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AUTOGRAFTING OF ROOTS AND STEMS IN *EUCALYPTUS* AND OF RHIZOMES IN *NUYTSIA FLORIBUNDA*

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During routine inspection of the root systems of *Eucalyptus wandoo* at Wongamine Reserve, via Toodyay, several instances of root grafting were observed. The grafts were between laterals from the same plant (autografts) and close to the lignotuber. Fig. 1A shows two autografts with the bark removed, verifying the organic union between the wood of both roots, with the sapwood clearly running from one root to the other. Fig. 1B is an isolated instance of autografting of lateral stems of *Eucalyptus rudis*. The tree is located beside the Blackwood River, 14 km south-west of Nannup. The fusion seems to involve two nodes and four branches.

A chance inspection of the underground portion of a large tree of *Nuytsia floribunda* removed from a sandy swamp in the Perth suburb of Willetton, revealed grafting of a number of the root-like rhizomes (Fig. 2). At the points of fusion, the rings of vascular tissue ran around both rhizomes.

Fig. 1A.—Two autografts (arrows) of the lateral roots of *E. wandoo* at Wongamine Reserve. The ruler is in cm. The bark has been removed to show fusion of the wood.

Fig. 1B.—Autografting of stems of *E. rudis* beside the Blackwood River. The broken white line indicates one of the possible zones of fusion, apart from the major site to the left.

Fig. 2.—Autografting of rhizomes of *N. floribunda* (arrows) viewed from below the adult plant. The ruler shown is 20 cm long. The heads of the arrows point to the sites of fusion,indicated by 'fracture' lines.

These instances of autografting can be viewed as accidental fusion of parts whose paths had crossed and which remained pressed together as they continued to enlarge in diameter. For underground parts, the resistance of the soil is clearly responsible for maintaining firm contact during growth, but the instance of fusion in *E. rudis* is harder to understand: initial intertwining of the stems may have been involved. Its accidental nature apart, there are at least two advantages to the plant that autografts may provide. The first is to interlock and hence reinforce the underground support system for the aerial part of the plant, reducing the incidence of windthrow — especially important in the weak-stemmed *Nuytsia*. The second is to direct water and nutrients locally abundant in one root or stem to at least two major sinks further along the plant, so increasing their overall distribution through the plant (and suckers in the case of *Nuytsia*). In this regard, it is worth noting that roots on one side of a plant tend to supply water and nutrients only to stems and leaves on that side, a limitation partly overcome by autografts.

Barbara Piercey assisted in the wandoo study, and Barrie Oldfield took the photograph of *E. rudis*.

FROM FIELD AND STUDY

Sighting of the European Common Tern *(Sterna hirundo hirundo)* **in breeding plumage, at Quobba Point, via Carnarvon.**— About 1230 hours, on 6 July, 1979, whilst observing sea birds at Quobba Point, which becomes isolated as a small island at high tide, a short distance from the blowholes, a popular tourist attraction about 80 kilometres north of Carnarvon, my attention was drawn to a number of very colourful terns standing on a sandy beach on the western side of the island.

I managed to view these birds from a distance of about 15-20 metres with 7 x 50 binoculars for about 45 minutes, and my field notes are as follows: "14 terns, bright red legs and beak, with a black tip to beak, very black head that extends over the eyes to base of beak, and extends over crown to about collar length. Very light grey back with white underparts. About same size as Roseate Tern (*Sterna dougallii*), and smaller than Crested Tern (*Sterna bergii*) that were standing nearby".

On 29 August, 1978, when in company with Barbara and Peter Menkhorst, of Melbourne, I sighted approximately 40-50 Common Terns in non-breeding plumage, in the same area.

On returning to Carnarvon, and checking various field guides the birds sighted appeared to have been either the Arctic Tern (*Sterna paradisaea*) coming into breeding plumage with only the remainder of the beak to turn fully red, or else the European Common Tern (*Sterna hirundo hirundo*) in breeding plumage.

Whilst this western form of the Common Tern is very similar to the Arctic Tern in breeding plumage, Arctic Terns have extensive smoky grey underparts which contrast to white cheeks and sometimes white throats.

Elsewhere in Australia Common Terns, mainly of the black-billed eastern form (*longipennis*) have been found in flocks, particularly common in South Queensland, and New South Wales (G. Roberts pers. comm.) but there does not appear to be any previous record of a flock of Common Terns in Western Australia. More recently Dr. R.J. Raines, found a small party of Common Terns in non-breeding plumage near Mandurah.

It appears possible that parties of Common Terns can be found on the coast of Western Australia in both summer and winter, and should be looked for in order to further define the regularity of occurrence.

Recent reports of Arctic Terns in Western Australia indicate that when *S. paradisaea* occurs on the Western Australian coastline it does so only in one's and two's, and either as corpses or birds in poor condition in spring and in mid-winter. There are no reliable reports of flocks of Arctic Terns anywhere on the Australian coastline (P.J. Curry pers. comm.)