

SANBI Team Member: tbc

Main University Supervisor: Katelyn Faulkner; Mark Robertson

Region: Pretoria

Level of project: Honours

Working title: The invasion potential of the emerald ash borer (*Agrilus planipennis*) in South Africa

Background

Increasing global travel and trade has resulted in an increase in the number of alien species being transported and accidentally introduced to regions where they are not native. Some of these species have become invasive and have had negative ecological and socio-economic impacts. One such species is the emerald ash borer (*Agrilus planipennis*), a beetle that is native to Asia, but which has been introduced to North America (Haack et al. 2002). This species was possibly transported in infested wood products to North America and has since spread widely (Herms and McCullough 2014). The beetle has caused the death of millions of native ash trees, with the estimated cost of the response to this invasion in the billions of US dollars (Herms and McCullough 2014). Olive trees were recently identified as a host for the beetle (Cipollini et al. 2017), and as South Africa has both native olive species and commercial olive production, the species could pose a serious threat if it is introduced and establishes in the country. Although a rapid analysis has determined that the emerald ash borer is unlikely to pose an invasion threat to South Africa (Faulkner et al. 2014), more in-depth and species-specific research is required to thoroughly assess the threat posed.

Through the use of species distribution modelling and other climate matching techniques (Peterson 2003), the project will evaluate the potential for the emerald ash borer to establish and become invasive in South Africa, and will assess whether a threat will be posed to regions where potential host species grow.

Key contacts

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Further Reading

Cipollini D, Rigsby CM, Peterson DL (2017) Feeding and development of emerald ash borer (Coleoptera: Buprestidae) on cultivated olive, *Olea europaea*. J Econ Entomol 110:1935–1937.

Faulkner KT, Robertson MP, Rouget M, Wilson JR (2014) A simple, rapid methodology for developing invasive species watch lists. Biol Conserv 179:25–32.

Haack RA, Jendek E, Liu H, et al. (2002) The emerald ash borer: a new exotic pest in North America. Newsl Michigan Entomol Soc 47:1–5.

Herms DA, McCullough DG (2014) Emerald ash borer invasion of North America: history, biology, ecology, impacts, and management. Annu Rev Entomol 59:13–30.

Peterson AT (2003) Predicting the geography of species' invasions via ecological niche modeling. Q Rev Biol 78:419–433.