Introduced plants 'becoming Australian'

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Growing in tough conditions, plants become more like natives. This plant was not part of the study.

(PhysOrg.com) -- A number of introduced plant species have become more like natives, suggesting rapid evolution could happen far more frequently than previously thought, according to new research from UNSW.

On the upside, the result suggests plants may be able to adapt to climate change. On the downside, it means that invasive plants will become even more problematic over time.

Using pressed plant specimens from NSW dating back around 150 years, researchers found that the majority of introduced herbaceous plants -- such as clover and wild geranium -- showed significant change since being introduced to Australia.

“When people brought these plants with them from Europe around 100 to 150 years ago, they unintentionally set up a great experiment by exposing the plants to very different climate conditions from the ones they were used to at home,” says lead author Joanna Buswell, who conducted the study as a Master’s student at UNSW.

“This means that scientists are now able to study the way the plants have changed over time in response to their new environment.”

The results of the study, which has just been published in the *Journal of Ecology*, show that significant changes such as plant height and leaf shape have occurred in 70 per cent of the 23 study species. The researchers studied more than 1,900 specimens from organizations including Sydney’s Botanic Gardens for the work.

The changes were surprisingly large, with one species now growing to less than half the height it was 100 years ago, while another species’ leaves are now are now twice the size they were a century ago.

“Almost a third of the plants actually decreased in height, particularly in far western NSW,” says Ms Buswell. “It seems likely that introduced plants are becoming more like natives to survive in their new environment. In a way they are becoming Australian.”

The research suggests that rapid evolution might be a common phenomenon. In Charles Darwin’s time, evolution was thought to occur on timescales of thousands to millions of years.

“This exciting result has important implications for understanding how introduced plants become problem weeds, as well as the way plants will respond to climate change,” says Ms. Buswell. “It could mean that many plants are able to adapt to cope with new climate conditions as the environment changes over time.”

One of the paper's co-authors, Dr. Angela Moles, from the School of Biological, Earth and Environmental Sciences, is now investigating the genetic basis to the changes.

Provided by University of New South Wales