WHY IS
HAEMANTHUS PUMILIO
A RARE AND
ENDANGERED SPECIES?

The problems facing this species in its struggle for survival

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Bulbs of Haemanthus were amongst the first plants collected in the Cape of Good Hope and subsequently cultivated in gardens in Holland and Belgium. The genus Haemanthus L. is a member of the family Amaryllidaceae and consists of twenty-one species, all of which occur in southern Africa. Of the twenty-one species, fifteen occur in the winter rainfall region and five occur in the summer rainfall region. The eastern coast species H. albiflos is found in both regions. The most widely ranging species include H. coccineus (paintbrush, April Fool), H. humilis, H. montanus and H. amaryllodes. Within the family Amaryllidaceae the closest relative to the genus Haemanthus is considered to be the genus Scadoxus. The flowers of Haemanthus are borne in a compact inflorescence (known as an umbel) at the end of a stout axis. The umbel is surrounded by coloured bracts which protect the developing flower buds. The leaves of Haemanthus appear after the flowers and vary in number, shape and pubescence (hairiness), markings and orientation, although most species bear only two leaves a year.

Haemanthus pumilio
Today only a few existing populations of the rare and endangered Haemanthus pumilio are known. The largest and only viable population of this member of the Amaryllidaceae is found in the Duithie Reserve, one of the few remaining areas of natural chenosterveld, situated on the campus of the University of Stellenbosch. The most recent count was 1046 flowering individuals, although the actual population would be much larger, as not all plants would flower in the same season. The second largest population, consisting of approximately fifty flowering plants, occurs near Klapmuts (in the Paarl area). The population is very isolated and is growing 30 m from the roadside. The area has been burnt recently and is threatened by the invasive

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Port Jackson, *Acacia saligna*. There are two very small populations on the historical farm. Meerdust, near Faure, of three and nine plants respectively, and in both the inflorescences have been badly damaged by insects.

In the past, herbarium specimens of the western Karoo species, *H. barkeroae*, were often referred to as *H. pumilio* because of the similarity of their spreading pink inflorescences. A study of living plants has, however, revealed several differences between the two species.

Answers to various questions were sought in order to establish why *H. pumilio* is so rare.

Are pollinators scarce and is the species self-pollinating?
To determine if the species is capable of self-pollination, fine net sacks were placed over the heads of twenty-five inflorescences of plants in the Duthie Reserve, effectively isolating them from visiting insects. The results indicated that *Haemanthus pumilio* is not capable of self-pollination as all the inflorescences covered with the sacks withered and died without showing any signs of fruit development. Artificial pollination experiments were relatively unsuccessful.

From March to the end of April, during flowering, three insect visitors were observed. Two of the species were drone or hover flies, members of the family Syrphidae, and the other was a Cape honey bee that belongs to the family Anthophoridae, all of which are common in the south-western Cape, indicating that there is no scarcity of pollinators. All the individuals that were visited by these insects set seed.

Is the species dependent on fire to induce flowering?
In February 1990 a portion of the Duthie Reserve (in which no inflorescences had previously been recorded) was burnt to determine the influence of fire on the flowering of the species. Two days after the area had been burnt there was a day of soaking rain. The burning proved very successful as the first inflorescence appeared two weeks after the fire and a total of 157 inflorescences appeared in an area where no plants had previously been noticed.

The few flowers that appeared amongst the grass on the fringe of the burnt areas were soon destroyed by locusts and other predators. The wire cages placed over the flowers in the grass did not prevent their destruction as rats or mice dug under the cages and chewed off the stems at ground level. The inflorescences in the burnt area, however, remained unharmed. It appears that locusts and other predators avoid the open, unprotected, burnt area.

Do seedlings germinate readily and are they able to establish themselves?
Once the flowers had set seed, the seeds were observed in their natural environment to determine whether they were viable. They germinated after approximately four weeks and the seedlings quickly established themselves in the moist soil. Seeds were also removed from the Reserve and successfully germinated in the laboratory.

The seedlings germinate over a long period of time, thus enhancing the chances of seedlings establishing themselves during favourable conditions.

Is there a lack of suitable habitat?
A search was carried out for other possible habitats of *Haemanthus pumilio*. The existing habitats indicate that the plants prefer ground that is dry in summer but waterlogged and marshy in winter. It appears that most of the possible habitats of *H. pumilio* have been destroyed by town expansion and industrialization. The only areas where similar plant communities are found are the Harmony area between Strand and Gordon’s Bay and on Rondebosch Common, but there is no sign of *H. pumilio* in either of these areas. A colony of approximately twenty-four plants was last observed in July 1989 in the Somerset West area by a person living nearby, but this population has since been destroyed by a housing development.

What does the future hold?
Urbanization has led to the destruction of the habitats favoured by *Haemanthus pumilio*, and the natural fire regime required by the plants is incompatible with the urban environment. Prevention of fire in the *H. pumilio* habitat results in the lack of vegetation removal, a process vital to the survival of the species because it stimulates flowering. The clearing of the habitat by burning also appears to play another role in that it protects the plants in the burnt areas from insect and rodent predators.

The existing populations of *Haemanthus pumilio* are expanding and the long-term prospects for the survival of the population in the Duthie Reserve seem good. Younger plants can be seen in the vicinity of the older individuals and seedlings have established themselves. A more detailed study is needed to create a favourable fire regime, or some other means of clearing the habitat, which will help to ensure the survival of the species.

Further reading:

This article was taken from a project done by Alison Summerfield as part of her honours degree in Botany at the University of Stellenbosch under the supervision of Prof. J.J.A. van der Walt. Information pertaining to the history and characteristics of the genus *Haemanthus* has been obtained from the book A revision of the genus *Haemanthus* L. by D.A. Snijman.