Project Plan SP 2020-008

Priority social science research needs to support DBCA Corporate Strategic Directions

Ecosystem Science

Project Core Team

Supervising Scientist	Andrew T Knight
Data Custodian	Andrew T Knight
Site Custodian	

Project status as of July 14, 2020, 2:29 p.m.

Pending project plan approval

Document endorsements and approvals as of July 14, 2020, 2:29 p.m.

Project Team	granted
Program Leader	required
Directorate	required
Biometrician	granted
Herbarium Curator	not required
Animal Ethics Committee	not required

Priority social science research needs to support DBCA Corporate Strategic Directions

Biodiversity and Conservation Science Program

Ecosystem Science

Departmental Service

Service 6: Conserving Habitats, Species and Communities

Project Staff

Role	Person	Time allocation (FTE)
Supervising Scientist	Andrew T Knight	0.7

Related Science Projects

There are no research projects that relate directly to the prioritisation of social science research within DBCA broadly or BCS programs specifically. The Supervising Scientist has had a number of meetings with the Executive Director of BCS as regards the framing and implementation of this research.

Proposed period of the project

Feb. 3, 2020 – July 31, 2020

Relevance and Outcomes

Background

Strategic planning of science is undertaken by Biodiversity and Conservation Science (BCS) to identify appropriate science that in turn supports the Strategic Directions of DBCA. This ensures that the science delivered is usefully directed through BCS scientific programs to support DBCA business processes. This approach contributes to ensuring effective delivery of biodiversity and conservation science that is collaborative, innovative, ethical and outcome driven. Useful science provides timely information upon which DBCA decisions can be based and defended, and enhances the return-on-investment of DBCA funding and resources for core business activities.

Many business processes within DBCA occur at the intersection of ecological, economic and social systems. BCS is well recognised for delivering excellent ecological science that informs biodiversity conservation. Social science is recognised by BCS as an important complement to ecological science for supporting the strategic directions of DBCA.

Identifying current and future social science research priorities is an important activity for conservation organisations. Current priority topics for DBCA can meet immediate departmental needs, whilst anticipating future needs can promote increasingly effective allocation of time, funding and resources through well-targeted research. Priority social science research priorities should be feasible, present a high likelihood of being delivered effectively, cost-efficient and equitable.

Expert elicitation comprises a suite of often context-specific methodologies that are widely used in conservation, but less commonly so to identify priority research directions for organisations and the individuals within them. It can apply scientific techniques to systematically anticipate, identify and examine current information gaps usefully filled by research (resources permitting), as well as future information needs. Social science prioritised through expert elicitation methodologies can provide information that enhances evidence-based decision-making, program cost-efficiency, targeted conservation actions, and, ultimately, a positive perception of DBCA by the public.

Aims

The proposed research aims to identify priority social science research questions, the answers to which can support delivery of DBCA business processes by enhancing the evidence-base, effectiveness and cost-efficiency of activities delivering DBCA Corporate Strategic Directions.

Specifically, this research project aims to provide:

1. The basis for a developing a small number of social science research projects.
2. A process for complementing the social science research activities of BCS with those of PVS.
3. A process for informally enhancing the understanding of staff in key management roles as to the scope and utility of social science as applied to conservation activities.

Expected outcome

The identification of priority social science research topics can assist in supporting the achievement of five DBCA Strategic Directions including: Biodiversity and conservation; Natural and cultural values; Attractions; Fire management; and Our community and partners. Such social science can be enacted in many ways, including, for example: 1) the building of partnerships between DBCA and stakeholder groups such as Traditional Owners, resource user groups and the public; 2) the design and evaluation of volunteer, citizen science and community engagement programs that can educate and inspire the broader public, and; 3) the engagement of the community in nature-based tourism.
  Specifically, this research project aims to deliver:

1. A small number of social science research projects developed as Science Concept Plans for consideration by the Executive Director BCS, and subsequently the BCS Leadership Team.
2. An explicit strategy for matching the social science research activities of BCS to those of PVS.
3. An enhanced understanding by staff in key management roles of the scope and utility of conservation social science.

Knowledge transfer

The outputs and outcomes generated by the proposed project can be exchanged with staff across DBCA. In the first instance, and following discussion with the Executive Director BCS, it will be useful and appropriate to return information on the findings of the study to participants. Once approval of a small set of research projects has been approved by the Executive Director BCS, discussions can begin with relevant staff to develop research questions into project ideas, which can then be documented as Science Concept Plans. Science Concept Plans can then be circulated to the BCS Leadership Team for their consideration for approval. More generally, feedback could be provided broadly to DBCA staff through circulation of a short, written summary of the findings and/or a presentation to staff.

Tasks and Milestones

Progress of this project can be tracked across these necessary Tasks, Milestones, Outputs, and Timeframes to ensure that this proposed research is completed effectively:
  1.Literature review; Reading completed on the context and specific situation in which the survey is to be conducted; Understanding of the context and specific situation; April 2020 / 2.Participant analysis; Relevant groups within DBCA identified and defined; List of participants, including contact details; April 2020 / 3.Designing interview protocol; Interview protocol drafted; Interview protocol; April 2020 / 4.Conducting interviews; Process of interviewing participants completed; Audio recordings and notes from participant interviews; April 2020 / 5.Thematic analysis; Classification of social science research questions completed; List of social science research themes; May 2020 / 6.Designing online questionnaire; Completion of a Microsoft Word version of a questionnaire that meets robust social research criteria; Microsoft Word of a questionnaire; May 2020 / 7.Design and build online survey; Process for producing the questionnaire is complete to the point it is ready for distribution to participants; Questionnaire available in Qualtrics for circulating; June 2020 / 8.Survey distributed and completed by participants; Participants have completed the online questionnaire; Questionnaire ready for analysis; June 2020 / 9.Collate and 'clean' the data; The process for preparing the raw survey data for analysis is completed; Microsoft Excel workbook of questionnaire data ready for analysis; July 2020 / 10.Analyse the

data; Summary statistics completed for questionnaire data; Written summary of results; July 2020 / 11.Assess the findings; Results have been examined and findings identified; Written summary of findings; July 2020.

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Study design

Methodology

Research relationships that underpin the effectiveness of this methodology include: Dr Andrew Knight and Dr Margaret Byrne (BCS), Program Leaders from BCS, and managers of Branches, Programs Regions and Units from across DBCA.

A simple expert elicitation methodology will be employed for identifying and prioritizing social science research questions. It will be structured to minimize factors with the potential to compromise the integrity of expert elicitation studies, including scoring fatigue, cognitive biases, 'group think'. The study will adhere to the research ethics standards of DBCA, which adheres to the Australian Code for the Responsible Conduct of Research (NHMRC 2018a) and the National Statement on Ethical Conduct in Human Research (NHMRC 2018b). Social science will be broadly defined as topics of study of broad relevance to society and the manner in which people behave and influence the world around them (per the Economic and Social Research Council of the United Kingdom), which recognises that "social science" is not a discipline per se, but rather a collection of disciplines focused upon social inquiry.

The proposed methodology is composed of the following five steps:

Step 1: Scoping

Literature will be purposively identified from a small range of disciplines on the topics of research scanning, foresight and expert judgement using searches in Web of Science and the snowballing method. Literature focused on conservation or environmental topics will not be preferred, given the relative novelty of these techniques in these disciplines. The methodology aims to be rapid, cost-efficient and testable as an approach for future application.

A simple assessment of purposively identified information will be conducted to identify the policy context (per Clark 2002) to determine: 1) the scope of responsibilities and accountabilities of DBCA as a government agency (to understand what social science might be appropriate); 2) the business processes through which DBCA functions (to understand how social science might be enacted); and 3) existing social science activities (to avoid duplication of research effort, so as to ensure harmonious working relationships between sections and ensure cost-efficient operations, which is mandated by WA government). Information on the policy context could include documents outlining: corporate strategic directions (DBCA 2019a,b,c); legislation and policy administered or enacted by DBCA, e.g., the Biodiversity Conservation Act 2016; the Conservation and Land Management Act 1984; the Environmental Protection and Biodiversity Conservation Act 1999; and DBCA internal operations (e.g., CITS).

Step 2: Question elicitation

Expert information and knowledge are commonly used for decision-making across a wide range of sectors, and is essential when data is limited or absent, or the time and resources required to gather desired information is unavailable (Burgman 2016). Expert-based approaches are commonly used by conservation organisations (CITS; Pullin; Cowling et al. 2003).

Groups of experts representing diverse characteristics typically perform more effectively than homogeneous groups or individuals, and so should be constituted judiciously (Burgman 2016). Experts will be purposively sampled using explicit criteria to identify staff representative of: 1) departmental organizational structure; 2) legislative, regulatory and policy responsibilities and accountabilities; 3) professional experience with operations and history of the department; and 4) availability. Managers of Branches, Programs, Regions and Units across the four Directorates responsible for developing or implementing policy or action most directly met these criteria (see Supporting Information 1). A broad sample from across the department will be required to ensure the full scope of potential relevant topics are addressed. This method accounts for confounding factors such as sample size and the level of conformity within the group.

Semi-structured interviews will be conducted with participants. Participants will be briefed on: 1) the purpose and context of the research; 2) the scope and utility of social science generally, and in conservation specifically (as very few participants probably have experience with or qualifications in any of the social sciences); 3) the ethical scope of the research; and 4) the proposed interview process. Participants will be offered the opportunity to ask questions about the research process.

Priority topics identified by participants will be discussed to tease-out their specific context, bounds, elements, interrelationships, stakeholder's perspectives and barriers to the outcomes sought by the participant. Dialogue will be used to refine a topic into a research question. The process will be repeated three times to identify three research questions in priority order. All interviews will be audio recorded (with the consent of participants) and written notes taken to complement them.

Step 3: Thematic analysis

Thematic analysis is a commonly used technique for identifying common and contrasting topics from qualitative data. Research questions will be transcribed and manually and subjectively categorized into themes meaningful to the Supervising Scientist. A second reviewer may repeat this process to develop an understanding of the degree of subjectively of the research questions identified. A single research question will be synthesized from the collection of research questions under each theme. Research questions will be logged into an Excel worksheet and ranked according to the number of times it is mentioned collectively by participants. Approximately seven of the most commonly mentioned themes will be ranked and adopted for subsequent participant ranking, this number representing a widely accepted limit of reasonable robustness by an expert.

Step 4: Question ranking of research questions

Digital expert elicitation approaches using email, internet-based, social media or multi-method techniques are increasingly used for expert elicitation. An online method is appropriate where it can 'crowd-source' information, be used to build consensus over short timeframes, multiple participants can be approached using work email addresses, and a research topic that is narrowly and well-defined (as it is in this study). The survey was open from 08:33 on Tuesday 6th July to 12:00 on Friday 17th July 2020.

Participants will be invited via email that contained a link to the online questionnaire one week after completing an interview to complete a two-item questionnaire on the Qualtrics™ online platform. The second item will comprise the seven most commonly mentioned research questions presented in a randomized order using a 'Rank Order' item type requiring participants to click-and-drag the seven questions into a ranked list.

Step 5: Synthesis

Participant's responses will be exported into Excel to generate simple descriptive statistics for synthesis as a final priority ranking of conservation social science research questions. This will include medians, modes, frequency spread, relative ranking of individual research questions and a comparison of the three highest versus three lowest sets of research questions.

Biometrician's Endorsement

granted

Data management

No. specimens

Herbarium Curator's Endorsement

not required

Animal Ethics Committee's Endorsement

not required

Data management

Notes and descriptive data will be archived, maintained on the T:\ drive and my computer, and backed up regularly. Data will be placed on Data Catalogue to ensure visibility to all DBCA staff. The PI will be the sole person to have access to data that includes individual participant's personal details and that could compromise these individual's anonymity and confidentiality, as per the information provided to participants via the Qualtrics online survey.

Budget

Consolidated Funds

Source	Year 1	Year 2	Year 3
FTE Scientist	100,054 (FTE.7)	0	0
FTE Technical	0	0	0
Equipment	0	0	0
Vehicle	0	0	0
Travel	0	0	0
Other	0	0	0
Total	100,054	0	0

External Funds

Source	Year 1	Year 2	0
Salaries, Wages, Overtime	0	0	0
Overheads	0	0	0
Equipment	0	0	0
Vehicle	0	0	0
Travel	0	0	0
Other	0	0	0
Total	0	0	0