**PL@NTINVASIVE-KRUGER: COMPUTER-BASED IDENTIFICATION AND INFORMATION TOOLS TO MANAGE ALIEN INVASIVE SPECIES IN THE KRUGER NATIONAL PARK, SOUTH AFRICA**

Dave I. Thompson¹,2, Thomas Le Bourgeois³*, Llewellyn C. Foxcroft⁴,⁵, Anne Guezou³, Pierre Grard⁶, Robert W. Taylor¹, Thembisile Marshall¹ & Alain Carrara³

¹South African Environmental Observation Network, Ndlovu Node, Private Bag X1021, Phalaborwa 1390, South Africa;  
²School of Life Sciences, University of KwaZulu-Natal Pietermaritzburg, Private Bag X01, Scottsville 3209, South Africa;  
³Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), TA A/51 PS2, Bv de la Lironde, 34398 Montpellier cedex 5 France;  
⁴Conservation Services, South African National Parks, Private Bag X402, Skukuza 1350, South Africa;  
⁵Centre for Invasion Biology, Department of Botany and Zoology, Stellenbosch University, Matieland 7602, South Africa;  
⁶French Institute of Pondicherry, 11, St.Louis Street, PO Box 33, Pondicherry 605001, India

* thomas.le_bourgeois@cirad.fr

Invasive plant species pose significant biodiversity threats to protected areas, including South Africa’s Kruger National Park (KNP). Habitat diversity and a river network draining invaded, exterior catchments make KNP highly susceptible to invasion. Efficient alien control requires early detection, effective eradication and increased awareness.

**Pl@ntInvasive-Kruger** aimed to develop science-based, computer-driven tools for use by managers, researchers and teams involved in alien plant control. Three tools, supported by an online, multi-user database ( DataManager), result:

i. **PUBLISH**, which returns synthesised species information;  
ii. **IDAO**, a computer-aided plant identification platform;  
iii. **IDENTIFY**, an image recognition system.

**DataManager** allows data control during field campaigns and facilitates collections management. Automatically synthesised data are available through **PUBLISH** as HTML pages, which detail descriptions and imagery of species and include information on ecology, biology and management, and support the identification tools.

**IDAO** constructs unknown species in a step-wise manner based on characteristics selected from schematic, multiple-choice menus, and is compatible across multiple mobile electronic devices. **IDENTIFY** uses image recognition algorithms to guide the identification of images submitted to **DataManager** through a web interface. In both cases the suggested identity is expressed as the similarity of the unknown specimen to type specimen information in the database. Identification can be confirmed using the **PUBLISH** tool. All applications operate from a collaborative web platform (Pl@ntNet), where members also share information and documents and join discussions (http://community.plantnet-project.org/pg/groups/561/plntinvasivekruger/).

Correct identification is difficult and time consuming where large numbers of alien and indigenous species co-occur. **Pl@ntInvasive-Kruger** currently houses information on 400 alien plant species, with the identification tools focussed on ~113 priority species. By assisting with the identification of invasive plant species and facilitating the sharing of information between stakeholders, **Pl@ntInvasive-Kruger** will promote biodiversity conservation in KNP.

This project is a case study of the **Pl@ntNet** project funded by the Agropolitan Foundation.