biodiversity would be linked not only to human rights, but also to human responsibilities. For humans should not only claim rights for themselves, but also, when they are exercising power over people's lives and environment, take seriously their responsibilities - responsibilities regarding the natural world, and responsibilities towards one another too.

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▲ Résumé

L'étude scientifique de la biodiversité montre qu'il y a peu de liens avec les documents sur les droits de l'homme, mais cet article montre qu'il existe des connections significatives entre les deux. Il n'y a pas de vision scientifique objective et complète indiquant que la biodiversité est importante, ce qui fait que les vues appréciant les stratégies pour la préserver sont différentes. Dans l'examen de ces différentes stratégies, il est important de comprendre où se trouve l'intérêt particulier humain qu'elles servent. Parce que différents groupes de personnes vont prendre chaque possibilité pour défendre leurs intérêts comme les droits humains, les décisions sur la bonne stratégie de préservation de la biodiversité impliquent que les documents éthiques sur les droits de l'homme soient pris en compte comme une culture scientifique.

● Resumen

El estudio científico de la biodiversidad de las plantas parece que tiene poco que hacer con la cuestiones de los derechos humanos, pero este artículo demuestra que hay conexiones significativas entre ellos.

No hay un punto de vista científico objetivo y completo de las razones del porqué la biodiversidad es importante, y hay puntos de vista que compiten por las estrategias apropiadas para preservarla. En la valoración de las diferentes estrategias es importante entender a que interés humano particular están sirviendo. Para que diferentes grupos humanos tengan acceso a todas las oportunidades para defender sus derechos humanos, las decisiones sobre las estrategias apropiadas para la preservación de la biodiversidad implicaran tanto cuestiones éticas de derechos humanos como conocimientos científicos.

Dr Tim Hayward is a lecturer and researcher with the Department of Politics, University of Edinburgh, 31 Buccleuch Place, Edinburgh EH8 9JT Scotland

Left:
Traditional way
of life is
dependent on
the use of local
plant varieties

Towards a Community

Environmental Ethic



Above: Creating awareness through a community garden in Kenya

■ Summary

From time immemorial, local communities in Kenya have had cultural practices and beliefs that enhanced biodiversity conservation. These have varied from place to place depending on the ethnic group. Although a number of local communities still embrace cultural practices and beliefs that encourage a community environmental ethic, there is a rapid loss of indigenous knowledge and cultural values due to the advent of modernism and Christianity. These values and practices are fast disappearing and losing their prestige especially with the younger generation. To reverse this trend, efforts are being made to establish community gardens

in the affected local communities with an aim of conserving cultural practices and beliefs through education and awareness programmes. Once this new initiative takes root, community gardens in Kenya are set to play a significant role towards sustaining a community environmental ethic that arises from practising cultural values for sustainability. Such values include values of social responsibility, concern for all life forms, living in harmony with nature and commitment to work with others.

Introduction

Different Kenyan communities hold different cultural views and beliefs on the relationship between humans and

nature. Any attempt to understand this relationship without any understanding of the culture of a community is bound to fail. Culture therefore, forms a vital content of environmental ethics. In the context of this article, culture can be said to be a set of shared values, beliefs, norms, knowledge and assumptions about nature that are transmitted from one generation to the next through the processes of socialisation and education.

Plant resources were purely protected through cultural practices and beliefs in many communities. To some extent, this is still true even today. Traditional forest management in some local communities involve the use of elaborate taboos, myths, folklore and other culturally controlled systems to bring coherence within a predetermined community environmental ethic. Many local communities still regard certain plant species as sacred; cutting down such sacred trees is regarded as unethical and a taboo. In the event one cuts down a sacred tree a ritual must be performed; such a ritual entails sacrificing an animal at the place where the tree has been cut. One example of a sacred tree from Kenya is *Kigelia africana* (the sausage tree) that is believed to shelter communal spirits of female fertility. In the community where this tree is sacred, it is unethical to cut it down; this ensures its conservation.

Other than sacred trees, most Kenyan communities still preserve specific sites for cultural reasons. Such sites or sacred groves have been found to possess high species diversity compared to the areas neighbouring them. Depending on the cultural

perceptions of a community, a preserved site may be a rock, a cliff, a volcano crater, a lake, a hill or a forest.

Sacred Groves and Environmental Ethics

Kenya has over 1000 traditional sacred groves that differ in their use and size. The majority of them are small and are only used by a particular family or clan. But a few are still famous and are known to an entire community and thus communally conserved. Turning such sites into community gardens can improve their management and the sharing of cultural values across communities. The type of management of sacred groves varies from strict cultural rules permitting no entry, to more lenient ones that allow limited exploitative activities. Community elders usually control activities within sacred groves.

Due to community shared cultural values, sacred groves have acted as refuges for plants and animal species. In this way, a community's culture is associated with the conservation of biodiversity through an already established community environmental ethic. Sadly, in recent years there has been an erosion of cultural values in many local communities leading to less respect for sacred sites. Nevertheless, some local community dwellers are still proud of cultural values and preserved sacred sites. A community garden established within such a cultural environment can immensely draw on the cultural experiences of these community dwellers. There is an imperative need to conserve traditional sacred groves as part of an existing local natural resource and a part of our national heritage. To effectively realise this, research was undertaken to establish written documents about sacred places within libraries or in the communities. Such research was carried out in 1998 by the Kenya Resource Centre for Indigenous Knowledge (KENRIK) of the National Museums of Kenya. The research, which was funded by UNESCO, took the form of a survey to determine the status of some selected traditional sacred groves in the country. Its goal was to document baseline data on the past and present cultural values associated with the sacred sites. The

survey demonstrated a direct link between cultural values and biodiversity conservation. A total of 19 sacred groves were surveyed and the majority were found to have higher plant species diversity than their immediate surrounding areas. One such sacred site that showed a higher plant species diversity was Thui Hill, situated about 100 km east of Nairobi.

Traditionally, the local people around Thui Hill offer sacrifices on top of it in the event of disease outbreaks, before the rain season for good harvest and before using a new harvest. Only elderly men and women of good morals should perform these sacrifices. There are several do's and don'ts relating to Thui Hill which, in my view, have contributed towards a community environmental ethic. For instance:

- one is not supposed to settle, farm and plant trees on the Hill
- visitors are not allowed on the Hill unaccompanied
- one cannot point at the Hill
- one should never make a complete circle around the Hill
- only locals who have previously made donations towards offerings are allowed to take part in offering ceremonies.

There is no doubt that these cultural rules (ethics) have contributed to the existing rich plant species diversity at Thui Hill sacred grove. The KENRIK research team made several discoveries on the Hill: one plant species that was probably new to plant science, three plant species that were first records in the entire floral region, one plant species that had only been previously collected from Uganda, and a number of rare plant species. Such discovery can only be attributed to the sacredness of the site and therefore further contributes to our understanding of the interrelationship between culture and environmental ethics.

Other than being sacred, Thui Hill is also used in several other ways by the local community e.g. it is a source of fruits and medicinal plants. However, to enable one to collect medicinal plants one is required to inform the community elders, this ensures sustainable harvesting.

Many of the sacred sites are however faced with a number of threats: human population pressure, negative attitudes of the younger generation towards cultural values and modernism. If these sites are to survive together with their associated biodiversity, then quick conservation actions are needed. One strategy, as mentioned earlier, is to transform them with the approval of the local communities into community gardens. The community gardens can then be used to teach cultural values for sustainability.

Communicating Cultural Values Through Community Gardens

Cultural values contrast markedly with science-based values that form the foundation for most conservation and botanic garden management strategies today. In many of the botanic gardens the emphasis is on the teaching of the science-based values, which are associated with the notion that sustainable development is the true ethic for human beings.

In my opinion, community gardens are best placed for the teaching of cultural values in the local communities where they are situated. If well incorporated into education and awareness in programmes at community gardens, cultural values have a lot to contribute towards a community environmental ethic. However, critical to the success of any community garden's education and awareness programme is a sound understanding of the local cultural context by an educator. Aspects of cultural beliefs and perceptions of a community that contribute to sustainable living need to be identified and documented for dissemination through appropriate education programmes. Not all cultural values contribute to sustainable management of plant resources or biodiversity conservation. Therefore, before communicating cultural values and practices to an audience in a community garden, special consideration from an ecological standpoint must be made so that the practice may not become unethical. Consequently, more emphasis should be placed on those cultural values that complement the sustainable development ethic that comprises of

ecological, social, economic and personal values. To effectively achieve this, an educator at a community garden would be required to engage in cultural introspection to understand clearly the cultural dynamics to be taught.

Below:
A community based tree nursery is used to support the development of community gardens with the aim of conserving cultural practices and beliefs through education and awareness programmes

One major shortcoming of cultural values however, is they do not reflect discussion, reason and compromise. They are normally principles or accepted standards of what a local community perceives as worthy, ethical or desirable and thus there is no room for dissent. Nevertheless, the acceptance of a shared set of cultural values ensures the existence of a community environmental ethic as opposed to a personal environmental ethic. This reduces tensions and conflicts in biodiversity use thereby encouraging trust and security.



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▲ Resumé

Depuis des temps immémoriaux, les populations locales du Kenya ont des pratiques culturelles et des croyances qui vont dans le sens de la conservation de la biodiversité. Elles changent avec les lieux et dépendent des groupes ethniques. Bien qu'un assez grand nombre de communautés locales ait encore des pratiques culturelles et des croyances qui vont dans le sens d'une éthique environnementale communautaire, il y a une rapide décroissance des pratiques indigènes et des valeurs culturelles dues à l'avancement du modernisme et de la christianisation. Ces valeurs et ces pratiques disparaissent rapidement et perdent leur prestige plus particulièrement auprès des générations nouvelles. Pour renverser la vapeur, des efforts sont faits pour installer des jardins communautaires auprès des populations locales affectées, dans le but de conserver des pratiques et des croyances culturelles à travers des programmes d'éducation et d'éveil. Une fois cette nouvelle initiative mise en place, les jardins communautaires au Kenya pourront jouer un rôle significatif pour la promotion d'une éthique communautaire environnementale issue des pratiques culturelles anciennes pour le développement durable. Les idées sous jacentes sont la responsabilité sociale, le respect des différentes formes de vie, la vie en harmonie avec la nature et la prise de conscience de l'intérêt du travail en commun.

● Resumen

Desde tiempos inmemoriales, las comunidades locales en Kenia, han tenido una cultura y creencias que favorecían la conservación de la biodiversidad. Esto varía de un sitio a otro dependiendo del grupo étnico. Aunque algunas comunidades locales todavía tienen prácticas culturales y creencias que fomentan una comunidad ecológicamente ética, hay una pérdida rápida del conocimiento del modernismo y del cristianismo. Estos valores y prácticas están desapareciendo y perdiendo su prestigio especialmente en las generaciones jóvenes. Para cambiar esta tendencia se están haciendo esfuerzos para llevar a cabo el establecimiento de jardines comunitarios en las comunidades locales afectadas con el objetivo de conservar las prácticas culturales y las creencias a través de la educación y programas de concienciación. Una vez que esta iniciativa se haya establecido, los jardines comunitarios en Kenia empezarán a jugar un papel significativo para mantener una comunidad éticamente medioambiental que surge de la práctica de los valores culturales para la sostenibilidad. Estos valores incluyen el sentido social de la responsabilidad, una conciencia hacia todas las formas de vida, una vida en armonía con la naturaleza y el compromiso con el trabajo en grupo.

Abel Atiti is the Education Officer at the National Museums of Kenya, Nairobi Botanic Garden, PO Box 40658, Nairobi, Kenya. Tel: (254) 2 742131 Fax: (254) 2 741424 E-Mail: nmk@museums.or.ke

Ethics

A Voice of Culture

■ Summary

With the increasing interest in travel focusing on nature and culture, and the rising interest in ethnobotany, interpreters and educators need to consider the ethics involved with interpreting indigenous culture.

The Royal Botanic Gardens Sydney has made a commitment to Aboriginal reconciliation with the appointment of John Lennis, the garden's Indigenous Education Officer. Reconciliation aims to forge partnerships to achieve social and economic equity for indigenous peoples; strengthen the people's movement for reconciliation; facilitate constructive discussion on indigenous people's rights; and build a framework for a shared future.

In this article John shares his perspective on the interpretation of Australian Indigenous culture and gives botanic garden interpreters and educators some food for thought on the ethics of non-indigenous people interpreting indigenous culture. He talks about the appropriateness of this and the ethical decisions they need to make to ensure they are doing it appropriately.

Introduction

During the last few years there has been an increasing trend for interpretation and education programmes to focus on ethnobotany, and provide cultural activities rather than those based purely on recreation (Boyd and Ward 1993). This has not only been instigated by botanic garden staff but also by staff in national parks and private industry working in fields such as nature-based

tourism and ecotourism; where increasing the environmental and cultural understanding of visitors through education and interpretation is a key element to bridging the gap between non-indigenous and indigenous culture.

This focus on ethnobotany and indigenous culture has occurred for many reasons, one being the increase in demand for this type of tourism and visitor experience from the general public, who are becoming increasingly environmentally and culturally aware (Morgans 1999).

In Australia a greater awareness of, and interest in, Aboriginal culture has contributed to an increase in visitation to traditional sites, particularly those in national parks and reserves (Upitis 1989). Thousands of international visitors each year flock to see local landmarks that are also Aboriginal sacred sites such as Uluru (Ayers Rock) and Kakadu (Boyd and Ward 1993). The interpretation of these traditional and sacred sites can be a very sensitive issue among Aboriginal people, the tourism industry and the managers of these natural and cultural sites (Upitis 1989). Therefore it is vital that interpreters and educators begin to realise the ethical decisions they must make regarding interpreting indigenous cultures.

The Royal Botanic Gardens Sydney has a commitment to interpreting indigenous culture. Three years ago the gardens made a commitment to Aboriginal reconciliation and, as part of this, was keen to interpret the Sydney, Mt Tomah and Mt Annan botanic gardens from an indigenous perspective. John Lennis was brought

on board as the Indigenous Education Officer specifically to tell the story of the Cadigal people, the original indigenous inhabitants in the Sydney region.

The following interview between John Lennis (Indigenous Education Officer Royal Botanic Gardens Sydney) and Janelle Hatherly (Manager of Community Education Royal Botanic Gardens Sydney) explores some of the issues that impact on the ethical decisions that must be made when interpreting indigenous culture.

J. Hatherly

Asks the questions

J. Lennis

Has the answers

What is the importance of interpreting indigenous culture?

To me, as an Aboriginal person, it means getting the wider community to understand Aboriginal people, their history, and their lives...Over the last 200 years, Aboriginal history and culture has always been placed in the background and now is the time for it to come to the forefront. It should be interpreted in a way that is meaningful, for everyone to understand and come to terms with it. Until recently people have failed to understand Aboriginal people and the issues they face in the world today.

What is the relationship between indigenous culture and the environment?

The relationship is actually one; the culture is part of the environment. Aboriginal people lived, worked and played in the environment and the environment looked after them... Without the environment they couldn't have had a sustainable life... they were the sort of caretakers of the environment... in contrast a lot of societies today don't take any notice of their environment and that's why we've got such a mess with the environment.

What do you see as the role of botanic gardens in protecting and interpreting indigenous culture?

Botanic gardens, not just here at The Royal Botanic Gardens in Sydney, but anywhere, have a role in interpreting the plants and the environment ... and working with the indigenous cultures to show how indigenous people looked after the environment and cared for their environment, and gardens have a role in educating the wider community on environmental factors. It's a great role and a challenge for organisations like botanic gardens to be able to do it in such a way that the layperson can understand the interpretation, enjoy it, and then take the 'cause' and look after it to ensure future generations have a better environment to live in.

Are there issues with non-indigenous interpreters/educators interpreting indigenous culture?

To me there are. For example being an Aboriginal person and also a Catholic, I could not interpret the Christian belief of the Church of England or the Buddhist religion. How could somebody who's not of that race or religion interpret something that they're not familiar with or have an understanding of? If they can understand it, and come to terms with it, and know what →

it's about, then there is no problem. But it's very hard for non-indigenous people to really understand the significant values of Aboriginal culture, and to understand the whole picture. They can get part of the picture but not the whole picture.

It's the same for example with the Buddhist faith, you can understand part of the faith but do you understand the whole Buddhist faith and how can you interpret the Buddhist faith if you're not a Buddhist? How can you interpret Aboriginal culture if you're not an Aboriginal person? That's the simple way of explaining it in my way to get people to understand why it's important for Aboriginal interpreters to interpret Aboriginal culture. It's all about inherited understanding really.

Are there aspects of indigenous culture that non-indigenous people find hard to understand?

Very much so, depending on how the culture is interpreted. A lot of people can never understand the difference between men's business and women's business in today's society. They don't actually reflect back on their own society where 20-30 years ago a man going into a labour ward wouldn't have been heard of – that was women's business. It's the same as women going into say a Masonic lodge or to a men's only club, that's men's business. When they can understand that, then they do understand the difference in the roles of men's business and women's business.

That is the hardest thing to get people to understand in Aboriginal culture because the men's roles were entirely different to women's roles. But in fact all societies had that in their past and even up until the late 1980s and 1990s there's still places Aboriginal women would not go because it's men's business. The same goes for women's business. I can't interpret the women's perspective of Aboriginal culture because I'm a man and women wouldn't interpret men's sites or men's business because it's just not part of us.

Is there information about indigenous culture that should not be interpreted at all?

Oh yes, some of the sites are very sacred because they are referring to, for example, women's business and the spiritual side of things... I've seen people interpret them and they interpret them in the wrong way. They are the sites the communities don't want interpreted; for example people go to these sites and they see the rock carvings with the figure of giant man. Well these were in fact initiation sites for specific reasons. There's quite a lot of them around that should not be interpreted. It's the same with all cultures, they do have those very sacred sites or places where you're not allowed to go there unless you're initiated into that race or sect or whatever. This is the same with Aboriginal life and culture.

What sort of ethical decisions does a non-indigenous Interpreter need to make when interpreting indigenous culture?

If they do have to interpret Aboriginal culture, first of all they need to get the permission of the different relevant organisations. It's very difficult, because a lot of interpreters or organisations don't go through the protocol of asking permission to interpret Aboriginal culture; they just go ahead and do it. From my experience it leads to the wrong assumptions about things. I've been on tours with a non indigenous person interpreting rock art and their interpretation is so wrong. If they interpret something the wrong way the damage that can be done to the wider community's understanding is enormous. It comes back to the question of who really has the right to interpret indigenous culture but indigenous people themselves?

If botanic gardens are going to interpret traditional knowledge, what steps do they need to take?

They need to talk to the local communities and go through the protocol of asking the community, not telling them, what the community wants interpreted. As I mentioned before there are certain things that should not be interpreted and the community would tell them what should and shouldn't be interpreted and how it should be done. Botanic gardens need to listen to the community... by asking the community they will get a long way. If they go to the community and say '...we're going to do this, this and this...' it's not empowering the community in having a say of what they would like to see. Asking them what they would want to be shown on display, how it should be interpreted and listening to what the community say brings about a win win situation for both the gardens and the community. The community's passing on the messages that they want to have heard and the gardens are getting the knowledge and developing interpretive information that they're after.

So it gives everybody a sense of ownership?

Yes and it's empowering the community in their own culture about what parts of their culture they would like to be shown and interpreted. This is vital for overall success.

Some botanic gardens sell artefacts in their shops - what types of issues do the gardens need to consider to ensure that this is done ethically?

By again talking to the community and asking the community to produce the artefacts. Here in Sydney for example a lot of dot paintings, a special type of painting technique, are sold. Dot painting doesn't belong to Sydney, →

it's central west, Northern Territory artwork. By selling the local stuff, it's giving the local communities that ownership again, the right of their culture to be on display and not somebody else's culture. This is the hardest thing for people to understand, they see the dot painting and they think it belongs to the Aboriginal people generally but there's so many different parts of Aboriginal culture.

Aboriginal history and Aboriginal Australia is divided like Europe was in the 17th century with small kingdoms. Each kingdom had their own way of doing things. So did Aboriginal people here in Australia so the culture in one area is different to that in another area; their beliefs are different.

It's important to talk to the local communities; and listen to what local communities say because each one is different. I couldn't interpret what happened in Melbourne because I don't know what happened in Melbourne, it's an entirely different cultural experience, their beliefs are different to Sydney people and likewise the Northern Territory beliefs are different.

The rainbow serpent belongs to the north, where here in Sydney Biame is our creative spirit, down Melbourne way, it's somebody else again. So it's different throughout, and that's why it's so important to listen to the communities on how and what things they would like to interpret.

If you're selling artefacts from another area it gives the wrong message; you're giving another creative story or interpreting another lifestyle of a different area. You're not recognising the local people; that's why I say that the communities are one of the main people to talk to. You need to get a consensus from the community, talk to them, give them the ideas, and they will come back with the way they'd like to see things done. This approach works.

John, as the Indigenous Education Officer, what have you brought to the interpretation of the indigenous heritage of this site?

I think I've brought to the garden an understanding of the Cadigal people. The Cadigal people of the Sydney region were desecrated. I've worked to get everybody to understand that the Cadigal people are virtually a family group of a larger tribal group, and that the tribal groups were a little clan of groups together that formed the tribal groups who all had the same beliefs. In addition I've worked to show the people of Sydney that Aboriginal people had a purpose and an existence that was far beyond the understanding of the English. It was a very simple lifestyle but it was a lifestyle that they could enjoy without leaving their environment. They worked in their environment for beneficial practices of their lifestyle.

And it is not just about understanding the people from here but also understanding that the people from Mt Annan and Mt Tomah, the other two gardens, were entirely different clans groups and tribal groups; they weren't just one whole group that went from area to another, they each had different beliefs. The uses of plants changed with the seasons and also the areas too. Not all plants are used in exactly the same way. They might grow exactly the same way, but the uses, because of their customs and their food taboos, are as different as skin.

Before the Australian landscape was perceived as a desolate useless landscape and Europeans loved to chop everything down and start scratching, putting in the European style garden, which didn't really work anyway. Showing the diverse range of plants is not just helping the garden staff but also the wider community and visitors from overseas, to understand the beauty of the Australian landscape. Through this they will understand how planting our native bush helps the environment, not just plants but animals, and eventually the humans that live in the environment are effected.

In Australia, many Aboriginal communities across the country are fighting for land rights and cultural survival (Franke 1997).

The last two hundred years has seen their people forced, often violently, from their land, beaten or shot for resisting invasion, placed into missions, separated from their families, prohibited from using their Aboriginal languages and discouraged from traditional dances, songs and ceremonies (Ellwood 1988).

Aboriginal reconciliation, how far along are we?

In most of society today we are doing quite well. I'd say that there's still quite a long way to go, but ever since the Corroboree 2000 bridge walk, where 150 000 Sydneysiders expressed their support for reconciliation by marching together over Sydney Harbour Bridge, it has shown me, and quite a few other Aboriginal people, that 75-80% of Australians want to walk and work hand in hand with Aboriginal people.

There is still quite a few people who don't understand what reconciliation is all about. But it is progressing to where people are starting to understand the issues of Aboriginal people. When they can understand the issues, they can understand what reconciliation is all about, and why it is so important to have it. That way we can go forward in the new millennium together as one united Australia, and we don't have the divide which developed really because of a misunderstanding that happened 220 odd years ago. That first misunderstanding is still carried on today, but now people are looking back and saying '...well, that did happen...' and they are not denying their past. That is what has always happened before and that's what Aboriginal people are saying '...don't deny the past and what's happened...If you can accept the past then we can accept the future'. Before it's always been a denial of the atrocities that have happened, and if people can accept that, then they can look forward to a brighter and better future.

There are Ways and Means

In Australia, both non-indigenous and indigenous people interpret Aboriginal culture. The interpretation of cultural sites is far more complex than interpreting landscape, habitats or plants and animals - all of which is based on scientific information. Cultural interpretation relates to people living within an environment and as such our perceptions and expectations affect the way that the site is interpreted and perceived. Uptitis (1989) highlighted the fact that Anglo Saxon descendants and Europeans are trained to be objective, empirical and scientific, and Australian Aborigines have highly personal and spiritual connections with the land.

It is only now as land claims are being made and indigenous people are controlling their traditional lands through legislative title that appropriate interpretation of their culture is beginning to occur.

Clearly, interpreters need to be sensitive to the attitudes and expectations of Aboriginal people and visitors if they are going to be able to effectively interpret Aboriginal culture. It is important that the interpretation takes a sensitive approach that is consultative and 'for' the community (Uzzell and Ballantyne 1998) and is done in close cooperation with those responsible for protecting and managing the cultural site. Through this consultation, decisions need to be made as to whether the site should be interpreted, then consideration needs to be given to the cultural knowledge to be shared, the messages to be conveyed, the level of visitor access (Uptitis 1989) and who should

undertake the interpretation. This then helps to ensure accurate and appropriate cultural interpretation.

It is vital that the information is correct. Aboriginal people have a crucial role in the interpretive development of a site, the site's management, tourism development and advertising. The Aboriginal people control and release and transfer their cultural information and they play a critical role in the development of the image and definition of Aboriginal culture for non-indigenous people (Boyd and Ward 1993).

Taking into consideration the key points that John Lennis has made in his interview - what are the possible implications for botanic gardens? Throughout the world botanic gardens house plants from other countries in their collections, many of which are used by traditional cultures for food, ceremonies and medicine. How will the ethical decisions needed to be made effect the development of their educational and interpretive programmes? How can they ensure that they have access to correct information? How can they make contact with relevant indigenous groups to discuss their situation? These are complicated questions that do not have easy solutions.

BGCI is aware that this is just one perspective on the ethical decisions involved with interpreting indigenous culture and would welcome input from individuals and other botanic gardens from around the world about how they interpret indigenous cultures and the ethical decisions they encounter and how they have overcome them. If you are willing to share your perspective on this subject please contact Lucy Sutherland at BGCI or via email: Lucy.Sutherland@rbgkew.org.uk

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▲ Résumé

Avec l'intérêt croissant des voyages ciblés sur la nature et la culture et l'intérêt croissant pour l'ethno botanique, les éducateurs ont besoin de considérer les éthiques dans l'interprétation de la culture indigène.

Les Jardins Botaniques Royaux de Sidney ont passé une charte pour la réhabilitation de la culture Aborigène sous les auspices de John Lennis, responsable de l'éducation du Jardin Indigène. Dans cet article John partage sa vision de l'interprétation de

la culture indigène australienne et donne aux guides et éducateurs du jardin botanique quelques grains à moudre sur l'éthique que doivent suivre les non indigènes interprétant la culture indigène. Il parle de son appropriation et aussi des décisions éthiques qu'il est nécessaire de prendre pour le faire de façon appropriée.

Botanic Gardens Conservation International serait très intéressé de connaître d'autres initiatives sur les peuples indigènes. Si vous voulez bien partager vos avis sur ce sujet, contacter: Lucy Sutherland Email: Lucy.Sutherland@rbgkew.org.uk

● Resumen

Con el creciente interés en los viajes centrados en la naturaleza y la cultura, y el aumento del interés por la etnobotánica, los intérpretes y educadores necesitan considerar la ética relacionada con la interpretación de la cultura Indígena. El Real Jardín Botánico de Sydney ha establecido un compromiso de reconciliación aborigen con el acuerdo de John Lennis, el Secretario de Educación Indígena del Jardín. En este artículo John comparte su perspectiva en la interpretación de la cultura indígena australiana y da a los intérpretes del Jardín Botánico y educadores algún sustento para considerar e interpretar, a partir de la ética de la gente no indígena, una cultura indígena. Él



Left: Lucy Sutherland and Janelle Hatherly in the Royal Botanic Gardens Sydney

habla de lo que es más apropiado y también de las decisiones éticas que ellos necesitan tomar para asegurarse de que lo están haciendo de una manera apropiada.

La BGCI estaría muy interesada en recibir perspectivas desde otras gentes indígenas. Si quieres compartir tu perspectiva sobre este tema por favor contacta con Lucy Sutherland en BGCI por correo electrónico: Lucy.Sutherland@rbgkew.org.uk

BGCI greatly appreciates John Lennis taking time to share his perspective. John is the Indigenous Education Officer at the Royal Botanic Gardens Sydney.

The interview was conducted by Janelle Hatherly, Manager of Community Education at the gardens.

Both John and Janelle can be contacted at Royal Botanic Gardens Sydney, Mrs Macquarie's Road, Sydney 2000 New South Wales Australia. Tel: (61) 2 9231 8111 Fax: (61) 2 9251 4403 Email: John.Lennis@rbgsyd.nsw.gov.au and Janelle.Hatherly@rbgsyd.nsw.gov.au

The interview questions and the article's introduction, conclusion and summary were written by Lucy Sutherland BGCI's Education Officer.

Left: John Lennis, RBG Sydney's Indigenous Education Officer, in front of a Gunyah (an Aboriginal bush hut typically made of bark and branches) in the gardens



Environmental Ethics

An Overview in the West:

■ Summary

The main interest of environmental ethics, as distinct from any other ethical theory, is in our dealing, relation with and management of the environment and as such is not by any means homogeneous: it follows different attitudes and ideologies inherited from our past. But most ethicists agree with the fact that the fault of the relationship between humans and nature lays on an inherent erroneous set of values.

The article demonstrates that Western civilisation has created the awareness of its own faults in dealing with the natural world and has started questioning its very concept of progress already around the beginning of the 21st century. It doesn't mean that questions about humanity's role vis-à-vis nature have not been the subject of previous generations. However, the development of a vast body of philosophical research on the subject, under the heading of environmental ethics, is the main contribution that Western Civilisation has offered to a beleaguered world. Aldo Leopold is credited with inventing the concept, when in 1949 he first proposed the adoption of a Land Ethic in his Sand Country Almanac.

Later, the publication *Caring for the Earth: A Strategy for Sustainable Living* (IUCN, UNEP, and WWF 1991) highlighted the notion that environmental ethics should become part of environmental policies. This idea was expanded after the Earth Summit in Rio in 1992 with the creation of an Earth Charter, which defines our duties toward the environment and towards each other, as the only hope

to achieve sustainability and peace. The substance of ethics is in actions and not words, which implies that we must often take painful decisions that will test our sense of justice, logic, compassion and love.

'Environmental problems, like all societal problems, require self-understanding for enduring solutions...It is clear that these solutions hinge on the values and attitudes which direct energies towards a goal' (Yi-Fu 1973).

'To adopt the ethic for living sustainably, people must re-examine their values and alter their behaviour' (IUCN, UNEP, and WWF 1991).

Environmental Ethics: What is it?

In all strategies with regard to the environment, a growing ethical concern manifests itself in new laws and regulations. As mentioned previously, Aldo Leopold in his Sand Country Almanac (1949) first proposed the adoption of a Land Ethic. Leopold's ethics design was focused on the physical setting and circumstances of North America in the forties. Since then, the concept of land ethics has developed into a vast body of research under the name of environmental ethics. Let's consider what we mean by environmental ethics. As Rolston (1999) explains 'Environmental ethics is theory and practice about appropriate concern for, values in, and duties to the natural world'.

According to all scientific accounts, the planetary condition is dire: destruction of habitat, disappearance of animal species, and in many cases Aboriginal

populations, the loss of plant life, desertification, the loss or pollution of waterways. The culprit is ever the same: human action.

Moral philosophy had found a new field of exploration: the responsibility of human action on the natural world. It is not just a matter of understanding the scientific problem and then fixing things with the right technology, but rather one of the understanding and eventual correction of our cosmological vision. The assumption that if only we had better knowledge we would be able to make rational decisions is contradicted by real life. Increasingly our society assumes the characteristics of the risk society, accepted as a price to pay for progress and free choice. The destruction of the environment continues, although the perpetrators are fully informed of the facts. Many illnesses and disasters follow the same pattern: a mixture of necessity, denial, and self-destructive impulses.

The cradle of environmental ethics, as a philosophical field of studies, is Western civilisation. It has been elicited by the very state of prosperity which industrial societies have achieved. This is one of the reasons why environmental ethics is a relevant topic in North America and Northern Europe, where the industrial revolution began and environmental damage goes hand in hand with economic expansion. An early reaction against industrial progress and commercialism, perceived as triumph of vulgarity and aesthetic debasement of existence, was found among the intellectual class at the end of 19th century (e.g. Ruskin, Lawrence, Morris, Williamson, Cole, Thoreau).

The destruction of nature's integrity began to feel like a moral failure, which stained the individual and society.

An ideological path links today's ecological fundamentalists to socialist, nazi or anarchic affiliations (Bramwell 1989). Western society pursues the highest degree of self-awareness in which we can recycle our guilty complexes. The appeal to preserve nature for itself, is prevalent mainly in societies who do not know scarcity, have a higher degree of education and have been deprived most of all of primitive wilderness. On a full stomach, it is easier to contemplate the beauty of the world and indulge in non-exploitative activities. Conventions, law proposals, publications, exhortations, theories, scientific studies, economical support, find their initial expression in a rich and socially privileged society, and its outlet in political action.

That hot bed of cultural change, the sixties, produced the right intellectual climate for all sorts of alternative lifestyles including the environment. Two articles: *The Historic Roots of Ecological Crisis* and *On Christian Arrogance toward Nature* by Lynn White, which appeared in 1960, blamed Christianity for environmental degradation. White started a sequel of attribution of sins against nature not just to the Church but to the whole Western value-system and its very metaphysical foundations, which has been under critical scrutiny by a wave of politically correct pseudo-philosophies ever since. During the same period *The tragedy of the Commons* by Garrett Hardin, predicted a sinister Hobbesian struggle in a world of diminishing resources.

In 1972, John B. Cobb published a book entitled *Is it too Late? A Theology of Ecology*. Since then the debate has enlarged to the point of becoming all encompassing and in 1979 Eugene C. Hargrove first published the authoritative *Journal of Environmental Ethics*, dedicated to the philosophical aspects of environmental problems. The wealth of books and essays about the subject grew to such a point that, in 1990, the International

Society for Environmental Ethics (ISEE) was created as an outlet for such an international growth of genuine interest.

The number of publications in the 21 years from 1979 to 1999, is staggering and covers every possible topic. We cite as examples titles such as: *Using and Abusing Nietzsche for Environmental Ethics* (Ralph R. Acampora), *The Vegetarian Savage: Rousseau's Critique of Meat Eating* (D. Bonin Vail), *Intrinsic Value, Quantum Theory and Environmental Ethics* (J. Baird Callicot), *Marxism, Ecology and Technology* (Yol. Jung Hwa) (ISEE 1999).

With the creation in the 1990s of the IUCN Ethics Working Group, environmental ethics became part of environmental policies and '...respect and care for the community of life' became an ethical principle, sometimes referred to as the ethics of sustainability, a very ambiguous term which has sullied the clarity of environmental objectives (IUCN, UNEP and WWF 1991).

The Earth Charter of 2000, is the recognition that environmental ethics have spread beyond a narrow elitism (www.earthcharter.org). The term is now used by teachers and politicians, though not many understand its implications. One of the most interesting features has been the contribution of religion-oriented institutions, with the creation of religious ecumenical networks, following the Assisi gathering of World Religions in 1994 (see Notes Section).

Suffice to say that at this point in time the material collected shows that the recognition of the subject, as a new philosophical theory and as a field of applied ethics, is well established.

Applied Ethics

Holmes Rolston III distinguishes 12 theories of environmental ethics, some with a definitive philosophical pedigree rooted in our humanistic past, some with a new perspective, like ecofeminism (Rolston 1999).

Pope John Paul II launched a New Year appeal in favour of the environment to 200 foreign

ambassadors: 'Save Man!', he exhorts. 'by saving the Creation'. In this appeal, humanity is still the subject and object of policies regarding the environment. But the link between human activities and the environment in which they take place is an ignored fact that commits us to a long series of failures. Because the state of the environment has been examined separately from economic, social and political problems, environmental problems have always been with us.

Theoretical imperatives aside, we must come down to the task of solving real problems. The essence of an ethic is in its application and it has to be the moving force of behaviour: actions are the measure of our commitment.

With a baggage of moral tradition built up through centuries, we wade in a variety of new situations. Solomonic judgements are mediating between conflicting goods, or, more often, between more or less harmful solutions. Facts are subjected to interpretations. The drama of choices will necessarily exclude one or more desirable outcomes.

With the democratisation process, every person is becoming an expert in ethical affairs. The public feels that decisions should not be taken by politicians and scientists, without broad consultation. Typical is the case of scientists specialising in genetically modified organisms, disappointed by the constraints imposed on research, debate whether or not people should be allowed to make important decisions on the basis of uninformed emotional beliefs.

'Behind much of the criticism lies the belief that ethics is in the realm of feeling and emotion; if there can be no objective truth in ethics, it may seem, there can be no scope for reason and argument' (Singer 1992).

Issues such as genetically modified Rhesus monkeys or overpopulation present challenging thinking. Other issues include medicine, religious beliefs, economics and psychological motivations. Is it right to sacrifice a highly intelligent animal in order to cure our deadly diseases?

Many people agree that human suffering comes first, others may feel uncomfortable with the burden of taking ambiguous decisions. They would most probably not want to know, but now the cat is out of the bag. Freedom of information is at the same time a curse and a blessing.

The solution to overpopulation should be, at least technically, easier than to persuade the affluent societies to relinquish their affluence: all that is needed is contraception. But the Indian and Chinese examples teach us that problems of individual choice, unconscious behaviour, economic needs and cultural habits do not necessarily result in solutions that favour the environment.

Below: The link between human activities and the environment is often ignored



Regarding the commitment of botanic gardens to educate the public about the preservation of our plant heritage, there's no real opposition: who would negate the positive opportunity that the study of plants and their importance to humanity offers? As with all issues of education, they seem neutral and inoffensive, that is why people in power do not feel threatened by them. Sometimes educational projects in botanic gardens are cherished as a kind of entertainment, a pleasant way to spend time. Arguably this fails to teach about ecological reality, which would yield ethical imperatives: the perception that everything is connected, that it touches their own lives too and urges them to change their behaviour. This is ultimately the ethical meaning of environmental education and it applies especially to working with the plant kingdom, from which everything descends.

Our politicians depend on maintaining the levels of wellbeing, which has become the hallmark of 20th Western civilisation. Sound environmental policies imply economic costs but, above all, a change in life-long acquisition of habits to which years of economic growth have accustomed us. People want smokeless air, pure water, clean, safe energy, beautiful countryside, healthy food, but when there is a price-tag attached to it they often will, like St. Augustine, say '...but not yet.'

The creation of an environmental ethic cannot happen out of nowhere, but will reflect the concerns and the tradition of the culture in which it is born. Western values, as we have seen, have always contained intellectual environmental values.

A long tradition of scientific observation, love and reverence for nature goes back to Linneus, Leonardo, Goethe, Keats, Turner, Rilke etc. Moreover, because other cultures have similarly proven a kindred feeling of wonder and inspiration, as demonstrated by cavemen's paintings, Japanese art and Chinese poems, we know that humanity's attachment to nature expresses itself at various historical moments in different modes. The notion that we must consider

authoritative regulations to preserve our environment from that side of ourselves which cannot see beyond the satisfaction of some immediate wants, has become common place. Material wealth and power are means to ends: the preservation of higher values, created by humankind. Even utilitarian moral philosophies recognise that nature contributes to human well being, by providing knowledge, contemplation, aesthetic enjoyment, and recreation.

In our highly polymorphic societies with their profound contradictions, the protection of the environment is not an arbitrary optional, but '...is central to the spiritual and cultural interests of human beings' (Allison 1991) not merely a matter of survival. Without this recognition, any material progress is empty and indeed a dangerous two-edged sword.

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- ➔ The Earth Charter Initiative, International secretariat, the Earth Council - www.earthcharter.org

There are currently several projects which link environmental praxis with a revision of religious and spiritual values:

- ➔ Assisi Nature Council, Italy - www.assisinc.ch/
- ➔ Buddhist Perception of Nature, Thailand
- ➔ Environmental Project, Melanesian Council of Churches, Papua New Guinea – www.cwmission.org.uk/ucpng.html
- ➔ Au Sable Trails, Institute of Environmental Studies, USA. – www.ies.wisc.edu
- ➔ Eco-Justice Project, Cornell University, USA – www.cornell.edu/upr/CenterDir/CRESP.html
- ➔ Parish of San Jose de Ocoa, Dominican Republic
- ➔ Sarvodoya movement, Sri Lanka – www.Sarvodaya.org
- ➔ Centro de Investigacion y Promocion Franciscano y Ecologico, Uruguay
- ➔ Pax Christi, Strasbourg.

▲ Resumé

L'éthique environnementale se différencie des autres théories éthiques par le fait qu'elle traite notre rapport et notre gestion de l'environnement; elle n'est donc pas homogène; il s'ensuit différentes attitudes et idéologies héritées de notre passé. Mais bien des philosophes éthiques sont d'accord avec le fait que le défaut dans la relation entre la nature et les hommes est inhérent à un ensemble de valeurs erronées.

L'article démontre que les civilisations de l'Ouest ont créé l'émergence de leurs propres erreurs dans leur rapport avec le monde naturel et quand a démarré le questionnement à propos du concept de progrès, ce qui avait déjà commencé au début du siècle. Cela ne signifie pas que la question à propos du rôle de l'humanité vis à vis de la nature n'était pas en cause au cours des générations précédentes, mais que le développement d'un vaste ensemble de recherches philosophiques sur le sujet, sous la conduite d'une éthique de l'environnement est la principale

contribution que les civilisations de l'ouest ont offerte à un monde assiégré. Aldo Leopold aurait inventé le concept, quand en 1949 il proposa pour la première fois l'adoption d'une éthique de pays dans Sand Country Almanac.

Plus tard, les publications de Sauvez la Terre, une stratégie des années 90 mise en avant par le WWF et l'IUCN, ont diffusé la notion d'éthique environnementale comme devant faire partie des politiques se rapprochant de quelque chose nommée éthique du développement durable. Cette idée a été répandue après Rio 1992 avec la création d'une Charte de la Terre, qui définissait nos devoirs vis à vis de l'environnement et des autres comme le seul espoir d'arriver à un développement durable et à la paix. Le contenu des éthiques est dans l'action et non dans les mots, ce qui implique que nous devons souvent prendre des décisions douloureuses qui mettent à l'épreuve notre sens de la justice, de la logique, de l'indulgence et de l'amour.

● Resumen

El principal interés de la ética medioambiental, a diferencia de cualquier otra teoría ética es, desde nuestro punto de vista, nuestra relación con el medio ambiente y nuestras directrices en su manejo. Todo ello no quiere decir en absoluto que sea un interés completamente homogéneo. Este interés sigue diferentes actitudes e ideologías inherentes a nuestro pasado. Pero la mayoría de éticos están de acuerdo con el hecho de que el fallo de la relación hombre/naturaleza yace sobre una serie inherente de 'valores' erróneos. El artículo demuestra que la civilización occidental ha creado una conciencia de sus propios fallos en el trato con la naturaleza y ha empezado a cuestionarse su concepto de progreso aproximadamente a principios de este siglo. Esto no quiere decir que las cuestiones a cerca de la relación hombre/naturaleza no se hayan tratado en generaciones anteriores, sino que el desarrollo de su amplia investigación filosófica, bajo el título de Ética Medioambiental, es la principal contribución que al

civilización occidental ha ofrecido a este asediado mundo. A Aldo Leopold se le reconoce la invención del concepto, cuando en 1949 propuso por primera vez el concepto de Tierra Ética en su Almanaque Sand Country.

Más tarde, la publicación Salvemos la Tierra, una Estrategia para los '90 promovida por WWF y UICN, ha difundido la noción de que la ética medioambiental debería formar parte de las políticas medioambientales, cuando es algunas veces llamada ética de sostenibilidad. Esta idea se expandió después de la conferencia de Rio 1992 con la creación de Earth Charter, que define nuestras tareas respecto al medio ambiente y nosotros mismos, como única esperanza para conseguir sostenibilidad y paz. La esencia de la ética está en las acciones y no en las palabras, lo que implica que a menudo tengamos que tomar decisiones dolorosas que pondrán a prueba nuestro sentido de la justicia, de la lógica, la compasión y del amor.

Maria Luisa Cohen is President of the Assisi Nature Council, C. P. 107, Assisi 06081PG, Vicolo St. Stefano, Italy. Tel/Fax: 39 (0)75 813 521. Maria can be contacted at: Avenue de Jaman, 3 Lausanne 1005, Switzerland. Tel: (41) 21 320 7043 Fax: (41) 21 323 0736 Email: edet@assisinc.ch

Exploring Ethical Issues

in Botanic Gardens

■ Summary

Working with collections of plants from around the world at the University of Leicester Botanic Garden, U.K. has stimulated the development of an education programme where the plants are used as a starting point for the exploration of global issues particularly in the area of sustainable development. Ethical questions arise about what we are teaching, how, and why. The article explores what we are trying to achieve in programmes that provide experiences through which the children can develop skills to equip them to ask questions and challenge assumptions about the world in which they live. The programmes also help them to practise making decisions and working both independently and co-operatively towards building a more sustainable future.

Introduction

Last summer I read an article in the *Ecologist* about education in the small Buddhist kingdom of Ladakh in the Indian Himalayas. In promoting education, the government has achieved very high levels of attendance at school: from one perspective a real success story, but from another? Children who used to grow up alongside their parents in the fields, learning agricultural skills, or in the home learning about '...spinning, cooking, weaving, and maintaining relationships with the community' (Newberry 2000), now go to school to learn geography, maths, Urdu and English. However, the failure rate in examinations is very high (95%) and 'Even pupils who leave school with qualifications have no use for their knowledge at home. A few run businesses or become tour guides in

the capital, Leh, but most are unemployed. School gives them the skills to go to Delhi and be unemployed...It is not giving them the skills to live in their locality, and live healthy, fulfilled lives' (Newberry 2000).

This has had a dramatic effect both on the whole Ladakhi community, its culture and sense of identity and also on the personal development of children who learn from their textbooks that '...roads and dams are progress'. They have become dissatisfied with what they have, but their options for changing it have become even more restricted as a result.

There may be messages here for those of us, including our government and many non-governmental organisations (NGOs), who argue that education is the key to sustainable development. The ethical questions raised also resonate strongly with some of the issues which underscore our work with young people in this country. What is the relevance of the education we offer to the real lives of young people? What hidden messages are conveyed? Can these sometimes be destructive? In which case, how do we deal with this? In essence, what are we trying to achieve?

An Education Programme About a Cake!

The education programme at the University of Leicester Botanic Garden, U.K. started with a cake. The idea was to begin with something that children could relate to, that they recognised and liked - and then to use it as a basis (and a reason) for learning through discovering more about its origins. Each cake ingredient is taken as a springboard for finding out about

some of the people, plants, places and issues associated with it. So, for example, children collect cocoa from beside the cacao tree and can connect the ingredient to the plant. They hear the story of Ricardo, a twelve year old lad who can't go to school because he is needed to help earn the family income on the cocoa plantation. They learn about the different people contributing to the process of transforming the cocoa bean into chocolate and have the chance to consider how to share the money they themselves spend on a chocolate bar between all the people involved in making it.

Ethical Dilemmas

This process flags up some often uncomfortable ethical dilemmas: What do the children do with the information they receive? Do they feel sorry for Ricardo? Do they envy him? What are the implications for them? What can they do about it? Is there an alternative? Should they go home and demand a change in family shopping policy?

The cake idea started as a classroom project in a school on a council estate that has been described as one of the most deprived in Europe. Where do ethical arguments stand in relation to the hard realities of shopping bills? And what ethical questions does this question itself raise?

The World Cake programme was, among other things, an attempt to provide a way to explore ethical issues such as these. What we have found is that although ethically there may often seem to be a right solution to a problem, that same solution can raise more questions for those involved

about choices which they are not yet empowered to make. Going back to Ladakh or even Ricardo, the general assumption is that it is right that children have the opportunity to go to school, but what questions does this raise for them, and what real choices does it present?

We also recognise that in many situations there is no right answer, ethically or otherwise.

Introducing Botanica

More recently we have developed another approach, the Botanica Project, using simulation in the garden to help children explore the issues for themselves from different angles and perspectives.

In this project the botanic garden becomes the country of Botanica and the students a wide range of its citizens from government officials to scientists and artists, from traditional healers to plantation and construction workers. The country is faced with a major opportunity for development and all its citizens are consulted and have to think through the implications for themselves, their environment and their country's future.

This not only directly introduces ethical issues which have to be thought through in the activity, but it also gives the children the opportunity to learn and practise skills to develop their own ethical base. It helps them learn new things in a real and vital way, through interaction and reflection and through stepping into other people's shoes and looking at issues from different starting points. It helps them begin to realise that there is a complexity to issues and that often there are no easy, many wrong, and possibly quite a few different right answers. It also may help them to think about what choices are available to people, including themselves, and how to begin to influence that.

A volunteer helper, who worked with us on the simulation, commented afterwards 'It was brought home to me that these children really are our future and they need to know what the real world is like. This exercise showed them, in a kind way, that things are not

always what they seem or for that matter what we want. To make things better we have to work together'.

A parent commented 'I think they learnt that what you expect is not always what you get: effort is required if you want something done, teamwork is valuable, [and] personal achievement no matter how small feels great'.

Helping the Journey Through Life

Is this a way forward? In an uncertain world to '...see learning as a journey without fixed or final destination in which challenge, uncertainty and risk are inevitable features of any process of personal growth and transformation' (Selby 1995). We need to provide



Left: Children searching for ingredients on the World Cake Treasure Hunt and exploring ethical issues

learning experiences for young people that help them develop the skills they will need for their journey; and to seek partners on that journey who can really widen our perspectives and help us towards a more holistic world view: partners such as Mohammed Abdul Kareem from The Foundation for the Revitalisation of Local Health Traditions (FRLHT), who came to a workshop on the Botanica project at the BGC Education Congress in Thiruvananthapuram, India in November 1999. It caught his imagination so much that he wanted to pursue the idea to use in his own work with FRLHT. The following July, Kareem visited us in Leicester when we were running Botanica and contributed hugely to the learning of the children from the school on the aforementioned council estate which is now keen to develop the link with him. He is currently facilitating a version of Botanica back in south India and we in turn look forward to learning from his experiences and to setting up more joint learning opportunities.

So through a teaching method that is learning through partnerships, that is posing questions and challenging assumptions and demanding a multi-faceted approach, maybe children can

be helped towards beginning to think about what they might do with what they learn. They might also be enabled to appreciate what it means for different people (including themselves) to live healthy fulfilled lives in their own locality, be it in Leh, Ladakh or Leicester, England, within the context of an interconnected world. It might also help us (as well as their teachers) to keep asking ourselves about the ethics which lie behind and are within our teaching and what it is we are striving to achieve with our children.

And why do all this in botanic gardens? A question for you!

References

- ➔ Newbery Beatrice (2000) Labouring under Illusions. The Ecologist, volume 30 (5) pp 18-21.
- ➔ Selby D. (1995) Earthkind: A Teachers' Handbook on Humane Education. Trentham Books Ltd.

▲ Resumé

Travaillant avec les collections de plantes du monde entier, le Jardin botanique de l'Université de Leicester

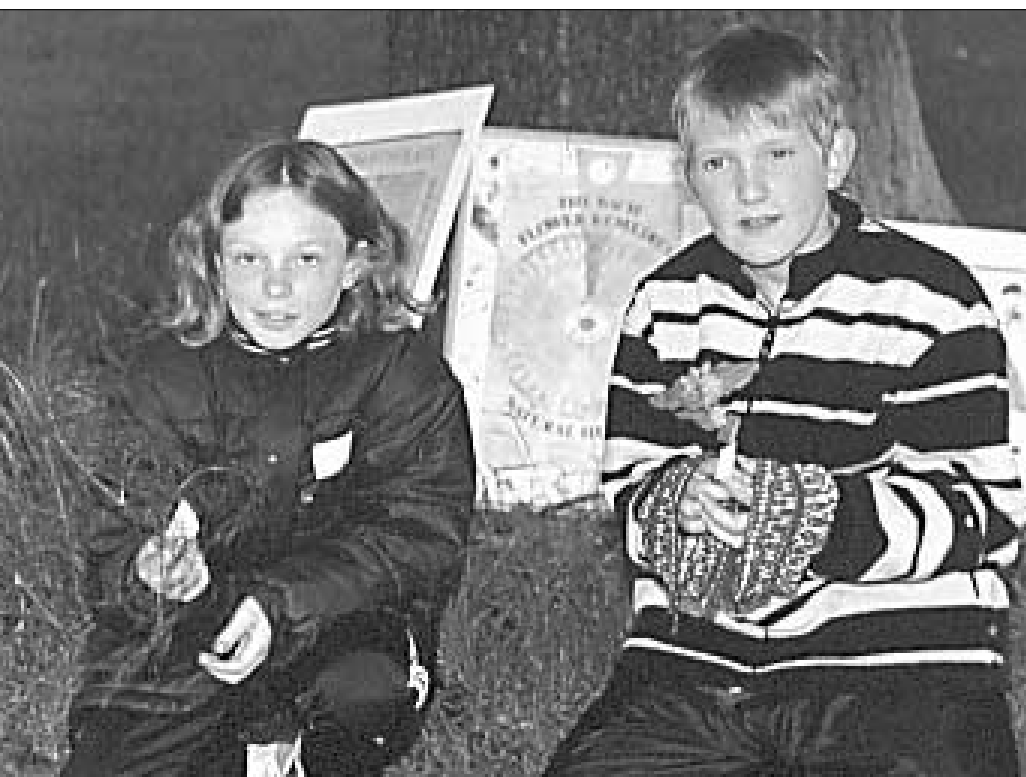
met en œuvre un programme où les plantes sont utilisées comme point de départ pour l'exploration des documents généraux particulièrement dans le domaine du développement durable. Des questions d'éthique émergent à propos de ce que nous enseignons, comment et pourquoi. L'article expose ce que nous essayons de faire dans les programmes mettant en jeu des expériences à travers lesquelles les enfants peuvent développer leur habileté pour pouvoir se poser des questions et des problématiques à propos du monde dans lequel ils vivent. Le but est aussi d'aider à la pratique de prise de décisions et de travailler à fois de façon indépendante et en coopération pour mieux construire un futur plus durable.

● Resúmen

Trabajando con colecciones de plantas de todo el mundo en el Jardín Botánico de la Universidad de Leicester, se ha estimulado un programa donde las plantas se utilizan como punto de partida para el estudio de cuestiones globales, particularmente en el área de desarrollo sostenible. Las cuestiones éticas surgen acerca de lo que estamos enseñando, el cómo y el porqué. El artículo explora lo que intentamos conseguir con programas que proporcionan experiencias a través de las cuales los chicos puedan desarrollar habilidades que les permitan poder preguntar cuestiones y desafiar supuestos acerca del mundo en que viven. El objetivo es también hacerlos practicar en la toma de decisiones y en el trabajo individual y colectivo hacia la construcción de un futuro más sostenible.

Sue Baughan is the Education Officer for Support for Education in Environment and Development (SEED), University of Leicester Botanic Garden, Stoughton Drive South, Leicester LE2 2NE U.K. Peter Batty is a free lance management and education consultant based in Cumbria U.K.

Below: Children play the role of traditional herbalists in the country of Botanica. Through this activity they learn about development issues and their implications



Semer et Récolter
Sembrando y Cosechando

Sowing and Harvesting

■ Introduction

The activity presented here is the first part of a simulation game that allows children, aged 7-11 years of age, to experience some of the challenges faced by farmers in many parts of the world.

Produced by Oxfam

GB, the game can be used to complement classroom work, which looks at where our food comes from and the ways in which it links us to the rest of the world. In particular the game aims to help children:

- appreciate the distinction between cash crops and food crops
- understand why farmers can't always grow enough food to feed their own communities
- understand how market forces work, by putting them in the role of farmers who have to cope with these forces
- develop a range of skills, including mathematical skills, co-operative group work, discussion and empathy, and manual dexterity.

The game could be used by educators in botanic gardens as a tool for teacher training or as a teaching resource for children when they visit the garden. The second part of the game will appear in the next issue of *Roots*.

You Will Need

- 250 units of money
 - 15 pencils
 - 15 pairs of scissors
 - 100 squares of red paper (A4 sheet cut into four so that each piece is bigger than the template)
 - 100 squares of green paper (as above)
 - 6 templates of each shape giving a total of 36 templates
 - 1 photocopied cut out set of 'chance' cards (see box)
- A price list for year one and year two (photocopy and enlarge these , or write on the board)

What The Materials Represent

Pencils

ploughs or implements for digging soil and planting seeds

Scissors

harvesting equipment (anything from scythe to combine harvester)

Templates

land: each template represents a field – red for growing cash crops and green for growing food crops

Paper squares

seeds

The Game

Allow about 45 minutes for the first part of this activity. The game has been designed for about 30 participants working in groups of four to six.

This activity is easier to run with two adults, especially when working with young children. If you combine classes to do this, increase the materials proportionately. If a

class is working on particular crops, you may prefer to make your own templates based on these. You may want to explain what the different materials (scissors, pencils etc) represent before you start the main activity, or you may choose to leave this until the end, by which time the children may have worked it out for themselves.

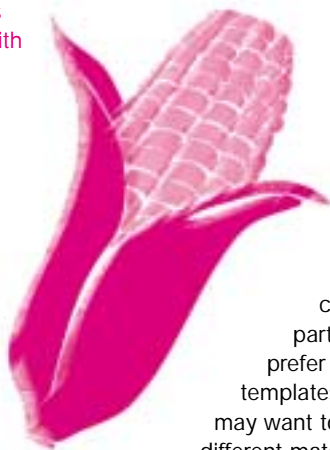
Section A: Getting Going

Time needed: 15 minutes

What to do

Ensure that everyone has put all their own pens, pencils, etc away. Select three people to run the market. On their table they should have all the pencils, scissors, red and green paper squares, and red and green templates that will be used in the activity (see separate sheets enclosed). Display the enlarged 'Price list: year one' (see p41).

Divide the rest of the class into groups of between four and six. Give each group between thirty and thirty-five units of money. You can vary the number so that some groups start with a bit of an advantage. Explain to the class that they are groups of farmers producing cash crops and food crops. They will do this by buying materials from the market at the prices displayed on 'Price list: year one'.



In order to 'grow' a food crop they will need a green food template and a green square of paper. They 'plant the seed' by drawing around the template on to the paper with a pencil. It is then 'harvested' by cutting around the drawing with scissors. Cash crops are 'grown' in the same way, but using red templates on red squares of paper. Templates may be used over and over again. Crops must be harvested one at a time (no cheating by cutting through several sheets at once!).

Red cut-out cash crops can be sold back to the market. The price players will get for these may change. Green cut-out food crops cannot be sold, but each group should produce at least enough for one cut-out per person in the group (for example, a group of six needs to produce at least six food cut outs).

Give groups a few minutes to work out their 'shopping list'. Remind them that they may not want to spend all their money immediately. Groups select a representative to go to market to buy the things that they have agreed on.

Section B: Year One

Time needed: 15 minutes

What to do

Groups begin to produce their crops. The market will be kept busy selling more items and buying in cash crops. After 15 minutes, announce that the first year of farming and trading is over.

Note for teachers

Control the activity by 'policing' for cheating and making sure that the three people running the market know how much to pay out for cash crops. Well produced (neatly cut out) crops could fetch six units of money each at first, but this should be reduced to about two units as more are produced.

Once groups have commenced you can visit them: fan out the 'chance' cards from year one upside down, ask them to select one, enforce it, and then move onto the next group. Each group

should get at least two opportunities to select a card. These cards are suggestions – add to them or remove some as you see fit (if you have two adults, one can do the 'policing' and 'chance' cards while the other supervises the market stall).

Section C: Assessing The First Year's Farming

Time needed: 10 minutes

What to do

Groups will be left with food crops, some money, and possibly some cash crops. Any scraps of paper should be thrown away.

Food crops

Each person will need to 'eat' one food crop (green cut-out shape) to survive into year two. On this basis, the teacher collects one food shape per person from each group (five from a group of five and so on). Extra food shapes can be stored for one year only. Groups without enough food to eat will have to buy shapes from another group with extras. The group selling the food negotiates the price.

Note for teachers

If any group is still left hungry, offer them 'food aid' by giving them some of the food you have collected. In return they must give up their food fields and grow cash crops for you (or the government) in future – exchange their green templates for red ones. You may then decide to extend this idea of enforced cash crop production by not paying them for the crops they produce in the future. Instead, give them a small amount of money (say one unit each) with which to buy food at the end of the year two.

Money

All groups have to pay taxes for water, schooling, hospitals and other services. Deduct about six units of money per group for this. Oil could be an additional expense. It is most effective if the teachers take money for each expense (some groups may be charged more than others).



Cash crops

Half-finished cash crops (red squares) are frost-damaged crops and unsaleable – they will have to be thrown away. Crops not yet taken to market are useless now and must be discarded. Any unused red squares can be kept for farming in year two.

Equipment

Groups can keep their farming tools (scissors and pencils) for the next year's farming. They may also keep their land (templates).

As a class, take stock of the situation and compare notes.

- Who has money?
- How much?
- What will they spend their money on?
- How much food do groups have?
- What helped them to do so well?
- What were the problems?

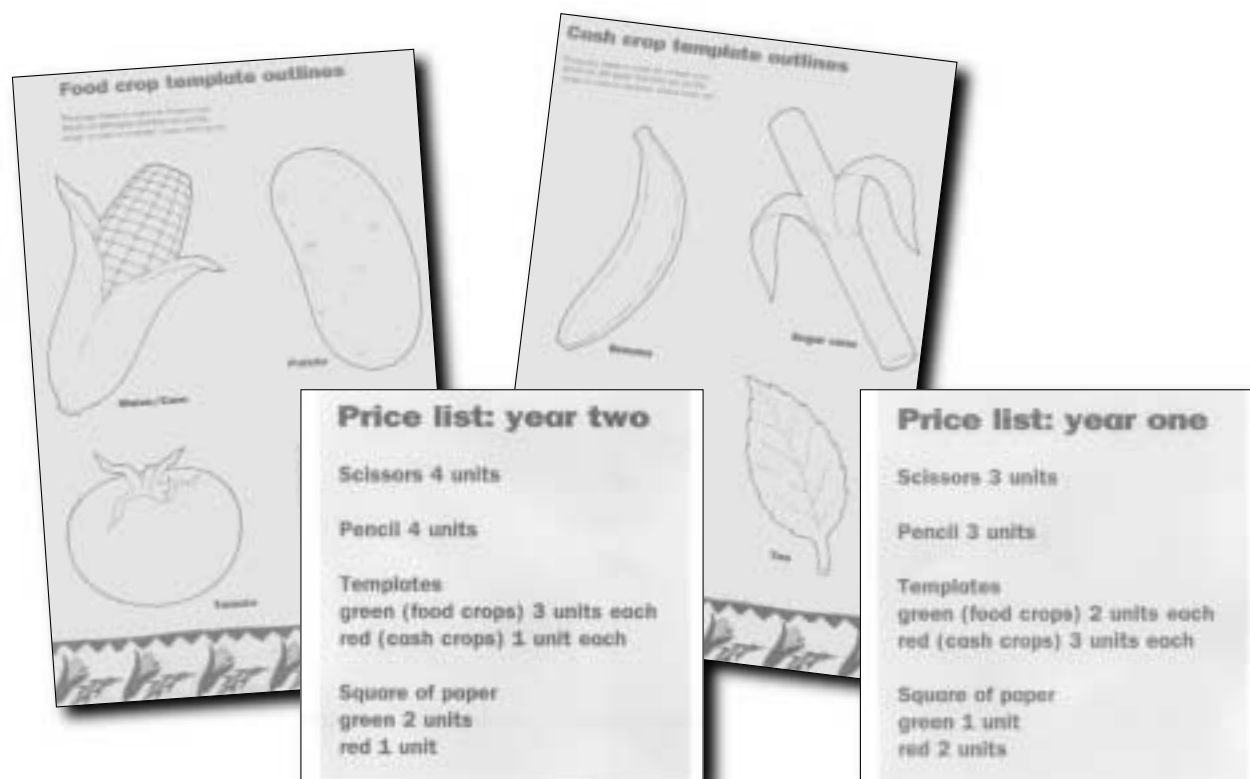
The second part of this activity will be reproduced in Roots 23.

▲ Resumé

L'activité présentée ici est la première partie d'un jeu de simulations destiné aux enfants âgés de 7 à 11 ans, pour expérimenter quelques uns des problèmes auxquels ont à faire face des agriculteurs dans bien des parties du monde. Produit par Oxfam en Grande Bretagne, le jeu peut être utilisé en complément d'un travail scolaire, destiné à faire percevoir d'où vient notre nourriture et les chemins par lesquels cela nous lie au reste du monde. Le jeu a pour but en particulier d'aider les enfants:

- A apprécier la distinction entre la collecte de fonds et la collecte de nourriture.
- A comprendre pourquoi les agriculteurs ne peuvent pas toujours produire assez de nourriture pour nourrir leur propre communauté.
- A comprendre le rôle du marché en se mettant dans le rôle de fermiers qui ont à faire face à ces contraintes.





Left: Food crop and cash crop templates and price lists

- A développer une série de compétences, incluant les mathématiques, le travail de discussions de groupes, la dextérité et l'habilité manuelle.

Le jeu peut être utilisé par des éducateurs de jardins botaniques comme un outil pour l'apprentissage ou une ressource d'enseignement pour les enfants qui visitent le jardin. La seconde partie du jeu sera expliquée dans la prochaine édition de Roots.

● Resumen

La actividad presentada aquí es la primera parte de un juego de simulación que permite a los niños, entre 7-11 años de edad, experimentar algunos de los retos enfrentados por los granjeros en muchas partes del mundo. Producido por Oxfam, U.K. el juego puede ser usado para complementar trabajo en clase, el cual busca hacia donde nuestra comida viene y de las formas en las cuales ella se liga con el resto del mundo.



En particular el objetivo del juego es ayudar a los niños a

- Aprender la diferencia entre los cultivos que se promueven por dinero y los cultivos alimenticios.
- Entender porque los granjeros no pueden siempre cultivar suficiente comida para alimentar sus propias comunidades.
- Entender como las fuerzas del mercado trabajan, y los colocan en el papel de granjeros quienes tienen que competir con las mismas.

- Desarrollar un rango de herramientas, incluyendo las herramientas matemáticas, grupos de trabajo cooperativas, discusión y empatía, y destreza manual.

El juego podría ser usado por los educadores en jardines botánicos como una herramienta para el entrenamiento de maestros o como un recurso de enseñanza para niños cuando ellos visitan el jardín. La segunda parte del juego aparecerá en el próximo número de Roots.

BGCI is very grateful to Oxfam GB for their permission to reproduce this simulation game. Oxfam GB is a development, relief, and campaigning organisation dedicated to finding lasting solutions to poverty and suffering around the world.

Oxfam produces an annual education catalogue which contains over 400 items (photo packs, video packs, books, posters, maps, CDROMs, etc) selected on quality criteria to support teaching about development issues, global citizenship and sustainable development and livelihoods. It sets out to be a 'one stop shop' for teachers, curriculum advisers and others working in education and with young people, bringing together the best materials from NGOs, Development Education Centres, intergovernmental and international organisations, and from commercial publishers.

Oxfam holds stock of all the items and can supply, on a single order, teaching materials from diverse sources. For a copy of the current Oxfam Education Resources for Schools Catalogue write to Oxfam Publishing, 274 Banbury Road, Oxford OX2 7DZ, UK. Tel: +44 (0)1865 311311. Email: publish@oxfam.org.uk Web site: <http://www.oxfam.org.uk>

Resources Recursos Disponibles

■ Resources

Journal of Ethics, Place and Environment
Unwin, T. (ed) Department of Geography, Royal Holloway, University of London, U.K.
Published by Carfax Publishing Ltd, PO Box 25, Abingdon, Oxfordshire, OX14 3UE, U.K., 875-81
Massachusetts Avenue, Cambridge, MA 02139, USA, and PO Box 352, Cammeray, NSW 2062, Australia.
ISSN 1366-879X
<http://www.carfax.co.uk>

The central aim of Ethics, Place and Environment is to provide a forum for the publication of research and scholarship on all aspects of geographical and environmental ethics. The use of the word 'place' highlights geographers' concerns with the interaction between peoples and environments that creates particular places. 'Environment' is used in a very broad sense to emphasise not only physical and biological environments, but also social and cultural environments. Published three times a year, the journal consists of three main sections; mainline papers, short contributions and reviews. A key feature of the journal is that it seeks to publish commentaries on ethical issues relating to national and international environmental legislation.

Interpreting Biodiversity: A Manual for Environmental Educators in the Tropics
Domroese, M.C. and Sterling, E.J. (1999) (eds) American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, USA.
Tel: 1 (212) 769 5742
Fax: 1 (212) 769 5292.
ISBN 1-930465-04-1
Price: US\$25.00

▲ Disponibles

Journal de l'Éthique, des Lieux de Vie et de l'Environnement
Unwin, T. (Editeur), Department of Geography, Royal Holloway, University of London, Royaume-Uni.
Publié par Carfax Publishing Mtd, PO Box 25, Abington, Oxfordshire, OX14 3UE, Royaume-Uni ;
875-81, Massachusetts Avenue, Cambridge, MA 03139, Etats-Unis et
PO Box 352, Cammcray, NSW 2062, Australie, ISSN 1366-897X

L'objectif principal du Journal de l'Éthique, de la Scène et de l'Environnement est d'offrir un forum de publications de recherches et de savoirs couvrant tous les aspects de l'éthique de la géographie et de l'environnement. L'utilisation du terme Lieux de vie insiste sur la préoccupation des géographes par les interactions entre les peuples et leur environnement, générant des lieux de vie particuliers. Le terme Environnement est compris dans son sens le plus large, mettant l'accent aussi bien sur l'environnement physique et biologique que sur l'environnement social et culturel. A raison de trois parutions par an, le journal comporte trois parties: des articles généraux, des contributions brèves et enfin les revues. L'originalité de ce journal réside dans ses commentaires sur les questions d'éthique en liaison avec les législations nationales et internationales.

L'Interprétation de la Biodiversité: Manuel des Educateurs de l'Environnement sous les Tropiques
Domroese, M.C. et Sterling, E.J. (1999) (Editrices) American Museum of Natural History, Central Park West : 79th Street, New York, NY 10024-5192, Etats-Unis.
Tel : 1 (212) 769 5742.
Fax : 1 (212) 769 5292.
ISBN 1-930465-04-1 Prix : 25 US\$

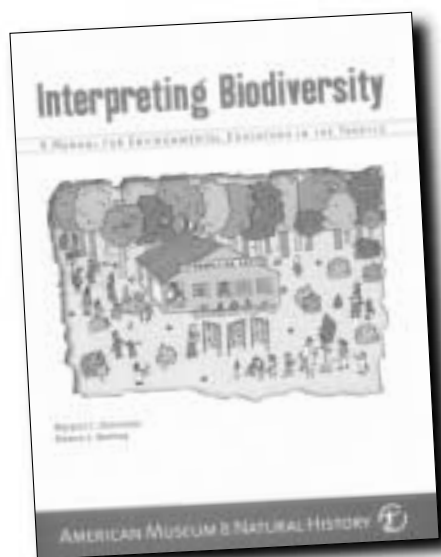
● Recursos

Revista de Etica, Lugar y Ambiente
Unwin, T (ed), Department of Geography, Royal Holloway, University of London, U.K.
Published by Carfax Publishing Ltd, PO Box 25, Abingdon, Oxfordshire, OX14 3UE, U.K., 875-81
Massachusetts Avenue, Cambridge, MA 02139, USA, and
PO Box 352, Cammeray, NSW 2062, Australia. ISSN 1366-879X
<http://www.carfax.co.uk>

El objetivo central de Etica, Lugar y Ambiente es proveer un foro para la publicación de la investigaciones y conocimiento sobre todos los aspectos de éticas geográficas y ambientales. El uso de la palabra "Lugar" resalta la preocupación de los geógrafos con la interacción entre gentes y ambientes que crean lugares particulares. 'Ambiente' es usado en un amplio sentido para enfatizar no solamente ambientes físicos y biológicos, sino también ambientes sociales y culturales. Publicada tres veces al año, la revista consiste de 3 secciones principales; artículos de línea principal, contribuciones cortas y revisiones. Una característica clave de la revista es que ésta busca publicar comentarios sobre temas éticos relacionados a la legislación nacional e internacional.

Interpretando la Biodiversidad: un Manual para educadores ambientales en los trópicos
Domroese, M.C. and Sterling, E.J. (1999) (eds) American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, USA.
Tel: 1 (212) 769 5742
Fax: 1 (212) 769 5292.
ISBN 1-930465-04-1
Precio: US\$25.00

■ Resources



This excellent manual outlines the basic building blocks for an interpretative programme on biodiversity, including principles of exhibit design, interpretive presentations, community outreach programmes and evaluation. Designed especially for educators and resource managers in tropical countries where the world's biodiversity is richest and most threatened, this delightfully illustrated manual offers a variety of ideas for getting started, describes successful interpretative activities and lists resources for further information. The manual is available in English, French and Spanish.

Plants and People of Asia: a walking trail in the Adelaide Botanic Garden
Meredith, S. and Brendo, M. (eds)
Published by the Materials Unit of the Open Access College, Australia.
ISBN 0 7308 7647 0 Price: AUS\$10.
To obtain a copy contact: Steve Meredith, Education Officer, Botanic Gardens of Adelaide, North Terrace, Adelaide, South Australia 5000.
Tel: 61 (8) 8222 9344
Fax: 61 (8) 8222 9399 Email: meredith.steve@saugov.sa.gov.au
www.botanicgardens.sa.gov.au

This booklet contains an extensive amount of information and ideas for school activities on the plants and people of Asia. The walking trail in the garden uses the plants of Asia and their cultural stories to help students

▲ Disponibles

Cet excellent manuel esquisse les bases d'un programme d'interprétation de la Biodiversité; il comprend notamment les principes de la conception d'expositions, des exemples de présentations de cette interprétation, des programmes d'avancées sociales et leur évaluation.

L'ouvrage s'adresse en particulier aux éducateurs et aux gestionnaires de ressources des pays tropicaux, les plus concernés à la fois par une Biodiversité record et par les menaces qui pèsent sur elle. Le manuel est agréablement illustré et propose de nombreuses idées sur la manière d'aborder la question et sur la description d'expériences réussies et les sources bibliographiques; il existe en versions anglaise, française et espagnole.

Plantes et Peuples d'Asie: Un Sentier au Jardin Botanique d'Adélaïde
Meredith, S. et Brendo, M. (Editeurs)
Publié en Australie par le Materials Units of the Open Access College.
ISBN 0 7308 7647 0
Prix 10\$ australiens.
Pour commander l'ouvrage, contacter: Steve Meredith, Education Officer, Botanic Gardens of Adelaide, North Terrace, Adelaide, South Australia 5000.
Tel: 61 (08) 8222 9344
Fax: 61 (08) 8222 9399 E-mail : meredith.steve@saugov.sa.gov.au
www.botanicgardens.sa.gov.au

Ce livret constitue une mine d'informations et d'idées sur les plantes et les peuples d'Asie pour les activités scolaires. Le sentier du jardin botanique présente des plantes d'Asie dans leur contexte culturel et permet aux jeunes d'appréhender les différents aspects de la vie et de l'environnement en Asie. Très bien illustré, ce guide du sentier botanique est non seulement informatif mais propose aussi des idées d'approches. Cet ouvrage vise à susciter de la part des étudiants une remise en cause des valeurs et de la vision de choses par la confrontation des contextes australien et asiatique; il espère aussi stimuler la façon de percevoir des étudiants, point capital permettant d'améliorer une saine compréhension des rapports entre l'Australie et l'Asie, passés, présents et à venir.

● Recursos

Este excelente manual delinea la construcción de bloques básicos para un programa sobre biodiversidad, incluyendo los principios de exhibir el diseño, presentaciones interpretativas, programas de alcance en la comunidad y de evaluación. Diseñado especialmente para educadores y manejadores de recursos en países tropicales donde la biodiversidad mundial es mas grande y está mas amenazada, este manual placenteramente ilustrado ofrece una gran variedad de ideas para poder iniciar, describe actividades interpretativas exitosas y lista fuentes para mayor información. El manual esta disponible en Inglés, Francés y Español.

Plantas y Gente de Asia: un paseo en el Jardín Botánico de Adelaide
Meredith, S. and Brendo, M. (eds)
Published by the Materials Unit of the Open Access College, Australia.
ISBN 0 7308 7647 0
Precio: AUS\$10.
Para obtener una copia contactar a: Steve Meredith, Education Officer, Botanic Gardens of Adelaide, North Terrace, Adelaide, South Australia 5000.
Tel: 61 (08) 8222 9344
Fax: 61 (08) 8222 9399 Email: meredith.steve@saugov.sa.gov.au
www.botanicgardens.sa.gov.au
 Este folleto contiene una extensiva cantidad de información e ideas para las



■ Resources

understand different aspects of Asian life and the Asian environment. Beautifully illustrated throughout, the booklet supports the trail by offering information and a wide range of teaching ideas and approaches for maximising student learning. The aim of the booklet is to encourage students to question their own views and values within a combined Asian and Australian context with the belief that challenging student perceptions is critical to developing a sound understanding of where Australia and Asia fit together, in the past, present and future.

Plants in Our Environment: Activities for General Education and Training in Southern Cape Schools

Ashwell, A. (2001) (ed) The Audrey Moriarty Southern Cape Herbarium, PO Box 564, George, 6530, South Africa. Tel/Fax: 27 (044) 874 1558 Email: scherb@pixie.co.za Price: £10 sterling plus postage.

This workbook, generously funded by The Green Trust, an offshoot of WWF South Africa, is the result of collaboration between the Southern Cape Herbarium and teachers from the area. Between November 1999 and June 2000, teachers took part in a series of workshops at the Herbarium to discuss how to develop outcomes-based learning programmes dealing with indigenous plants and local environments. The many ideas and activities resulting from the workshops were developed and tested by Grade 1-9 teachers and compiled into this workbook. Illustrated throughout with black and white drawings (produced mainly by pupils themselves) the ideas and activities in this excellent workbook can be adapted to any area and almost any age-group.



▲ Disponibles

Plantes de Notre Environnement: Activités pour l'Éducation Générale et Formation Dans les écoles du Cap Sud

Ashwell, A. (2001) (ed) The Audrey Moriarty Southern Cape Herbarium, PO Box 564, George, 6530, South Africa. Tel/Fax: 27 (044) 874 1558 Email scherb@pixie.co.za

Prix: 10 £ plus affranchissement
Ce livre de travail, généreusement financé par The Green Trust un rejeon du WWF d'Afrique du Sud, est le résultat d'une collaboration entre l'Herbarium du Cap Sud et d'enseignants de cette région. Entre novembre 1999 et juin 2000, les enseignants ont pris part dans une série d'ateliers à l'Herbarium pour discuter de la façon pour développer les conséquences des programmes d'apprentissage qui traitent des plantes indigènes et de leur environnement. Les nombreuses idées et activités résultant de ces ateliers ont été développées et testées par des enseignants et rassemblées dans ce livre de travail. Des illustrations en noir et blanc (produites par les élèves eux-mêmes), les idées et les activités de cet excellent livre de travail peuvent être adaptées dans tous les domaines et presque chaque groupe d'âge.

● Recursos

actividades de la escuela sobre las plantas y la gente de Asia. El sendero en el jardín usa las plantas de Asia y sus historias culturales para ayudar a los estudiantes a entender diferentes aspectos de la vida y del ambiente de Asia. Bellamente ilustrado en su totalidad, el folleto apoya el sendero ofreciendo información y un amplio rango de ideas para enseñar y propuestas para maximizar el aprendizaje de los estudiantes. El objetivo del libro es estimular a los estudiantes a elaborar sus propias opiniones y valores dentro de un contexto combinado asiático y australiano, con la creencia de que las percepciones retadoras de los estudiantes es crítica para desarrollar un buen entendimiento de donde Australia y Asia enjacan juntos, en el pasado, en el presente y en el futuro.

Las Plantas en Nuestro Ambiente: Actividades para la Educación General y Entrenamiento en las Escuelas de Cabo del Sur

Ashwell, A. (2001) (ed) The Audrey Moriarty Southern Cape Herbarium, PO Box 564, George, 6530, South Africa. Tel/Fax: 27 (044) 874 1558 Email: scherb@pixie.co.za Precio: £10 (libras esterlinas más envío).
Este libro de trabajo, generosamente fundado por The Green Trust, una rama de la WWF de Sudáfrica, es el resultado de la colaboración entre el Herbario de Cabo del Sur y los maestros del área. Entre noviembre de 1999 y junio del 2000, los maestros tomaron parte en una serie de talleres en el Herbario para discutir como desarrollar eventos basados en programas de aprendizaje relacionados con plantas indigenas y ambientes locales. Las diversas ideas y actividades resultantes del taller fueron desarrolladas y probadas para los maestros de los Grados 1-9 y compilados en este libro de trabajo. Totalmente ilustrado con dibujos en blanco y negro (producido principalmente por los mismos alumnos) las ideas y actividades en este excelente libro de trabajo pueden ser adaptadas a cualquier area y casi a cualquier grupo de edad.

■ Resources

Genetic Diversity and Food Crops
Written by Dorfman, G. and Kahkonen, S. and edited by Connor, J.V. Published by TVE USA/Outreach, P O Box 820, Shelburne, VT 05482, USA.
Tel: 1 (802) 985 1492
Fax: 1 (802) 985 2011
Email: tveusa@together.net

OUTREACH education packs are available free-of-charge to people in the OUTREACH Network. These people include representatives from NGOs, teacher trainers and curriculum developers who are involved in educating children in low and middle income countries about environmental and health issues. To join the network contact TVE USA, stating briefly how you would use the educational materials.

The set of three packs on Genetic Diversity and Food Crops (204pp) is available for purchase from TVE USA at a price of US\$20 plus postage and handling (US\$7 surface, US\$13 airmail). To order sets write to TVE USA with your name, address and the number of sets you request. For orders within the US, enclose a check in U.S. dollars (drawn on a U.S. bank) and made payable to OUTREACH/TVE USA. For orders from outside the U.S. enclose a bank draft drawn on a U.S. bank in U.S. dollars and made payable to OUTREACH/TVE USA.

In 2000, OUTREACH/Television Trust for the Environment USA, in association with WWF (U.K.), produced three OUTREACH education packs on Genetic Diversity and Food Crops as part of its series on Biodiversity. Available in English, all three packs are full of excellent information and ideas for educational activities.

The issue pack: **Genetic Diversity and Food Crops** explores topics such as farmers' contributions to crop diversity, scientific breeding methods, and the impact of new biotechnologies upon crop diversity. Activity Guides for schools and youth groups explore genetics, genetic diversity, local crop diversity and introduce students to issues related to biotechnology and biodiversity. In the Solution pack: **Preserving Genetic Diversity of Crop Plants**, students learn how to select and save seeds and other

▲ Disponibles

Diversité Génétique et Cultures Alimentaires
Ecrit par Dorfman, G. et Kahkonen, S. – édité par Connor, J.V. Publié par TVE USA/Outreach, PO Box 80, Shelburne, VT 05482 USA.
Tél: 1 (802) 985 1492
Fax: 1 (802) 985 2011
Email: tveusa@together.net

Les mallettes pédagogiques OUTREACH sont disponibles gratuitement pour le public appartenant au réseau OUTREACH. Ce public comprend des représentants d'ONG, des professeurs formateurs et des concepteurs pédagogiques, tous imbriqués dans l'éducation sur l'environnement et la santé des enfants issus de pays dont le pouvoir d'achat est peu développé. Pour rejoindre le réseau, contacter TVE USA, en énonçant brièvement comment vous souhaitez utiliser ces mallettes pédagogiques.

Un ensemble de trois mallettes de Diversité Génétique et Cultures Alimentaires (204pages) est aussi disponible à l'achat auprès de TVE USA au prix de 20 \$ US plus affranchissement et port (7 \$ US par bateau et 13 \$ US par avion). Pour toute commande écrire à TVE USA, donner vos nom, adresse et le nombre de mallettes souhaité. Pour toute commande interne aux USA, joindre un chèque en \$ US (tiré sur une banque américaine) et payable à OUTREACH/TVE USA. Pour toute commande extérieure aux USA, joindre une lettre de change sur une banque américaine en dollars US et payable à OUTREACH/TVE USA.

En 2000, OUTREACH / Television Trust for the Environment (USA), en association avec WWF (UK) a produit trois mallettes éducatives sur la Diversité Génétique et les Cultures Alimentaires qui font partie d'une série sur la Biodiversité. Disponibles en Anglais, ces trois mallettes sont remplies d'excellentes informations et idées pour des activités éducatives.

La mallette de présentation : **Diversité Génétique et Cultures Alimentaires** explore des sujets comme la contribution des agriculteurs dans la diversité des cultures, les méthodes scientifiques de

● Recursos

Diversidad Genética y Cultivos alimenticios
Escrito por Dorfman, G. y Kahkonen, S. y editado por Connor, J.V. Publicado por TVE USA/Outreach, P O Box 820, Shelburne, VT 05482, USA. Tel: 1 (802) 985 1492
Fax: 1 (802) 985 2011
Email: tveusa@together.net

Los Paquetes educativos OUTREACH están disponible de manera gratuita para los miembros de la Red OUTREACH. Estos miembros incluye representantes de las ONGs, maestros capacitadores y desarrolladores de curricula, quienes están involucrados en la educación de niños en países de bajo y medio ingreso acerca de temas ambientales y temas de salud. Para afiliarse a la Red contactar a TVE USA, describiendo brevemente como se usarán los materiales educativos.

El juego de tres paquetes sobre Diversidad Genética y Cultivos Alimenticios (204 pp) esta también disponible para comprarse en TVE USA a un precio de US\$20 más el envío (US\$7 por tierra, US\$13 vía aérea). Para solicitar los juegos escribir a TVE USA con tu nombre, domicilio y el número de juegos que tu requieres. Para solicitar dentro de los Estados Unidos, enviar cheque en dólares U.S. (a través de un banco de los Estados Unidos) pagable a OUTREACH/TVE USA.

En el 2000, OUTREACH/Television Trust for the Environment USA, en asociación con WWF (UK) produjo 3 paquetes educativos OUTREACH sobre Diversidad Genética y Cultivos Alimenticios como parte de sus series sobre Biodiversidad. Disponibles en Inglés, los tres paquetes estan llenos de excelente información e ideas para actividades educativas.

El paquete tema: **Diversidad Genética y Cultivos** explora temas tales como contribuciones a la diversidad de cultivo, métodos científicos de cruzamiento, y el impacto de nuevas biotecnologías sobre diversidad de cultivos. Actividades guiadas para grupos de escuela y de jóvenes exploran la genética, diversidad genética, diversidad de cultivos locales e introducen a los estudiantes a temas relacionados con la biotecnología y biodiversidad. En el paquete de solución: **Preservando la Diversidad Genética de**

■ Resources

practical techniques for preserving the genetic diversity of local crop plants. Activities in the Solution pack: **Breeding Your Own Crops**, invite students to learn more sophisticated breeding methods, such as hybrid crosses in order to make new varieties. Students are also encouraged to consider cultivating wild edible crops. Botanic gardens can easily adopt and adapt the materials in the packs for inclusion in articles, activities and programmes.

Last Plant Standing
Directed and Produced by Milner, J.E., Acacia Productions Television Trust for the Environment (TVE), Distribution Office, TVE, Prince Albert Road, London, NW1 4RZ, U.K.
Tel: 44 (0207) 586 5526
Fax: 44 (0207) 586 4866
Email: tve-dist@tve.org.uk
Website: <http://www.tve.org>
VHS tapes cost US\$15 (plus postage) for organisations in Lower Income Countries and US\$70 (postage included) for those in Higher Income Countries. Prices for broadcast tapes depend on the length of the programme. Produced in English, Spanish and Japanese.
 Last Plant Standing is a new series of four 50 minute documentary programmes produced by Acacia Productions and TVE which travels the world to assess the state of the planet's plant resources and meets the people and organisations who are working to secure them for the benefit of humankind.

Programme one looks at how humans, throughout history, have transformed wild plants into useful crops and spread them around the world. It also highlights the fact that in the last fifty years human activities have caused the extinction of plant species on an enormous scale.

Programme two tells the dramatic story of N.I. Vavilov, one of Russia's most talented scientists who collected and saved a great many important crop species, before the onslaught of the Nazi invasion of Russia. Many of the plants that he collected personally are still used today in plant breeding work and the Institute which bears his name was the

▲ Disponibles

croisements et l'impact des nouvelles biotechnologies sur la diversité des cultures. Les Guides d'Activités pour les écoles et les groupes de jeunes traitent de la génétique, la diversité génétique, la diversité des cultures locales et initient les élèves aux matières concernant la biotechnologie et la biodiversité. La mallette action: **Préservation de la Diversité Génétique des Plantes Agricoles**: les étudiants apprennent comment sélectionner et sauver les graines, les autres pratiques techniques pour préserver la diversité génétique des plantes agricoles locales. Les activités de cette mallette: **Reproduction de vos propres cultures**: invite les élèves à apprendre des méthodes de reproduction plus sophistiquées, comme par exemple des croisements hybrides qui font des nouvelles variétés. Les étudiants sont aussi encouragés à cultiver de plantes sauvages alimentaires. Des jardins botaniques peuvent facilement adopter et adapter les matériaux de ces mallettes pour les inclure dans leurs propres activités et programmes.

La Plante Survivante
Les vidéo coûtent 15\$ US (plus affranchissement) pour les organisations des Pays en voie de développement et 70\$ (frais de port compris) pour les Pays développés. Le prix des vidéo destinées à la rediffusion dépend de la durée du programme. Produites en Anglais, Espagnol et Japonais.

La plante survivante est une nouvelle série de 4 programmes documentaires de 50 minutes produit par Acacia Productions and TVE qui traverse le monde pour faire le bilan des ressources végétales de la planète et rencontrer les personnes et organisations qui travaillent pour leur sauvegarde au bénéfice de l'Humanité.

Programme 1: Montre comment les Hommes à travers l'histoire, ont transformée la végétation sauvage en cultures utilitaires et l'ont répandue à travers le monde. Il éclaire aussi sur la façon dont dans les 50 dernières années les activités de l'homme ont causé l'extinction d'espèces de plantes à une échelle très importante.

● Recursos

Cultivo de Plantas, los estudiantes aprenden como seleccionar y salvar lo buscado y otras técnicas para preservar la diversidad genética de cultivos locales de plantas. Actividades en el paquete de Soluciones: **CriandoTus propios Cultivos**, invita a los estudiantes a aprender sofisticados métodos de cruzamiento, tales como cruza de híbridos para crear nuevas variedades. Los estudiantes son estimulados a tomar en cuenta los cultivos comestibles silvestres. Los Jardines Botánicos pueden facilmente adoptar y adaptar los materiales en el paquete para la inclusión en artículos, actividades y programas.

El último Bosque de Plantas Dirigido y Producido por Milner, J.E. Acacia Productions Television Trust for the Environment (TVE), Distribution Office, TVE, Prince Albert Road, London, NW1 4RZ, U.K.
Tel: 44 (0207) 586 5526
Fax: 44 (0207) 586 4866
Email: tve-dist@tve.org.uk
Website: <http://www.tve.org>
Las cintas VHS cuestan US\$15 (mas envío) para las organizaciones en Países de Bajo ingreso y US\$70 (envío incluido) para aquellos en Países de Alto Ingreso. Los precios de las cintas de transmisión dependen de la longitud del programa. Producidas en Inglés, Español y Japonés.

El último Bosque de Plantas es una serie nueva de cuatro programas documentales de 50 minutos de duración producido por Acacia Productions y TVE (Producciones Acacia y Televisión Educativa) los cuales viajan a través del mundo para testificar del estado de las plantas como recursos en el planeta y para encontrar la gente y organizaciones quienes estan trabajando para asegurar éstos recursos para el beneficio de la humanidad.

El Programa Uno muestra como los humanos, a través de la historia, han transformado las plantas silvestres en cultivos útiles y los han distribuido alrededor del mundo. Este también resalta el hecho de que en los últimos 50 años las actividades humanas han causado la extinción de especies de plantas en una enorme escala.

■ Resources

world's first international gene bank and the inspiration behind the global network of plant conservation centres that exist today.

Programme three focuses on the fact that science alone cannot prevent the continuing loss of plant species. It visits India, the Philippines, Mauritius and the Middle East to uncover potentially useful traditional crop varieties, stressing the need to conserve the flora and landscapes of transitional farming as well as forests and remote islands.

Programme four examines the issues of plant genetic resources and ownership, looking at multinational corporations, government institutions, traditional farmers and indigenous peoples and asking 'What does the future hold for tomorrow's harvest?'

Electronic Resources

www.saps.plantsci.cam.ac.uk

Science and Plants in Schools (SAPS) specialises in working with teachers to develop new resources and promote and support the teaching of plant science and molecular biology in schools and colleges. The SAPS web site offers plenty of ideas for practical investigations in plant science, ideas for experiments with plant materials, access to SAPS publications (including their newsletter *Osmosis*), practical worksheets and a selection of other plant science publications. Details of workshops, practical kits and sponsorship schemes are also listed. Visitors to the web site can search through the database for a wealth of information and take part in an interactive enquiry service.

www.eduweb.com

Educational Web Adventures is an award-winning web developer that creates interactive and in-depth adventures about art, science and history. Eduweb specialises in educational games, simulations and learning modules. A range of interactive educational games is accessible from this site.

Of particular interest to botanic gardens may be:

Build-A-Prairie ecogame where young

▲ Disponibles

Programme 2: raconte l'histoire dramatique de N.I. Vavilov, un brillant scientifique russe, qui a collectionné et sauvé de nombreuses espèces de cultures avant le choc de l'invasion des Nazis en URSS. On utilise encore, dans la reproduction, de nombreuses plantes qu'il a personnellement trouvées et l'Institut qui porte son nom était la première banque de gènes internationale et l'inspiration derrière le réseau global des centres de conservation végétale qui existent aujourd'hui.

Programme 3: se concentre sur le fait que la science seule ne peut pas empêcher la perte continue d'espèces végétales. Il traite de l'Inde, les Philippines, les Iles Maurices et le Moyen Orient pour découvrir des variétés de cultures traditionnelles dont on peut se servir, éclairer les besoins de conserver la flore et les paysages de l'agriculture traditionnelle ainsi que les forêts et les îles lointaines.

Programme 4: Examine la question des ressources génétiques végétales et leur appartenance, les coopérations multinationales, des institutions gouvernementales, de l'agriculture traditionnelle et des peuples indigènes et pose la question: Quel est l'avenir de la récolte de demain?

Les Ressources Électroniques

www.saps.plantsci.cam.ac.uk

Science and Plants in Schools (SAPS) est spécialisé dans le travail avec les enseignants pour développer les nouvelles ressources et promouvoir et accompagner l'enseignement de la botanique et de la biologie moléculaire dans les écoles et les collèges. Le site de SAPS offre une multitude d'idées sur les investigations pratiques en botanique, des idées sur les expériences avec les végétaux, l'accès aux publications SAPS (comprenant leur lettre *Osmosis*), des fiches pratiques et une sélection de publications sur la botanique. Les détails des ateliers, des malles pratiques et les programmes de sponsorship, sont également mentionnés. Les visiteurs de ce site peuvent trouver à travers une base de données une richesse d'informations et prendre part à une enquête interactive.

● Recursos

El **Programa Dos** cuenta la dramática historia de N.I. Vavilov, uno de los científicos más talentosos de Rusia quien colectó y salvó una gran cantidad de especies de cultivos, antes de ataque furioso por la invasión Nazi de Rusia. Muchas de las plantas que el colectó personalmente son todavía usadas en el trabajo de hibridación y el Instituto el cual lleva su nombre, fue el primer banco genético y la inspiración oculta de la red global de Centros para la conservación de plantas que hoy existe.

El **Programa tres** se enfoca al hecho de que la ciencia sola no puede prevenir la continua pérdida de especies de plantas. Este visita la India, las Filipinas, Islas Mauricio y el Medio Este para descubrir las variedades de cultivos tradicionales potencialmente útiles, remarcando la necesidad de conservar la flora y paisajes de granjas tradicionales así como también de bosques e islas remotas.

El **Programa cuatro** examina el temas de los recursos genéticos de las plantas y su propiedad, mirando a las corporaciones multinacionales, instituciones gubernamentales, agricultores tradicionales y gente indígena, preguntando "¿Qué pasará con la cosecha del mañana?"

Recursos electrónicos

www.saps.plantsci.cam.ac.uk

Ciencia y Plantas en Escuelas (SAPS) se especializa en trabajar con los maestros para desarrollar los nuevos recursos y promover y apoyar el enseñado de ciencia de las plantas y biología molecular en escuelas y colegios. El sitio SAPS ofrece suficientes ideas para las investigaciones prácticas en ciencia de las plantas, ideas para experimentos con materiales de las plantas, acceso a las publicaciones SAPS (incluyendo su revista *Osmosis*), hojas de trabajo práctico y una selección de otras publicaciones de la ciencia de las plantas. Detalles de los talleres, equipos prácticos y esquemas de patrocinio también son enlistados. Los visitantes al sitio WEB pueden buscar a través de la base de datos un caudal de información y tomar parte de un servicio interactivo de preguntas.

■ Resources

people and adults try their hand at turning a barren plain into a healthy prairie by choosing the right plant species.

Amazon Interactive where young people and adults learn about the people and geography of the Ecuadorian Amazon by running a community-based ecotourism project.

www.ethicalconsumer.org

Ethical Consumer is the U.K.'s only alternative consumer organisation looking at the social and environmental records of the companies behind the brand names. The EC web site includes

- Extracts from its magazine Ethical Consumer which provides advice on progressive products and companies to avoid – everything from banking to baked beans.
- A list of companies and products with reasons why consumers should boycott them.
- A corporate critic database containing abstracts from publications that are critical of the activities of over 20,000 companies worldwide.

Ethical Consumer aims to encourage people to exercise their consumer power to live a more environmentally and socially aware lifestyle. This site could be of use to botanic gardens wanting to make decisions about whether or not to accept sponsorship from certain companies.

▲ Disponibles

www.eduweb.co

Educational Web Adventures est un site Web incontournable qui crée à la fois des aventures interactives et intenses sur l'art, la science et l'histoire. Eduweb est spécialisé dans les jeux éducatifs, de simulations et modules d'apprentissage. Une collection de jeux pédagogiques interactifs est accessible sur ce site.

D'intérêt particulier pour les jardins botaniques:

Jeu écologique: **Comment construite une prairie?** pour les jeunes et les adultes qui essaient de transformer un terrain stérile en prairie grasse en choisissant les bonnes espèces.

Amazonie Interactive: pour les jeunes et les adultes qui veulent connaître les populations et la géographie de l'Amazonie équatoriale en gérant un projet touristique écologique basé sur la vie en communauté.

www.ethicalconsumer.org

C'est la seule contre-organisation de consommateurs qui traite les histoires sociales et environnementales des entreprises derrière les marques. Ce site Web comprend:

- des extraits de leur magazine Ethical Consumer qui fournit une liste des produits éthiques et les multinationales à éviter – toutes de la banque à la boîte de haricots
- une liste des sociétés et des produits boycottés par les consommateurs et le pourquoi
- une base de données qui critique les multinationales et présente un sommaire des publications qui mettent en cause les activités de plus de 20.000 d'entre elles.

Ethical Consumer a pour but d'encourager les gens à exercer leur propre pouvoir de consommateurs et pour vivre dans un monde avec une conscience plus environnementale et sociale. Ce site pourrait être utile aux jardins botaniques qui veulent accepter ou non des sponsors.

● Recursos

www.eduweb.com

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De particular interés para el jardín Botánico puede ser:

Construyendo –Un- Ecojuego de la Pradera, donde gente joven y adultos tratan con sus manos de convertir una planicie árida en una pradera saludable por selección de las especies de plantas correctas.

Amazonas Interactiva, donde gente joven y adultos aprenden acerca de las poblaciones y geografía de la Amazonas ecuatoriana por medio del funcionamiento de una comunidad basada en un proyecto de ecoturismo.

www.ethicalconsumer.org

El Consumidor Etico es la única alternativa de U.K. que busca en los registros sociales y ambientales de las compañías atrás de los nombres de marca. La página web del CE incluye

- Extractos de su revista El Consumidor Etico que dan consejos sobre productos progresivos y compañías para evitar- todo lo no recomendado.
- Una lista de compañías y productos con razones del porque los consumidores deberían boicotearlas.
- Una base de datos de crítica corporativa conteniendo resúmenes de publicaciones que son críticas de las actividades de más de 20,000 compañías a nivel mundial.

El Consumidor Etico invita a la gente a que ejerzan su poder para vivir un estilo de vida mas preocupado ambiental y socialmente. Este sitio podría ser de uso para el jardín botánico que quiere tomar decisiones acerca de ya sea si se debe o no aceptar el patrocinio de ciertas compañías.

Botanic Gardens Conservation International

Membership Application Form

Established in 1987, BGCI works with botanic gardens and the wider conservation community in support of plant conservation around the world. Advocacy, capacity building, networking, sharing information, training and education are all key activities in pursuit of this goal. We currently have over 500 member institutions in 110 countries, working together to implement the new *International Agenda for Botanic Gardens*.

Garden members receive our regular publications *BGCNews (Botanic Gardens Conservation News)* and *Roots (Education Review)* and a wide range of other publications, materials and services, such as *The Darwin Technical Manual for Botanic Gardens* and *BG-Recorder 2*, a computer software package for plant records. Corporate members receive *BGCNews* and *Roots*, have access to wider partnerships, advice on conservation issues and opportunities for collaboration in key projects. Associate members and Conservation donors receive *BGCNews* and *Roots*, while Individual members have a choice of *BGCNews* or *Roots*. Members are invited to *The International Botanic Gardens Conservation Congress* and *The International Congress on Education in Botanic Gardens*, held every three years.

If you support the mission of BGCI and would like to belong to this world network for plant conservation and sustainable living, please join BGCI using this form. With your support, we can make a difference.

BGCI Membership Category	£ Sterling	US Dollars	Euros
BGCI Patron garden	5000	7500	7500
Garden member (budget more than US\$ 2,250,000)	600	940	940
Garden member (budget US\$ 1,500,000 - 2,250,000)	440	660	660
Garden member (budget US\$ 750,000 - 1,500,000)	300	440	440
Garden member (budget below US\$ 750,000)	160	220	220
Gardens member in developing country	75	110	110
Corporate Members: Gold Member	5000	7500	7500
Corporate Members: Silver Member	1000	1500	1500
Associated institution	75	110	110
Conservation Donor	160	220	220
Individual membership (BGCNews or Roots - please circle)	35	50	50
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We accept cheques made payable to Botanic Gardens Conservation International either sent to BGCI, Descanso House, 199 Kew Road, Richmond, Surrey, TW9 3BW, U.K. or transferred directly to our bank account for the currency used as above, or our U.K. Girobank account (3114988) or VISA/Mastercard.

I wish to apply for membership of Botanic Gardens Conservation International.			
Name	.....	Telephone	.....
Address	.....	Fax	.....
	.....	E-Mail	.....
	.....	Internet site	.....
VISA/ Mastercard Number	.....	Credit card expiry date	.....
Signature	.....	Print name	.....



Editors: Lucy Sutherland and
Julia Willison

**BGCI would like to thank the
co-editors for their work in the
production of Roots:**

For the French Section:

Caroline François Jardin Botanique
de la Ville de Bordeaux, France
Maité Delmas, Museum National
D'Histoire Naturelle, France
Frédéric Dupont, Jardin Botanique de
Lille, France
Gaud Morel Museum National
D'Histoire Naturelle, France
Philippe Richard, Jardin Botanique de
la Ville de Bordeaux, France
Loïc Ruëllan, Conservatoire
Botanique de Brest, France

For the Spanish Section:

Maricela Rodriguez Acosta, Herbario
y Jardín Botánico de la Benemérita
Universidad Autónoma de Puebla,
México
John Cortes, Gibraltar Botanical
Gardens, Gibraltar
Veronica Franco, Centro de
Investigación Científica de Yucatán,
A.C. (CICY) Mexico
Lordes Rico-Arce, Royal Botanic
Gardens, Kew, U.K.

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**Botanic Gardens
Conservation International**
Descanso House
199 Kew Road, Richmond
Surrey TW9 3BW United Kingdom
Tel: (020) 8332 5953
Fax: (020) 8332 5956
e-mail: bgci@rbgkew.org.uk
<http://www.rbgkew.org.uk/BGCI>


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