



Genetic matching of invasive populations of the African tulip tree, *Spathodea campanulata* Beauv. (Bignoniaceae), to their native distribution: Maximising the likelihood of selecting host-compatible biological control agents

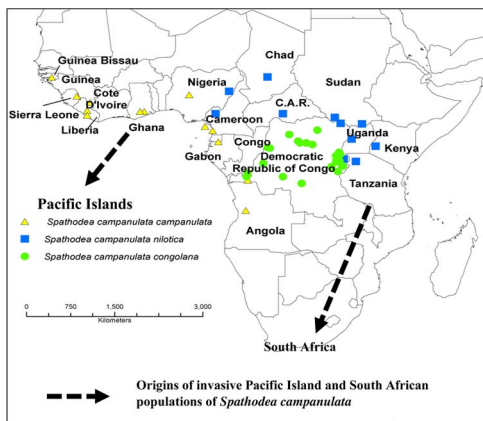


G.F. Sutton^{a,*}, I.D. Paterson^a, Q. Paynter^b

^a Department of Zoology and Entomology, Rhodes University, P.O. Box 94, Grahamstown 6140, South Africa

^b Manaaki Whenua Landcare Research, Private Bag 92170, Auckland, New Zealand

GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:

Agent-weed incompatibility
ISSR
Paradibolia coerulea
Colomerus spathodeae
Local adaptation
Weed origin

ABSTRACT

Spathodea campanulata Beauv (Bignoniaceae) has become a highly damaging environmental and agricultural weed in the Pacific Islands. It has been targeted for biological control due to the costly and inefficient nature of physical and chemical control methods. Determining the origin of weed populations has been increasingly recognised as an important component of successful biological control programmes, and may be important for the biological control of *S. campanulata* due to the high degree of morphological variability within the species, as well as the broad native distribution. Genetic matching, using inter-simple sequence repeats (ISSR's), and morphological data found support for invasive Pacific Island *S. campanulata* plants originating from West Africa. Pacific and West African plants were genetically most similar, and were differentiated from native plants from East/Central Africa by PCA and Bayesian-clustering (STRUCTURE) analyses. Genetic data was corroborated by morphological data which showed that West African and Pacific Islands plants had more sparsely pubescent leaves compared to plants from East/Central Africa. Populations in South Africa, where the plant is introduced but not problematic, originated from a different source population than those in the Pacific Islands, probably in East/Central Africa. A greater sampling effort is required before the origin of the South African populations can

* Corresponding author.

E-mail address: gusutton41@gmail.com (G.F. Sutton).