

# Leistner's *Seed plants of southern Africa*:

now an interactive, electronic key



The Carrion Flower (*Orbea variegata*), is one of the Apocynaceae species that many would recognise as an 'asclepiad' (family Asclepiadaceae). All 'ascleps' are presently considered to belong to the plant family Apocynaceae since an accepted taxonomic revision and reclassification in 2000. These recent and ongoing changes highlight the need for relatively easily updatable resources such as the online e-Flora.

BY MARIANNE LE ROUX<sup>1</sup> AND COLIN LINEKER, SANBI

<sup>1</sup> E-FLORA SA COORDINATOR, BIOSYSTEMATICS  
RESEARCH AND BIODIVERSITY COLLECTIONS;  
CORRESPONDING AUTHOR (M.LEROUX@SANBI.ORG.ZA)

In 2000, Dr Otto Leistner, who was working as an editor of scientific publications for the then National Botanical Institute (now South African National Biodiversity Institute), compiled *Seed plants of southern Africa* as the tenth publication in the *Strelitzia* series. The publication contains identification keys and descriptions for plant families and genera using vegetative (leaves, stems) and reproductive (flowers and fruits) characters, and directs readers to other sources of information that might reveal a species-level identity. With a bit of practice, this useful resource can provide the basis to tie an unknown or unfamiliar plant to its family and even to its genus.



The online home page of the keys to flora of southern Africa  
 (<http://biodiversityadvisor.sanbi.org/wp-content/themes/bst/keys/e-Key-20160604/Index.htm>).  
 Image courtesy of SANBI.

## BOTANICAL FOOTSTEPS

This important contribution by Dr Leistner updated existing sources and followed in the footsteps of other botanists. The first ever generic treatment for the South African flora was completed by William Harvey in his book *Genera of South African Plants*. Thereafter Dr Percy Phillips produced a similar but updated treatment – *The genera of South African flowering plants*, in 1926 – followed, two and a half decades later, by a second edition in 1951. Dr Robert Allen Dyer in turn revised the treatment by Dr Phillips in his book *The genera of southern African flowering plants* in 1975 and 1976, expanding the coverage to include Basutoland (Lesotho), Swaziland and South West Africa (Namibia). The most recent version, by Dr Leistner, covers the area south of the Kunene, Okavango, Zambesi and Limpopo Rivers (Botswana, Lesotho, Namibia, South Africa and Swaziland), and recognises 252 families and 2,182 genera.

## GET CONNECTED

Visit the *Seed plants of southern Africa: families and genera* webpage:

<http://posa.sanbi.org/flora/browse.php?src=SP;>

access the interactive key:

[http://biodiversityadvisor.sanbi.org/wp-content/themes/bst/keys/e-Key-20160604/Index.html;](http://biodiversityadvisor.sanbi.org/wp-content/themes/bst/keys/e-Key-20160604/Index.html)

or download the complete key to use the offline version:

<http://biodiversityadvisor.sanbi.org/research-and-modelling/identification-keys>

and scroll down to 'Seed plants (families and genera)'.

## DIGITISING DATA

Since no updated version of this publication is available yet, this book still serves as an important source for identification of plants, providing descriptions and some basic information on the number of species, distribution ranges and habitat information that is often used by botanists, conservationists, foresters, university students, and others interested in our indigenous flora.

One major drawback of reference books in general is that they are fairly heavy to carry around in the field and therefore we have initiated a project to digitise the book and to create an interactive key that can be accessed online on a computer. Another challenge is that recent taxonomic changes to genera and even families are not captured in this 2000 print version.

## ACCESSING THE E-KEYS

The information presented online is the same as that which is presented in *Seed plants* but the format is somewhat different, making use of the functionality offered by an online environment. The main menu, located just below the header banner on every page, includes five options:

- **Home:** provides the introduction and background to the original publication, including instructions on how to use and reference the website;
- **e-Keys:** links to four initial identification keys (major groups, gymnosperms, monocotyledons and dicotyledons) which provide access to the interactive keys;
- **Taxa:** offers quick access to information for families (listed alphabetically according to major groups) and genera (arranged alphabetically);
- **Glossary:** a list of botanical terms used in the keys and descriptions; and
- **Contact:** contact information.



If you want to find out more, please do not hesitate to contact the e-Flora programme by email or through our website.

Below: A sample of the extensive key to be found on the online key to plant families of southern Africa. Image courtesy of SANBI.

**SANBI** Biodiversity for Life  
South African National Biodiversity Institute  
INTERACTIVE KEYS TO THE IDENTIFICATION OF SEED PLANTS OF SOUTHERN AFRICA USING KEYS BASED ON PLANT MORPHOLOGY

Home e-Keys Taxa Glossary Contact

### Key to Major Groups

a	<ul style="list-style-type: none"> <li>• Flowers absent</li> <li>• Ovules/seeds borne on scales arranged in cones, or exposed, not in an ovary</li> </ul>	
b	<ul style="list-style-type: none"> <li>• Pollen sacs borne on scales arranged in cones</li> <li>• Trees to woody perennials</li> <li>• Leaves mostly needle-, scale- or palm-like</li> </ul>	GYMNOSPERMS
b	<ul style="list-style-type: none"> <li>• Flowers present</li> <li>• Ovules/seeds enclosed in an ovary</li> <li>• Pollen borne in anthers</li> <li>• Annual herbs to trees</li> </ul>	

a	<ul style="list-style-type: none"> <li>• Flowers with a conspicuous, fimbriate or hairy corona outside stamens</li> <li>• Herbs or shrubs, often climbing with tendrils</li> </ul>	Passifloraceae
b	<ul style="list-style-type: none"> <li>• Flowers without a corona, or corona very small and inconspicuous</li> <li>• Herbs without tendrils</li> </ul>	Turneraceae
a	<ul style="list-style-type: none"> <li>• Stamens variously united, connective of anthers prolonged above thecae into an appendage</li> <li>• Leaves with stipules</li> </ul>	Violaceae
b	<ul style="list-style-type: none"> <li>• Stamens ± free, anthers without an appendage</li> <li>• Leaves without stipules</li> </ul>	Pittosporaceae
a	<ul style="list-style-type: none"> <li>• Gynoecium consisting of 1 carpel, therefore with only 1 placenta in ovary</li> <li>• Leaves with or without stipules</li> </ul>	
b	<ul style="list-style-type: none"> <li>• Gynoecium consisting of 2 or more united carpels, therefore with 2 or more placentas in ovary</li> <li>• Leaves without stipules</li> </ul>	
a	<ul style="list-style-type: none"> <li>• Leaves simple or compound, with stipules or stipular spines</li> <li>• Fruit a legume</li> </ul>	Fabaceae
b	<ul style="list-style-type: none"> <li>• Leaves simple</li> <li>• Stipules absent</li> <li>• Fruit a drupe containing a solitary U-shaped seed</li> </ul>	Menispermaceae

## LITERATURE AND FURTHER READING

Codd, L.E., de Winter, B. & Rycroft, H.B. 1963. *Flora of southern Africa* 26. Department of Agricultural Technical Services, Pretoria.

Dyer, R.A. 1975. *The genera of southern African flowering plants (Dicotyledons)* 1. Department of Agricultural Technical Services and Botanical Research Institute, Pretoria.

Dyer, R.A. 1976. *The genera of southern African flowering plants (Gymnosperms and Monocotyledons)* 2. Department of Agricultural Technical Services and Botanical Research Institute, Pretoria.

Glen, H.F. & Germishuizen, G. 2010. Botanical exploration of southern Africa, 2<sup>nd</sup> edition. *Strelitzia* 26. National Biodiversity Institute, Pretoria.

Harvey, W.H. & Hooker, J.D. (ed.) 1868. *The genera of South African plants arranged according to the natural system* (2<sup>nd</sup> ed.). J.C. Juta, Cape Town.

Leistner, O.A. (ed.) 2000. Seed plants of southern Africa: families and genera. *Strelitzia* 10. National Botanical Institute, Pretoria.

Phillips, E.P. 1951. The genera of South African flowering plants, 2<sup>nd</sup> edition. *Botanical Survey Memoir* 25. Department of Agriculture, Division of Botany and Plant Pathology, Pretoria.