



Orange River Blackfly Control

The prevalence of blackflies (*Simulium chutteri*) in the

middle and lower

Orange River Valley

remains a major problem. But, says Dr Steve Mitchell, Director: Water-Linked Ecosystems at the Water Research Commission (WRC), research has brought our understanding of the blackfly to a point where we are able to plan, together with the stakeholders in the Valley, a strategy to manage the pest.

Mitchell, says the fourth project in a series of consultancies has recently been instituted by the WRC. The aim of this project is to develop a programme integrating the available options for controlling the blackfly in the Valley that will be cost effective in the long term and have the lowest possible impact on the economy of the area. The implementation of a successful programme will benefit

the whole community in the Valley including the tourist industry.

AGRI SA

Agri SA Director: Natural Resources, Nic Opperman, says the Onderstepoort Veterinary Institute started to investigate the possibility of controlling blackflies through flow manipulation in 1978. A 66 hour closure of Vanderkloof and Boegoeberg Dams reduced blackfly populations for a downstream distance of 370 and 242 km respectively. Despite the initial success of flow manipulation, rainfall in 1987 and 1988 was higher than in previous years and flows could not be reduced sufficiently low for effective blackfly control. This resulted in one of the worse blackfly plagues along the Orange River in memory. Furthermore, flow-regulation was not a practical control option for most of the Orange River because of the increased dependence of riparian agriculture on a steady water supply, the long

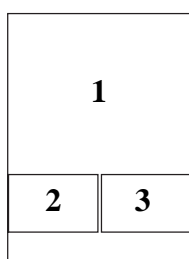
distance downstream of impoundments and the time required for drying-out of rapids.

Following further research, the Department of Agriculture initiated, in 1992, a large-scale control programme using aerial (helicopter) application of larvicides. The programme was highly successful until 2000 and 2002, when serious outbreaks of blackflies were experienced. The outbreaks were attributed to high flows and suspected resistance of blackfly larvae to the organophosphate larvicide *temephos*. The outbreaks had detrimental impacts on the local economy and led to numerous appeals for a long-term solution. This year Agri SA through its affiliates and the Water Research Commission committed funds that aimed "to develop practical management guidelines for integrated blackfly control along the Orange River, based on a combination of chemical and biological control methods, and flow manipulation.

SA SCIENCE LENS 2003

Beauty and excitement of science captured

The front cover of this issue of the *Water Wheel* shows some of the winning entries in the 2003 SA Science Lens photographic competition.



The competition is sponsored and organised by the South African Agency for Science and Technology Advancement (SAASTA), a business unit of the National Research Foundation (NRF).

In 2003 a total of 284 stunning original images from all aspects of science, engineering and technology were received. Three of the winning entries had water as their theme. The winner in the category

Science in Action was Anton Pauw of Simonstown.

All the winning images and runners-up can be viewed at www.saasta.ac.za/sciencelens/winners/2003.

WINNER: *SCIENCE IN ACTION*

Anton Pauw of Simonstown

The spectre and the spectrum (1)

A rare glimpse of the Brocken Spectre at the top of Kogelberg Peak, haloed by a Glory. The "apparition" is named after the Brocken, the highest peak of Germany's Harz Mountains. This phenomenon can be seen anywhere in the world when the right combination of clouds, light and topography allows bright sunshine to project the shadow of the observer through the clouds. The Brocken Spectre, like all shadows, reaches towards

the anti-solar point - the point directly opposite the sun. Under the right conditions, the head of the Brocken Spectre is haloed in glories - rainbow-coloured rings that encircle the anti-solar point. Each observer sees a glory around his own shadow. Glories are formed when water droplets scatter the light of the sun backwards from the anti-solar point. The exact pathway that the light follows is still unknown.

RUNNERS-UP:

- Alan Bucke of Pretoria
Volcanic ice (2)
An ice block melting under blue and white lights.
- Elizabeth Kee of KwaZulu-Natal
Ice crystals on grass (3)
Ice crystals slowly accumulating overnight on blades of grass as a result of a dripping tap.