CANYON DE CHELLY INVENTORY
2002 Interim Report

OBJECTIVES

This floral work is being carried out as part of a larger inventory and monitoring effort carried out by the National Park Service (NPS), which includes inventory efforts at many of the smaller park units on the Colorado Plateau during 2001 through 2004. A significant goal of the effort is to document 90% of the vascular plants occurring within the park units. When the present survey was initiated, NPS researchers guessed that approximately 60% of the plant species in Canyon de Chelly National Monument were known. Our objectives with this research are to: 1) expand the floral list for Canyon de Chelly to more accurately reflect the number of species present, 2) use random sampling and statistical methods to try to determine how many species we may have missed, 3) document rare plants and exotic plants within the Monument, and 4) survey hanging gardens for plant species of interest.

FINDINGS

LOCATION AND ADMINISTRATION

Canyon de Chelly National Monument (CACH) is part of the Navajo Reservation in Apache County, northeastern Arizona, and is unique in the Park Service in that title to the land remains with the Navajo Nation. CACH management is shared by the Navajo Nation and the National Park Service (NPS), though confusion still exists regarding the role that each is to play. The NPS administers the archaeological resources and "other features of scientific and historical interest" (Brugge and Wilson, 1976:17). Five neighboring Navajo governmental Chapter Houses have jurisdiction within CACH as follows: Chinle, Crystal, Nazlini, Sawmill, and Tsaile/Wheatfields. Numerous private leaseholders (residents) have rights to the use of specific areas within CACH.

VEGETATION COMMUNITIES

Vegetation communities range from desert scrub and grassland at lower elevations to ponderosa pine forests at upper elevations within CACH. Douglas fir and aspen forests grow on north aspect slopes within the canyons at elevations as low as 1830 meters (6000 feet). Big sage, pinyon-juniper, and riparian vegetation communities thrive within this range. Minor communities include active sand dunes, hanging gardens, and human impacted agricultural and weedy areas. In the lower canyons, canyon bottoms have been severely impacted by human disturbance including agriculture, grazing, tree planting, erosion control features, motor vehicle travel, and tourism. These impacts are less severe to nonexistent in the upper canyons. Rim areas have been significantly disturbed by human settlement, logging, grazing, fuel wood gathering, and limited agriculture.

FIELD WORK

I spent 58 days or portions of days within CACH during 2002. Seventy-seven points were randomly located within six stratified vegetation types as defined and mapped by the GAP Analysis Program. Four of the seventy-seven points were inaccessible due to

steep cliffs. Another two of the points were located on steep bald rock areas where no vegetation was present. I visited the remaining seventy-one points in the spring of 2002, and in the fall of 2002, at a time of the season when I judged, based on seasonal rainfall events, that the most diverse set of plants was likely to be flowering. At each of these points I recorded species present and their associated cover.
Using the ICE model for species richness, as prescribed by the inventory proposal, the random point data supports a conclusion that there are 300 species present in CACH. This number is much less than the 540 species known to be present prior to the start of this project.

HERBARIA WORK
I visited the University of Arizona (ARIZ) herbarium and the Western Area Archaeological Center (WAAC) in Tucson to review plant specimens representing species not vouchered in the Canyon de Chelly Herbarium.

SENSITIVE PLANT SPECIES
The survey revealed new locations for twenty-one sensitive plant species including *Aletes macdougalii*, *Carex chihuahense*, *Carex meadii, Carex specuicola*, *Parnassia parviflora*, *Zigadenus vaginatus*, *Almutaster pauciflorus, Astragalus chuskanus*, *Beckmannia syzigache, Cystopterus utahensis*, *Lupinus caudatus ssp. cutleri*, *Opuntia x viridiflora*, *Penstemon lentus, Penstemon strictiformis*, *Penstemon virgatus*, *Besseya arizonica*, *Chrysothamnus parryi ssp howardii*, *Cryptantha cinerea, Eriogonum corymbosum*, *Nama retrorsum*, *Pediomelum megalanthum*, *Penstemon strictus*, *Proboscidea parviflora*, *Nolina microcarpa*
The following species of interest were found during this survey, but are not on an agency list: *Cardamine cordifolia, Dasiphora, Draba petrophila var. petrophila, Mertensia oblongifolia*, *Symphiotrichum laeve var. leave*, and *Torreyochloa pallida var. pauciflora.*

The following SWEMP noxious weed and special concern species were found at CACH: *Acroptilon repens*, *Bromus tectorum, Carduus nutans, Cenchrus spinifex, Chorispora tenella, Cicuta douglasii, Cirsium vulgare, Convolvulus arvensis, Conyza canadensis, Descurainia sophia, Elaeagnus angustifolia, Erodium cicutarium, Kochia scoparia, Marrubium vulgare, Medicago polymorpha, Melilotus alba, Melilotus officinale, Portulaca oleraceae, Salsola kali, Setaria viridis, Solanum elaeagnifolium, Tamarix chinensis, Tamarix parviflora, Tamarix ramosissima, Tribulus terrestris,* and *Xanthium strumarium.* Another weedy species of note that was found is *Solanum rostratum.*