Strictly Strychnos

On our April excursion to Plover St we saw a number of *Strychnos psilosperma* (Threaded boxwood) trees with their prominent red fruit. A chance remark sent me to do some background research. There are only three species of *Strychnos* (Fam Loganiaceae) in Queensland and two of these are restricted to north Queensland while *S psilosperma* extends along the east coast as far south as the Clarence River. It occurs mainly in semi-evergreen vine forests, and depauperate/dry rainforests, often on limestone derived soils (as at Plover St). The type location is Mt Archer (although curiously Mt Elliot is also listed by Fitzalan and Dallachy for the 1863 collection date).

Both the Census of Queensland Flora and Flora of Australia (Vol 28) place *Strychnos* within the Family Loganiaceae, but the latter acknowledges that the family is paraphyletic (has more than one evolutionary ancestor). This is why some sources still argue for use of the Family Strycnaceae. The actual distribution of species in the Family Loganiaceae is quite skewed in Queensland with 72% of species occurring within the single genus *Mitrasacme* that does not extend much further south than Port Curtis (and even here is poorly represented). The genus *Strychnos* (and indeed the whole Family Loganiaceae) is primarily tropical in distribution with a concentration of species in Africa, South America and Malesia. This suggests it invaded Australia relatively recently from the north. Two of the Australian species are endemic. There are approximately 170 recognised species of *Strychnos* world-wide with almost as many unresolved.

Many of the *Strychnos* species are poisonous as they contain the alkaloid toxin strychnine (and other toxins). Once widely used as a vertebrate poison, strychnine is extracted commercially from the plant *Strychnos nux-vomica*; a large tree in Asia growing to 25metres. Strychnine has been used as a drug in some (mainly Indian) cultures but most authorities now agree there is 'no thereaputic utility' and of course no scientific basis for its use as a homeopathic remedy. One species, *Strychnos potatorum* has been (is?) used in India to purify water by smearing the plant on the inside of earthenware jars. It has been detected as an adulterant in some illegal drugs. In South America, several species (particularly *Strychnos toxifera*) are used to extract the arrow poison curare. This was investigated extensively by the famous Harvard ethnobotanist Richard Evans Shultz in his amazing exploration of the Amazon in the 1940s. Curare is still a useful drug in physiology experiments. Curiously, in South Africa there are several species of *Strychnos* that have the common name 'monkey orange' or 'Natal orange' that are recorded as edible (presumably for humans as well as monkeys). I am always fascinated by the evolutionary drivers (selective pressures) that produce such disparate outcomes (toxic and edible within the same genus).

Finally a couple of comments indicative of some of the confusion about this genus. The genus is represented by a wide range of forms from trees to shrubs to lianas (some woody) and even epiphytes. While most books list *Strychnos psilosperma* as a medium sized tree to 18 metres, the Flora of Australia lists it as a small tree to 6 metres. It was originally identified as *S axillaris* but this is a climbing species with tendrils (in India and not found in Australia). The Flora of Australia key has two entry points to the species:

1a Vine or weakly climbing shrub…….
    2b Scrambling or semi-climbing; tendrils absent
1b Tree or shrub, never climbing (tendrils absent)…..
    4b Small tree to 6m

These lower heights and habit (4b) are probably more consistent with our experience in central Queensland.

Contributed by Bob Newby