# Collation of literature of all biodiversity research undertaken in the Overberg

Collation Period (1987 – 2015)

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LIST OF ACRONYMS	3
ABSTRACT	4
BACKGROUND	4
PART A: THE REFERENCE INTERVIEW	6
PART B: STRATEGY FOR SEARCHING THE LITERATURE	10
SEARCH RESULTS	13
DISCUSSION	31



The UCT Knowledge Co-op facilitated this collaborative project.

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ABI	Agulhas Biodiversity Initiative
BMC	BioMed Central
CAPE	Cape Action for People and the Environment
EIA	Environmental Impact Assessment
ETD	Electronic Thesis and Dissertation
EWT	Endangered Wildlife Trust
FVCT	Flower Valley Conservation Trust
LISC	Library and Information Studies Centre
OCLC	Online Computer Library Center
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
UCT	University of Cape Town

#### ABSTRACT

In all industries, accurate, reliable and timely information is very important for informed decision-making. This is particularly relevant when working with biodiversity, a resource that cannot be replaced once it has disappeared. For example, to reduce the impact of land-based wind turbines on birds and bats, it is important that conservationist understand the best areas to erect these structures. Numerous studies have been conducted in the Overberg area however results of the research are not fed back to the community. A comprehensive literature search was undertaken to support informed decision-making by the Agulhas Biodiversity Initiative (ABI). The literature citations presented are restricted to the Overberg region.

#### BACKGROUND

The ABI is a community-based project (landscape initiative) that coordinates all conservation; biodiversity and ecotourism work in the Overberg region of the Western Cape (see figure 1). One of the ABI roles is to collate information, data and research findings on the area and disseminate these findings to stakeholders. Concern has been raised by the ABI partners that information is not being fed back to landowners and the community, once published, for improved decision-making.

The Flower Valley Conservation Trust (FVCT) as coordinator of the ABI approached the Knowledge Co-op at the University of Cape Town (UCT) for help in compiling a list of citations. The UCT Knowledge Co-op is UCT's social responsiveness programme that works with the local community to facilitate access to knowledge, skills, resources and professional expertise within the University. ABI submitted an idea for this project to the UCT Knowledge Co-op and Barbara Schmid, Project Manager, approached the Library and Information Studies Centre (LISC) as a partner.

The project entails a comprehensive literature search of all published research, and popular articles in the Overberg area (Agulhas Plain). This will be made available to organisations such as the Flower Valley Conservation Trust, farmers and local planners and municipalities. The report provides a list of research studies completed in areas related to the environment, conservation, socio-economic, demographics, etc., to reduce duplication of effort and strategically close knowledge gaps using the limited resources available.



Figure 1: Graphic representation of the Overberg region (Swellendam Backpackers, 2009<sup>1</sup>).

The literature search process:

- Reference interview involving the FVCT, LISC and Knowledge Co-op. This was to gain a better understanding of the topic and clarify all aspects of the query;
- The methods followed in conducting the literature search; and
- Results and discussion.

Location of the Agulhas Plain, Western Cape (Nowell, 2010)



Figure 2: Location of the Agulhas Plain

<sup>&</sup>lt;sup>1</sup> Swellendam Backpackers. 2009. Overberg – Western Cape Map Available: http://www.swellendambackpackers.co.za/overberg\_map.jpg [2015, June 6].

#### PART A: THE REFERENCE INTERVIEW

Lesley Richardson (Executive Director of the Flower Valley Conservation Trust), Barbara Schmid (Project Manager at University of Cape Town (UCT) Knowledge Coop), Michelle Kahn (Lecturer in Library and Information Studies Centre at the University of Cape Town) and Brenda Daly (Student at the Library and Information Studies Centre) attended the interview on 14 April 2015 at the Kirstenbosch National Botanical Garden.

Interviewer, Brenda Daly, opened the interview by providing the initial background to the project stating that the Cape Action for People and the Environment (C.A.P.E) partnership applies a landscape-level approach to biodiversity conservation, through its nine landscape initiatives. CAPE is a 20 year partnership of government and civil society aimed at conserving and restoring the biodiversity of the Cape Floristic Region. The partnership consists of 37 signatory partners, one of which is the Flower Valley Conservation Trust. With donor and local funding the Agulhas Biodiversity Initiative (ABI), one of the nine landscape initiatives, was launched by the South African National Parks (SANParks) (also a CAPE signatory partner), local landowners and partners in 2003. When the Global Environment Facility (GEF) funding came to an end in 2010, the Flower Valley Conservation Trust became the coordinating agent and the ABI continued albeit with a different organisational structure (voluntary association). Project stakeholders include communities, private landowners, local authorities, and various government bodies at provincial and national level. The overarching aim is to promote integrated conservation and development of the area. The stated objective of ABI is: "To foster biodiversity through sustainable and integrated socio-cultural-, economic and environmental development in the Overberg".

Lesley Richardson elaborated that scientists lead by Prof. Richard Cowling (who is a renowned researcher with numerous publication on the Cape Floristic Region), discovered the most amazing biodiversity following research conducted in the area in the 1980s and 1990s. Richard Cowling was commissioned to look at the Agulhas Plain when Eskom bought property – a property which the government has since earmarked to potentially build a nuclear power station. Cowling and fellow scientists provided the first overview of biodiversity in the area in the 1980s. The ABI forms a triangle from Bredasdorp to Hermanus and down to the Agulhas point.

Through the research of Cowling and others, landowners realised the importance of the biodiversity in the area and the importance of documenting the literature of the area. A large number of the studies were started with the commissioning of the Eskom study and the request is to find the earlier publications of studies done in the area. An Environmental Impact Assessment (EIA) process was also undertaken in 2000 and the ABI partnership is keen to know what has been done since then with regards the EIA on the nuclear power station.

The research undertaken through the 80s and 90s and more recently as part of the EIA commissioned around the nuclear power station all needs to be included in this project. There have also been a number of other studies including studies on soil science, fauna and flora, alien clearing and climate change. The Department of Forestry also conducted research in the 1980s.

Working towards the conservation of the biodiversity heritage in the area, the ABI plays a leading role in coordinating public-private sector engagement and is an initiative that came out of the GEF funding. The project has a very strong community development layer; sustainable harvesting of flowers, while responsible tourism was another economy, the project wanted to develop to make the area prosperous. This extends to social science studies and Beatrice Conradie has done a number of studies on socioeconomic aspects of the ABI.

Scientists still come into the area from different universities with research projects, at times similar to those done in the past. A further concern is that research findings are not shared with the community, who often assisted in the collection of the data (e.g. thatching industry). The availability or access to literature will prevent future duplication and the association has requested that results from the research are fed back for better management of the area. The most recent studies in the Overberg area are related to wind energy where scientists/consultants are approaching the community members individually and the landowners are questioning the availability of information to aid in this decisions-making. Although, the ABI has commissioned the literature search, they will not be the end users of the product.

Michelle Kahn stated that unpublished articles should be included if these can be found, however suggested that a pilot search be done to determine just how much there is. If too big then perhaps this should be narrowed down so that a more comprehensive search can be done.

Brenda Daly described the timelines for the project. A pilot search will be completed at the beginning of May and the final product will be due on 5 June 2015.

Barbara Schmid requested that if certain aspects are excluded this is noted so that subsequent studies are aware of this. Michelle Kahn suggested placing these details at the end of the project report in the section on reflection and providing recommendations.

Lesley Richardson stated that she floated the idea of the literature search with ABI and the association is really excited. Heather D'Alton does the ABI website and Lesley Richardson questioned if ABI can place the bibliography and articles on the ABI website. Michelle Kahn suggested including links to publications that are available and a note of which database. This will ensure that the Knowledge Co-op can do follow-up on publications that are not publically available. It was agreed that an annotated bibliography will not form part of the literature search and will only include the discovery and compilation of a reference list.

Lesley Richardson shared that Jane Turpie was another relevant and significant scientist, involved in developing ecotourism along the coast.

During the interview it became evident that the following areas need to be addressed:

- The literature must be on data collected in the area or relevant to the area;
- Information management of the biodiversity resources in the area. This will be used to manage the resources;
- Must have relevance to the farmers and planners.

## List of keywords and synonyms highlighted in the interview:

Location:

Agulhas Plain	Overberg region	Groot Hagelkraal
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Focus of studies identified during the interview:

Soil science	Climate change	Cape hare
Landscape initiative	Ecotourism	Community-based tourism
Wetlands	Marine	Estuaries
Sustainable use	Terrestrial	Fresh water

Some organisations that have done research in the area:

- SANParks Scientific Services (Ecological Division at the Agulhas National Park)
- Endangered Wildlife Trust (EWT)
- Cape Action for People and the Environment (C.A.P.E)
- Biodiversity and wine initiative
- Agulhas Biodiversity Initiative (ABI)
- Birdlife
- Critical biodiversity areas 2014
- Overberg Lowlands Conservation Trust
- Cape Nature Scientific Services
- De Hoop Nature Reserve

# PART B: STRATEGY FOR SEARCHING THE LITERATURE

A search strategy was developed for the purpose of this project, to identify studies completed in the Overberg region in the areas of biodiversity, environment, conservation, socioeconomic and demographics. The search identified databases, search terms and web-based literature sources. Documents were screened based on title and excluded or included based on relevance to biodiversity (conservation and preservation), quality and geographic coverage. Additional sources were identified through reference lists of articles.

The platforms **ScienceDirect**, **SpringerLink** and **Scopus** were selected as subject specific databases as these contain the principle journals for biodiversity/science research and practice. The platform **JSTOR** was targeted as it contains journal content across a large range of academic subjects.

In addition, the platform **LexisNexis** was searched for articles on the nuclear power station due to the business component of the database.

Two preliminary searchers of literature were completed, providing the baseline of data and a broader search was then conducted based on the initial search. Listed below in table 1 is the information type and sources searched.

Type of literature	Type of information	Source
Books, conference	Library catalogue	<ul> <li>UCT library catalogue (ALEPH)</li> </ul>
proceedings,		<ul> <li>SANBI Libraries Catalogue</li> </ul>
reference material	South African titles	<ul> <li>WorldCat</li> </ul>
		<ul> <li>SA ePublications</li> </ul>
Journal articles	Peer-reviewed journals	<ul> <li>ScienceDirect</li> </ul>
		<ul> <li>SpringerLink</li> </ul>
		<ul> <li>JSTOR</li> </ul>
		<ul> <li>Scopus</li> </ul>
Open access journals		<ul> <li>Koedoe (African Protected Area</li> </ul>
		Conservation and Science)
		<ul> <li>Bothalia African Biodiversity and</li> </ul>

**Table 1:** Databases, internet (information of public interest) and library catalogues

 searched:

Type of literature	Type of information	Source
		Conservation
		<ul> <li>Wiley Online Library</li> </ul>
		<ul> <li>Taylor Francis Online</li> </ul>
		<ul> <li>Directory of Open Access Journals</li> </ul>
		(DOAJ)
Google Scholar	Author searching	Richard M Cowling
	(citation search for	Beatrice Conradie
	relevant authors)	<ul> <li>Jane Turpie</li> </ul>
Thesis and		<ul> <li>ProQuest Dissertations and Thesis</li> </ul>
dissertations		(PQD&T)
		<ul> <li>National Electronic Thesis and</li> </ul>
		Dissertation (ETD) Portal
		<ul> <li>WorldCat dissertations and theses</li> </ul>
		<ul> <li>UWC Electronic Theses and</li> </ul>
		Dissertations Repository
		<ul> <li>SUNScholar Research Repository</li> </ul>
Institutional repository	Peer-reviewed journal	SANBI literature repository, managed by
	literature	SANBI, has a list of all research papers
		published by the biodiversity institution.
EIA		Not available at time of going to press.

The Database of African Thesis and Dissertations (DATAD) OnLine (<u>http://www.aau.org/datad/database</u>) and Networked Digital Library of Theses and Dissertations (NDLTD) (<u>http://www.ndltd.org/serviceproviders/scirus-etd-search</u>) were not available at the time of the search.

## Search statements

The Boolean operators AND/NOT/OR were used in the search statements:

**AND** – narrows the search by combining words using AND, e.g. Agulhas AND Overberg

**OR** – broadens the search to include similar or other information connected by OR, e.g. conservation OR preservation;

NOT - excludes specific information from the search, e.g. Jerseyklub

Phrase searching was also used during the literature search e.g. "Overberg region". By adding parenthesis to phrases such as "climate change", results in the search match these words exactly. Truncation was used to identify all possible endings of key terms e.g. diversity<sup>\*</sup>, in this case it indicates the shortening of a word (biodiversity) and the search function then matches the string of letters even if they do not share all the characters.

Search statement	Terms
1	("Agulhas Plain" OR Overberg)
	AND
	(biodiversity OR conservation OR preservation)
2	("Agulhas Plain" OR Overberg)
	AND
	("climate change" OR bioadaptation)
3	("Agulhas Plain" OR Overberg)
	AND
	(ecotourism OR community-based tourism)
4	("Agulhas Plain" OR Overberg)
	AND
	("sustainable use" OR "flower harvesting")
5	("Agulhas Plain" OR Overberg)
	AND
	(marine OR estuaries OR wetlands)

Table 2: Five overarching statements

Five overarching statements were developed (see table 2) and these were adapted and experimented with until more accurate search results were obtained. Concepts were grouped to ensure that information was synthesised which helped clarify the thinking of the literature search structure.

Records pertaining to the following topics were excluded:

• Global search results were excluded.

Enclosed is a list of 137 published and grey literatures (reports, working papers, thesis and dissertations, newsletters, magazine articles, official and governmental publications and conference papers). All references have been captured in RefWorks to generate the report listing below. Where possible the Data Source has been included at the end of the citation.

#### Marine Resources

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  distributional and demographic shifts in two South African commercial fish stocks. *ICES Journal of Marine Science*. 72(3):771-781. Scopus.
- Huggett, J.A. 2003. Comparative ecology of the copepods *Calanoides carinatus* and *Calanus agulhensis* in the southern Benguela and Agulhas Bank ecosystems.
  Ph.D. thesis. University of Cape Town. Available: http://hdl.handle.net/11180/7000.
- Mussgnug, R.S. 2013. An assessment of the long-term changes in chondrichthyan abundance on the inshore trawl grounds of the Agulhas Bank, South Africa. M.Sc. thesis. University of Cape Town. Available: http://hdl.handle.net/11180/6500.
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   Plain: a mechanism for achieving sustainable local economic development?
   Sustainable Development. 21(5):281-293. Wiley Online Library.
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#### DISCUSSION

Multiple databases and web-based sources were searched to identify the literature. Although articles were screened for relevance by title, it is recommended that abstracts of these articles are read as a second relevance review. The literature search was limited to a geographic area, which include the Overberg and Agulhas plain, however with a broad biodiversity scope from agriculture to species management.

Citations were only included if it related specifically to the area / regional and global search results were not included. Certain phrases were used to ensure accurate search results such as "Agulhas Plain" and "Agulhas Bank". By using the word Agulhas resulted in numerous records on ocean and sea currents; these were excluded from the search results. Agulhas Bank is a broad, shallow part of the southern African continental shelf which extends up to 250 km south of Cape Agulhas before falling steeply to the abyssal plain (Wikipedia, 2015<sup>2</sup>). The "Cape Floristic" and "Floristic Region" were more phrases used in the search.

Wiley Online Library proved to be a useful resource, followed closely by SA ePublication. A complete marine search produced some relevant information along the shoreline that was included in the listing, but the majority of the findings were not relevant to the project.

The reference interview highlighted names of scientists who had conducted research in the area and this proved to be useful in guiding the search during the preliminary process. Related research referenced in the literature offered the opportunity of expanding the search.

<sup>&</sup>lt;sup>2</sup> Psychology. (n.d.). In Wikipedia. Retrieved June 5, 2015, from http://en.wikipedia.org/wiki/Psychology