

Pollination of an invasive plant

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The movement of plants around the globe for agriculture, forestry and horticulture has in some cases resulted in the accidental spread of aggressive species into natural communities. These invasive species are considered to be an important threat to native biodiversity. It is very difficult to predict whether a particular type of plant will become invasive, but one of the main factors is whether or not it can reproduce successfully in its new habitat. For those plants that are animal pollinated, the ability to recruit suitable pollinators is clearly important and it is thought that generalised species (which can be pollinated by a wide range of different types of animal) are more likely to become invasive than more specialised species.

In a recent paper in *Journal of Pollination Ecology*, an international team of ecologists has presented a study of an important invasive plant of dry parts of the world, the tree tobacco (*Nicotiana glauca*), a relative of cultivated tobacco. Using previously published data and new results about the floral biology and pollination ecology of this species, the team showed that the invasion success of tree tobacco was not predictable from what is known of its pollinators in its home range in South America. Native populations of the plant are hummingbird pollinated. Elsewhere in the Americas, tree tobacco is also hummingbird pollinated. In regions where hummingbirds are absent but other specialised bird pollinators are available, for example sunbirds in South Africa and Israel, the flowers are pollinated by these birds. However in areas such as the Canary Islands and Greece where there

are no birds with beaks long enough to take the nectar from the flowers, seed is produced by self pollination. Some self pollination also occurs in the native range of the plant but in the invasive range the distance between the male and female reproductive parts of the flowers has evolved to become closer, making self pollination more frequent. The tree tobacco is a successful invasive species outside of its native range, despite its specialised hummingbird pollination system. This study is one of the very few that have compared the pollination ecology of an invasive plant in both its native and non-native ranges. However there are still lots of unanswered questions about how this plant is evolving in different parts of the world. It is hoped that future studies will be conducted by the team.



Figure legend: A sunbird hovering to feed on nectar from the flowers of tree tobacco in Israel. Photo by Idan Shapira