



Females are grey on the upper surface with just a dusting of blue scales towards the base of the wings. They feed at many kinds of flowering herbs. *Inset:* A larva of the common blue. In spite of their abundance, the caterpillars are seldom seen because they keep amongst clover leaves close to the ground. They have an extremely thick skin which is thought to protect them from the jaws of marauding ants. The skin exudes droplets of a liquid which is attractive to ants and many of the caterpillars of overseas blue butterflies are dependent on ants for part of their lives (not so in New Zealand). All photos George Gibbs.

north Canterbury.

To reconstruct the history of these blue butterflies I am suggesting that unprecedented modification of the New Zealand landscape that began in the mid-1800s extended foodplants and habitat of both these butterflies, bringing them into close association for the first time. I am hypothesising that hybridisation may have occurred where they met and that the outcome of their meeting in most places was deleterious to the endemic blue, leaving behind the more successful common blue, or perhaps hybrid populations in which common blue genes predominated. The net effect of this disruption was the shrinking of territory held by the endemic species as the rapidly expanding common blue took over the North Island and much of the South Island.

There is evidence that the southern blue was previously more widespread than it is today. For instance G.V. Hudson collected it in the Nelson district prior to 1898 but it has not been found there recently. In my

own experience, I have seen the southern blue disappear from the Waiho Gorge river flats below the Franz Josef Glacier over a five year period in the 1980s and in the North Island there are earlier records of *oxleyi*-type individuals from the volcanic plateau and Hawke's Bay.

This scenario poses many questions, some of which we cannot answer with any confidence. An interesting one is how the common Australian butterfly came to be on the spot when this new opportunity arose. I have suggested that it was unlikely to have been present before European settlement simply because it had no known foodplant here but it is conceivable that it existed somewhere and fed upon a native legume.

Perhaps it was shipped across the Tasman Sea amongst stock food (it is, after all, Australia's most common grassland butterfly), or perhaps it was windblown. History is unlikely to give us these answers now. The important point is its ability to intergrade with the southern blue and possibly

threaten its very existence — and here the situation resembles the black and pied stilts where again we are hazy about the early stages of the process.

Many questions of interest to evolutionists and conservationists arise from this survey of the blue butterflies. Is the species replacement hypothesis an appropriate one? Has it reached a stable equilibrium or will it continue to engulf the southern blue entirely? Is the New Zealand common blue identical with the Australian one or has hybridisation produced a different form? Is the altered habitat the prime cause? Should we humans intervene? Would such a course of action indeed be possible? These questions are capable of being researched with the blue butterflies and may have implications for other wildlife issues in this country. 🦋

*Dr George Gibbs is a senior lecturer in entomology at Victoria University and is the author of a book New Zealand Butterflies.*