

3/20/2007 Welwitschia- Most bizarre plant on Earth? - ARID DOME

*Welwitschia mirabilis* grows in southwestern Africa. You may have walked by it in the Arid Dome without even noticing. It consists of only two strap-shaped leaves, up to six feet long, growing out from the crown of the plant across the ground. Despite this strange growth form, typical life spans range from 400 to 1500 years! The leaves may shred apart over time until it looks like there are more than two. Animals, such as antelope and rhinoceros, sometimes chew on the leaves, but the meristem near the crown of the plant allows the leaves to just keep growing. This is the same way that grass grows again after being mowed.

*Welwitschia* grows in the Namib desert where there are frequent fogs. The long, downward drooping leaves help collect condensation from the fog to water the roots. The long tap root also absorbs water from the infrequent rains. Plants adapted to desert life, (cacti, succulents and *Welwitschia*) must keep their stomata (air exchange pores on the leaf) closed during the day to conserve water. They use a special form of photosynthesis to produce their food. Carbon dioxide gas is absorbed in the cooler dark hours, when the stomata are open, and is stored as 4-carbon organic acids. During the daylight, these acids break down and release CO<sub>2</sub>, so photosynthesis can proceed without water loss from open stomata.

It takes two *Welwitschia* plants for reproduction: a male plant and a female plant. The male cones produce pollen which must travel to the female cones. Cone-bearing plants are typically wind pollinated, but both male and female *Welwitschia* cones produce nectar to attract insect pollinators. The seeds have a papery coat and are wind-dispersed.

*Welwitschia* is named for an Austrian explorer, Friedrich Welwitsch, even though he wanted to use the native Angolan name, Tumboa. The species name "*mirabilis*" comes from the Latin for "marvelous." *Welwitschia* is a gymnosperm, distantly related to conifers, ginkgos and cycads. It belongs to the gnetophyte subgroup- all quite different from each other and from other plants. *Welwitschia*'s close relatives have all become extinct, but you can see another desert-adapted gnetophyte in the Arid Dome- *Ephedra*, also known as Mormon tea.

