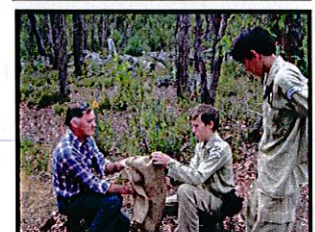





Bush Rangers

Western Australia

Internal Evaluation 2011



Department of
Environment and Conservation

Our environment, our future 

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, Tbilisi Declaration, 1978).

This report was researched and compiled by Caroline Conway-Physick

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- Melissa Patterson, DEC Project Officer, Eco-Education
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Executive summary

Background to the review

The Bush Ranger Program is hosted by the Department of Environment and Conservation (DEC). It is a voluntary, senior school program whose mission it is to support students to take “an active and lead role in the conservation of the natural environment and to understand the mechanisms for its management” (Bush Rangers, 2010).

The evaluation addressed issues of specific importance to the Strategic Development and Corporate Affairs, Eco-Education Department’s Bush Ranger program relating to the effectiveness, efficiency and value of the program.

Now in its 13th year of operation, the program has not undergone any formal evaluation process which stimulated the need for an initial internal evaluation to be carried out towards informing future development and strategic thinking of the program.

Due to the complexity and nature of the subject content and evaluation objectives covered, the collection and analysis of both qualitative and quantitative data (mixed methodology) was necessary. This supported a more emergent/ action orientated research ideology.

The design of the evaluation follows a grounded theory approach as defined by *Goulding* (2002) and cross case analysis (www.scu.edu.au/schools/)

The evaluation included the development of various tools and methods to support the collection and analysis of data in support of this social research evaluative process.

The information from the evaluation is seen to form the foundation for additional research requirements and should be considered as a refining, overview approach for further investigation towards informing the programs future strategic development.

Summary of Findings

The results related directly to the evaluation objectives which were to assess:

- 1 If the program is delivering on its program objectives?
- 2 What the stakeholder perception of the program is?
- 3 How effective the manuals and other support resources are in the delivery of the program?
- 4 Development of a tool for the measurement of success within the program (relating directly to achievement of the program objectives).

The results from the evaluation were defined into three broad categories in relation to the evaluation objectives that were defined and these were then further coded for reporting purposes:

- Program Objectives

- Perceptions of the Program
- Resources (Materials, Human and Physical).

The fourth evaluation objective was then developed to support future research and evaluation on the ongoing assessment of the achievement of outcomes directly related to the program objectives. This evaluation objective was developed concurrently with the review process and took into account aspects of the evaluation design in its formation.

The following data is a quantitative and qualitative summary of data collected from the evaluation questionnaire submitted to Bush Ranger schools in early September 2011.

In summation, the key findings have been tabulated under the relevant headings below:

Program objectives

Question	OBJECTIVES Summary	QUANTITATIVE ANALYSIS
		% positive response
Obj. 1	<p>To provide in youth, through appropriate training and supervision, the basis for an active and lifelong commitment to the conservation of the natural environment:</p> <p>Greater awareness, value adding; sustainability, pride in action taking, develops responsibility, long term commitment, understanding, develops values and caring, develops community support, confidence building, practical application of skills development, greater environmental understanding and knowledge building, expands awareness, inclusive, change in student attitude and approach to environment & community, ownership; develops willingness to support environmental initiatives. Valuable skill and knowledge development around key environmental issues/ threats.</p>	78%
Obj. 2	<p>To foster a conservation ethic in young Western Australian through their participation in practical conservation and environmental management projects:</p> <p>Hands-on practical experience, relevant, increased dedication, stimulates critical thinking, active contribution to environment, encourages personal conservation values, positive habits, activities develop pride, values, ethics, action-orientated learning and engagement, through skill development and knowledge sharing gain appreciation of country and environment, opportunity to translate awareness into action & broaden understandings. Develops love and appreciation of flora/ fauna of WA. Empowers and motivates students to take an active commitment towards the environment. Students have become more action-orientated in trying</p>	94%

Question	OBJECTIVES Summary	QUANTITATIVE ANALYSIS
		% positive response
	to make a difference. Fosters conceptual thinking around environmental issues and pro-active development of action projects. Program fosters a love for environment, respect and development of ethics through indirect & direct processes.	
Obj. 3	<p>To develop leadership and teamwork skills, and the qualities of self discipline and duty, loyalty and service to the community, school and to the Bush Rangers WA Program:</p> <p>Opportunity to problem solve, share, team build and be a leader, improved duty of care towards environment, greater self confidence & courage, increased personal resilience, outgoing, cooperative, focused, persistent and engaged, supporting community initiatives, leadership enhances increased responsibility, pride and ownership. Develops a sense of place/ community. This is enhanced through the networking and engagement undertaken with external partners etc.</p>	98%
Obj. 4	<p>To provide young Western Australians with the skills and knowledge that relate to the functions and role of the Department of Environment and Conservation (DEC);</p> <p>Greater understanding, skill development and awareness of processes involved in conservation and land management through engagement. Appreciate the uniqueness of WA. Fosters initiative, learning and understanding of the dynamics of WA biodiversity and related issues/ threats.</p>	93%
Obj. 5	<p>To support and strengthen the links between schools, the community, DEC districts and activities throughout the State:</p> <p>Local, regional and state wide networking opportunities with government, councils, NGO's, private/ commercial business, schools. Excellent for networking and giving greater access opportunities for students in support of their projects.</p>	98%
Obj. 6	<p>To compliment existing formal education by encouraging the accreditation and recognition of skills and competencies during training:</p> <p>Science, Society & Environment, Geography, Biology, other national certificate courses. Accreditation is invaluable and skills obtained in support of student development and recognition. Develops inquiry skills &</p>	93%

Question	OBJECTIVES Summary	QUANTITATIVE ANALYSIS
		% positive response
	processing/ analysis of data. Allows students who are more practically orientated to obtain skills and accreditation for their learning within a different context/ approach through cross skill transfer. Additional skills and training support available. Links with many other programs/ courses/ training initiatives ASDAN, BLS, NTIS, STEP, non-ATAR, CGEA, CSLP. Recognition for skills learned is then obtained not ordinarily in the formal education curriculum	
Obj. 7	<p>To provide a career pathway for employment in natural resource management, including entry into the DEC's graduate development program and traineeships:</p> <p>82% schools confirmed that the program has a direct influence on students considering a career in a conservation/ environmental field. This averaged out at 31% of cadets involved/ school. Gave excellent support to future work opportunities within the broader professional work environment but very little assistance had been given to clarify entry into the DEC's graduate development program or traineeships: 15%</p>	<p>15% Opportunity</p> <p>82% Program influence</p> <p>Ave: 30% effect</p>
Effective	<p>Objective 1</p> <p>Objectives 2 – 6 (5)</p>	<p>70 - 80%</p> <p>90 - 100%</p>
Not yet effective	Objective 7	10 - 20 %

Perceptions of the program

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	PERCEPTIONS	% positive response
Q4 P	<p>Is the program age appropriate? Why.</p> <p>Adaptable, flexible, suitable to different learning needs of students, gives sufficient structure for younger students, diverse topics, interesting, engaging, builds understanding and capacity due to tiered approach.</p>	97%

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	PERCEPTIONS	% positive response
Q5 P	<p>Should the program be expanded? Explain.</p> <p>Provides a platform for relationship and capacity building; on fore-front of nature-based learning, an essential aspect of ensuring a real connection for students with a wider environment and conservation understanding. Expand into more schools, primary schools, aboriginal communities, children with disabilities, children at risk</p>	79%
Q10 P	<p>What are the current risks being experienced in the program (e.g.: support, staff, time, demand) Explain.</p> <p>Six primary areas of risk:</p> <p>olunteer support</p> <p>udent study pressures declining number of cadets thereby affecting school & finances for travel & paying relief staff;</p> <p>omments included:</p> <p>ther burn out; support from external departments; lack of staff training; tion of events/ paperwork; funding for staff/ parent qualifications in</p>	<p>62%</p> <p>Staff Issues</p> <p>53%</p> <p>Time Constraints</p> <p>29%</p> <p>Funding issues</p>
Q15 P	<p>What is the overall perception of the program? Explain</p> <ul style="list-style-type: none"> • Lots of areas of improvement to contextualize into regions • Fantastic opportunities for personal development • Students find it fun and enjoyable • Positive values of students in their approach & consideration of the environment • Valued asset of school, in high demand • Proud of the enthusiasm and dedication of staff & students 	<p>Excellent – 76.5%</p> <p>Good – 23.5%</p> <p>Poor – 0%</p>

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	PERCEPTIONS	% positive response
	<ul style="list-style-type: none"> • Whole school involvement, displays peer support, discipline, teamwork and conscientiousness, flexible, adaptable 	
Q16 P	Do you have comments on other aspects or outcomes of the Bush Ranger program that haven't been surveyed and that you think are important?	
	<p>Research suggestions:</p> <ul style="list-style-type: none"> • How does environmental education and nature-based learning have a positive effect for students who have disabilities (i.e.: epilepsy) and how can it help students with mental health issues, including anxiety, learn better? • Method by which to assess for WACE that is similar to CERT 1 and 2 TAFE courses • Would there be value in developing a theme based approach to each year of the program? • Assessment of the project selection and how useful certain activities are e.g.: how useful are seed raising efforts? <p>Comments:</p> <ul style="list-style-type: none"> • Would very much like the program to grow and continue; • Students have developed a greater sense of responsibility for the environment and as such are the leaders of this [environmental] cause within the school community; • Team work, respect, stewardship and strong conservation ethics are key values developed by the program through activities such as camps, afternoon meetings and conservation activities such as planting etc.; • Program is an excellent way of spreading knowledge around sustainability issues into communities • Use of camps and practical excursions are a vital component of the program and offer students great experiences • Joint camps for schools (local and regional) • Increased professional development opportunities and meetings for networking • Adaptation of some resources into electronic version for use in place of hard copies (books) 	

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	PERCEPTIONS	% positive response
	<ul style="list-style-type: none"> Greater regional contextualization needed in resource materials Would be beneficial to have funding for year 12 students now that year 7 is included into high schools so as to expand the program 	

Resources (materials, human and physical)

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	RESOURCES	% positive response
Q9 R	Are there sufficient inputs (financial, staff, partnerships, support from DEC etc)? Explain.	
	Financial support from Department for Communities is excellent. DEC support from the program is considered very good with some areas for improvement although support regionally is overall poor. Issues of stress for schools amounts to internal school staff capacity and assistance, lack of support from DEC and other partners.	64.5%
Q11 R	What training/ professional development have you had from DEC staff on the Bush Rangers Program, and is this sufficient?	
	The Annual conference was the primary form of training received by school staff, which was considered invaluable:	52%
	% commented that they received insufficient or no training:	21%
	% who actively requested additional training or professional development opportunities or support:	34.5%
	Other training received included: "on-the-job" training at camps – Fire Recovery, Bush Fire Control, Capture/ Release; Handbook training;	
Q12	Do the resource materials (manuals/ logbook/ resource box) effectively assist learning?	

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	RESOURCES	% positive response
R	Explain. Valuable guide and resource to draw ideas and direction from; Provide effective assistance in educating students about conservation; Valuable structure; Simple and adaptable;	92.6%
Q13	What value do the logbooks offer as a tool for assessment? Explain.	
R	% Schools that actively use the logbooks in some form:	86%
	Considered a valuable guide and structure to assist learning. Assists in reflecting students understanding and learning, and as an assessment tool (informal/ formal). Opportunity for reflection and record keeping of events undertaken.	
Q14	Do you use the logbooks for any other purpose? Explain.	
R	% who use the logbook for other purposes as stated below:	15.6%
	Used as a planning tool; Assessment of student progress and attendance; Provides benchmark of expectations; Assessment tool in support of other programs/ projects (ASDAN/ CGEA); Recording attainment of Bush Ranger Program outcomes Allows teachers to make the links between the activities completed and the skills covered.	

Measuring Success

The measurement tool is based on a summative, uni-dimensional, Likert scale approach, which assigns objects to numbers according to a rule, and relates directly to the program objectives (www.socialresearchmethods.net/).

The tool is in response to giving the program the ability to review smaller change elements that occur and are related to the program objectives. It is able to function independently or in support of other formal/ informal evaluation processes, in the continued collection of data on aspects of the program (Appendix 12).

Recommendations

These include a wide range of aspects for consideration that require further investigation and conceptual development. In total ten (10) focus areas with related considerations were identified. These are summarised below:

Program growth

- Development of a conceptual plan that takes into consideration the strategic development and growth development models for the program;
- Development and implementation of a regional support model and organisational chart;
- A short term capping of the number of schools to 60 until the regional coordination support and increased budgetary needs are addressed.

Communication

- Improvement of communication channels and methods through the development of a communication protocol;
- Active marketing of the program through DfC and other cost effective methods.

Planning

- Development of improved administrative capacity with the development of planning tools such as an Annual Plan of Operation; Annual Budget development and submission, Annual Reporting through to senior management; Standard Operating Procedures; improved record keeping and filing;
- Improved collaboration, networking and planning with regional staff in support of program development and school support.

Policy and Procedure

- Development of an induction procedure for all new schools;
- Development of procedures to ensure effective delivery of the program from a day-to-day functioning and longer term vision as well as to support historical record keeping.

Financial Requirements

- Development and management of Financial Records and Budgets in support of the needs of the program;
- A cost-benefit analysis to be carried out on the program;
- Obtain senior management support and approval for program growth with the related financial and staff approval requirements;
- Increased funding model within DEC for the Bush Ranger program that is CPI linked and indexed.

Administration and Staff

- Improved administrative processes such as filing, record keeping, stock taking and auditing processes

- Improved communication with administrative staff to ensure better delivery and follow-up with schools and required processes.

Partnerships

- Development of Memorandums of Understanding (MoU) with all key partnerships
- Implementation of regular meetings with all partnerships and networks through the development of key forums or discussion groups;
- Development of a steering committee in support of the strategic growth of the program;
- Improved partnerships and networking internally within DEC to support schools.

Resource Materials

- Review of the resource materials for contextual and content relevance and accuracy should be carried out approximately every two years;
- Ensure accurate and effective budgeting in support of resource material review and printing;
- Determine more cost effective design and printing formats and delivery of resource materials to schools;
- Consideration of more sustainable resource material use;
- Charging all new schools for the printing costs of manuals and logbooks.

Training

- Development and offer of a wider range of training opportunities for teachers and students through professional development and camps, consecutively.
- Notification of training opportunities and camps well in advance.

Research

- Encourage additional research on the program through the development of partnerships with tertiary institutions to assist with the process.
- Ensure regular review and reflection on the processes, delivery and outcomes of the program towards improved efficacy.

1 Introduction

The Bush Ranger Program is hosted by the Department of Environment and Conservation (DEC). It is a voluntary, senior school program whose mission it is to support students to take “an active and lead role in the conservation of the natural environment and to understand the mechanisms for its management” (Bush Rangers, 2010).

Now in its 13th year of operation, the program has not undergone any formal evaluation process which stimulated the need for an initial internal evaluation to be carried out towards informing future development and strategic thinking of the program. Recent draft documentation within DEC has also recommended that all environmental education programs be evaluated every two years towards assessing the efficiency and effectiveness of such programs (Allen, 2011).

The evaluation process began in late August 2011 in support of gaining a greater understanding of the capacity of the program to deliver on its key objectives as well as to identify the resources necessary to assist with its potential growth and development.

Within this context, Bennett (1984) succinctly outlines that the process of evaluation seeks to “appraise competence in decision making, problem solving and organisation of action and values which determine the orientation of the individual and groups towards the environment.” These are key elements in understanding the capacity of the program and assist in informing its future progress.

1.1 Background

The Bush Ranger program was initiated in 1998 under the direction of the former Director Strategic Development and Corporate Affairs, Ron Kawalilak, and Liz Moore along with State Coordinator Bronwyn Humphreys.

Re-development of the manuals was undertaken for the first time since its inception, by Liz Moore, during 2007 and was implemented as from 2008. These are still in operation.

The Bush Ranger program forms part of a greater, state-wide Cadets WA program, which is managed by the Department for Communities. There are eight other organisations that are part of this over-arching Cadets WA program, however Bush Rangers is the only program that has shown consistent and steady growth since inception (Department for Communities, 2008).

In conjunction with this, there is close affiliation and alignment with the Curriculum Council who has endorsed the program content continuously since 2000, through various educational changes (Bush Rangers, 2000-2010).

Current recognition to students is given in two ways:

1. students are given points which make up to four units on the Western Australian Certificate of Education (WACE), depending on how many Bush Ranger outcomes and levels are completed. If all levels are completed during year 10 to 12, then 4 units can be achieved on WACE

2. to those who achieve their vocational education training (VET) units of competency, based on the Australian Quality Training Framework (AQTF). These form part of their school program which can then be recorded on their Statement of Results of their Western Australian Certificate of Education (WACE) (www.curriculum.wa.edu.au).

The program currently supports over 50 schools throughout Western Australia who are at varying degrees of understanding and implementation of the program. Approximately 59% of these schools are based within the Perth Metropolitan area.

1.2 Scope

The evaluation addressed issues of specific importance to the Strategic Development and Corporate Affairs, Eco-Education Department's Bush Ranger Program relating to the effectiveness, efficiency and value of the program. It supports:

- 1 understanding of the level of delivery of program
- 2 understanding of areas for improvement
- 3 assisting in the advancement of environmental education within Western Australia
- 4 improved profiling of the program within DEC and externally
- 5 promotion of professionalism within environmental education constructs
- 6 creation of a tool by which to measure the level of delivery of the program in relation to its seven key objectives.

This is in keeping with ideological perspectives relating to environmental education evaluation (*Stokking et. al.*, 1999).

A total of 49 (Appendix 2) schools were approached to take part in the evaluation process out of a total of 52 currently active within the program. The three schools excluded from the process were due to them only being active within the program as of the latter half of 2011.

Due to the limited availability of historical information, documentation reviewed of the program included predominantly the period from 2000 to 2011, from Annual reports.

In addition, a wide variety of partner organisations and individuals who have been directly involved with the program, supporting in various ways, were contacted and their insights obtained.

The evaluation and analysis was constructed over a limited period of six (6) weeks and is considered a foundation evaluation from which additional research should be developed towards a more detailed evaluation process.

1.3 Purpose

The key objectives of the evaluation process were to look at four specific issues pertaining to the program:

- 1 Does the program deliver on its program objectives?

- 2 What is stakeholder perception of the program?
- 3 How effective are the manuals and other support resources in the delivery of the program?
- 4 Development of a tool for the measurement of success within the program (relating directly to achievement of the program objectives).

1.4 Methodology

Due to the complexity and nature of the subject content, and evaluation objectives covered, the collection and analysis of both qualitative and quantitative data (mixed methodology) was necessary. This supported a more emergent/ action orientated research ideology.

The design of the evaluation follows a grounded theory approach as defined by *Goulding* (2002) and cross case analysis (www.scu.edu.au/schools/)

Within this, coding was constructed to assist in the development of a coherent reporting structure through content analysis, as described by *Tere* (2006). This type of research process strongly aligns to action research due to its high participatory nature, combining action with research (www.uq.net.au/action_research).

The statistical (empirical) data was sourced from Department for Communities who collate the relevant data given to them from schools, and which is then passed onto the Bush Ranger program for further analysis.

The evaluation methods sought to assess aspects of behaviour change, attitude, skills and knowledge as a result of the programs influence, and aspects of program application effectiveness and efficiency.

The methods used are considered suitable for the type of data collection required, as summarized below:

Method	Audience	Method Impact on learning about:			
		Knowledge	Skills	Attitude	Behaviour
Interviews	External Partners, DEC & independent individuals	✓		✓	(✓)
Focus Group	DEC Staff (Internal)	(✓)		✓	
Questionnaire	Teachers; Learners	✓	✓	✓	(✓)
Document Review	Historical Program literature	✓	✓	(✓)	✓
Literature Review	External literature review	✓	✓	✓	✓
Case Study	External Organisation	✓	✓	✓	✓

(✓) Indicates that this technique may be, but is not always, appropriate to evaluate the indicated type of learning. (Adapted from: American Society for Training and Development).

The construct validity of this approach is that it supports a mixed methodological approach to address the complex issues raised. These are well supported methods within the field of environmental education evaluation (www.conpsychmeasures.com).

Issues of rigour, bias, and reliability were addressed by the designed questions being peer reviewed and data collected and analysed with consistency, by an individual researcher.

Interviews

Various types of interviews (individual and group) were conducted due to the complexity of the subject which requires a more in-depth probing of the issues which may have a level of contextual variance and require a more personal engagement. This included engagement with focus groups on particular issues.

The interview process included structured open-ended questions and lasted approximately 1 hour per session per individual or focus group. From the data collected it was then coded and summarized into categories and then risks, recommendations and perceptions defined.

These were carried out with Department for Communities, Curriculum Council, Regional Coordinators of the Bush Ranger Program, current and former Bush Ranger State Coordinators and teachers.

Focus Group

Although, as outlined by Patton (1990), this is a form of interview process, this approach can be very useful in creating a rich response around a topic that is well understood within a group of individuals who can challenge each other's thinking on the program and its functioning.

Staff from within the DEC Strategic Development and Corporate Affairs, Eco-Education Division, that were able to collaborate on the past and current operations of the program, were included into this group.

Questionnaires

A questionnaire was drawn up directly relating to the key objectives of the evaluation (Appendix 3).

It comprised of sixteen questions which were peer-reviewed by the focus group members for relevance and accuracy. These were formatted as structured open ended questions. Once approval of the questions was obtained through the focus group, these were inserted into a tabular format for release to the school principal and Bush Ranger Unit Leaders for completion.

Twelve working days were given for completion of the questionnaire with a reminder notification being given half way through this period (Moore, 2006).

Each school received their questionnaire via email with a covering letter of explanation and was coordinated through the Bush Rangers State Coordination office.

Document Review (Internal)

Historical documentation relating directly to the Bush Ranger program was reviewed and included the:

- Printed annual reports from 2000 to 2010
- Four program manuals currently in use (including student log books)
- Files on each school;
- Previous program manuals that were in use (3);

Literature Review

Documents that were reviewed in the development of the evaluation process and report were sourced from external agencies that had done similar reviews on their processes and had conducted case studies amongst the Cadets WA programs which includes Bush Rangers (i.e.: Cadets WA, FESA). In addition related topics on environmental evaluation approaches, environmental education initiatives within WA and within the broader environmental field, as well as literature pertaining to educational practices and concepts were included.

Additional literature review was carried out on Western Australian reports pertaining to Biodiversity, Environment and Social Research issues in support and further understanding of the programs relevance in a broader context.

Case Study

Meetings were held with the Fire and Emergency Services Association (FESA) who coordinate a similar sized Cadets WA program, the State Emergency Services (SES) program, in order to do a comparative between the two programs. A risk assessment and evaluation tools assessment were discussed in particular, but not exclusively.

1.5 Limitations

Although the data has been reviewed by a number of internal DEC staff for comment, the evaluation itself has not undergone an extensive external review process. The evaluation was very specific in its objectives and as such it has not dealt with a number of issues in detail that would be useful for consideration in the further development of the program, and hence a strong recommendation of this process is that further review and evaluation be carried out on issues that will further support these initial findings.

The development of a tool for measuring success should be considered carefully for its limitations in defining success within a social research perspective.

2 Results in context

The following reflects the ability of the program to deliver on its objectives, perceptions of school management staff and the influence of other aspects on the program through partnerships that were taken into consideration.

2.1 Delivery of program objectives

The Bush Ranger program objectives consider seven components which support youth and community development, and support active participation in the natural environment.

The program was found to be 85.71% effective in addressing of its program objectives, with 5 of the 7 objectives reflecting a 95.2% effectiveness level (Appendix 4). This in particular showed that the program significantly supports students' positive perceptions of and constructive engagement with the environment, allowing critical skill and value system development that is supporting positive community relationships.

The only aspect in which the program is seen to require improved delivery in its objectives is in its capacity to offer youth sufficient opportunities to find a career pathway within the DEC, as a result of engaging with the Bush Ranger Program. The key reason for this is seen to be a combination of poor communication and networking from within the program to other divisions of the organisation and in follow through to schools of opportunities available. Besides this, there is also a significant human resource burden required of such traineeships and mentoring that needs greater consideration, within the DEC, as to how this should be structured and offered to schools to ensure it is a worthwhile process for all concerned.

Particular issues that were raised under each objective, with examples of comments made, include:

Objective One:

"To provide in youth, through appropriate training and supervision, the basis for an active and lifelong commitment to the conservation of the natural environment"

The program was considered to develop long term commitment, values, caring and responsibility towards the environment through its approach.

A 78% positive response rate was received for this objective but key to its success was the capacity of the Unit Leader to lead the program effectively within the school, and have sufficient support within the school structure to give the time necessary for the program to be enjoyable and engaging for students.

The program creates greater environmental understanding and knowledge building that supports a richer engagement with environmental issues. This is carried out by the three-phase system (development over a minimum of a three year period), which develops the students capacity of "stepping up to sustainability" by measured growth. It allows for the necessary

conceptual and critical thinking to develop around environmental concerns that are reinforced through practical experience, and become imbedded within the students thinking, approach and actions in daily life. What reinforces this way of being is the degree to which the student is able to relate to and engage with the issues being raised, and for them to have a sense of ownership and empowerment to make a difference within their local context (positive reinforcement). Students then have the potential to become environmental leaders, consciously thinking about their impacts and ability to be responsible citizens.

“Students are learning the importance of their environment through their involvement, and how to treat the [natural] environment as an essential part of our world”.... through their pro-active action taking – Armadale

Objective Two:

This objective considered if the program had *“fostered a conservation ethic in young Western Australians through their participation in practical conservation and environmental management projects”*. A total of 94% of school respondents' agreed that due to the program structure and content it did achieve its outcome.

A common conceptual response showed that through skill development, knowledge sharing and action orientated learning and engagement, students gained an appreciation of their environment. Key to this was the hands-on practical experience undertaken by all students which developed their “love and appreciation of the flora and fauna of Western Australia”. By empowering students through their practical experiences they become motivated to be proactive in trying to make a difference to the world around them. The management projects fostered conceptual and critical thinking around environmental issues and pro-active development of action projects towards protecting their environment. From this came a stronger sense of connection to the natural world around them and developed improved ethics and value systems.

“Definitely. Students have far greater awareness of a range of environmental issues, and most significantly, are involved in and know about a range of activities that help reduce impact on environment” – Carmel Adventist

“...having practical hands on experiences provide the children with real world links which develop and foster their conservation/ sustainability ethic”- Mandurah Senior

Measures to further enhance this objective require that concerns relating to the program content and structure need to be addressed (see section 2.3).

Objective Three:

“To develop leadership and teamwork skills, and the qualities of self discipline and duty, loyalty and service to community, school and to the Bush Rangers WA program.”

There was a 98% positive response from schools towards this objective.

They responded by saying that the program gives opportunities for students to problem solve, share experiences and ideas, team build and be a leader. This enhances their individual courage, confidence, cooperation and increased personal resilience. Due to these improved capacities, students developed a sense of community amongst each other within the program and in their larger communities which gives them a sense of pride, ownership and improved sense of responsibility. They become more focused, outgoing, persistent and supportive of community and environmental initiatives:

"Without a doubt the Bushrangers program has not just encouraged but fostered the development of leadership skills in individual students. The program gives so many opportunities for students to be leaders and to demonstrate leadership....provides a secure niche for students to enhance and develop their leadership skills, as well as to gain personal confidence and confidence amongst peers...- it is fantastic."

– Emmanuel Catholic College

Objective Four:

When considering if the program provided *"young Western Australians with the skills and knowledge that relate to the functions and role of the DEC"*, 93% agreed that this was occurring. This was primarily due to the camps (excursions) that the students attend and which is an obligation under their agreement in implementation of the program.

These excursions allow pro-active, hands-on engagement with the environment which enhanced a sense of belonging, confidence and empowerment which connected them to their environment. There was greater understanding of the functioning of nature and their place and role within that collective. Additional skills development gave greater awareness of the processes involved in conservation and land management, and students gained a better appreciation of the value and dynamics of the Western Australian natural environment and its related issues/ threats.

Some comments relating to this objective include:

"[the program]...aims to develop skills in and awareness of conservation and land management." – Kalbarri DHS

"We have [a Year 11 Bush Rangers cadet who due to his engagement with the program] wants to be a ranger or fisheries officer, and are grateful for the experiences and qualifications the Bush Ranger program has provided..." – Emmanuel Catholic College

To improve upon this objective would require more camp opportunities for offer to schools for students, and greater coordination and networking from the State Coordinator or regional coordination leader. Some of the inherent risks associated with this are addressed in section 2.3.

Objective Five:

“To support and strengthen the links between schools, the community, DEC districts and activities throughout the state.”

For this objective 98% of the schools positively commented that the program has encouraged and supported improved networking in these and other sectors.

Schools expressed that their networking opportunities towards making effective and supportive partnerships had been greatly improved at a local, regional and state level. This included with government, non-government, commercial enterprises, private individuals and educational structures. The program was seen as an excellent way to network and to gain additional opportunities (e.g.: funding support) as a result of being part of a recognized program. The links and partnerships created due to the program were seen as one of the major contributing factors towards the success of the program, and schools feeling part of a bigger network and community of effort focused on the environment.

Some comments from schools relating to this objective included:

“Yes. This schools unit has worked with several diverse organisations... Through the [program] the school is a partner with the Regional Centre of Expertise, WA in sustainable development” – Mount Lawley Senior High

“Bush Rangers has been excellent in encouraging partnerships... Being a part of DEC has given us access to campsites as well, so that we can go out to look at biodiversity, local parks and reserves.” – Newton Moore

“Working with other agencies makes up a huge part of our program as I consider [them to be] the experts.” – Rossmoyne Senior High

There was high demand within the program to increase networking further through electronic media (website development) or forums to assist in improving further the capacity of Unit Leaders/ schools to communicate and network to an even greater extent. This would capacitate schools to support each other through sharing of ideas, resources and knowledge, thereby enhancing the delivery of the program.

Objective Six:

“To compliment existing formal education by encouraging the accreditation and recognition of skills and competencies during training.”

An important aspect of this objective is the programs capacity to be an endorsed, program. Such accreditation has resulted in the program offering a unique element of success which strengthens both its ability to deliver a quality program, but to enhance learning at a critical stage of youth development, towards influencing attitudes and perceptions of the environment. It is a factor that has raised the programs profile and recognition above other similar programs. Accreditation is considered invaluable as well as the skills obtained in support of student development and recognition. These included additional skills and training due to the cross skills

transfer that can take place as a result of the links created with many other programs, courses or training initiatives. It has been found to reinforce and enhance other educational efforts in the following areas: Award Scheme Development and Accreditation Network (ASDAN), Basic Learning Skills (BLS); National Training Information Service (NTIS); Student Temporary Employment Program (STEP); non-Australian Tertiary Admissions Ranking (ATAR); Certificates in General Education for Adults (CGEA); Cooperative Satellite Learning Project (CSLP).

The program is seen to support formal education initiatives in subject matter primarily relating to Science, Society and Environment, Geography, Biology and other national certificate courses.

Although there are still areas for improvement within this objective relating to regional contextual relevance and ease of use of some elements (addressed in section 2.2 & 2.3), 93% positively responded that the program did effectively compliment existing formal education, supporting training and recognition of skills:

"As an endorsed unit it provides WACE accreditation for year 10 students. The funding support allows for access to resources which further compliments student skill development." – Waroona DHS

"We use this program to compliment the work done in the lower school Society, Environment and Science, and in the upper school Geography and Biology." – Newton Moore

"The Cadet program is articulated alongside five NTIS national Certificate 1 courses (Business Services, Leadership, Horticulture etc) and the core cadet skills are excellent grounding in values and competencies i.e. Leadership, Initiative, working safely, teamwork and responsibility. The nature of the Outdoor based education and environment training allows cross transferable leaning and contexts, building student confidence." – Geographe ESC

Objective Seven:

"To provide a career pathway for employment in natural resources management, including entry into the DEC's graduate development program and traineeship"

This objective was found not yet effective in its delivery. Only 15% of schools responded positively to this statement.

This was due to two factors predominantly, namely communication and the lack of historical data on career pathways of students.

There is a greater need for improved communication internally within DEC to construct the networks, partnerships and pathways necessary for potential students to consider these opportunities. Currently the process followed for this objective is not well structured, planned or communicated. In addition, there is no data collection from within schools, DEC or the Department for Communities to research the long term progression of students from their secondary and tertiary studies into professional work opportunities to see how many actually enter into a conservation or environmental field, as a direct result of engagement in a cadet

program. As such, this objective is difficult to accurately quantify currently due to the lack of available research data available.

However, 82% of schools said that as a direct result of the program, an average of 30% of students would consider a career in conservation or environmental field.

Comments included:

"...for there to be a clear pathway for students from Bush Rangers cadets into work experience and then onto full time work within DEC, especially for indigenous students." – Mount Magnet

"...there is no doubt that the program has raised the profile of conservation and caring for the environment. We have found that there has been a significant increase in students wanting to undertake work placements in the areas related to Bush Rangers." – Kolbe Catholic College

2.2 Perceptions of the program

The structured open-ended questions relating to perceptions on the program were considered particularly in view of the potential for growth and development of the program, as well as considering what the general views of the program included (Appendix 5). These perceptions defined four key areas from the evaluation, relating to aspects of the program.

This does not suggest that there are no further areas that need to be taken into account but rather what was revealed through this specific, objectives-focused evaluation, of the program. It should be acknowledged that, due to the complex and dynamic nature of socio-ecological programs as a whole, should receive constant attention and review.

Content and Structure

The flexible, inclusive program content and structure stimulates engagement and enhances learning opportunities for a wide spectrum of students in a diverse landscape allowing students with disability (mental/ physical), high academic capacity, or more practically orientated students to all gain benefit from its hands-on and enjoyable format.

It allows teachers sufficient scope to develop and enhance the content to suit their needs within the educational sphere to support classroom learning.

Overall the placement of the program within the suite of cadets programs offered by DfC allows for sufficient funding support to schools to ensure that the required student camps and training occurs. Support by DEC structures is considered very good with areas of improvement required in communication, administration and internal networking capacity. The support to schools out in more remote areas shows an overall decline due to the logistical and financial factors of the Bush Ranger State Coordination role.

When schools were asked as to whether the program content and structure offered sufficient inputs (financial, staff, partnerships, support from DEC), 64.5% agreed that there were.

Concerns for schools were primarily relating to insufficient school staff assistance or capacity

and lack of engagement by DEC regional staff or external partnerships. This requires more effective coordination via the Bush Rangers State Coordinator.

Recent amendments in 2011 to the Conservation and Land Management (CALM) regulations which now articulate a stronger identification and support for Aboriginal culture, requires that there be more meaningful engagement with Indigenous people by DEC and that this be proactive. Past experiences have shown that aboriginal communities have embraced the Bush Ranger program within their rural schools and find value in its content and structure, often being the driving force for children to attend school. It therefore is an excellent tool to engage youth in the formative years in their understanding of environment and the work carried out by DEC towards building better relationships.

The program offers opportunities for teachers and students to obtain training and professional development as part of its process. Training is primarily offered annually through the conference in Perth.

Resource Materials

The resource materials supplied to schools includes a set of four file manuals, student log books and a resource box with a compilation of support resources (Appendix 6).

Although the resource materials received very high acclaim for their content, appearance, user friendly format and support (Appendix 7), a degree of concern was raised around their contextual relevance in certain regions, as they are more appropriate in their content for the South West region and Perth Metropolitan area.

The manuals were considered to be a valuable guide and resource to draw ideas and direction from and provide effective assistance in educating students about conservation, with a simple and adaptable format. They were positively received by 92.6% of respondents.

Of the logbooks 86% are actively used in some form or other and are viewed as a valuable tool to assist review and assessment of learning. They reflect the students understanding and learning of concepts and are useful as an assessment tool linking to both formal and informal educational processes. They are useful for effective record keeping of events undertaken and have also been used in the following ways:

- As a planning tool
- Assessment of students process and attendance
- Provide a benchmark of expectations
- Assessment tool in support of other programs/ projects (ASDAN/ CGEA)
- Recording of attainment of Bush Ranger outcomes
- Allowing teachers to make the links between the activities completed and the skills covered

The format in which the logbooks are currently presented (stapled book for use over minimum three year period) is not considered viable due to the "wear and tear" on the book, and its inflexibility for additions into the learning space developed by the student.

The schools that were not using the logbooks were for the following reasons:

- Had never received the logbooks or did not know of them
- Did not understand their value or purpose

In addition, a small percentage of schools commented that they had not received a resource box for use at their school or had received it but were not utilizing the resource box. Those that had received the box but were not using it was again due to two primary reasons:

- misplacement of the resource box
- value of the resources not understood due to lack of engagement

Storage of program resources has been identified as a concern which results in loss of program resources in some instances and with staff changes and lack of follow up additional training by the host organisation results in poor understanding of the program capacity and support available.

A School Concept

As an environmental education program within the school system it is considered a highly valued program by students, teachers and parents alike due to its enjoyable content but primarily due to what it can offer as a curriculum aligned, accredited program which supports schools through the networking opportunities that arise. In addition, its ability to embrace a whole school involvement approach is important towards developing the growth and ethos of the school itself.

As the program can run relatively independently with low levels of engagement from the host organisation, and at the rate at which the school is capable of managing the activities, it reduces some of the stress potential of being a part of a program that is very rigorous and overly structured. Successful delivery and outcomes from this flexible and adaptable approach are possible as the program can address individual skill needs and capacity more effectively.

The program enhances the status and value of the school within its local community and offers diversity within the school system for students. It is suitable to support different learning needs of students, giving sufficient structure for younger students to learn the complex environmental issues and threats pertinent to Western Australia. The program topics are considered diverse, interesting and engaging. Overall 97% suggested that the program was age appropriate for the Year 7–12 group.

Those schools that had some reservation around its age appropriateness considered aspects of boredom for students who had been with the program from Year 7, with suggestions that other similar programs (River Rangers) would be better suited for younger years. Those students would then be promoted into Bush Rangers from Year 8.

As such, the possibility of expansion of the program content and age structure was suggested to which 79% responded saying that the program would add value to schools should it be expanded as it provided a platform for relationship and capacity building in other ages but would

need to be adapted to suit a slightly younger age group. The concept of including the River Rangers program into Bush Rangers was also mentioned as a way to support students in the year 5–7 group to have an opportunity to engage with a cadets program, and the resultant benefits defined in Section 2.2.

Overall schools considered the program to be on the "fore-front of nature-based learning" towards ensuring a deep connection for students with a wider environmental and conservation understanding.

Opportunities for Personal Development

Adding value to and developing social capital of students is integral to the success of the programs objectives and as such it has shown that it has a broad capacity and ability to assist in developing and improving:

- diverse skill sets;
- confidence;
- leadership;
- mentoring;
- enthusiasm;
- environmental awareness & understanding;
- conceptual and critical thinking;
- initiative;
- capacity building;
- relationship building;
- empowerment;
- teamwork and cooperation.

Pro-social factors such as mentoring, as discussed by *Hopkins et. al (in press)* for aboriginal children and in children at risk, has significant positive capacity to support change within communities and offer strong relationship and leadership building skills.

Improved social capital within students also enhances their degree of engagement with educational practices and ongoing learning opportunities (*Semo and Karmel, 2011*)

In addition, the new Australian Curriculum (2011) currently being implemented clearly defines seven "general capabilities" that are believed essential for students to be successful in their work and personal lives. These are inclusive of the skills, behaviours and attributes that the Bush Rangers program is currently developing within students.

The Western Australian Department of Education has also identified concerns about the capacity of students to learn better through practical application and engagement with the environment. Issues resulting from "nature deficient disorder" have shown the need for programs such as Bush Rangers to support educational practices (Department of Education, 2011).

Value Systems

The most commonly defined values that the program brings to the fore in students includes:

- Caring - care of the environment and sense of community care
- Sharing
- Responsibility
- Pride
- Positive environmental ethics (e.g.: sustainability)
- Tolerance (cultural, individual differences)

The Cross-Curriculum Priorities as defined within the new Australian Curriculum (2011) for diverse cultures ("Aboriginal and Torres Strait Islanders Histories and Cultures" and Sustainability) are well supported within the program, with capacity for further development and enhancement within schools through the programs processes. This will enrich the understanding and learning of ancient cultures and identities and support knowledge sharing through positive engagement opportunities.

Overall the perceptions of the program were very positive with teachers and principals offering comments such as:

"Adds a valued dimension to student understanding of the environment and its issues" – Mandurah Senior College

"It is highly regarded by staff, eagerly anticipated by students and very much appreciated by parents." – Mundaring Christian College

"The program is well received amongst our school community. Students enjoy the fun, practical activities. Teachers enjoy the program because it engages students and motivates them to learn about the environment. The funds attached to the program enable it to fulfill its vision and purpose. The Bush Ranger cadets program is an asset to the educational program of our school." – Wongutha CAPS

2.3 Program Risk

Some elements of risk to the program are outside of the programs ability to influence such issues and as such should be perceived as processes that will naturally control the growth and development of the program. However, where possible, all attempts should be made to manage any aspects of the program that could improve its delivery to schools such as streamlining the resource materials, communication, administration, reporting and program requirements without negatively impacting on the value that the program offers. This process of constant review and reflection of what we do and how we do our work should be incorporated into the daily practice of the program.

The following is a list of the primary issues that need further consideration in the strategic development and conceptual thinking of the program within the host organisation and externally within partnerships.

Growth of the Program

The recent report from the Commissioner for Children and Young People in Western Australia (CCYP) states that within the last ten years the Western Australian (WA) population has shown the fastest growth rate of all Australian states and territories. Of the total Western Australian population, 28.4% is between the 13-17 years age group, and 1 in 4 is younger than 18 years of age. The total number of youth within the 13-17 year age group is 152 981.

Statistics, from DfC, of total number of students active within the program show that the Bush Rangers program is currently only engaging with 0.91% of the potential age group available (CCYP, 2011). The Bush Ranger program however constitutes almost a quarter of all students who participate in the over-arching Cadets WA program.

An analysis done on the percentage potential students within the correct age category showed that approximately 33656 students could join the Bush Rangers Program, under current percentage use by youth of Cadets WA programs. The Bush Ranger program currently only supports 4.15% of the total children and young people of this potential figure.

Considerable evidence suggests that the Bush Rangers program has a significant positive impact on rural communities and especially those who have identified children at risk (*Semo and Karmel, 2011*).

This further supports the need for program growth towards supporting the initiatives of the state relating to community and environmental development, as well as the objectives of the program. It has the potential to expand into more schools and have a considerably higher positive impact in rural communities, and aboriginal communities due to their strong cultural beliefs of caring for country.

In particular, the value added through the social capital developed within the program has far reaching implications relating to children engaging more effectively with educational practices, and forming stronger relationships (*Semo and Karmel, 2011*).

The review process has clearly identified that formal education staff identify with, and see value in, the program operating in schools for reasons shown in section two. A positive 79% positive response in support of growth of the program is reinforced further by governmental organisations such as Curriculum Council and Department for Communities who believe this program to be a "winning recipe."

Further acknowledgement has been received through state awards received over its years in existence that it has the reputation and validity of content and approach to be of importance.

Within DEC, Bush Rangers program addresses the vision and mission of the organisation implicitly and has still considerable potential to enhance this further.

In order for the program to address its program objectives to be inclusive and support all Western Australian youth, creates the assumption that the programs long term objective would be to grow towards accommodating the demand, allowing as many as possible to gain from the benefits of the program. This however becomes an unrealistic option if the resources (financial and administrative) required to support such growth are not made available and in place. The

program therefore is now at a stage where it requires approval at senior management level as to its direction and growth, within the conceptual thinking of the organisations strategic development, and to address the demand for growth and expansion (Appendix 5).

There are natural growth control measures and elements (school capacity, curriculum demands on students, funding limitations, Cadets WA program competition, shortfall of capacitated staff/ volunteers in schools, host organisation budget constraints) that will result in an undulating growth curve in its current format, however the potential exists that should active marketing occur and the necessary support given to grow the program (see section 2.3), there will be a period of sharp growth before this tapers off to a slower rate. This anecdotal evidence should be tested further with a survey of potential schools that would be agreeable to join the program.

The nature of school management is as such that lack of support for the program by the principal will result in failure of the program and is a critical step towards ensuring whole school involvement and active participation. In conjunction with this, the capacity of the teacher and their individual teaching styles in the classroom is directly proportional to the level of learning and successful delivery of the program to the students. The capacity of a teacher is predominantly impacted upon by their lack of time to support such programs due to their work and family commitments. This cluster of needs at a school level defines the risks that the program faces from a schools perspective.

At this juncture within the program there are two considerations with their related implications (Appendix 11):

Resource Materials

The resource materials have had one review in their thirteen year existence and this change was well received by the majority of schools. Since this implementation period (2008), additional suggestions on changes have been given which should now be taken into consideration for a future review of the resource materials and in support of program growth.

The format which is being used is resource heavy and costly and therefore requires a review not only of the actual content of the materials for relevance (context and update), but the design format as there is a growing demand both from schools and program coordination, to change to a more sustainable approach. The use of electronic, more adaptable formats has been requested and would improve speed of delivery and reduce the heavy cost implications on the program currently which are a serious threat to the viability of the program (Appendix 8).

Printing costs for the set of four manuals, logbooks and resource box and the review process amounted to almost the total budget of the program in 2009. This reflects an excessive and unsustainable expenditure in support of the program resources and places it at highest risk (Appendix 8).

Support to Schools

Teachers identified a number of areas of risk of which three were perceived to be of highest concern and impact:

- Lack of school or volunteer support – 62%

Lack of school staff or volunteers that schools are able to draw on in support of camps (excursions) for students which places pressure on already burdened school staff;

- Teacher time constraints to manage the program effectively – 53%

Teachers work load and time constraints also featured very heavily in their concerns and in some instances to the detriment of the program and its continuation in certain schools;

- Funding issues relating to travel costs and relief teacher support – 29%

Funding was an issue in schools due to the cost of transportation of children to camps which often amounts to well over the actual cost of the camp itself.

Internally, there were six areas that required attention from DEC staff and program coordination in support of schools to effectively deliver the program. These were:

Communication

Schools have requested that they obtain greater information dissemination and advanced notification on activities, events, camps and on training opportunities in order for them to plan more effectively.

In order for schools to ensure effective planning and inclusion of the program into their annual planning, the information of available camps and training opportunities needs to be communicated to schools annually in October to ensure that they are able to effectively support the program within schools.

This would reduce some of the administrative and work pressure on teachers who find they are working more reactively than proactively with the program administrative processes.

Training

The demand for training was identified primarily in the form of personal/ professional development opportunities for teachers and volunteers to support the learning and risk management of the program in schools and at camps, consecutively.

Over a third of teachers requested additional training opportunities but were constrained from taking up on these opportunities due to poor communication and forward planning from within the program.

When defining the degree of training necessary:

- 52% of teachers suggested that what they currently received was sufficient and invaluable;
- 21% commented that they received insufficient or no training;
- 34% actively requested additional training or professional development opportunities or support.

In addition, a greater number of excursion opportunities for students was also requested but are currently sited as limited due to the quantity of cadets able to attend each camp; procedural requirements to apply for camps (considered administratively onerous), poor communication from within the program and transportation costs. The first three issues are able to be resolved by State Coordination and the latter would require greater conceptual thinking on behalf of schools or additional networking and partnerships to support school excursions.

Training is a critical element of the program towards enhancing the skills and capacity of teachers and students in developing improved environmental literacy and the overall success of the program.

A key finding of this evaluation on this aspect was that a well capacitated teacher results in a successfully coordinated program within schools, and key to this is training and communication from the host organisation.

Administration

The lack of consistent and accessible record keeping and detailed historical program information collation has resulted in a loss of historical knowledge. This results in the potential for duplication of efforts from one state coordinator to the next due to the high turnover of State Coordinators in the last four years, which has exacerbated this issue.

The annual reporting from one year to the next has had significant alterations and adaptations over time which decreases consistency, statistical data record keeping and reliability in the qualitative and quantitative data available.

Statistical data is not collected directly from the schools but is relied on from the Department for Communities for collection. A level of standardization should be sought in the type of statistical data that is collected and whether these are fulfilling DEC's requirements for more effective reporting and analysis (Appendix.9).

When comparing the Bush Rangers program to the other eight programs currently within the Cadets WA program, Bush Rangers is the only program showing consistent and steady growth in both school units and numbers of cadets. However, all other programs are showing an overall levelling out or decline of total numbers of cadets. Administrative and Financial support limitations were cited as the primary reasons for this (Department for Communities, 2008).

With growth of the program comes the need for additional administrative support to the State Coordinator so as to ensure quality program delivery. Currently there is administrative support for one day a week. The project officer (administration) in this role also commits time to other Eco-Education programs, however with the possible further expansion of the program this role

would need to be dedicated to one program for more effective support and delivery of the needs of the Bush Ranger program. Additional short to medium term growth (3-5 years) would require a minimum of two full days a week dedicated to program administrative support.

Partnerships

The current support to schools has a two-pronged approach. The host organisation (DEC) supply's the administrative support for managing the day-to-day administration and training to teachers and students. The Department for Communities (DfC) supply's the administration and direct funding to schools for activity-based events for students, financial support to the school instructors as well as financial accounting.

A degree of confusion has been identified in schools as to where responsibility lies for various aspects of the program between the primary partner (DfC) and the host organisation (DEC). This raises the following issues:

- The Cadets WA review in 2008 assumes that there will be stagnation in recruitment to around 4.4% of youth (available within W.A.) with regards to the need for additional funding supply. Although an increase in funding was recommended and approved for DfC in support of the Cadets WA program, this will not support host organisations doing aggressive marketing and increased demand for support from schools which is the direct responsibility of the host organisation.
- The Bush Rangers program is dependent on funding support from external sources which creates a level of risk around continued funding availability and sufficiency. Discussions with the primary partner (DfC) reaffirmed the demand for growth and continued financial support to the Bush Rangers program within the Cadets WA suite.
- The Bush Ranger Cadets program is dependent on funding for the position of State Coordinator and administrator from DEC as well as the operational budget (running costs) for the State Coordinator. The operational budget has been gradually declining since 2007.
- At 2010 budgetary figures of the program and student involvement, financial support by the DEC to the FTE State Coordinator budget and the (0.2) project officer equated to support of \$1936/ school annually, or \$76.30/ cadet per year.

To ensure ongoing program growth and support the roles of each partner involved in the program (DfC and DEC) should be clearly defined and articulated to schools.

DEC Internal Structure

Schools have expressed the high value that engagement with DEC operational staff has for schools and their ability to gain additional knowledge and skills.

The development of these relationships is not consistent in distribution or dedication by DEC staff which results in many schools feeling this to be lacking and an important element of school support, which needs greater coordination.

By engaging with students from the program, operational staff within the regions have a useful resource at hand that can carry out tasks that would otherwise be delayed in completion, due to DEC staff work and time constraints.

Greater planning and coordination by the State Coordinator towards ensuring that activities of cadets (students) within parks can be aligned to the operational planning of regions, and communicated more effectively to all parties.

Finances

The overall budget of the program has not shown any incremental growth since its inception, but a haphazard, undulating budget line. In discussions with financial staff and managers it was determined that all DEC structures receive indexed budgets however, depending on the needs of the particular branch or division may see these amounts not proportionally divided out amongst the various sectors.

What is evident is that the salaries/ wages component of the Bush Rangers WA program has been indexed (CPI linked) but the operating costs have not, thereby not keeping in line with growing operational support needs (Appendix 8).

The programs operational (running costs) budget has been declining and in 2010 was almost half of the operational budget supplied to the program in 1999. As at 2011, growth of the budget amounted to approximately 14% on the 1999 operating budget costs. This averaged out over the eleven year period at 1.30% growth annually, on the operating budget costs.

The operating costs for 2009 show a skewed graph due to the printing costs that were incurred for the new manual which are not an annual occurrence and have only taken place once in the history of the program, however these need to be factored into future budgetary planning (Appendix 8).

As the growth in numbers of units/ schools has been relatively slow over the duration of the program, it has been able to supply effective support to schools but now shows that it is developing weaknesses in its delivery due to its restrictive operational budget.

Besides these aspects are risk areas that are outside of the control and management of the program staff and its partners that include school structures, relationships, school communication processes or political elements.

2.4 Measuring Success

The development of a measurement tool to determine the success of the program in its delivery of the objectives occurred during the evaluation, as a parallel process.

Objectives of a program are designed to focus individual efforts towards delivery. Assessment of these deliverables assists in defining the degree of success achieved.

The measurement tool has been based on a summative, uni-dimensional, Likert scale approach, which assigns objects to numbers according to a rule, and relates directly to the program objectives (www.socialresearchmethods.net/).

The tool was in response to giving the program the ability to review smaller change elements that occur and are related to the program objectives (Appendix 4) and can run independently of formal evaluation processes, but can assist in the continued collection of data on an aspect of the program.

In this format it can then be readily sent out to schools as required, as a quick review of changes and progress undertaken and the resultant outcomes and expectations.

It includes commentary to encourage some degree of qualitative review on each of the program objectives (Appendix 12).

3 Recommendations

The recommendations are clustered broadly into a number of focus areas with each area containing a number of considerations.

These recommendations are developed in view of the overall concept that the program be supported for growth due to the:

- value shown by the program to enhance learning and support diverse types of students and communities;
- positive contribution of students towards their local natural environment;
- degree of environmental literacy fostered;
- degree of social capital developed;
- ability of the program conceptual design being able to support a greater number of schools;
- alignment of the program to the mandates of the host organisation and its ability to effectively deliver on these aspects;
- call for growth by schools and partners within the program.

The primary limitation to growth of the program is whether the host organisation is able to support the financial requirements necessary to support this initiative.

3.1 Program Growth

The development of a concept plan that takes into consideration the requirements for growth of the program and the various focus areas as listed below.

This should include additional regional support and the development of regional coordinator working guidelines; discussions with DfC for financial payment to identified regional coordinators that will distribute the degree of support needed within regions away from the State

Coordinators sole responsibility to a more localized person who can assist with contextually relevant information.

A proposed program organisational chart has been designed on a growth development model that incorporates all of the aspects discussed within this evaluation (Appendices 10 & 11).

This growth model is relatively cost effective due to its financial support from DfC, which has been approved by them through early discussions with their Director, Senior Funding, Policy and Development Officer and Cadets WA Coordinator.

The DfC have funding to support the financial remuneration of teachers who are identified by the Bush Rangers State Coordinator to assist with regional and unit support, and have expressed their willingness to go into further negotiation to assist with ideas for expansion. As such they have requested that a number of growth models be presented to them to see how best they may be able to support the expansion of the program into schools.

A short term capping of numbers of schools to join the Bush Ranger program needs to occur whilst the necessary systems are being put in place (regional coordination support and financial support from DEC). This capping is recommended to 60 schools.

3.2 Communication

Improving communication methods to ensure that issues raised by schools are clearly and promptly articulated and brought to conclusion is essential especially with new schools that require a higher degree of engagement initially. Development of a communication protocol to schools may be of benefit as to how to effectively support schools and how often is useful to ensure effective engagement. This is to create a more proactive responsive approach to communication instead of being perceived as a reactive approach.

Active marketing would be necessary if the envisioned growth of the program is to occur effectively. A marketing strategy is therefore necessary and should take into account that the full costs for marketing will be covered by DfC as discussed at a Cadets WA meeting (dated 19/10/11).

3.3 Planning

The findings suggest that more rigor needs to be placed into constructing assessment and reviews of the program that help with an annual self reflection of actions, through improved reporting, administration and future planning. Systematic review of the processes and conceptual thinking of the program will also strengthen the quality assurance of the program in its ability to deliver effectively on the program objectives and to schools and partners.

The development of improved administrative capacity is needed to allow the opportunity for greater conceptual thinking and development within the program to support its potential for growth and development. As such planning tools need to be developed that will ensure consistency, directional thinking (focus) and improved delivery. This necessitates the production of tools such as Annual Budgets including the budgeting needs for future printing of resources

and operation, cost benefit analysis of resources; Annual Plan of Operation with goals and targets to be met (defining levels and areas of responsibility/ accountability towards effective reporting); Standard Operating Procedures and a Strategic/ Conceptual Plan for the program. These should be reviewed and updated annually, as required.

Review of the defined program outcomes should be carried regularly. Ensuring balanced program outcomes that adapt to the changing needs of the host organisation, educational processes and the partnerships is essential to assess the quality assurance and ongoing validity of the program.

Improved collaboration and planning from State Coordination with internal departments and regions (e.g. rangers/ operational staff/ eco education centres) to improve delivery to schools relating to networking, reward camps and their delivery, expansion and support. This requires greater strategic planning with operations officers and managers for inclusion into the annual planning of events.

3.4 Policy and Procedure

An induction procedure for all new schools joining the program should be formalized whereby schools should only be able to begin the program once they have had a certain amount of training, workshops and information dissemination towards ensuring quality delivery of the program and the ability to run it independently. This will help significantly in ensuring the program is effectively embedded within the schools policy and that sufficient teachers are trained in the program and not individuals alone.

3.5 Financial Requirements

A stronger financial administrative role should be taken by the State Coordinator in developing and managing the financial record keeping and needs of the program.

Such data supports the identification of the level of return on investment (cost-benefit analysis) that it has for the organisation as a whole (NOAA, 2004). This should be analysed in greater depth.

Should supporting the program growth and further development become a strategic objective of DEC then the financial support to the program needs to be reassessed with the State Coordinator developing a more realistic budget that must take into account the full expenditure needs to support such growth. This should be taken through to senior management for greater discussion in order to find a way to support the new budgetary requirements. It is recommended that the budget be CPI linked and indexed with the 2012 budget being given a considerable operational budget increase that will bring it more in line with program needs.

3.6 Administration and Staff

Improved management and administration of the program resources is required such as stock taking, filing/ record keeping and daily communication to schools, as well as ensuring the

applications to DfC for host organisation support funding is applied for on time and received in support of the program.

Growth of the program would require additional administrative support to be increased from one to three full days a week, with a dedicated staff member who is able to commit their time on a more focused approach. This will assist with re-structuring of the State Coordinators role (job description) which requires a more strategic perspective in developing critical partnerships and conceptual development of the program.

3.7 Partnerships

Greater engagement with Cadets WA to establish a formalised Memorandum of Understanding (MoU) and its support of the host organisation should be undertaken.

The role of State Coordinator should include regular engagement and development of key partnerships and networks that support the programs growth and the needs of the schools. This could be carried out through the development of specific forums or discussion groups that are made up of representatives that support the program, creating a more collaborative process.

Consideration of the formation of a steering committee to assist the State Coordinator in the strategic development of the program would assist in greater conceptual development and thinking.

3.8 Resource Materials

Resource Materials should be reviewed every 2-4 years to ensure that they are current, contextually relevant and support any curriculum changes or other aspects that influence them. This should be budgeted for accordingly to ensure that it can be effectively carried out in support of the program when required.

Due to the cost implications of the current printing format of the resources they should be reviewed for their viability (cost-benefit analysis) and more suitable and affordable approaches used (e.g.: electronic format – thumb drives, CD's, downloadable from a central website link).

In addition, the ethos of the program should be considered in light of the degree of sustainability and the image that it portrays as to whether the format in which these resources are printed is acceptable?

Consider charging schools for some or all of the resources that support the program. Each school is given start up funding from Department for Communities which in 2011 amount to \$2000/ per school. These funds are for the specific purpose of purchasing resources in support of the cadets program and therefore provision has been made to alleviate some of the cost burden to the host organisation.

3.9 Training

Opportunities such as the School Based Traineeship Program (SBTP) within DEC, which is comprised of secondary high school students from Government schools undertaking

employment-based training, can be offered by the program and should be considered and planned for within DEC in support of Bush Rangers cadets. This should be coordinated by the State Coordinator, with appropriate DEC staff, to allow for greater opportunity to enhance the particular related program objective.

3.10 Research

There is value and need to encourage additional social research projects around factors influencing program outcomes to start understanding some of the more complex issues driving the program, as well as its influence on varying socio-economic sectors. Particular research considerations that were suggested from this evaluation process include:

- How does environmental education and nature-based learning have a positive effect for students who have disabilities (i.e.: epilepsy) and how can it help students with mental health issues, including anxiety, to learn better?
- Formulation of methods by which to assess for WACE that is similar to CERT 1 and 2 TAFE courses.
- Would there be value in developing a theme based approach to each year of the program?
- Assessment of the project selection and how useful certain activities are e.g.: how useful are seed raising efforts?
- Assessing and managing associated risks that schools face with the program and their influence on the program (e.g.: difficulty in recruiting instructors and retaining them, and the potential support that can be given from Department for Communities or other partners).

Future research in collaboration with other DEC divisions or externally through universities should be actively sought towards assisting in the future strategic development of the program.

Annually there should be a deeper level of review and reflection of the program processes, delivery and outcomes towards supporting annual planning and reporting.

4 Defining the Future

The information from the evaluation is seen to form the foundation for additional research towards informing the programs development, which is supported by evaluation process thinking (Patton, 1987).

Western Australia's State of the Nation report (2007) expresses concerns around various issues relating to the environment, but prominently, biodiversity of the state which is under critical threat and shows decline throughout all of its priority ratings. A key tool towards assisting towards protecting our natural resources is environmental education, especially in youth.

The Bush Ranger program has overwhelmingly been recognized as adding significant value relating to educating youth on the environment about contextually relevant, curriculum aligned environmental concepts, and develops key social skills in individuals who will become our leaders of the future.

Environmental Education has its foundation within the sciences and as such supports theoretical learning with conceptual action-orientated practice. Within the new Australian curriculum, science and geography education has a pivotal role in supporting youth development within a growing and diverse society, and whose aims align strongly to the achievements of the Bush Ranger program outcomes (ACARA, 2011).

This is also important in supporting a state biodiversity conservation strategy that seeks to encourage a more thoughtful engagement by communities in their understanding of the value of the environment (DEC, 2006).

Not only does the program support and align to a wide range of international initiatives such as UNESCO's Education for Sustainable Development (ESD), Belgrade Charter, Earth Charter, Millenium Development Goals, Agenda 21 but other key policies and protocols at a state, regional and local level in a bid towards conserving biodiversity and eco-system services within Western Australia.

The program has the capacity to support a wide variety of communities, individuals, ages, abilities, initiatives and geographical areas in developing skills that will improve their understanding of the environment and their individual role within it. It offers to youth the opportunity to collectively support and develop Western Australia into a more sustainable, environmentally orientated community of pro-active individuals who are prepared to work more synergistically with their natural world and each other. This capacity and potential is in a phase of potential growth and requires additional internal agency and external support in order to reach a much greater number of youth in its endeavors to improve our local and global environment, for the betterment of all.

What has been clearly outlined is the symbiotic relationship and value environment has in supporting education and vice versa. As stated by UNESCO, "Education is the foundation for sustainable development. It is a key instrument for bringing about changes in values and attitudes, skills, behaviour and lifestyles consistent with sustainable development...." Such approaches and initiatives therefore have a significant role to play on our local and global

communities towards ensuring a future for generations to come by holistically and pro-actively addressing issues relating to society, environment and economy.

Globally there has been a strong understanding of the need for social transformation to be an integral part of environmental education, represented in such documents as the NGO Principles on Environmental Education and even further back to the early 1970's (www.soroptimistinternational.org/).

The Bush Rangers Program is pro-actively tackling issues supporting positive social change, academic learning and understanding of environmental issues that are current and contextually relevant (i.e.: sustainable living, biodiversity, ecosystem services, climate change).

The programs capacity to develop values, attitudes, skills and ethics that encourage a more environmentally conscious and caring society, will develop communities that act in a more responsible manner. This has long term positive implications on our communities and environment at large. Its influence in supporting and defining options for change in formal education towards considering more equitable and sustainable living paradigms, as suggested by the Ahmedabad Declaration (2007), are profound.

The ultimate objective of such programs is to develop individuals with a strong level of environmental literacy towards creating a society that lives a sustainable and environmentally conscious lifestyle (*Chepesiuk, 2007*).

This is done through diverse skills development which supports critical and proactive thinking in societies, such as those reflected in the efforts of the program outcomes.

The Bush Rangers Cadet Program has shown that it has the holistic approach, conceptual design, community profile and support to be an important defining concept in protecting and caring for our environment in support of current and future generations of this state, and is contributing to a far greater global perspective and call for stepping up towards more sustainable practices and citizenry.

Appendices

Appendix 1 Complete List of Participants

Schools

- 1 Armadale Senior High School
- 2 Albany Secondary Education Support Centre
- 3 Bunbury Cathedral Grammar School
- 4 Canning Vale College
- 5 Cyril Jackson Senior Campus Support Centre
- 6 Corrigin District High School
- 7 Carmel Adventist College
- 8 Clontarf Aboriginal College
- 9 Dalyellup College
- 10 Duncraig Senior High School
- 11 Ellenbrook Christian College
- 12 Esperance Senior High School
- 13 Emmanuel Catholic College
- 14 Fitzroy Valley District High School
- 15 Geographe Education Support Centre
- 16 John Septimus Roe Anglican Community School
- 17 John Forrest Secondary College
- 18 Kalbarri District High School
- 19 Katanning Senior High School
- 20 Kolbe Catholic College
- 21 Leonora District High School
- 22 Mirrabooka Senior High School Education Support Centre
- 23 Mandurah Senior College
- 24 Mercy College
- 25 Mundaring Christian College
- 26 Mount Magnet District High School

- 27 Mount Lawley Senior High School
- 28 Newton Moore Senior High School
- 29 Northam Senior High School
- 30 Onslow School
- 31 Rossmoyne Senior High School
- 32 Waroona District High School
- 33 Wongutha CAPS
- 34 Wyndham District High School

Interviewees

- 1 Hannah Hampson: State Coordinator, Bush Rangers Program
- 2 Melissa Patterson: Project Officer, Eco Education, DEC
- 3 Alison Hansen: former State Coordinator, Bush Rangers Program
- 4 Richard Weatherill: former State Coordinator, Bush Rangers Program
- 5 Liz Moore: former Senior Eco-Education Officer and program developer
- 6 Elaine Horne: Senior Education Officer, Eco Education, DEC
- 7 Leanne Meldrum: Curriculum Council
- 8 Geoff Hurren: Coordinator Cadets WA, DfC
- 9 Matthew Hunt: Senior Funding, Policy and Development Officer, DfC
- 10 Ray Peters: Director Community Funding, DfC
- 11 Carleen Edwards: Unit Leader/ Regional Coordinator, John Septimus Roe School
- 12 Darryl Deacon: Unit Leader, Duncraig School
- 13 Corrin Everitt: Cane Toad Project Manager, DEC
- 14 Sally Johnston: Regional Coordinator, Kimberley region, DEC
- 15 Merveen Cross: Coordinator Volunteer and Youth Services, FESA
- 16 Karen Roberts: Director People and Organisation Development, FESA
- 17 Deborah Greaves: Finance and Administration, DEC
- 18 Glenn Urquhart: Manager Reporting and Budgeting, DEC
- 19 Amanda Smith: Social Science Coordinator, DEC

Focus Group

- 1 Elaine Horne
- 2 Hannah Hampson
- 3 Melissa Patterson

Appendix 2 Complete List of Schools

No.	SCHOOL	REGION
1	Albany	South
2	Armadale	Metro
3	Atwell	Metro
4	Bunbury	Southwest
5	Broome (NEW)	Kimberley
6	Canning Vale	Metro
7	Carmel	Metro
8	Clarkson	Metro
9	Clontarf	Metro
10	Coodanup	Metro
11	Corrigin	Southwest
12	Cyril Jackson	Metro
13	Dale	Metro
14	Dalyellup	Southwest
15	Derby	Kimberley
16	Duncraig	Metro
17	Ellenbrook	Metro

No.	SCHOOL	REGION
18	Emmanuel	Metro
19	Esperance	South
20	Fitzroy	Kimberley
21	Geographe	Southwest
22	Gladys Newton (NEW)	Metro
23	Goldfields	East
24	Jerramungup	South
25	John Forrest	Metro
26	JSR	Metro
27	Kalbarri	Midwest
28	Katanning	Southwest
29	Kolbe	Metro
30	Kununurra	Kimberley
31	Leonora	East
32	Mandurah	Metro/southwest
33	Manjimup	Southwest
34	Meekatharra	Midwest
35	Mercy	Metro
36	Mirrabooka	Metro
37	Mt Lawley	Metro
38	Mt Magnet	Midwest
39	Mullewa	Midwest

No.	SCHOOL	REGION
40	Mundaring	Metro
41	Newton Moore	Southwest
42	Northam	Metro
43	Onslow	Pilbara
44	Roleystone	Metro
45	Rossmoyne	Metro
46	SMYL	Metro/ South West
47	Thornlie	Metro
48	Tjuntjuntjarra	East (Gr. Victoria Desert)
49	Wagin	Southwest
50	Warnbro	Metro
51	Wongutha	South
52	Wyndham	Kimberley
	<i>Suspended Schools</i>	
53	Cue	Midwest
54	Merredin	East
55	Waroona	South West

Note: Schools in **bold** were included in evaluation process

Appendix 3 Questionnaire Template

Department of Environment & Conservation Bush Rangers WA		Questionnaire 2011
	Principal/ Unit Leader	Comments
1	Does the program compliment existing formal education by encouraging the accreditation and recognition of skills and competencies during training for children? How?	
2	What percentage of current students would consider a job within the environment as a future career, due to engaging with the program?	
3	Has the Bush Rangers Program encouraged or supported improved networking amongst other partners, schools, DEC districts, communities, state activities? Explain, giving details about the networking you are involved with.	
4	Is the program age appropriate? Why.	

5	Should the program be expanded? Explain.				
6	Do the activities offered assist in fostering a conservation ethic in students? Explain and give evidence.				
7	Has the program enhanced the leadership of individuals? Explain.				
8	How have the students shown a change in their approach and consideration of the environment through: (Give examples)	<table border="1"> <tr> <td data-bbox="655 1025 978 1429">Responsibility</td> <td data-bbox="655 667 978 1025">Values</td> <td data-bbox="655 241 978 667">Initiative & Community</td> </tr> </table>	Responsibility	Values	Initiative & Community
Responsibility	Values	Initiative & Community			
9	Are there sufficient inputs (financial, staff, partnerships, support from DEC etc)? Explain.				
10	What are the current risks being experienced in the program (e.g.: support, staff, time, demand) Explain.				

11	<p>What training/ professional development have you had from DEC staff on the Bush Rangers Program?</p> <p>Is this sufficient?</p>		
12	<p>Do the resource materials (manuals/ logbook/ resource box) effectively assist learning? Explain</p>		
13	<p>What value do the logbooks offer as a tool for assessment? Explain.</p>		
14	<p>Do you use the logbooks for any other purpose? Explain.</p>		
15	<p>What is the overall perception of the program? Explain</p>	<p>Poor</p>	<p>Good</p> <p>Excellent</p>
16	<p>Do you have comments on other aspects or outcomes of the Bush Ranger program that haven't been surveyed and that you think are important?</p>	<p><i>THIS QUESTION WOULD PREDOMINANTLY FEED INTO FUTURE RESEARCH</i></p>	

Appendix 4 Summative Analysis of Questionnaire: Objectives

Question	OBJECTIVES Summary	QUANTITATIVE ANALYSIS
		% positive response
Obj. 1	To provide in youth, through appropriate training and supervision, the basis for an active and lifelong commitment to the conservation of the natural environment	78%
Obj. 2	To foster a conservation ethic in young Western Australian through their participation in practical conservation and environmental management projects	94%
Obj. 3	To develop leadership and teamwork skills, and the qualities of self discipline and duty, loyalty and service to the community, school and to the Bush Rangers WA Program	98%
Obj. 4	To provide young Western Australians with the skills and knowledge that relate to the functions and role of the Department of Environment and Conservation (DEC);	93%
Obj. 5	To support and strengthen the links between schools, the community, DEC districts and activities throughout the State	98%
Obj. 6	To compliment existing formal education by encouraging the accreditation and recognition of skills and competencies during training	93%
Obj. 7	To provide a career pathway for employment in natural resource management, including entry into the DEC's graduate development program and traineeships	15% Access Opportunities 82% Program influence Ave: 30% effect
Effective	Objective 1	70 - 80%
	Objectives 2 – 6 (5)	90 - 100%
Not yet effective	Objective 7	10 - 20 %

Appendix 5 Summative Analysis of Questionnaire: Perceptions

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	PERCEPTIONS	% positive response
Q4 P	<p>Is the program age appropriate? Why.</p> <p>Adaptable, flexible, suitable to different learning needs of students, gives sufficient structure for younger students, diverse topics, interesting, engaging, builds understanding and capacity due to tiered approach.</p>	97%
Q5 P	<p>Should the program be expanded? Explain.</p> <p>Provides a platform for relationship and capacity building; on fore-front of nature-based learning, an essential aspect of ensuring a real connection for students with a wider environment and conservation understanding. Expand into more schools, primary schools, aboriginal communities, children with disabilities, children at risk</p>	79%
Q10 P	<p>What are the current risks being experienced in the program (e.g.: support, staff, time, demand) Explain.</p> <p>Six primary areas of risk:</p> <ul style="list-style-type: none"> Lack of school or volunteer support Time constraints; Half Cohort and student study pressures declining number of cadets thereby affecting funding potential to school & finances for travel & paying relief staff; In addition, other comments included: Duty of Care; Teacher burn out; support from external departments; lack of staff training; insufficient notification of events/ paperwork; funding for staff/ parent qualifications in support of camps. 	<p>62% Staff Issues</p> <p>53% Time Constraints</p> <p>29% Funding issues</p>
Q15	What is the overall perception of the program? Explain	

P	<ul style="list-style-type: none"> • Lots of areas of improvement to contextualize into regions • Fantastic opportunities for personal development • Students find it fun and enjoyable • Positive values of students in their approach & consideration of the environment • Valued asset of school, in high demand • Proud of the enthusiasm and dedication of staff & students • Whole school involvement, displays peer support, discipline, teamwork and conscientiousness, flexible, adaptable 	<p>Excellent – 76.5%</p> <p>Good – 23.5%</p> <p>Poor – 0%</p>
Q16	<p>Do you have comments on other aspects or outcomes of the Bush Ranger program that haven't been surveyed and that you think are important?</p> <p>Research suggestions:</p> <ul style="list-style-type: none"> • How does environmental education and nature-based learning have a positive effect for students who have disabilities (i.e.: epilepsy) and how can it help students with mental health issues, including anxiety, learn better? • Method by which to assess for WACE that is similar to CERT 1 and 2 TAFE courses • Would there be value in developing a theme based approach to each year of the program? • Assessment of the project selection and how useful certain activities are e.g.: how useful are seed raising efforts? <p>Comments:</p> <ul style="list-style-type: none"> • Would very much like the program to grow and continue; • Students have developed a greater sense of responsibility for the environment and as such are the leaders of this [environmental] cause within the school community; • Team work, respect, stewardship and strong conservation ethics are key values developed by the program through activities such as camps, afternoon meetings and conservation activities such as planting etc.; • Program is an excellent way of spreading knowledge around sustainability issues into communities • Use of camps and practical excursions are a vital component of the program and offer students great experiences • Joint camps for schools (local and regional) 	

	<ul style="list-style-type: none"> • Increased professional development opportunities and meetings for networking • Adaptation of some resources into electronic version for use in place of hard copies (books) • Greater regional contextualization needed in resource materials • Would be beneficial to have funding for year 12 students now that year 7 is included into high schools so as to expand the program
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Appendix 6 List of Resources

Set of Four Manuals

- 1 Introduction to the Bush Rangers WA Program, Methods for Nature Conservation - Program Manual
- 2 Level 1: Ranger Recruit and Ranger Program Manual
- 3 Level 2: First Class Ranger and Senior Ranger Program Manual
- 4 Level 3: Ranger Section Leader, Deputy Ranger Leader and Ranger Unit Leader Program Manual

Log Books

Recording and assessment books given to each student. One per cadet.

Resource Pack File in Resource Box

- 1 Fire for Life*
- 2 Fire the Force of Life – Special Fire Edition Volume 2
- 3 Resource Note 22 – Mapping Plants along a transect*
- 4 Resource Note 21 – Eucalypts of Perth: Field Keys*
- 5 Western Wildlife Newsletter No. 10 Dec 2001 – Sand pads for monitoring fauna*
- 6 Western Wildlife Newsletter No. 3 Jan 1997 – Nest boxes for Wildlife*
- 7 How to collect herbarium specimens – A guide prepared by the Western Australian Herbarium*
- 8 Arresting Phytophthora Dieback – the Biological Bulldozer
- 9 Australia State of the Environment 2006, At a glance*
- 10 State of the Environment Report Western Australia 2007*
- 11 A 100 Year Biodiversity Conservation Strategy for Western Australia*
- 12 Forest Management Plan 2004 -2013*

- 13 Salinity in the Classroom: a resource for Western Australian Schools*
- 14 Marine Community Monitoring Manual – Methods for Nature Conservation Marine Monitoring Beach Structure*
- 15 Eco-Education Program – Fire: A force of Life (DEC Eco-Education Resources website) Information Sheet – Many facets of fire*
- 16 Eco-Education Program – Fire: A Force of Life Pre-excursion task 2: Factors affecting the spread of wildfires. Map Work. Teacher notes and student information and task sheets.*

Pamphlets

National, marine and regional parks in Western Australia

Healthy Parks, Healthy People

Conserving Threatened Ecological Species

Watch out for Cane Toads

WA Cane Toad Initiative

Alien Invasion

Pinnacles

Crocodiles

Valley of the Giants

Yanchep National park

Act Now

DVD's & CD's

The Day the Flames came – Dwellingup 1961

Deadly Protectors

Burning Issues

Out on a Limb Red

Out on a Limb Green

Out There 1 – 2 and Marine Parks Advertisement

Out There 3 – 4

Powerpoint Presentations

Scans and article extracts

Poster Tube

The Balga Grass Tree

Treasure the Tuart

Arbour Day 2008/09

Forest Check

Landscape Magazine

Spring 1987, 1988, 1997, 2000, 2001, 2005, 2007,

Summer 1999, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2008,

Autumn 1992, 2000, 2003, 2005, 2006*, 2008,

Winter 1989*, 1998, 2001, 2003, 2004, 2008,

Books/ Booklets

Bugs in the Backyard

Manuals of the South-West or Mammals of Northern-Western Australia

Bush Tucker Plants of the South West

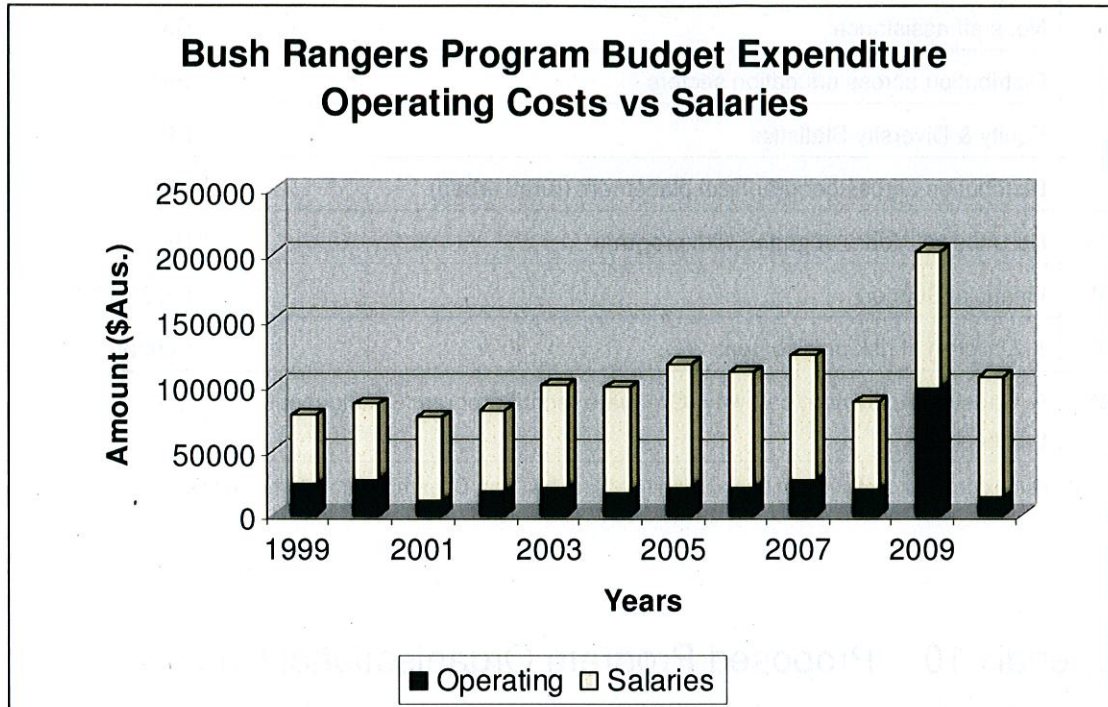
Note: (*) Asterix denotes items are out of print and are photocopied for schools.

Appendix 7 Summative Analysis of Questionnaire: Resources

	QUALITATIVE DATA SUMMARY	QUANTITATIVE ANALYSIS
Question	RESOURCES	% positive response
Q9 R	<p>Are there sufficient inputs (financial, staff, partnerships, support from DEC etc)? Explain.</p> <p>Financial support from Department for Communities is excellent. DEC support from the program is considered very good with some areas for improvement although support regionally is overall poor. Issues of stress for schools amounts to internal school staff capacity and assistance, lack of support from DEC and other partners.</p>	64.5%
Q11 R	<p>What training/ professional development have you had from DEC staff on the Bush Rangers Program, and is this sufficient?</p> <p>The Annual conference was the primary form of training received by school staff, which was considered invaluable:</p> <p>% commented that they received insufficient or no training:</p> <p>% who actively requested additional training or professional development opportunities or support:</p> <p>Other training received included: "on-the-job" training at camps – Fire Recovery, Bush Fire Control, Capture/ Release; Handbook training;</p>	<p>52%</p> <p>21%</p> <p>34.5%</p>
Q12 R	<p>Do the resource materials (manuals/ logbook/ resource box) effectively assist learning? Explain.</p> <p>Valuable guide and resource to draw ideas and direction from; Provide effective assistance in educating students about conservation; Valuable structure; Simple and adaptable;</p>	92.6%
Q13 R	<p>What value do the logbooks offer as a tool for assessment? Explain.</p> <p>% Schools that actively use the logbooks in some form:</p> <p>Considered a valuable guide and structure to assist learning. Assists in reflecting students understanding and learning, and as an assessment tool (informal/ formal). Opportunity for</p>	86%

	reflection and record keeping of events undertaken.	
Q14	Do you use the logbooks for any other purpose? Explain.	
R	% who use the logbook for other purposes as stated below:	15.6%
	Used as a planning tool; Assessment of student progress and attendance; Provides benchmark of expectations; Assessment tool in support of other programs/ projects (ASDAN/ CGEA); Recording attainment of Bush Ranger Program outcomes Allows teachers to make the links between the activities completed and the skills covered.	

Appendix 8 Program Budget Expenditure (includes printing costs)



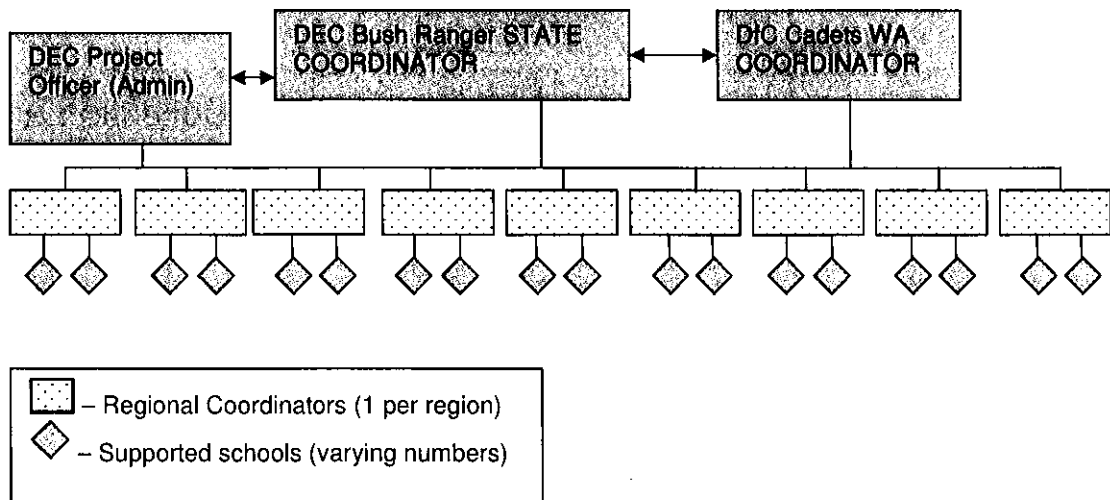
Appendix 9 Suggested Annual Statistical Data Collection and Analysis

	Statistical Records	Source
1*	No. Students	DfC
2*	No. Units	DfC
3*	No. Leaders/ Instructors	DfC
4	No. Hours involved	School
5*	No. Schools	DfC
6	No. certificates awarded	DEC
7	Cadet Age vs. No. Units distribution	School
8*	School Distribution	DfC
9*	Male vs. Female Cadets	DfC

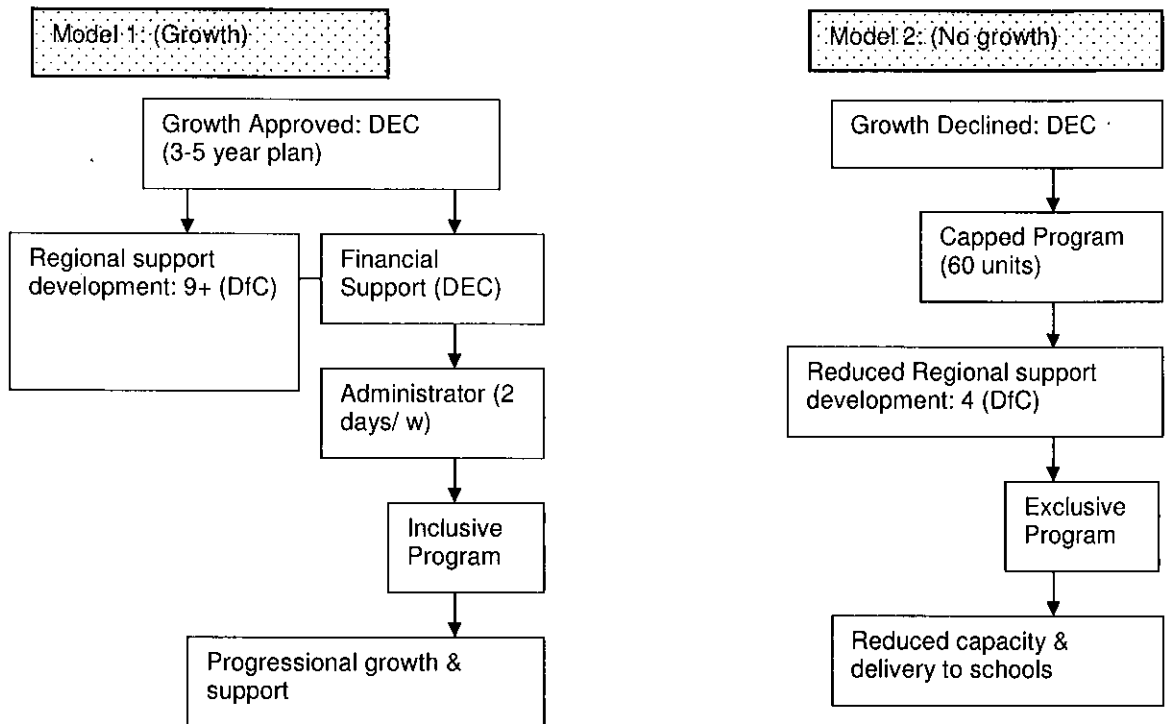
10	No. local community group involvement	School
11	No. units receiving funding grants for BR activities (external)	School
12*	No. staff assistance	DfC
13*	Distribution across education sectors	DfC
14*	Equity & Diversity Statistics	DfC
15	Distribution across geographical placement (rural/ urban)	DEC
NEW	No Units vs. Years engaged with program	DEC
NEW	Financial Support	DEC/DfC
NEW	% Children at risk involvement	School
NEW	% Cadets employment pathway (Graduate recruit program & indigenous traineeship)	School/ DEC

Note: (*) Asterisk denotes statistics that are currently accessible from Department for Communities (DfC)

Appendix 10 Proposed Program Organisational Chart



Appendix 11 Development Models



Appendix 12 Measurement Tool

Department Environment & Conservation: Bush Rangers Programme	Strongly Disagree	Disagree	Agree	Strongly Agree
<p>Does the program...</p> <p>Provide in youth, through appropriate training and supervision, the basis for an active and lifelong commitment to the conservation of the natural environment</p> <p>Comment:</p>				
<p>Foster a conservation ethic in young Western Australian through their participation in practical conservation and environmental management projects</p> <p>Comment:</p>				
<p>Develop leadership and teamwork skills, and the qualities of self discipline and duty, loyalty and service to the community, school and to the Program</p> <p>Comment:</p>				
<p>Provide young Western Australians with the skills and knowledge that relate to the functions and role of the Department of Environment and Conservation</p> <p>Comment:</p>				
<p>Support and strengthen the links between schools, the community, DEC districts and activities throughout the State</p> <p>Comment:</p>				

<p>Compliment existing formal education by encouraging the accreditation and recognition of skills and competencies during training</p>				
<p>Comment:</p>				
<p>Provide a career pathway for employment in natural resource management, including entry into the DEC's graduate development program and traineeships</p>				
<p>Comment:</p>				

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