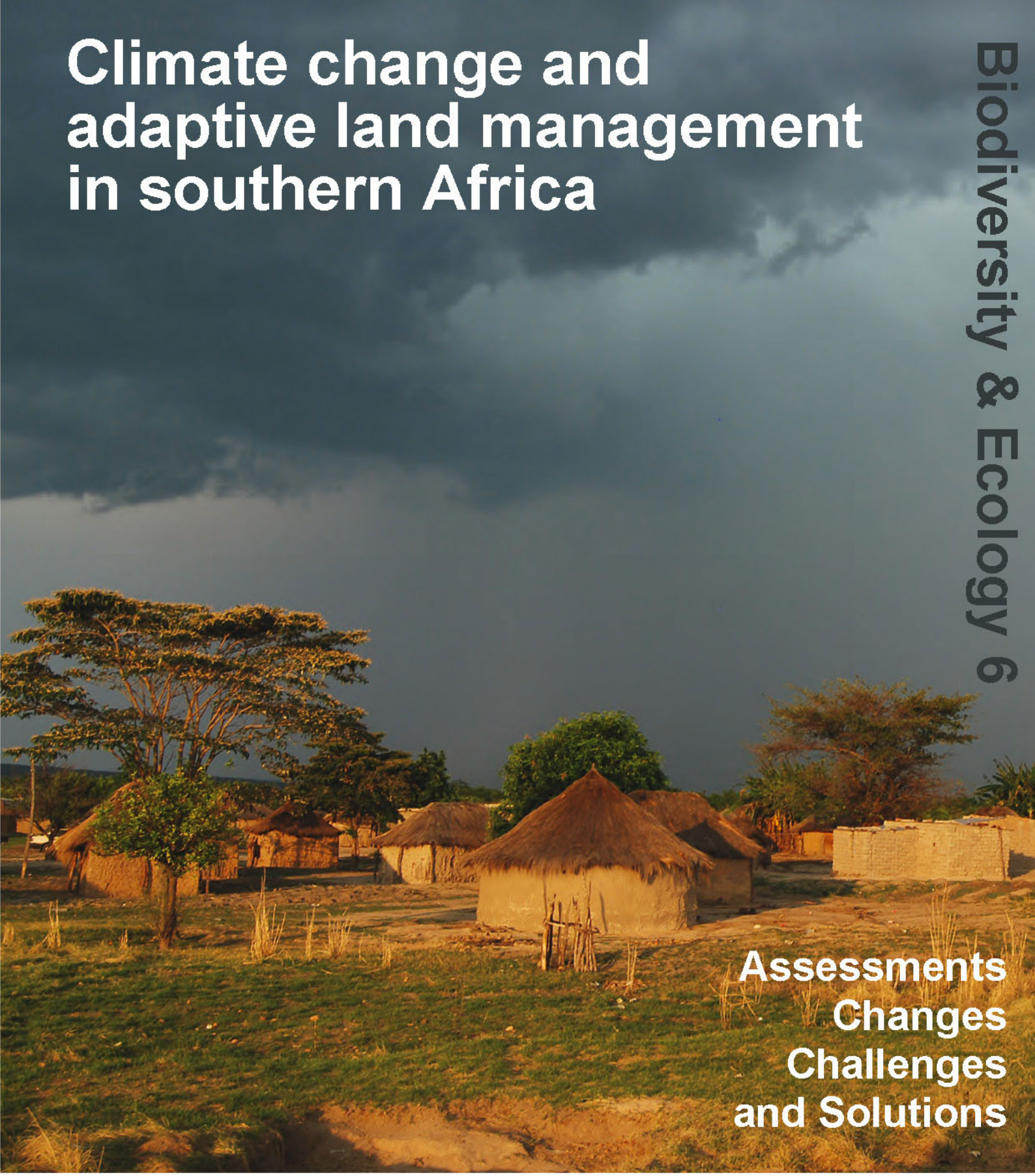
Climate change and adaptive land management in southern Africa

Biodiversity & Ecology 6



Assessments Changes Challenges and Solutions

Product of the first research portfolio of

SASSCAL 2012–2018

Southern African Science Service Centre for Climate Change and Adaptive Land Management

SPONSORED BY THE

Federal Ministry of Education and Research

Klaus Hess Publishers
Göttingen & Windhoek
www.k-hess-verlag.de

ISBN: 978-3-933117-95-3 (Germany), 978-99916-57-43-1 (Namibia)

Language editing: Will Simonson (Cambridge), and Proofreading Pal
Translation of abstracts to Portuguese: Ana Filipa Guerra Silva Gomes da Piedade
Page desing & layout: Marit Arnold, Klaus A. Hess, Ria Henning-Lohmann
Cover photographs:
front: Thunderstorm approaching a village on the Angolan Central Plateau (Rasmus Revermann)
back: Fire in the miombo woodlands, Zambia (David Parduhn)
Cover Design: Ria Henning-Lohmann

ISSN 1613-9801

Printed in Germany

Suggestion for citations:
Volume:
Revermann, R., Krewenka, K.M., Schmiedel, U., Olwoch, J.M., Helmschrot, J. & Jürgens, N. (eds.) (2018) Climate change and adaptive land management in southern Africa – assessments, changes, challenges, and solutions. *Biodiversity & Ecology*, **6**, Klaus Hess Publishers, Göttingen & Windhoek.

Articles (example):
Archer, E., Engelbrecht, F., Hänsler, A., Landman, W., Tadross, M. & Helmschrot, J. (2018) Seasonal prediction and regional climate projections for southern Africa. In: *Climate change and adaptive land management in southern Africa – assessments, changes, challenges, and solutions* (ed. by Revermann, R., Krewenka, K.M., Schmiedel, U., Olwoch, J.M., Helmschrot, J. & Jürgens, N.), pp. 14–21, *Biodiversity & Ecology*, **6**, Klaus Hess Publishers, Göttingen & Windhoek.

Corrections brought to our attention will be published at the following location:
http://www.biodiversity-plants.de/biodivers_ecol/biodivers_ecol.php

Biodiversity & Ecology

Journal of the Division Biodiversity, Evolution and Ecology of Plants,
Institute for Plant Science and Microbiology, University of Hamburg

Volume 6:

Climate change and adaptive land management in southern Africa

Assessments, changes, challenges, and solutions

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Hamburg 2018

Please cite the article as follows:

Hillmann, T, Muche, G., Josenhans, K. & Jürgens, N. (2018) Online presentation of the SASSCAL ObservationNet. In: *Climate change and adaptive land management in southern Africa – assessments, changes, challenges, and solutions* (ed. by Revermann, R., Krewenka, K.M., Schmiedel, U., Olwoch, J.M., Helmschrot, J. & Jürgens, N.), pp. 448-449, *Biodiversity & Ecology*, **6**, Klaus Hess Publishers, Göttingen & Windhoek. doi:10.7809/b-e.00357

Online presentation of the SASSCAL ObservationNet

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A network of Biodiversity Observatories

One of the challenges of interdisciplinary research is to consistently make available the data and products that have been developed in the individual disciplines and to guarantee their long-term availability. For this purpose, the website for the SASSCAL ObservationNet (http://www.sasscalobservationnet.org) was developed.

Biodiversity Observatories have been established as research infrastructures that allow the monitoring of the impact of climate and other environmental changes on biodiversity. Each observatory has a size of 1 km^2 and is subdivided according to the needs of disciplinary research, but all of them follow a standardized sampling design (Jürgens et al., 2012). The observatories are studied by researchers from various disciplines including botany, zoology, agriculture, mycology, climatology, meteorology, soil sciences, remote sensing, anthropology, and socio-ecology. Information on changes in the biosphere will be made available in a similar way, as meteorologists are already able to describe climate change (Pereira et al., 2013). In the frame of the Global Observation System of Systems (GEOSS, https://www.earthobservations.org/geoss.php) and its Global Biodiversity Observation Network (GEO BON, http://geobon.org), such plot-based observation sites are important research infrastructures.

Requirements for an Internet presentation

Presenting the complex data generated by the monitoring at Biodiversity Observatories is a challenge. Each observation, measurement, and visit must be assigned with respect to two parameters, location and time.

Features of the website

The network currently comprises 57 Biodiversity Observatories: 6 in Angola, 31 in Namibia, 17 in South Africa, and 3 in Zambia (Jürgens et al., 2018). Several of these were already established before the SASSCAL era as part of the BIOTA AFRICA project (Jürgens et al., 2010). Therefore, there are data and time series since 2001. As part of the SASSCAL initiative, the work continued on these Biodiversity Observatories, and new observatories, especially in Angola and Zambia, were added.

On the website, each individual Biodiversity Observatory is introduced with an information sheet showing a panoramic photograph and providing general information on the location, the landscape, and basic ecological facts. Additionally, biotic and environmental data and time series available for the observatory are listed (Fig. 1).

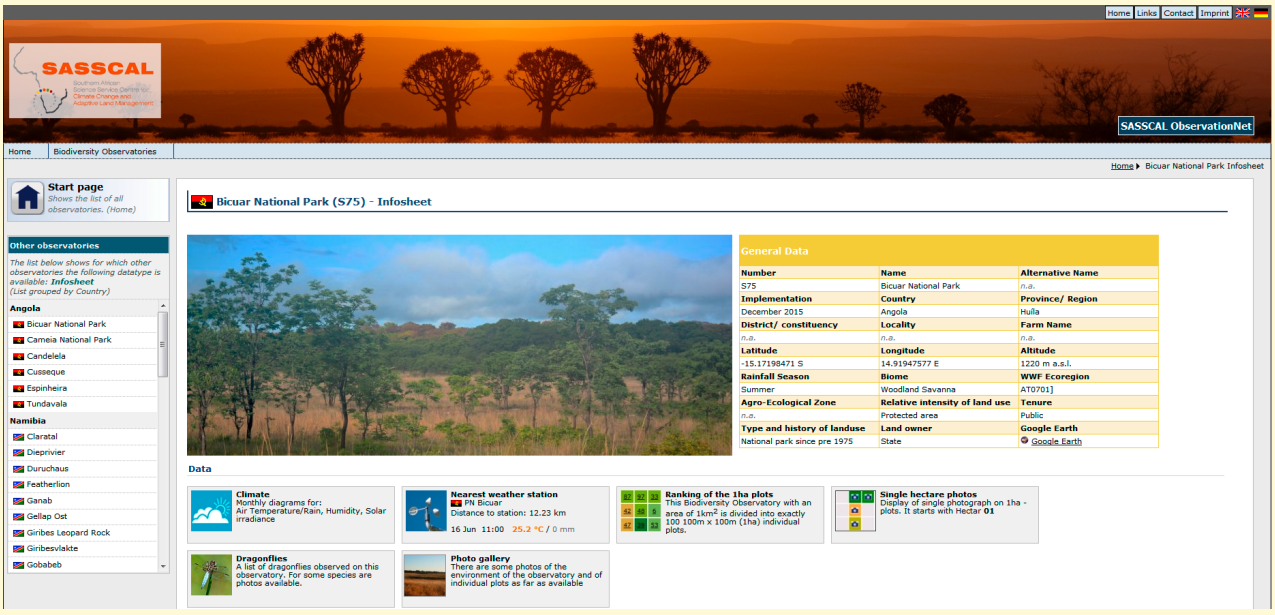

Figure 1: Infosheet for the Biodiversity Observatory, Bicuar National Park.

Different data types such as species checklists, tables, photographs, satellite images, and measurement series are provided (Fig. 2). The weather data offer a good example of how data can be associated to the observatories: Nearly every Biodiversity Observatory has a weather station installed. The SASSCAL ObservationNet website is permanently linked to the SASSCAL WeatherNet website (Muche et al., 2018). This link is used to display the time series of the weather data within the Biodiversity Observatories (Fig. 3).

Another link takes photographs of vascular plant species present at the observatory from the *Photo Guide to Plants of Southern Africa* (Hillmann et al., 2018) and embeds them in the SASSCAL ObservationNet website.

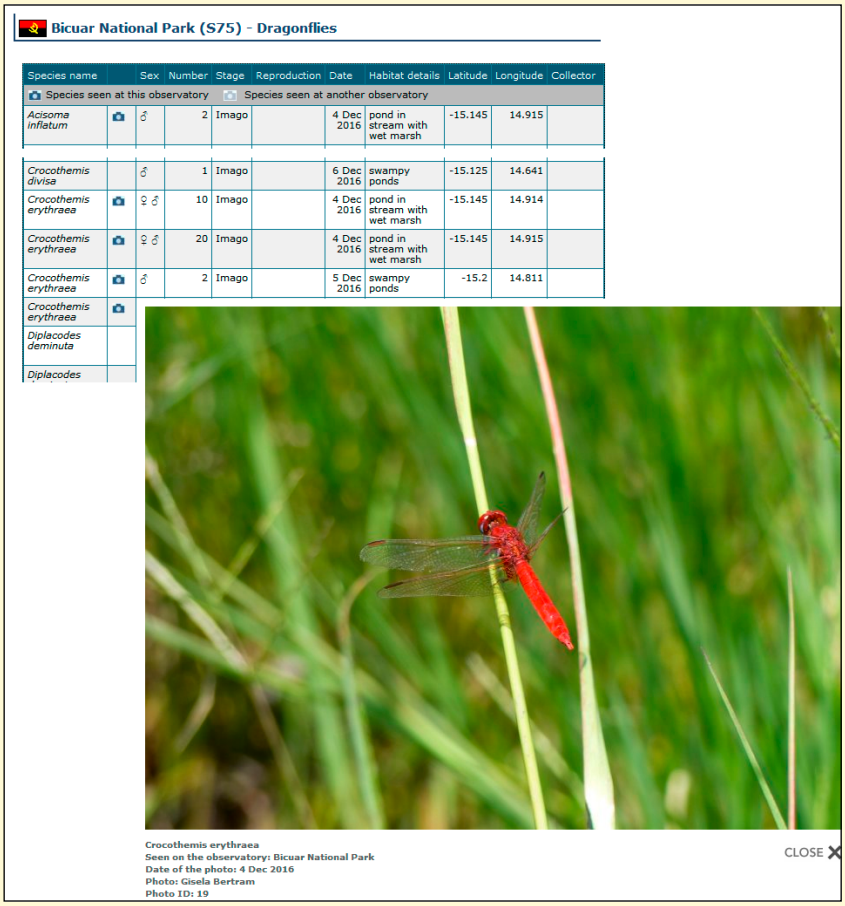

Figure 2: Dragonflies of the Biodiversity Observatory, Bicuar National Park.

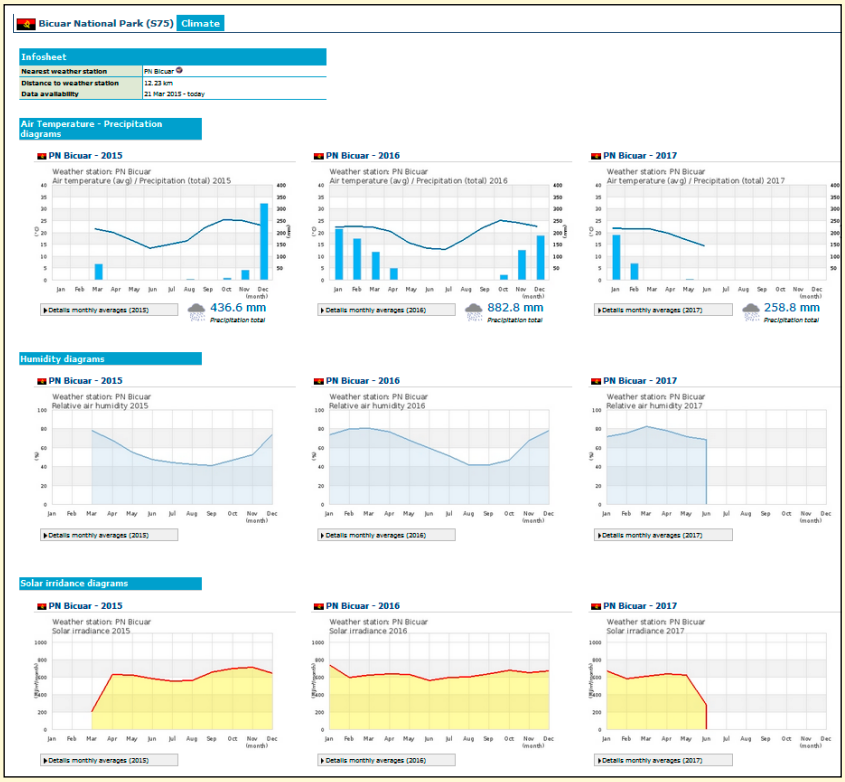

Figure 3: Weather and climate information of the Biodiversity Observatory, Bicuar National Park.

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