

***Lantana camara* warning for northern New Zealand**

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Lantana is a well-known invader of disturbed ground, pasture and scrub in the Pacific and other warm parts of the Old World (Thamann 1974; Holm et al., 1977). This article does not contain any new information on lantana as a wild plant in New Zealand but has been written to emphasise the seriousness of the threat that already exists here.

Fromont and King, in an unpublished report on Northland's environmental weeds, note the distribution of lantana here as: "occasional around major townships; Whangarei Harbour: One Tree Point, The Nook; fairly common in the Hokianga region (Te Karae, Waima; Motukaraka, Pangaru to Mitimiti); extends north as far as Houhora". They say that it is thought to be spreading fairly rapidly. The stands in the Hokianga region, which now cover some tens of hectares (at least) of coastal land, have existed since the '60s, and they show no signs of giving way to native species or other exotics (own obs.; Jack Crow, pers. comm.).

Sykes (in Webb et al., 1988) gives the wider distribution as: "N. Auckland (mainly north of Hokianga Harbour), Auckland (Rangitoto Id), Bay of Plenty (as far east as Opotiki District)". Sporadic plants no doubt occur between these localities, for example, I have seen an undoubtedly wild plant at Waiomu (north of Thames) - it had begun life in the rotted top of a fence-post. More typical of favourite sites are warm rocky banks and broken-up masonry (as in cemeteries).

Study of lantana in Australia has identified several forms (feral cultivars), which differ in prickliness and minor floral characters (colour), and also in their toxicity to farm animals (Smith and Smith, 1982). Sykes (loc. cit) believes that our wild plants belong to the cultivar 'Common Pink', which is non-toxic. As well as being a pasture weed, toxic or not, lantana is an unpleasant plant to encounter because of its prickles, which, according to folk belief, cause scratches that readily become septic.

Pollination of lantana has been studied in India. Plants there (cultivar not stated) were found to be highly self-compatible but usually required an insect visit to get pollinated; interestingly, thrips seemed to be much more effective pollinators than butterflies (Mathur & Mohan Ram, 1986). At least around Auckland, more or less solitary garden plants of 'Common Pink' set plentiful fruit and viable-looking seed. Fromont and King suggest that waxeyes may be dispersers in Northland, but larger birds, such as blackbirds and mynahs, are probably more effective (Ewen Cameron, pers. comm.). I have no information on the germination behaviour of the hard single-seeded fruit stone - presumably the seed remains viable in the ground for some time.

Possibly in New Zealand the species could become much more common if average temperatures were to increase by a few degrees. However, if large amounts of seed are being produced, and some percentage of these are germinating, plants adapted to cooler climates will almost surely be selected for.

I think it may already be too late to attempt to control our infestations of lantana (notably that around the Hokianga) with chemicals or hand-methods, and that, just as for the gingers, Mexican devil and mist-flower, Karvinsky's erigeron, etc. etc., the use of biological control is urgently required.

In Hawaii and Queensland much research has been done on the biological control of lantana, and numerous insects that feed on various parts of the plants have been introduced, with Parsons (1992) reporting promising results in the latter region. Because this background research has been done in part (e.g. in finding out whether or not the insects will attack commercial crops) the cost of establishing a control program for lantana in New Zealand should be less than for other plants. The costs of biological control research are not especially high, and I believe that countries that develop expertise in this area will be able to give practical help in restoring habitat elsewhere in the world.

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Tropical seeds found on Rangatira Beach, north-west Auckland

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On two occasions in recent years I have found tropical seeds on Rangatira Beach about 26 miles north of Muriwai.

The first found was a candlenut seed (*Aleurites moluccana*). It was in the general flotsam above high water mark. That was three to four years ago. In appearance it is almost heart shaped with one flat side, the other raised and roughened. The colour is dark purple-black and in size approximately 1.0 x 1.25 cm.

On 6 November 1994 I noticed the thin edge of a reddish object in the dune a few metres north of the 26 mile cut-out. The dune was about 4 metres high and the seed was about 1.5 m from the base of the dune. The object was in isolation and not associated with a layer of buried flotsam as is sometimes seen in the eroding dune faces. Once it was removed I realised it was a seed and not one I had seen before. Ewen Cameron identified it as a seed of the tropical plant *Entada phaseoloides*. In appearance it is dark reddish brown, approximately 1.5 x 2.25 cm, almost rectangular in shape and raised towards the centre of each side. *Entada* is a large climbing vine with enormous pods 1 m long or more.

The dunes are currently being rapidly eroded and the part of the dune where the *Entada* seed was found had disappeared a week later.

I wonder if this area being south of the Kaipara Harbour entrance and away from the immediate influence of the bar is a good landing place for widely travelled articles. Or is it purely fortuitous? I have to acknowledge that from there north is the part of the beach I know best. Interestingly our son found a drift card from South African waters in the same vicinity a few years ago. Although both of these seeds have been collected on North Island beaches before, e.g. Ninety Mile Beach (Mason, 1961), I wonder if they have ever been found further south than Rangatira Beach?