WORKING TOWARDS GREEN TOURISM ACCREDITATION AT DAWYCK BOTANIC GARDEN – A CASE STUDY

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ABSTRACT

Dawyck Botanic Garden was awarded a Silver accreditation in the Green Tourism Business Scheme in December 2010. The award was the result of a sustained focus to pursue an industry award as a measure of Dawyck's achievements in sound environmental management. The award followed the construction of a new Visitor Centre in 2008 and also built upon green initiatives already achieved by staff. This case study follows the stages of the process up to the point of the award being made.

INTRODUCTION

Dawyck Botanic Garden is a Regional Garden of the Royal Botanic Garden Edinburgh (RBGE) and is located 12km south-west of Peebles in the Scottish Borders (see Fig. 1). The Garden, gifted to the nation in 1978 and covering around 25 hectares, was formerly the woodland garden for Dawyck House which is now in private ownership. There is an ancient listed stone chapel situated within the garden on the western side which remains in the private care of the surrounding Dawyck estate. The Garden was profiled in *Sibbaldia* No. 5 (Knott, 2007).

The Garden's plant collection includes many historic trees and shrubs, notably North American giants such as *Sequoidendron giganteum* (Wellingtonia) and *Pseudotsuga menziesii* (Douglas fir), which are interspersed with rare and unusual coniferous species from China (see Fig. 1). Other deciduous trees include rowans, birches, maples and cherries. Dawyck is home to the original 'Dawyck beech', a strangely upright form of *Fagus sylvatica* (common beech).

The Garden is open to visitors for ten months of the year (1 February to 30 November). It is situated in the beautiful Tweed Valley which has been designated an SSSI (Site of Special Scientific Interest) by Scottish Natural Heritage. Dawyck enjoys an almost continental climate with warmer than average summers (for Scotland) and very cold winters. These typically range from +28°C to −20°C. Rainfall is around 1,000mm per annum. The Garden is enjoyed by around 30,000 visitors each year.

The Scrape Burn, a tributary of the river Tweed, bisects the garden from north to south while the upper part of the garden, known as 'Heron Wood', is home to the Cryptogamic (fungi) Sanctuary. The plant collection reflects RBGE Collection Policy for the Living Collection (Rae *et al.*, 2006) and also supports the research and scientific work carried out by staff at RBGE.

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Fig. 1 Centre of Dawyck Botanic Garden showing mature conifers such as *Sequoidendron giganteum* (Wellingtonia) and *Pseudotsuga menziesii* (Douglas fir). Photo: Graham Stewart.

Fig. 2 The new Visitor Centre opened in 2008; facilities include a shop, café and studio. Photo: Graham Stewart.

A new Visitor Centre was opened in 2008 and the facilities include a shop, café and studio (see Fig. 2). Heating and hot water for the Visitor Centre are generated by a biomass (woodchip) boiler, and the centre also features a sedum roof.

WHY PROMOTE GREEN TOURISM?

Sustainability and 'green' or environmental factors are now considered to be mainstream issues, and government departments, businesses and individuals are involved in promoting them. Tourism, which is one of the main economic drivers in the UK, also has its part to play. The Green Tourism Business Scheme (GTBS) is the national certification scheme for sustainable tourism in Britain and is also referred to as the 'Green Tourism Scheme'. It was originally developed in partnership with VisitScotland, Scotland's tourist board and is now the only certification scheme validated by VisitBritain, Britain's tourist board, through the International Centre for Responsible Tourism (ICRT). Businesses opting to join the Green Tourism scheme are assessed by a qualified grading advisor against a rigorous set of criteria covering a range of areas such as energy and water efficiency, waste management and biodiversity. The businesses that meet the required standard receive a Bronze, Silver or Gold award based on their level of achievement. The current network of members is composed of a wide range of business types, including accommodation providers, visitor attractions and corporate and private companies. The Green Tourism Scheme offers businesses a means to demonstrate their commitment to environmental issues and the environmental standard to which they are working. An introduction to Green Tourism and its benefits are listed in Box 1. All members of the scheme are expected to abide by a code of conduct, which is defined on the application form as follows:

- Membership of the Green Tourism Business Scheme is a commitment to good environmental practice in business activities.
- The business will ensure that it meets the minimum requirements set by environmental law in the country and fulfils its legal Duty of Care requirements for waste disposal.
- The business will aim to ensure it is minimising the harmful effects and maximising the beneficial influences that its own activities have on the environment.

GREEN TOURISM – INTRODUCTION

Green Tourism is Sustainable Tourism – tourism which takes into account the needs of the environment, local residents, businesses, and visitors; now and in the future.
It is relevant to any tourism enterprise, large or small, rural or urban, whether focused on ecotourism, business tourism or any other tourism niche market. Green tourism businesses are those actively engaged in reducing the negative environmental and social impacts of their tourism operations.

How sustainable tourism works for everyone
Supporting a more sustainable tourism with the help of the Green Tourism Business Scheme (GTBS) –

- Benefits the environment by conserving resources
- Reduces waste
- Reduces costs through efficiencies and staff awareness
- Fulfils customers' expectations of businesses to look after their environment
- Attracts new customers
- Offers business customers in particular green certified suppliers they are increasingly demanding
- Improves your public image
- Improves the customer experience
- Improves the quality of the service you provide
- Benefits the local community
- Supports the local economy
- Reduces congestion and pollution
- Enhances the natural environment

By choosing a Green Tourism Business Scheme business you are guaranteed
That the business:
Is committed to sustainable tourism and minimising its damage to the environment
Is operating in accordance with the relevant environmental regulations

That the site:
Meets minimum standards of good practice across a range of sustainable development indicators.
Has been audited by a qualified professional to ensure standards are maintained.
Is committed to providing at least a reasonable quality of service between 1 and 5 stars.

That the site will:
Be reassessed every two to three years based upon a set of regularly updated sustainable development standards.

That the GTBS will:
Investigate any complaints received about the environmental performance or commitment of the business.

Box 1 Introduction to and benefits of Green Tourism. Reproduced from: Green Tourism, 2009.

TAKING GREEN TOURISM FORWARD AT DAWYCK

New Visitor Centre and Workshops, 2008

Dawyck Botanic Garden's new Visitor Centre, which opened in the spring of 2008, helped the Garden secure 5 star accreditation from VisitScotland in September of that same year (see Fig. 3). This provided a new incentive for Dawyck to pursue an environmental accreditation to sit alongside this 5 star visitor attraction rating. Dawyck is currently the only garden visitor attraction in Scotland to hold the coveted 5 stars.

Fig. 3 Dawyck Botanic Garden was awarded 5 stars as a tourist attraction from VisitScotland in September 2008. Photo: David Knott.

The new Visitor Centre, with its sedum roof and biomass boiler (see Figs 4 & 5), was already demonstrating sound environmental management through these features alone, even before other initiatives were pursued. However, Graham Stewart, Curator of the Garden, attended a Green Tourism seminar in the autumn of 2008, organised by the Tweed Valley Tourist Consortium (of which Dawyck Botanic Garden is a member), at which a representative from the GTBS gave an interesting and thought-provoking presentation. As a result of this presentation it became obvious that, in pursuit of recognition of its eco-credentials, the next logical step for the Garden was to look towards a Green Tourism award administered by the GTBS.

Focusing on Green Tourism accreditation

Preparations for grading under the scheme began early in 2009 and consisted of building on our existing responsible tourism practices using criteria set out by the scheme. New initiatives included composting, water conservation, energy conservation and an environmental notice board. A green visitor charter and an environmental policy statement were also developed and displayed on the notice board.

Main criteria measures for accreditation

The Green Tourism Criteria Checklist consists of ten measures, of which 1.01–1.04 are compulsory. Full criteria information can be found on the GTBS website (Green Tourism, 2010).

Fig. 4 The sedum roof attracts wildlife and insulates the building while absorbing rain run-off. Photo: Graham Stewart.

The other criteria are measured by a points system; points are added up to give an overall percentage which is then used to determine the level of award. The compulsory and non-compulsory criteria and examples of how practices at the Garden fulfil these are given below in italics:

Compulsory criteria

1.01 Commitment to sustainability
1.02 Minimum standards and risk management (pollution, waste, housekeeping)
1.03 Annual performance information
1.04 Green policy

Non-compulsory criteria

2. Management and Marketing (2.01–2.16)

Fig. 5 The biomass boiler provides heat by burning woodchips sourced from locally grown trees. Photo: David Knott.

2.08 Monitoring: Energy – *electricity readings are taken and graphs are produced and displayed*

3. Social and Communication (3.01–3.16)
3.07 Natural and healthy living spaces – *provided by the garden experience at Dawyck*

4. Energy (4.01–4.21)
4.10 High-efficiency boiler – *the boiler at Dawyck runs on biomass and has good eco-credentials*

5. Water (5.01–5.17)
5.03 Self-closing or sensor taps – *public toilet taps have been changed to water-saving units*

6. Purchasing (6.01–6.23)
6.15 Fairtrade food and drink – *both are available for purchase in the Visitor Centre shop and café*

7. Waste (7.01–7.21)
7.16 Glass reuse or recycle – *recycled through responsible contractors*

8. Travel (8.01–8.15)
8.09 Cycle storage – *cycle-friendly and secure storage rack available at Visitor Centre*

9. Natural and Cultural Heritage (9.01–9.12)
9.11 Light pollution – *measures have been taken to minimise light pollution at night with timers and sensors*

10. Innovation (10.01–10.07)
10.02 Green Rated Building – *the Visitor Centre was constructed with high-specification sustainable technology*

ACHIEVEMENTS AT DAWYCK PRIOR TO GTBS

Prior to joining the GTBS Dawyck had already established a number of sound environmental practices which included:

- recycling glass, plastic, paper, cardboard, metal and used engine oil
- composting leaves and green garden waste
- Fairtrade products available in the shop and café
- modern, efficient and environmentally sound building

- biomass (woodchip) boiler providing heat and hot water
- sedum roof providing insulation and additional habitat and use for grey water
- exceptionally high standards of housekeeping and cleanliness of the infrastructure and facilities
- high standards of maintenance and a programme of replanting in the Garden

TAKING GTBS FORWARD

In order to have the best chance of achieving grading at the best level possible, the Curator enlisted the assistance of an Edinburgh-based environmental consultant to carry out an audit (which was without cost at that time) geared directly to the requirements of the GTBS. As a result of this audit staff were able to focus on areas that would give the best results and have the quickest turnaround, allowing the opportunity to work on other areas of improvement over a slightly more extended period.

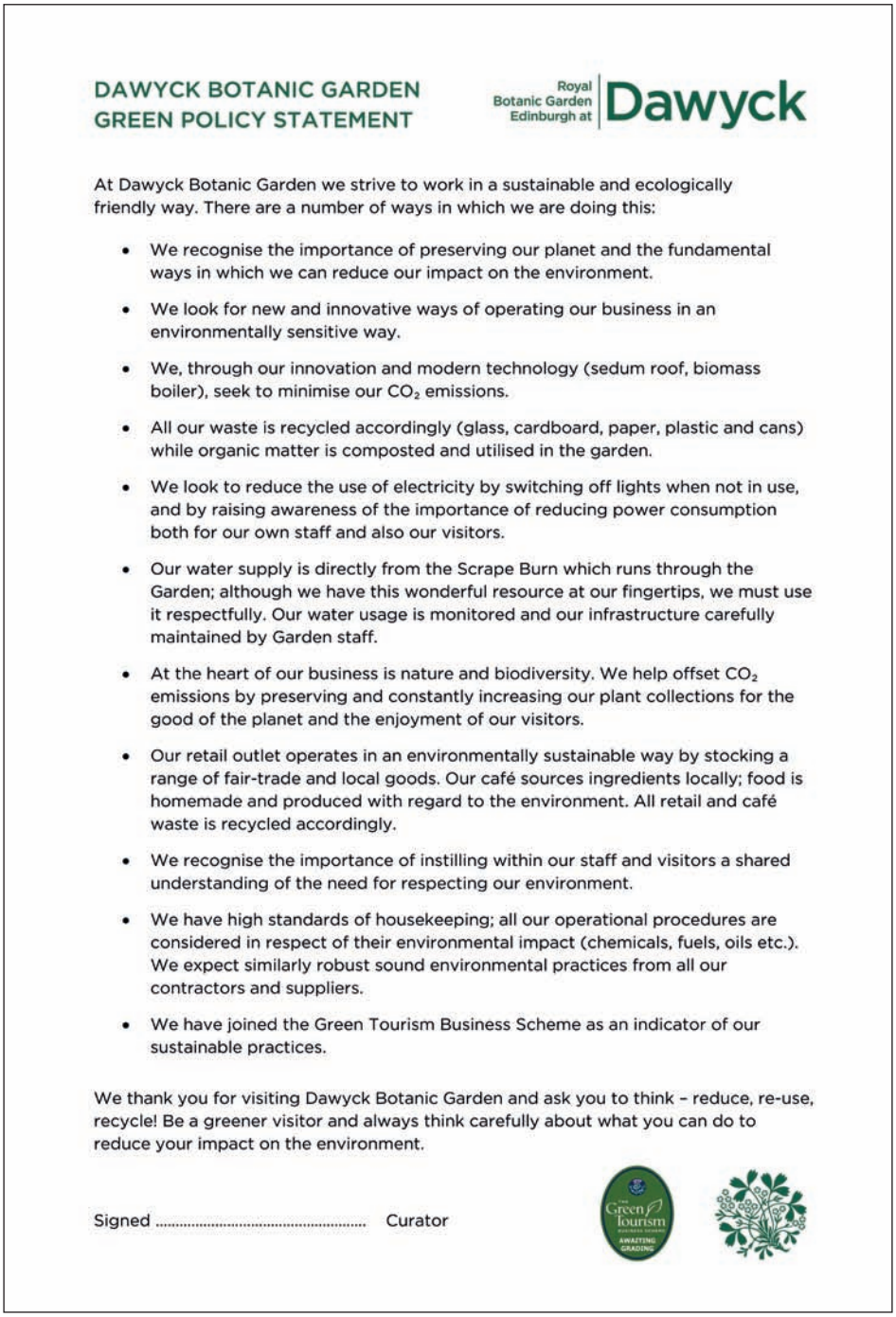
Following on from the audit, staff focused on a number of key areas that were identified within the audit report and could be achieved quickly. This was to enable the opportunity of undergoing the grading assessment without delay, while also improving the likelihood of a higher grading.

Changes and improvements were made to the following areas of operation:

- development of a Green Visitor Charter
- development of a Green Policy Statement (see Fig. 6)
- establishment of an environmental notice board
- water-saving taps fitted in the public toilets
- establishment of a Green Team and dedicated Area Champions
- improvements to composting and the inclusion of organic waste from the café
- electricity monitoring and graphs displayed on the notice board
- interpretation to explain the function and value of the biomass boiler and sedum roof (see Fig. 7)
- establishment of a file containing all information specific to eco-measures
- glass recycled by contractor rather than on an *ad hoc* basis
- sustainable procurement and reduction in packaging waste by returning to the supplier or recycling
- implementation of a ‘switch off’ policy for lights

THE GRADING PROCESS

The grading was carried out over a two-and-a-half-hour site visit on 21 October 2010 by a representative of the GTBS. The visit was extremely thorough and was based on the criteria outlined above. An audit report was issued following this visit which constitutes a statement relating to the performance of the business as a sustainable tourism operation.



DAWYCK BOTANIC GARDEN GREEN POLICY STATEMENT

Royal Botanic Garden Edinburgh at Dawyck

At Dawyck Botanic Garden we strive to work in a sustainable and ecologically friendly way. There are a number of ways in which we are doing this:

- We recognise the importance of preserving our planet and the fundamental ways in which we can reduce our impact on the environment.
- We look for new and innovative ways of operating our business in an environmentally sensitive way.
- We, through our innovation and modern technology (sedum roof, biomass boiler), seek to minimise our CO_2 emissions.
- All our waste is recycled accordingly (glass, cardboard, paper, plastic and cans) while organic matter is composted and utilised in the garden.
- We look to reduce the use of electricity by switching off lights when not in use, and by raising awareness of the importance of reducing power consumption both for our own staff and also our visitors.
- Our water supply is directly from the Scrape Burn which runs through the Garden; although we have this wonderful resource at our fingertips, we must use it respectfully. Our water usage is monitored and our infrastructure carefully maintained by Garden staff.
- At the heart of our business is nature and biodiversity. We help offset CO_2 emissions by preserving and constantly increasing our plant collections for the good of the planet and the enjoyment of our visitors.
- Our retail outlet operates in an environmentally sustainable way by stocking a range of fair-trade and local goods. Our café sources ingredients locally; food is homemade and produced with regard to the environment. All retail and café waste is recycled accordingly.
- We recognise the importance of instilling within our staff and visitors a shared understanding of the need for respecting our environment.
- We have high standards of housekeeping; all our operational procedures are considered in respect of their environmental impact (chemicals, fuels, oils etc.). We expect similarly robust sound environmental practices from all our contractors and suppliers.
- We have joined the Green Tourism Business Scheme as an indicator of our sustainable practices.

We thank you for visiting Dawyck Botanic Garden and ask you to think – reduce, re-use, recycle! Be a greener visitor and always think carefully about what you can do to reduce your impact on the environment.

Signed ..... Curator

Fig. 6 The Green Policy Statement is displayed where visitors can read it. Statement written by: Graham Stewart.

BIOMASS (woodchip) BOILER AT DAWYCK

Royal Botanic Garden Edinburgh at Dawyck

Did you know?

The Dawyck Visitor Centre is heated in an environmentally friendly way using a biomass boiler (illustrated left) located in the green building adjacent to the car park. The boiler also provides heating for this building which houses the garden maintenance staff areas including workshop, tool stores and machinery storage areas. In addition to this the boiler also provides all the domestic hot water needs for both buildings.

So what's good about using woodchip?

Using woodchip as fuel for heating is good as it generates heat from the combustion of wood which is made up of carbon that is located above the ground. On combustion, the carbon from biomass is released into the atmosphere as carbon dioxide (CO_2) amongst other, would-be pollutants, but at much lower levels than that of fossil fuels.

The carbon in fossil fuels (which have their origins underground) have been out of the 'carbon cycle' for millions of years, therefore, burning these fossil fuels disturbs the carbon dioxide content in the atmosphere leading to global warming.

Biomass (or in our case woodchip) has its origins above ground. As an alternative to fossil fuel, it is much better for the planet as it is much less likely to disturb the carbon dioxide content in the atmosphere which leads to increased pollution and global warming. It is also a renewable resource and is far more cost effective than using fossil fuels. Our woodchip is sourced locally and comprises mainly of softwood forestry thinnings and surplus timber left over from the planking process.

So how does it work?

The boiler works by a series of augers which draw woodchip from the hopper (see image on right) in the room adjacent to it up a series of chutes which then brings the woodchip into the combustion chamber. The wood is then incinerated at an extremely high temperature which reduces the amount of ash produced and also the emissions into the atmosphere. It is an extremely clean burn. The wood moisture content (ideally less than 20%) is critical to achieving the most efficient burn. The system is completely automated with the only requirement being for the garden staff to empty the ash on a weekly basis. It then goes into our compost heap to be recycled!

Fig. 7 Information sheet about the biomass boiler to inform visitors. Statement written by: Graham Stewart.

The level of award is based on the extent to which the attraction complies with the criteria and this is marked with a percentage. Grading categories are as follows:

Gold: more than 80 per cent compliance
Silver: 65–79 per cent compliance
Bronze: 40–64 per cent compliance
Going Green: less than 40 per cent compliance

Dawyck was awarded its Green Tourism award at Silver Level in December 2010 (see Fig. 8), which was a great achievement and testament to the hard work and determination of all the staff involved.

Fig. 8 Green Tourism Award, Silver level, awarded in December 2010. Image: Green Tourism Business Scheme.

The audit report concluded that "Dawyck Botanic Garden is one of the Royal Botanic Garden Edinburgh (RBGE) gardens, situated near Peebles in the Scottish Borders. The garden enters the scheme with a high Silver Green Tourism Award. This initial success reflects Dawyck's and RBGE's overall commitment towards responsible tourism practices. In addition to the inherent natural value of the garden and the visitor centre there is very good environmental management of the buildings. Most significantly there is a biomass heating and hot water system. Other highlights include an environmental notice board to communicate green issues to visitors and staff, use of local and fair trade products in the shop and café and an extensive events programme to engage with visitors."

GTBS feedback

The GTBS audit report was hugely comprehensive and as well as giving credit for areas of achievement it also gives a number of suggestions for making further eco-improvements. In Dawyck's case we will be looking at the following over the next 18 months:

1. swap to low-energy lighting as time and resources allow
2. move from paper towels in public toilets to high-efficiency electric hand dryers
3. improve and upgrade water treatment (chlorine to UV)
4. restrict water capacity in toilet cisterns using displacement devices
5. move to infra-red urinal flush system in gents' public toilets
6. make some minor improvements to recycling efficiencies
7. make progress on the development of a hydro-electric scheme (see below)

Next grading visit

Dawyck Botanic Garden will be re-assessed in 2012 around the anniversary of the first grading report and it is hoped that, following continual improvement and strategic green thinking with targeted improvements, it will be in a good position to improve on its award.

BENEFITS TO THE GARDEN

Membership of the GTBS offers a number of benefits to the Garden, which include:

- Green Grading and display of a plaque with use of logo for promotion and marketing
- assessment every two years, to keep grading current and to identify further improvements, cost savings and opportunities to market the green message to visitors
- Grading Report following assessment – this is a document which gives guidance on improvements to both green initiatives and grading level in the future
- website entry/listing providing a promotional opportunity on the GTBS website

FUTURE PROJECTS

Dawyck Botanic Garden is currently in the process of exploring the viability of a hydro-electric scheme as part of the Carbon Management Plan (Carbon Management Plan, 2010). This would produce power through abstraction of water from the Scrape Burn which bisects the garden from north to south. Historically, a small hydro scheme, which took water from a pond known as the 'Dynamo Pond', originally supplied power to Dawyck House. This was abandoned in the early 1900s. RBGE would like to resurrect this scheme using modern, super-efficient technology which, when combined with other efficient green technologies, will make Dawyck even more sustainable and reduce its carbon footprint even further.

RBGE is currently preparing to be assessed for ISO 14001 accreditation. This is an international environmental management standard which demonstrates the commitment of an organisation to maintain an Environmental Management System and make continuous improvements to this. Much of the work that Dawyck has done towards the GTBS accreditation overlaps with the requirements for ISO 14001. Accordingly, this puts RBGE in a very good position when it comes to be assessed for the ISO standard.

CONCLUSION

Dawyck Botanic Garden has always recognised the importance of doing as much as it can to look after and preserve its natural environment. The small things that we do, and

which we can all do, sometimes seem a world away from what is required to make any real difference. However, by working together, if we all 'do our bit', then collectively we can really make a difference. Dawyck Botanic Garden's commitment to the GTBS is a tangible measure of that commitment. It is vitally important to continue to seek new ways and innovative new ideas on how to carry out our business with the highest regard for our environment.

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