

pHake Lake

by Stephen Dreher, BFS Manager

The BFS landscape is influenced by a mix of natural processes and human influences. Our one-acre lake is a good example of these interactions.

This body of water is, of course, man-made. The soil is so sandy and dotted with large rocks (the famous “Claremont potatoes”) that puddles rarely form even during the heaviest of our winter rainstorms. A section of the BFS was once part of the great San Antonio Wash, an alluvial system and rare habitat now essentially destroyed by dams, concrete culverts and urban development. A small remnant wash still takes the run-off from the suburbs north of the field station (which were laid atop old drainage patterns). That wash can flow tumultuously during heavy rains, but even these large volumes of water simply disappear with no trace in the fields along Foothill Blvd.

Construction of the lake, then, was a major effort. The project was undertaken shortly after the BFS was formed in 1976. Tons of heavy clay soil had to be imported to line the bottom to prevent the water from draining away. The form of the lake is more that of a glacial lake than a rancher’s pond. From the shoreline, the bottom drops off rapidly and steeply with water depths of 15 feet only a few yards from the edge. The center of the lake is up to 25 feet deep. It’s a lot of water from any perspective. Perhaps the design was intended to promote warm/cold water convection, support varied wildlife or simply account for soil fill-in over time. Generally, it seems to have worked quite well. A four-inch main brings water to the location.

From these human beginnings, the lake habitat has matured. That is not to say it functions without continued manipulation, but it has also taken on its own dynamic and natural processes. The initial planting of riparian tree species, primarily alders and willows, now forms a moisture-holding shade canopy under which a more diverse understory continues to develop. Some understory species were planted at the time of construction (e.g. the bulrushes), but many others have migrated in through wind, animal, bird or human dispersal. Among these are *Horkelia cuneata*, *Typhus latifolia*, *Ludwigia repens*, *Eleocharis atropurpurea*, *Ribes aureum*, *Vitis californica* and species of *Juncus*. One Western Redbud tree (*Cercis occidentalis*) has also established itself.

Wildlife at the lake also represents these mixed interactions – some has been introduced, some became established on their own. The two fish species, bass and mosquito fish, clearly did not find their own way into the lake. Endangered Western Pond Turtles displaced by development were also placed at the lake. On the other hand, with the natural arrival and expansion of the cattails (*Typhus latifolia*), suitable habitat became available for our resident coots. Crayfish live in the cattails and redwing blackbirds nest and breed in them. Many migratory birds visit the lake regularly and this year blue herons, green herons, ruddy ducks and mallards have remained for significant periods of time. It’s also likely that the resident California quail and mammals use the lake as a water source. Cooper’s Hawks are often spotted in the canopy, attracted by the various bird species in the habitat.

This resource, however, does require sustained habitat management to remain viable and vital. The cattails serve as wonderful shelter for a few species, yet pose a risk if permitted to dominate. In recent years the cattails were allowed to form a thick, impenetrable barrier around the entire lake, eliminating any visible shoreline. This served to repel many water birds and led to decreased water movement and stagnation which may have aided the formation of the thick, green carpets of algal bloom seen during the last couple of years. Over the last year we have removed a few significant sections of cattails (while intentionally leaving others) and installed a new water system. The increased water movement and oxygen levels have resulted in no algal bloom at all this year, while the mallards and ruddy ducks have remained longer than usual. We even resurrected a small island, part of the original design, which had disappeared among the cattails and fill-in of soil over the years. We re-excavated the moat around the island, removed the cattails and changed the shore contours, hopefully making the island more attractive to additional water birds.

Our lake is an important BFS research component and a vital wetland in a landscape of increasing habitat destruction.

To get info about the BFS:

You can get information about the history and features of the station, as well as about its plants and animals (and some great pictures) at www.bfs.claremont.edu.

Community use!

Community groups can use the Field Station for educational purposes, so if your school class, scout troop, or similar group with insurance, would like to visit the Station, please phone the manager, Stephen Dreher (909-624-6661), and discuss details with him.



“A tour of the property readily convinces visitors of the importance of keeping such a beautiful expanse of land, shrubs, and trees for scientific purposes .”

Robert J. Bernard in “An Unfinished Dream”

