SUSTAINABILITY

Managing sustainability in the natural resources industry

GIZ/ABioSA/Jonathon Rees

ABioSA GUIDE

JULY 2025

forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

THE ABS CAPACITY DEVELOPMENT INITIATIVE

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Contents

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A glossary of biotrade terms can be found at www.abs-biotrade.info/resources.

This guide was developed by the Buchu Association on behalf of ABioSA.

ABioSA is funded by the Swiss State Secretariat for Economic Affairs (SECO), integrated in the governance structure of the ABS Initiative, and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Although every effort has been made to provide complete and accurate information, GIZ, SECO and KSA make no representations or warranties, express or implied, as to its accuracy at the time of use.

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The ABS Initiative is funded by

Federal Ministry for Economic Cooperation and Development

Norwegian Ministry of Foreign Affairs

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
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Why sustainability management?

Sustainability in the natural resources industry is critical not only from an economic perspective for producers, but also from a customer and consumer point of view. Sustainability is growing in importance as a performance indicator for international users of natural resources, along with ethical sourcing, to show that they are not causing harm to the environment or to people during their sourcing and procurement.

Many international businesses and business support organisations have developed charters that make a commitment to environmental stewardship and social responsibility.

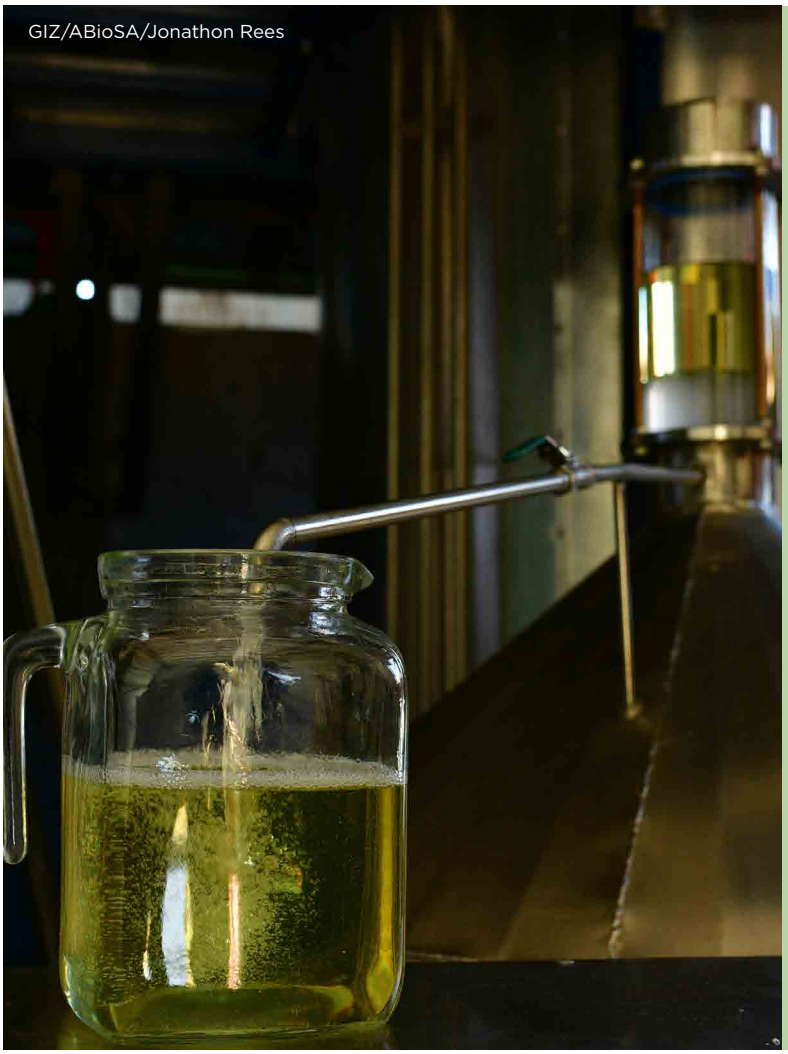
Management of sustainability and keeping material costs down is a fine balance. The costs of certification and standards are prohibitive for all but the biggest producers and certification costs cannot be carried by the international users with their multiple and varied supply chains.

The intention of this document is to provide a comprehensive guide to managing sustainability.

It provides a sample self-assessment checklist for producers and businesses to evaluate and improve their own sustainability performance.

It is hoped that by implementing self-assessment, small producers and businesses can eliminate costly third-party audit fees for certification standards.

To assist new producers joining the industry, a baseline self-assessment tool was developed, including local guidelines on sustainable Buchu cultivation and the conservation of surrounding biodiversity.



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IFRA-IOFI Sustainability Charter

The International Organization of Flavour Ingredients (IOFI) and The International Fragrance Association (IFRA) collectively developed the IFRA-IOFI Sustainability Charter with, and for, their members. The Charter builds on a proud heritage and a long-standing commitment to sustainable development by the sector. The Charter is structured around five pillars:

1. Responsible sourcing
2. Reduce industry environmental footprint and address climate change
3. Employee wellbeing and ensuring a rewarding labour environment
4. Product safety
5. Transparency

The voluntary framework indicates a sense of responsibility and a commitment to making a difference. The Charter is open, inclusive and comprehensive, and aims to raise the bar of the sector.

The Charter can be viewed at ifra-iofi.org.

Key principles of sustainability management

- **Environmental responsibility:** Minimise ecological impact through conservation (minimising land under intense cultivation) as well as monitoring and encouraging natural vegetation and habitats. This also encompasses preventing overgrazing, unnecessary pollution, good use of energy, responsible removal of waste, avoiding contaminating water sources as well as reduction of alien invasive species.

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Best practices

Conservation stewardship agreements with Cape Nature

The arrangement and signing of a conservation stewardship agreement with Cape Nature is the best way to secure the protection of natural habitats. There are additional guidelines, implications and commitments around biodiversity for participating farms.

Landowners in the Western Cape interested in conserving their land can contact:

Anith Wheeler
Conservation Stewardship Specialist
Cape Nature
087 087 3024
awheeler@capenature.co.za

or view the Cape Nature website[1] under protected areas and stewardship

(excerpt from *Buchu baseline guidelines*[2] developed by Capensis Ecological Consulting Pty Ltd – Capensis).

Biodiversity surveys
Biodiversity surveys are a positive sign that the landowner has a level of interest or concern for biodiversity. There are several ways to conduct such a survey. Contact CREW (Custodians of Rare and Endangered Flowers)[3], invite their members to visit and do a Bioblitz. A second way is to use the iNaturalist website[4] (sign up via the website and download the app on your mobile device). Help pages provide direction on making and uploading observations, and how to identify species. Once there is a representative amount of species recorded for the property a species list can be downloaded from iNaturalist. Both plant and animals observed can be recorded on separate species lists.

- **Regulatory compliance:** It is critical that the necessary permits have been obtained for all clearing of new land. This includes all clearances under the current farm ownership and within the last five years.

  In addition to compliance around land, other environmental regulations are of importance to take account in a self-assessment. These include but are not limited to:

  - NEMBA - bioprospecting
  - Water Act
  - Alien vegetation
  - Conservation of Agricultural Resources Act (CARA), Act 43 of 1983

  One can reference both national legislation as well as provincial acts and ordinances[5].

  Social responsibility: Engage with communities, ensure fair labour practices, and prioritise indigenous people and their rights. This may include:

  - Adherence to Basic Conditions of Employment Act
  - Broad-Based Black Economic Empowerment (BBBEE)
  - Minimum wages. A truer indicator of livelihoods is considered to be the living wage[6].
  - Corporate social responsibility as a vehicle to advance disadvantaged members of society.

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Useful sustainability management measures to consider

(see Annexure 1: Buchu baseline guidelines for more details)

A. Farming area

Sustainability management requires that the landowners first provide some information about the extent and type of farming taking place on the property, especially the number of hectares under the natural resource.

B. Cultivation intensity

Next, they must outline what type of cultivation it is. Intense cultivation is usual with most crops, with natural resources in-habitat cultivation where natural populations are augmented, or plants are sown/ planted amongst the natural vegetation is more common. Different sheets can be filled based on the cultivation methods used for the resource but for simplicity it makes sense to treat each cultivation type as a plot even if in different fields and areas.

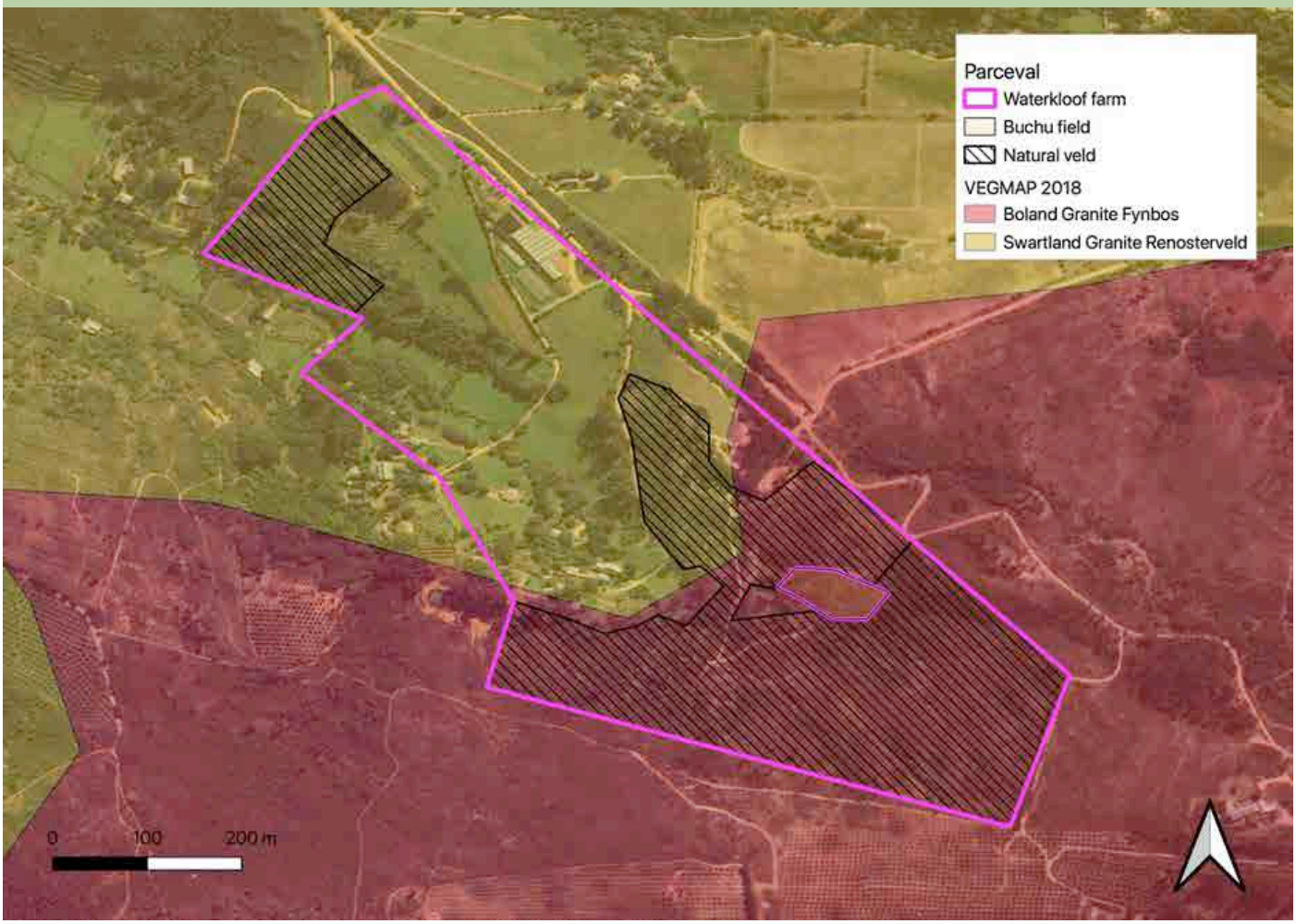
C. Natural vegetation

Natural vegetation type

One of the most important measures of biodiversity includes the area of the property still under natural vegetation and the area that is a threatened vegetation type.

The vegetation types on the property, threat status and Critical Biodiversity Areas (CBA) can all be recorded using Cape Farm Mapper[7].

Example of a farm map (Parceval Pty Ltd organic farm) generated using Cape Farm Mapper.



Grazing
Landowners need to show that livestock holding and grazing is done is a manner that is not damaging to natural vegetation.

Condition of natural vegetation and threatened species
The condition of the natural vegetation is also important.

Table 1. The habitat condition descriptions recommended for gauging the level of veld degradation.

Habitat condition	Description
Intact vegetation	A true representation of the original vegetation type in terms of structure and species makeup. Minimal soil disturbance. Unlikely to have ever been ploughed. Disturbance may be evident.
Semi-intact	Closely resembles the original vegetation type in terms of structure and species makeup but has undergone some form of current or historical disturbance. Restoration potential is high.
Degraded	Only a few species representative of the original vegetation type are present. The vegetation has undergone heavy disturbance. Restoration potential is either low or moderate.
Highly degraded	The original vegetation is usually absent and has been removed in the past. Only a few remnant or pioneer species are present. Soils usually ploughed in the past. Restoration potential is very low.
Transformed	No remnant species exist anymore. The landscape is altered irreversibly with no restoration potential. Examples include cultivated farmland and the built environment.

See page 4 for best practises around protecting biodiversity and threatened species.

D. Farming practices
Alien vegetation
Where alien invasive species[8] exist on a property, it is useful to record the number of hectares under these species and have a control or eradication plan in place. It is also important to assess whether the plan is being enacted – evidence of clearance, reduced disturbance, fertilisers etc.

Fire management
This encompasses aspects such as a fire management plan, staff trained in firefighting and membership of regional Fire Protection Association.

Fertilisers, pesticides and pollution
Soil should be tested regularly and especially before applying fertilisers – this applies mainly to chemicals and not organic certified products.

Pest control (general)
Are pests monitored and are biodiversity friendly control mechanisms employed?

Water (general)
Is water extraction and storage registered with Department of Water and Sanitation[9] and are they a member of a water users association? Water meters installed on pumps and monthly pump log is kept.

Other
This list is not comprehensive. The checklist developed for Buchu producers did not look at social responsibility, for instance. This is something that may be incorporated into a self-assessment checklist as well as many other aspects depending on the specific natural resource being assessed.

The case of *Lotonis prostrata* on Waterkloof Farm (Parceval Pty Ltd)

As part of the process of developing the self-assessment tool for Buchu producers, botanist Steven Molteno of Capensis conducted a biodiversity and sustainability assessment of the Buchu plantation on Waterkloof Farm. This plot is in-habitat cultivation i.e. it is embedded in the natural Fynbos vegetation. Part of the assessment was a transect to observe number and types of species on a portion of the farm. He discovered that Waterkloof is home to some special plants – one of them having the IUCN status of being "Near Threatened".

TAXONOMY

Scientific Name	Lotononis prostrata (L.) Benth.
Higher Classification	Dicotyledons
Family	FABACEAE
Synonyms	Ononis prostrata Burm.

NATIONAL STATUS

Status and Criteria	Near Threatened A2c
Assesment date	2007/12/13
Assessor (s)	N.A. Helme & D. Raimondo
Justification	More than 80% of this species' habitat has been transformed over the past 100 years and is now highly fragmented by agriculture and urban development. A population reduction of 25% is estimated based on habitat loss over the past 30 years (generation length +-10 years) and the population is still declining as a result of overgrazing by livestock, lack of fire and alien plant invasion.

DISTRIBUTION

Endemism	South African endemic
Provincial distribution	Western Cape
Range	Tulbagh to Stellenbosch

As a result of this discovery, farm staff can conduct a count and see how this plant population is changing – shrinking or further expanding – and keep monitoring it going forward. The landowners are delighted to have found a way to increase the population of *Lotononis prostrata* on their farm and thus make a small contribution to the survival of the species.

Many sustainability certifications also exist and are a paid for service with annual audits performed. The primary certification bodies in South Africa are Ecocert[10] and CERES[11].

- UEBT[12]
- Fair Wild[13]
- Fair Trade[14]
- Fair for Life[15]
- Organic certification[16]
- Other

Self-assessment checklist for sustainability management in the Buchu industry

Example of a self-assessment checklist for Waterkloof Farm

Baseline assessment criteria / Checklist (criteria for improving biodiversity and ecosystems in general)

Fill in all blocks that are yellow

Date:	2022-08-26	Name of assessor:	Steven Molteno
Farm name:	Waterkloof	Region:	Wellington-Paarl
Company:	Parceval Pty (Ltd)	Reg. number:	1994/003924/07
Farm size (ha):	**34,4**		

SCORES (Please complete sheets 1 and/or 2, to get these)

Buchu farming area:	*Ag. betulina*	*Ag. crenulata*	Totals	
Hectarage under Buchu (intensive farming /large-scale / fi	0	0,5	**0,5**	0
Hectarage under Buchu (in-habitat farming / natural farm	0	0	**0**	168
Hectarage (total), per species:	**0**	**0,5**	**0,5**	

Attach: Plot sheet 1 or 2 for each plot under cultivation

AVG	**168**

Natural vegetation occurring on the farm:

Vegtype(s)	Boland Granite Fynbos / Swa	*Consult: link (Otherwise leave blank)*
Vegtype threat status	VU / CR	*Consult: link (Otherwise leave blank)*
Spatial development plan status	CBA/CBA (Degr)	*Consult: link (Otherwise leave blank)*

		Percentage of farm area	Score	Weighting	Weighted score
Hectarage under natural vegetation:	17	**49%**	**49**	**20**	**988**
Hectarage under threatened vegtype	17	**49%**	**49**	**5**	**247**

	Yes	No			
Conservation stewardship agreement with Cape Nature? (Y/N)	5	0	**0**	20	0

	Yes	No			
Is natural vegetation ungrazed or grazed according to grazing guidelines? (No=grazed without guidelines)	5	0	**5**	1	5

Consult grazing guidelines source

Average habitat condition	Intact to semi-intact	Degraded to highly degraded			
	5	0	**5**	10	50

Consult habitat condition table for definitions

Abutting natural vegetation or biodiversity corridor?	Yes	No			
	5	0	**5**	5	25

Biodiversity survey(s) done? (To determine conservation	Yes	No			
	5	0	**5**	5	25

Refer to guidelines for options for getting surveys

Attach species list sheet(s)

Number of threatened species recorded on farm *(total from above survey(s))*	3	1	3

Attach species list sheet(s)

TOTAL	**1343**

Alien vegetation:

		Percentage of farm area			
Hectarage (of entire farm) under alien invasive plants	1,27	**4%**	**96**	**5**	**482**

	Yes	No			
Does an invasive **alien plant control and eradication plan** exist?	5	0	**5**	5	25

	Yes	No			
Is alien clearance **currently** underway (or complete)?	5	0	**5**	5	25

TOTAL	**532**

Baseline assessment criteria / Checklist (criteria for improving biodiversity and ecosystems in general) *(continued)*

Field expansion

Clearing of new land: All permits obtained for any clearance under current farm ownership, within last 5	Yes	No			
	5	-5	5	20	**100**
				TOTAL	**100**

Fire management (general):

Does a **fire control plan** exist?	Yes	No			
	5	0	5	2	10
Are farm staff trained or experienced in fire-fighting?	Yes	No			
	5	0	5	2	10
If there are firebreaks, are they brushcut? (not ploughed, graded etc.)	Yes	No			
	5	0	0	2	0
Fire regularity according to veld type?	Yes	No			
	5	0	5	2	10
				TOTAL	**30**

Note: Parceval doesn't have/need firebreaks

Consult fire regularity source

Fertilisers, pesticides and pollution

No use of chemical fertilisers before soil tests done	Yes	No			
	5	0	5	1	5
Is the farm certified organic?	Yes	No			
	5	0	5	1	5
All pesticides (and other chemicals) stored & used legally	Yes	No			
	5	0	5	1	5
Training of workers in safe & sustainable use of chemicals	Yes	No			
	5	0	5	1	5
Empty chemical containers disposed as recommended?	Yes	No			
	5	0	5	1	5
Correct disposal of workshop run-off. (Protected sump, etc.)	Yes	No			
	5	0	5	1	5
Recycling of organic (eg. plant) waste	Yes	No			
	5	0	5	1	5
Servicing of vehicles done away from watercourses and mindful of environment	Yes	No			
	5	0	5	1	5
Recycling of other relevant waste materials	Yes	No			
	5	0	5	1	5
Absence of other pollution (e.g., litter)	Yes	No			
	5	0	5	1	5
				TOTAL	**50**

Baseline assessment criteria / Checklist (criteria for improving biodiversity and ecosystems in general) *(continued)*

Pest control (general):

Any monitoring done of insect or other pest populations? (trapping etc.)	Yes	No			
	5	0	5	1	5
Control of damage-causing animals (Electric fencing)	No	Yes			
	5	0	5	1	5
Control of damage-causing animals (other)	No control; guard dogs; fenc	Poisoning or leg-hold traps			
	5	0	5	1	5
Control of damage-causing rodents (eg. nagmuis/gerbils)	Trapping or no control	Pesticides used			
	5	0	5	1	5
Control of damage-causing insects (leaf-miner/cleopatra beetle / termites)	Organic measures or no cont	Pesticides used			
	5	0	5	1	5
				TOTAL	**25**

Water (general):

Water extraction and storage registered with DWS?	Yes	No			
	5	-5	5	**10**	**50**
Member of a Water Users Association?	Yes	No			
	5	0	0	1	0
Water use in terms of licence (authorised)	Yes	No			
	5	-5	5	10	50
Water use metered and recorded?	Yes	No			
	5	0	0	5	0
				TOTAL	**100**

GRAND TOTAL	**2348**
% SCORE	**73%**

In-habitat cultivation sheet

Farm name	Waterkloof
Plot name/no.	n.a.
Plot size (ha)	0,5

					Score	Weighting	Weighted score
Current habitat condition	Intact to semi-intact		Degraded	Highly degraded to transform			
(At time of survey, not before planting was done	5		3	1	5	10	50
Veld preparation before planting of Buchu	Alien-clearing	None	Brush-cutting	Grading	Ploughing			
	5	4	3	2	0	5	10	50
Distance between Buchu specimens	>5m	5-4m	4-3m	3-2m	1>			
	5	4	3	2	1	3	1	3
Average soil disturbance involved in planting.	Small hole		Spade	Ploughing				
	5		3	0		5	5	25
Soil erosion (% surface cover)	<10%	10-30%	30-50%	50-70%	>70%			
	5	4	3	2	1	4	5	20
Irrigation system currently	None		Drip	Sprinker				
	5		3	1		5	1	5
Irrigation timing	Evening/none	Afternoon	Morning	Midday	All			
	5	4	3	2	1	5	1	5
Years irrigated?	1st year	1st 2 years	1st 3	1st 4	Every year			
	5	4	3	2	1	5	1	5
Proximity to wild specimens	> 5km	5-2km	2km-500m	500m-1m	In among			
	5	4	3	2	1	5	1	5

Consult habitat condition table for definitions

Total	**168**

Plot sheet 3: Species list

Farm name	Waterkloof
Plot name/no.	n.a.
Plot area (ha)	17
Surveyed area (ha)*	100sqm
Vegtype(s)	Boland Granite Fynbos / Swartland Granite Renosterveld
Vegtype threat status	VU / CR
Spatial development plan sta	CBA/CBA (Degr)
Habitat condition*	Intact to Semi-intact

Species recorded (* dominant species)	Number (approx./100sqm)	SCC/Threatened species? *(Y/N)*
Agathosma hispida	2	
Anemia caffrorum	5	
Asparagus declinatus	5	
Athanasia trifurcata	30	
Babiana fragrans	50	Y (Near Threatened)
Cheilanthes sp.	3	
Cliffortia ruscifolia	10	
Crassula subulata subulata	5	
Crassula undulata	5	
Dicerothamnus rhinocerotis	30	
Dimorphotheca chrysanthem	5	
Dimorphotheca pluvialis	100+	
Eriocephalus africanus	100+	
Eriospermum lanceifolium	5	
Grimmia pulvinata	100+	
Helichrysum asperum	50	
Hemimeris racemosa	50	
Hermannia sp.	10	
Hermannia alnifolia	30	
Ischyrodon lepturus	5	
Lachenalia orchioides	20	
Lampranthus elegans	10	
Leysera gnaphalodes	50	
Lobostemon fruticosus	30	
Lotononis cf. prostrata	5	Y (Near Threatened)

Plot sheet 3: Species list

Lotononis cf. prostrata	5	Y (Near Threatened)
Micranthus tubulosus	30	
Moraea flaccida	50	
Muraltia heisteria	30	
Osteospermum moniliferum	10	
Oxalis pes-caprae sericea	50	
Oxalis purpurea	50	
Oxalis tenuifolia	50	
Pelargonium triste	30	
Pelargonium sp. (Myrrhidium	5	
Pellaea pteroides	3	
Pseudocrossidium crinitum		
Ruschia diversifolia	10	Y (Vulnerable)
Searsia angustifolia	10	
Searsia tomentosa	10	
Searsia undulata	5	
Sparaxis villosa	20	
Total:	*Total:*	*Total: 3*

Sustainability Self-assessment score (level of biodiversity-friendliness)

There are many ways to derive a score from a self-assessment tool. In this example, a percentage is derived from the overall score. The marks are calibrated conservatively (i.e. it can be relatively difficult to score high marks).

- Low – less than 50%. Not biodiversity-friendly.
- Normal – A 50% score indicates a property which is being operated in a relatively biodiversity-friendly manner.
- Scores above 70% – difficult to attain for most landowners but might be attained by some who preserve large tracts of natural vegetation for example. Indicates a property that is extremely biodiversity-friendly, or is making considerable efforts to protect environment and biodiversity.
- Scores above 90% are judged to be very unlikely and should not be expected. They may be possible only in some rare cases where a property is almost entirely pristine natural vegetation, in addition to additional organic or biodiversity-friendly practices.

How to improve your score

Landowners wishing to improve their score can go back through their assessment and look for areas where there are highlighted issues. Some of these might be due to unchangeable factors, but others might be easily improved. A short summary table, at the bottom of the first sheet in the checklist, provides feedback in this regard.

Considering the heavy weighting given to some questions (e.g., the presence of natural vegetation, the absence of alien vegetation, etc.) it is recommended that the landowner consider some of these, to improve their score. Again, some might be unchangeable (e.g. how much natural vegetation remains on the farm), but others might serve as useful areas for improvement.

Conclusion

Managing sustainability in the natural resources industry requires a structured approach encompassing self-assessment, implementation and monitoring (improvement). There are many ways that a self-assessment tool can be designed and implemented. In the case of the Buchu industry, this was with a checklist and a guideline on the aspects measured and weighted in the checklist. The tool is provided as an example that can be implemented by other natural resource industries/users. By utilising these types of tools, organisations can enhance their sustainability efforts, align with global standards, attract international ingredients users and contribute to a more sustainable future.

Parceval/Louisa Feiter

Annexures and reference sites

1. https://www.capenature.co.za
2. Annexure 1. Buchu baseline guidelines
3. Custodians of Rare and Endangered Wildflowers (CREW) Programme - SANBI
4. A Community for Naturalists · iNaturalist
5. https://invasives.org.za/national-legislation/
6. What is a Living Wage? - Global Living Wage Coalition
7. CFM 3
8. National Environmental Management: Biodiversity Act: Alien and Invasive Species Lists
9. DWS Home
10. https://ecocert.com
11. CERES - South Africa
12. About UEBT — UEBT
13. FairWild Foundation
14. Fairtrade.net
15. Fair for Life - Home
16. Organic Certification - PGS