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## Science Project Plans

*'Whatever failures I have known, whatever errors I have committed, whatever follies I have witnessed in private and public life, have been the consequence of action without thought' - Bernard Baruch*

*'When a man does not know what harbour he is heading for, no wind is the right one' - Seneca*

*'Good results without good planning come from good luck, not good management'. - David Jaquith*

The Science Project Plan (SPP) is seen by the Science Management Team (SMT) as the best method for planning the research done by the scientists and technical staff in Science Division. It has several functions:

- It ensures that the planner (scientist) devises plans with a view to addressing the study objectives and being able to analyse the results.
- It makes the project leader (the scientist responsible) accountable, because the plan specifies what will be researched in a nominated time frame and at what cost.
- It enables the Biometrician and Program Leader, whose task it is to give overall approval, to answer the following relevant questions:
  - Does the design maximize the information obtained about the research question(s)?
  - Is the design the simplest possible?
  - Is the design the most efficient?
  - Does the design address the study aims specifically?
- It ensures that Science Division does not waste scarce financial and human resources on unimportant or poorly designed projects. Funds for research projects will be allocated on a priority basis.

Devising an SPP should be seen as a creative act and not as a chore. It is analogous to preparation of a case applying for research funds from an external agency.

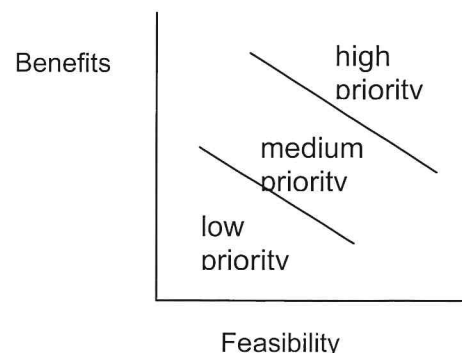
### Science Project Concept Plan (See Appendix 1)

In order to minimize effort in drafting an SPP which may later be rejected, SMT has decided that the first step will involve submission of a brief (1-2 page) Science Project Concept Plan (SCP) for consideration by SMT.

SMT will not consider the scientific content but will instead assess the proposal on the basis of the Department of Environment and Conservation's (DEC's) Mission, Science Division's Mission, integration with research outside DEC, and other issues listed under Benefits and Feasibility below.

### Criteria used by SMT for priority allocation

For ease of use, the criteria used to assign priority are arranged under two headings: benefits and feasibility. The relationship between these two parameters and the allocation of priority for funding are as follows:



It is by no means anticipated that any particular project should meet all the criteria listed. Should competing projects be otherwise equally matched, decisions will be made on the basis of an assessment of the quality of the proposals concerned, their timeliness, and the strategic advantage their adoption might impart to DEC.

### Benefits

#### Relevance

Research should be relevant to DEC's goals and objectives as enumerated variously in legislation, DEC's Corporate Plan and the Strategic Plan of Science Division.

### **Departmental priorities**

Research priorities will reflect overall Departmental priorities as laid down by the Corporate Executive.

### **Effectiveness**

Research should lead to significant improvement in the cost and/or quality of management of DEC-managed public lands or threatened taxa, or make a substantial contribution to biodiversity inventory and utilization.

### **Demand for results**

Research proposals which aim to provide explicit information sought urgently by DEC managers will be favoured.

### **Usefulness**

Proposals should demonstrate how they contribute to existing high priority objectives.

### **Innovativeness**

Projects which present a radical advance in conservation or sustainable use may be assigned a high priority.

### **Regional impact**

Research should relate to a problem or problems afflicting extensive areas, or important industries, or important species, or many ecosystems and be of long duration or intensive impact. A project contributing to documentation of the biodiversity of a geographic area, regional threatening process, threatened ecosystem or regional taxa of special Western Australian significance will also be favoured.

### **Immediate benefit**

The proposal makes an immediate contribution to an issue of high public concern.

### **Integration with research outside DEC**

It is desirable that research within the Department be co-ordinated and integrated with related work being conducted by other agencies. Thus priority will be given to projects which augment or stimulate relevant external research.

## **Feasibility**

### **Impact on DEC's Operations**

Projects with outcomes which directly improve departmental operations should be able to be readily implemented. Projects which require long-term monitoring for example should be planned so that the monitoring is feasible.

### **Budget**

Present the project costs in equipment and/or travel and other expenses. Does the budget cover any possible detrimental impacts on other DEC activities? If external funding is available, what Divisional contribution is required? (Refer to Guideline No. 12).

The availability of external funding may elevate the priority rating of any research project proposal. However, high priority research will not be delayed or displaced by the need to support partly externally funded, low priority work.

### **Time frame**

The proposal will produce benefits within a certain time frame.

### **Availability of results**

The benefits can readily be captured or implemented.

### **Performance**

Work proposed by individuals, project groups or project teams able to demonstrate outstanding achievement in high priority research areas may warrant special consideration.

### **Team-work**

Higher priority will be given to projects made feasible by involving team-based rather than solitary research.

### **Speculative or theoretical research**

Speculative or theoretical research may be funded where there is sufficient promise of a substantial contribution to knowledge.

## **Explanatory Notes - SPP Form (See Appendix 2)**

New SPPs must be created as MS Word documents and forwarded electronically to the Executive Assistant, Science Directorate, who is delegated to manage the SPP approval process. Once approved, the SPP will be allocated a number and be loaded on to a Divisional database. The SCP (Science Concept Plan) number is provided for use until final approval. The numbers below refer to numbered headings on the SPP form.

1. Self explanatory.
2. Self explanatory.
3. Nominate
  - Who will undertake the research
  - Who will analyse the data
  - Who will write up the research.
4. Relevant DEC Primary Programs are: Nature Conservation; Parks and Visitor Services; Sustainable Forest Management, other – specify.
5. Identify the areas where the project has relevance, including IBRA, NRM and DEC Regions. If applicable, specify the location(s) of plot/transect etc by naming the Forest Block, Nature Reserve, National Park etc.
6. Does the SPP cross-link with an SPP in the same Project Team or another Project Team? Provide numbers and titles of these SPPs and

indicate to what extent you have consulted other supervising scientists.

7. Self explanatory.
  8. The Supervising Scientist will be assessed on the progress of all SPPs at the Annual EPDP.
  9. The Supervising Scientist should not discuss this matter with the nominee.
  10. If there are plots/transects etc requiring protection from fire, logging or other operations, it is the Supervising Scientist's responsibility to forward a copy of the approved SPP (and maps) to the relevant District or Regional Manager(s) with a covering note.
  11. Biometrician to comment on design/analysis.
  12. Any research involving vertebrate animals requires prior endorsement by the Animal Experimentation Ethics Committee (refer to Staff Guideline No. 6). If not applicable, the Supervising Scientist should write N/A.
  13. Program Leader (Flora Conservation and WA Herbarium) to endorse proposals for lodging specimens with the Herbarium.
  14. Endorsement by Program Leader.
  15. The Executive Assistant, Science Directorate will manage the approval process and load the document on the Divisional database.
  16. Provide evidence that you have surveyed and digested previous research and explain the scientific value of the proposed research. Also discuss innovativeness and regional impact of the work proposed.
  17. State precisely the hypothesis or question you wish the study to answer. List (and number) multiple items so that the methods of analysis can be related to each aim.
  18. Describe the anticipated outcome of this project, i.e., how will this information be used, what skills will be acquired, what products and devices will be produced, what are the benefits to DEC?
  19. Explain who will use the knowledge gained and how you intend to communicate this to the user.
  20. Describe substantive components/tasks and when they will be completed.
  21. Self explanatory.
  22. Describe the methodology to be used in the project.
- If an experiment:
- List the dependent variables.
  - List the experimental treatments and controls, and covariates/blocking factors.
  - Provide a map/diagram showing the experimental layout, and those features relevant to the design.

- Give the proposed method(s) of analysis. For ANOVA-type experiments, provide a skeleton ANOVA table showing source of variation, residual/error and total df. Organize the method(s) so that it is clear which portions of the analysis correspond to the experimental aims.
- Indicate why the experiment is of the chosen size.
- Explain if the plots should be permanently marked for future relocation.
- Detail your plans for labelling, identifying, mounting and incorporating voucher specimens into the WA Herbarium, or providing voucher specimens or other collections to the WA Museum.

If a survey involving transects/quadrats:

- Specify the nature of the survey (random, systematic, stratified).
- Provide a map/diagram showing the survey layout.
- Explain how the survey points are to be chosen.
- Explain the choice of replication with survey points, within strata (if applicable) and overall.
- Nominate the specific methods of analysis to be used. Organize the methods so that it is clear which portions of the analysis correspond to the survey aims.
- Explain if the transects/quadrats should be permanently marked for future relocation.
- Detail your plans for labelling, identifying, mounting and incorporating voucher specimens into the WA Herbarium, or providing voucher specimens or other collections to the WA Museum.

If a reconnaissance:

- Explain what you are assessing or searching for.
- Provide location details/map.
- Explain why you are not using a more sophisticated design.
- Detail your plans for labelling, identifying, mounting and incorporating voucher specimens into the WA Herbarium, or providing voucher specimens or other collections to the WA Museum.

If a taxonomic or genetic study:

- Explain the approach to be used (cladistics, phenetics, phyletics etc).
- Explain how material will be obtained for study.
- Detail your plans for labelling, identifying, mounting and incorporating voucher specimens into the WA Herbarium, or providing voucher specimens or other collections to the WA Museum.

23. Have your proposals for lodging specimens been discussed with the WA Herbarium and/or WA Museum? Have they agreed?

24. Identify location and format of data.
25. Identify data custodian.
26. Anticipated expenditure.

**It is the Project Leader's responsibility to check that the completed SPP addresses all 26 items.** If an item is not applicable, write N/A. Incomplete SPPs will be returned to the supervising scientist for completion.

This revision of the SPP guidelines supersedes all previous versions of the Research Project Plan and Science Project Plan.

## Closure of Science Project Plans (SPPs)

**(to be tabled at Science Management Team Meetings by Program Leader).**

Closure of an SPP will involve the following steps:

- Review of the achieved outcomes against those stated in the SPP (Supervising Scientist).
- Review of the outputs that have been produced – are these adequate, or are more required? (Supervising Scientist).
- Re-allocation of resources (staff, financial) (Program Leader).
- Notification to SMT via Program Leader by way of Closure of SPP form located at the end of the SPP form on the Science Division web site under staff Guidelines.

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<http://calmweb.calm.wa.gov.au/drb/science/docs/guidelines/>



## Science Division – Guideline 7 Appendix 1 Science Project Concept Plan

1. Project title:
2. Expected outcome:
3. Proposed period of the project:
4. Expected collaborations:
5. Strategic context (in relation to Corporate Plan and Business Plan):
6. Staff (FTEs):

	Year 1	Year 2	Year 3
<b>Scientist</b>			
<b>Technical</b>			

7. Indicative Operating Budget (\$):

	Year 1	Year 2	Year 3
<b>Consolidated Funds (DEC)</b>			
<b>External Funds</b>			
<b>Total</b>			

8. Proponent Date
9. Supported by Program Leader Date
10. Forward to Director, Science Division

11. Forward to Director of NC or SFM for information.

Considered at SMT Meeting No. .... - ....

Decision:  Rejected (return to proponent)  
 Approved subject to approval of SPP (forward to Executive Assistant, Science Directorate for allocation of Concept Plan Number, copy to proponent and original to be placed on a newly created HO File).

Comment .....

Director ..... Date .....

Concept Plan No (allocated by Executive Assistant, Science Directorate): ..... - .....

Science Project Plan Received: ..... Date .....

**(NOTE: SPPs NOT RECEIVED BY THE EXECUTIVE ASSISTANT, SCIENCE DIRECTORATE WITHIN 3 MONTHS OF THE SCIENCE PROJECT CONCEPT PLAN BEING APPROVED BECOME VOID)**

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## Science Division – Guideline 7 Appendix 2

### Science Project Plan

**Important: Refer to the *Explanatory Notes* (Staff Guideline No. 7) when preparing an SPP.**

<b>PART A Title and Location</b>
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**SPP Number:** [allocated by Executive Assistant, Science Directorate]

**Concept Plan No:** [allocated by Executive Assistant, Science Directorate - to be used until the full SPP has been submitted and an SPP number has been allocated]

1. Project Title:
  
2. Science Division Program:
  
3. Staff [Names and estimates of percentage of time]:
  - Supervising Scientist:
  - Other Scientists:
  - Technical Officers:
  - External Collaborators:
  - Volunteer(s):
  
4. Output Program:
  
5.
  - a) IBRA Region(s):
  - b) NRM Region(s):
  - c) DEC Region(s)/District(s):
  - d) Geocode(s):
  
6. Related SPPs:
  
7. Proposed commencement date: and proposed completion date:
  
8. Date of submission of this Plan and signature of Supervising Scientist:
  
9. Nomination of an external scientist capable of providing expert advice on the scientific merit of the SPP:



<b>PART B Endorsements</b>
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10. List the relevant Regional Ecologist(s) and Nature Conservation Leader(s) whom you have consulted about the SPP:  
What opportunities exist for collaboration with other Science Division Programs, other Departmental Staff, Universities, other Government agencies, Industry, traditional land owners and the broader community? Explain how these linkages were investigated/developed.
  
11. Biometrician:  
**Return comments to Program Leader**
  
12. Animal Ethics Committee: (If applicable)  
**Return comments to Program Leader**
  
13. Program Leader, Flora Conservation and Herbarium (If applicable; see Point 22 below):  
**Return comments to Program Leader**
  
14. **Program Leader:**  
Program Leader arranges that a copy of the SPP is sent to the nominated external scientist (See No. 8) for a confidential assessment if required.
  
15. After endorsement please forward to Executive Assistant, Science Directorate:  
**Executive Assistant, Science Directorate to load approved SPP on Divisional Database, arrange filing at Directorate, send copy to Librarian to publish in Science Communications, send photocopy of completed SPP to Supervising Scientist, copy cover sheet to Regional Manager, District Manager and relevant Program Leader (for their information).**

<b>PART C Relevance and Outcomes</b>
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16. Background and literature review:
  
17. Project aim:
  
18. Anticipated project outcome(s) including benefits to DEC:

19. Anticipated users of the knowledge to be gained and technology transfer strategy:
20. Milestones [Describe tasks and when they will be completed]:
21. References

<b>PART D Study Design</b>
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22. Method [including statistical analysis]:

<b>PART E Data Management and Budget</b>
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23. Estimated number of vouchered specimens:
24. Data management [how and where are data being archived/maintained? - see Guideline No 16]:
25. Data custodian:
26. Budget Estimate [anticipated expenditure]:

Consolidated Funds (DEC)

	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)
FTEs – Scientist			
FTEs – Technical			
Equipment			
Vehicle			
Travel			
Other			
<b>TOTAL</b>			

External Funds

	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)
Salaries/Wages/Overtime			
Overheads			
Equipment			
Vehicle			
Travel			
Other			
<b>TOTAL</b>			

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Department of Environment and Conservation

Our environment, our future



Science Division – Guideline 7

CLOSURE OF SCIENCE PROJECT PLANS

(to be tabled at Science Management Team Meetings by Program Leader)

(also available as Appendix to Guideline No. 16)

SPP #: .....

SPP title: .....

Supervising Scientist: .....

- Status: Completed
Terminated
Suspended

Outputs: (list key publications and documents)
SCIENCE:

KNOWLEDGE TRANSFER:

Data Management:

(see Science Division Guideline 16 and appendix)

Hard copy records held at .....

Electronic data stored on: .....

Backup copy stored at: .....

Backup copy also provided to Science Applications Program:

Metadata provided (contact GIS Section Data Administrator):

Signed by Program Leader: .....

Date: