ASTA Science Awareness Raising Project

NEW SOUTH WALES CASE STUDY:

The Conservation of the Biodiversity in the Endangered Sydney Blue Gum High Forest.

The purpose of the New South Wales case study is to illustrate the adaptations made by the Mt St Benedict College community to the ASTA Science Awareness Raising Model.

The case study has been prepared from information collated from the project proposal, mid-project report, teleconferences, final project report and STA Coordinator feedback

Background

Mount St Benedict College is situated in the north west of Sydney at Pennant Hills. Pennant Hills Road runs along the crest of a hill. On the southern side of the hill the streams run down into Lane Cove River and Sydney Harbour. On the other side the streams run down to the Hawkesbury River.

Before European occupation clay slopes, such as the school site, were covered with Sydney Blue Gum High Forest. This forest was cut down first for timber to build ships, later to clear farmland and after the Second World War to make way for suburban development. Only one per cent of the original Sydney Blue Gum High Forest remains. The school owns a small portion of this.

Several years ago the school discovered that this forest is Heritage Listed. This means that a Scientific Committee has listed it as an endangered ecosystem. The school is required to have a Management Plan ratified by the Department of Parks and Wildlife. This plan lists activities which may be carried out in the forest and a long term maintenance plan.

The issue of Heritage Listing is a local community issue. The pressure of housing development and other human activities often demands that sites such as this one, are not retained for their ecological value. Next to the school is Observatory Park, another small area of Sydney Blue Gum High Forest. For many years it was used as a site where various community organisations held fetes and similar activities. Recently, after intense discussion in the community, the native understorey has been regenerated in two thirds of the area.

The school believed that many people in the community do not understand the need to protect biodiversity of an endangered ecosystem and that many do not understand the meaning of biodiversity or the implications of its loss.

For several years the Science Department at Mount St Benedict College has developed activities to assist in the restoration and maintenance of the area of forest. For example, growing genetically specific plants and sampling invertebrates to investigate the health of the forest. The community issue agreed on for exploration was " The need to

preserve biodiversity and how science could be used to provide information to enable us to manage and maintain this endangered ecosystem."

Aim of the project

The aim of the project was to:

1) inform the community about biodiversity and its importance using the remnant Sydney Blue Gum High Forest as an example

2) demonstrate to the community how science is used to help restore and maintain the Blue Gum High Forest as a sustainable ecosystem.

Project involvement

Including the teachers and students from Mount St Benedict College, Pennant Hills a total of ten groups and organisations were involved in the project. Other participants were:

- Ten students from the following primary schools:
  - St Gerard Majella, Carlingford
  - Arden Anglican School, Beecroft
  - Pennant Hills Public School.
- Pennant Hills Rotary Club
- Biotrack, Key Centre for Biodiversity and Bioresources, Macquarie University
- Bushland Management, Hornsby Council
- Chilworth Park Bush Regeneration Group
- Beecroft-Cheltenham Civic Trust
- Environmental Trust.

The wider community was heavily involved in the project. Given the scope of the project no further involvement would have been practical. STA Coordinator

Doing the project

The Local Leader invited interested parties to be involved in The Sydney Blue Gum High Forest project. The first meeting of the Community Reference Committee (CRC) was excellent as the school already had long-term relationships with project stakeholders through previous interactions in relation to the high forest area. The Sydney Blue Gum High Forest project was seen by the CRC as an important community issue and not a 'one off' project that suited outside requirements.

The Science Teachers Association (STA) Coordinator attended the initial CRC meeting to discuss the nature and scope of the project and explain the procedures. *The Science Awareness Raising Package for Participants in the Trial Project* was used to provide the framework for the project. The CRC produced a strategic plan that included a number of project activities.

Each group represented on the CRC had considerable involvement in the project. They provided advice, took on specific project tasks and responded to the survey. The established working relationships, trust and good will made the events easy to organise.

The Local Leader and STA Coordinator communicated throughout the course of the project by phone, email, post and face-to-face meetings.

The whole school and community took on the project with enthusiasm. Local Leader

Student activities

As well as the activities listed in the following section of the report, **Science experiences for students from executing the project,** students were also involved in the following:

- Eleven students from three local primary schools attended "A Morning in the Sydney Blue Gum High Forest." In groups of ten, students attended an interactive display of invertebrates put on by Macquarie University, a streamwatch session testing water from the stream that rises in the forest, and an

activity where they hunted for weeds and native plant species and planted native plants in the forest understorey. The students took brochures back to their schools for each student in their class to take home to their parents. The day was run by senior students at the school who are involved in the Environment Portfolio

- a Powerpoint presentation about the project was shown to all students in Years 7-10 in their science classes
- a poetry competition for Years 7-9 students. Poems about the forest were composed by students and judged by the English staff. Prizes were awarded
- Year 7 art class students produced art works about the forest. These were displayed at the Expo and later in the school library
- Sixty-five students volunteered to assist the public at the Expo, with Years 7-9 students greeting visitors on arrival.

The science experiences for students from executing the project

- data collection on the impact of storm water drainage in the forest, which lead to consultations with the environmental scientist at Hornsby Council on strategies to stem the flow and control of water distribution
- re-vegetation of native plants grown from seeds genetically specific to the forest by Year 8 science students
- identification of the characteristics of the forest and factors impacting on the regeneration process, e.g. the lack of understory
- collection, classification and recording of invertebrates present in the forest by Year 7 students. This is part of a long term project which aims to look at invertebrates as ecological indicators of the health of the forest ecosystem.
- monitoring of native plant and weed populations in the area.
- investigating the seed bank in the area by monitoring the regeneration within a control area in the forest.

School and broader community awareness raising strategies

- production of 3,000 brochures outlining the project were distributed in the community at Pennant Hills, Cherrybrook and Westleigh shopping centres; via a letter box drop in Beecroft; to Mount St Benedict staff; to libraries, schools, in the Hornsby Shire and catholic churches in north western Sydney
- a special copy of Mount St Benedict's weekly newsletter (featuring the brochure information) was printed and taken home by every student
- a teacher and student attended a meeting at Pennant Hills Rotary Club to inform the members about the project
- the Rotary Club took a project display consisting of photographs illustrating the message in the brochure to the shopping centres
- press releases to local papers and *The Sydney Morning Herald*
- advertising of the Environment Expo in all parish newsletters
- Project activities culminated in the Environment Expo on Sunday 30th June from 12.30 – 4.30pm. Approximately four hundred people attended (estimated from the number of programs given out).

The Expo was run by students, teachers, parents and members of the community and comprised the following activities:

- an interactive invertebrate display by Macquarie University
- Streamwatch tests facilitated by Mount St

Benedict College science teachers and students

- weed and native plant identification guided by bush regenerators from Hornsby Council and the Chilvers Park Bush Regeneration Group.
- a display in the school hall consisting of:
  - the Powerpoint presentation outlining the aims of the project and the rationale behind them
  - a display of plants native to this area of forest grown by Year 8 Science students
  - a display of the invertebrate micrographs taken by Biotrack, Macquarie University. These invertebrates are trapped by Year 7 Science students as part of a study of invertebrate species that occur in the forest. This study is carried out with assistance from the Key Centre for Biodiversity and Bioresources and looks at the invertebrates as ecological indicators of the health of the ecosystem
  - a display of weed species common to the forest
  - a display of the primary school "Morning in a Blue Gum High Forest" including photographs and a report
  - a display of Year 9 Science students' Streamwatch monitoring of Devlin's Creek that rises in the forest
  - a display of a project on local history including biodiversity issues by a student at the school
  - a display of student poetry and art about the forest
  - a religious education display recognising the Dharug Tribe, the original owners of the forest
  - The Blue Gum café where visitors could take a break between activities with coffee and a snack.

Project outcomes

1. The project further developed a positive relationship with all the community groups involved. For example
   - the Hornsby Council repeated offers of any assistance it could give to assist the long term project. This offer came from the mayor, a counsellor, and The Division of Bushland Management.
   - the project established the College's credibility more firmly with the departments of Macquarie University with whom the school works. At present Biotrack is applying for a seed grant to develop the invertebrate program carried out with Year 7 and Year 11 into a program that all schools can use for classification and teaching various computer skills. Again this may have happened anyway but the project further developed relationships in a very positive way.
2. The project raised the profile of science in the College. Some primary student participants brought their parents to the Environment Expo and appreciative comments resulted from the brochure and newsletter items. Another example was the student interest created by the Powerpoint presentation. This led to 65 students volunteering to work at the Environment Expo, an excellent result as school holidays had commenced. The school community was aware of the project and it was generally seen as "a good thing".
3. The Local Leader received a BHP Science Merit Award which further raised the awareness of the project through the school community and some community groups.

Project continuation beyond the trial

A management plan is being created that will assist a storm water drainage problem and help the forest and understory become regenerated and sustainable once again.

Mount St Benedict College Environment Expo brochure 2002

Project costs

The main expenditure items in the NSW ASTA Science Awareness Raising Project budget were for resources for the Environment Expo and teacher release.

In-kind support for the project comprised the provision of equipment, the loan of museum exhibits and the time numerous volunteers donated to host displays, distribute brochures and provide clerical assistance. Time and expert advice was provided by resource people associated with Macquarie University, Chilworth Reserve Bushcare Group and Hornsby Council.

Was the project successful?

The increased awareness of the endangered ecosystem within the school community (school board, the school executive, the science staff and the students) has been demonstrated by their decision to adopt a management plan for the forest that "does the right thing" ecologically. The management plan was to be undertaken before the ASTA Project. This has given it more impetus by increasing awareness of the issues.

People who came to the Expo were very positive about the project and also very interested in it.

The project outcomes were achieved. In fact I believe several others were also achieved (including developing stronger links with feeder primary schools). STA Coordinator

What was learnt?

- the success of working in partnership with community groups was assisted through
  - excellent relationships built by the Mount St Benedict College Science Department with Hornsby Council, The Rotary Club, and the Bush Care Groups over a number of years
  - establishing what the project intended to do at the initial CRC meeting
  - the Local Leader's awareness of realistic expectations of community groups through previous interactions.
- to achieve the aim of the project and change people's ideas and beliefs about an environment, the message needs to be ongoing, through a variety of mediums and reinforced over time rather than a 'one off' exposure over a short period of time.
- the limitations of printed material (brochure and newsletters) as an awareness raising tool. A percentage of brochures delivered to letterboxes are likely to be tossed in the bin as junk mail and not all school newsletters are delivered to or read by students/parents.
- the importance of consistent communication protocols by all stakeholder groups. For example the representative from one volunteer group on the CRC signed the approval to take part in the project, but the other members of the group were not aware this commitment had been made.
- a short project timeline adds pressure to the organisation, and involves a lot of long, hard hours of work.
- the value of planning to assist in the meeting of tight timelines.
- by respecting any commitment people can make and providing a variety of ways to be involved in the project (some less demanding of time than others), the willingness of people to participate is increased. For

example careful consideration was given to the demands of science teacher colleagues taking part in the project. Activities were designed that enabled them to choose their level of participation and be included in some small way. It could be anything from showing the Powerpoint to their science students, attending the Expo to coordinating the poetry competition – all were equally valued.

Raising Science Awareness in the community *is a time consuming, yet rewarding experience. However, the project needs to have developed or established some ongoing interest/support to be worthwhile. One off events can be good but are of limited long-term benefit.* STA Coordinator

Community feedback for NSW case study

The Conservation of Biodiversity focus of the project in NSW aimed to inform the community about biodiversity and its importance using the heritage-listed Sydney Blue Gum High Forest as an example, and to demonstrate to the community how science is used to help restore and maintain this forest as a sustainable ecosystem. The feedback from the community based on the pre-project and post-project interviews and letter surveys is reported fully in Chapter 8. This information indicates that the project was generally successful in raising community awareness about the project itself. The percentage of interviewees who had heard about the project increased from 82% to 100% (see Table 8.8) by the post-project interview. This high pre-project awareness may be explained by the fairly late start to the interviewing process. There were 26 letter survey responses, all from parents, and 50% of them knew about the project (see Table 8.13). As a private school, Mt St Benedict's draws students from a wide geographical area, so some would not have been from the local community, however, all parents would have received school newsletters. Overall, 65% of the interviewees increased their knowledge about the project (see Table 8.10), with an increase of 24% to 71% having a good or comprehensive understanding of what the project was about (see Table 8.9), the largest increase for any project.

There was a noticeable increase in terms of interviewees' understanding of the science behind the project (see Table 8.11), but no change at all in their confidence in being able to find out more about the science behind the issue if they wanted to (see Table 8.11). The interviewees' belief about how important it was for the people in the community to know something about this topic (see last section of Table 8.11) was rated 4.47 on a 5-point scale. Interviewees suggested it was important to gain an interest/appreciation of the issue (65%) and also to recognise the importance of conservation (59%, see Table 8.12). Interviewees became more positive in their views about the importance of science for the ordinary person (see Table 8.6) and they commonly responded that science was more important than people think, that people need science knowledge, but they are unaware they are using science (see Table 8.7). There was a decrease in the number of responses referring to people not being interested in science and that science is too hard for the ordinary person (see also Table 8.7). There were only small changes in the reasons people thought science was taught at school with a high percentage (88%) of interviewees referring to students needing to know about their world and the processes of science (see Table 8.5).

Letter surveys asked respondents whether they thought the project was successful. The respondents thought that the main purpose was to contribute to the environment, and 4 of the 9 respondents who answered this question thought that the project had achieved its purpose (see Table 8.16), but the other 5 considered it partially achieved, with comments indicating the project was long term.

Overall, and compared with the other projects, the project was considered to have had a medium to large effect on the community (see Table 8.19). The project built successfully on already established community partnerships and it achieved its aims effectively, however, its impact on the community was not uniformly great. This assessment is based

on lack of change in interviewee's confidence and the limited change in understanding of why science is taught in schools.

Summary points

The established and respected relationships with community groups, built over time by the College was an integral factor in the success of the Mount St. Benedict College Science Awareness Raising project. This work together on the Sydney Blue Gum High Forest project proved to be a further opportunity to strengthen these partnerships for future initiatives.

While relationships were already established, a lot of care was taken by the Local Leader to maintain and grow these relationships. This was demonstrated through the collaborative approach and trust, the planning and hard work put in by the Local Leader to meet commitments and timelines, and the inclusivity.

The CRC recognised that to change people's ideas and beliefs about an issue, the project needs to be long term, reinforcing the message many ways and through a range of mediums and experiences. The project became a catalyst for increased community awareness about the forest and for expanding the work the College had been doing in the area of forest restoration and maintenance prior to the project.

In a short period of time, the aims of the Sydney Blue Gum High Forest Science Awareness Raising Project were achieved as demonstrated by the decision of the school community to adopt a management plan for the forest.

The community feedback indicated the NSW ASTA Science Awareness Raising Project had a medium to large impact on the community. With the decision by the school community to adopt a management plan for the forest, this long term commitment to maintenance of the forest ecosystem could be the catalyst for ongoing science awareness raising activities in that community.

Appendix 7.2

1. CRC initial meeting paper Friday May 10 2002
2. Mount St Benedict College Environment Expo brochure
3. Letters to accompany brochures for distribution
4. Mount St Benedict College Newsletter featuring the Blue gum High Forest project, June 17, 2002
5. Letter and information re: Years 5 & 6 *Science Experience*, Friday 21 June 2002
6. *A Morning in a Blue Gum High Forest* – documentation from the *Science Experience*
7. Mount St Benedict College Environment Expo program
8. Photos of Mount St Benedict College student participation
9. Powerpoint Presentation