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

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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.