Watsonia Workshop

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Western Australian species of *Watsonia*

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Introduction

Watsonia in Western Australia is an unusual weed group in that there are about eight species of the one genus in the State. A whole suite of species and their variants were introduced as garden plants in the early days of the Swan River Colony.

In their native habitats in southern Africa there are about 52 species of *Watsonia*, 34 of them occurring in the Cape area which has a similar climate to that of south western Australia. *Watsonia* species are difficult to classify and name until the task was made easier by a comprehensive taxonomic revision published in 1989. Before this date, South African taxonomists recognized from 10 to 72 species. A major reason for this variation in number, apart from nomenclatural confusion, redefinition of species limits and morphological variation, is that some species freely hybridize.

The first settlers en route to Western Australia called into Cape Town and selected species, varieties and probably hybrids of *Watsonia* to grow in the new colony. It seems when some of these became established they hybridized, leading to the present-day difficulty in applying names to the species now naturalized here. Nevertheless we know that at least four "species" are rampant weeds and impact on nature conservation in this State.

There are few weeds out of the 800 or so species recorded for WA which are like *Watsonia.* In the case of most weeds, there are one or two, rarely three species of the one genus which are introduced to the State. This is not the case with *Watsonia* where up to eight species have been listed. Not all of these are naturalized but we have little information and there are many taxonomic problems, that is, problems with consistently applying names to the species.

How and when did watsonias come to WA?

The characteristic of *Watsonia* which brought so many species to this State is that they have very attractive flowers. In January 1830, en route to Fremantle, when travellers to Western Australia called into Cape Town, Georgiana Molloy spent £7 17s 6d on seeds from the Cape, among them oleanders, Cape gooseberries and a pink lily, the *Watsonia.* Many of the seeds came from a friends cottage at Rondebosch four miles from Cape Town according to the interesting book 'Portrait with Background', on the life of Georgiana Molloy written by Alexandra Hasluck.

Of course not all our watsonias probably came from Georgiana Molloy, but her introductions to Augusta and probably Busselton in the moist south west corner of the State, were made over 160 years ago. It is likely that watsonias came to Western Australia from a number of sources right up to recent times. I believe some species were being offered for sale in a Perth chain store recently. Cape plants were very popular in Europe from the late 1700s and members of the family Iridaceae were most suited to greenhouses. So, some of our species could have come from South Africa via Europe with settlers who arrived in Western Australia well after Georgiana Molloy.

There are 52 species of *Watsonia* recognized in a comprehensive treatment published in 1989 by Peter Goldblatt who has reviewed all of the species described since the first one was published in 1754. The type of study made by Goldblatt, systematic research, entails the detailed examination of herbarium material and literature to detail the species which have been described as *Watsonia* or even other genera, to determine their diagnostic characters and then to circumscribe them and provide a key to enable identification.

The flower structure itself provides the main characters for taxonomic studies because flowers control reproduction and they are assumed to have constant structure within each taxonomic grouping. But other characters such as inflorescence type are used to distinguish *Watsonia* from its near relatives and the individual species of *Watsonia* from each other. To understand the taxonomy of *Watsonia* we need to understand some terminology. For example, the flower, meaning the petal-like organs, make up the perianth and it is the shape, arrangement and colour of this organ which helps us to identify the species.

Table 1. Comparison of taxonomic treatments of the genus *Watsonia.**

Flora of the Perth region (1987)	Goldblatt (1989)	Flora of Australia (1986)
W. aletroides	*W. aletroides*	–
W. marginata	*W. marginata*	*W. marginata*
W. meriana	*W. meriana*	*W. meriana*
W. bulbillifera	= *W. meriana*	*W. bulbillifera*
W. leipoldtii	= *W. meriana*	–
W. versfeldii	*W. versfeldii*	*W. versfeldii*
W. wordsworthiana	not known in wild	–
–	?	*W. sp.* A
–	?	*W. sp.* B

* *W. borbonica* has also been recorded for south-west WA.

Having a name for biological species is desirable if we want to seek, store andutilize biological data on things like reproduction, seed germination, seed longevity, fire response etc. and ecological information on the species. John Scott will undoubtedly mention the need to know the names of species we are dealing with in the case of seeking biological control agents. However, in the genus *Watsonia* we have some problems naming the species present in WA.

How many species do we have recorded in this State?

A taxonomic account of all species of *Watsonia* in Australia was published in 'Flora of Australia' in 1986, but this only recognized six species (Table 1). The Western Australian species were studied by Gillian Perry at the WA Herbarium, in preparing the 'Flora of the Perth Region' which was published in 1987, two years before publication of Goldblatt's detailed study of all species (Table 1). We believed that there were eight species recorded for WA; these are treated differently in Goldblatt so, how do we deal with this taxonomic confusion?

Why is there so much discrepancy in the application of names? The reason must be that in WA we have variants which arose through cultivation and we have hybrids, some of which were probably selected in the gardens at Rondebosch 163 years ago and some of which probably arose here in WA.

At this stage of our knowledge we need not be concerned that we have difficulty in identifying the species we have; we can use interim names. We may use for example, a temporary or interim name like *Watsonia* species A or *Watsonia* "Busselton pink". This poses no problem when we have computer databases which can cope with temporary names and easily enter other names as they are determined. The Department of Conservation and Land Management's Herbarium has a sophisticated database which already has the watsonia collections entered. However, we need more specimens with full annotations on their locality, habitat and other observations which will enable us to build up a useful database of the biology of these insidious plants.

Distribution, impact and biology of the other "watsonias", *Chasmanthe* (African Corn Flag) and *Crocosmia* (Montbretia) in Western Australia

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Summary

***Chasmanthe* is widespread throughout the lower south west of Western Australia. *Chasmanthe* has been recorded from 13 conservation reserves, and three forest blocks, chiefly from highly disturbed sites. It can, however, invade bushland if the initial introduction is not removed. Sites most affected appear to be on well drained calcareous soils in contrast to the other "watsonias". *Crocosmia* is sparingly naturalized on vacant lots in towns and road verges only in the higher rainfall areas of south Western Australia.**

Introduction

Chasmanthe and *Crocosmia* are southern African Iridaceae genera of three (De Vos 1985) and nine species (De Vos 1984) respectively. One species of each genus, *Chasmanthe floribunda* (Salisb.) N.E.Br. and *Crocosmia* × *crocosmiifolia* (Lemoine ex Morren) N.E. Br. has become naturalized in Australia (Cooke 1984). Both species were widely grown as ornamentals (Montbretia is still available in the nursery trade) and were originally introduced as such. These two species have a very similar habit to watsonia in leaf, and are chiefly distinguished by weed control personnel and the public as "another species of watsonia" even when in flower.

Only in Western Australia are both varieties of *Chasmanthe floribunda* naturalized: the typical var. *floribunda* with orange flowers and var. *duckittii* G. Lewis ex L. Bol. with yellow flowers, yellow-brown anthers and a shorter floral tube.

Methods

Distribution data was obtained from road logs, field note books and reserve lists compiled by the author from 1985 to the present. All available published and

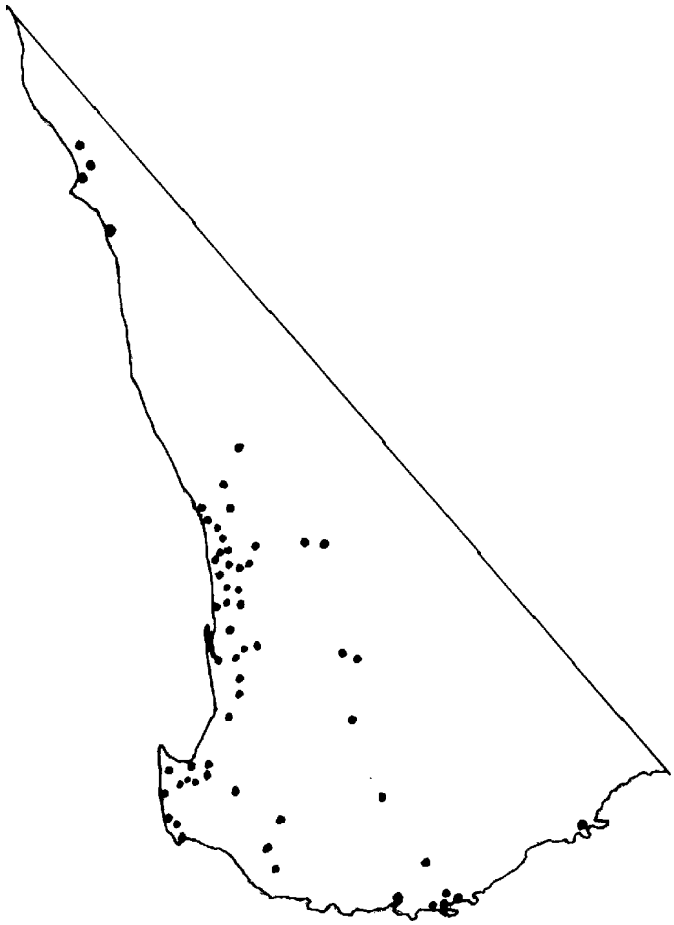

Figure 1. Distribution of *Chasmanthe floribunda* in Western Australia.