

**Invasive species: A threat to our unique biodiversity**

Home

Research Team

Program

**Toyota Enviro Outreach**

**Date:**

**15 - 27 April 2012**

**Focus:**

**Invasive Species**

**Region:**

**Cape Floristic Region**

**In association with:**



**Sponsors**



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The aim of the Toyota Enviro Outreach for 2012 is to address one of the biggest ecological challenges in Africa, and globally: the invasion and spread of alien species. Currently there is an alarming uncertainty regarding the future of the world's richest biodiversity hotspots, given that all climate change scenarios predict an increase in species invasiveness. South Africa is currently facing one of the largest problems with invasive plant species in the world, with the Fynbos Biome being a particularly vulnerable vegetation type in South Africa. In South Africa more than 660 alien plant species have become established in natural areas and many are known to be contributing to the widespread transformation of once pristine habitats. Animal species have also established feral populations in the country and have a negative impact on native species. The most drastic impact of invasive animal species have been recorded in South African rivers, where alien fish such as carp and bass have altered habitats and successfully out-competed native fauna. Today at least 60% of South Africa's endemic freshwater fish are threatened. Thirteen snail species have established invasive populations in South Africa. Forty of the 42 major invertebrate crop pests are not native to South Africa. This raises serious concerns about the future of our agriculture and ecosystem-related services. For example, in South Africa, invasions have reduced the value of fynbos ecosystems by over \$ 11.75 billion, the total cost of lost water resources due to invasion is estimated to be about \$ 3.2 billion on the Agulhas Plain alone and the net present cost of invasion by black wattles amounts to \$ 1.4 billion with the cost to clear alien plant invasions around \$ 60 million per year. These alarming figures of impact have led the South African Government to establish the 'Working for Water' programme with the specific objective of managing invasive alien plants to protect water resources and ensuring the security of water supply.

The Toyota Enviro Outreach will start on April 15th at the Klipbakkop Mountain Reserve and will run until April 27th, during which time we will visit several reserves in the western Cape region with the goal to collect specimens from a broad range of invasive and native taxa and to produce DNA barcode records for all of them. Accurate identification of invasive alien species is essential to facilitate planning of eradication, containment and management efforts. It is believed that the most cost-effective approach is to identify and manage potential



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## Previous Outreach



invasive species before they spread. To enable this approach the specimens collected and their DNA barcodes will be available on the Barcode of Life Data Base (BOLD) and enable rapid identification of invasive species in South Africa. In the future border checks may be provided with molecular tools to identify invasive plants and animals enabling prevention of prohibited species entering South Africa.

This project, which aims to safeguard our natural wealth and reduce biodiversity loss, is part of an effort, called the International Barcode of Life (iBOL) project, the biggest biodiversity genomics initiative ever undertaken and led by a team of Canadian scientists.

Additional information:

iBOL project – <http://ibol.org>

Invasive DNA barcoding project – <http://www.acdb.co.za>

Toyota Enviro Outreach 2011 – <http://www.toyotaoutreach.com>

Working for Water – <http://www.dwaf.gov.za/wfw/>

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## 3 comments:

**ROCKY SKEEF** 12 April 2012 at 12:05

ROCKY SKEEF - Deputy Chair of the International Barcode of Life Project (iBOL) Board):

“It is impressive to see the sort of academia-industry-government 3-way cooperation that is evident in the Toyota Enviro Outreach. I believe this initiative will go a long way to exciting young scientists/people on the value of barcoding, and serve as an inspiration for many to pursue the related fields of study. Such partnerships need to be replicated and strengthened. The developing world, including South Africa, being the bearer of a large portion of the world’s biodiversity, would do well to ramp up capacity to ensure that it plays a central role in protecting its native species from invasive ones, through this technique that is high tech, futuristic and efficient. In particular for South Africa, projects such as this one will contribute to advancing the “Global Change” Grand Challenge expressed in the National Ten-Year Innovation Plan (2008 – 2018). We need to continuously remind ourselves that the more barcoding is able to find application in responding to, and addressing everyday societal needs, the more compelling the arguments for countries to invest in the iBOL Project becomes. Leadership ought to continuously encourage scientists to think about, speak about and demonstrate the societal value-add of their barcoding work.”

[Reply](#)

**Philip Ivey** 12 April 2012 at 12:06

PHILIP IVEY – National Coordinator, Early Detection and Rapid Response Programme, SANBI

“The collaboration between Toyota Enviro Outreach and the African Centre for DNA Barcoding with additional funds from Natural Resource Management of the

Department of Environmental Affairs facilitated by SANBI will greatly assist South Africa to reduce the threat of Invasive Alien Species. DNA barcoding of species, that could invade and damage South Africa's rich biodiversity, will facilitate; accurate, rapid and cost effective identification of species that are sometimes difficult to identify. Accurate identification is essential for planning and enforcement of laws to manage particular species."

[Reply](#)

**JESSE AUSUBEL** [12 April 2012 at 12:06](#)

JESSE AUSUBEL - International Barcode of Life (iBOL) Board Chair

"Southern Africa combines unique ecology, outstanding scientists, and world-class institutions such as the Kirstenbosch National Botanical Garden. Prof. van der Bank and her colleagues are sure to make discoveries in the Toyota Enviro Outreach important for the Cape region and for the world. I am delighted to this cutting-edge research is part of the International Barcode of Life initiative."

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