

2007 Waitakere greenroof diary

Assessment on 17 January

There has been an increase in invertebrate abundance and species diversity under the wooden rounds, with spiders now most common, followed by beetles and millipedes. There has been a crash in the number of slugs and snails (only 1 large snail found) – presumably they have been killed by desiccation. Hunting spiders are living away from the rounds in the base of plants and in coarse gravel edging. Bumblebees were visiting *Selliera radicans* flowers, sand dune convolvulus was also in flower, and fruits are starting to ripen on sand dune coprosma. Overall plant cover ranges from 25 to 40%. Visually impressive species remain tussocks and NZ iris (see photos). Weed species remain the same, with the exception of white clover which has been the major inter-plant weed in the past, but now is rare. The main interplant weed is now an oxalis. Weeds were relatively sparse and weeding took less than an hour.

Plants are generally in good health showing fresh growth where substrate depth is c100 mm or more. Best performing plants w.r.t. growth rate are iceplant (although in some areas plants have significant dieback) and Mercury bay weed. Along the parapet *Muehlenbeckia complexa* has sent out shoots and tendrils 50 to 70 cm long that are resting against the parapet sides; some shoot tips of this species and sand dune coprosma show dieback – due to rubbing against the soil surface and/or moisture stress (where substrates are thin). Several seedlings of cabbage tree and karamu have established. NZ iceplant and Selliera are notable for establishing from fragments. A few NZ iris are have sent up new shoots from rhizomes, as has *Muehlenbeckia axillaris*.

The two areas where substrate is thinnest (50 to 70 mm depth) contain some dead plants and stressed plants with tip or part-plant dieback. The species with highest mortality and dieback are *Leptonella* (prev. *Nertera*), *Selliera radicans* and *Muehlenbeckia axillaris*; species that are most tolerant of the thin areas are NZ iceplant, small Fescues, NZ iris and sand dune coprosma. The two stressed areas are a wedge about 8 m long at the opposite corner of the greenroof from the viewing window, and a small area near the viewing window adjacent to the copper dome.

Recommended actions now

- Observation of the two thin areas to trigger watering through summer (look for wilting and colour change of mercury bay weed as an indicator) using tubing on overcast days and preferably early in the morning applying at least 10mm/session (use pot plant trays to assess irrigation depth)
- Start collecting stormwater and met station data.
- Complete characterization of substrate depth, infiltration and moisture holding, as installed and soil chemical test

Possible Autumn Actions to discuss

- Light fertiliser (low rate of slow release N and P) based on soil chemical test results
- Manual loosening of substrate using forks, particularly in the area where substrate is thin.
- Addition of material to the two thin areas (??) or installation of a permanent dripper irrigation system just to cover these areas. Irrigation of the far end of the greenroof will not affect stormwater monitoring.
- Weeding continuing; invertebrate round monitoring.



Shortly after planting, spring 2006



2 November 2006



17 January 2006