1405-ESRC260 Report showing climate suitability of five pest plants – for Southland

The original PDFs can be obtained from the Envirolink Coordinator

Attached are five PDFs containing the climate suitability maps generated from the five CLIMEX models funded through the Envirolink Stage 1 and 2 Medium Advice Grants. Amy, I will send the shape files in a couple extra emails so as not to clog up your mail system.

You will note that the *Passiflora* model gives a poor fit to the NZ occurrence data particularly in the SI; this is mainly due to a cold-wet stress. The species is very limited in its native range so the model needs to reflect this. When we tried to alter the model parameters to get a better fit to the NZ data (not really an ideal practice), it greatly expanded the predicted distribution in the native range which was unacceptable so we went back with the original model. We believe that the best explanation for the lack of fit in NZ lies in the coarseness of the climate data (10 minutes of arc, or about 13 km at 45 S) which does not allow it to accurately predict occurrences in micro sites. The appropriate interpretation of the model in combination with the data is that Southland is generally climatically unsuitable for this species but that micro sites exist that may be climatically suitable.
CLIMEX model (Sutherst et al. 2007) for *Heracleum mantegazzianum* (giant hogweed) showing how the suitability of the climate for the species’ population growth varies across New Zealand under current climate, and for Southland, under the climate predicted for 2070 using the CSIRO Mk3 GCM and A1B emission (IPCC 2007). The model and the maps were developed by Shona Lamoureaux and Graeme Bourdot, AgResearch, Lincoln. The authors acknowledge funding from MPI under Medium Advice Grants 1306-ESRC 259 and 1405-ESRC 260 and Landcare Research under the Beating Weeds II programme.


CLIMEX model (Sutherst et al. 2007) for Cortaderia selloana (pampas grass) showing how the suitability of the climate for the species’ population growth varies across New Zealand under current climate, and for Southland, under the climate predicted for 2070 using the CSIRO Mk3 GCM and A1B emission (IPCC 2007). The model and the maps were developed by Shona Lamoureux and Graeme Bourdôt, AgResearch, Lincoln. The authors acknowledge funding from MPI under Medium Advice Grants 1306-ESRC 259 and 1405-ESRC 260 and Landcare Research under the Beating Weeds II programme.


**Gunnera tinctoria** (Chilean rhubarb)

CLIMEX model (Sutherst et al. 2007) for *Gunnera tinctoria* (Chilean rhubarb) showing how the suitability of the climate for the species’ population growth varies across New Zealand under current climate, and for Southland, under the climate predicted for 2070 using the CSIRO Mk3 GCM and A1B emission (IPCC 2007). The model and the maps were developed by Shona Lamoureaux and Graeme Bourdôt, AgResearch, Lincoln. The authors acknowledge funding from MPI under Medium Advice Grants 1306-ESRC 259 and 1405-ESRC 260 and Landcare Research under the Beating Weeds II programme.


Passiflora tripartita var. mollissima (banana passionfruit)

The CLIMEX model (Sutherst et al. 2007) for Passiflora tripartita var. mollissima (banana passionfruit) showing how the suitability of the climate for the species' population growth varies across New Zealand under current climate, and for Southland, under the climate predicted for 2070 using the CSIRO Mk3 GCM and A1B emission (IPCC 2007). The model and the maps were developed by Shona Lamoureux and Graeme Bourdôt, AgResearch, Lincoln. The authors acknowledge funding from MPI under Medium Advice Grants 1306-ESRC 259 and 1405-ESRC 260 and Landcare Research under the Beating Weeds II programme.

Tradescantia fluminensis (tradescantia)

CLIMEX model (Sutherst et al. 2007) for Tradescantia fluminensis (tradescantia) showing how the suitability of the climate for the species’ population growth varies across New Zealand under current climate, and for Southland, under the climate predicted for 2070 using the CSIRO MK3 GCM and A1B emission (IPCC 2007). The model and the maps were developed by Shona Lamoureux and Graeme Bourdôt, AgResearch, Lincoln. The authors acknowledge funding from MPI under Medium Advice Grants 1306-ESRC 259 and 1405-ESRC 260 and Landcare Research under the Beating Weeds II programme.
