Supplementary material 1

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Materials used during control of invasive alien plant species

Different tools were used when removing alien plant species, depending on the species in question, namely, a tree popper, strong small weeding tool, secateurs, saw, panga or machete, and large garden fork/pick or pinch bar. Other materials used are available in Table S1. Note that all small herbaceous and woody species were hand-pulled when the conditions permitted. A basket was also used to carry herbicide and a small container with water to soak the herbicide brush. A small first aid kit, notebook, pen, a small towel for wiping hands and plastic bags to put in litter and seeds were also carried in a basket.

Table S1. Materials (tools, gargets and protective gears) used when controlling alien plants in Kloofendal NR and their description. Only tools are marked with asterisk.

Tools	**Description**
Strong small weeding tool*	To dig out herbs and young shrubs (Figure 2a).
Large garden fork, pick and/ pinchbar (gwala)*	To assist in taking out IAPs with a large root system out such as *Lantana*, Pampas grass, *Phytolacca octandra* and *Cyathula uncinulata* (Figure 2b).
Tree popper*	To pull out roots of young trees and shrubs (Figure 2c & 2d). Tree poppers do not work on herbs as they have fleshy stems that break easily when pulling them out.
Secateurs*	Cut branches that are in the way during fieldwork.
Saw*	To cut down large trees when the herbicide is to be applied.
Panga/machete*	To strip the tree, bark around the stem – ringbarking
Leather elbow-high welding gloves	It is used when working on thorny plants such as *Lantana* and *Paracantha* and poison plants such as Bugweed.
Herbicide and paintbrush	The paintbrush is used to apply herbicide on a tree stump.
Android smart cell phone	For recording purposes.

Herbicide application

Herbicide was used on large trees to ensure that the plant was killed ultimately (Waryszak et al. 2018). Woody plants less than 3.5 meters with a stem diameter of 10 cm or less were controlled mechanically mostly using tree poppers. Hand saw and secateurs were used to cut away obstructing branches to free access to work on the plants with the tree popper. Young trees were either ring barked, stripped from knee height down to the roots using a panga or machete. Alternatively, the tree was sawn or cut low down and the herbicide chemical (soluble water Kaput gel), was applied with a paintbrush onto the freshly cut stump of the species registered for this herbicide only. The application and safety instructions stipulated in the producer's manual and safety measures as stipulated by the department of forestry fisheries and the environment (DFFE) (https://invasives.org.za/wp-content/uploads/2022/06/Herbicides-for-Invasive-Alien-Plant-Control.pdf) were followed. The herbicide was applied within 10 minutes of cutting the tree using paintbrush, as prescribed in the instruction of herbicide's manual that we used, to ensure effectiveness, as its potency diminishes if applied later (Waryszak et al. 2018). The used paint brush was kept in a small jar with water to prevent the brush from drying out.

Safety during alien invasive plant clearing

To protect the volunteers or members of the community from dangers that could come with IAPs control, individuals were encouraged to wear welding gloves (i.e., elbow-high, thick leather gloves) when working on species with thorns such as *Lantana camara*, *Solanum sysimbrilifolium*, *Rubus cuneifolius* as well as species that have allergic properties such as *Solanum mauritianum* and *Araujia sericifera*. Individuals were also encouraged to wear masks and protective glasses when using herbicides, including not touching or rubbing their eyes or nose with contaminated hands and to wash their hands after working on these IAPs, as some species are toxic or allergenic. A first aid kit with rubber gloves, cotton wool, gauze, clean water, antiseptic, and plaster was always carried to the field for safety. In addition, during the training, all participants were encouraged to wear clothing that does not attract burs (e.g., *Biden pilosa*, *Cyathula* sp. and grass seeds), such as stretchy material and knitted clothing, when going to the field to control IAPs. They were also encouraged to wear gaiters to cover their socks and shoelaces and not wear leather gloves when working on plants with burs to avoid seed attachment (Smith and Kraaij 2020).

Disposal of Alien and Invasive Plants

Alien plants pulled out were left on site to decompose, except for *Opuntia* and *Cereus* species, which are known to self-propagate and spread. Where possible, fruits and seeds were put in refuse bags (large black plastic bags) and sealed before taken to a garbage disposal site where they were left, expected to decompose safely then burnt at a later stage. Before the physical removal of species such as Pompom weed (*Campuloclinium macrocephalum*), flowers and seeds were removed and placed in bags to rot before safe disposal, as recommended by Klein and Neser (2018) and Spottiswoode (2024). The dry seeds were not incinerated because hot air cause them to become airborne, allowing the wind to carry and disperse them to new locations where they may germinate.

References

Klein H, Neser O (2018) A Field Guide to the Invasive Alien Plants of the Magaliesberg. The Mountain Club of South Africa, Magaliesberg section.

Smith K, Kraaij T (2020) Research note: Trail runners as agents of alien plant introduction into protected areas. Journal of Outdoor Recreation and Tourism 31: 1-6. https://doi.org/10.1016/j.jort.2020.100315

Spottiswoode KL (2024) Invasive Alien & Problem Plants on The Witwatersrand & Magaliesberg. Field Guide https://invasives.org.za/wp-content/uploads/2025/02/AlP3Feb25_KarinSpottiswoode.pdf

Waryszak P, Lenz TI, Leishman MR, Downey PO (2018) Herbicide effectiveness in controlling invasive plants under elevated CO2: sufficient evidence to rethink weeds management. Journal of Environmental Management 226: 400-407. https://doi.org/10.1016/j.jenvman.2018.08.050