

Hughie Jones - Nov. 2017

*Gunnera manicata* (Gunneraceae)

I am *Gunnera*, the big bad bully. Touch any part of me - it'll hurt! Not only am I one of the biggest of the flowering plants, but I am one of the oldest of the flowering plants and we gunnera stick together in our own family. There are 70 of us, all different sizes. Don't mess with me. If you think I am an architectural ornamental plant only, think again. I have already stepped out of the botanical gardens in Ireland and begun my invasion. Nothing will grow under my gigantic leaves. And beware British Columbia. I have begun to move out of Tofino Botanical Gardens.



Here I am (*Gunnera manicata*) at VanDusen. Don't touch!

How do I boost my growing powers and invasive bent? Nitrogen is the answer. How do I get it? Inside me. I have a special moist place (a stem gland) that attracts my friend called Nostoc. This friend is a blue-green bacteria (cyanobacteria). Nostoc loves this place so much it begins to grow and soon our cells become one. I give my special blue-green bacteria food (carbohydrates) and it gives me direct shots of nitrogen.

And I want to let you know that I don't waste nitrogen or gorge on it. I only develop stem glands if I am growing on nitrogen poor soil. In spite of being tough, I do have a soft spot for Nostoc. I am the only flowering plant in the world that has this relationship with the blue-green bacteria.

Some plants make nitrogen at their roots. Others trade with the fungal network. Some even drug insects for food. But Nostoc and I have guts - we go right to the cell level and work it out.

*(Gunnera is the only genus of angiosperms to host cyanobacteria and the only group of land plants to host cyanobacteria intracellularly. It has been suggested that co-evolution between Gunnera and cyanobacteria led to the formation of stem glands.)*

Sources:

<http://www.iucngisd.org/gisd/species.php?sc=1670>

<http://www.indefenseofplants.com/blog/2016/3/23/gunnera-and-cyan>

<http://www.toftime.com/articles/A-T810-24frm.htm>

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC12033372/>

Flowering Plant Families of the World - Heywood, Brummitt, Culham, Seberg - 2007