COLLECTIONS CORNER

COMPARING USES AND COLLECTIONS—THE EXAMPLE OF *DODONAEA VISCOSA* JACQ. [SAPINDACEAE]

Records have an interest all of their own. Most botanists might know candidates for the oldest tree or the tallest (such as the Bristlecone Pine *Pinus longaeva* D.K. Bailey and the White Mountain Ash *Eucalyptus regnans* F. Muell. respectively) and would probably propose bracken *Pteridium aquilinum* (L.) Kuhn as the world's most cosmopolitan plant (as a native species). Wind dispersed, small spored pteridophytes, and bryophytes, clearly have an advantage for long distance dispersal compared with most angiosperms. Even among the smallest seeded of these—the orchids—no species has a distribution that spans both tropical and temperate zones like bracken.

The lenticular seeds of *Dodonaea viscosa* Jacq., some 2–3 mm across, do not immediately suggest the likelihood of an intercontinental distribution, yet the species occurs in every subtropical and tropical region. Good (1974) described it is as both a tropical weed and as a "strand plant", occurring on almost all tropical coasts with a suitable substratum. He also quoted a statement by Guppy (1906) that "few strand plants are not somewhere or other found growing naturally inland". *D. viscosa* is certainly one of them. Away from coasts (which, unusually, include those in the Atlantic; Good 1974), it occupies habitats ranging from arid zone gullies (as a shrub) to wet sclerophyll forests (as a tree to 6 m high) in Australia (West 1984), a variety of habitats in the Andes up to an altitude of 3500 m (Brako and Zarucchi 1993), the mountains of Oman (see Fig. 1) and Yemen (Wood 1997), *Pinus* forests in the Western Himalayas (Sastri 1952), and the margins of evergreen forests in southern Africa (Coates Palgrave 1977). In a rare incursion into Europe, it also occurs as introduced plantings as hedges, and occasional naturalizations, in Cyprus (Meikle 1977). Good (1974) noted that while some strand plants show a measure of geographic variation, there is little segregation between continents or between opposite sides of them. This is confirmed by the recent lack of support for the taxonomic split of *D. viscosa* (by Leenhouts 1983) into an inland and a coastal species (*D. viscosa* Jacq. and *D. angustifolia* L.f. respectively); instead, Davies and Verdcourt (1999) and Leistner (2000) accord subspecific status to these taxa. Only in Australia, home to 61 of the 68 species in the genus (West 1984), does *D. viscosa* have recognised sub-species which between the seven of them are distributed over most of the continent, including temperate Tasmania.

The availability of documentation and the 'recorder effect' notwithstanding (see Ehrlich

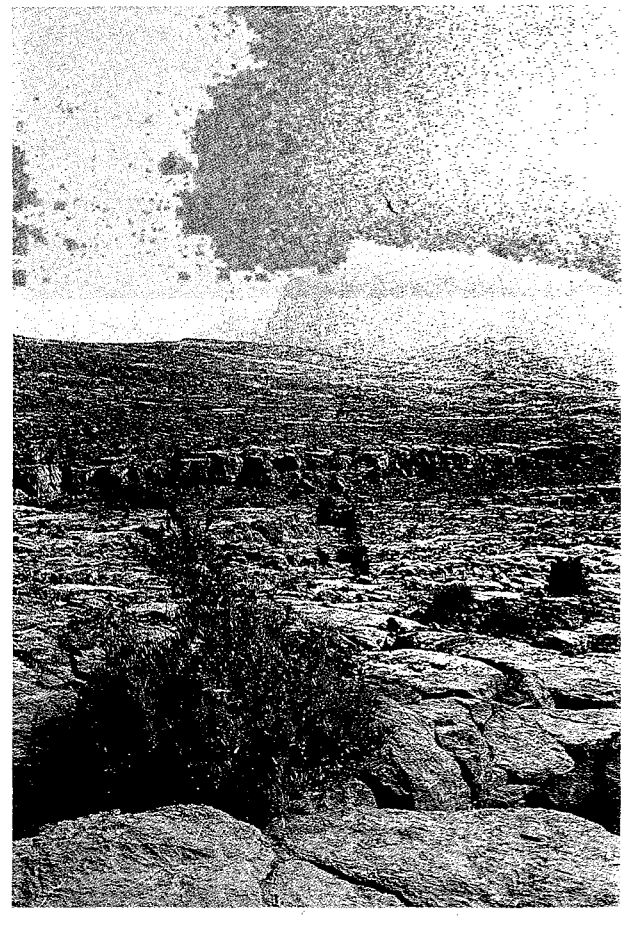

Fig. 1. *Dodonaea viscosa* at c. 2000 m in the semi-arid Hajar Mountains of northern Oman. In the southern province of Dhofar, it was formerly used for firewood and roofing (Miller and Morris 1988; listed by authors as *D. angustifolia* L.f.). (H.D.V. Prendergast.)

Economic Botany 55(2) pp. 184–186. 2001

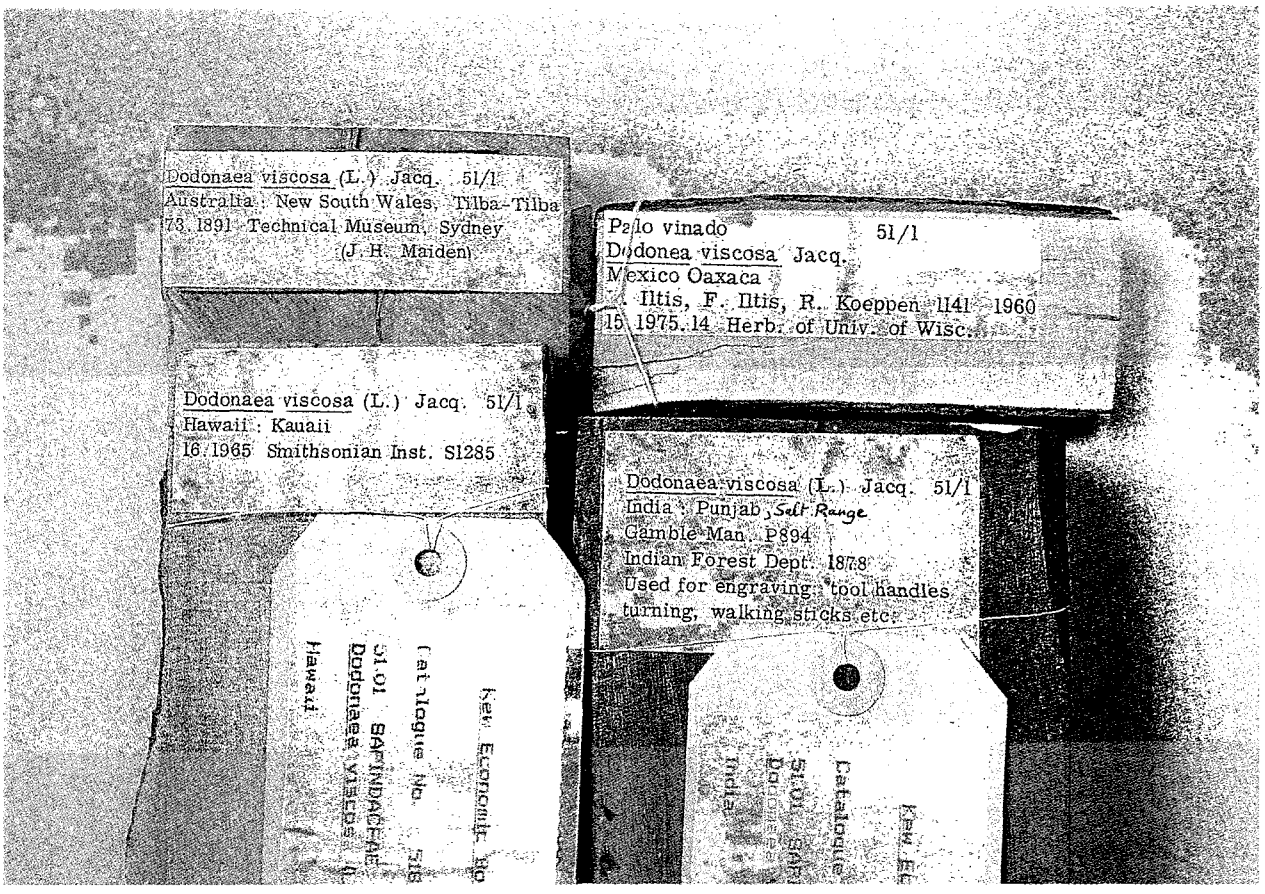

Fig. 2. Wood samples of *D. viscosa* from Kew's Economic Botany Collections (EBC). Top left to bottom right: New South Wales, Australia, 1891 (EBC 5192); Oaxaca, Mexico, 1960 (EBC 20932); Kauii, Hawaii, 1965 (EBC 5185); Punjab, India, 1878 (EBC 5193). (A. McRobb, RBG Kew.)

1989), a widespread species offers an opportunity for comparative analysis of its uses in different regions. In the 40 countries for which data were available, Pearman (2000) noted that the most frequently recorded use of *D. viscosa* (174 records; 50% of total) was as a medicinal, either as the lead property or not. Categorising the medicinal uses (Medicines) according to Cook (1995) showed that Infections/Infestations was the most frequent application (40) of the plant, followed by Muscular-Skeletal and Digestive Systems Disorders (20), Pregnancy/Birth/Puerperium Disorders (17) and Injuries (17). At the other end of the spectrum, there were no recorded applications for Mental Disorders nor for those of the Blood, Endocrine, Immune, and Nervous Systems. Overall, leaves were the plant part of *D. viscosa* most commonly used for medicines (89 of the 132 specified records; 67%). By contrast, use of the stems comprised just seven records (5%).

The second most recorded use (72 records; 21% of total) of *D. viscosa* (Pearman 2000) was as a source of Materials (like Medicines, a Level 1 state of Cook 1995). Stems were the most frequently recorded plant parts (56; 81%), being fashioned, for example, for walking and digging sticks, roof support, tool handles, traps and weapons, followed by leaves (10; 14%), used *inter alia* as a source of resin and for embalming.

Just as taxonomists aim to have herbarium specimens from the full geographical distribution of a particular species (rather than collection localities showing linear distributions along main roads or clusters in national parks), so curators of economic botany collections wonder at the representation of how plants are used. At Kew, the 31 such collections of *D. viscosa* (including three from South Africa invalidly named as *D. thunbergiana*) come from 13 countries representing all five continents of the plant's native distribution. However, in (proportional) contrast to the findings of Pearman (2000) above, only six (19%) of the collections have accession data relating to Medicines (and all but one of

these are leaves), whereas 24 (77%) are wood (or stem) samples that, in the absence of attached data (apart from those referring to making tools, sticks and carvings on an Indian specimen), are best classifiable as Materials.

Since all the collections of *D. viscosa* relating to Medicines were donated by the Royal Pharmaceutical Society, the under-representation of both Medicines and leaves at Kew may be due to a long-term divergence of institutional interests, at least until the time of their donation (1983). Alternatively, and particularly in the nineteenth century, indigenous medicinal plant uses may have been of lesser interest to collectors than pieces of wood. These, by contrast, continue to have a greater appeal—both a general one, as reflected by the specialist societies and private collections devoted to them, and a scientific one, particularly for wood anatomists for whom the 32 715 wood samples in Kew's Economic Botany Collections are a valuable resource (see Fig. 2).

On their own, therefore, the 31 items of *D. viscosa* in these collections give an incomplete and historically random window of the plant's uses. Whatever its shortcomings, that window may nonetheless be a unique one. Whether there are comparable samples elsewhere (for example, from 1839 for New Zealand (EBC 5188), 1893 from the slopes of Mount Kilimanjaro, Tanzania (EBC 20920) and 1961 from Haïti (EBC 20921)) will only be ascertained once curators of such collections better band together, and adopt a more positive role in promoting continued acquisition, exhibition, and access for research and conservation.

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