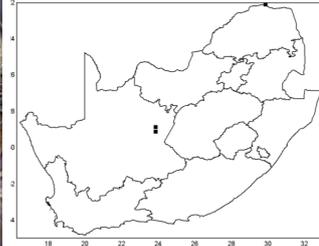


ARC-PPRI FACT SHEETS ON INVASIVE ALIEN PLANTS  
AND THEIR CONTROL IN SOUTH AFRICA

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The cochineal bug, *Dactylopius tomentosus* (Lamark), was released as a biological control agent on chain-fruit cholla (*Cylindropuntia fulgida*) in 2008. Two releases were made—one near Douglas in the Northern Cape, the other on an island in the dry river bed of the Limpopo River near Musina in Limpopo Province.

#### DESCRIPTION

Cochineal insects are sap-sucking bugs which feed and complete their life-cycle on cactus plants. Females and nymphs secrete and cover themselves in a waxy, white thread which provides shelter, and gives them the appearance of balls of fluff (i). Their body fluid is a deep red, but this is only obvious when the insects are squashed.



#### LIFE CYCLE

Females attach themselves to the plants by their mouthparts, and remain in that position throughout their lives. Beneath their fluffy covering, they produce large numbers of red eggs. In approximately 17 days, the eggs hatch to produce red nymphs called crawlers, which usually settle at the base of the spines, away from light. Nymphs undergo two instars (growth stages), after which females remain sedentary and attached to the plant, while males pupate to become winged adults. The adult male looks like a small fly with two long tails. Males use flight to locate mates, and are short-lived.



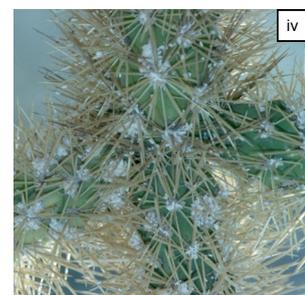
#### FEEDING DAMAGE

Male cochineal insects never feed as adults (iii). All feeding damage is caused by the females and nymphs which suck sap from the cactus segments. Within a few weeks of the cochineal being established on a plant, the side branches will begin to droop and segments will drop off. Although new segments may grow, these will also drop off provided cochineal remains on the plant. Depending on the severity of the infestation, the trunk will also eventually die. There are two biotypes of *D. tomentosus* in South Africa—one controls chain-fruit cholla, the other controls imbricate cactus (*Cylindropuntia imbricata*). These biotypes will survive on either cactus species, but are only effective in controlling their preferred host plant. Thus, when collecting cochineal, it is important to select the correct biotype for the correct plant. These biotypes will also hybridize in the field and lose their efficiency, so it's important to keep them apart.



#### IMPACT ON CHAIN-FRUIT CHOLLA

*Dactylopius tomentosus* is an extremely damaging biocontrol agent (iv), and is capable of killing a small cactus plant within months, or a large cactus plants within two years. Unfortunately, heavy rain may wash the insects off the plants and affect their efficacy until the population has built up sufficiently to control the cactus. The insects fare better in the dry season and, in Limpopo Province, they have achieved in four months what was only expected in a year.



environmental affairs

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