

REVIEW

The following paragraph is taken from a review of Alpine rangelands of the Uinta Mountains and Flora and major plant communities of the Ruby East Humboldt Mountains, author Mont E. Lewis.

"Is there any way students who study the ecology of some kind of vegetation or the vegetation of some area can be brought up to the field taxonomic competence that Lewis has? Or must they (we) all become measurers of temperature, of radiation, of rain, of soil particle sizes, of photosynthesis, of transpiration, of above and below ground biomass, etc.? Not that these measurements are not worth doing. They certainly are. But someone, sometime, has to describe what plants occur together in the fascinating natural mosaic that can tell us so much about the history and ecology of our flora and vegetation - Jack Major, Botany Department, University of California, Davis 95616".

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PLANTS OF TWO CANTERBURY CEMETERIES

R. Mason

In 1959, in an address to the Annual Conference of The New Zealand Institute of Park Administration, Mr. Healy showed how an unusual flora was associated with the peculiar conditions found in cemeteries -- broadly speaking poor grounds often of unfavourable aspect, plentiful masonry that concentrates heat, a variety of ornamentals planted by authorities and relatives of the deceased, and neglect or semi-neglect. Plants have to be tough and well adapted to survive. Eighty species were listed as being significant weeds in New Zealand cemeteries. Some of these of course are common weeds; and not all occur throughout. None are weaklings, ornamentals or not. Some 44 are regarded as belonging to a true "cemetery weed flora".

To the west of Kaiapoi is a small cemetery (grid ref. S76 OC7748). This, when I saw it on 31st December fell into the moderately neglected class, that is the grass seems to be cut from time to time, but graves are entirely unweeded. Although its flora differs conspicuously from that of the roadsides and paddocks round about, it also differs in some respects from that recorded by Mr. Healy.

Of six species given as invariably present in low rainfall areas of Canterbury and Otago only two are present:- everlasting pea (Lathyrus latifolius) in plenty and ivy (Hedera helix) with two small plants. There is no creeping bellflower (Campanula rapunculoides), no Aaron's beard, no toadflax (Linaria vulgaris), no periwinkle (Vinca major). In fact of the 44 "cemetery weed flora" species there are besides ivy only a bulbous Oxalis, of which there are two plants, and two patches of old man's beard (Clematis vitalba). Of the other 36 significant species I noted only Asparagus officinalis, stonecrop (Sedum acre), and bindweed (Convolvulus arvensis). Twitch (Agropyron repens) I think was there, but the grasses did not seem to call for any special note at the time.

I have never seen bindweed growing more abundantly or attractively. It is fairly widespread about Christchurch in small patches, but scarcely common and it usually has white flowers. In the cemetery it was thick and abundant on graves and off, making a great show with flowers from palest pink through all shades to rosy, but with none pure white. It had spread as far as the roadside by the gate. The bindweed and ever-lasting pea are the only two species mentioned that grew both within and without the grave plots.

Although the yew (Taxus baccata) is mentioned by Mr. Healy as a specimen tree in cemeteries, it has not become a significant weed. There was an 8 inch high plant in the Kaiapoi cemetery.

None of the species that follow occur in Mr. Healy's list.

What could become the most damaging plant in the cemetery is the ordinary macrocarpa (Cupressus macrocarpa). There were 10 seedlings over 6 inches high but many smaller ones also and a specimen tree to provide more seed. There is a handsome specimen tree of variegated holly (Ilex aquifolium) about 10 feet high that had an abundance of young fruit. Only two holly seedlings were seen. Both were entirely green. The only other tree species was represented by an elder (Sambucus nigra) seedling 6 inches high.

Perhaps most unexpected were the raspberry bushes (Rubus idaeus) which made a dense cover of stout stems on several graves, but showed no sign of flower or fruit. There was one small gooseberry bush.

The other species worth noting were all herbs: a patch of 15 flowering plants of snapdragon (Antirrhinum majus), about 10 plants of larkspur (Delphinium ambiguum) more or less scattered, four of love-in-a-mist (Nigella damascena), a columbine (Aquilegia sp.), and some purple linaria (Linaria purpurea). The latter is very common in waste ground about Wellington, but not much seen in Canterbury.

The notes from the Kaiapoi cemetery come from a lunchtime stop during a working field trip. The following remarks about the churchyard of All Saints, Prebbleton are not at all carefully documented. The fact that I live next door means no doubt that I took it for granted.

The churchyard is by no means uniform as a habitat. A huge oak and a huge macrocarpa cast shade over a considerable area. There is a line of trees, mostly oak, but with ash, sycamore, horse chestnut, birch, and hornbeam along the south west fenceline. There is a fairly spaced out mixed avenue of yews, flowering cherries, and oak. That part where the graves lie usually traps and holds a much greater part of the leaf fall from the nearby deciduous trees than parts further to the north.

In 1959 the grounds were fairly frequently mown and the grass seldom got beyond the control of an ordinary rotary lawn mower. At least five of the "cemetery weed flora" were present: everlasting pea was widespread and luxuriant, ivy was thick on the ground and up the trees by the fenceline, there was periwinkle, a bulbous Oxalis, and a little gorse. Of the other 36 "significant weeds" asparagus, hemlock (Conium maculatum), blackberry (Rubus fruticosus) were certainly present; there was yarrow (Achillea millefolium), Scotch broom (Sarothamnus scoparius), and I think also some Montpellier broom (Cytisus monspessulanus).

Besides there were occasional plants of a Sisyrinchium (one of the Iridaceae) and caper spurge (Euphorbia lathyris). Both were probably escapes from some former planting. There was at least one clump of elder, probably self sown. Daffodils, wood hyacinths, a patch or two of crocus, and some snowflakes grew mostly under or near the deciduous trees.

Sycamore seedlings and saplings were thick among the fenceline trees and oaks fairly plentiful too. Sycamores and oaks come up thickly in my garden also. So do birches and ashes sometimes, and even a yew or a macrocarpa now and then, but at no time have I seen seedlings of any of these in the churchyard. Nor does there ever seem to have been any old man's beard there although there is a plentiful seed source near at hand.

After a while the grass was cut less and less often and in the end it was left for long enough for it to seed. Sheep were then put in to keep the grass under control.

There were soon some marked changes. The first plants to disappear entirely were the roses planted on the graves. They did not last long. The rather miserable blackberries soon went too. The everlasting pea was much appreciated and eaten well back. As anyone who has tried to root a plant of this knows it takes a good

deal more than cutting it down to ground level to get rid of it. There is a tough rootstock from which new shoots keep arising. The sheep must have promptly eaten back every new shoot that appeared in the spring, for once it was eaten to ground level it was never seen again. The Sisyrinchium and Asparagus were eaten out. The grass of course was gradually reduced to a more open sward with occasional flat weeds.

The thinner twigs and the foliage of the oaks and sycamores were trimmed off up to a height of about four feet, and the seedlings and saplings under that height were eaten down and killed. The climbing ivy had already been destroyed before the arrival of the sheep, but there was a fairly dense ground cover left and a growth over the fence. When summer became hot and dry and feed was short the ivy was cleaned out wherever sheep could reach. They stood high on their hind legs to reach it on the top of the fence posts and reached far through the fence for it. A row of newly planted shrubs had to be protected by old oil drums, but were trimmed where the sheep could reach. A kowhai, which had but little leafage out of reach, had a hard struggle for several years. A small holly went within a year. A self-sown shrub of Pittosporum tenuifolium that is now nearly 8 feet tall had all its lower foliage eaten.

Both Montpellier and Scotch brooms are now found growing outside the churchyard near the road fenceline but not inside. The sheep certainly browsed and possibly hastened the death of bushes of Montpellier broom and kept new ones from growing. Some years after grazing had moderated there was a collection of scruffy, chewed plants of a Scotch broom near the north-east corner that are not there today, but I do not recollect how long they had been there or whether they succumbed to grazing, age, disease, or the slasher.

At the present day the only young elder is high up in the crotch of an oak. The only cabbage tree (Cordyline australis) consists of three much-chewed shoots springing from the base of an old stump.

During the first two or three years grazing and browsing pressure was intense. Sheep and later also lambs were seldom absent. In the heat of summer sheep would come running for any succulent weeds tossed over the fence (there was no water for them); with feed so eaten out there was little recovery in late autumn or spring. Sheep were frequently breaking out and local gardens suffered.

In spite of this some species were never touched. Periwinkle was ignored entirely. Not surprisingly hemlock was untouched and it has spread more widely in the environs of the great oak. Oxalis became more dense in its corner. Caper spurge became abundant. The only shrub that can definitely said to have been unaffected was the Rhododendron ponticum bush.

In later years the grazing pressure was eased; the sheep are now removed from the churchyard for longer periods. Even in the hottest and driest weather sheep no longer come running to anything edible tossed to them. There is a water supply. No longer do they jump the fence.

The easing of grazing pressure is indicated by the fact that there is now some untouched gorse about a foot long, and that the densest bed of periwinkle has been sufficient to protect several blackberry bushes that have established, and to allow some clumps of grass to seed. There is even one oak that has survived light "hedging" to about 9 inches. It is protected only on one side from browsing.

Round some graves are fairly stout iron fences that seem, under present conditions, to give complete protection. Within them the grass is ungrazed, there are a few young oaks and sycamores no more than three feet tall, and one or two small, newly established everlasting peas. Even one or two roses, where the fence angles gave some protection, seem are showing renewed life. There may also be found a few young plants of cleavers (Galium aparine), a vetch (Vicia sp.), and a dog rose (Rosa canina), of which all are listed "cemetery plants", and which no doubt were represented before the advent of the sheep.

Sheep also modify vegetation by trampling and by camping in shade during the heat, or in places protected from cold winds. Whether ground has been kept bare more by shade or more by camping is not always easy to say. Part of one shady retreat has had its daffodils thinned, probably by the effect of camping. The effect of the sheep sheltering close to the foot of the yews to avoid the wind (pieces of wool hang on the twigs) has apparently been to restrict markedly the outward growth of the branches near the ground, so that the bushes taper near the base.

It is in summer, when the absence of the ornamentals on the graves, the bare lower trunks of trees and saplings where there was formerly dense foliage to ground level, the dominating caper spurge in patches almost a forest, where there was once a riot of white and pink pea flowers that the changes wrought by the sheep show up most.

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