



The Tree of Life: Desert Reclamation at Papago Park (Arizona)

Moira Bateman Beeman

THE SITE

This desert reclamation project is located on the eastern edge of Phoenix Arizona, at the gateway to the 2,000 acre Papago Park. The following description is telling of the park's historic character, it is from Birds of the Papago Saguaro National Monument, published in 1920: It is a rolling mesa, of gravely or rocky soil, traversed by a ridge of hills, rising 200 or 300 feet above the level of the surrounding desert. The plant growth is typical sparse desert vegetation, such as occurs over vast stretches of southern Arizona. Giant cactus is evenly, though not thickly, distributed over the whole area. Everywhere there are clumps of "cholla" cactus, locally known as "jumping cactus", a peculiarly diabolical sort whose thorns penetrate at the gentlest touch.... Here and there are leafless palo verdes, or clumps of atriplex, and in the sandy washes thickets of cat-claw or scrubby mesquite. The most generally prevalent plant is the creosote bush (*Covillea*), small, rounded bushes of dark green hue, scattered quite uniformly over even the most unprepossessing sections. Many gravely ridges are grown up with this plant to the exclusion of practically everything else. Along the canal which crosses the Monument, seepage of water has produced limited growths of arrow weed and tules.

Papago Park was once the Papago Saguaro National Monument, because of the saguaro cacti (*Carnegiea gigantea*) which grew there. A dramatic decrease in these cacti resulted in the title being removed. The park's natural systems have degraded since the description cited above was written, possibly because of high recreational use by people (the area was a popular picnicking site for Phoenix residents) combined with a warming trend since the 19th century. In Saguaro National Monument, Arizona it is suggested that the warming trend could be a direct cause of a decrease in the number of nurse plants which shelter the saguaro during its long infancy. As a result of these changes, the plant and animal diversity were greatly decreased. The fox population declined to zero, which allowed the rabbit population to grow rapidly. By 1990 there were so many rabbits in the park that they had eaten and killed most of the saguaro and other cacti. At that time, all individual plants of the remnant saguaro population were over fifty years old; no new saguaros had successfully established in the park since 1950. Other populations absent from the park were the cholla cactus (*Opuntia* sp.) population which was lost in the 1930s, and the bursage population which was lost in the 1940s. Bursage had been one of the important nurse plants for seedlings and insects.

At the gateway to Papago Park, the site of the Tree of Life is only about 2 acres in size. It is situated at the southwest corner of a busy highway crossroads between the

cities of Phoenix and Scottsdale. The site's natural drainage or 'wash' was interrupted by the highway, and valuable water flow was diverted by the pavement.

WHO AND WHY

In 1990 a design competition was held by the cities of Phoenix and Scottsdale, Arizona to design a gateway for Papago Park and a boundary marker between these two cities. The project was initiated by the Phoenix Arts Commission and the Scottsdale Cultural Council. Funding was provided by the City of Phoenix Parks Department, the Street Transportation Department Percent for Art funds and Artscape (the public art program for the city of Scottsdale). The project was administered by the Phoenix Arts Commission.

New York City artist Jody Pinto and a landscape architect knowledgeable in desert ecology, Steve Martino, won the competition with their joint submission, now known as the Tree of Life. From the beginning, the two designers were interested in turning the art piece into a self-sustaining desert reclamation or restoration. Jody Pinto expressed a hope in *Sculpting with the Environment - A Natural Dialogue*, that the Tree of Life project would be the first step in a reclamation of the whole of Papago Park, to restore it to the state when it had the title as the Papago Saguaro National Monument.

THE RECLAMATION PROCESS

The reclamation project is an art piece. Jody Pinto writes in *Sculpting with the Environment - A Natural Dialogue*, that the project is meant to "bring new growth and life to the park" and that "The crop on these terraces is meant to be desert life". The art piece/reclamation project is a working water harvesting rill and terrace system in the form of a tree. In the desert, the lack of water is a significant limiting factor in plant growth, this piece collects and brings storm water to the desert plants. The water collection system is based on the ancient water harvesting processes used in the region across the span of seven civilizations, starting with the Hohokom people.

In order to take into account the larger context of the Tree of Life project, the designers developed a larger master plan for the management of Papago Park. The plan included controlling the rabbit population and reassessing land use (especially the portioning of recreation facilities). This master plan was important, it seems likely yet unclear that it was implemented. The issue of rabbit population management may have been a touchy subject, yet if not addressed, the Tree of Life could have become a big feed lot for that population.

The Tree of Life reclamation incorporated interventions in terrain, hydrology and vegetation. The terrain intervention included recontouring to help channel roadside water to the main rill, and the imprinting of terrain with the rill and terrace system. Intervention in the hydrology of the site was clearly executed by the channeling of

water ways through the ancient water control system of rill and terrace. Vegetation intervention included taking existing plants off the site during construction, nurserying them, and then replacing them. New plantings of cacti were used, these were taken from a nearby road construction project. Seeding of a mix of indigenous species was also attempted on the terraces. Unfortunately, a planting and seeding list was unavailable. Photographs of established plants on site include: cat claw (*Acacia greggii*), ocotillo (*Fouquieria splendens*), pricklypear (*Opuntia phaeacantha*), cholla cactus (*Opuntia sp.*), paloverde (*Parkinsonia microphylla*), thistle sage (*Salvia columbariae*). There do not seem to be any saguaro (*Carnegiea gigantea*) on the site.

ASSESSMENT OF SUCCESS

In Jody Pinto's essay on this project in *Sculpting with the Environment - A Natural Dialogue*, the assessment of the success of the project is based primarily on its cultural impact on the Phoenix community. Specifically, as a site for solstitial alignment celebrations, and as a final destination for a candlelight vigil in remembrance of people lost to AIDS. This cultural success could be in opposition to the site's continued ecological success. There is no designated path system through the site and soil compaction from trampling could impede the successful growth of seedlings and other delicate plants.

The projects ecological success is assessed by artist Jody Pinto by the presentation of a photograph of a flowering ocotillo (*Fouquieria splendens*) on one of the terraces, as well as aerial photographs from the first year after completion (1992) and the second year after completion (1993). These sequential photographs show a marked increase in the number of plants growing on the terraces, although the designers give no written quantitative analysis of the vegetation.

By counting the individual plants in the photographs, I have found that the 1992 photograph shows approximately 45 plants, and the 1993 photograph shows over 600 plants. The plants in the photograph from 1993 seem to be following the pattern of the imprinting, or the rill and terrace system, suggesting that the additional growth was a direct result of the storm water retention and management. This, along with photographs of water being held in the terraces, shows that the water irrigation system works on a mechanical level. Water is successfully collected and distributed to the seven desert terraces where it can be taken up by plant roots.

In order to understand the success of this project, it would be crucial to know what reference desert community is being pursued. However, the reference community is not clear. The highway interrupts a wash here, and it may be that a wetter 'wash' area's hydrology is being replicated with the terrace and rill system. However, there is no reference to replicating a wash area's more luxuriant vegetation, or conversely, to pursuing a desert scrub community. In fact, there is no technical discussion of the plan for vegetation. Some quantitative analysis would be helpful in

assessing the success of this reclamation project. Information on plant and animal species composition, counts and dispersal would be beneficial. These measurements should be taken at regular intervals before, during and after the completion of the project. These species counts and their spacing could then be compared to a reference desert community. The plant and animal communities in the desert are varied and intricate, and the designers of the Tree of Life do not attempt to discuss these matters in their description of the project.

An obvious question then arises when examining this project. Why do native desert plants need to be "farmed" in the desert? Could it be related to the idea that there has been a decrease in rainfall over the last 100 years? Shouldn't the existing, dry regime be appropriate to sustain the growth of plants of the desert? It may be that the goal of this project was not really to restore the desert exactly as it would have been.... but to reclaim this piece of desert as a hyper-desert-garden. Plants would grow more vigorously and more closely spaced than they would in the same site without the altered hydrology. This may be desirable and appropriate here because this project is a piece of art, but it might not be appropriate for a project that represented itself as more "natural". Also, the logistics of this type of farming may be possible at this 2 acre scale, but I doubt that it could be done on the scale of the whole 2000 acres of Papago Park. A rill and terrace system is obviously not the text book answer for restoration or reclamation of desert communities, but seems appropriate for this scale, site and program.

It is difficult for me to assess this art piece/reclamation project on the bases of ecology alone. I do feel, however, that the scientific approach is necessary when an art piece purports to be a reclamation. The designers should clearly state what the project is, and what the project is not. These designers want their project to have a real ecological impact, but they do not tend to that matter adequately. As a reclamation, I believe that this project is a success, on its own terms and on its own scale. This piece is also a success because it is didactic and poetic, and seems to communicate meaning to the community of people in the Phoenix area.

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