Arid Zone Times

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Single Versus Multiple Trunked Desert Trees

In their natural habitats, most desert trees species typically branch at or just above ground level. While they may begin their lives as un-branched seedlings, latent vegetative buds at the leaf nodes soon activate and multiple trunks result. This is particularly true of arid (xeric) sites where trees such as Velvet Mesquite (Prosopis velutina) and Catclaw Acacia (Acacia greggii) often form dense hemispheres of branches that cover the ground around the tree bases. This multiple branching helps to conserve moisture within the drip-line by shading the ground beneath the tree from the direct rays of the sun. These lower branches form a boundary layer of still air, diverting winds around and over the leaf canopy, instead of through it, further reducing water loss and conserving moisture. The shade produced also inhibits the germination of seedlings close to the base of the tree where they might otherwise compete for moisture and nutrients. Wetter (mesic) habitats have had different effects, from an evolutionary prospective, on tree growth and development. On flood plains or in riparian areas, increased soil moisture affords trees the luxury of not having to conserve water, resulting in faster, more vigorous growth. With water and nutrients no longer limiting growth factors, the competition among trees shifts, primarily, to available space and sunlight. These conditions result in taller, more upright trees, growing closer together (examples include mix conifer or hardwood forests). Resistance to wind remains high since individual trees function as windbreaks for their neighbors.

In landscape settings, created in the course of construction and land development, a third type of environment is found. In these situations, neither water nor space is limiting factors, so desert trees <u>can</u> grow more rapidly in both height and width. This growth can cause problems in areas where people (pedestrians) and vehicles need access, such as along sidewalks and paths or in parking lots. Pruning can be used to control and direct the growth of woody plants, particularly trees. Unfortunately, in many instances, basic tree structure and balance symmetry are compromised or destroyed in the process. Multi-trunked mesquites, for example, are sometimes pruned to a single grossly crooked trunk in the mistaken belief that the tree's width can be reduced. Properly grown and shaped, multi-trunked trees take up no more horizontal space than do single-trunked trees. In the nursery, several trunks (3, 5, or 7, in most cases) can be selectively pruned and an upright form established that will serve the dual purpose of producing a multiple trunk tree that offers easy access to pedestrians and traffic. Further, these forms offers greater resistance to wind throw while maintaining a more natural form and aesthetic for desert species.

Growers of desert tree species typically produce both single trunk **(a)**, and true multiple trunk trees (trees which produce multiple vertical branches originating at or near soil level), as well as "low-breakers" (trees which branch from 6 to 18 inches). Many tree growers commit disproportionately large portions of their inventory to producing single truck trees for the following reasons: 1) **Convenience**--it is often easiest for a nursery worker to select the largest stem and tightly stake it up, thus avoiding having to make critical pruning decisions required to produce attractive multi-trunk trees; 2) **Convention**--a client's preconceived notion of what a tree "should" look like often incorporates the straight-trunk, round-headed "lollipop" effect; and 3) **Confusion**--the incorrect assumption that a single trunk tree takes up significantly less space than a multi and that multi-trunk trees interfere with pedestrian and vehicle traffic. As a result, single trunked desert adapted trees are, at times, specified for use in parking lots, street plantings and pedestrian paths, when multiple trunks are equally appropriate and physically and horticulturally better adapted.

Tree form or structure, especially with desert adapted species, plays a significant role in vulnerability to wind throw, with single trunk trees vastly more susceptible to damage than multiple trunked specimens. Properly selected and shaped, multiple trunked, upright trees occupy no more physical space in the landscape then do single-trunk specimens. Retaining this attractive, more natural, multiple trunk form provides easy pedestrian access, offers ample shade, essential structural support and lowers the risk of wind throw

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Dedicated to providing quality trees to the landscape industry, that are appropriate to the desert Southwest.

without compromising the other uses of the landscape.
There are situations in the landscape where even narrow multiple trunked trees would not be appropriate (e.g. a planting strip between a sidewalk and a wall). In such an instance it would make sense to select desert tree species with a vertical rather than a spreading habit. Choices include Palo Blanco (Acacia willardiana), Shoestring Acacia (A. stenophylla), and Mulga (A. aneura). Such trees would function better than species with crowns that would be crowded by the wall.
In summary, the use of multi-trunked desert trees in the landscape should be encouraged in all facets of the landscape industry, from design to construction to retail sales. The natural grace and beauty multi-trunk trees bring to the urban landscape are important factors in health, aesthetics and durability of desert landscapes.
(a) The definition "Standard" found in Hortis Third (Macmillian Publishing Company, New York) more accurately describes small statute, patio-type trees (with 3 to 6' of clear straight trunk) like tree roses, tree fuchsias and azaleas than it does the vast majority of desert adapted tree species. We have elected to use single trunk to better create a distinction between single trunked, and multiple trunked specimens. Ed Mulrean Ph.D., Editor



Multi trunk or low breaking desert trees selectively pruned allow pedestrian friendly access

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