

zone, especially where the soil is periodically disturbed.

Studies in the control of this weed are proceeding, with limited success. It is hoped that an understanding of the ecology of the weed will aid in establishing an effective control.

THREE FORMS OF *CHONDRILLA JUNCEA* PRESENT IN
SOUTH-EASTERN AUSTRALIA

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Chondrilla juncea (skeleton weed) has been present in south-eastern Australia for over 50 years. In 1966 we first identified three forms of the species from central New South Wales. The forms differ in several morphological characters - rosette leaf shape, inflorescence habit, inflorescence leaf shape, achene structure. Previous taxonomic treatments of the genus have also used these characters for establishing differences between species of *Chondrilla* in Europe. In all experiments on the effects of different environments rosette leaf shape (the major character investigated, as defined by various quantitative indices) remains constant. We conclude that these forms are genetically stable. Chromosome number is the same for the three forms, being $2n=15$.

One form occurs throughout the area of distribution of skeleton weed in south-eastern Australia and it is the form on which all previous studies on control have been done. This form was first identified from the Wagga region in Australia in 1917 and is identical with plants from a number of collections from Europe made in 1968. The other two forms have their present geographic centres in the Cowra-Orange region of New South Wales, where they may have arisen spontaneously or to which they may have been introduced from Europe.

The presence of three forms of skeleton weed in Australia and the polymorphic nature of the species in Europe have added to the complexity of the initial programme for biological

control. Various organisms have been shown to be form-specific in their relation to the host (Wapshere - pers. comm.). It may be that the forms differ in their response to herbicides, but this has not been tested. We have evidence that one of the forms, at present more restricted geographically, has a greater capacity to form new rosettes from cut root pieces than the already widespread form. Recognition of the morphological differentiation reported for the species is considered basic to effective control of the species where all three forms occur in central New South Wales.

For many investigations on the biology of weed species the species level may not be the most suitable taxonomic unit. Ecotypes and subspecies must always be expected to occur and the recognition of taxonomic units below that of species may have a direct or indirect bearing on control of weeds.

ECOLOGY OF *TRIBULUS TERRESTRIS* IN SOUTHERN AUSTRALIA

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Tribulus terrestris (Zygophyllaceae), an almost cosmopolitan plant, is a summer-growing annual weed which is widespread in Australia. Australian population of *T. terrestris* are believed to arise from two sources, an introduced form which is common in southern Australia and a native form common in central and northern Australia.

DISTRIBUTION

The distribution of herbarium material placed under *T. terrestris* is quite extensive ranging from the tropical areas to the southern sea-shores, from the desert of central Australia to the coastal dunes of South Australia. It has been recorded in localities with annual rainfalls from below 5 inches to more than 65 inches. *T. terrestris* appears to be adapted to a wide range