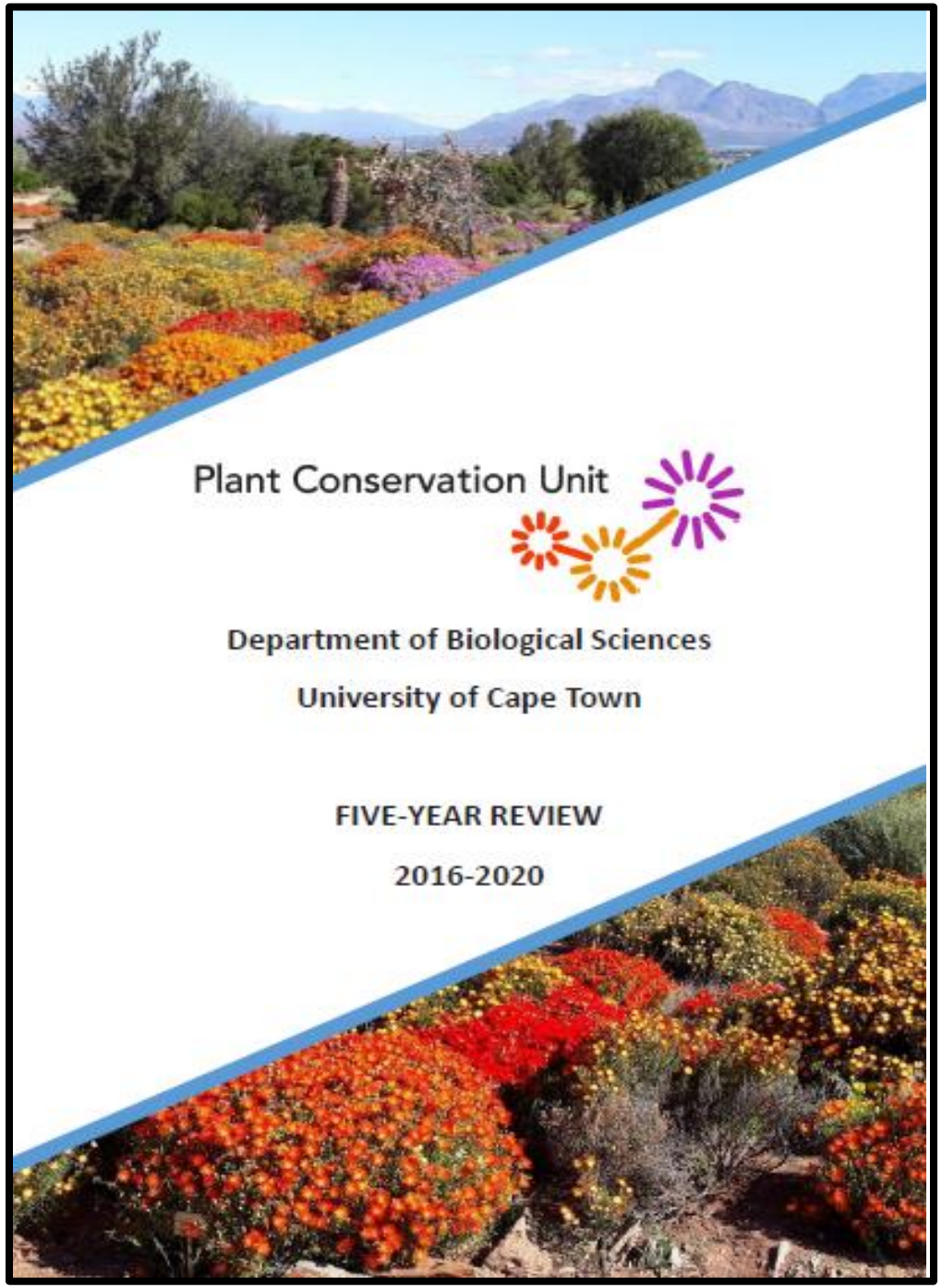
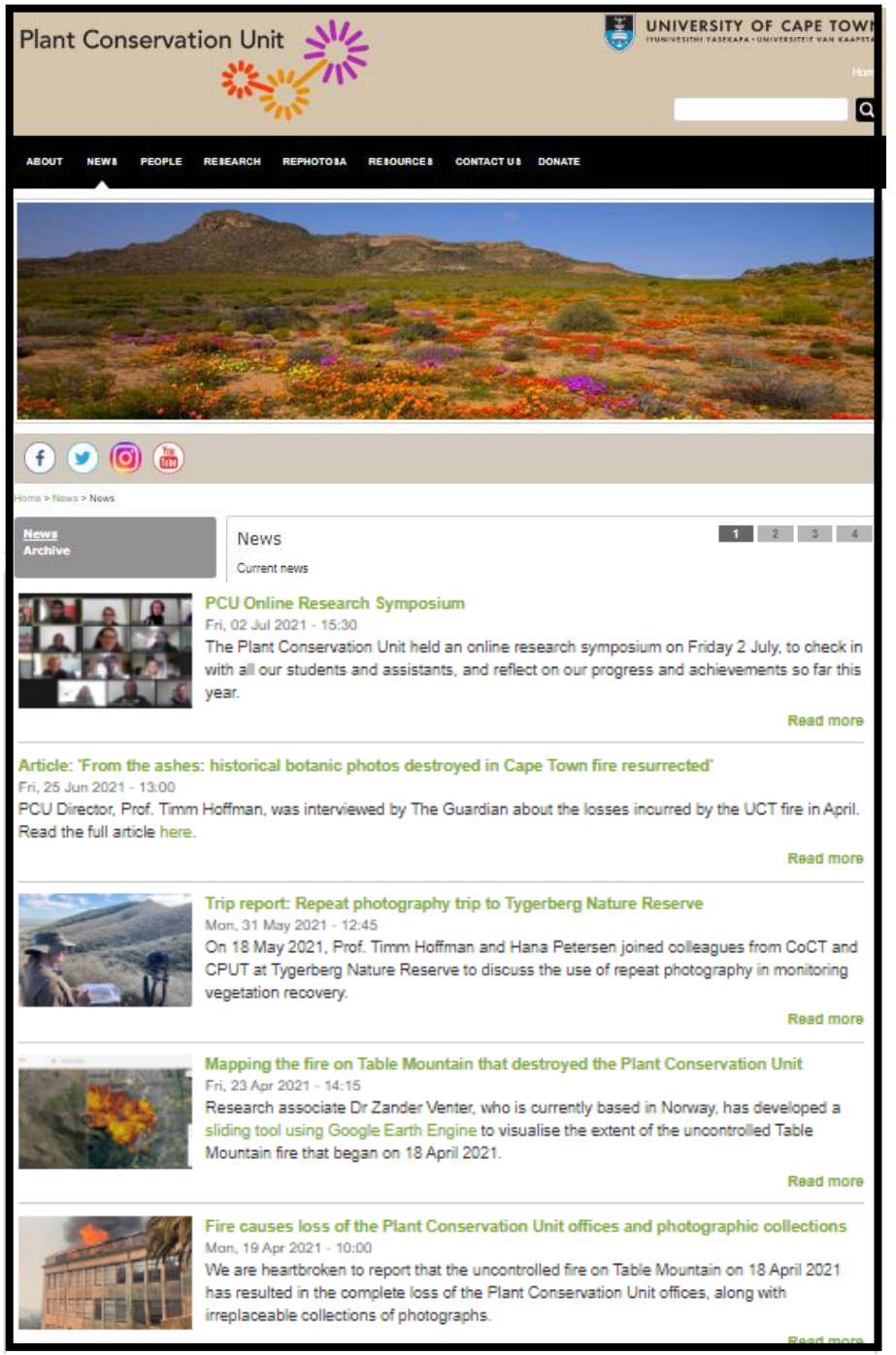
URC Quality Assurance Review

13 July 2021



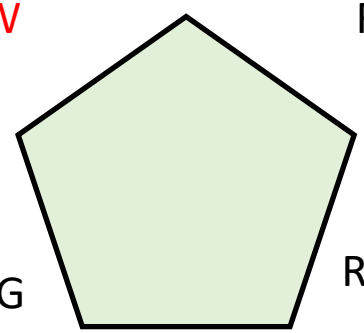


Plant Conservation Unit

OVERVIEW

RESEARCH

GOVERNANCE, SUSTAINABILITY, SUCCESSION PLANNING



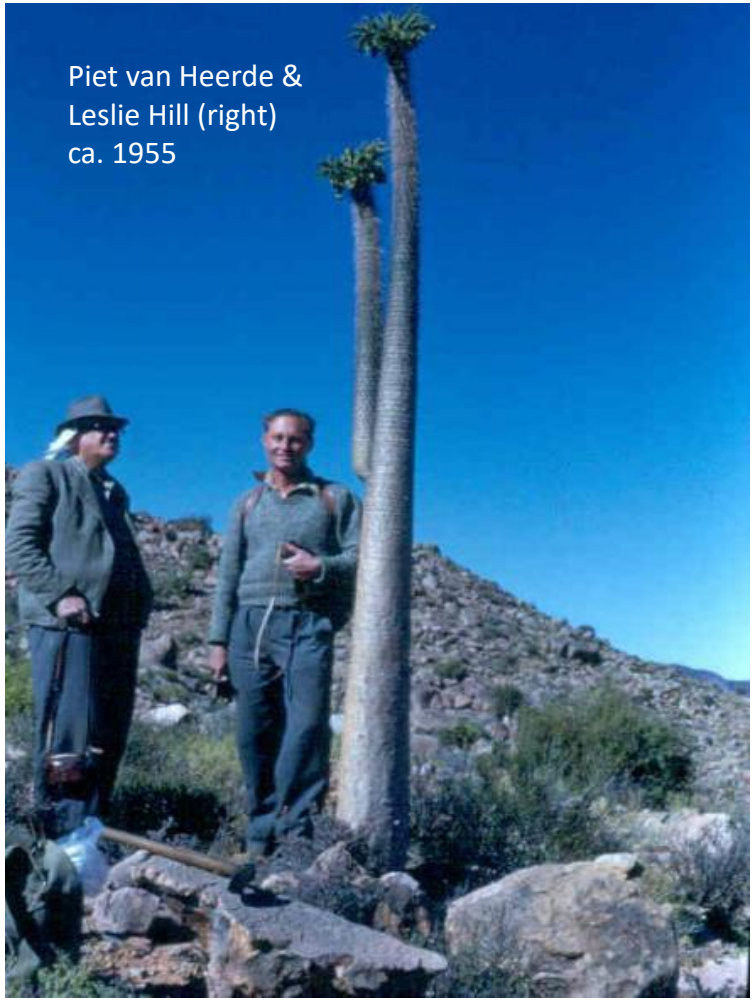
SOCIAL RESPONSIVENESS

HUMAN CAPACITY DEVELOPMENT

1. OVERVIEW

- Background
- Size & shape
- Vision & mission
- Research infrastructure

Background



Leslie Hill
(1908-2003)

Leslie Hill Chair of Plant Conservation at UCT

Plant Conservation Unit (1992-present)


Richard Cowling


Dave Richardson


Timm Hoffman


Lindsey Gillson

1992-2000/2005

2001/2006-present

Current size and shape

Table 1: *People associated with the PCU (2016-present).*

Category	Past (2016-2020)	Current	Total
Permanent Staff	2	2	2
Contract Staff	4	6	10
Oher (Emeritus, HRAs, etc.)	2	4	6
Postdocs	2	5	7
PhD	7	10	17
MSc	3	3	6
MSc (minor dissertation)	8	1	9
Hons	9	0	9
Total	**36**	**30**	**66**

Vision and mission

Plant Conservation Unit

Vision

To be a transformative, inclusive, African-centred research and postgraduate training centre, delivering world class research that contributes to the fair and just conservation of African ecosystems and the sustainable and adaptive management of landscapes and ecosystem services.

Mission

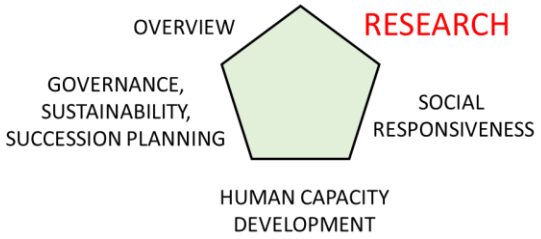
To contribute to the fair and inclusive conservation of African biodiversity and the sustainable and adaptive management of ecosystem services, through excellent interdisciplinary research that brings a past-present-future perspective and that includes the ecological, environmental and social dimensions of landscapes. To provide a supportive, vibrant, and inclusive environment that nurtures the skills and passions of tomorrow's conservationists through undergraduate teaching and postgraduate research.

Research infrastructure

- The PCU offices, computer lab with scanners, meeting / tearoom, burned down in the fire of April 2021. (ca. R2 million)
- Irreplaceable photo and archival collection were lost, along with cameras and scanners. 30,000 images have been digitised.
- The PCU will be rebuilt during 2021-2022. We are working with the Department of Biological Sciences, the Faculty of Science, and the wider University community (e.g. Development and Alumni Department (DAD)) to make this happen.
- We have a 4 x 4 research vehicle for field work, which was purchased in 2017 as a replacement for the one burned during campus protests in 2016.

2. RESEARCH

- Summary of outputs
- Quality of research
- Coherence & focus
- Networks & collaborations

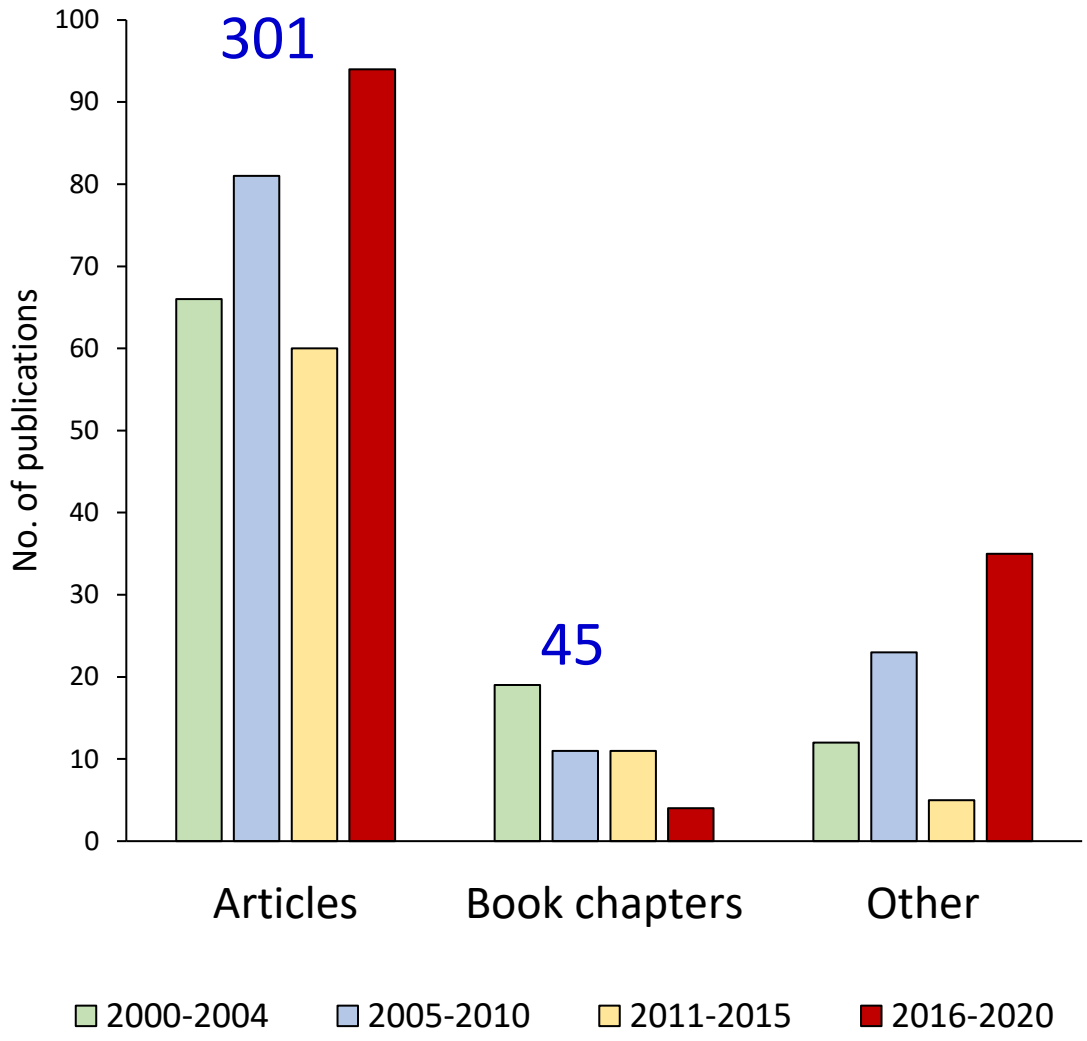


Papers published

Table 4: *Number of publications (2000-2020)*

PUBLICATION	2016	2017	2018	2019	2020*	Total
Book	1	-	-	-	-	1
Journal articles	16	11	20	20	27*	94
Book chapters	1	1	1	-	1	4
Popular articles	7	7	10	1	3	28
Professional reports	1	-	2	2	2	7
Media articles	6	1	5	-	1	13
Photo exhibitions	-	2	-	-	-	2
Total	32	22	38	23	34	149

* includes those articles published in 2021



Conferences and presentations

Table 5: *Conferences & workshops at which PCU staff & students presented their work (2016-2020)*

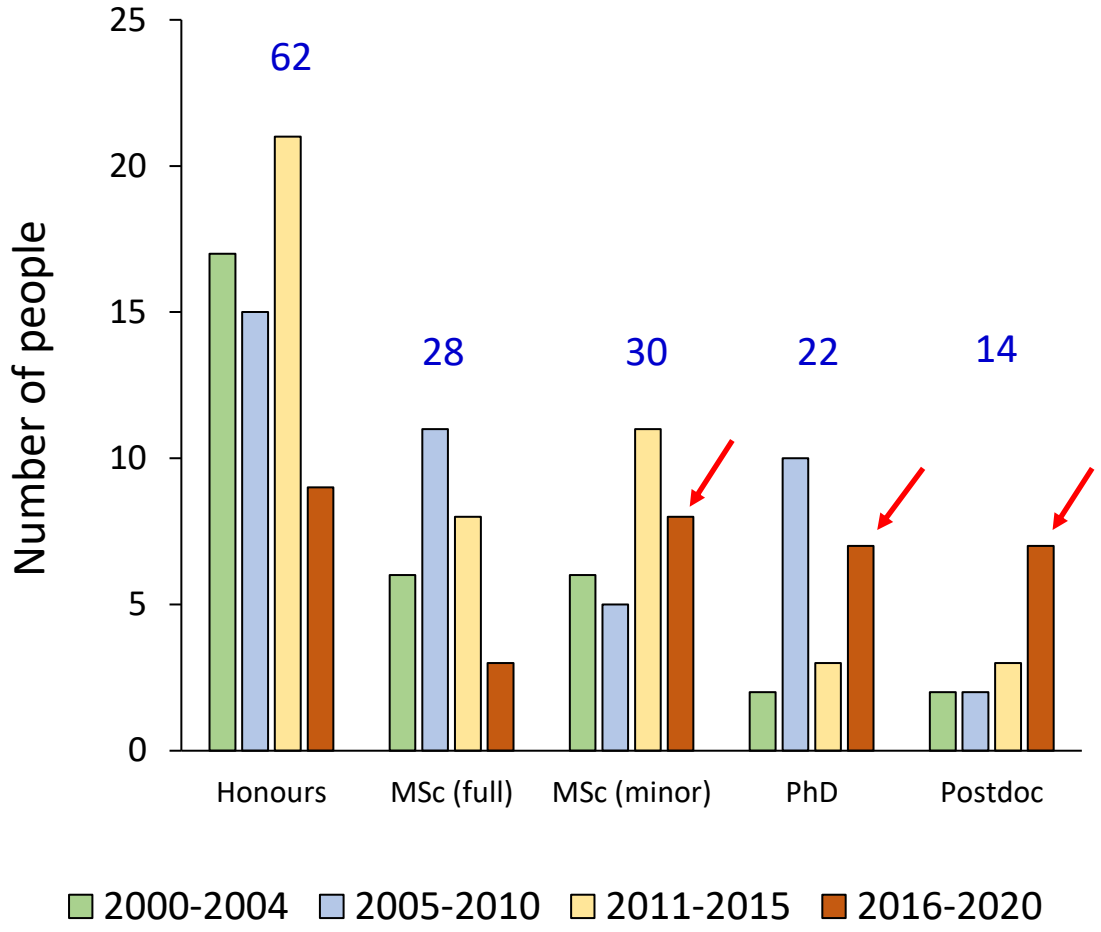
Conference type	2016	2017	2018	2019	2020	Total
Workshops & training courses	7	2	20	6	1	36
International conferences & workshops	8	9	10	11	-	38
National conferences, workshops & webinars	22	19	20	10	4	75
Local conferences, symposia & workshops	5	6	8	-	-	17
Total	42	36	58	27	5	166

Students graduated

Table 3: *PhD, MSc and Hons students (2016-2020)*

Degree	2016	2017	2018	2019	2020	Total
PhD	-	1	3	2	1	7
MSc	1	1	1	-	-	3
MSc (minor)	3	1	1	1	2	8
Hons	3	3	-	2	1	9
Total	7	6	5	5	4	**27**

Postgrads & PDRFs



156 postgrads (2000-2020)

(excludes contract staff, HRAs, sabbatical visitors, etc.)

Quality of the research

Improvement on 2015 h-index, citations & NRF ratings

Table 6: *The change in commonly used metrics of scientific productivity and impact*

	h-index		Citations		NRF Rating	
Hoffman	2015	2021	2015	2021	2015	2021
Web of Science	25	31	1769	3072	B3	B2
Google Scholar	-	46	3882	6495		
Gillson	2015	2021	2015	2021	2015	2021
Web of Science	18	23	881	1766	B3	**B1**
Google Scholar	-	32	1886	3466		

Achievements and awards

Lindsey

- Vice Chancellor's Future Leaders Award (2019)
- Promotion to full Professor (2021)

Timm

- Wilderness Foundation Africa - Lita Beukes Cole Memorial Conservation Award (2018)
- WWF-SA's Living Plant Award (2020)
- Fellow of the Royal Society of South Africa (2020)
- SAAB Silver Medal (2020)

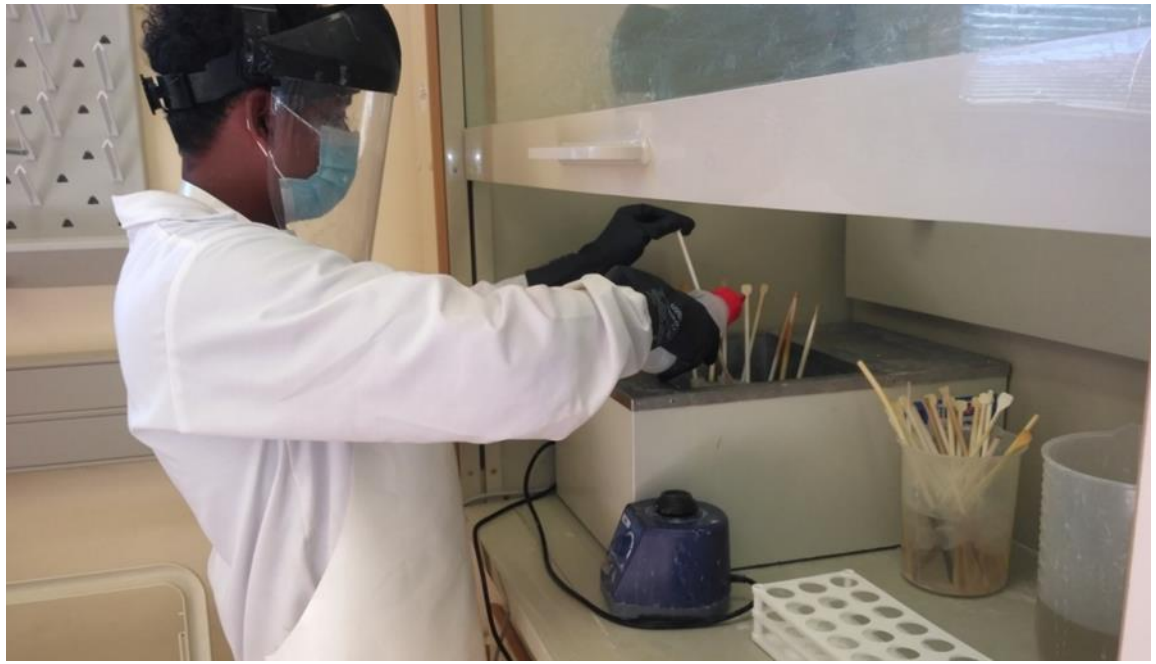
Research outputs: summary thoughts

As successful a 5-year period as we've ever had in terms of publications & students which we attribute to:

- Productive synergy between palaeoecology and historical ecology research themes
- Significant contribution from HRAs
- Good collaborations with local, national and international partners
- Manageable teaching loads and 2x sabbaticals
- Excellent funding from external sources (Lindsey) plus ring-fenced income from Leslie Hill endowment (Timm) for contract staff & infrastructural expenses

2. RESEARCH

- Summary of outputs
- Quality of research
- Coherence & focus
- Networks & collaborations

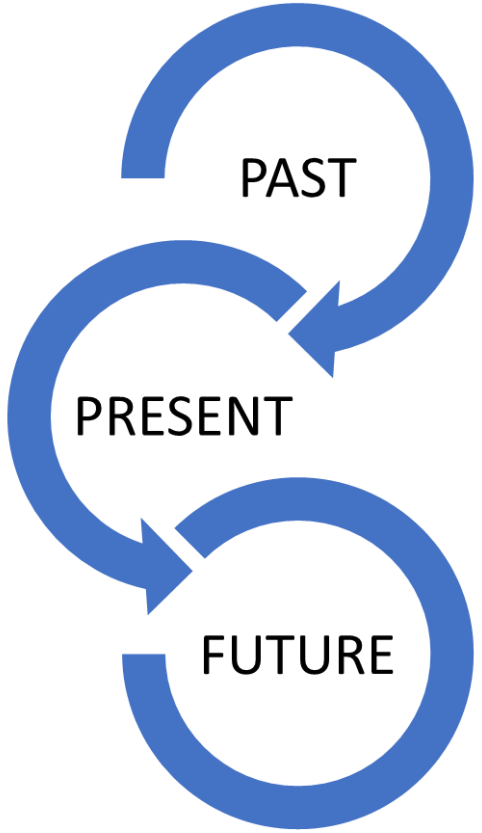


OUR RESEARCH: Nature of the research

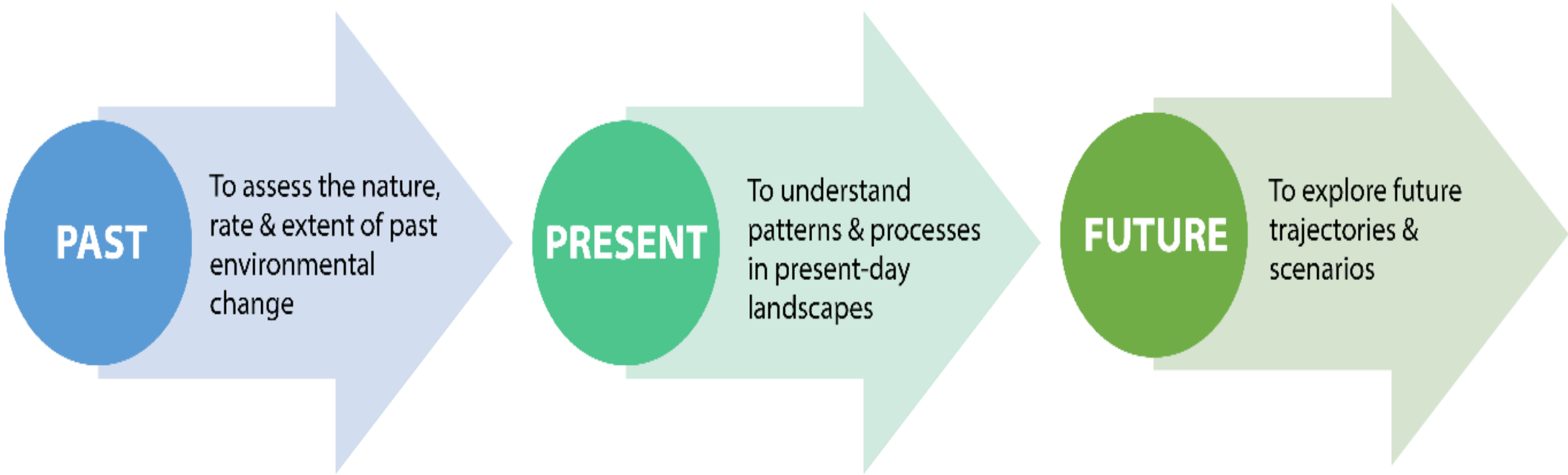
The work of the Plant Conservation Unit provides a perspective on past variability that can help in:

- understanding interactions between multiple drivers (global – local) and a context for interpreting recent changes
- shaping ecosystem and biodiversity conservation, management and restoration
- exploring realistic future scenarios (with stakeholders), that work towards building sustainability, resilience and adaptive capacity of social-ecological systems.

The **past-present-future** theme provides a cohesive framework for our research.

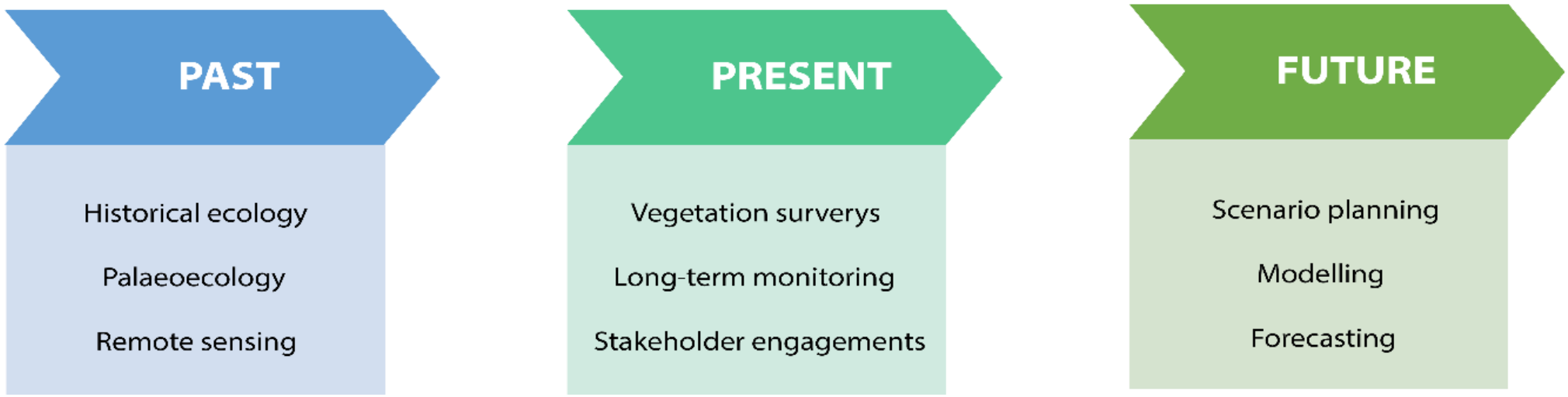


Aims and objectives of research



Research approach

- Main areas of expertise are in **historical ecology, palaeoecology** and application in in **conservation biology**.
- This is complemented by related fields including GIS, ecophysiology, anthropology and archaeology. We are building expertise in various modelling techniques.
- Stakeholder engagement in scenario planning

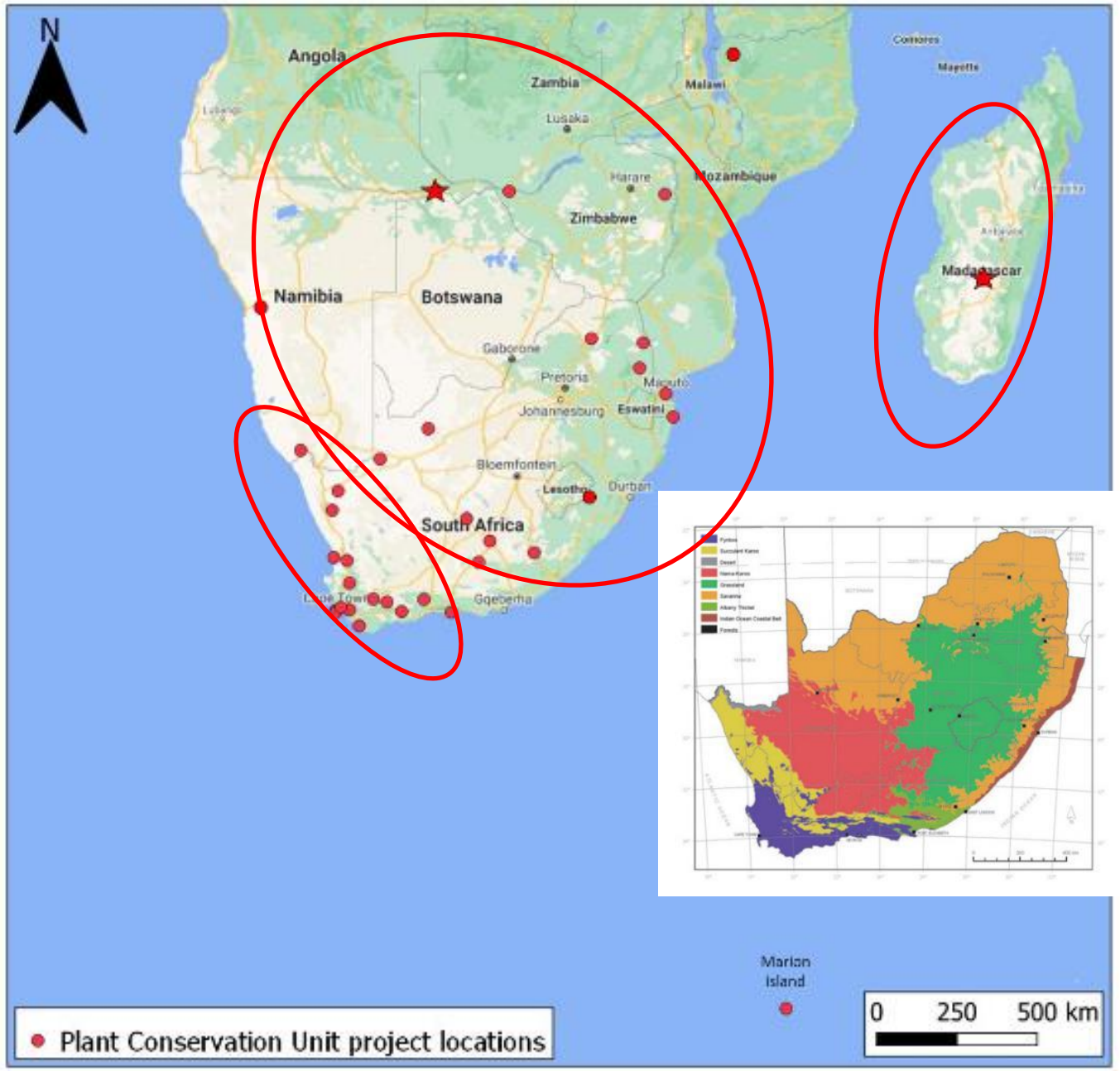


Palaeoecological studies and infrastructure

- The palaeoecological lab has facilities for processing fossil pollen charcoal, diatoms, and spores from sediment cores. Brightfield and phase contrast microscopes, pollen reference collection for the WCape (the savanna reference collection was lost in fire).
- Recently addition of magnetic susceptibility kit, upgraded safety and computer facilities. A new coldroom is planned.
- In the department, we have access to an XRF analyser and furnaces for Loss on Ignition. Stable isotope analysis takes place in the Archaeology department, commercial labs for AMS radiocarbon dating.
- We had hand-held coring equipment for the collection of sediment cores (burned) mechanical corer from EGS.

Focal areas

- The Greater Cape Floristic Region (GCFR), which comprises the Fynbos, Succulent Karoo, Renosterveld and Afromontane Forest biomes
- Desert, Grassland and Savanna biomes of southern Africa (e.g. Kruger National Park, Bwabwata National Park, Namibia, Mozambique, and the Drakensberg).
- Strong and growing presence in Madagascar, with current projects focused on the Western Dry Forests, and Central Highlands



1) Cape Floristic Region

- Continue to develop network of palaeoecological sites at biome boundaries
  - Succulent Karoo – Nama Karoo – Fynbos (Kamiesberg, Drie Kuilen Reserve)
  - Afromontane forest – fynbos on Table Mountain and Jonkershoek
  - Fynbos – forest mosaic Grootbos Private Nature Reserve
  - Berg River Catchment
- Apply results to restoration and fire management
- Modelling of changes in ecosystem services (system dynamics modelling)

Timm Hoffman

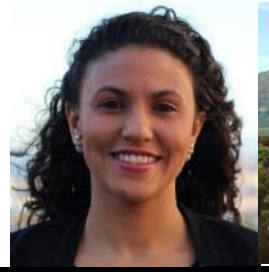
Mike Cramer

Adam West

Jasper Slingsby

Sabine Prader PDRA

Glory Oden PhD



Cherie Dirk MSc, PhD

Janine Steytler MSc

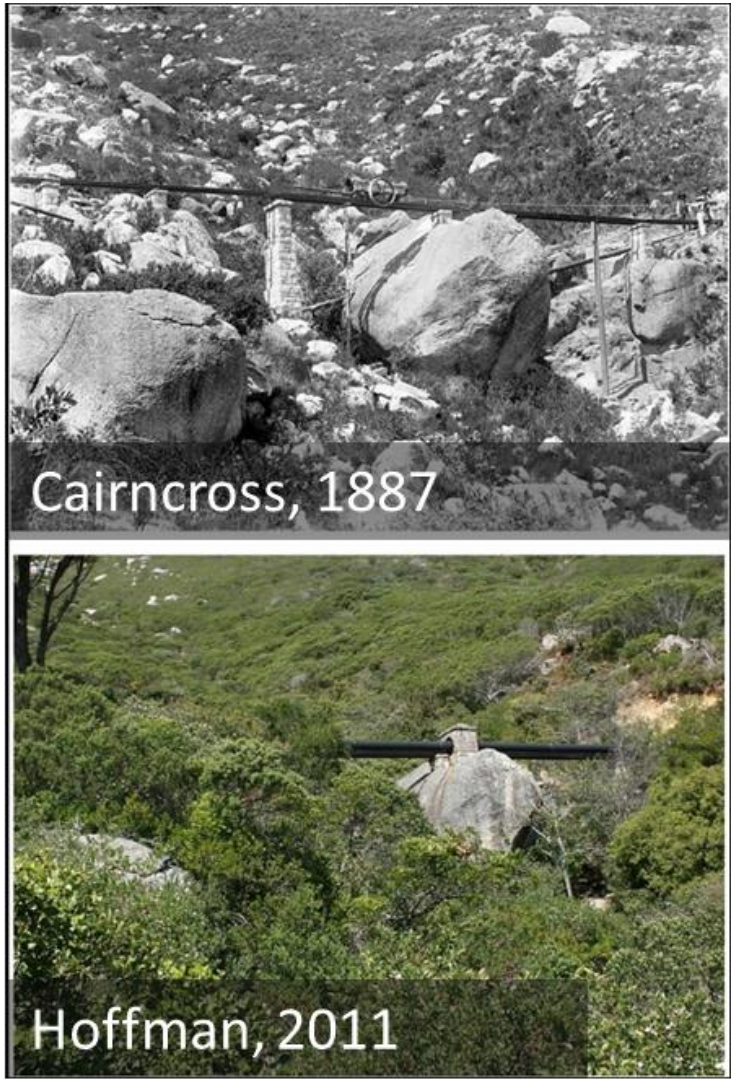
Yolanda Chirango PhD

James MacPherson PhD

Saul Manzano PDRA

Take home messages and applications from the GCFR

- Fynbos is more resilient than expected (e.g. to climate change) possibly due to internal reorganisation
- Remaining renosterveld fragments might not reflect the “ecological character” of those landscapes prior to European settlement
- Management of fynbos forest ecotones needs urgent attention especially in light of current pressures to suppress fire (TMNP) and afforest (Grootbos)
- Tipping points maybe reached in the future unless fire regimes are restored.
- Looking ahead: Embed these projects within network of EFTEON sites (submitted)



Timm Hoffman

1) Savannas and grasslands

Glynis Humphrey
PhD / PDRA

Adele Julier
PDRA

Sally Archibald (Wits)

Caitlin Dixon
Honours

Stephan Woodbourne (iThemba)

- Focus on Bwabwata National Park, north-eastern Namibia, and Kruger National Park
- We are building a nuanced understanding of landscape history using an interdisciplinary approach that includes satellite imagery, repeat photography, palaeoecology and modelling.
- Use this to explore interactions between fire management and ecosystem services
- Future project: Modelling the complex interactions between social and environmental drivers (SEMs) (Glynis Humphrey, PDRF)
- Modelling changes in carbon stocks and explore trade-offs between ecosystem services via scenario planning

Anneli Ekblom
Uppsala University

Elinor Breman
DPhil

Gina Ziervogal
EGS

Conor Eastment
MSc

Abraham Dabengwa
PhD

Take home messages and applications savannas and grasslands

- Savannas can exist in multiple stable states, governed by e.g. fire, herbivory, nutrients, local hydrology, climate
- Fire can be manipulated to mitigate the effects of global drivers e.g. CO_2
- Incorporating indigenous knowledge can help to conserve biodiversity and manage ecosystem services
- Looking ahead: can long-term data be used to develop models of changes in carbon stocks under different scenarios of climate change, CO_2, fire and herbivory?

4) Madagascar

William Bond
UCT

Malika Virah-Sawmy
PhD and PDRA

Stephan Woodbourne (iThemba)

Matthew Forrest
Senckenberg Institute

Glenn Moncrieff
SAEON

Anneli Ekblom
Uppsala University

Estelle Razanatsoa
PhD and PDRA

Andriantsilavo Razafimanantsoa
PhD

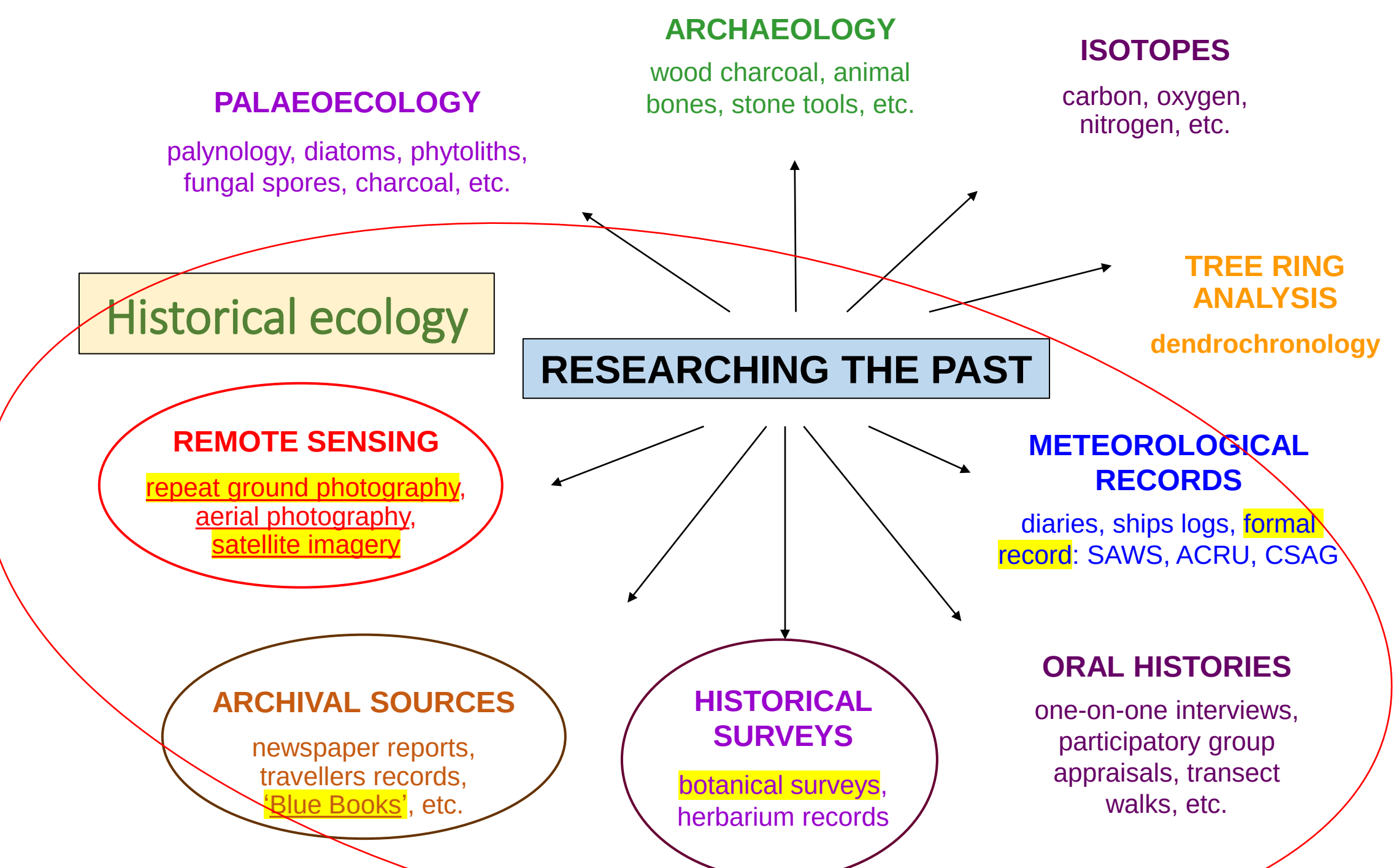
Fetra Randriatsara
PhD

Caitlyn Callanan
Honours

- Whole island forest narrative persists despite increasing palaeoecological evidence for ancient fire –adapted grasslands, heathlands and woodlands
- Palaeoecological sites
  - South-eastern littoral forest fragments
  - Central Highlands – mosaic of forest and grassland
  - Western dry deciduous forests
- Community engagement with conservation, policy and community stakeholders re fire management and forest “restoration”
- Modelling of past ecosystem response to changing fire and climate (LPJ-GUESS and Spitfire)
- → Scenario planning tools (Estelle Razanatsoa PDRF)

Take home messages and applications for Madagascar

- Fire is an ancient component of many Malagassy ecosystems and pre-dates human arrival
- Mosaic ecosystems are typical, reflecting local topography, hydrology and disturbance and suiting different livelihood and conservation strategies
- Anthropogenic impact has impacted on forest and heathland fragments
- BUT: this should not detract from conservation of ancient open grasslands and heathlands. Palaeo can inform appropriate afforestation and restoration
- Looking ahead: vast potential for using palaeo in restoration, afforestation, and stakeholder engagement and climate change predication and adaptation.


ARCHAEOLOGY
wood charcoal, animal bones, stone tools, etc.
ISOTOPES
carbon, oxygen, nitrogen, etc.
PALAEOECOLOGY
palynology, diatoms, phytoliths, fungal spores, charcoal, etc.
TREE RING ANALYSIS
dendrochronology
Historical ecology
RESEARCHING THE PAST
REMOTE SENSING
repeat ground photography, aerial photography, satellite imagery
METEOROLOGICAL RECORDS
diaries, ships logs, formal record: SAWS, ACRU, CSAG
ARCHIVAL SOURCES
newspaper reports, travellers records, 'Blue Books', etc.
HISTORICAL SURVEYS
botanical surveys, herbarium records
ORAL HISTORIES
one-on-one interviews, participatory group appraisals, transect walks, etc.

Coates Palgrave 1876

Pole Evans 1920s

1879-1968

1890-1975

Pole Evans 1920s

Margaret Levyns 1940s

1911-1979

To date we have taken about 2,000 images out of 30,000+ historical photographs in our collection with representation in all of southern Africa's major biomes

Photographers

Sam Jack

Timm Hoffman

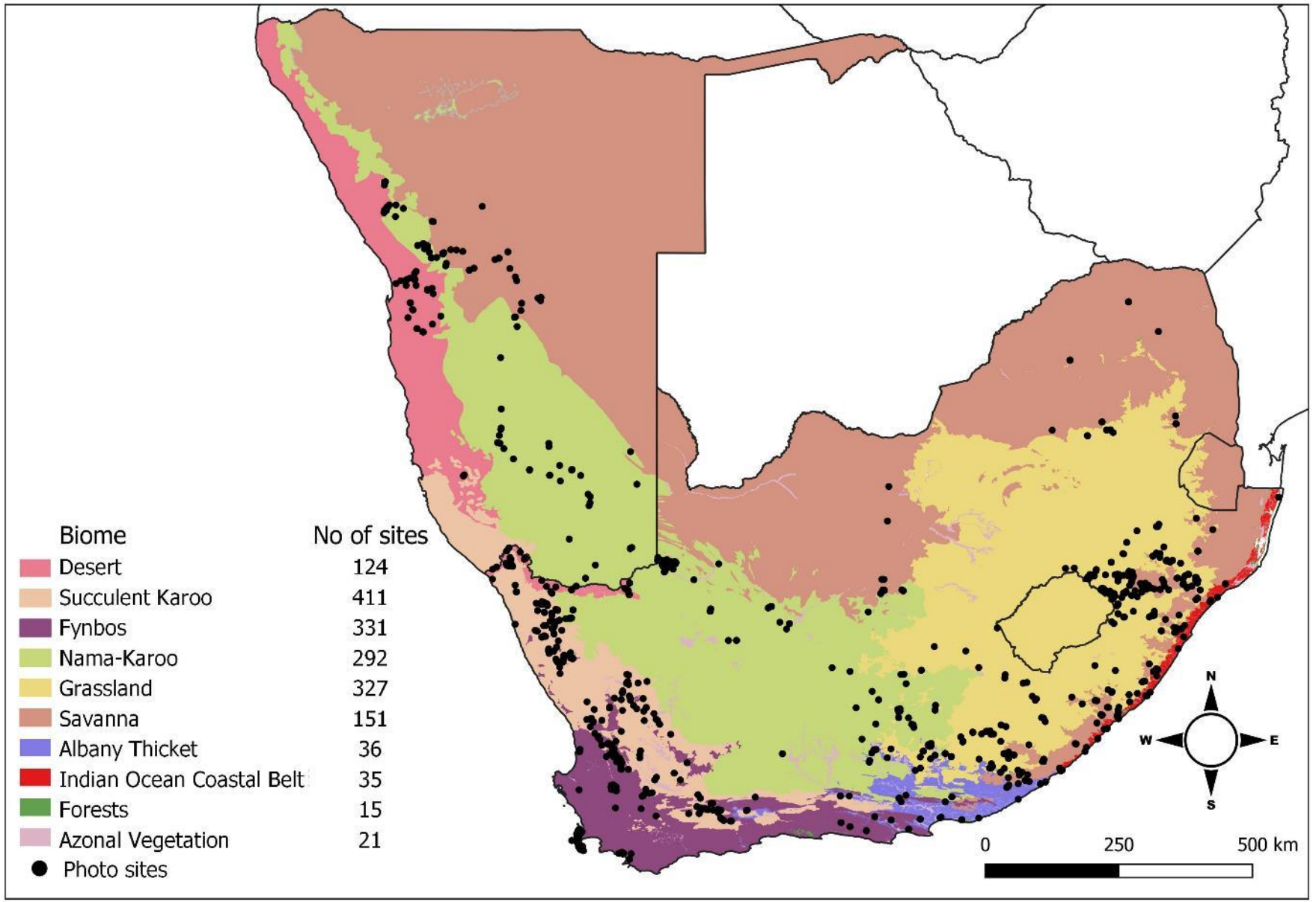
Rick Rohde

James Puttick

Others (e.g. Jen Russell, Dave Ward, Mishak Boshoff, John Watermeyer, Justin du Toit, etc.)

Students

Kate McGrath
Daniela Bonora
Kirsten Gallaher
Prince Kaleme
Mmoto Masubelele
Zoë Poulsen
Brett Reimers
Joseph White



Students (cont.)

Daniel Poultney
Claire Davis
Nicola Kuhn
Robyn Powell
Sarah Muhl
Cosman Bolus
John Duncan
Greg Schreiner
Justin van Blerk
Hana Petersen
Ruan de Wet
Nina Zizzamia
Sebataolo Rahlao
Petra Holden
Amy Murray
Gariela Fleury
Conor Eastment
Gina Arena
Desale Okubamichael
Etc.....

Contents lists available at ScienceDirect

Anthropocene

journal homepage: www.elsevier.com/locate/ancene

Invited Research Article

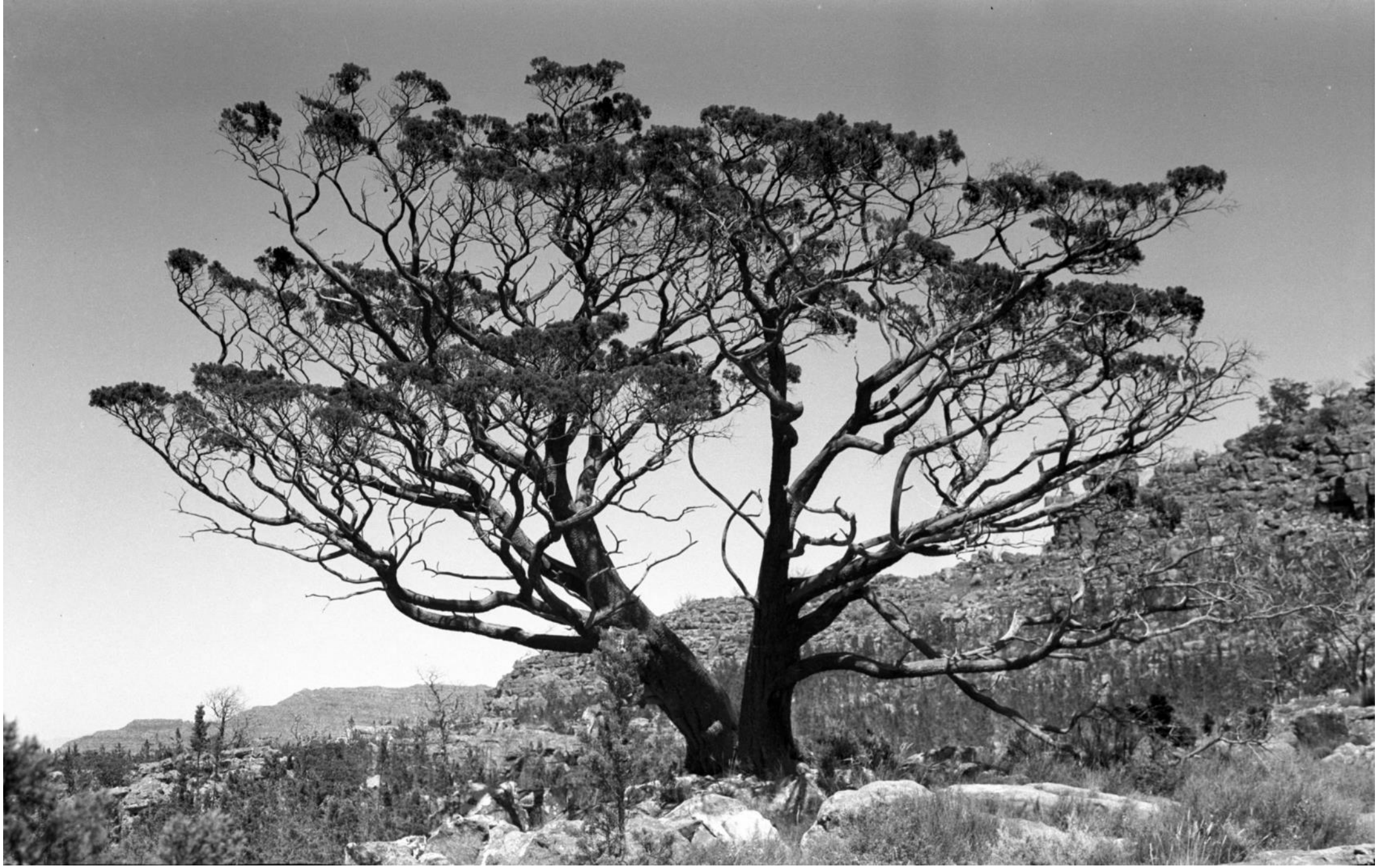
Rethinking catastrophe? Historical trajectories and modelled future vegetation change in southern Africa

M. Timm Hoffman[a,*], Rick F. Rohde[b], Lindsey Gillson[a]

Levyns 1930s

Hangklip, Tanqua Karoo

Hoffman & Petersen 2015



Howes-Howell 1019_Path to Algeria 01 1940/41

White et al. BMC Ecol (2016) 16:53
DOI 10.1186/s12898-016-0108-6

BMC Ecology

RESEARCH ARTICLE Open Access

Collapse of an iconic conifer: long-term changes in the demography of *Widdringtonia cedarbergensis* using repeat photography

J. D. M. White[1,2], S. L. Jack[1,2], M. T. Hoffman[1,2*], J. Puttick[1,2], D. Bonora[1,2], V. Visser[3,4] and E. C. February[2]

Joe White's study of *W. cedarbergensis*

- 87 historical photographs
- Counted 1,313 live trees in the original photos
- 74% mortality; only 3.4% new individuals
- Temperature, elevation, fire frequency & local habitat best explain mortality

Hardeveld bioregion habitat con

wesleydbell.users.earthengine.app/view/hardeveld-bioregion-habitat-condition-inspector

Earth Engine Apps Experimental

Hardeveld Habitat Condition Inspector

Product to display habitat condition archetype values for theHardeveld bioregion of the Succulent Karoo biome in South Africa. Valuesfor five potential drivers of change for the region can also be displayed.

Select a layer to display:

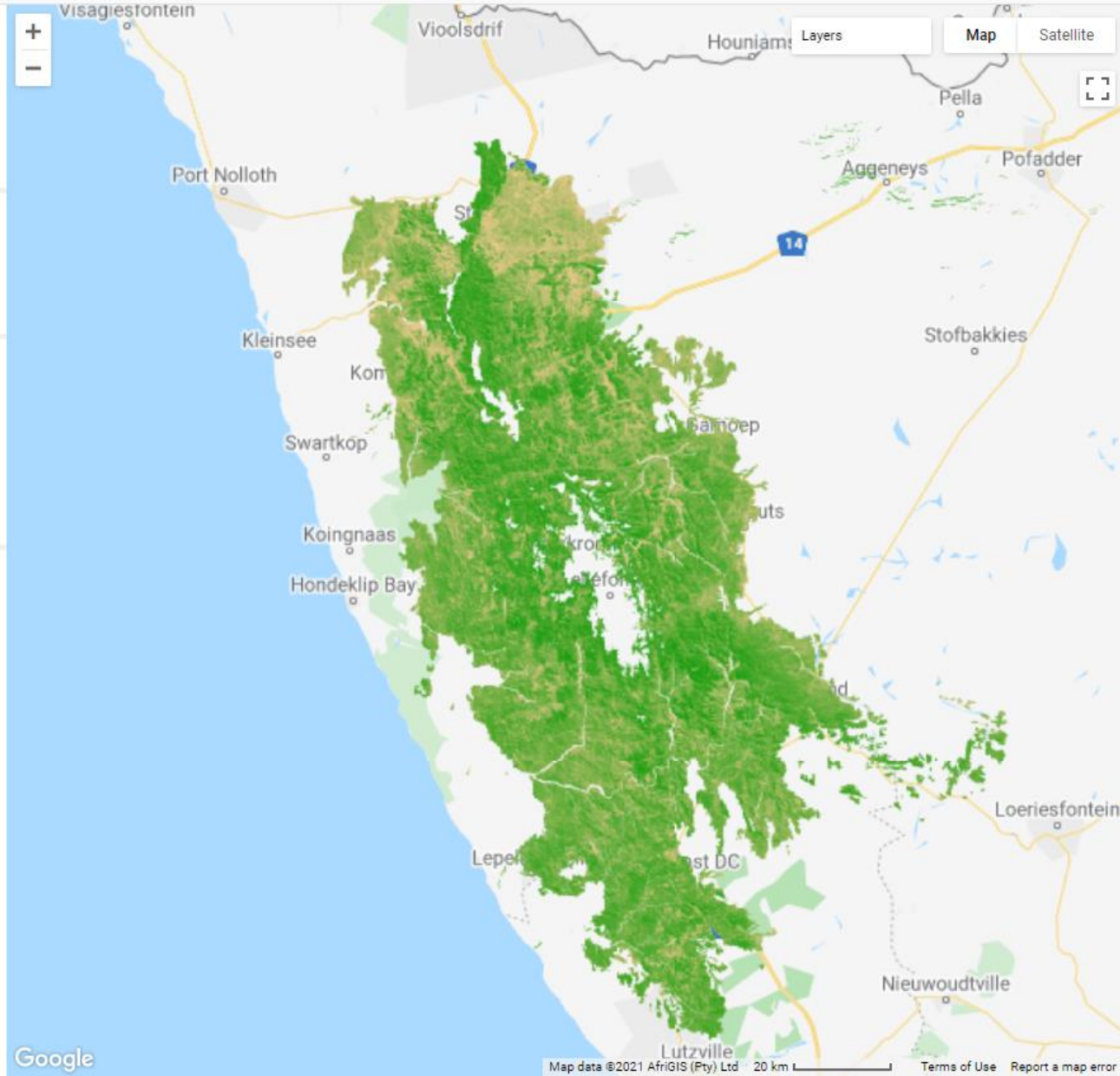
Habitat condition archetype

Click on an area of interest on the map

For accompanying publication, see:

Bell, W.D., Hoffman, M.T., Visser, V., 2021. Regional land degradation assessment for dryland environments: The Namaqualand Hardeveld bioregion of the Succulent Karoo biome as a case-study. L. Degrad. Dev. 32, 2287–2302. https://doi.org/10.1002/ldr.3900

Land degradation assessment



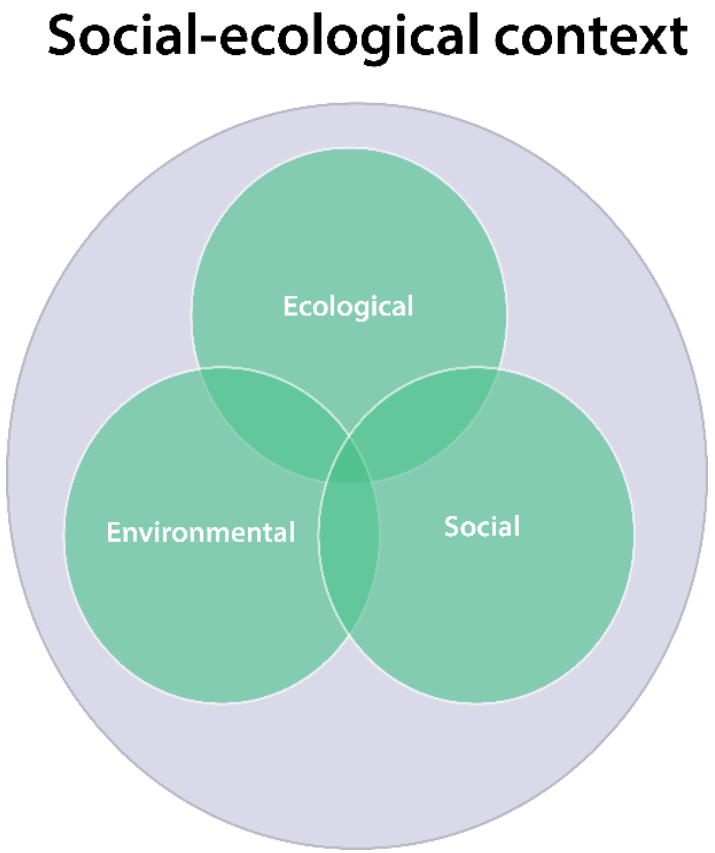
2. RESEARCH

- Summary of outputs
- Quality of research
- Coherence & focus
- Networks & collaborations

Interdisciplinary research collaboration and international networks

- Requires an interdisciplinary approach to understand:
  - the interplay, trade-offs and complexities of competing human, biological and environmental imperatives
  - effect of interacting global (e.g. climate, CO2) – local drivers (disturbance, land-use, grazing).

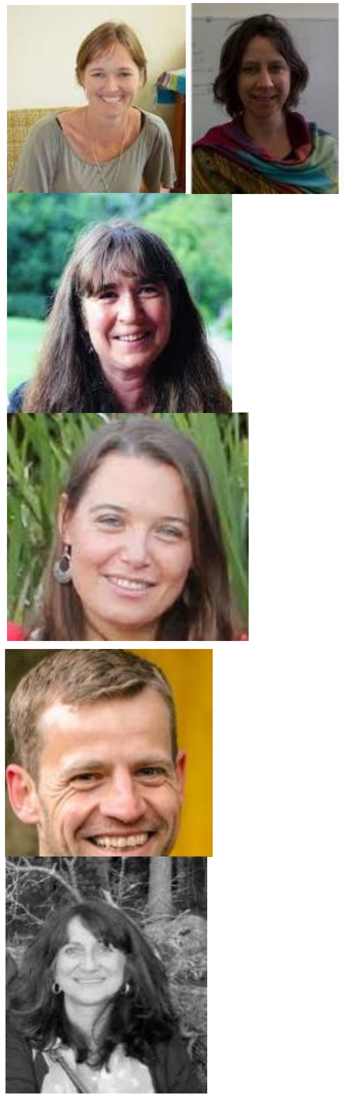
- Landscapes are the scale of observation, where we understand landscapes to embody biological, cultural, historical, environmental, and social aspects (focus for interdisciplinary collaboration)



LINDSEY

Collaborations and networks

PAGES



AUSTRALIAN RESEARCH COUNCIL
Centre of Excellence for Australian Biodiversity and Heritage

ipbes
Science and Policy for People and Nature

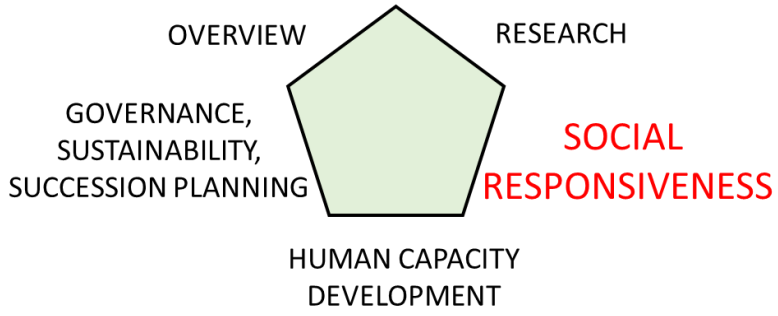
Society for Conservation Biology

SER
SOCIETY FOR ECOLOGICAL RESTORATION

3. SOCIALLY RESPONSIVE RESEARCH & ENGAGED SCHOLARSHIP

- Extent of local engagement & relevance

- The extent of community engagement in disadvantaged communities



Stakeholder engagement and application in Conservation and Ecosystem Management

- Long-term context for interpreting the interaction between climate change and land-use change
- Apply in restoration ecology
- Conservation planning, ecosystem management, adaptive management, fire management
- Resilience, sustainability, adaptation, scenario planning

GROOTBOS Private Nature Reserve

GOURITZ Cluster Biosphere Reserve

CapeNature

South African National Parks

Drie Kuilen

SANBI Biodiversity for Life
South African National Biodiversity Institute

NRF National Research Foundation | SAEON South African Environmental Observation Network

Department of Environment and Nature Conservation
Northern Cape

WWF

Leslie Hill Succulent Karoo Trust (LHSKT)

Agenda Setting

PAGES: encourage palaeoecologists to think more about biodiversity conservation, ecosystems and sustainability

Anthropocene and Frontiers: Mainstreaming of palaeoecology into interdisciplinary studies of the Anthropocene, encourage use of long-term data in conservation

Showcase work of the group and raise international profile

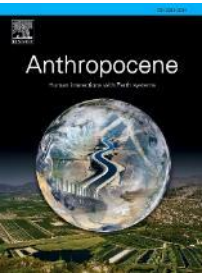
Strategic planning

CABAH, ACDI, SDG Summit: two way learning about how large interdisciplinary projects are structured and managed, how academics can interface with policy

PAGES

AUSTRALIAN RESEARCH COUNCIL
Centre of Excellence for Australian Biodiversity and Heritage

ipbes
Science and Policy for People and Nature




What Are the Grand Challenges for Plant Conservation in the 21st Century?

Lindsey Gillson[1*], Colleen L. Seymour[2,3†], Jasper A. Slingsby[4,5†] and David W. Inouye[6,7]

SDGs AFRICA SUMMIT 2021

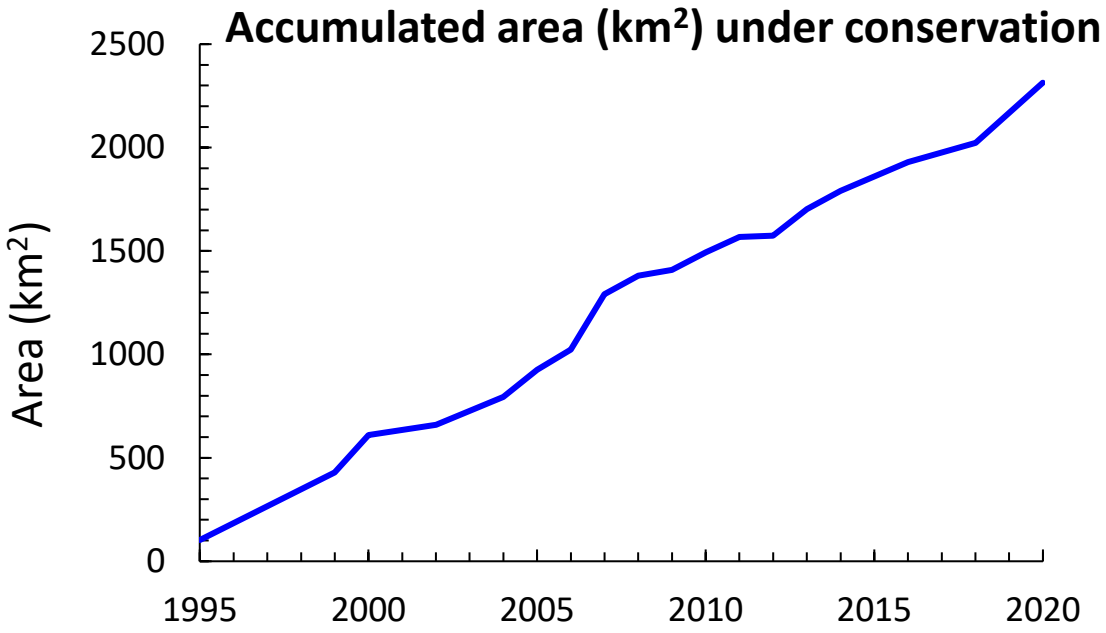
3. SOCIALLY RESPONSIVE RESEARCH & ENGAGED SCHOLARSHIP

- Extent of local engagement & relevance

- The extent of community engagement in disadvantaged communities

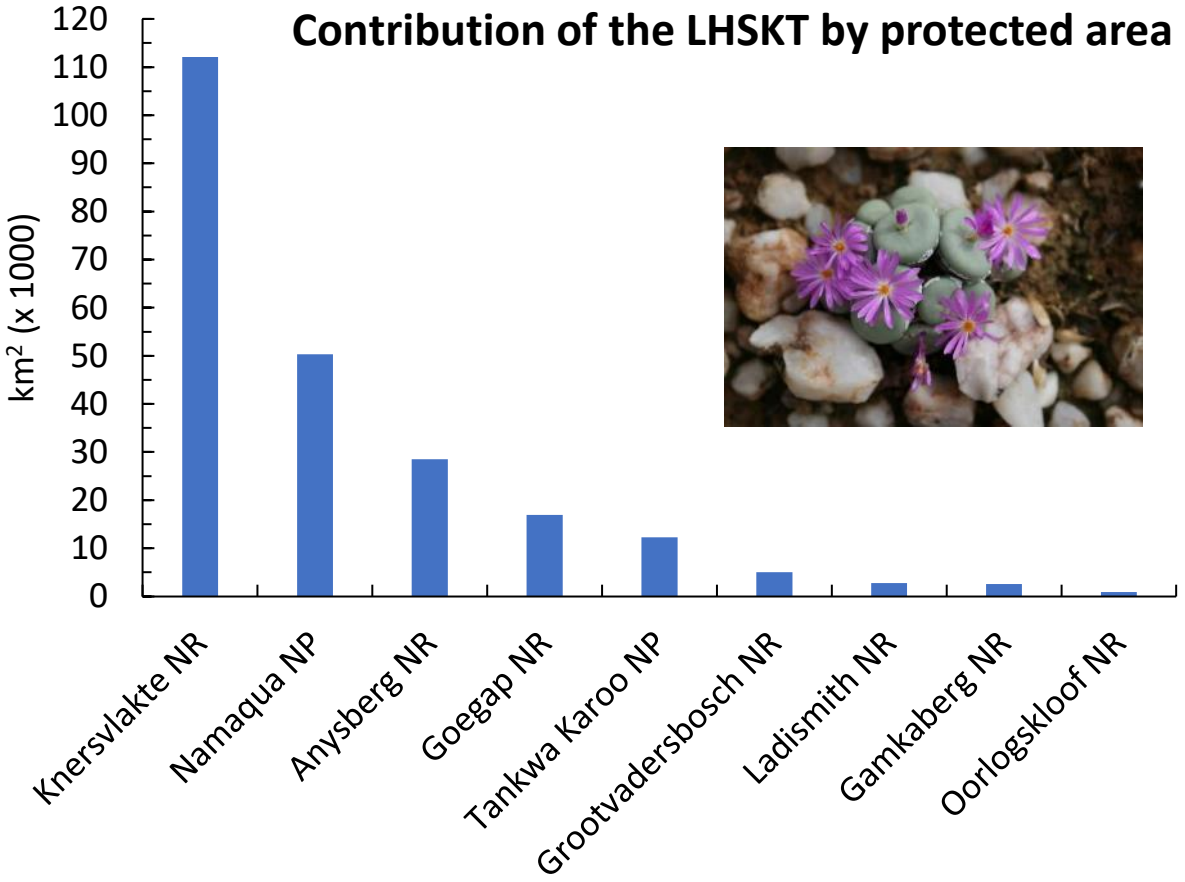
- Leslie Hill Succulent Karoo Trust
- rePhotoSA
- Arid Zone Ecology Forum

Leslie Hill Succulent Karoo Trust



- Established in 1995 – WWF as beneficiary
- OBJECTIVE: "…the preservation, restoration, conservation and promotion of plant species indigenous to the Karoo…"
- Three Trustees (WWF, Leslie Hill Chair of Conservation (UCT), Financial Trustee)

- 231,000 ha of land under conservation management (=33% of all PAs in the SK)
- Doesn't include the ~60,000 ha under stewardship
- Focus on communities, research, partnerships & organisations as well



rePhotoSA

The repeat photography project
of southern African landscapes

Plant Conservation Unit

University of Cape Town • iYunivesithi yaseKapa • Universiteit van Kaapstad

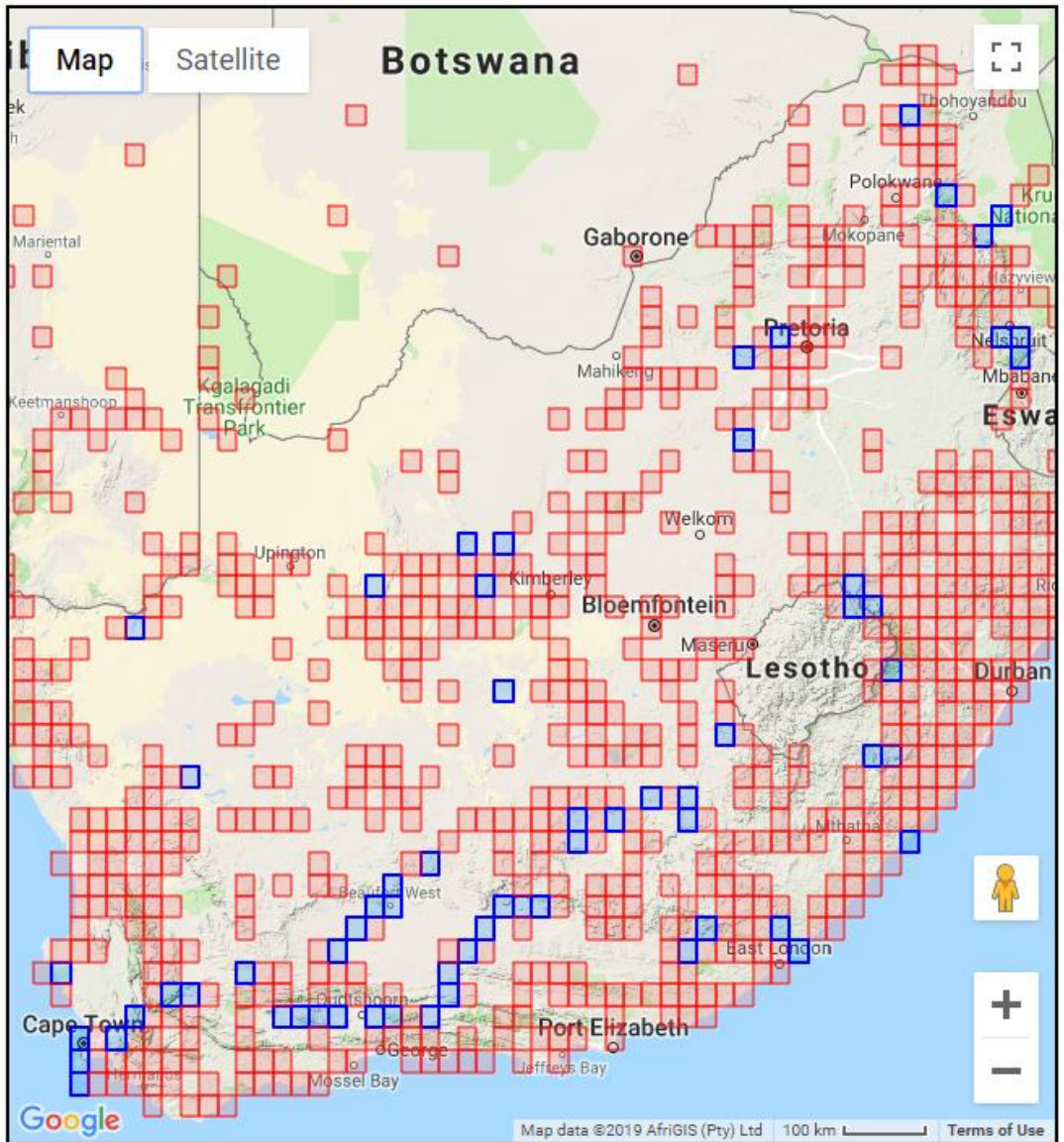
FitzPatrick Institute of
African Ornithology

Additional 282 repeat photographs from citizen scientists

http://rephotosa.adu.org.za

Map showing QDSs with historical photos

To see the photos for a particular QDS, click on the relevant block. RED squares contain historical images only and turn BLUE when repeat images have been uploaded



Hovering over: 3318AA: 1 image & 1 repeat

Arid Zone Ecology Forum

3. SOCIALLY RESPONSIVE RESEARCH & ENGAGED SCHOLARSHIP


Riemvasmaak

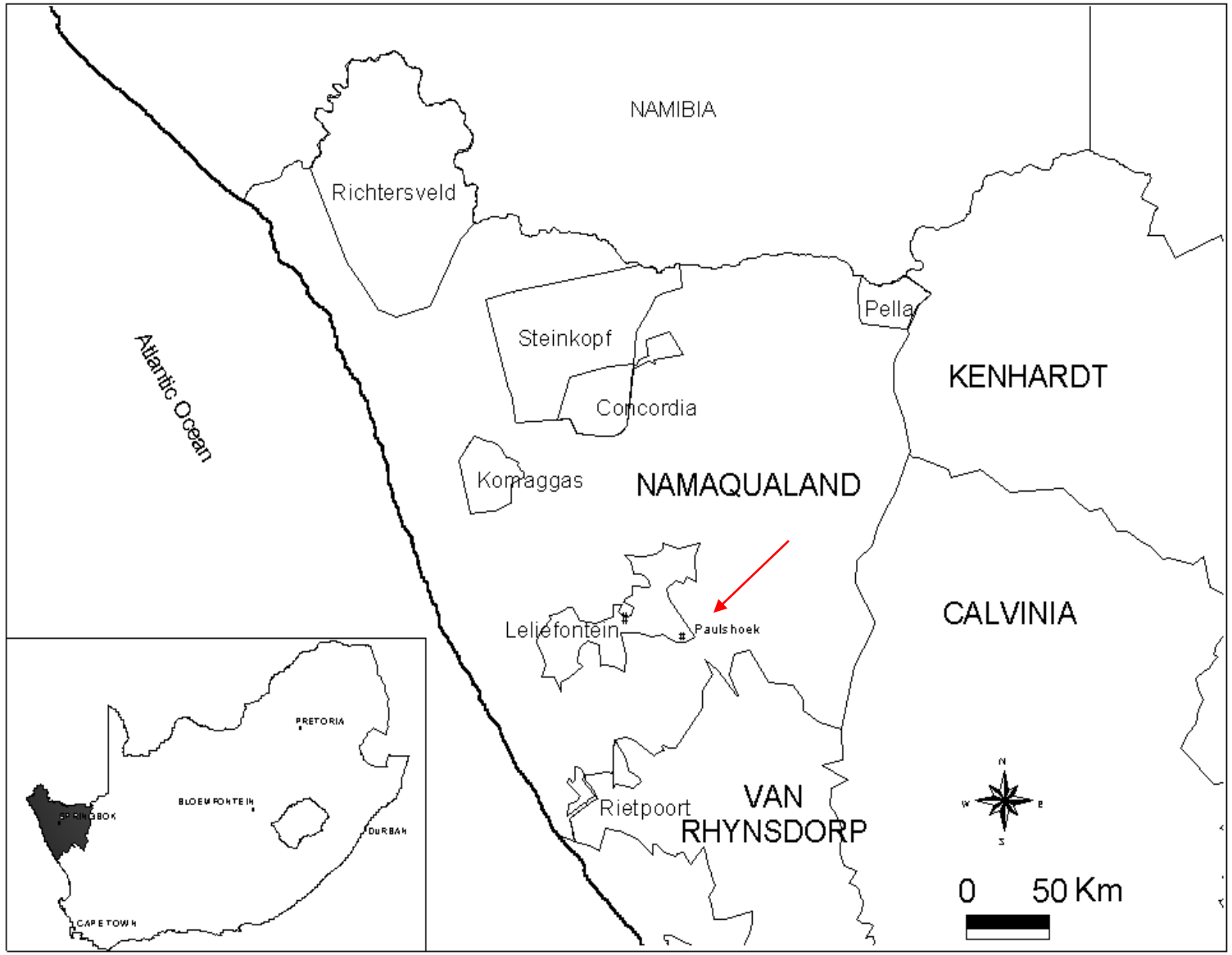
Extent of local engagement & relevance

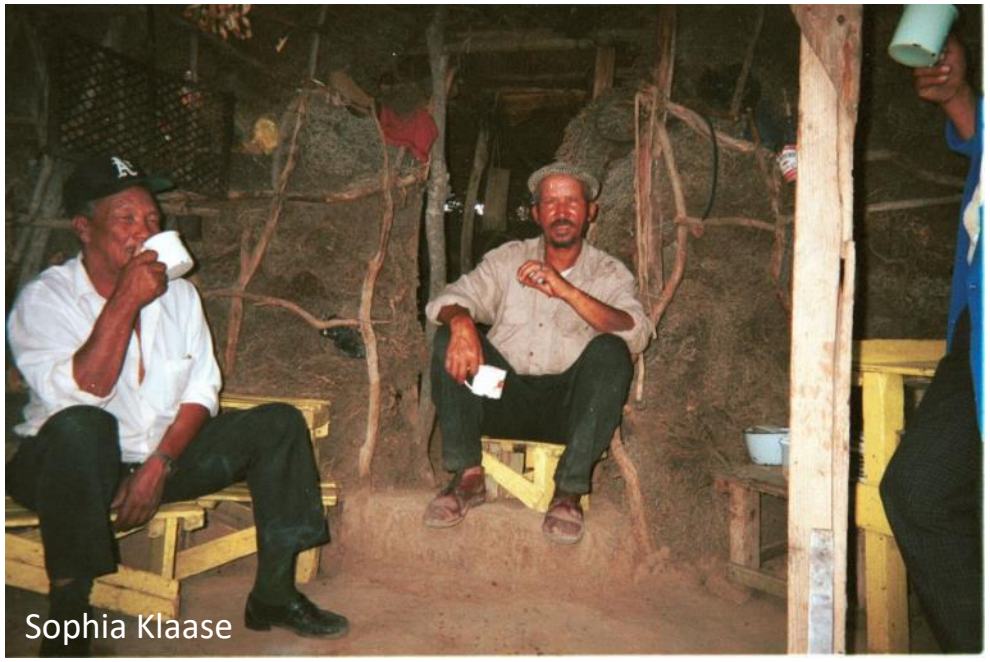
The extent of <u>community engagement</u> in disadvantaged communities

- Paulshoek
- Riemvasmaak

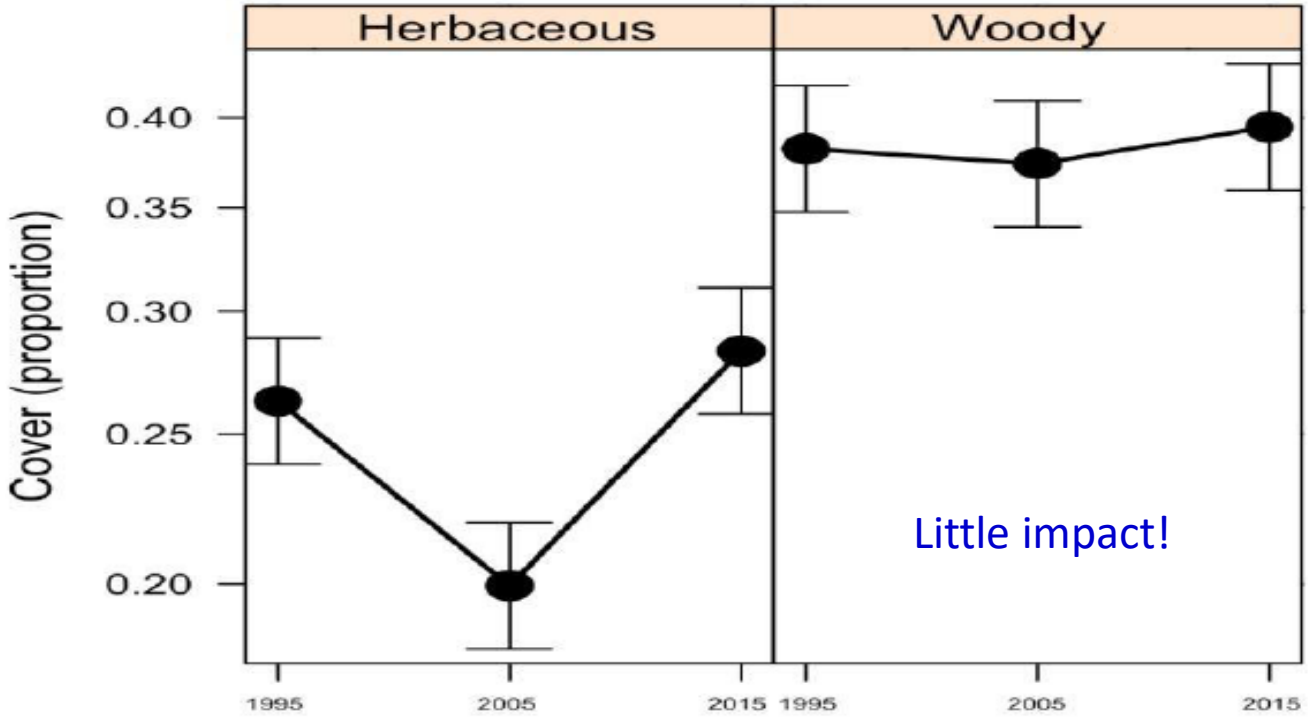

Paulshoek village

Namaqualand's Communal Areas





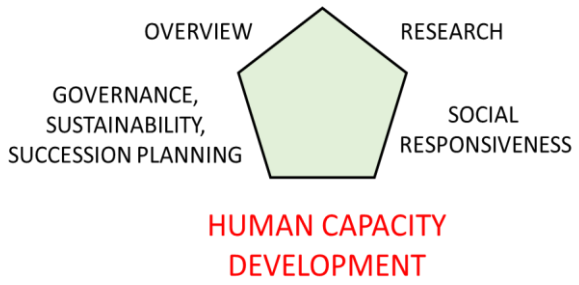
Riemvasmaak – 1st land restitution case in SA



4. HUMAN CAPACITY DEVELOPMENT

Student training & impact on the curriculum

Research culture & capacity development



Teaching and Training

Undergraduate teaching

BIO3013F Global Change

Timm's module "*Global change and its impact in Africa*"

BIO3018F Ecology & Evolution

Timm's module "*African biogeography over space and time*"

BIO3014S Conservation: genes, populations, ecosystems

Lindsey convenes this course and teaches an introductory module as well as one on "*Ecosystem Processes and Management*"

Postgraduate taught courses

BIO 4000W: Honours

'Applied Palaeoecology and Ecosystem Change' (Lindsey)

'The historical ecology of the Cape' (Timm) – field based

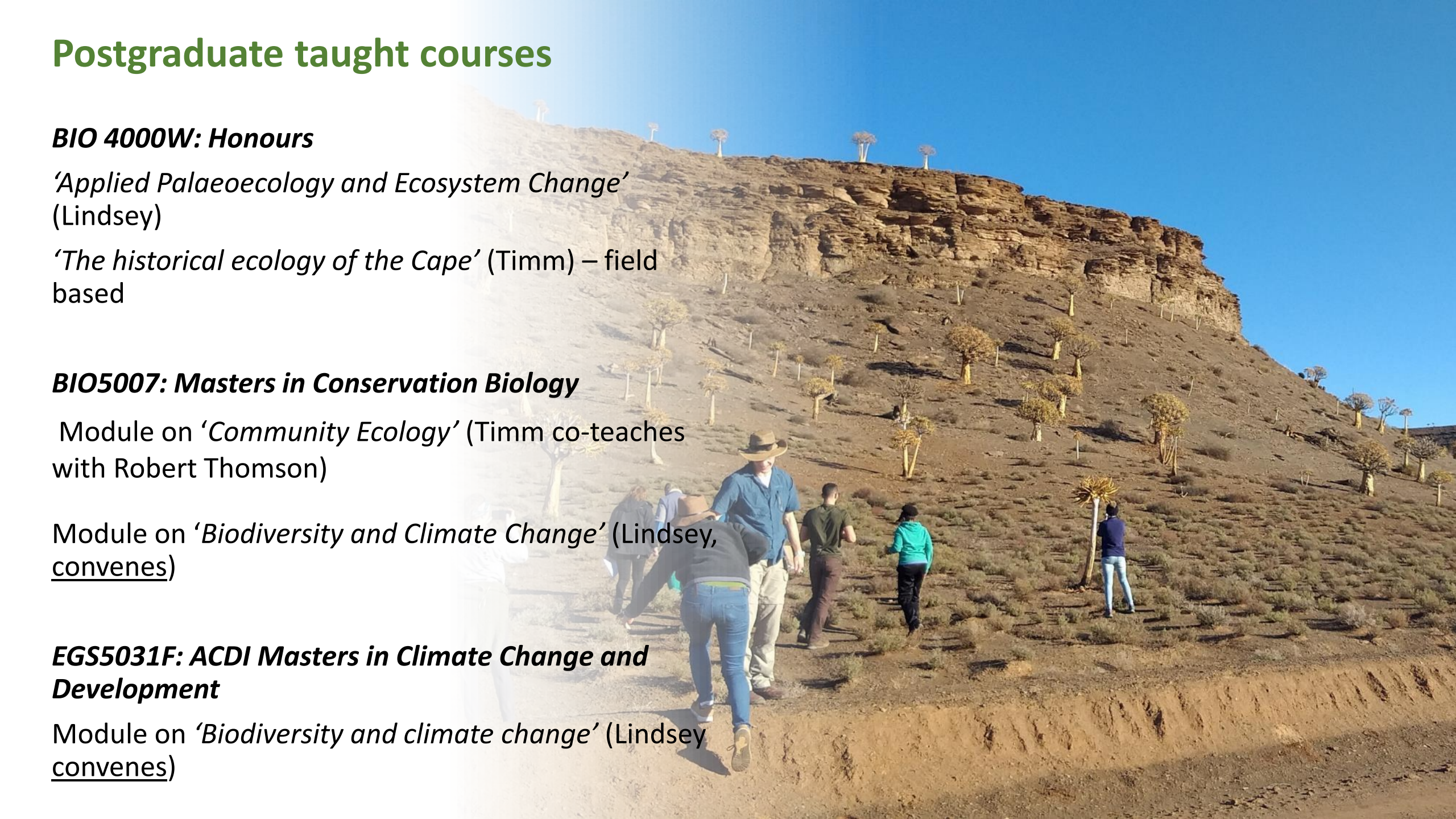
BIO5007: Masters in Conservation Biology

Module on '*Community Ecology'* (Timm co-teaches with Robert Thomson)

Module on '*Biodiversity and Climate Change'* (Lindsey, convenes)

EGS5031F: ACDI Masters in Climate Change and Development

Module on *'Biodiversity and climate change'* (Lindsey convenes)



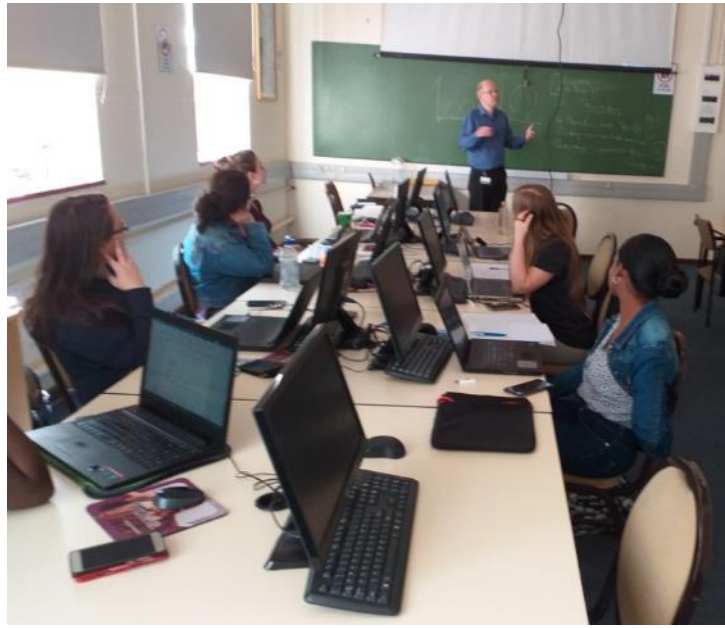
4. HUMAN CAPACITY DEVELOPMENT

Student training & impact on the curriculum

Research culture & capacity development

Research culture and capacity development

- The PCU is currently host to 14 MSc and PhD researchers as well as five Postdoctoral Research Fellows, researching aspects of long-term change and implications for conservation
  - Regular individual supervision meetings, mid-year review and symposia
  - Scientific research methods and writing,
  - Transferable skills that include data analysis, presentation skills, and opportunities to engage with teaching and mentoring.
  - Outside training in the additional skills e.g. GIS, modelling and quantitative techniques.
- Develop the national and international profiles our students through networking, and showcasing at national and international levels



Dr Richard Telford (Bergen University) teaching a course on R for palaeoecologists

Research culture and capacity development

Word cloud produced by the PCU team as part of a workshop that explored our inclusivity aims (2020).

Capacity development

Table 2: *People in the Plant Conservation Unit (2016-2020) according to gender and race.*

Category	Male	Female	White	Black	Coloured
Staff	2	10	6	3	3
Postdocs	3	4	5	2	0
PhD	6	11	9	7	1
MSc	2	4	4	1	1
MSc (minor)	6	3	6	2	1
Hons	1	8	5	2	2
Total	**20**	**40**	**35**	**17**	**8**
%	**33**	**67**	**58**	**28**	**14**

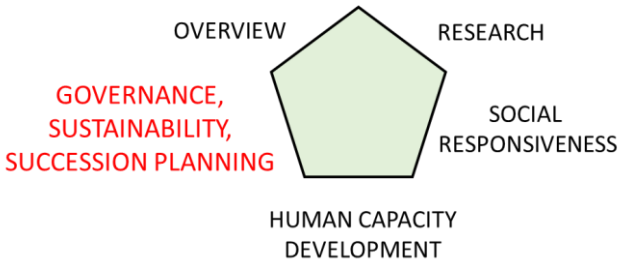
A Diverse Community

- 58% are South Africans
- 22% from neighbouring African countries (Zimbabwe, Madagascar, Botswana, Eritrea, Mozambique, Namibia, Nigeria)
- 20% from Europe (UK, Italy, Spain, Finland) or from USA & Japan

67% are women and 42% are people of colour

5. GOVERNANCE, SUSTAINABILITY AND SUCCESSION PLANNING

- Evidence of sustainable financial practice
- Evidence of effective governance, management & planning
- Prospects for continuation & evidence of a faculty-integrated succession plan



Funding (see Appendix 2)

- Lindsey was successful in her applications for funding to the NRF Competitive Programme for Rated Researchers, African Origins Platform, Global Change Grand Challenge (SASSCAL), SANORD (Southern African Nordic Centre) and UCT's Visiting Scholar's Fund. These applications brought in over R12 million in research funding and have been used to fund postgraduate and postdoctoral research as well as to upgrade facilities in the palaeoecology laboratory and to host international visitors.

- Timm has relied on the Leslie Hill endowment fund (ca. R700 - R800k per annum) to support PCU staff, admin & vehicle costs, and the research activities of the historical ecology group. Also had a few successful applications to UCT's Humanitec project which supported the digitisation of the historical photo collection.

Bottom-line is that the PCU is financially sustainable at current staffing complement and planned research activities for next 5 years


Response to previous five-year review
Response to Covid-19 pandemic
Evidence of effective governance, management & planning
Response to the fire
Research focus, integration & leadership
Succession planning

Infrastructure rebuild and plans for PCU

- The current plant is to redevelop the PCU in its previous location.
- The fire at UCT and rebuilding of the PCU provides opportunities to push for enhanced environmental standards and to look ahead regarding the future of the Unit.
- We are developing plans for a reimagining of the PCU with a broader research focus as part of our succession planning

Research plans 1) Research Focus

- Timm will focus on curating the digital archive and on rePhotoSA and securing the historical archive in perpetuity.
- Gillson will continue building the past-present-future theme centred around Winter Rainfall Region, savannas and Madagascar.
- Continue building skills in quantitative techniques and modelling
- Growing emphasis on scenario planning as data emerges and engagement with stakeholders increases.
- Grant applications submitted (2021, for funding 2022-2024):
  - Competitive Fund for Rated Researchers (EFTEON)
  - African Origins Platform palaeoecological and modelling in relation to ecosystem services and the Sustainable Development Goals

SUSTAINABLE DEVELOPMENT GOALS

Research plans 2: Leadership, upskilling and transformation

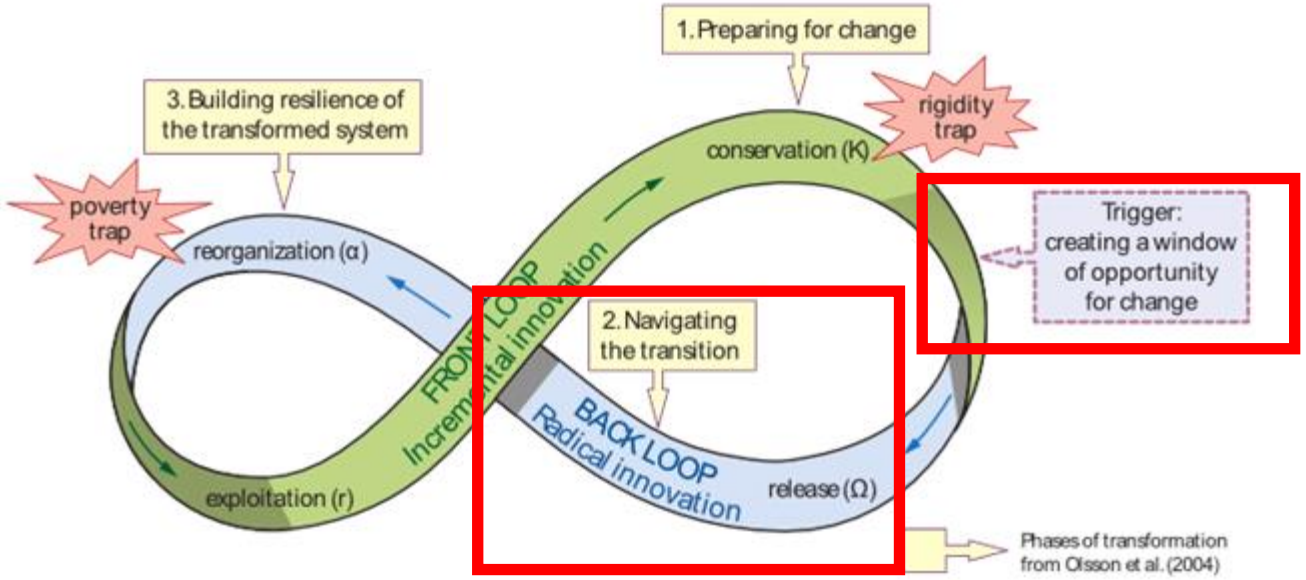
- SMART deliverables (specific, measurable, attainable, realistic and time-constrained) for postgrad and postdoctoral researchers
- Management and leadership skills, inclusivity and diversity, unconscious bias and student mental health (e.g. Mind at Work Training)
- Continued engagement and feedback on inclusivity (PCU members, wider UCT community and stakeholders)
- Engagement with UCT Vision 2030

Governance: Succession planning

Timm will retire at the end of 2023. Focus on digitisation and curation of archives and rePhotoSA in perpetuity e.g. through SAEON

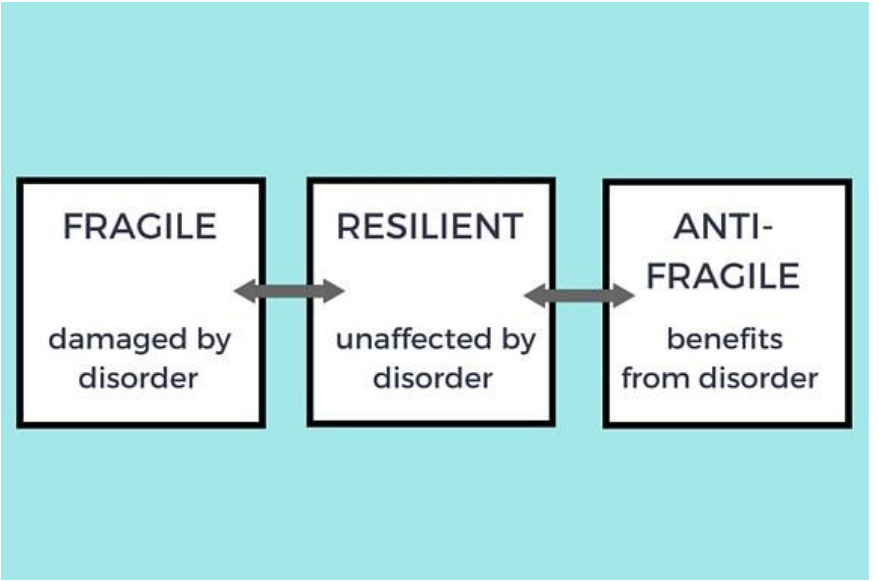
- Plan is / was that Lindsey will apply for the Leslie Hill Chair when Timm retires in 2023.
    - Continue synergy between repeat photography and palaeoecology
    - Working together to ensure that her skills and research programmes are aligned with the requirements of the Chair through growing focus on winter rainfall region
- There will be a new staff member based at the PCU within the next 5 years (either as Leslie Hill Chair or Deputy Director); strategic if this person could have modelling and / or GIS skills, as well as expertise on the botany and ecology of the Winter Rainfall Region.
- Plan is to build the unit into a larger more integrated, interdisciplinary research grouping under the leadership of Gillson, with greater connection to UCT, national and international priorities.

Not all “collapse” is bad



- Adaptive cycles of incremental innovation, conservation, release and reorganization provide opportunities for radical innovation

Prof Phakeng advocates “Anti-fragility”

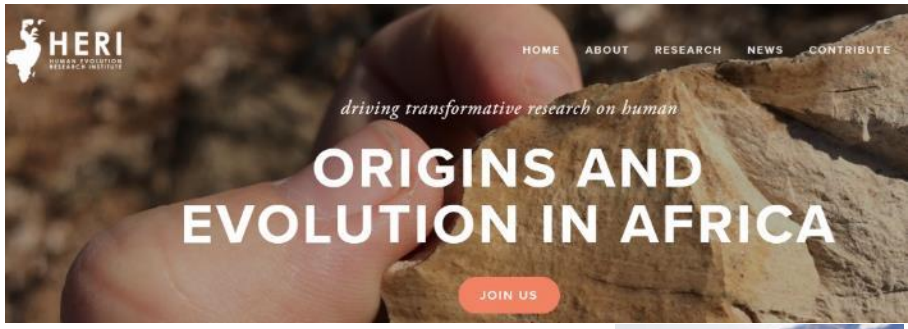


Inspiration

AUSTRALIAN RESEARCH COUNCIL
Centre of Excellence for Australian Biodiversity and Heritage

Australia's Epic Story

Now is the time to tell a culturally inclusive, globally significant human and environmental history of Australia. We like to call it, Australia's Epic Story.



"We do more than just the science though, we are passionate about creating a space that fosters diversity and inclusivity, where the next generation of young African scientists can flourish and do their best work."

The "Seeds of a Good Anthropocenes" project aims to counterbalance current dystopic visions of the future that may be inhibiting our ability to move towards a positive future for the Earth and humanity, by developing visions of potential "Good Anthropocenes" – positive visions of futures that are socially and ecologically desirable, just, and sustainable.

pecs Programme on Ecosystem Change and Society

Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship

"The .. cohort is an incredibly impressive group of womxn. They are the future leaders in oceanography and atmospheric sciences, and I expect big things from them in their future careers,"

oceanWOMxN

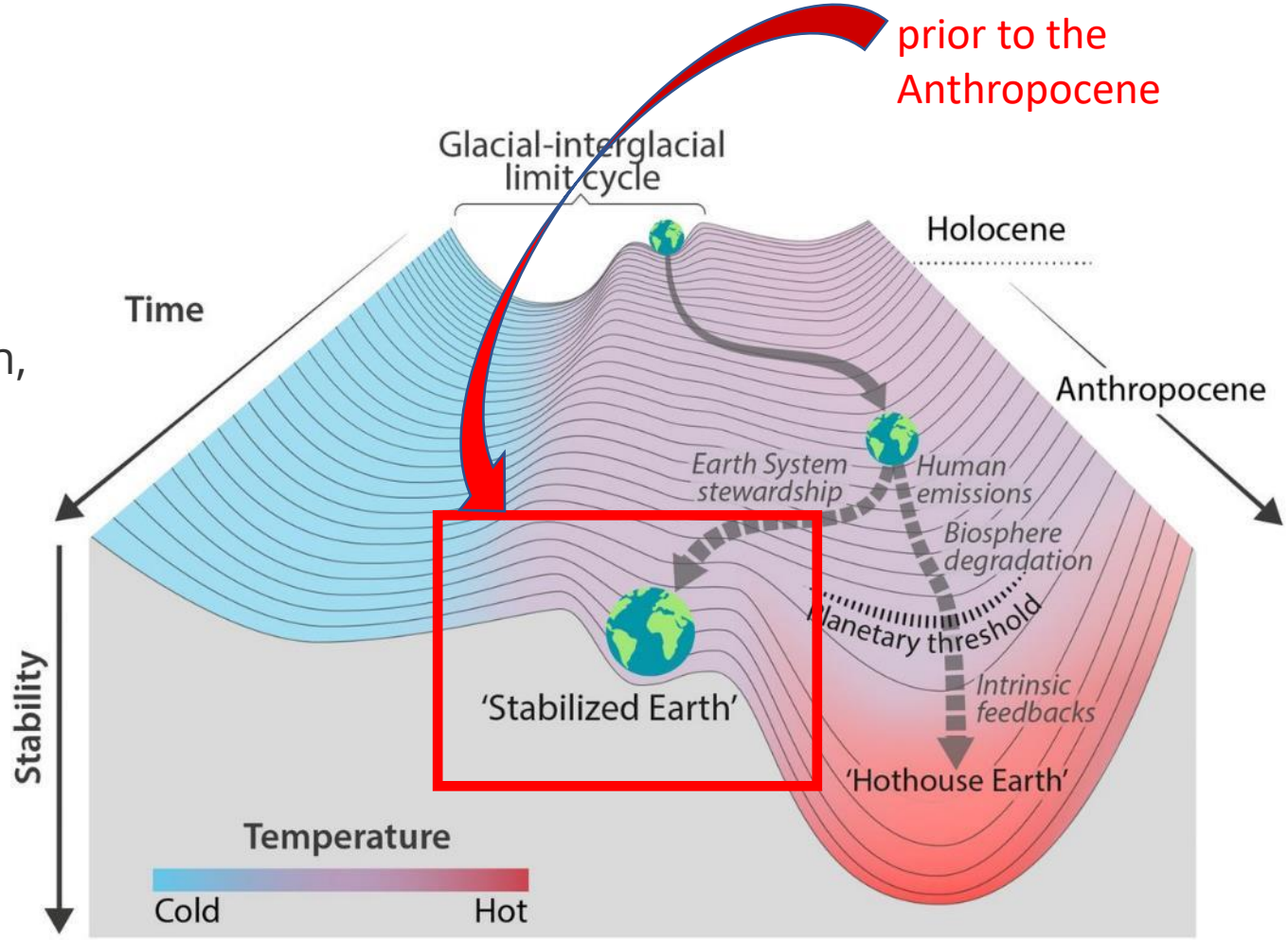
Stabilising the planetary system

To stabilize earth systems we need to understand conditions prior to the Anthropocene

The fork in the road: the Earth System is currently on a “Hothouse Earth” trajectory driven by human emissions of greenhouse gases and biosphere degradation.

The other pathway leads to Stabilized Earth, a pathway of Earth System stewardship guided by human-created feedbacks to a quasistable, human-maintained basin of attraction.

The goal is “Holocene-like” conditions.



Steffen et al 2018

Interdisciplinary Centre for Sustainable Ecosystems in the Anthropocene

- We envision an Interdisciplinary Centre studying environmental change and socio-ecological systems, incorporating long-term perspectives into a past-present-future continuum to inform biodiversity conservation and sustainability.
- Interdisciplinary teams will work together to address urgent concerns over changing ecosystem services, land cover change, biodiversity conservation, and amelioration of the impacts of climate change.
- We aim to understand and help to manage environmental, social and biodiversity change in the Anthropocene, using a past-present-future temporal framework.

Sellberg et al 2021

- The Centre will aim to build capacity, confidence, agency and leadership in young scientists
- Particular focus on African scholars and women in science
- Compassionate leadership

Raworth et al 2017

- Benefits to department in terms of cohesion and direction of research and focus for collaboration
- Alignment with national priorities (African Origins Platform, EFTEON, Transformation)
- Alignment with international priorities (e.g. SDGs, PECS, Anthropocene)

Thank you