

roots

Botanic Gardens Conservation International Education Review

October 2005



Master planning for education

Interpretive master planning – keep your garden growing

Creating a natural environment for learning

Dimensional design: a holistic approach to garden planning

Education planning for financial survival



BGCI

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- Proceedings of all five International Congresses on Education in Botanic Gardens
- Global Strategy for Plant Conservation
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Cover Photos: Clockwise from top. Planning educational activities, teacher training course at Purwodadi Botanic Garden, East Java (Bian Tan). School in the Forest programme, Gurukula Botanical Sanctuary, India (Suprabha Seshan). Louise Allen, Curator of Oxford Botanic Garden, with members of staff (University of Oxford Botanic Garden, UK). Children on a tour in the palm house (University of Oxford Botanic Garden, UK).

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Master planning for education



Right: Exercise
in planning and
design at the
Purwodadi
Botanic Garden,
East Java
(Photo:
Bian Tan)

Editorial - Español

A principios del 2005, BGCI inició el proceso de desarrollar una nueva estrategia de educación. Diez meses más tarde, después de un período de consulta intenso, contamos finalmente con un documento de trabajo –y un alerta aguda del valor de la planeación, la cual proporcionó el tema para este número de Roots. Para finalizarla, hemos sido afortunados de contar con la maestría y experiencia de los educadores en jardines botánicos alrededor del mundo, quienes han usado estrategias de planeación para enfocar a su personal, ajustar sus programas, hacer rendir sus presupuestos e incrementar el estatus del departamento de educación en cada sitio.

En su artículo, John Veverka, presidente de John Veverka y Asociados, una firma internacional de entrenamiento y planeación interpretativa, provee una invaluable introducción al concepto de plan master para interpretación en el jardín. John ofrece paso a paso, una guía para formular un claro y efectivo plan que optimiza el uso de los recursos del jardín. Vale la pena hacer notar que su libro, 'Interpretive Master Planning' se incluye como referencia en diferentes artículos de este mismo número.

Un objetivo educativo como base para un nuevo jardín en El Jardín Botánico de Singapur, dió a los diseñadores y personal un objetivo tangible para cuando ellos iniciaron el diseño del Jardín de la Evolución. El Dr. Wong Wei Har, subdirector, y su equipo tomaron la excitante historia de la evolución de plantas como punto de partida y siguieron un programa de integración de los requerimientos físicos y requerimiento de mensaje de los usuarios. El procedimiento

Editorial - English

At the beginning of 2005 BGCI started out on the process of developing a new education strategy. Ten months later, after a period of intense consultation, we now have a working document – and an acute awareness of the value of planning, which provides the theme for this latest issue of Roots. To this end, we have been fortunate to draw on the expertise and experience of garden educators around the world who have used strategic planning to focus their staff, streamline their programmes, make the most of their budgets and increase the status of the education department within their site.

In his keynote article, John Veverka, President of John Veverka and Associates, an international training and interpretive planning firm, provides an invaluable introduction to the concept of master planning for garden interpretation. John offers a step-by-step guide to formulating a clear and effective plan that optimises the use of garden resources.

Editorial - Français

En début 2005, BGCI a initié le développement d'une nouvelle stratégie d'éducation. Dix mois plus tard, après une période d'évaluation intense, nous disposons maintenant d'un document de travail – et d'une prise de conscience sur la valeur de la programmation, qui nous procure le thème pour cette issue de Roots. A cette fin, nous avons pu profiter de l'expertise et de l'expérience d'éducateurs de jardins de par le monde, qui ont utilisé la programmation stratégique pour concentrer leur personnel, aligner leurs programmes, profiter au maximum de leurs budgets et augmenter le statut du département éducatif au sein de leur site.

Dans l'article principal, John Veverka, Président de John Veverka et Associés, une firme internationale de formation et de programmation d'interprétations, donne une introduction d'une valeur inestimable sur le concept des programmes-cadres pour l'interprétation dans les jardins. John présente un guide pas à pas pour formuler un programme clair et efficace qui optimise

It is worth noting that his book, 'Interpretive Master Planning,' has been referenced in several other articles in this issue!

Using educative aims as a basis for a new garden at Singapore Botanic Garden gave designers and staff a tangible objective when they started to design the Evolution Garden. Dr Wong Wei Har, Deputy Director, and his team took the exciting story of plant evolution as their starting point and followed a programme of integrating the physical and message requirements of users. The procedure has taken them from the first steps, through to opening and now evaluation.

Planning a whole botanic garden around education is something many of us can only dream of! Not so at the new Utah Botanical Centre, USA. The interdisciplinary team undertook research at 17 other botanic garden sites across the US, as well as canvassing the views of local communities and garden volunteers. They formulated a mission for the site, identified funding sources and created site and education plans. In Utah's view, planning allowed the team to remain focused and realistic in identifying issues and skill gaps while still demonstrating development to stakeholders.

At the Gurukula Botanical Sanctuary, India, the 'Schools in the Forest' programme has been running for 12 years. Education Officer, Suprabha Seshan, explains in her article how they are urging a collective reflection of environmental and global issues in order to bring about effective and meaningful action.

An interesting alternative model for education planning is described by Lisa Orgler, Assistant Director of Planning and Programmes, Reiman Gardens, Iowa, USA. Here they use a holistic 'dimensional design' approach where staff develop ideas as a team, creating one cohesive unit. The theme is implemented throughout the site – in horticultural displays, exhibits, education programmes, interpretation, the shop and the café. Lisa takes us through the methods they use to reach a well-researched and considered agreement.

The University of Oxford Botanic Garden, UK's oldest botanic garden and host to the 6th International Congress on Education in Botanic Gardens, sees education as an integral part of every staff member's job. Louise Allen,

l'utilisation des ressources du jardin. Par ailleurs son livre 'Interpretive Master Planning' a été cité dans plusieurs autres articles dans ce numéro!

En se basant sur des buts éducatifs pour la création d'un nouveau jardin au Jardin Botanique de Singapour, les concepteurs et le personnel avaient un objectif tangible lorsqu'ils ont développé le concept du Jardin Évolutif. Le Dr Wong Wei Har, Directeur Adjoint et son équipe ont pris la fabuleuse histoire de l'évolution des plantes comme point de départ et ont suivi un programme d'intégration des besoins physiques et communicatifs des visiteurs. Cette procédure les a guidés depuis les premiers pas jusqu'à l'ouverture et, maintenant, l'évaluation.

Concevoir un jardin botanique entier autour de l'éducation est quelque chose dont beaucoup d'entre nous ne peuvent que rêver! Mais pas au nouveau Utah Botanical Centre aux Etats Unis. L'équipe interdisciplinaire a utilisé des recherches sur 17 autres sites de jardins botaniques à travers les Etats Unis et prospecté les idées des communautés locales et des volontaires du jardin. Ils ont formulé une mission pour le site, identifié des sources de financement et crée les plans du site et des programmes d'éducation. Selon Utah, la programmation a permis à l'équipe de rester ciblée et réaliste dans l'identification des problèmes et des lacunes de compétence, tout en démontrant leur avancement aux partenaires.

Au Sanctuaire Botanique Gurukula en Inde, le programme "Ecoles dans la forêt" existe depuis 12 ans. La chargée d'éducation, Suprabha Seshan, explique dans son article comment ils recommandent une réflexion collective sur les problèmes environnementaux et globaux afin de générer des actions efficaces et sensées.

Un modèle alternatif intéressant pour la programmation éducative est décrit par Lisa Orgler, Directrice Adjointe de la planification et des programmes des Reiman Gardens en Iowa, Etats Unis. Là bas ils utilisent une approche holistique de la conception dimensionnelle, où le personnel développe les idées en équipe, créant ainsi une unité cohérente. Le thème est mis en œuvre de par le site entier – dans les plantations, les expositions, les programmes éducatifs, l'interprétation, la boutique et le café. Lisa nous montre les méthodes qu'ils utilisent pour arriver à un accord bien recherché et réfléchi. Le Jardin Botanique de l'Université

les ha permitido a ellos participar desde los primeros pasos, la apertura y actualmente la evaluación.

Planeación de un Jardín Botánico alrededor de la educación es algo en que muchos de nosotros solo pueden soñar!. Pero no en el nuevo Centro Botánico de UTAH, USA. El equipo interdisciplinario empleado investigó en otros 17 jardines a través de los Estados Unidos, así también como recopilando opiniones de comunidades locales y voluntarios de jardines. Ellos formularon una misión para el sitio, identificaron fuentes de recursos y crearon planes, lugares de establecimiento y planes de educación. En la perspectiva de UTAH, la planeación permitió al equipo permanecer enfocado y realista en identificar temas y vacíos en entrenamiento, a la vez que se demostraban los avances.

En el Santuario Botánico Gurukula, en India, el programa de "escuelas en el Bosque" ha estado activo por 12 años. El jefe de Educación, Suprabha Seshan explica en su artículo, como ellos están urgiendo una reflexión del ambiente y temas globales con el fin de traer acciones efectivas y significantes.

Un modelo alternativo interesante para la planeación educativa es descrito por Lisa Orgler, Director Asistente de Planeación y Programas, en los Jardines Reiman en Iowa, USA. Aquí, ellos usan una perspectiva holística de "diseño dimensional", donde el personal desarrolla sus ideas como un equipo, creando una unidad cohesiva. El tema es implementado a través del sitio –en exhibiciones hortícolas, exhibits, programas de educación, interpretación, la tienda y la cafetería. Lisa nos lleva a través de los métodos que ellos usan para llegar a un acuerdo bien investigado y considerado. El Jardín botánico de la Universidad de Oxford, el jardín botánico más antiguo de UK y anfitrión del 6th Congreso Internacional de Educación en Jardines Botánicos, ve la educación como una parte integral de las actividades de cada miembro del personal. Louise Allen, Curador, explica como la importancia de educación dentro del jardín ha incrementado como un comunicador natural y educadores dedicados han surgido, buscando estar involucrados en todo! Las excelentes técnicas de Oxford y herramientas estarán en presentación a educadores de todo el mundo durante el congreso.

Curator, explains how the importance of education within the garden has increased as natural communicators and dedicated educators have been brought on board, willing to get involved in anything! Oxford's excellent techniques and tools will be on display to educators from all over the world during the congress.

For some people, creating a 'master plan' is not feasible; the garden is already developed and programmes are already in place. Nevertheless future development still needs to be planned for Mathew Cole, Director of Education at Green Bay Botanical Garden, USA, recommends including evaluative targets in the initial planning. He believes this has an empowering effect on staff and has resulted in a plan which never collects dust on his shelf!

Barb McKean. Director of Education, at RBG Hamilton has employed strategic planning to combine educational and interpretation developments with a strong business plan for revenue generation. Working with a management consultancy team, she followed a process of research, survey and analysis to create a compatibility and finance matrix. This tool has enabled Hamilton to build a plan that addresses the entire education department costs.

Contributions in this issue of Roots underline the importance of using focused planning in creating education programmes. Several different methods are demonstrated, examining planning through staff, interpretation, community, funding and even what to do when master planning is not the answer. Remember, your opportunity to report back about your successes with planning at the 6th International Congress on Education in Botanic Gardens. Register your interest now at www.bgci.org/educationcongress and submit your abstracts for papers, posters and workshops! We are looking forward to meeting you!

d'Oxford, le plus vieux jardin botanique du Royaume Uni et hôte du 6e Congrès sur l'Éducation dans les Jardins Botaniques, considère que l'éducation est une part entière du travail de tout membre du personnel. Louise Allen, Conservatrice, explique comment l'importance de l'éducation dans le jardin a augmenté, du moment que des personnes naturellement communicatives et des éducateurs dédiés, prêts à se lancer dans tout genre d'activités, ont été pris à bord! Les techniques et outils excellents d'Oxford seront présentés aux éducateurs de par le monde lors du congrès.

Pour certaines gens il est impossible de créer un 'programme-cadre', le jardin étant déjà développé et les programmes étant déjà en place. Néanmoins, le développement futur doit être programmé. Mathew Cole, le Directeur de l'Éducation au Jardin Botanique Green Bay aux Etats Unis, recommande d'inclure des cibles d'évaluation dans la programmation initiale. Il est convaincu que cela a eu un effet motivant sur le personnel et a mené à un plan qui – comme chaque bon plan – ne prendra jamais de poussière sur son étagère!

Barb McKean, Directeur de l'Éducation au Jardin Botanique Royal de Hamilton a employé la programmation stratégique pour combiner les développements éducatifs et d'interprétation avec un plan de gestion solide, destiné à générer des bénéfices. En travaillant avec une équipe de conseillers en gestion, elle a poursuivi un processus de recherche, d'enquête et d'analyse pour créer une matrice de comptabilité et de financement. Cet outil a permis à Hamilton de développer une programmation qui prend en compte tous les frais de l'ensemble du département éducatif.

Les contributions dans ce numéro de Roots soulignent l'importance de 'programmes-cadres' ciblés lors de la création de programmes éducatifs. Plusieurs méthodes différentes sont présentées, examinant la programmation par le personnel, par l'interprétation, par les communautés, par le financement et même comment faire si un 'programme-cadre' ne peut pas fournir de réponse. N'oubliez pas l'occasion que vous avez de présenter les succès de votre programmation au 6e Congrès International sur l'Éducation dans les Jardins Botaniques. Inscrivez-vous dès à présent sur www.bgci.org/educationcongress et remettez vos résumés pour les articles, posters et ateliers! Nous serons ravis de vous rencontrer!

Para algunas personas, crear un 'plan maestro' no es factible; el jardín esta ya desarrollado y los programas estan también desarrollados e implementados. Sin embargo, el desarrollo futuro todavia necesita estar planeado. Mathew Cole, Director de Educación en el Jardin Botánico Green Bay en USA, recomienda incluir metas evaluativas en la planeacion inicial. El cree que esto tiene un efecto positivo en el personal y ha resultado en un plan el cual, debería ser tan bueno como un plan maestro.

Barb McKean. Director de Educación, en los Jardines Botánicos Reales de Hamilton, ha empleado la planeacion estratégica para combinar educación e interpretación, desarrollo con una fuerte plan comercial para la generacion de dividendos. Trabajando con un equipo de consultores, ella siguió un proceso de investigación y análisis para crear una matriz compatible y financiera. Esta herramienta ha hecho que Hamilton construya un plan que cubra los costos enteros del departamento de educación.

Las contribuciones en este número subrayan la importancia de usar planeaciones enfocadas en crear programas de educación. Diferentes métodos estan demostrados, examinando planeación a través de su personal, interpretación, comunidad, financiamiento y mas aún, que hacer cuando un plan maestro no es la respuesta. Recuerda, tu oportunidad para reportar tus éxitos en planeación esta en el 6th Congreso Internacional de Educacion en Jardines Botánicos. Registra tu interés ahora en el www.bgci.org/educationcongress y envía tus resúmenes para presentaciones orales, posters y talleres! Estamos listos para recibirte!

Interpretive master planning

– keep your garden growing

What is interpretation?

Let's start by taking a look at a definition of interpretation

Interpretation is a communication process designed to REVEAL meanings and relationships of our natural and cultural heritage to visitors through first-hand involvement with objects, artifacts, landscapes, built features, experiences and sites (Tilden, 1954).

To be 'interpretive', I advocate that the communication process must follow or be based on Tilden's interpretive principles (Tilden, op. cit). That is, the interpretive communication process must:

- provoke attention, curiosity or interest in the visitor
- relate to the everyday lives of the visitors. (Why would a visitor want to know this?)
- reveal the main essence of the story message in a memorable way (the 'Oh yes' effect)
- address the whole – that is work to illustrate a common theme, message or 'big picture' concept for the visitor – the one main idea you want them to take away
- strive for message unity – use supporting/design materials (sounds, colors, materials, graphics, etc.) that thematically support the message.

When we develop an interpretive master plan, the job of this plan is to insure that the above principles are

Summary It's not just botanical gardens that need the care and feeding provided by Interpretive Master Plans –all heritage attractions do.

From parks and zoos to other heritage areas – they all need interpretive master planning to keep them growing. By growing I mean that interpretive programs, services and media can be created that:

- 1) are actually interpretive instead of just informational
- 2) effectively communicate their main messages to visitors in a format that visitors understand and relate to, and
- 3) help accomplish the main mission and goals of the agencies involved.

Thus interpretation keeps your garden growing in visitation numbers, through support by visitors and increased membership numbers. Planning also drives the physical growth of interpretive programs, services and outreach activities.

The benefits help you focus on the short and long term accomplishment of your mission, help you make long term cost effective interpretive programs and media decisions and help develop your marketing strategy.

used across the whole site in every presentation – trails, outdoor displays, live programs, visitor centre exhibits and other related media.

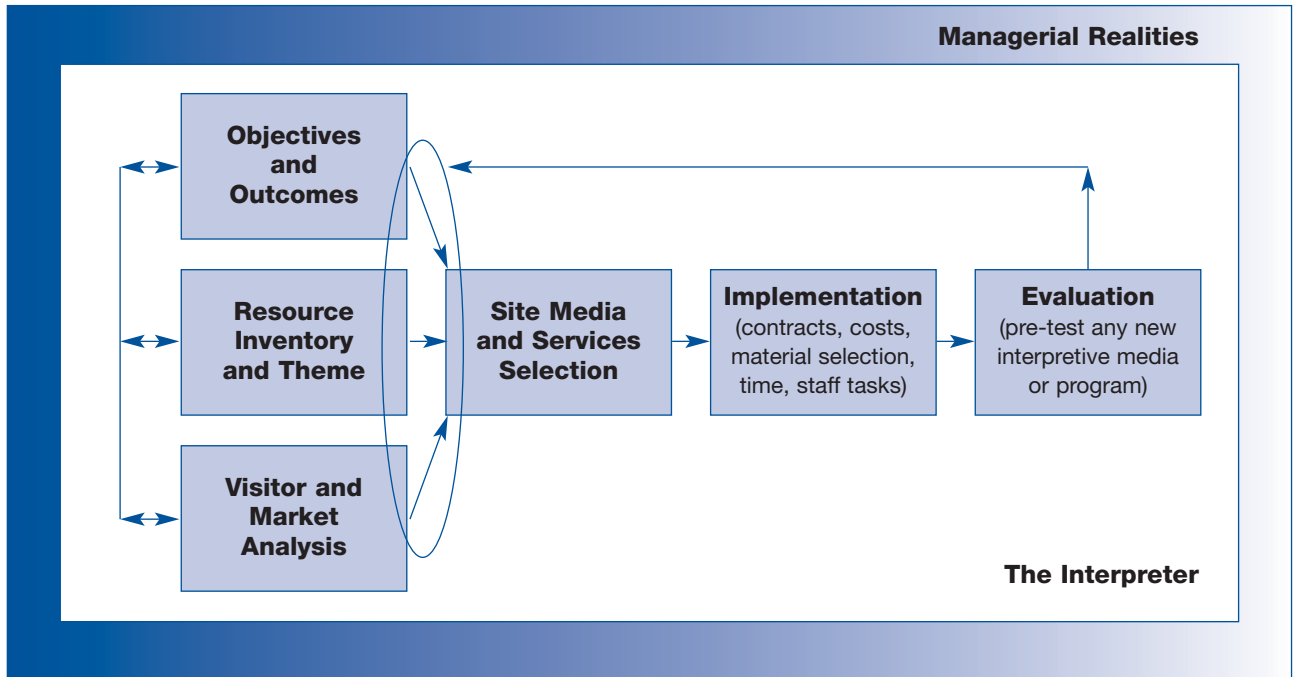
What is an Interpretive Master Plan?

Imagine your garden as a 500-piece puzzle. What visitors see as they move through the grounds may very well be these puzzle pieces in random order,



not receiving a clear message of who you are, what you do, and why you do it (your mission). What an interpretive plan does is provide the picture on the cover of the puzzle box for both the visitors and for you. It helps you organize your main messages for

Below: One of a series of signs developed at Bristol Zoo, UK, to promote the message that animals need plants



visitors so they can clearly understand them throughout their visit. It also helps you create your strategy and deliver those messages at key interpretive sites and areas.

Below: Signs at the New York Botanical Garden, USA, are linked to an audio tour (Photo: BGCI)

Parts of an Interpretive Master Plan

The essential elements of an interpretive planning process are presented in the diagram above.



Managerial realities

The large box represents the managerial realities, the challenges you face with issues such as budget, available staffing, political support, time, existing policies or directives, mission, etc. I recommend identifying these at the start of the interpretive planning process so we can plan with these challenges in mind.

The interpreter

The box inside the managerial realities' box is called 'The Interpreter'. That's you if you're the interpretive planner, or your planning team. There's always more than one right answer, and each interpreter or team brings their own unique values, ideas, creativity and knowledge to the project. Then within this box is the interpretive planning process, which I have divided into a series of tasks.

Objectives and outcomes

An interpretive plan must clearly identify the specific objectives that need to be accomplished by the interpretation to provide a total botanical garden experience for visitors. These will include learning, behavioral and emotional objectives. For example:

- learning objective: Upon completion of reading the interpretive panel the majority of visitors will be able to identify three

key components of a plants reproductive strategy

- emotional objective: Upon completion of their visit to the botanical garden the majority of visitors will value and appreciate their native plants in a new and more powerful way
- behavioral objective: Upon completion of their visit to the botanical garden 10% of the visitors will want to consider landscaping their home gardens with native plants.

Resource inventory and theme

This involves conducting a complete inventory of all the interpretive sites and resources that we want to interpret. From this inventory we are then able to develop our main interpretive theme, sub-theme and story line that we want to present and illustrate to visitors. I generally allocate a code (G = Geological, etc.) to each category as a way of grouping interpretive resources. For example, we may conduct an inventory of the following:

- G – geological sites and features
- B – botanical habitats
- BD – botanical demonstration areas.
- SBD – seasonal botanical demonstration areas.
- F – facilities (interpretive centres, gift shops, etc.).

- H – historical sites, facilities or features.
- R- research sites, demonstrations or programs.

These codes appear on a standard interpretive planning form to help identify each unique interpretive site or feature within the property (see www.bgci.org/education for a sample of completed forms). So if we have seven different biological habitats within the garden, each will be coded as: B-1, B-2, B-3 and so on.

Visitor and market analysis

We also need to know as much about our visitors as possible. Who they are, where they come from, age groups and related demographics, seasonal visitation patterns, and their main motivations for the Garden visit. What do THEY want to know, learn, or experience with you today?

Site media and services selection

Here we look at all the sites within the inventory, and consider the objectives we want to accomplish garden-wide, matching up the objectives with the locations. A standard interpretive planning form is used to record this. For each planning form for each individual site we include:



- interpretive significance of the site or feature (why are we interpreting it?)
- interpretive concept we want to use this site to illustrate (ecological principle, adaptation, stewardship issues, etc.)
- site objectives – things we might need to do to prepare the site for visitors, such as add a paved walkway, viewing area, benches, etc.
- interpretive objectives. These are the main ideas or concepts that we want the visitors to learn, feel, or do
- the recommended media to accomplish those objectives, such as an interpretive panel, demonstration planting, live program, interactive exhibit, self-guiding booklet or other media or services. Also the estimated costs for developing those media.



Implementation

I usually prepare a summary matrix of all the interpretive sites. On the vertical axis I put the recommended interpretive sites from the inventory. On the horizontal axis I put the recommended media, fiscal year, and costs. This way I can prepare a three to five year strategy for implementation and budgeting of the total interpretive plan programs, services, and media.

Evaluation

One of the most important parts of the interpretive plan is the EVALUATION section. It is critical that you provide a strategy for pre and post testing any new interpretive programs, services and media to make sure they are accomplishing their objectives. If you paid \$2000.00 for an interpretive exhibit – do you have proof that you are getting \$2000.00 in benefits from that exhibit?

Left: Sign at Alice Springs Desert Park, Australia (Photo: Mark Richardson)

Below: Interpretive display on cotton at the Eden Project, UK (Photo: Sarah Kneebone)



Conclusions

An interpretive master plan can help you organize the way in which your botanic garden presents information and communicates its value to visitors, the community, and perhaps regionally or nationally. By enabling visitors to make sense of their visit and increasing their perception of the benefits they receive, interpretation can encourage repeat visits and support activities such as ecotourism. With careful planning, the interpretive plan will organize the gardens sites, trails, experiences and stories in a way that can help protect the resource while engaging and inspiring visitors. The development of an interpretive

Left: Singapore Botanic Gardens uses live displays to enhance people's interest in exhibitions (Photo: BGCI)

Right: Sign at the Eden Project, UK, reveals in a memorable way the story of how the desert flowers (Photo: Sarah Kneebone)

master plan ensures that your messages are truly connecting with, and being understood by your audience in the most cost effective way possible. Can you truly be successful with out one?

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Résumé

Il n'y a pas que les jardins botaniques qui ont besoin des soins et de la nourriture apportés par les plans détaillés d'interprétation. C'est le cas de toutes les attractions ayant un intérêt patrimonial. Des parcs aux zoos en passant par les autres lieux patrimoniaux, tous ont besoin d'un plan détaillé d'interprétation pour rester en pleine croissance. Par croissance, je veux dire que les programmes

d'interprétation, les services et les médias peuvent permettre :

- Que ces lieux soient réellement interprétatifs et pas seulement informatifs.
- Qu'ils délivrent aux visiteurs leurs principaux messages d'une façon efficace et compréhensible, qui soit proche des visiteurs, et
- D'aider ces structures à atteindre les principaux buts et missions qu'elles développent.

Ainsi, l'interprétation permet de garder votre jardin en pleine croissance par le nombre de visites grâce au soutien apporté par les visiteurs et l'augmentation du nombre de membres. Le plan permet également de conduire le développement physique des programmes d'interprétation, des services et des activités à large spectre. Les bénéfiques vous aident à vous concentrer sur les accomplissements de votre mission à court et long terme vous aident à réaliser des programmes d'interprétation et des décisions médiatiques qui soient rentables sur le long terme, et vous aident à développer votre stratégie commerciale.

Resumen

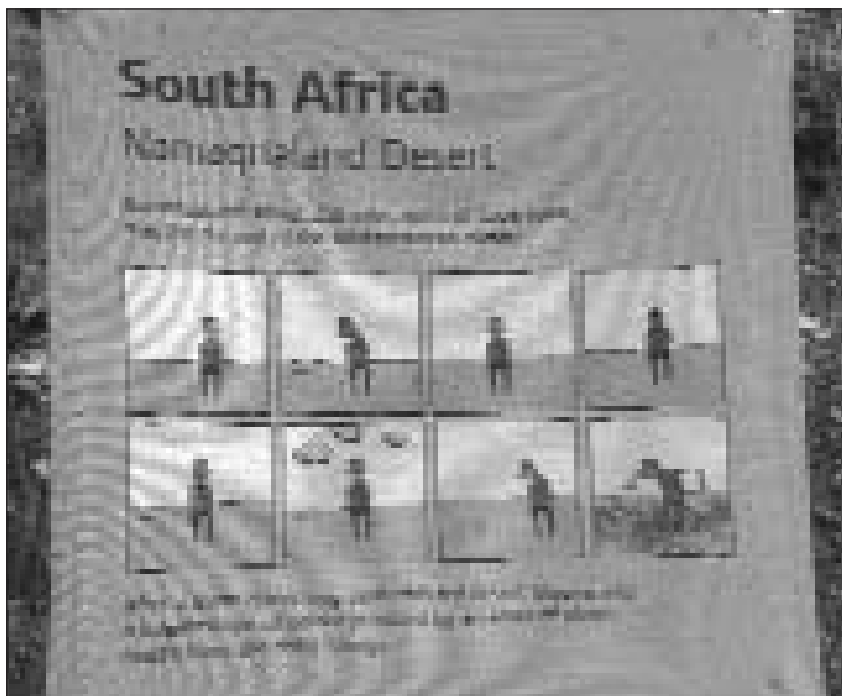
No solamente los jardines botánicos necesitan cuidado y de planes rectores interpretativos; de hecho todos los centros histórico y culturales lo requieren. Desde los zoológicos hasta otros centros de nuestro acervo

histórico-cultural necesitan de planes rectores interpretativos para mantenerlos en constante crecimiento. Por crecimiento, quiero decir que los programas interpretativos, servicios y medios pueden ser creados para:

- 1) ser efectivamente interpretativos más que meramente informativos;
- 2) comunicar en forma efectiva los principales mensajes al visitante de forma que lo entienda y relacione,
- 3) ayudar a alcanzar la misión y objetivos de las instituciones involucradas.

En este sentido, el plan interpretativo manteniendo tu jardín creciendo permite el crecimiento del jardín en términos de visitantes y nuevas afiliaciones. La planificación también regula el crecimiento físico de los programas interpretativos, servicios y actividades de superación. Los beneficios ayudan a enfocarse en los éxitos a corto y largo plazo logros de tu misión; ayuda también a hacer éxitos en términos de costos a largo plazo los programas interpretativos y las decisiones comunicacionales y ayudan a desarrollar las estrategia de mercadeo.

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Right: New interpretation at the Temperate House, Kew Botanic Gardens, UK (Photo: Sarah Kneebone)



The case of the **Evolution Garden**

Summary This article looks at the use of strategic planning as a tool in the development of a new attraction, the Evolution Garden, in the Singapore Botanic Gardens. The use of strategic planning helps the organization achieve clarity in determining the goals of the new attraction, formulate action plans to achieve these goals and identify the roles and responsibilities of members of staff.

The goal of the new garden is to be an educational attraction centred on the theme that plants are not only beautiful but crucial to the survival of all life. It tells the amazing story of how plants gave us life, and how, long before humans arrived, plants started to evolve into the myriad complex, wonderful life forms that we see today. The Evolution Garden takes visitors on a journey through time, from the fiery planet that the world was in ancient times before memory, through the planet of the dinosaurs, and on to the modern world of 250,000 different flowering plants that the world enjoys today.

Planning for the Evolution Garden resulted in the development of strategies to achieve its goals. Strategies ranged from creating as exciting a landscape as possible, customizing new educational programmes and producing a new guidebook and children's workbook to getting buy-in from teachers and students.

Whatever success the new garden achieves as a horticultural and botanical attraction as well as an educational feature is in part due to the use of strategic planning as a tool in its development.

Introduction

The goal of the Evolution Garden, to be an educational attraction, sounds relatively easy to achieve. However, there have been plenty of challenges. Central to the planning of the garden was the challenge of balancing and interweaving the use of selected artificial models to represent extinct plants, selecting the large number of living specimens of the various plant groups and most importantly ensuring the comfort of visitors.

Setting the scene

At the entrance to the garden, huge columns of stone, known as the 'trees of stone', create a special effect and set the mood for the garden. Across a bridge, the educational journey begins



Left: Entrance to the Evolution Garden (Photo: Singapore Botanic Gardens)



Above: The Evolution Garden is planted with amazing prehistoric plants including large cycads (Photo: Singapore Botanic Gardens)

some 4,600 million ago. The Earth at its beginning was stark, with an unbreathable atmosphere of poisonous gases devoid of oxygen, and intolerably hot with searing UV radiation from the sun.

To create a realistic picture of the uninhabitable Earth at this time, we created a landscape where artificial rocks and a mud pool are used to represent the young Earth pulsing with volcanoes spewing lava and where the land was strewn with streaming pools of bubbling, scalding mud. For visitors in a tropical garden, the heat and humidity can be extremely uncomfortable if ample shade is not provided. However we deliberately created a barren rocky waste at the start of the journey for effect and to provide a contrast and to set the stage for when plants would make the planet hospitable.

Following on from the blackened volcanic landscape is a shallow pool backed by wave-cut rocks with replicas of stromatolites, mounds of calcium carbonate slowly produced by colonies of bacteria inhabiting shallow seafloors some 3,600 million years ago. This leads to the various groups of plants being displayed in an evolutionary sequence along a patch sculptured by boulders and terrain change.

The Evolution Garden is an educational first for Singapore and the Singapore Botanic Gardens. However, we still needed to come up with strategies to achieve success for this garden and its educational goals despite the lack of comfort for visitors as they started their tour of the Garden.

The first strategy was to create an exciting a landscape as possible using both massive real boulders and artificial ones as well as planting extraordinary and amazing prehistoric plants including many large old cycads. We successfully grew a thriving patch of *Equisetum*, probably for the first time in Singapore and created more excitement by making several models of the extinct *Lepidodendron* as examples from the Carboniferous period.

The educational context

Having set the physical stage, we next sought buy-in from the teachers before the attraction was formally opened. This involved the gardens' education unit organizing Evolution Garden familiarization talks and tours for teachers.

We also wanted to 'lighten' the educational component without compromising its content. The action plan for this called for the joint efforts of our horticulturists and education officers to present the Evolution Garden as the stomping garden of the botanic gardens' 'resident dinosaur'. She is a Botanicosaurus and her name is Sara. With the help of a storybook doubling as a workbook, Sara comes to 'life' for our young visitors as they journey through the garden learning about bryophytes, ferns, cycads, gymnosperms, and other plants. Older children and adults are not forgotten too. A guidebook complementing the displays is available and serves as a stand-alone reference on the exciting journey that our planet has taken. New education programmes are also specially designed for the Evolution Garden.

The Visitor Services unit organized an 'Art in Evolution' programme to celebrate the launch of the Evolution Garden on 14 February 2005. This involved staff working with teachers and students on an art project where students put on paper their thoughts and feelings about the new Garden. From this the theme 'Love in the Evolution Garden' was chosen by the students and the result was a collage of artwork that ranged from detailed depictions of the plants to the abstract. Each piece of artwork offered an

unique perspective of the Evolution Garden demonstrating how art and botany can come together to inform, entertain and inspire.

Conclusions

Since the opening of the Evolution Garden, students from kindergartens and lower primary schools have embarked on the time journey; upper primary students have taken part in the Plant Classification tour and students from lower secondary schools and junior colleges have taken part in the general familiarization tours. Feedback from teachers is that they find the Evolution Garden relevant as an outdoor classroom. Other visitors have complemented the garden as an outstanding execution of the story of plant evolution.

Whatever success this garden will enjoy as a horticultural and botanical attraction as well as a living classroom is in part due to the use of strategic planning as a tool in its development.

Résumé

Cet article porte sur l'utilisation d'un plan stratégique comme outil dans le développement d'une nouvelle attraction, le Jardin de l'Evolution, au jardin botanique de Singapour. L'utilisation d'un plan stratégique aide la structure à définir clairement les buts de la nouvelle attraction, formuler des plans d'action pour atteindre ces buts et identifier le rôle et les responsabilités des membres de l'équipe.

Le but du Jardin de l'Evolution est d'être une attraction éducative. Il emmène les visiteurs dans un voyage à travers le temps, de l'époque impétueuse des dinosaures jusqu'au monde moderne des 250 000 espèces de plantes à fleurs qui embellissent notre monde d'aujourd'hui.

La planification du Jardin de l'Evolution a donné lieu au développement de stratégies pour atteindre ses objectifs. Ces stratégies vont de la création de paysages aussi intéressants que possible à la personnalisation de nouveaux programmes éducatifs, la production de nouveaux livrets de



Left: An educator from the gardens' education unit giving a familiarization talk to teachers about the Evolution Garden (Photo: Singapore Botanic Gardens)

visite et de livres de travail pour les enfants, et le gain d'intérêt de la part des enseignants et des étudiants.

Quel que soit le succès atteint par le nouveau jardin sous la forme d'une attraction horticole et botanique en plus de sa forte caractéristique éducative, celui-ci sera en partie dû à l'utilisation du plan stratégique en tant qu'outil pour son développement.

Resumen

Este artículo se enfoca en el uso de los planes estratégicos como una herramienta en el desarrollo de una nueva atracción; el jardín evolutivo, en el Jardín Botánico de Singapur. El uso de planeamiento estratégico ayuda a alcanzar claridad en la determinación del propósito de esta nueva atracción, formulando planes de acción para alcanzar los propósitos e identificar el

papel y responsabilidades de los distintos miembros de la institución.

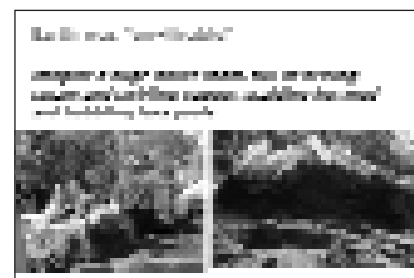
El propósito del Jardín Evolutivo es fundamentalmente una atracción educativa. El Jardín Evolutivo lleva al visitante en un viaje a través del tiempo, desde el violento planeta de los dinosaurios hasta el mundo moderno que alberga 250.000 diferentes especies de plantas con flores.

La planeación para el Jardín Evolutivo resulto en el desarrollo de estrategias para alcanzar sus metas. Estrategias que varían desde crear en la medida de lo posible un paisaje excitante, nuevos y atractivos programas educativos, producir nuevas guías y libros para niños y su compra por maestros y estudiantes.

Cualquiera que sea el éxito que alcance el nuevo Jardín Evolutivo como una atracción horticultural y

botánica así como también educativa se deberá en parte al uso de los planes estratégicos como herramienta en su desarrollo.

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Left: Signage in the garden helps tell the story of plant evolution (Photo: Singapore Botanic Gardens)

An **interdisciplinary** **approach** to planning

Summary In 2002 the Utah Botanical Centre (UBC), a new interpretive centre north of Salt Lake City, initiated an intensive educational program planning process. This was led by an interdisciplinary guidance team of 12 educators and administrators from Utah State University Extension, the Utah Botanical Centre, the Utah State Office of Education, and the Davis School District. The team's goals were to 1) select the type and sequence of new and existing educational programs, and 2) assist in resolving contextual issues such as staffing, funding, and site improvements. Over a period of 12 months the team conducted two surveys, six group process meetings, 33 interviews with a variety of stakeholders and observed programs at 17 interpretive sites to develop a list of priority programs. This input was prioritized by considering the UBC and Utah State University (USU) mission, potential funding opportunities and constraints, audience needs, cooperation or competition from similar programs, and the expertise and limitations of staff. Components of the plans were implemented by hiring a coordinator for the Utah House and an education coordinator for the botanical centre. Following completion of the Education Master Plan in 2003, the Utah House and botanical centre entertained over 7,000 visitors, including 1,000 K-12 (kindergarten through to year 12) students in 2004. In addition to developing additional educational programs and staff, the plan brought many diverse elements together that will continue to help sequence the construction of facilities and gardens.

research farm in Kaysville City, about three miles north of the Farmington site. A total of 94 acres of land was obtained for the new botanical gardens which were given the name 'Utah Botanical Centre'. The new site included four ponds which covered 23 acres, 40 acres of public open space around the ponds and 31 acres of farmland where the formal botanical centre would be built. The site was a blank canvas on which to build a new botanical centre.

Initial plans for the botanical centre were developed by a technical advisory committee from different academic departments at USU. Several surveys, such as a statewide survey of USU extension master gardener volunteers and a Kaysville City survey of 500 households, added to the master plan. These inputs helped to develop a mission statement focused on sustainable urban landscapes, resource conservation, and water quality. Two national leaders in sustainable urban landscapes - Daryl Morrison and David Northington - helped to refine the mission and site master plan. These planning efforts were more focused on the mission and site plan and less focused on the education plan. With a preliminary site master plan, the UBC began soliciting funding from local, state, and federal agencies, and private donors. This funding helped to clean up the site and ponds, re-align the frontage road, and build a greenhouse and offices. With the basic infrastructure (but still no garden) installed, it was time to develop an education plan.

Introduction

An Education Master Plan has been integral to the development of the Utah Botanical Centre, a new botanical centre north of Salt Lake City, USA. It has enabled us to build consensus around a vision, focus efforts on the most achievable short-term goals, and heighten the visibility and value of a new program.

Development of the Utah Botanical Centre (UBC) master plan was necessary because of a physical relocation of a horticulture research farm started by Utah State University (USU) in 1905. In 1998 the state highway department purchased the gardens in order to construct a highway interchange. Plans were made to relocate the botanical gardens to a location adjacent to the existing USU

The process

In 2002, the UBC initiated an intensive educational program planning process led by a 12 person interdisciplinary guidance team. In addition to education specialists, the team included university and local school administrators, funding partners, and facility planners who would be instrumental in implementing the plan. The team's goals were to 1) select the type and sequence of new and existing educational programs, and 2) assist in resolving contextual issues such as staffing, funding, and site improvements. Over a period of 12 months, the team conducted two surveys, six group process meetings, and 33 interviews with a variety of stakeholders to develop a list of priority programs. Some of the greatest learning occurred through personal observations and interviews at 17 botanical gardens in the western United States, many of which had not developed an education master plan. These visits allowed the team to 'reality-check' their own ambitions and understand the lessons learned by other developing programs. Major research findings are summarized in Figure 1.

Figure 1. Major team findings during the Education Master Plan process

- the importance of a close working relationship with the school district and local teachers
- that planning programs and facilities for school groups will often satisfy the needs of other audiences and facilities
- the need for trained educators that can effectively lead school groups
- that facility requirements of the immediate-term program priorities may impact on the implementation of the site master plan, requiring this to be modified

A wide range of needs and messages were grouped into general themes and prioritized by considering the UBC and USU mission, potential funding sources and amounts, projected audience needs, cooperation or competition from similar programs, and the



expertise and limitations of staff. The team then prioritized immediate-term and long-term programs by audience: K-12 students, university students, horticulture industry professionals, and the general public. The final 250 page Education Master Plan was condensed into an executive summary publication and was distributed to university officials, the school district, local and state elected officials and commissions and other stakeholders. This executive summary has been a valuable tool in communicating the results of the educational planning process to decision makers and potential funding sources. Excerpts of the summary are available on the web site: www.utahbotanicalcenter.org.

Above: View of Utah House, a sustainable building demonstration and learning centre (Photo: Utah Botanical Centre)

Implementing the plan

Some of the milestones in implementing the master plan have included hiring a coordinator for the Utah House, a sustainable building demonstration and learning centre, and an education coordinator for the botanical centre (also see Figure 2). These specialists designed a field trip program at the UBC directed at fulfilling the requirements of the Utah State Office of Education K-12 core curriculum in horticulture, wetlands, wildlife, energy and water conservation, and environmental economics. In 2002, there were only about 150 students who visited the UBC. By August 2003, the Utah House had opened and in 2003-2004, the Utah House and UBC had over 7,000 visitors, including 1,000 K-12 students in 2004. Other programs were initiated or consolidated from other university facilities to the gardens, such as a series of Saturday morning gardening classes throughout the 2005 growing season. Offerings of off-campus USU credit horticulture classes were increased, with classes

Left: Visitors are keen to participate in education programmes despite the botanical gardens still under development (Photo: Utah Botanical Centre)





Right: During 2004 the botanical centre entertained over 7,000 visitors and 1,000 students (Photo: Utah Botanical Centre)

focusing on Sustainable Landscapes, Soil Science, Annual and Perennial Plants, Native Plants, Pest Management and Introduction to Landscape Architecture.

Figure 2. Major benefits of the Education Master Plan during implementation

- catalyzed latent group energy into action towards mission-focused program goals
- identified 'low-hanging fruit' (i.e., funding, programs, partners) that could be more easily attained despite currently limited resources
- created a phased action plan of immediate and long-term programs, based on available funding, personnel, and facilities
- demonstrated to stakeholders, especially funding sources, that we have a plan and that the plan is working

Programs for horticulture industry professionals were also expanded. A pilot program included industry professionals, extension specialists, and UBC staff working together to teach a series of classes on Landscape Design and 'Winterizing' Your Landscape. The UBC hosted a water conservation tour for the Utah Water Conservation Forum. The UBC increased their involvement in planning and conducting the annual Utah Green Industry Conference. Programs for the general public were initiated or consolidated from other university facilities to the UBC, such as a bi-weekly series of Saturday morning gardening classes throughout the 2005 growing season.

On reflection

These popular programs influenced the site operation by highlighting the need for an all-weather educational facility. They also highlighted the need for interpretive signage and a comprehensive interpretive plan that would allow for greater numbers of

self-guided group tours, so lightening the load of education staff and docents who until this point have presented to most visitors.

Implementation of some components of the education master plan showed that clients will respond to educational programs even though the botanical gardens are still under development. The plan brought many diverse elements together and will continue to help sequence the construction of facilities and gardens with the development of additional educational programs and staff.

Résumé

En 2002 le Centre Botanique de l'Utah (CBU), nouveau centre d'interprétation au nord de Salt Lake City, dans l'Utah, a initié une démarche de planification de programmes éducatifs intensifs conduite par un groupe d'orientation interdisciplinaire composé de douze éducateurs et administrateurs de l'annexe de l'Université de l'Etat

d'Utah, le Centre Botanique de l'Utah, le Bureau d'Education de l'Etat d'Utah, et le District scolaire de Davis. Les objectifs du groupe étaient de 1) sélectionner le genre et le déroulement de programmes éducatifs nouveaux et déjà existants, et 2) assister dans la résolution de sujets contextuels tels que l'amélioration des ressources humaines, financières ainsi que du site. Sur une période de douze mois, le groupe a mené deux enquêtes, six rencontres avec les groupes concernant les démarches, 33 entretiens avec une variété d'acteurs impliqués, et a observé des programmes dans 17 sites d'interprétation afin de développer une liste de programmes prioritaires. Cet apport a été mis en avant en tenant compte de la mission du CBU et de l'UEU, des potentielles opportunités et contraintes de financement, des besoins du public, de la coopération ou compétition provenant de programmes similaires, et de l'expertise et des limites du personnel. Certaines composantes des plans ont pu être mises en place en employant un coordinateur pour la Maison de l'Utah et un coordinateur pour la section éducation du centre botanique. A la suite de l'achèvement du plan détaillé pour l'éducation 2003, la Maison de l'Utah et le Centre



Botanique ont accueilli plus de 7000 visiteurs, dont 1000 étudiants K-12 en 2004. En plus de développer des programmes et du personnel éducatif supplémentaire, le plan a rassemblé de nombreux et divers éléments et assistera dans le déroulement de la construction des aménagements et des jardins.

Resumen

En 2002, el Centro Botánico de Utah (UBC), un nuevo centro de interpretación al norte de la ciudad Salt Lake, Utah, inició un programa intensivo de educación, iniciativa tomada por un equipo interdisciplinario de doce educadores y un



administrador de Extension de la Universidad Estatal de Utah (USU), el Centro Botánico de Utah, la oficina de Educación del Estado de Utah y la Escuela distrital Davis. Los objetivos del equipo fueron 1) seleccionar el tipo y secuencia de los programas educativos nuevos y existentes, y 2) asistir en la solución de temas contextuales relacionados con personal, financiamiento y mejoramiento del espacio. Durante un período de 12 meses, el equipo condujo dos estudios, seis reuniones de procesamiento de grupos, 33 entrevistas con una variedad de poseedores de los recursos, y programas observados en 17 sitios interpretativos para desarrollar una lista de programas prioritarios. Esta iniciativa fué priorizada considerando las misiones del UBC y USU, las oportunidades potenciales

de financiamiento y restricciones, necesidades de la audiencia, cooperación o competencia de programa similares, así como también la experiencia y limitaciones del personal.

Componentes del plan fueron implementados por contratación de un coordinador para la casa Utah y un coordinador de educación para el centro botánico. Posterior a la



terminación del Plan Maestro de Educación en 2003, la casa Utah y el centro botánico recibieron 7000 visitantes, incluyendo 1000 K-12 estudiantes en 2004. Además, para el desarrollo de programas

educativos adicionales y personal, el plan trajo varios elementos diversos juntos que ayudarán la secuencia de construcción de servicios y jardines.

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Above: View of Utah House and the Botanical Center)

Left: Looking out across the botanical centre (Photo: Utah Botanical Centre)

Left: Entrance to Utah House (Photo: Utah Botanical Centre)

Evaluation and planning for the 'Schools in the Forest' education programme

Summary Gurukula Botanical Sanctuary's educational programme 'The School in the Forest' is now 12 years old. We work with schools, individuals and NGOs at local, regional, national and international levels. Our concern is to bring about a shift in attitude and alliance within human society with respect to the natural world. We encourage long and intensive exposures to the tropical forest environment to open different sensibilities and dimensions in children. We are now reviewing our residential programmes with the various participating schools and educational networks by inviting feedback and consideration of shared concerns. We are urging a collective reflection of environmental and global issues in order to bring about effective and meaningful action. We suggest that the severance between humanity and nature has complex roots. A far deeper awareness is needed to address this.

children respond with their own observations and questions and are generally quite attentive. In essence, GBS educational programmes are born from the sense that the *perception of beauty brings about meaning, affection and joy and as a result learning and action.*

Linking with schools

We have been encouraging contact with many schools, hoping to build momentum in environmental awareness with more educators and more schools. Our aim is for teachers

Right: GBS encourages children to experience the forest through their senses and bodies along with their hearts and minds (Photo: Suprabha Seshan)

Introduction

Gurukula Botanical Sanctuary (GBS) has been running its residential School in the Forest educational programme for 12 years. Operating over two to three weeks, the programmes emphasise a multi-dimensional way of living. Children are exposed to nature and natural history through forest exploration, enquiry, community life, solitude and reflection. Encouraging them to use their bodies and senses to experience their visit is a central tenet of the programme.

We process the learning through dialogues and sharing. Exchanges are usually quite lively and thought provoking and most of the time





Left: Children have a sense of awe when they meet trees on such a grand scale (Photo: Suprabha Seshan)

can make a difference. Sensitivity, of course, cannot be quantified but there is a recognizable quality of seriousness that comes about in a person when they start to feel responsible for things. A shift in priorities away from self-gratification and personal fulfilment takes place. We believe that meaningful contact with nature is important in this respect and are keen to examine how we can collectively facilitate this.

to use their own locality for exploration and environmental education and for us to offer them complementary support. There is a preference among schools (with one or two exceptions) to focus on natural history, environmental pollution and wildlife etc. However, little work is done on using the body and senses to experience the environment. In our view, all these dimensions go together. We believe that there is a critical, more fundamental connection between the wider world and us (as organic beings) and that we need to experience links through our senses and bodies along with our minds and hearts.

Having said this there is a realization that, specifically with the shorter programmes, children's experiences at GBS may not necessarily transfer well into the rest of their lives. How can we make this bridge?

Recommended changes

Following feedback from visiting schools in the form of letters and dialogue between GBS' education team (internationally scattered), we have come up with a number of recommended changes for the School in the Forest programmes:

- **children spend more time with us**
- **children come in smaller groups** say 10, maximum 12. We feel that groups of 10 + are too large (unless they have already visited before) to allow for the space to feel things, and to disengage from the human /social world

- **children come more than once.** We feel that young (age 11-13) urban children are not adequately prepared for their visit in order to take full advantage of the experience, both in terms of theory and knowledge and basic comfort and familiarity with nature
- **we establish a meaningful dialogue between the schools and GBS,** to understand how children develop throughout their schooling. For instance is it possible to conceive of a sustained environmental curriculum over five or 10 years that might include campus-based activities? Can we revisit themes over the years in new and creative ways so that children can build on their experiences and knowledge?
- **link some of the exposure at the Sanctuary to mainstream subjects** so that the experience here infuses some of the learning at school.
- **we articulate better what it is we wish to see happening from these encounters.** What do we want children to do? Develop naturalist skills? Develop school gardens? Cultivate organic vegetables? Make alternative life style choices? Respond to current global environmental problems?

One of the points raised was of sensitivity. Many thought that this could perhaps be the one thing that



Left: Children are encouraged to use all their senses when exploring the forest. Here they are walking through a stream (Photo: Suprabha Seshan)

We have received feedback on our recommendations from four schools and are waiting to hear from others. Everyone agrees that a closer cooperation between GBS and the schools could generate a more meaningful and exciting nature curriculum. One school has suggested thematic approaches that carry on throughout the year, for example the study and observation of life cycles, while another school will definitely send children several times throughout their education. Others agree that this is a good idea but find it difficult to fit in to their existing schedule. Workshops or exchanges between GBS and teachers may be the single most significant activity to pursue.

Conclusions

We are constantly examining what we can do so that children visiting GBS or elsewhere, are profoundly touched by the beauty of the living world, by life, by their own amazing bodies, by the warm aliveness in things. For us, this is obviously about maintaining and generating something within us, keeping places ringing with aliveness. It is also about having a dynamic exchange between the schoolteachers

Right: Children are learning to trust each other by closing their eyes and being lead through the stream (Photo: Suprabha Seshan)



Far right: Nature has her own palate with which to create beautiful art work (Photo: Suprabha Seshan)



and adults concerned so this becomes a seamless process. We are all really more interested in developing programmes that get people 'in the gut'. Then we can leave the rest to life and the universe - so to speak!

Résumé

Le programme éducatif « L'école dans la forêt » du Sanctuaire Botanique de Gurukula a maintenant 12 ans. Nous travaillons avec les scolaires, les individuels et les ONG au niveau local, national et international. Notre but est de provoquer un changement à l'intérieur de la société humaine dans son attitude et sa liaison par rapport au respect du monde naturel. Nous favorisons un contact long et intensif avec l'environnement de la forêt tropicale pour faire émerger de nouvelles sensibilités et dimensions chez les enfants. Nous sommes en train de revoir nos programmes locaux avec la participation de nombreux réseaux liés au monde scolaire et au

monde éducatif en sollicitant des discussions et des échanges sur des problèmes communs. Nous avons besoin d'une réflexion collective sur les problèmes environnementaux et globaux afin d'aboutir à une action effective et pleine de sens. Nous pensons que la séparation entre l'humanité et la nature à des racines complexes. Une sensibilisation aussi profonde que possible est nécessaire pour atteindre notre objectif.

Resumen

El programa educativo del Santuario Botánico de Gurukula (Gurukula Botanical Sanctuary), 'escuela en el Bosque' fue iniciado hace 12 años. Nosotros trabajamos con escuelas, individuos y ONGs a nivel local, regional, nacional e internacional. Nuestra preocupacion es promover un cambio de actitud de la sociedad humana hacia la naturaleza. Nosotros promovemos una exposicion larga e intensiva hacia los bosques tropicales

para abrir diferentes sensibilidades y dimensiones en los niños. Nosotros estamos actualmente revisando nuestros programas residenciales con las escuelas participantes y redes educativas, invitando a la retroalimentación y consideraciones de preocupaciones mutuas. Urgimos a una relexion colectiva de temas ambientales y globales con el fin de concretar una accion efectiva y significativa. Nosotros sugerimos que la profunda separación entre la humanidad y la naturaleza tiene raices complejas. Una reflexión mucho mas profunda es necesaria para solucionarla.

Right: Children reflect on their day's experience with a staff member of GBS (Photo: Suprabha Seshan)



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Dimensional Design

- a holistic approach to garden planning

Summary Dimensional Design is a holistic approach to garden education based on team effort (the team is key!). The team works together to develop programs, horticulture and entomology displays, interpretation, communications, and amenities to support a theme each year. All staff develop ideas as a team creating one cohesive unit. The Dimensional Design process educates the public through three steps; Stratification (each year a theme is chosen on which to focus), Repetition (once a theme is chosen it is repeated through all the areas of the garden), and Application (the theme is chosen and now repeated through the different areas). Brainstorming is an integral step within the Dimensional Design process and includes the following steps: search, share, select and schedule.

Reiman Gardens is a 14-acre garden located on the south side of the Iowa State University Campus in Ames, USA. It functions as an educational display garden that celebrates the natural and botanic diversity of Iowa, while drawing inspiration from the state's agricultural traditions. Reiman Gardens began almost 10 years ago with the seed of a 20 year plan that was ultimately implemented in less than seven. The physical aspects of the gardens took precedence over education for many years, resulting in non-focused educational planning and the absence of collaboration between garden areas. Within the last three years, staff have developed a multi-disciplinary approach that focuses all garden areas with one theme.

Dimensional Design

The Dimensional Design process can be compared to a term paper, with each year representing the paper. The theme is the title (stratification), the different areas are the outline (repetition), and what reaches the public is the content (application). Everything that happens that particular year should support the theme. If one was to write a paper on buck roses, yet included a paragraph on dwarf conifers it would not be focused and confuse the reader. The gardens'

programs, horticulture and entomology displays, interpretation and communications should work together the same way and not have individual areas venturing off on their own. Pieces that do not fit the whole are called 'floaters' and should be avoided if possible. The unique aspect of this approach is that it is carried out on an annual basis, rather than display-to-display. By working annually, all displays have interconnected sub-themes that also support the annual theme. The matrix chart (p21) shows this concept.

The Dimensional Design process educates the public through three steps:

1. **Stratification.** First, the staff must choose an annual theme. The theme concept evolved from the idea that many layers and dimensions create a whole garden. By concentrating on one layer or dimension each year the public learns about the Gardens a little at a time. As years pass these layers build up and the public understands a larger portion of the Gardens. The theme concept also challenges the staff to stretch the limits in all areas. Theme years also add a sense of freshness to the gardens and encourage return visits. An annual theme has a series of sub-themes that support it. For instance, the annual theme might be 'The Art of Gardening' (our theme in 2006), with sub-themes for the horticulture displays such as 'Post-Modernism: The Car in the Garden', 'Tulip Pointillism', 'The Blue Garden', 'O'Keefe and the Calla Lily'. As a whole these sub-themes start to paint a broader picture of the annual theme.

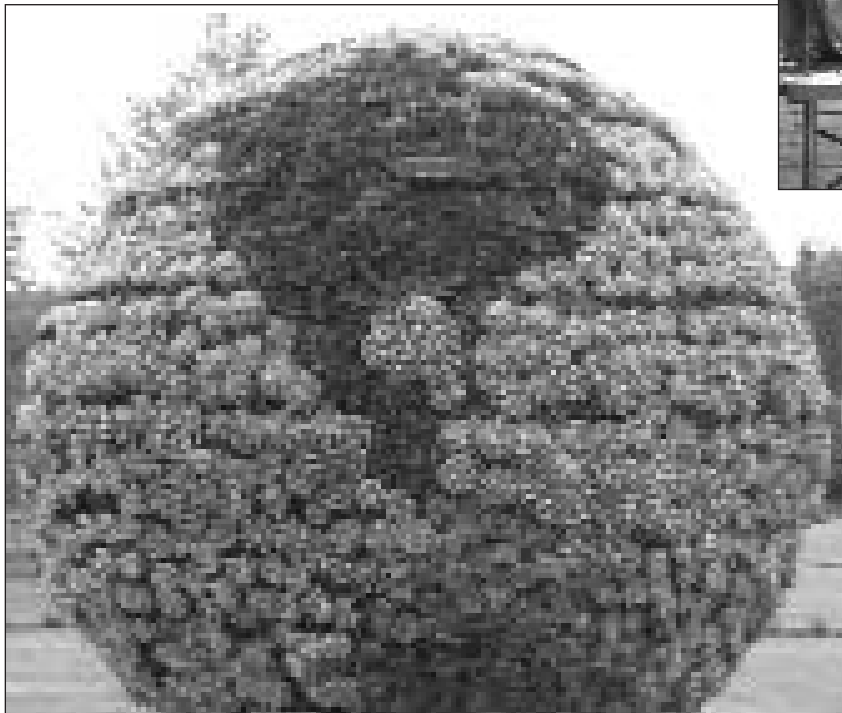
2. **Repetition.** Once a theme is chosen, it is repeated throughout all the areas of the gardens. These areas include education and events programs, interpretation, horticulture, entomology, communications, and the amenities (café and gift shop). Staff from each of these areas compose the design team. Working together allows

productive idea generation, everyone to understand what is happening and support for each other through shared resources. As a result, the public is better educated about a certain topic because they see it in different forms throughout the year. They may view a topiary horticulture display, learn how to create topiary in a workshop, read about the history of topiary through interpretation, or even buy a small topiary in the gift shop. Rather than learning about horticulture or entomology in one dimension, they are learning about it from many dimensions. The different areas that offer repetition are highlighted at the top of the matrix chart the chart represents one year.

3. Application. The theme is chosen and now repeated through all facets of the gardens. The next step is to bring the focused information to the public. Each area is broken down into smaller 'tracks' that allow this information to reach visitors through various methods. Visitors come to the Gardens for different reasons each with their own learning style and interests. Some are attracted to gardening because they love to cook, create art, it's therapeutic, are interested in science, or just simply enjoy beautiful things. The tracks take the theme year, formatting the information to reach a

Far right:
Filling the
topiary globe
with plant
materials
(Photo: Reiman
Gardens)

Right: The
Global Garden
focal point: a
topiary globe
filled with
Echeveria
during 'The
Global Garden'
theme year
(Photo: Reiman
Gardens)



diverse audience. The matrix chart lists all the tracks below the individual areas and shows how everything is interconnected.

Brainstorming

Brainstorming is an integral step within the Dimensional Design process. The goal of these team meetings is to develop unique ideas that support the theme year. This process is important in creating new concepts in gardening. It challenges the team to think 'outside the box', so we can in turn enchant and educate the public by offering outstanding displays and programs.

These meetings are broken down into four steps:

1. Search. Once the theme is chosen, the team meets to discuss all the different aspects of that theme that they can research. For example, if the theme is 'The Art of Gardening' the team creates a research list that might look like: cubism, design principles, sculpture, impressionism, post-modernism, horticulture techniques, etc. Each staff member on the team takes several of these topics to research over several weeks (library, internet, etc.). It is important to note that the

topics chosen do not have to be horticulture related and is often more productive with a wide range of topics. By bringing together very different ideas, new ideas are grown. Why not challenge ourselves to make a post-modern garden? As a result, the public will learn about an artistic style and how they can replicate it in their own garden.

2. Share. Once everyone conducts his or her research, we meet again to share what we found. Each team member presents their information to the group. Then we open it up for discussion and make a new list of items we think could make a great program or display. This step may stretch over several meetings with additional research as needed.

3. Select. Once all of the best ideas are collected, the team selects their favorites and decides what format is best – inside or outside horticulture display, entomology display, educational program, interpretation, exhibit, etc.



4. Schedule. Next, the team sets dates, assigns lead designers and creates the sub-themes leaving the fun part...implementation.

Dimensional Design Implemented

At this stage, the process is still in its infancy, but is gaining momentum. Reiman Gardens' 2005 theme year, The Global Garden, could be considered the Dimensional Design ideal – which means that all programs, displays, interpretation, and communications have one focus and build on each other. The ultimate goal would be that

100% of all areas follow the theme year. As we plan the next theme year, 'The Art of Gardening', we will continue to work towards this goal.

How has Reiman Gardens' focused on The Global Garden theme this year? It is demonstrated in the matrix, but here is how one sub-theme, 'The Origin of Corn', is repeated in several areas:

Horticulture

- the Origin of Corn Display (Mexico): This summer our Children's Garden has been transformed into a scene from Mexico. It highlights the six major plant families in Mexico including eight varieties of corn that originate from Mexico. This garden also features teosinte (*Zea mays* ssp. *parviglumis*), a wild corn species considered to be the plant from which all corn originates.

Education

- discovery stations: The Origin of Corn and The Vanilla Bean
- mommy & me youth (Pre-K) programs: pretty piñatas and musical mexican maracas
- youth camps (K-5): globetrotting gardeners (touches on all areas, including the Mexican theme)
- adult workshops: mexican chili arrangement of the month and salsa container garden
- interpretive signage: Highlights the plant diversity of Mexico, Teosinte (The Mother Corn) and the vanilla orchid (actual plants will be included). Interpretation will be located within the corn crib in the Children's Garden.
- volunteer education: adult tour guide training focused on the theme year so that volunteers can educate public about current displays.

Communications

- Reiman's Pick: A bi-weekly article that is written by staff and published in state newspapers. One week will focus on teosinte corn.
- interpretive sign templates developed for inside and outside gardens with graphics that emphasize the theme year.
- education brochures: brochure produced three times per year with articles and graphics that emphasize the theme year.

Multi-dimensional

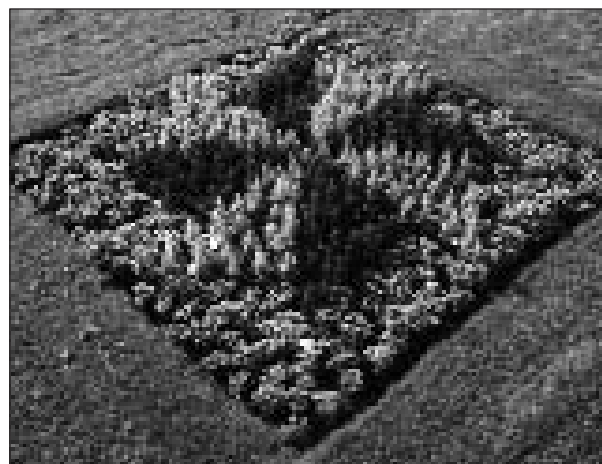
It is important to remember that this is just one example of many sub-themes that will occur under the annual theme of The Global Garden. Other sub-themes within horticulture (both inside and outside) include Japanese Rock Garden, French Parterre Garden, French Potager Garden, Mediterranean Garden, Topiary Display, Butterfly Safari, Orchid Display, Garden of Abundance (Italy), and Lights of St. Lucia (Scandinavia). Of course, these sub-themes are reinforced through all areas of the gardens. Together they create a term paper that focuses on one theme and the public is educated on another dimension of the garden while experiencing a wonderful journey in the process.

Résumé

Le Modèle dimensionnel est une approche complète de l'éducation dans les jardins basée sur les efforts d'équipe (l'équipe est la clé !). L'équipe travaille ensemble pour développer des programmes, des démonstrations d'horticulture et d'entomologie, l'interprétation, la communication et les agréments du lieu pour soutenir un thème chaque année. Tout le personnel développe des idées en tant qu'équipe créant ainsi une unité en cohésion. La démarche de Modèle dimensionnel éduque le public à travers trois étapes ; la Stratification (chaque année un thème est choisi sur lequel on se concentre), la Répétition (une fois le thème choisi, il est répété à travers toutes les zones du jardin), et l'Application (le thème est choisi et ainsi répété dans les différentes zones). Le brassage d'idées est une étape intégrale de la démarche du Modèle dimensionnel et inclut les étapes suivantes : Recherche, Partage, Sélection et Programme.

Resumen

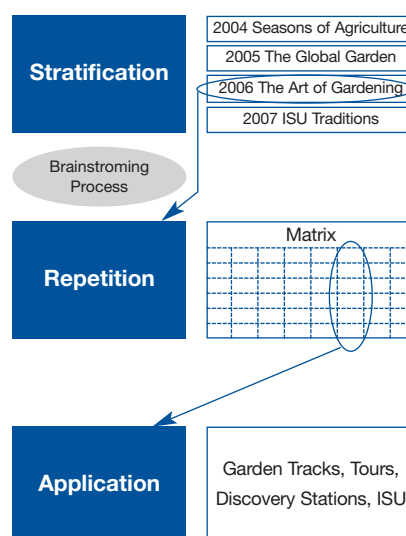
Diseño dimensional es una visión holística a un jardín educativo basado en esfuerzo de equipo (el equipo es la clave!). Los equipos trabajan juntos para desarrollar programas, exhibiciones de horticultura y entomología, interpretación,



comunicación, y amenidades para apoyar un tema cada año. Todo el personal desarrolla ideas, cómo un equipo creando una unidad cohesiva. El proceso de Diseño dimensional educa al público a través de tres pasos: Estratificación (cada año se escoge un tema sobre el cual se enfocará), Repetición (una vez que el tema es escogido, es repetido en todas las áreas del jardín), y Aplicación (el tema escogido se repite a través de diferentes áreas). Lluvia de ideas es un paso integral dentro del proceso de Diseño dimensional e incluye los siguientes pasos: Busca, Comparte, Selecciona y Programa.

Above: One of the display beds from the Quilt Block display during the 'Seasons of Agriculture' theme year (Photo: Reiman Gardens)

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Creating a **natural environment** for learning

Summary The University of Oxford Botanic Garden was founded in 1621 as a 'place whereby learning might be improved'. The remit of the garden, has remained the same throughout the garden's history but the user groups have dramatically changed, particularly during the last 15 years. This dramatic change in visitor profile along with the marked increase in educational visits has resulted in many positive changes to the way we work. The effect of these changes can be seen by the major role played by education within the garden's five-year plan and the fact that education is now a key part of everyone's job description. This article will outline how our garden has evolved in the last 15 years before exploring the garden's current educational philosophy.

The profound effect of these changes is reflected by the central position of education within the garden's five-year plan and by the fact that education is now a key part of every job description with 10 members of horticultural and arboricultural staff involved in delivering education programmes in addition to the three full time education staff.

Right:
Louise Allen,
Curator,
planning the
education
programme
with Assistant
Curator James
Stevenson and
Primary School
& Family
Education
Officer Emma
Williams
(Photo:
University of
Oxford Botanic
Garden)

Introduction

The University of Oxford Botanic Garden was founded in 1621 as a 'place whereby learning might be improved' with the mission 'to promote learning and glorify the works of God'. In 1963 the Harcourt Arboretum was taken on as a satellite collection to the garden with the same mission. The garden and arboretum remains committed to 'promoting learning and glorifying nature' and the remit, has largely remained unchanged throughout the garden's history; however the user groups have changed, particularly during the last 15 years. The dramatic change in our visitor profile, along with the marked increase in educational visits during that time period, has resulted in many positive changes to the way we work.



Looking back

When Henry Danvers gave £5,000 in 1621 (equivalent to £3.5 million today) to the University of Oxford to establish the Oxford Physic Garden the University of Oxford set out to create a garden where physicians could be taught about the plants used in herbal medicine. During the garden's 380 year history it has evolved from a collection of medicinal herbs for seventeenth century physicians into a compact and diverse collection of plants with over 6,500 species representing almost every botanical family. These species within the garden's two hectares are now accessible to those between the ages of four and 94 through our education programmes. The garden's success can be put down to its willingness to change and evolve to serve its user groups. If the garden's remit had not moved with the times it is inevitable that the garden would have ceased to exist; we now refer to the garden as being a process rather than a product with change being the norm.

Making the change from gardeners and educators to garden educators

Key to the garden's current educational success has been the introduction of education into everyone's job description so that everyone who works in the organisation signs up to the educational philosophy of the garden. This means that the horticulturists do not regard education as something that somebody else does. It also results in everyone being much more aware of the implications of their horticultural operations. If you know just how loud you have to shout to be heard over the roar of a lawn mower you are much less likely to mow the lawn in an area adjacent to a visiting group! If you know just how excited a school group becomes when they see cotton bolls growing on a cotton plant then you are less likely to harvest them for the garden's seed list until the school term has finished. These two simple examples show just how important this approach is to making the education programme a success. It also gives everyone on the staff a greater sense of ownership of education.



Making the change from gardeners and educators to garden educators is not a quick process and has taken over a decade to achieve. As new members of staff have joined the garden we have chosen individuals who are as keen to communicate as they are to garden. Staff training in presentational skills is offered to everyone within the garden and even our one year horticultural trainees are given the opportunity to develop their guided tour techniques on the Friends of Oxford Botanic Garden. The Education Programme's emphasis on live interpretation means that everyone on the staff regularly has the opportunity to put into practice what they have learnt. Some staff choose to focus their interest on adult groups with other's finding that their talents lie in communicating with children.

The garden today

Today, people of all ages and backgrounds use the garden and arboretum. Undergraduates studying biological sciences and related subjects at the University of Oxford visit to learn about many aspects of plant biology and plant conservation.

In addition research workers from scientific departments within the university use the plants grown at the garden and arboretum. Plants and seeds are also provided for many other researchers in this country and abroad. Over 7,500 school children visit the garden and arboretum each year as part of our Schools Education Programme. Through our commitment to life long learning, the garden and arboretum ensure that adults as well as children can benefit from our programmes. Each year more than 5,000 adults attend courses and tours at the garden to learn more about plants. The garden also runs an active community programme with an annual Festival Programme at the garden and a Family Learning Programme at the arboretum attracting over 7,500 people each year.

Our educational philosophy

The educational philosophy that runs throughout our Education Programme is extremely simple yet very effective. Using live interpretation we tell stories about plants. Each story that we tell about a plant aims to provoke, relate and reveal. This approach has been so

Above: Assistant Curator Kate Pritchard teaching local school children in the Palm House (Photo: University of Oxford Botanic Garden)

Right: The Water Garden with Magdalen College in the distance (Photo: University of Oxford Botanic Garden)



Far Right: The renovated Fernery designed by Assistant Curator Kate Pritchard (Photo: University of Oxford Botanic Garden)



successful that it feels more like a mantra than simply a technique and has become second nature to the staff working with visiting groups. Regardless of whether the botanic garden visitor is four years of age or 94 we have found our approach to be a powerful and effective technique.

Sharing good practice

We are looking forward to welcoming the botanic garden community to Oxford in September 2006 when we will host BGC's 6th International Congress on Education In Botanic Gardens. We are keen to share our experiences and techniques with others while learning new approaches that we can introduce into our Education Programme. So whether you are a director, curator, educator or horticulturist why not consider coming along and learning more at *The Nature of Success, Success for Nature*, from

10th to 14th September 2006. For more information about the congress or to register your interest www.bgci.org/educationcongress

Résumé

Le jardin botanique de l'Université d'Oxford a été fondé en 1621, comme "un lieu pouvant améliorer l'apprentissage". La réputation du jardin est demeuré identique à travers son histoire mais les groupes d'utilisateurs ont considérablement changé, en particulier ces 15 dernières années. Ce changement radical du profil des visiteurs ainsi que l'augmentation marquée des visites éducatives ont eu pour conséquence de nombreux changements positifs dans notre façon de travailler. L'effet de ces changements peut se remarquer dans le rôle majeur que joue l'éducation dans le plan du jardin établi sur 5 ans et par

le fait que l'éducation soit à présent une partie incontournable de tout profil de poste. Cet article expose la manière dont notre jardin a évolué ces 15 dernières années, avant d'ensuite explorer la philosophie éducative actuelle du jardin.

Resumen

La Universidad de Oxford fue fundada en 1621 como un 'lugar donde el aprendizaje podría mejorarse'. La misión del Jardín, ha permanecido a través de la historia del Jardín, pero los grupos usuarios han cambiado dramáticamente, particularmente durante los últimos 15 años. Este cambio dramático en el perfil de los visitantes, junto con el marcado incremento en visitas educativas, ha resultado en muchos cambios positivos a la forma en que aquí se trabaja. El efecto de estos cambios pueden ser vistos por el importante papel que juega la educación dentro del plan del jardín a cinco años y el hecho de que la educación es ahora una parte clave de la descripción de trabajo de cada miembro del personal. Este artículo describe como nuestro jardín ha evolucionado en los últimos 15 años antes de explorar la actual filosofía educativa en el jardín.

Right: View of Oxford University, location for the next BGCI International Congress on Education in Botanic Gardens (Photo: University of Oxford Botanic Garden)



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Planning outside of a master plan

Introduction

The 'Interpretive Master Plan' appears to have become recognized as the ideal sort of education plan to have. I sense a palpable envy or desire for it from my colleagues when the subject comes up. And yet, only a handful of botanical gardens admit to having completed ones.

Interpretive master planners suggest that institutions gather a team of stakeholders, consider the objectives, collections or resources they have; then choose methods (from labels to guides to exhibits to brochures) to interpret each one. If one followed John Veverka's Interpretive Master Planning (1994) to the letter, each institution would catalogue all existing and planned assets, consider all conceivable interpretive methods and finally specify every detail of each interpretive feature or program. The process could yield high-quality end results, but in practice, such a detailed process seems most useful for botanical gardens beginning new projects or major construction.

The drawback for an institution like mine is the uncertainty about the future garden development. Despite a thoughtfully-done master plan to prepare for future expansions, the actual garden layouts, final visitor amenities, and plant lists remain far off into the future. In gardens, the plant list especially determines the lessons that can be taught and the subjects that can be explained. So for me, the full master planning treatment was unrealistic.

And yet I desire high quality end results: programs, displays and learning that fulfilled my goals and my institution's mission. So I began to prepare for the future and a better present with the notion that interpretive planning can be comprehensive without being a master

Summary Interpretive Master Planning is the process of creating a master plan for all interpretation at an institution: this is a major undertaking. The intended results can be so detailed as to become easily out dated or obsolete. The solution we attempted was to provide a flexible but meaningful planning structure that could be used to focus and improve our efforts. We adapted elements of educational and business planning into a format that would outline an interpretive method (how) without overly specific detail.

Starting with questions of what to interpret to whom and why, we selected preferable interpretive methods (how) and then discussed measures by which the method's success could be judged. The plan that resulted is comprehensive but will retain flexibility as the institution grows: we can also evaluate new opportunities as they appear. In our case, the consensus that emerged from the planning process gave us both direction and momentum that continues to this day.

plan. Together with the Board's Education Committee, we started discussions with a model from Veverka.

The process

We determined the audiences we wanted to reach (who), the most worthwhile subjects to cover (what), and the reasons we would have such things at all (why). As we progressed, we realized our whys should reflect our institution's mission statement and yet we were all cognizant of the practical constraints that affect programming success in the real world. So we adjusted our model, added a constraint list and began extending our lists of who, what and why.

These lists become a simple sentence: choosing the who of 'schoolchildren', the what of 'plants' cultural, medicinal and economic uses' and the mission (why) of 'increasing the audience's understanding of the subject'. We thought about programs that would

'increase schoolchildren's understanding of the cultural uses of plants' and programs that would 'increase casual visitors' appreciation for native plants.'

Given the energy and enthusiasm that I see in this profession, I have no doubt we can all brainstorm a surfeit of programs to meet the broadly stated goals that the who, what and why lists help you generate. It is important to screen your ideas against the constraints you have to operate under, both self imposed and otherwise. Even then, it's easy to have too many possibilities as you begin with interpretive methods (the 'how' section).

The process of choosing your methods of interpretation will probably begin as another list. Do not list every *program* you want to try – list each *delivery method*. Do not list every label, sign or exhibit you think you need – think about all display labels at once, all interpretive signs at once, etc. If you do have the time and energy to write up each

program and each sign, that is interpretive master planning. But you don't need to go that far to compare the relative merits of developing interpretation for schools that visit with developing traveling interpretation to go to schools.

To make these choices, create a uniform format that your team can use to consider different methods. Our methods ranged from the informal education of interpretive labels to the formal, standards-linked education of a school tour. For each method, I listed the audience, the subjects, a two to three sentence description and any specifications or requirements that were relevant. When I brought this bare bones format to the others, it was easy to understand and stimulated productive discussion. As our list of methods lengthened we could see which priorities we were reaching. Finally, we reached what I considered the most important feedback I could get: what was the measure of our success?

Measuring success

Measuring learning can be a difficult task, especially when it competes for time with program delivery. Choosing measures that predict future success can help guide your efforts. For your programs, what indicators forecast success? What statistics will funders or stakeholders want to know? Is success measured by the number of programs or the number of people in those programs? Is it by the number of offerings available or by which programs are most popular? If these topics are unfamiliar to you, I recommend the 'balanced scorecard' model.

Like so-called 'total quality management', the 'balanced scorecard' is a business management system that attempts to mesh measurements of past performance with predictors of future performance. The goal is to give staff (like myself) and governing bodies (boards and committees) the best indicators and measures to use in shaping strategy and tactics.

During our discussions, we selected indicators and measures for each method. Typical measures included number served, audiences served, program delivered, groups not served,

students per instructor, etc. For certain methods, audience-reported feedback was preferable, other times we will seek outside evaluation.

The consensus on what to measure is a terrifically valuable result of the process. It empowers the staff to develop and implement interpretation knowing what measures of success they will be held accountable for. The Education Committee has a format in which they can ask for performance improvements, better measures, or new methods.

Conclusions

This kind of Interpretive Plan is intended to support and enhance the Education Department decision making and even the governance process.

The results of this planning have been quite helpful to me as a staff member. I often consult the plan when making adjustments or considering new ideas. Whether it works for other institutions in place of interpretive master planning has yet to be seen.

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Résumé

La planification détaillée d'interprétation est la démarche de création d'un plan détaillé pour toute interprétation dans une institution : une entreprise majeure. Les résultats attendus peuvent être détaillés au point d'en devenir facilement dépassés ou désuets. La solution que nous avons tentée était d'apporter une structure de planification flexible mais significative qui pourrait être utilisée pour concentrer et améliorer nos efforts. Nous avons adapté des éléments de planification éducative et commerciale

dans un format qui exposerait une méthode interprétative (comment) sans détails trop spécifiques.

En commençant par des questions sur quoi interpréter pour qui et pourquoi, nous avons sélectionné des méthodes d'interprétation préférables (comment) et ensuite discuté les mesures par lesquelles le succès de la méthode pourrait être jugé. Le plan qui en a résulté est détaillé mais retiendra de la flexibilité avec l'accroissement de l'institution : nous pouvons également évaluer de nouvelles opportunités lorsqu'elles apparaissent. Dans le cas présent, le consensus qui a émergé de la démarche de planification nous a donné à la fois l'orientation et l'élan qui se poursuit encore aujourd'hui.

Resumen

Un plan maestro interpretativo es el proceso de crear un plan maestro para toda la interpretación en una Institución: un mayor entendimiento. El resultado buscado puede ser detallado como para estar fácilmente fuera de moda u obsoleto. La solución que nosotros intentamos fué preveer una flexible pero significativa estructura de planeación que podría ser usada para enfocar y mejorar lo que delinearía un método interpretativo (cómo) sin caer en el detalle.

Comenzando con preguntas de que interpretar, a quién y cómo, nosotros seleccionamos métodos preferiblemente interpretativos (cómo) y entonces discutir por que medios se pueden juzgar los éxitos del método. El plan que resultó es comprensivo pero retendrá flexibilidad conforme la institución crece: nosotros podemos también evaluar nuevas oportunidades conforme ellas aparezcan. En nuestro caso, el consenso que emergió desde el proceso de planeación nos dió ambos, dirección y actualidad que continua hasta éste día.

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Education planning for financial survival

Summary Royal Botanical Gardens (Canada) prepared a Master Plan for Education over a one year period between Autumn 2002 and 2003. A request for proposals (RFP) was circulated to education and interpretation planning consultants. Due to increasing revenue generation pressures, a heavy emphasis was placed on business planning experience, rather than just education and interpretation planning experience. The winning proposal was a joint submission by an interpretation/education planning firm and a business management consulting firm.

A team composed of staff, the selected consultants, and community advisors worked cooperatively to articulate a mission and goals for education; look at the broader vision for programming and how it may be prioritized; examine best practices in education at other large gardens in Canada and the U.S.; and analyze financial performance of existing programs.

New programs were recommended, as were actions that could help the Education Department break even or generate a small surplus each year. These actions included some fee increases, new attendance targets, and new targets for soft dollar generation through donations, grants and sponsorships. The consultants developed a planning tool to help with decision-making and evaluation of programs. This Compatibility and Financial Matrix evaluates programs based on their actual or potential financial contribution and their institutional or mandate 'fit'. The obvious first choice are programs that are financially successful while advancing the mandate and meeting departmental goals.

Soon after the plan was approved by the RBG Science, Horticulture and Education Advisory Committee in 2004, revenue generation targets were again increased. In Summer, 2005, the Education Department has been tasked with the goal of being consistently profitable based on full overhead costs.

Introduction

While education has always been a key part of the work of Royal Botanical Gardens, it has definitely had its share of ups and downs over the past 10 to 15 years. Like education and interpretive programs in many publicly funded heritage institutions, agencies

and parks in Canada, our education budget was historically considered 'soft', and staff reduction and reorganization through the 90s took a huge toll. For a short while, I was the only person left of what had been an eight to nine member team. With the help of strategic partnerships and outside support, we have managed to



regroup and grow. Along with the rest of the organization, we have had to become much more entrepreneurial in our outlook and operations.

By the early 2000s, after years of cuts, and some years of rebuilding, our programming load was diverse, popular and financially successful, but scattered. Along with being part of our core mandate, education had become a considerable source of income for the gardens. Our four full-time staff were spread very thinly though, and taking advantage of new opportunities had become challenging – we were running flat out just to keep the current balls we were juggling up in the air. The time available to initiate new activities was limited (in fact, taking time to even think about initiating new activities was impossible! Does this sound familiar?). We had made huge steps towards a goal of a balanced budget but the pressure was on to further increase revenue generation. The need to focus our efforts was apparent and so in 2001 we applied for funding to develop a Master Plan for Education. As we stated in the request for proposals (RFP),

"In 2001, an internal reorganization brought RBG's educational functions back into one division. These services include public programming, school

Above: A medicinal plant demonstration was one of the new programs developed to help the Education Department break even financially (Photo: Royal Botanical Gardens)

Right: Salad day's Children's Garden (Photo: Royal Botanical Gardens)



programming, and interpretation. The development of a unified Education Department provides an excellent and timely opportunity for us to review our past activities, evaluate our current ones, and look ahead to the future. Our most basic programming goal is to offer a wide range of relevant and high-quality programs that support our mandate, on a profitable basis. Our ultimate goal though, is the development of public understanding and appreciation of the relationship between the plant world, humanity and the rest of nature.”

Our funding application was delayed for the better part of a year while our eligibility for lottery funds was reviewed, and in the intervening time, revenue generation became an even larger priority for us. By the time we received funding in mid-2002, the pressure to increase revenues was so great that the RFP I ended up preparing and distributing was quite different than what I had drafted a year earlier. The need for business planning expertise became a key selection criterion, with the winning bid jointly submitted by an education/interpretation planning firm and a business management firm.

The process

In the RFP, we said that we were “... searching for a consultant/facilitator who will work with our staff and a broad-based advisory group representing various sectors of our program, to develop a vision and strategy for the future of education at RBG. We are not simply looking for an outside vision, but rather are searching for a person or team who can lead us

through the critical steps needed to define and refine our own vision while providing guidance and drawing on their own insight and range of experiences in educational programming.”

Once the contract was awarded to the Blue Sky Design/TCI Management Consultants team, the major steps in the process were as follows:

1. initial working sessions with staff to begin to articulate a mission and goals for education; these meetings continued throughout the process
2. a planning retreat with a multi-sectoral advisory group and staff, to look at the broader vision for programming and how it may be prioritized
3. research survey by the consultants focusing on best practices in education at other large gardens in Canada and the U.S.
4. analysis of financial performance by the consultants
5. development of interim and final reports and recommendations

The fourth step in the process was in some ways, one of the most daunting.

When financial pressures increase in education, deciding how and where to draw the programming line becomes a challenge. When I was first asked to lead the newly amalgamated department, I was directed to see if we could “sniff out any low-hanging fruit” that we weren’t already capitalizing on – in other words, were there any good botanic garden education programs that would be a breeze to set up, have no appreciable operating costs, and bring in buckets of loot? I wish! I had hoped the consultants might come across a few but it seems those types of programs don’t grow on trees (or any other kind of plants for that matter!). Coming up with other programs that are perhaps slightly more crass, and don’t necessarily work with your ‘brand’ or programming mix may sometimes be less challenging, but are they appropriate? How can one evaluate their ‘match’ and financial potential with as much objectivity as possible?

Enter the matrix

The staff at TCI Management Consultants developed a Compatibility and Financial Matrix to help us evaluate our current programming, as well as future plans. While this isn’t rocket science, it articulates and objectifies the work that botanic gardens educators instinctively do on a daily basis, and we are happy to share it in the event that it may be helpful to other gardens and arboreta.

Basically, any program can be mapped onto a matrix using 1) compatibility with your mission/goals, and 2) the associated financial outlook, as the two axes. The resulting matrix looks like this:

COMPATIBILITY and FINANCIAL MATRIX

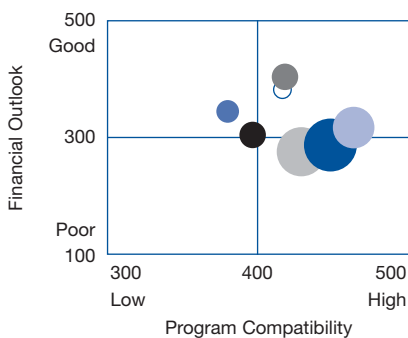
Future Financial Outlook	Good Financial Outlook	B. Redesign Candidates	A. Promotion Candidates
	Poor Financial Outlook	D. Cull Candidates	C. Partner & Fundraise Candidates
		Low Program Compatibility	High Program Compatibility
Current Program Compatibility			

Based on where things graph out,

- **area A** programs could be expanded and promoted to maximize profitability
- **area B** programs should be adjusted to work better within the mandate. They may be retained to the extent that they generate a net financial gain or are particularly important in order to meet public expectations
- **area C** programs work well with the mandate, but don't generate sufficient revenue on a user-pay basis. They may however, be good candidates for sponsorships, donations or grants
- **area D** programs are a weak fit and don't bring in sufficient revenue. They may be tolerated as new or innovative programs but should be culled if performance can't be improved

Initially, the evaluation scales may need to be adjusted so that the bulk of your programs are mapped into the central area of the chart. As shown in the chart below, which maps our full program portfolio, the scales may be a bit askew. When our programs were reviewed by staff using the index provided, we found that most were scored higher on the compatibility index than the future financial outlook index, and so the axes were adjusted accordingly.

Educational portfolio mix for RBG current programs



- Botanical Arts & Crafts
- Horticultural Therapy
- Nature Interpretation Ctr
- Nature
- Gardener
- Kids, Family & Teachers
- Plants & People



Left: One of the most anticipated treats of the winter season – maple toffee. Maple sap is boiled and poured onto fresh snow so it can be scooped up on a stick and eaten immediately (Photo: Royal Botanical Gardens)

This chart groups whole categories of programs together but we also used it to assess individual programs within each category. Numbers were generated based on assessing each program's fit/potential fit to each of our departmental goals (on a scale from one to five), and, to a series of financial goals (again, on a scale from one to five). Financial goals included criteria such as the ability to increase attendance, to increase price, cut costs, subsidize with grants/sponsorship or attract partners.

The results

As directed at the time of its preparation, our Master Plan proposes actions we could take to fully recover all costs (salaries plus programming and promotion costs), and perhaps generate a modest surplus over the next few years. These actions included some fee increases, new attendance targets, and targets for soft dollar generation through donations, grants

and sponsorships. We have a list of program suggestions and refinements from the plan, and we're on the way towards implementing some of these. The plan still does not have full board approval, as our board has been preoccupied with an enormous financial crisis that RBG has been dealing with since the spring of 2004. Our Science, Horticulture and Education Committee endorsed the plan last June but, because of the crisis, have not yet been able to present it to the board for official adoption.

However, as a direct result of this crisis, the Education Department's revenue generation target has been increased substantially. We are now faced with the daunting prospect of generating a profit after our full overhead has been assessed (this includes insurance, legal costs, supervision costs, depreciation of buildings and equipment and their operating costs, and other overheads).

Right: Running under the giant parachute is enormous fun for young children (Photo: Royal Botanical Gardens)

Though some of the Master Plan will become obsolete under these new guidelines, we expect that it will continue to help us to assess new program options and evaluate older programs in order to meet these new challenges.



Résumé

Le Royal Botanical Gardens (Canada) a préparé un plan directeur pour l'Éducation au cours d'une période d'un an allant de l'automne 2002 à 2003. Un appel d'offre a été diffusé auprès des consultants en planification pour l'éducation et l'interprétation. Suite à l'augmentation des pressions sur les recettes, un fort accent a été mis sur l'expérience en planification commerciale et pas simplement sur l'expérience en planification en éducation et en interprétation. La proposition qui en est sortie victorieuse était une soumission commune de la part d'une compagnie de planification en éducation et interprétation et d'une entreprise de consultants en commerce et en direction d'équipe.

Une équipe composée du personnel, des consultants sélectionnés et des Conseillers Communautaires a travaillé en coopération pour définir une mission et des objectifs pour l'Éducation, avoir une vision plus large pour réaliser la programmation et savoir dans quel ordre de priorités procéder, examiner les meilleures pratiques en éducation dans les autres grands jardins au Canada et aux États-Unis, et enfin analyser les performances financières des programmes existants.

De nouveaux programmes furent recommandés, ainsi que des actions qui pouvaient aider le Département d'Éducation à équilibrer son budget ou générer un léger surplus chaque année. Ces actions comprenaient l'augmentation de certains tarifs, de nouveaux objectifs d'assiduité et de nouvelles stratégies pour produire de « l'argent facile » par l'intermédiaire de donations, de subventions et de parrainage. Les consultants ont développé un outil de planification pour aider à la prise de décisions et à l'évaluation des programmes. Cette matrice de compatibilité et de

financement évalue les programmes basés sur leurs contributions financières réelles ou potentielles et la pertinence en matière institutionnelle ou de mandat. Le premier choix évident était d'avoir des programmes financièrement rentables compatibles avec le bon déroulement du mandat et les objectifs du Département d'Éducation.

Peu après le plan a été approuvé par le Comité Consultatif en Science, Horticulture et Éducation du Royal Botanical Gardens en 2004 et les objectifs de production de recettes furent encore augmentés. L'été 2005, le Département d'Éducation a reçu pour objectif d'être suffisamment rentable pour couvrir constamment les frais généraux.

Resumen

En el periodo de un año los Reales Jardines Botánicos (Canadá) prepararon un Plan Maestro para la Educación, otoño 2002 - 2003. Se circularon a expertos en planeación y educación peticiones para solicitudes a concurso. Debido al incremento y presión de los ingresos fiscales, se hizo fuerte énfasis que participaran expertos en negocios de planeación o agendas, no solamente con experiencia en educación e interpretación. La propuesta ganadora fue presentada por un equipo de profesionales en interpretación/ educación y asesores de empresas.

Un equipo selecto de asesores, y una comunidad de consejeros trabajaron en conjunto para llevar a cabo la misión y metas para educación; con vista a un programa de amplia visión, enfocado a como se pueden priorizar tareas; asimismo examinar las mejores practicas en educación en otros jardines grandes en Canadá y los Estados Unidos; por ultimo para analizar el desempeño financiero de los programas ya existentes.

Se recomendaron nuevos programas así como actividades que pudieran ayudar en los diferentes departamentos a producir pequeños beneficios año con año. Estas actividades incluyeron incremento en algunos costos, nuevos objetivos y nuevas metas para generar divisas intercambiables a través de donativos, becas y patrocinio. Los consultores desarrollaron un plan-herramienta para facilitar la toma de decisiones y la evaluación de programas. Esta compatibilidad y matriz financiera evalúa los programas en base a su potencial verdadero o contribución financiera y su mandato o necesidades institucionales. La primera opción obvia es seleccionar que programas son exitosos financieramente, al mismo tiempo que se implementa el mandato y cumplimiento de las metas departamentales.

En el 2004 tan pronto como el plan fue aprobado por los comités Científico, de Horticultura y Educación del Real Jardín Botánico, se generaron de nuevo metas a incrementar o implementar. En el verano del 2005, el Departamento de Educación ha tenido como cometido el objetivo de ser consistentemente redituable en base a gastos totales indirectos.

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The Master Plan for Education, Royal Botanical Gardens was funded by the Ontario Trillium Foundation. The plan was prepared by Blue Sky Design (www.blueskydesignconsulting.com) and TCI Management Consultants (www.consulttci.com).

Resources

Resources

Ehsan Masood (2005), *The GM Debate – Who Decides? An analysis of decision-making about genetically modified crops in developing countries*. Panos Report No 49, External Relations Unit, Panos London, 9 White Lion Street, London N1 9PD, UK. Tel: +44 (0)20 7278 1111. Fax: +44 (0)20 7278 0345. email: media@panos.org.uk. www.panos.org.uk

Genetically modified crop plants are being developed and adopted around the world at a rapid pace. Yet the use of GM technology in agriculture is highly controversial and the debate tends to be polarized. This report presents

- a review of the literature and research on GM crops
- case studies of the GM debate in five developing countries – Brazil, India, Kenya, Thailand and Zambia
- an analysis of coverage of GM issues in the print media in these five countries

It asks who has access to the people with the power to decide, who is being left out of the GM debate, and how is the media covering the GM controversy. This report offers a balanced view of the GM debate. However, it could have gone further and analysed the influence of finance on making decisions about GM technology.

Disponible

Ehsan Masood (2005), *The GM Debate – Who Decides? An analysis of decision-making about genetically modified crops in developing countries*. Panos Report No 49, External Relations Unit, Panos London, 9 White Lion Street, London N1 9PD, UK. Tel: +44 (0)20 7278 1111. Fax: +44 (0)20 7278 0345. courriel: media@panos.org.uk. www.panos.org.uk



Les cultures génétiquement modifiées sont développées et utilisées de par le monde à un rythme accéléré. Néanmoins l'utilisation de la technologie des modifications génétiques est hautement controversée et le débat est souvent polarisé. Ce rapport présente:

Recursos

Ehsan Masood (2005), *The GM Debate – Who Decides? An analysis of decision-making about genetically modified crops in developing countries*. Panos Report No 49, External Relations Unit, Panos London, 9 White Lion Street, London N1 9PD, UK. Tel: +44 (0)20 7278 1111. Fax: +44 (0)20 7278 0345. email: media@panos.org.uk. www.panos.org.uk

Los productos agrícolas modificados genéticamente se están desarrollando y adoptando rápidamente por todo el mundo. Pero el uso de la tecnología GM en la agricultura es un tema altamente controvertido y el debate se polariza. Este informe presenta:

- Una revisión de la literatura y la investigación sobre estos productos
- Ejemplos específicos sobre el debate en cinco países en vía de desarrollo – Brasil, India, Kenia, Tailandia y Zambia
- Un análisis de los reportajes sobre el tema en la prensa de estos países.

Se plantea la cuestión de quién tiene acceso a la gente con el poder de tomar las decisiones, quién se está quedando marginado del debate, y como tratan la controversia los medios informativos. El informe ofrece una visión balanceada del debate. Sin embargo, se podría haber extendido más y haber analizado la influencia de las finanzas sobre las decisiones tomadas en relación a la tecnología GM.

Erik Millstone & Tim Lang (2003), The Atlas of Food: Who eats what, where and why. Myriad Editions, for Earthscan. ISBN: 1-85383-965-5. Price £12.99

40 million people die of hunger each year, while 356kg of grain per person is being produced. Methods of agriculture are dramatically changing the environment beyond all recognition, with increased mechanisation and use of pesticides. For every one dollar the World Health Organisation spends on trying to improve the nutrition of the world's population, \$500 is spent by the food industry on promoting processed foods.

These issues, and more, are covered in clear detail within this book. It provides an ideal source document for studies into fair trade, subsidies, genetically modified food, food miles, changing nutrition and food aid. The information is well presented in tables and maps, providing a pictorial overview of how consumptions and agricultural methods vary from country to country. Each section is introduced by the authors, giving a useful summary to put the data into context.

The information is both fascinating and horrifying – “75% of agricultural land in the EU is used for growing animal

- Une vue d'ensemble sur la littérature et la recherche sur les variétés génétiquement modifiées
- Des études de cas concernant le débat sur la modification génétique dans cinq pays en développement – Brésil, Inde, Kenya, Thaïlande et Zambie
- Une analyse de la couverture des thèmes de la modification génétique dans les médias imprimés dans ces cinq pays.

Il pose les questions de l'accès aux décideurs, de ceux qui ne sont pas considérés dans le débat et de comment les médias couvrent la controverse des modifications génétiques. Ce rapport offre un point de vue équilibré du débat sur les modifications génétiques. Cependant il aurait pu aller plus loin et analyser l'influence des milieux financiers sur les décisions prises au sujet de la technologie des modifications génétiques.

Erik Millstone & Tim Lang (2003), The Atlas of Food: Who eats what, where and why. Myriad Editions, for Earthscan. ISBN: 1-85383-965-5. Prix £12.99

40 millions de personnes meurent de faim chaque année, alors que 356 kg de grains sont produits par personne.

Les méthodes de l'agriculture perturbent de façon dramatique l'environnement avec l'accroissement de la mécanisation et de l'utilisation de pesticides. Pour chaque dollar dépensé par l'Organisation Mondiale pour la Santé, essayant d'améliorer l'alimentation de la population mondiale, 500 \$ sont dépensés par l'industrie alimentaire pour promouvoir les aliments transformés.

Ces sujets, comme d'autres encore, sont traités clairement et en détail dans ce livre. Il constitue une documentation de base

Erik Millstone & Tim Lang (2003), The Atlas of Food: Who eats what, where and why. Myriad Editions, for Earthscan. ISBN: 1-85383-965-5. Price £12.99

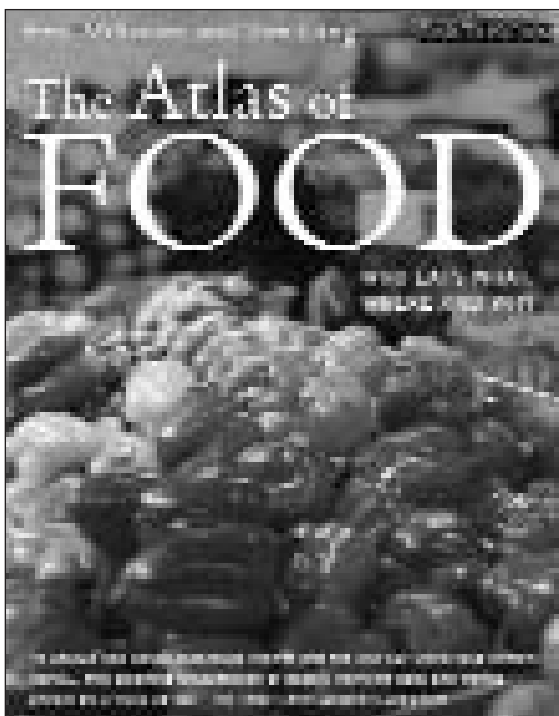
40 millones de personas mueren de hambre cada año mientras hay una producción de 356kg de grano. Los métodos agrícolas, con más mecanización y el uso de pesticidas, van cambiando el medio ambiente dramáticamente hasta quedar irreconocible. Por cada dólar que se gasta la World Health Organisation en intentar de mejorar la nutrición de la población del mundo, las industrias alimenticias se gastan \$500 en promocionar los alimentos procesados.

Estos temas, y más, son tratados detalladamente en este libro. Constituye un recurso ideal para estudiar el comercio justo, las subvenciones, los alimentos modificados genéticamente, los cambios nutricionales y la asistencia alimenticia. Esta información está bien presentada con tablas y mapas, dando una visión gráfica de cómo el consumo y los métodos agrícolas varían de país en país. En su introducción a cada sección, los autores proporcionan un útil resumen que pone los datos en contexto.

La información tanto fascina como horroriza 'el 75% de la tierra agrícola en la UE se utiliza para cultivar piensos para animales', '20 000 trabajadores agrícolas al año mueren por envenenamiento por pesticidas'. Este libro es el producto de una cuidadosa investigación y tiene muy buena bibliografía. Podría ser un arma útil en la educación sobre los efectos que nuestras decisiones alimenticias tienen sobre el mundo.

Jules Petty (2002), Agri-culture: Reconnecting people, land and nature. La agricultura: re-conectando a la gente, la tierra y la naturaleza. Earthscan Publications, London. ISBN: 1-85383925-6. Price £16.99

Petty argumenta que hay algo mal con nuestra agricultura y sistemas de alimentación. A pesar del gran progreso que hubo durante el siglo pasado en incrementar la productividad, cientos de millones de gente siguen hambrientos y



feed”, “20,000 agricultural workers a year are killed by pesticides”. This carefully researched and referenced book could be a useful tool in educating audiences about the effects of their food choices on the world.

Jules Pretty (2002), Agri-culture: Reconnecting people, land and nature. Earthscan Publications, London. ISBN: 1-85383925-6. Price £16.99

Petty argues that something is wrong with our agriculture and food systems. Despite great progress in increasing productivity in the last century, hundreds of millions of people remain hungry and malnourished. He asks whether it is time for the expansion of another sort of agriculture, founded on more ecological principles, and in harmony with people, their societies and cultures. His book takes readers on a journey through some of the communities and farms in both developing and industrialized countries where progress is being made. Their stories show what is possible on both the ecological and social fronts. Of particular relevance to educators is chapter seven which focuses on the need to develop social learning systems to increase ecological literacy. Petty's invites us to break down our barriers and participate in the next agricultural revolution.

La Garance Voyageuse, Magazine of the Plant World, 48370 Saint Germain de Calberte, France. www.garancevoyageuse.org. Email: accueil.garance@wanadoo.fr

The 'Garance Voyageuse' (Madder Journey) is one of those rare French magazines that uniquely deals with plants, local or exotic, looking at their biology or their ecology. Published four times a year, it is a very useful resource particularly for educators in botanic gardens. The text is clear with a glossary where necessary to explain the meaning of technical words

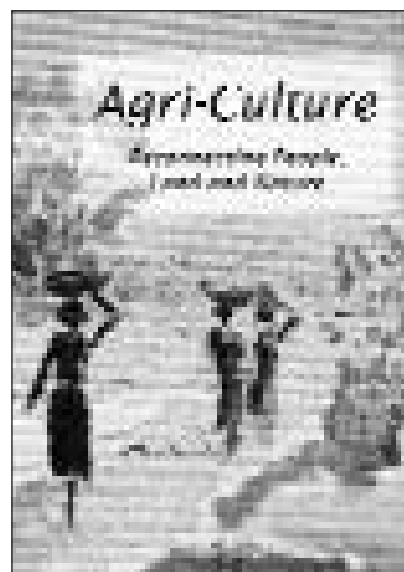
Strengthened by its remarkable black and white design, The 'Garance Voyageuse' comprises regular news articles, in depth articles, stories, useful references and websites. In brief, it contains everything you wanted to know about the world of plants!

idéale pour des études sur le commerce équitable, les subsides, les aliments génétiquement modifiés, les industries alimentaires, les changements dans l'alimentation et l'aide alimentaire. L'information est bien présentée à l'aide de tables et de cartes illustrant bien comment les consommations et les méthodes de l'agriculture varient d'un pays à l'autre. Chaque section est introduite par les auteurs, avec un résumé qui met les données dans leur contexte.

L'information est à la fois fascinante et terrifiante – « 75% des terres agricoles de l'UE sont utilisées à produire des aliments pour le bétail », « 20.000 ouvriers agricoles meurent chaque année par des pesticides ». Ce livre soigneusement recherché et référencé pourrait être un outil utile pour l'éducation du public sur les effets de ses choix alimentaires pour notre monde.

Jules Pretty (2002), Agri-culture: Reconnecting people, land and nature. Earthscan Publications, London. ISBN: 1-85383925-6. Prix £16.99

Pretty soutient que quelque chose va mal avec notre système agro-alimentaire. Malgré de grands progrès dans l'accroissement de la productivité au cours du siècle dernier, des centaines de millions de gens restent affamés et mal nourris. Il demande si le temps n'est pas venu pour l'expansion d'un autre type d'agriculture, fondé sur des principes plus écologiques et en harmonie avec les gens, leurs sociétés et leurs cultures. Son livre emmène les lecteurs dans un voyage à travers quelques-unes des communautés et des fermes où se font des progrès, aussi bien dans des pays en voie de développement que dans des pays industrialisés. Leurs histoires montrent ce qui est possible tant sur le front écologique que social. Le chapitre sept présente un intérêt particulier pour les éducateurs : il se concentre sur la nécessité de développer des systèmes d'éducation sociale pour augmenter les connaissances écologiques. Pretty nous invite à rompre nos barrières et à participer à la prochaine révolution agricole.

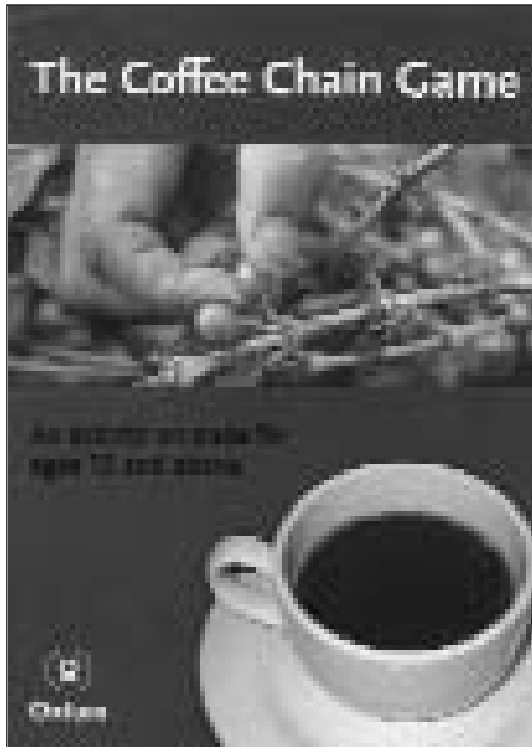


desnutridos. Pregunta si ha llegado ya la hora para la expansión de otro tipo de agricultura, fundada sobre principios más ecológicos, y en armonía con la gente, sus sociedades y culturas. El libro lleva a sus lectores en un viaje a través de algunas de las comunidades y granjas tanto en países en vía de desarrollo como industrializados donde se esta progresando. Sus historias demuestran lo que es posible tanto en el frente ecológico como en el social. De particular relevancia a los educadores es el capítulo siete que se concentra en la necesidad de desarrollar sistemas educativos sociales para aumentar el conocimiento ecológico. Petty nos invita a derribar nuestras barreras y participar en la siguiente revolución agrícola.

La Garance Voyageuse, Magazine of the Plant World, 48370 Saint Germain de Calberte, France. www.garancevoyageuse.org. Email: accueil.garance@wanadoo.fr

La *Garance Voyageuse* es una de esas raras revistas francesas que tratan exclusivamente de las plantas, locales o exóticas, de su biología o su ecología. Se publica cuatro veces al año, y es un recurso muy útil, especialmente para los educadores en los jardines botánicos. El texto es claro y tiene un glosario que explica el sentido, si es necesario, de alguna palabra técnica.

Oxfam (2005), *The Coffee Chain Game: An activity on trade for ages 13 and above*. BEBC, PO Box 1496, Parkstone, Dorset BH12 3YD, UK.
Tel: +44 (0) 1202 712933
Fax: +44 (0) 1202 712930.
Email: oxfam@bebc.co.uk.
ISBN 1 870727 649. Price £4.50



Coffee companies make huge profits, while the farmers who grow the coffee beans make barely enough to live on. *The Coffee Chain Game* is a role-play activity that helps participants explore why the money made from coffee is so unevenly distributed. The activity takes between 30-50 minutes to play and can involve 10 – 20 participants. The resource pack includes:

- up-to-date facts and figures based on recent research and fieldwork
- recommendations for action by governments, coffee companies, and consumers
- an introductory activity
- case studies of people in Uganda, with background information
- information on fair trade

This is an excellent resource for botanic gardens and could be used as part of a teacher-training programme.

La Garance Voyageuse, revue du monde végétale, La Garance Voyageuse, Revista del Mundo de las Plantas. 48370 Saint Germain de Calberte, France.
www.garancevoyageuse.org.
Email: accueil.garance@wanadoo.fr

La « Garance Voyageuse » est l'une des rares revues françaises qui traite uniquement des plantes, locales ou exotiques, de leur biologie ou de leur écologie, ce qui en fait une ressource très utile en particulier pour les animateurs des jardins botaniques. Les textes sont toujours d'une très grande clarté, complétés si nécessaire par un glossaire pour décrypter les mots techniques, et renforcés par de remarquables dessins en noir et blanc.

Cette revue trimestrielle comporte des rubriques consacrées aux actualités, des articles de fond, des contes, des références d'ouvrages et de sites Internet pour petits et grands. Bref, tout pour tout savoir sur le monde des plantes !

Oxfam (2005), *Le Jeu « La Chaîne du Café » : une activité sur le commerce pour les jeunes à partir de 13 ans*. BEBC, PO Box 1496, Parkstone, Dorset BH12 3YD, UK.
Tel: +44 (0) 1202 712933
Fax: +44 (0) 1202 712930.
Courriel : oxfam@bebc.co.uk.
ISBN 1 870727 649. Prix £4.50

Les compagnies caféières réalisent d'énormes bénéfices, tandis que les paysans qui cultivent les caféiers gagnent à peine de quoi vivre. *The Coffee Chain Game – le jeu «La Chaîne du Café»* permet aux participants de découvrir pourquoi les richesses issues du café sont inégalement distribuées. L'activité dure 30 à 45 minutes avec 10 à 20 joueurs. La mallette comprend :

- Des données actualisées, basées sur de récentes études et recherches sur le terrain,
- Des recommandations pour les gouvernements, compagnies caféières et consommateurs,
- Une activité d'introduction,
- Des études de cas de populations en Uganda avec des éléments de base,
- Des informations sur le commerce équitable.

Reforzado por un extraordinario diseño blanco y negro, la *Garance Voyageuse* contiene noticias, artículos que profundizan, historias, y referencias y detalles de páginas web. En resumen, ¡contiene todo lo que querías saber sobre el mundo de las plantas!

“*La cadena del café*”, juego, Oxfam (2005): una actividad sobre el comercio internacional para jóvenes de 13 años o más. BEBC. PO box 1496. Dorset BH123YD, UK.
Tel: +44(0)1202 712933
Fax: +44(0) 1202 712930.
Email: oxfam@bebc.co.uk
ISBN 1 870727 649. Precio 4.50 libras esterlinas.

Las compañías de café obtienen ganancias enormes, mientras que los cafetaleros que cultivan el café apenas ganan para subsistir. “*La cadena del café*” es una actividad de juego de roles que ayuda a los participantes a explorar por qué el dinero que se obtiene con la producción de café se distribuye tan inequitativamente. La actividad tiene una duración de 30 a 50 minutos y pueden participar de 10 a 20 personas. El paquete incluye:

- cifras y hechos actualizados basados en investigaciones recientes y trabajo de campo.
- Recomendaciones para la acción por parte de gobiernos, compañías de cafés y consumidores.
- Una actividad introductoria
- Estudios de caso en Uganda, sustentados con información
- Información sobre el comercio justo

Este es un material excelente para jardines botánicos y puede incluirse en los programas de capacitación para maestros.

Sitio web especial para boletines y noticias de la web

Mantenerse actualizado en noticias y aspectos ambientales puede requerir de mucho tiempo y ser costoso. Sin embargo, le ofrecemos una ayuda a la mano. Le enviamos sin costo, diariamente a su buzón electrónico notas de diversas organizaciones de noticias ambientales. Una vez que firmes, estas actualizaciones (diarias o

Website special on e-news bulletins

Keeping up-to-date with environmental news and issues can be time-consuming and expensive. However, help is at hand with several environmental news organizations providing free daily e-updates direct to your inbox! Once you sign up, these updates (either daily or weekly) provide you with an article title, a short description and a link. If you are interested in the topic, simply click on the link to read the full article. You can also share articles by emailing them to friends.

Their disadvantage is that they can clog up your inbox – especially if they come every day and you are on leave for two weeks. However, they do provide an instant connection to new information, findings, issues and solutions, helping to keep your messages current and relevant for your audiences.

<http://www.planetark.com/index.cfm>

Planet Ark – Reuters Daily World Environment News

Providing up to 40 news stories a day via their ‘World Environment News’ service, sponsored by Reuters’s, Planet Ark is a great way to stay in touch with global environmental issues, through well-written, concise articles and dramatic images. An Australian not-for-profit organization, founded by the tennis player Pat Cash and charity campaigner Jon Dee in 1991, it is now one of the world’s biggest online environmental news service with over 8 million visitors to their site a year. As well as daily updates, their site contains links to a vast back catalogue, covering topics from deforestation to animal rights, water to nuclear power, containing images and articles. Planet Ark also runs campaigns on a wide variety of issues, such as tree planting, recycling and reducing junk mail, and has produced an environmental education kit for primary schools

<http://www.enn.com/index.html>

Environmental News Network

ENN is similar to Planet Ark, with excellent daily updates, an image library and topic-led archives, but its

Cet outil est idéal pour les jardins botaniques et pourrait être utilisé lors de formations d’enseignants.

Des bulletins électroniques sur la Toile

Se tenir au courant des dernières informations et nouvelles environnementales peut coûter cher et prendre beaucoup de temps. Mais la solution est à portée de main : plusieurs organisations d’informations environnementales fournissent des infos quotidiennes et gratuites, directement dans votre messagerie ! Une fois que vous êtes enregistré, ces bulletins (quotidiens ou hebdomadaires) vous donnent les titres, résumés et liens vers des articles. Si le sujet vous intéresse, il suffit de cliquer sur le lien pour lire l’article entier. Vous pouvez également transmettre ces articles en les envoyant à des amis par courriel.

L’inconvénient majeur est que ces bulletins peuvent encombrer votre messagerie – surtout s’ils arrivent tous les jours et que vous êtes absent pendant deux semaines. Toutefois, ils fournissent un accès instantané à de nouvelles informations, découvertes, questions et solutions, permettant d’actualiser votre communication face au public.

<http://www.planetark.com/index.cfm>

Planet Ark – Nouvelles environnementales quotidiennes de Reuters

Fournissant jusqu’à 40 infos par jour via leur service de “Nouvelles mondiales de l’Environnement”, Planet Ark est une façon géniale de rester en contact avec les question d’environnement au niveau mondial grâce à des articles concis et bien écrits, et des images-choc. Association australienne à but non lucratif créée par le joueur de tennis Pat Cash et le militant associatif Jon Dee en 1991, c’est à présent l’un des service de nouvelles environnementales les plus important au monde avec plus de 8 millions de visiteurs par an sur le site.

En plus des nouvelles quotidiennes, le site contient des liens vers un catalogue d’archives qui couvrent des sujets allant de la déforestation au

semanales) te proporcionan el título del artículo, un breve resumen y un vínculo. Si estás interesado en el tema, harás clic en el vínculo para leer el artículo completo. También puedes compartir la información reenviándosela a tus amigos.

La desventaja es que estas noticias pueden saturar tu buzón, especialmente si los recibes diariamente y dejas de vaciarlo por un par de semanas. Sin embargo, te mantiene en conexión con nueva información, conocimientos, problemas y soluciones, ayudando a tener mensajes relevantes y al día para tu audiencia.

<http://www.planetark.com/index.cfm>

Planet Ark-Reuters. Noticias ambientales diarias de todo el mundo

Proporcionando cerca de 40 notas diarias a través de sus servicio “Noticias ambientales del mundo” patrocinadas por Reuter, Planet Ark es una excelente opción para mantenerte en contacto con problemas ambientales del mundo a través de artículos bien escritos, concisos y con imágenes dramáticas. Esta organización no lucrativa australiana, fundada por la tenista Pat Cash y por la campaña altruista de Jon Dee en 1991, es ahora uno de los servicios en línea de noticias ambientales con más de 8 millones de visitantes al sitio cada año. Además de actualizaciones diarias, su sitio contiene vínculos (links) con un vasto catálogo que cubre tópicos desde deforestación hasta derechos de los animales, desde el agua hasta energía nuclear, conteniendo también imágenes y artículos.

Planet Ark también organiza campañas sobre un amplio rango de temáticas tales como reforestación, reciclaje y cómo reducir la basura que nos llega por correo postal y ha producido un paquete educativo para niños de primaria.

<http://www.enn.cm/index.html>

Red de Noticias Ambientales

La red de noticias ambientales es similar a Planet Ark, con excelentes actualizaciones diarias, acervos de imágenes y archivo de tópicos de actualidad, pero su sitio también está

website is also well-stocked with resources, commentary on current issues, news from not-for-profits and companies and links to Environmental News Radio and video.

<http://www.scidev.net/>

Science Development Network

A weekly news update, on a slightly different theme, Scidev.net provides news, views and information on science and technology in the developing world. Although stories are much more technical in nature, they give the background information in a clear way. The service is a great source of information on potential solutions to environmental issues, and addresses the strong 'northern' bias of most scientific communication resources. Dossiers on indigenous knowledge, climate change and GM crops are accessible and comprehensive, and a new section on biodiversity contains lots of useful statistics, background, information on hotspots and definitions of terms. Although most of the website is in English, some sections are in Spanish, Chinese, French and Portuguese.

droits des animaux en passant par l'eau et l'énergie atomique, avec des images et des articles.

Planet Ark mène également des projets sur diverses questions, tel que la plantation d'arbres, le recyclage et la réduction des courriers indésirables, et a produit une mallette pédagogique sur l'environnement pour les écoles primaires.

<http://www.enn.com/index.html>

Environmental News Network – Réseau de Nouvelles Environnementales

ENN est comparable à Planet Ark, avec de très bonnes infos quotidiennes, une banque d'images et des archives thematiques, mais son site contient également des outils, des commentaires sur des questions d'actualité, des nouvelles d'associations et de sociétés, ainsi que des liens vers des enregistrements radio et vidéo sur l'environnement.

<http://www.scidev.net/>

Science and Development Network – Réseau Science et Développement

Bulletin hebdomadaire sur un thème légèrement différent, le Scidev.net fournit des nouvelles, points de vue et informations sur les sciences et techniques dans le monde en voie de développement. Bien que les nouvelles soient de nature plus technique, elles donnent les éléments de base de façon claire. Le service est une source d'informations importante sur des solutions possibles à des questions environnementales et rectifie l'important préjugé occidental de la majorité des outils de communication scientifique. Des dossiers sur les connaissances indigènes, le changement climatique et les cultures OGM sont disponibles et une nouvelles section sur la biodiversité contient des statistiques utiles, des éléments de base sur des sujets précis et un glossaire. Bien que le site soit en anglais, certaines parties sont en chinois, espagnol, français ou portugais.

saturado de recursos, comentarios sobre tópicos actuales, noticias de compañías no lucrativas y vínculos a Radio Noticias Ambinetales y videos.

<http://www.scidev.net/>

Science Development Network

Un noticiero semanal sobre temas un tanto diferentes, Scidev.net proporciona noticias, vistas e información en ciencia y tecnología en el mundo en desarrollo. Aunque las historias sean de naturaleza mucho más técnicas, dan información complementaria bien sustentada de una forma muy clara. Este servicio es una gran fuente de información para soluciones potenciales de algunos problemas ambientales, tomando en cuenta el fuerte sesgo del "norte" de la mayoría de los recursos comunicativos de la ciencia.

Información sobre conocimiento tradicional, cambio climático y cultivos de transgénicos es accesible y comprensible; una nueva sección de biodiversidad contiene gran cantidad de útiles datos estadísticos, información de respaldo, y definiciones de términos y conceptos. Aunque gran parte del sitio está en inglés, tiene algunas secciones en español, chino, francés y portugués.

How to join Botanic Gardens Conservation International

The mission of BGCI is to build a world network for plant conservation. It was founded in 1987 and now includes over 525 member institutions in 115 countries, working together to implement the *International Agenda for Botanic Gardens in Conservation* and the new *Global Strategy for Plant Conservation*.

Institutions can join BGCI for the following benefits:

- Membership of the worldwide plant conservation network
- Botanic Garden Management Resource Pack (upon joining)*
- Regular publications:
 - the regular newsletter, *Cuttings*
 - *BGjournal* – an international journal for botanic gardens (2 per year)
 - *Roots* – environmental education review (2 per year)
 - A wide range of new publications
- Invitations to BGCI congresses and discounts on registration fees
- BGCI technical support and advisory services

Institution Membership		£ Stlg	US \$	€ Euros
A	BGCI Patron Institution	5000	8000	7500
B	Institution member (budget more than US\$2,250,000)	600	1000	940
C	Institution member (budget US\$ 1,500,000 - 2,250,000)	440	720	660
D	Institution member (budget US\$ 750,000 - 1,500,000)	300	500	440
E	Institution member (budget US\$ 100,000 - 750,000)	160	250	220
F	Institution member (budget below US\$100,000)*	75	120	110
*Generally applies to institutions in less developed countries				

Other Membership Categories:

Membership benefits depend on category - see below. These can include:

- Regular publications:
 - the regular newsletter, *Cuttings*
 - *BGjournal* - an international journal for botanic gardens (2 per year)
 - *Roots* - Environmental Education Review (2 per year)
- Invitations to BGCI congress and discounts on registration fees

Corporate Membership		£ Stlg	US \$	€ Euros
G	Corporate Gold Member (<i>BGjournal</i> , <i>Roots</i> and <i>Cuttings</i> plus more)	5000	8000	7500
H	Corporate Silver Member (<i>BGjournal</i> , <i>Roots</i> and <i>Cuttings</i> plus more)	1000	1600	1500
Individual Membership		£ Stlg	US \$	€ Euros
J	Conservation donor (<i>BGjournal</i> , <i>Roots</i> and <i>Cuttings</i> plus more)	160	250	220
K	Associate member (<i>Cuttings</i> and <i>BGjournal</i>)	35	60	50
L	Associate member (<i>Cuttings</i> and <i>Roots</i>)	35	60	50
M	Friend (<i>Cuttings</i>) available through online subscription only (www.bgci.org)	10	15	15

*Contents of the Botanic Garden Management Resource Pack: *The Darwin Technical Manual for Botanic Gardens*, *A Handbook for Botanic Gardens on the Reintroduction of Plants to the Wild*, *A CITES Manual for botanic gardens*, *BGjournal* - an international journal for botanic gardens (2 past issues), *Roots* - environmental education review (2 past issues), *The International Agenda for Botanic Gardens in Conservation*, *Global Strategy for Plant Conservation*, *Environmental Education in Botanic Gardens*, *BG-Recorder* (a computer software package for plant records).

Payment may be made by cheque payable to Botanic Gardens Conservation International, or online at www.bgci.org or by VISA/Mastercard sent to BGCI, Descanso House, 199 Kew Road, Richmond, Surrey, TW9 3BW, U.K or Fax: +44 (0) 20 8332 5956.

I wish to apply for membership of Botanic Gardens Conservation International.

Name
 Telephone
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 Fax
 E-mail
 Internet site

Membership category Annual rate
 VISA/Mastercard number Credit card expiry date
 Signature Print name

I would like to make a donation to BGCI. Amount

Please clearly state your name (or the name of your institution) on all documentation. Please contact info@bgci.org for further information.

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Plants for the Planet

**Botanic Gardens
Conservation International**

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