

The Effects of Bushfire on Victorian Epiphytic and Lithophytic Orchids

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Dendrobium speciosum (Large Rock Orchid)

Dendrobium speciosum is the largest Victorian orchid and occurs in small isolated colonies on exposed rocky outcrops. It is often found in Eucalyptus forest above rivers and creeks. These forests suffered severe damage in the March fires and *D. speciosum* took a real beating, despite its fire-resistant features of tough thick leaves and large water reserve in bulky pseudobulbs. In some sites every leaf and cane was burned to a charred stump; but only a few plants were killed outright and fell off their rocky substrate. Where plants were not burned, heat damage caused all leaves to drop, and pseudobulbs to shrink down to dry yellow canes half their original size. Many plants were burned right to the ground, giving rise to initial reports that they were all dead. However, a very small basal remnant of pseudobulb containing dormant buds survived and new shoots had begun to grow from these in July 1983. By November, some were 30 cm high, with three to four leaves, and whole plants originally of 30 to 60 canes were regenerating with up to 20 new canes in the initial growth phase. As a rough estimate, only about three years will be required to regenerate fairly mature plants capable of flowering. Even in severely burnt forest a few plants survived intact and flowered, setting pods in November. Apparently the natural pollinators (also unknown) were still present, despite burning of surrounding areas for some miles distant. Hence regeneration of *D. speciosum* after fire is both from basal shoots and from seed. We have observed very similar regeneration of *D. kingianum*, which occupies a parallel ecological position in N.S.W.

Discussion

The fire resistance of Australian epiphytes and lithophytes appears to have been underestimated. Fire has long been an integral part of the Australian climate, and orchids have survived catastrophic bushfires over the centuries. The fires of March 1983 were regarded as among the most destructive and intense within recorded history, yet our observations suggest that despite great damage, none of the five species are in danger of elimination from present locations. *Dendrobium speciosum* and *D. striolatum* have an amazing regenerative capacity from basal shoots, and also from seed. *Sarcochilus australis* and *Plectorrhiza tridentata*, which perished in great numbers, will probably regenerate by seed from plants in surviving pockets of rainforest. Pollinators also survived the fires, and set a good crop of capsules on flowering plants of all five species.

Distribution may contract markedly after fire, but will tend to expand again with future good seasons. Contrary to suggestions that plants would have to be brought in from other areas to replace those 'killed' by fire, there is absolutely no need to interfere with natural regeneration; which, we estimate, should return populations to pre-fire levels within a few years. The major requirement is to protect unstable burnt areas from excessive use by vehicles and walkers until plants and soils have restabilised. It seems clear that fire is much less destructive to habitat in the long run than is clearing for forestry, farming, and other purposes.

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References

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