

e-Kapa finds a home on the Internet



Cape Town's lowland ecosystems are extremely threatened. Nineteen percent of the critically endangered Cape Flats Sand Fynbos remains, of which only 0.1% is protected. Education is desperately needed to help people understand and appreciate the value of the small surviving patches of these lowland ecosystems, which have incredible value not only to the citizens of Cape Town but to the world, as these areas contain

many threatened plants and animals that are found nowhere else. For example, most of the 65 plant species that are found only in the city limits and threatened with extinction, are found in these patches.

The Botanical Society and the City of Cape Town have produced an education resource called 'e-Kapa: Cape Town's Lowlands – A Global Treasure'. Alice Ashwell, an environmental educator, wrote the material and Martin Cocks and his team from the International Ocean Institute Southern Africa at UWC converted the text into a richly illustrated resource. Using the resource's comprehensive teacher's guide with its clear curriculum links, teachers may teach many types of lessons, not only in biology but in other subjects such as geography, languages or history. The web-based resource acts as a library of information for the lessons and contains comprehension activities related to the content of each of the ten modules. Although the focus of the resource is the Cape Flats it nevertheless contains a great amount of information relevant to all parts of South Africa.

Although the resource, available in English and Afrikaans at this stage, is aimed at learners in Grades 7 - 9, it is certainly very useful to anybody who wants to know more about the natural environment around them. It is being distributed to schools in the Western Cape through the Khanya Project and is also available on CD-ROM from the City of Cape Town's Environmental Resource Management Department and on the web at <http://ekapa.ioisa.org.za/>.



Home sweet home

ABOVE: A mountain cabbage tree, *Cussonia paniculata*, flowering in the Free State National Botanical Garden.

A flowering Mountain Cabbage Tree, *Cussonia paniculata*, makes a sweet home for bees in the garden as winter approaches

by Tshlidzi Netshisaulu, Interpretation Officer: Free State National Botanical Garden

Don't bee afraid

To most of us bees are only known for their painful stings – making them very scary and as a result we tend to forget the vital role they play in almost every flowering plant's ecosystem.

Bees are adapted for feeding on nectar and pollen, the former primarily as an energy source, and the latter primarily for protein and

other nutrients. Most pollen is used as food for their larvae. Bees play an important role in pollinating flowering plants, and are the major type of pollinator in most ecosystems that contain flowering plants. Bees either focus on gathering nectar or on gathering pollen depending on demand. Bees gathering nectar (using their long proboscis 'tongue') may assist in pollinating plants, but bees that are

WHAT'S IN A NAME?

Latin name: *Cussonia paniculata*
Common names: Mountain Cabbage Tree, Bergkiepersol (Afr.), Umsenge (X, Sw) Umsengembuzi (Z)

The name *Cussonia* was given by Carl Peter Thunberg to commemorate the French botanist Pierre Cusson (1727-1783). The specific name *paniculata* refers to the panicle or branched inflorescence. It is believed that the name 'kiepersol' comes from the Portuguese (Quinta-sol) or Indian (Kitty-sol), words for a parasol or sunshade. The genus has about 25 species of which about eight occur in South Africa.

deliberately gathering pollen are more efficient pollinators. It is estimated that one third of the human food supply depends on insect pollination, most of which is accomplished by bees, especially the domesticated European honeybee.

Where to plant the Mountain Cabbage Tree

Cussonia paniculata occurs naturally inland at altitudes up to 2 100 m. It is often found in rocky places from the mountains of the Karoo and the Eastern Cape throughout KwaZulu-Natal and the Free State into Gauteng and further north. It grows in crevices filled with natural organic humus and compost. It is commonly found near Johannesburg and Pretoria, and is frost-tolerant and drought resistant.

Do you find *Veld & Flora* useful to you as a teacher? Please write to us at info@botanicalsociety.org.za or Learning about Biodiversity, *Veld & Flora*, Private Bag X10, Claremont, 7735



The Red Copper butterfly.
Photo: Steve Woodhall

HOW VELD & FLORA CAN ASSIST YOU WITH TEACHING THE NATIONAL CURRICULUM

Once more we are providing teachers with curriculum links to one of our articles. You will find links to a range of learning areas and ideas about using the information. We hope this will assist teachers to inspire learners in Grades 10 to 12, the Further Education and Training (FET) Curriculum. Pdfs of the *Veld & Flora* articles referred to can be requested from the Editor, *Veld & Flora*, at voget@kingsley.co.za.
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USE THE ARTICLE 'THE RED COPPER AND THE BLACK SUGAR ANT' ON PAGE 90 IN YOUR LESSONS

Aspalathus ericifolia
(Family: Fabaceae)

LIFE SCIENCES

In the strand **Diversity, Change and Continuity** for Grade 10:
Use one ecosystem as an example to discuss the value of biodiversity for the functioning of that ecosystem. LO 2

In the strand **Environmental Studies** for Grades 10-12:
Investigate a local environmental issue. LO 1
Discuss loss of habitat and biodiversity as it would affect:

- the butterflies and ants
- other partnerships in your local area. LO 2

Choose one example of human influence within an ecosystem. Describe the selected human influence and the reason for it having a positive or negative impact on the ecosystem. LO 3

LIFE ORIENTATION

In the **Citizenship education** strand for Grade 10:
Identify and environmental issue, e.g. Loss of open space. Participate in a group project to address the issue. LO 2

For Grade 11:
Participate democratically in a community service that addresses an environmental issue you have identified, e.g. environmental degradation and its possible impact on partnerships referred to. LO 2

For Grade 10:
Evaluate services offered by a community project on a contemporary, local environmental issue and evaluate your contribution to the project. LO 2

LIFE SCIENCES

In the strand **Diversity, Change and Continuity** for Grade 10:
Find out about Linnaeus' role in classification systems and the reason for using Latin. Give examples from the article. LO 3

LANGUAGE

Use exercises in comprehension, style analysis, debating and writing of reports on research done in the Library or on the Internet. LO 2, 3, 4.

LIFE SCIENCES

In the **Environmental Studies** strand for Grade 10:
Describe the Fynbos Biome where the butterfly and sugar ant occur.

Describe the energy flow through trophic levels in a simple food chain using examples of plants and animals from the article. LO 2

Biomes: Investigate other insect-plant or insect-insect relationships in any of the SA biomes you are familiar with (e.g. grassland, Succulent Karoo, Bushveld, etc) LO2

LIFE SCIENCES

In the **Diversity, Change and Continuity** strand for Grades 10 and 11:
Investigate a similar plant-animal relationship in your local area and compare it with the article. LO 1

PHYSICAL SCIENCE

In the **Matter and Materials** strand for Grade 10, under Chemistry around us:
Investigate pheromones – what they are and how insects use them. LO 3

VISUAL ARTS, DESIGN, DRAMA

For Grades 10 to 12:
- Observe a symbiotic relationship
- Illustrate in the form of:
• a life-cycle diagram on a poster
• a story-board for a nature reserve
• a model of an ant colony
- Present, as a drama, to show interdependence in a food web and its possible collapse. LO 1,2,3