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# Biota of Lake Mead

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Lake Mead

VASCULAR PLANTS OF THE  
LAKE MEAD NATIONAL RECREATION AREA

LAME Technical Report No. 3

February 1979



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**Mead Report Series**

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BIOTA OF THE LAKE MEAD NATIONAL RECREATION AREA  
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The first major survey of the biological resources of the Lake Mead National Recreation Area was initiated in 1974 as a joint endeavor between the National Park Service and the University of Nevada/Las Vegas under the auspices of the Cooperative National Park Resources Studies Unit, University of Nevada/Las Vegas. This research program consists of a series of interdisciplinary investigations that deal with the plants and animal life of the Lake Mead National Recreation Area and closely adjoining lands.

Final reports that result from these studies will be reproduced in a LAKE MEAD PROJECT TECHNICAL REPORT SERIES that will be supplemented by technical papers published as Project Contributions in scientific journals.

Cover Drawing by Pat Hansen

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by

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NEVADA/ARIZONA

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LAME Technical Report No. 3  
February 1979

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Project Directors

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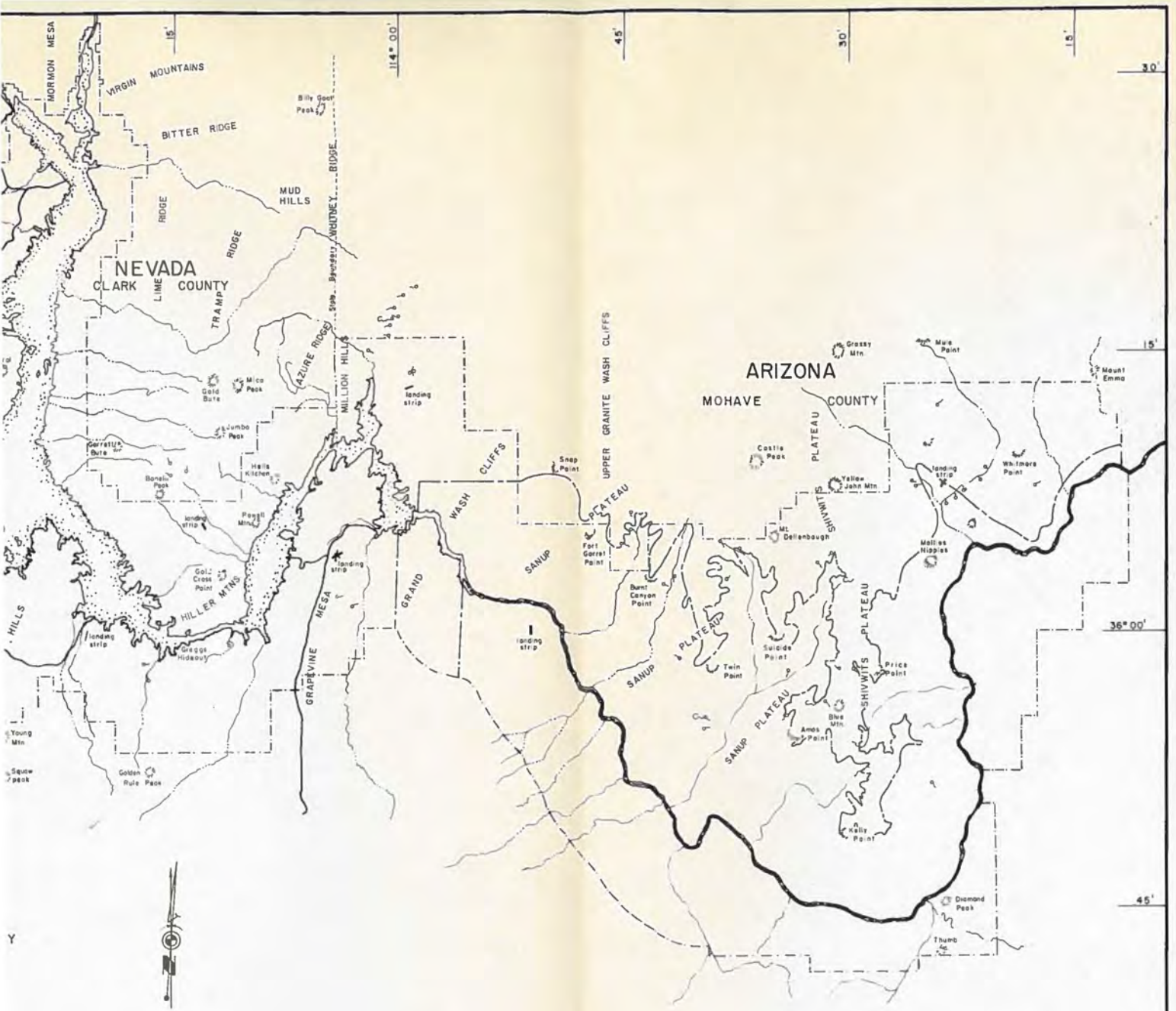
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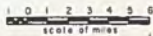
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Vascular plants of the Lake  
Mead National Recreation A  
rea



**EXPLANATION**

- Lake Mead National Recreation Area Boundary
- ⊞ Corral
- Landing Strip
- ⊙ Springs
- Primary Roads
- Boundary of Grand Canyon National Park  
(Park was expanded in 1975 to incorporate area north of Colorado River that formerly was in the LMNRA)

LOWER COLORADO REGION  
**LAKE MEAD NATIONAL RECREATION AREA**  
 ARIZONA - NEVADA



JUNE 1973

KOW

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## INTRODUCTION

The southwestern United States is not abundantly provided with watercourses. The single most important river is the Colorado. It enters the state of Arizona from the northeast, flows through a series of deep canyons, and emerges in the vicinity of Grand Wash Cliffs near the northwestern corner of that state. Here its flow is impeded by Hoover Dam, with the expanded waters forming Lake Mead, this country's largest man-made reservoir. The Colorado then flows almost due south through low desert country, serving as the boundary between Arizona and Nevada (and farther southward, the boundary between Arizona and California). Near the extreme southern tip of Nevada, the river's flow is again impeded by a closure, Davis Dam, forming a second smaller reservoir, Lake Mohave. The river eventually empties into the Gulf of California, some 40 miles south of the international boundary.

Historically and geologically, the Grand Wash Cliffs mark the lower (western) terminus of the Grand Canyon. From this spectacular escarpment to Davis Dam, a distance of some 160 miles, the Colorado River, Lakes Mead and Mohave, and adjacent lands constitute a major portion of the Lake Mead National Recreation Area (LMNRA). To the east of Grand Wash Cliffs, LMNRA's boundaries are extended to include two essentially disjunct regions: a part of the Hualapai Indian Reservation south of and bordering the Colorado River, and north of the river, a portion of the high elevation Shivwitz Plateau. Nearly 1.5 million acres in northwestern Arizona and southern Nevada are encompassed within the boundaries of LMNRA (frontispiece).

In order to document the occurrence and distribution of the flora and fauna of LMNRA, the U. S. National Park Service, in cooperation with the University of Nevada, Las Vegas, instituted a Resources Basic Inventory. The present report is part of that larger study and includes information on the vascular plants within the recreation area. The annotated list of taxa, which forms the bulk of this report, has been compiled on the basis of actual collections, collections cited in literature, and observations. Preceding this list are brief descriptions of the prevailing physical features, early botanical activities within the area, and the major perennial vegetation types.

## PHYSIOGRAPHY

The topography of the recreation area is varied, a reflection of its location astride the boundaries of two different physiographic provinces (Fenneman 1931). To the west and south of Grand Wash Cliffs is the Basin and Range Province, with a landscape characterized by numerous, mostly isolated, north-south trending desert mountains. These are generally steep, rugged and sparsely vegetated. Valley basins, bajadas and playas are associated topographic features. Land forms within this portion of LMNRA generally lie below the 915 m (3,000 ft.) level, but elevations range

from near 150 m (500 ft.) at river level near Davis Dam to as much as 1645 m (5,400 ft.) on nearby ranges (i.e., the Newberry Mountains).

Another portion of LMNRA, north and east of Grand Wash Cliffs, lies within the Colorado Plateau Province. This is a high elevation tableland, deeply incised in this area by the Colorado River. Near this easternmost boundary, the river is around the 490 m (1,600 ft.) level. It is flanked on either side by deep, rugged, lateral side canyons that drain surrounding higher elevations. To the north of the river are exposed two well-marked tables or benches: the Sanup at approximately 1400 m (4,600 ft.), and the Shivwitz at the 1830 m (6,000 ft.) level. The Shivwitz extends northward into Utah as a gently rolling tableland, marked by occasional lava-capped buttes. One of these, Mt. Dellenbaugh, rises to 2,132 m (6,990 ft.), and is the highest point in LMNRA.

#### HISTORICAL ACCOUNT OF BOTANICAL ACTIVITIES

Over the years the area encompassed by LMNRA has been visited by numerous professional botanists. However, published records of these expeditions are few.

In the 1800's several botanists travelled the historic route from Santa Fe to southern California, observing and probably collecting plants in the area of "the Great Bend of the Colorado River". From information compiled by Ewan (1950), the first of these professional botanists may have been Gambel in 1841. Others were Fremont in 1844; Bestor, who accomplished the Emory expedition of 1846; and Rothrock of the Wheeler survey party in the early 1870's. Of these, reports of collections are available for Rothrock, in his "Notes on economic botany" and "Catalogue of plants" (Rothrock 1878). Fremont, during his second expedition, collected around 1,400 specimens, but more than half of these were ruined in a flood. Only a small portion of those saved were usable; these have been recorded by Torrey (1845).

Other early botanists of note include the Frenchman Remy (Ewan 1950), who, in 1855, passed through the area enroute from Salt Lake to St. George and Los Angeles; also, the surgeon-naturalist Newberry, attached to the Ives exploring expedition of 1856. Newberry ascended the Colorado River from its mouth to Fortification Rock, a landmark located near the bend of the Colorado River (Ives 1861). In 1870, Edward Palmer travelled southward from Salt Lake, making many collections along the way (McVaugh 1956). Palmer made stops at Calville (a site now submerged under the waters of Lake Mead) and Eldorado (Canyon), before proceeding on to Ft. Mohave. He was in the same general vicinity again in the spring of 1877.

A.L. Siler, a Mormon traveller from Kane County, Utah is reported by Ewan (1950) to have collected cacti in the 1890's along the walls of the Grand Canyon. His collections are deposited in the Gray and Missouri Botanical Garden herbaria.

In 1891, naturalists associated with the Death Valley Expedition made excursions within the modern day boundaries of the recreation area. Coville, the chief botanist of the expedition, spent eight days in March exploring the Las Vegas valley, Las Vegas Wash and the Black Canyon of the Colorado River. The following month, C. Hart Merriam and Vernon Bailey departed Cajon Pass, California, following a route through Las Vegas valley, Las Vegas Wash, St. Thomas, Overton, and the Virgin River to St. George. Bailey separated from the party and travelled southward through Detrital Wash and the Dolan Springs area of Arizona. Collections made by these parties have been recorded in North American Fauna (Merriam 1893), and in Coville's "Botany of the Death Valley Expedition", 1893.

Collectors in the early 1900's included L. N. Goodding and Marcus Jones (Ewan 1950). Goodding, in 1902, followed the Muddy River south to the Virgin and Colorado Rivers and the Las Vegas Wash. His collections are preserved in the Rocky Mountain Herbarium and at the New York Botanical Garden. Jones collected widely in the western United States. According to his own account (Jones 1965), his first trip into present day LMNRA actually occurred in 1894, and was related to his acceptance of a seasonal position with the U. S. government to explore the region of the Grand Canyon of the Colorado. In April of that year he collected along the Muddy River and in the Grand Wash and Pierce Ferry areas. Jones returned to the same general region in April of each year from 1903-1905, and collected in Eldorado Canyon in 1907. A set of his valuable collections is housed in the herbarium of Rancho Santa Ana Botanic Garden.

During the next 40-year interval little botanical exploration was conducted within the boundaries of the recreation area. However, the Spring Mountains in western Clark County, Nevada were being examined intensively in the mid 1930's and early 1940's. This work resulted in a flora of the Charleston (Spring) Mountains by Clokey, in 1951.

In more recent years the inner gorge of the Colorado River within Mohave County, Arizona has been the site for the majority of botanical effort in LMNRA. Among the first to work in this area were Clover and Jotter (1941, 1944), who studied cacti and prepared a checklist for the riparian community. Martin (1971) and Martin et al. (1973) studied the vegetation along this section of the river. Phillips and Phillips (1974) and Phillips (1975) have provided information on plants occurring in the lower Grand Canyon. The Museum of Northern Arizona and Carothers et al. (1974) compiled a bibliography and preliminary checklist for the lower Grand Canyon region. Information concerning late Pleistocene and modern plant communities have been provided for the Canyon area by Laudermilk and Munz (1934), Phillips and VanDevender (1974), VanDevender and Mead (1976), and Phillips (1977).

Additional information concerning the flora of Clark County, Nevada has been provided by Deming (1953). This checklist was compiled primarily from the work of Clokey (1951) in the Spring Mountain Range. One of the few copies of Deming's manuscript is included in the special collection of the library of the University of Nevada, Las Vegas. Jones and Summer (1954) published a partial list of plants collected by them in the Lake Mead region. Among the more recent publications treating the botany of Clark County, and relating in varying degree to LMNRA are those of Bradley (1966, 1967),

Bradley and Deacon (1967) and Bradley and Niles (1970). These papers treat the northward extension of Sonoran Desert elements, a geographical analysis of the flora, biotic communities, and the ecology of Las Vegas Wash. Papers by Mehringer (1965) and Leskinen (1969) discuss aspects of late Pleistocene vegetation in southern Nevada.

## VEGETATION TYPES

As noted above, the established boundaries of LMNRA outline an area whose physical features are characteristic of, and transitional between, two physiographic provinces. This same area is also transitional in regard to its vegetation, for it supports plant life characteristic of three of the four North American deserts, the Great Basin, Mojave, and Sonoran.

The area encompassed by LMNRA occurs primarily in what has been geographically and biologically designated as the Mojave Desert. Vegetation characteristic of this region is therefore most common and widespread, usually at low to mid elevations (600-1200 m, 2,000-4,000 ft.). But elements of the other two deserts merge and overlap in at least some portion of LMNRA. At the higher elevations (generally above 1200 m, 4,000 ft.) there occur Great Basin vegetative types that enter the area from the north. At the lowest elevation zones (below 600 m, 2,000 ft.) are occasional plants representative of the more southern Sonoran Desert.

The predominant feature of the vegetation is its shrubbiness. Tree forms occur with regularity only on the higher elevation plateaus (Sanup and Shivwitz), the upper reaches of the Newberry Mountains, as occasional stands of Joshua-trees, along well established watercourses, or at spring/seep sites. Elsewhere, the terrain is marked by shrub communities. These are dominated by one to several shrub species that exhibit similarity in life form, height and color, and impart an impression of monotony.

During Spring months the apparent monotony of this perennial vegetation may be relieved by the appearance of large numbers of ephemeral, herbaceous plants. Their occurrence follows periods of moderate to heavy winter rains; and although they are short lived in nature, they form a conspicuous seasonal element of the desert vegetation.

For the purpose of this report the perennial vegetation of LMNRA has been divided into eight vegetation types, each of which is characterized by one or more dominant species.

### Creosote-bush type.

Creosote-bush (Larrea tridentata) alone or with its most common associate, bur-sage (Ambrosia dumosa), dominates Mojave Desert communities, and is the most abundant and widespread type within the recreation area. It forms nearly pure stands on intermountain plains, lower bajadas and fans, from the lowest elevations to approximately 1100 m (3,500 ft.). Its best development occurs in coarse, well-drained soils with a total salinity of less than 0.02% (Shantz and Piemeisel 1924). Rainfall over the area is 150 mm (6 in.) or

considerably less, resulting in a simple community physiognomy with low species diversity and usually broad spacing of shrubs. Larrea and Ambrosia may comprise as much as 90-100% of the vegetation, with the remaining small percentage made up of other shrubs and cacti.

At higher elevations (upper bajadas) creosote-bush gives way to black-brush (Coleogyne) type, and in lower basins it may be replaced by the salt-bush (Atriplex) type.

The more common subdominant taxa include:

Atriplex canescens (four-wing salt-bush)  
Krameria spp. (ratany)  
Lycium spp. (wolf-berry)  
Encelia farinosa (brittle-bush)  
Ephedra nevadensis (Mormon-tea)  
Yucca schidigera (Mojave yucca)  
Eriogonum fasciculatum (buckwheat)  
Opuntia basilaris (beaver-tail cactus)  
Thamnosma montana (turpentine-broom).

In arroyos or desert washes that dissect the terrain these same species may attain a more robust form. Here they are joined by the more typical desert wash species:

Acacia greggii (catclaw)  
Salazaria mexicana (bladder-sage)  
Psoralea fremontii (indigo-bush)  
Prosopis glandulosa var. torreyana (mesquite)  
Hymenoclea salsola (burrow-bush)  
Chilopsis linearis (desert-willow).

#### Salt-bush type.

In lower regions of basins and valleys (and occasionally on slopes), where soils are heavier and salt content rises to around 0.2% (Shantz and Piemeisel 1924), creosote-bush is replaced by this type. Under these conditions one or more shrubby species of salt-bush assume dominance: Atriplex polycarpa, A. confertifolia (shad-scale), A. hymenelytra (desert-holly), and A. canescens (four-wing salt-bush). The phreatophytic mesquite (Prosopis glandulosa var. torreyana) and Haplopappus acradenius var. eremophilus are often present as subdominants.

If a dry lake or playa has been formed within the basin the salt-bush occurs in a circular zone, giving way near the playa edge to more salt tolerant and succulent members of the chenopod family, e.g. Allenrolfea spp. (iodine-bush), Suaeda spp. (seep-weed) and Nitrophila occidentalis. The playa itself is usually devoid of plant life.



Areas as described above are not extensive within LMNRA, but occur in widely scattered sites within the creosote-bush and black-brush types. Salt-bush type may also occur at the restricted seep/spring sites within the recreation area. In these places the species enumerated above are joined by typical phreatophytic vegetation, e.g. Pluchea sericea (arrowweed) and Tamarix spp. (salt-cedar).

#### Black-brush type.

In many places in LMNRA black-brush (Coleogyne ramosissima) replaces creosote-bush on upper bajadas or on old alluvium overlain with limestone-derived rocks. It tends to occupy a zone elevationally intermediate (1100-1500 m, 3,500-4,900 ft.) between the creosote-bush so typical of the lower Mojave Desert and either the Great Basin sagebrush or pinyon-juniper types of the higher elevations. The climate is colder than that of the lower creosote-bush areas, and snow is common for short periods in winter. Annual precipitation is approximately 200 mm (8 in.).

This type is relatively simple floristically. Coleogyne occurs as nearly pure stands, with the grayish-black shrubs rather closely spaced and averaging about 60 cm (2 ft.) in height. Common associated perennial species are:

Yucca baccata (banana yucca)  
Yucca brevifolia (Joshua-tree)  
Eurotia (Ceratoides) lanata (winter-fat)  
Thamnosma montana (turpentine-broom)  
Ephedra viridis (Mormon-tea)  
Salazaria mexicana (bladder-sage)  
Salvia dorrii (sage)  
Menodora spinescens.

#### Joshua-tree woodland type.

This type is unique to the Mojave Desert; its distribution nearly outlining the extent of this phytogeographic region. Joshua-tree (Yucca brevifolia) usually occurs at the same elevational zone as black-brush, but occupies the more loose, less rocky soils of gentle slopes. The structure is one of Joshua-tree overstory and an understory of various shrubs, often black-brush. Other common perennials are:

Larrea tridentata (creosote-bush)  
Salazaria mexicana (bladder-sage)  
Hymenoclea salsola (burrow-bush)  
Ephedra nevadensis (Mormon-tea)  
Yucca baccata (banana yucca)  
Menodora spinescens  
Thamnosma montana (turpentine-broom)

Eurotia (Ceratoides) lanata (winter-fat)  
Grayia spinosa (hop-sage)  
Atriplex spp. (salt-bush).

True Joshua-tree woodland is uncommon in the recreation area. An extensive population in the Meadview-Grapevine Mesa region is a northern extension of what may well be the largest and finest stand of this plant.

#### Riparian type.

This vegetation type is restricted within LMNRA to margins of permanent watercourses. It is characterized by typical palustrine species and various phreatophytes that establish themselves in areas of silt-sand build up with high moisture content. It is well represented in Las Vegas Wash, on the banks of the Muddy, Virgin and Colorado Rivers, and in scattered lakeshore regions. It is also present at many of the seeps or springs, where, depending upon the mineral content of the available water, it mixes with elements of the salt-bush type. Tree, shrub and perennial herb species are included:

Salix spp. (willow)  
Tamarix spp. (salt-cedar)  
Populus fremontii (cottonwood)  
Prosopis glandulosa var. torreyana (mesquite)  
Prosopis pubescens (screw-bean mesquite)  
Typha spp. (cat-tail)  
Pluchea sericea (arrow-weed)  
Distichlis stricta (salt-grass)  
Phragmites australis (reed)  
Juncus spp. (rush)  
Carex spp. (sedge)  
Atriplex spp. (salt-bush)  
Suaeda spp. (seep-weed)  
Allenrolfea occidentalis (iodine-bush)  
Anemopsis californica (yerba-mansa).

#### Sagebrush type.

Big sagebrush (Artemisia tridentata) forms the dominant cover over portions of the Shivwitz, and to a lesser extent, the Sanup Plateaus. This typical Great Basin type occurs predominantly above 1500 m (4,900 ft.), in deeper, well-drained soils. Near the 1800 m (5,500 ft.) level, and on more rocky surfaces, this shrubby type gives way to an arborescent xeric woodland of pinyon and juniper. At its lower limits it commonly forms a narrow ecotone with the black-brush type. Annual precipitation ranges from 250-300 mm (10-12 in.). Common associates are:

Artemisia arbuscula (low sagebrush)  
Gutierrezia sarothrae (snake-weed)  
Chrysothamnus spp. (rabbit-brush)  
Atriplex confertifolia (shad-scale)  
Coleogyne ramosissima (black-brush)  
Eurotia (Ceratoides) lanata (winter-fat).

Pinyon-juniper woodland type.

Occurrence of this type in LMNRA is restricted to one small area (the Newberry Mountains) at the southern boundary, and to high elevations atop the Sanup and Shivwitz Plateaus. Pinyon (Pinus monophylla) and juniper (Juniperus osteosperma) form this xerix woodland, with best development taking place on rocky, shallow soils, generally at elevations between 1375 m (4,500 ft.) and 1950 m (6,500 ft). Annual precipitation averages around 350 mm (14 in.). Juniper tends to dominate in the lower parts of the range, while at higher elevations pinyon achieves codominant status. The aspect is one of general openness, with scattered trees and a shrub understory of black-brush (Coleogyne) or big sagebrush (Artemisia).

In local regions with deeper soils and greater water content a brushy type of vegetation may occur, so as to obscure or interrupt the open aspect so characteristic otherwise. Principle shrub associates include:

Quercus gambelii (Gambel oak)  
Quercus turbinella (scrub oak)  
Amelanchier utahensis (Utah serviceberry)  
Cercocarpus spp. (mountain-mohogany)  
Rhus trilobata (squaw-bush)  
Ceanothus greggii  
Garrya flavescens (silk-tassel)  
Arctostaphylos spp. (manzanita).

Ponderosa pine woodland type.

Ponderosa pine or western yellow pine (Pinus ponderosa) is restricted in occurrence to the Shivwitz Plateau, at 1800 m (6,000 ft.) and higher. Its best development takes place in deep soils along drainage bottoms, where annual precipitation averages around 450 mm (18 in.). In general it forms an open woodland with an understory comprised of a mixture of shrubs and herbs. But in some plateau regions dominance may be shared by the tree form of Quercus gambelii (Gambel oak), or this broad-leaved species may even replace ponderosa pine in localized areas. The most common associates are:

Quercus gambelii (Gambel oak)  
Quercus turbinella (scrub oak)  
Cercocarpus spp. (mountain-mohogany)  
Artemisia tridentata (big sagebrush)  
Chrysothamnus spp. (rabbit-brush)

Arctostaphylos spp. (manzanita)  
Amerlanchier utahensis (Utah serviceberry).

## ANNOTATED LIST OF TAXA

The following checklist of vascular plant taxa has been compiled from actual collections, observations, and literature citations.

Collections are primarily those made over the years and during the course of this study by personnel at the University of Nevada, Las Vegas. They form part of an extensive regional herbarium maintained at the university. These entries in the checklist are identified by collection number alone (i.e. without herbarium designation). Entries designated by the abbreviation (UNLV) only, represent observations made by members of the study team, or in a few instances, specimens without a collector's number that are on deposit in the University of Nevada's herbarium.

The checklist also references collections made by National Park Service personnel and retained at the headquarters in Boulder City. These are designated by the abbreviation (LM).

In the case of literature citations, no verification of identifications has been attempted. These entries are identified according to the herbarium in which the specimen is reported to be deposited. Abbreviations for these herbaria are shown below. Pertinent literature references occur in the bibliography of this report.

In some instances the checklist includes taxa that are not definitely known to occur within the boundaries of LMNRA. These are listed because they have been located in nearby or contiguous areas, or are otherwise so disposed to warrant their inclusion.

No plant list is ever complete or without error. The study team will appreciate receiving all additions or corrections to it.

Except for those in parentheses, herbaria abbreviations used in this report follow the official designation in Index Herbariorum (Holmgren and Keuken 1974):

ARIZ - University of Arizona, Tucson  
ASU - Arizona State University, Tempe  
BRY - Brigham Young University, Provo  
CAS - California Academy of Sciences, San Francisco  
GH - Gray Herbarium, Harvard University, Cambridge  
JEPS - Jepson Herbarium, University of California, Berkeley  
LA - University of California, Los Angeles  
(LM) - Lake Mead, Boulder City

MNA - Museum of Northern Arizona, Flagstaff  
MO - Missouri Botanical Garden, St. Louis  
(NSM) - Nevada State Museum, Carson City  
NTS - Nevada Test Site, Mercury  
NY - New York Botanical Garden, Bronx, New York  
RENO - University of Nevada, Reno  
UC - University of California, Berkeley  
UNLV - University of Nevada, Las Vegas  
US - U. S. National Herbarium, Smithsonian Institution,  
Washington, D.C.

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## ASPIDIACEAE

Woodsia oregana Eat.

Perennial herb; occasional in rocky places at higher elevations.

Mohave Co: Leary 2249, north-facing crevice, rim near head of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft; Leary 2205, north-facing volcanic cliff, with Brickellia and Huchera, summit of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft. Clark Co: none.

## PTERIDACEAE

Adiantum capillus-veneris L.

(Venus-hair fern)

Perennial herb; common in seep areas at lower elevations.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Nickell 626, bottom of Bridge Canyon, Newberry Mountains, 2800 ft; Bostick 3121, bank of the Colorado River, 5 miles below Hoover Dam, 700 ft.

Cheilanthes covillei Maxon

(lip fern)

Perennial herb; occasional in rocky places at lower elevations.

Mohave Co: none. Clark Co: Niles & Leary 1962, beneath granitic boulder, peak south of summit of road between Carp and Kane Springs Wash, north end of Meadow Valley Mountains, 5600 ft.

Cheilanthes feei T. Moore

(lip fern)

Perennial herb; occasional in limestone at lower elevations.

Mohave Co: Leary (UNLV), north-facing sandstone cleft in Paw's Pocket, Whitmore Canyon, 3900 ft. Clark Co: Niles & Leary 1878, in rock crevices, south-facing limestone hills, south end of the Virgin Mountains, 0.5 mile north of Whitney Pocket, 3100 ft.

Notholaena cochisensis Goodd. (cloak fern)

Perennial herb; rare in rocky places at lower elevations.

Mohave Co: Leary 1813, south-facing sandstone rubble, Paw's Pocket, Whitmore Canyon, 3900 ft. Clark Co: none.

Notholaena parryi Eaton (cloak fern)

Perennial herb; occasional in rocky places at lower elevations.

Mohave Co: Phillips (MNA), Rampart Cave area; Leary 1808, in crevice at base of large sandstone boulders, Paw's Pocket, Whitmore Canyon, 3900 ft. Clark Co: Mauer 11, Grapevine Canyon, Newberry Mountains; Bostick 3271, 2.5 miles west of Rogers Spring, Muddy Mountains, 2000 ft; Leary 1725, north-facing side of wash in cleft of metamorphic rock, near entrance to recreation area, Eldorado Canyon, 1800 ft; Leary 1762, north-facing limestone crevice, ridge northeast of junction of North Shore road and West End Wash, 2100 ft.

Pellaea truncata Goodd. (cliff-brake)

Perennial herb; occasional in rocky places at lower elevations.

Mohave Co: Walker & Leary 2214, south-facing volcanic rock, just below summit of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft. Clark Co: Holland 511, head of Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3400 ft; Nickell 529, near Juniper Mine, Newberry Mountains, 3500 ft; Mauer 63, 4 miles south of Gold Butte, Virgin Mountains, 4400 ft; Niles & Leary 1916, 9 miles south of Scanlon Ferry road and Overton Arm Jeep Trail, Gold Butte area, 3800 ft.

Pityrogramma triangularis (Kaulf.) Maxon  
var. maxoni Weath.

Perennial herb; occasional in rocky places, mid elevations.

Mohave Co: none. Clark Co: Niles & Leary 1906, 1.8 miles southwest of junction of Scanlon Ferry and Gold Butte roads, 3490 ft.

## PINACEAE

Pinus edulis Engelm.

(pinyon pine)

Tree; occasional on the Shivwits Plateau.

Mohave Co: Holland 325, with Pinus monophylla, Juniperus osteosperma and Artemisia tridentata, on the northern exposure of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft; Leary 2217, in volcanic soil, dominant with Juniperus and Artemisia, on a north slope of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft.  
Clark Co: none.

Pinus monophylla Torr. & Frem.

(pinyon pine)

Tree; common at higher elevations throughout area.

Mohave Co: Holland 646, Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Bohrer 241, rim of Quartermaster Canyon. Clark Co: Holland (UNLV), summit of Christmas Tree Pass, Newberry Mountains, 3800 ft.

Pinus ponderosa Laws.

(western yellow pine)

Tree; common on the Shivwits Plateau.

Mohave Co: Holland (UNLV), major forest tree in basins and drainage systems on the Shivwits Plateau. Clark Co: none.

## CUPRESSACEAE

Juniperus californica Carr.

(California juniper)

Large shrub or small tree; occasional in low elevational mountains along the southern boundary of the recreation area.

Mohave Co: none. Clark Co: Niles (UNLV), Dead Mountains, 3000 ft; Holland 970, one mile west of the recreation area, on Christmas Tree Pass road, 3500 ft; Holland 1641, with Nolina, Juncus and Acacia, floor of Bridge Canyon, one mile west of state highway 77, Newberry Mountains, 2500 ft.



Juniperus monosperma (Engelm.) Sarg. (one-seeded juniper)

Large shrub or small tree; occasional at mid to high elevations, northern portion of the recreation area.

Mohave Co: Grater (LM), rim of Quartermaster Canyon, 5500 ft. Clark Co: none.

Juniperus osteosperma (Torr.) Little (Utah juniper)

Large shrub or small tree; common at mid to high elevations, throughout the area.

Mohave Co: Holland 645, Shivwits Plateau, east of the Mt. Dellenbaugh fire camp, 6200 ft. Clark Co: Nickell 622, western slope of the Newberry Mountains, 3500 ft.

## EPHEDRACEAE

Ephedra fasciculata A. Nels. (Mormon-tea)

Shrub; occasional at lower elevations, mostly in the southern portion of the area.

Mohave Co: none. Clark Co: Holland 1321, in granitic soil with Larrea, Eriogonum fasciculatum and Stipa speciosa, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Holland 800, Empire Wash, 7 miles east of U.S. highway 95, Newberry Mountains, 3000 ft.

Ephedra nevadensis Wats. (Mormon-tea)

Shrub; common at lower elevations throughout the area.

Mohave Co: none. Clark Co: Holland 761, Sacatone Wash, 1/2 mile east of Christmas Tree Pass, Newberry Mountains, 2800 ft; Holland 808, Empire Wash road, 1 mile west of LMNRA boundary, 3000 ft; Schramm and Holland 1703, Christmas Tree Pass, Newberry Mountains, 3400 ft; Holland 127, with Lycium andersonii, Penstemon bicolor and Larrea, Bootleg Canyon, River Mountains, 1.5 miles northwest of Boulder City, 2800 ft; Nickell 576, 1/2 mile northeast of Juniper Mine, Newberry Mountains, 3400 ft; Convis (LM), state highway 12, near Valley of Fire turn-off, Overton District; Niles and Leary 1877, on south-facing limestone hills, south end of the Virgin Mountains, 1/2 mile north of Whitney Pockets, 3100 ft; Leary 1770, on the summit of a limestone ridge, northeast of junction of West End Wash and North Shore road, 2500 ft.

Ephedra trifurca Torr.

(Mormon-tea)

Shrub; not definitely known from the recreation area.

Mohave Co: none. Clark Co: Armstrong 550, western edge of the recreation area, near Lake Mead, 1600 ft. and below.

Ephedra torreyana Wats.

(Mormon-tea)

Shrub; common at lower elevations throughout the area.

Mohave Co: Clover (MO), in gypsum, Detrital Wash; Phillips (MNA), Emory Falls water sampling station. Clark Co: Niles and Leary 1890 and 1891, in small wash with Petalonyx thurberi, Hymenoclea and Psorothamnus fremontii, 1/4 mile north of Devil's Throat, off the Gold Butte road, 2300 ft; Niles 876, in gypsum, northwest corner of Valley of Fire State Park, 2000 ft; Holland 1004, in deep red sands with Psorelea castorea, Baileya pleniradiata and Ambrosia dumosa, along the western bank of the Virgin River, 2 miles north of the confluence with the Muddy River, 1500 ft; Leary 1687, common in gypsiferous soils near junction of state highways 40 and 12, near Valley of Fire State Park, 1600 ft.

## TYPHACEAE

Typha angustifolia L.

(cat-tail)

Perennial herb; common in moist places throughout the recreation area. June-July.

Mohave Co: none. Clark Co: Nickell 625, seep site, bottom of Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2800 ft; Grater (LM), beach below Hoover Dam, 700 ft.

## NAJADACEAE

Najas marina L.

Annual; known from a single locality near the western boundary of the recreation area. July-September.

Mohave Co: none. Clark Co: Deacon (UNLV), Moapa Valley Water District spring, Moapa Valley.

## POACEAE

Agropyron cristatum (L.) Gaertn. (crested wheatgrass)

Perennial herb; introduced and occasional, mostly in disturbed sites at higher elevations. June-August.

Mohave Co: Leary & Leary 2238, southwest slope near head of Green Spring Canyon, Shivwits Plateau, 5900 ft. Clark Co: none.

Agropyron spicatum (Pursh) Scribn. & Smith (wheatgrass)

Perennial herb; occasional in a variety of habitats, higher elevations. July-August.

Mohave Co: Leary 2208, in an oak thicket, 1/2 mile north of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft. Clark Co: none.

Agropyron trachycaulum (Link) Malte (wheatgrass)

Perennial herb; occasional from mid to high elevations. June-August.

Mohave Co: Leary 2256; bottom of Ambush Canyon, head of Paw's Pocket, Shivwits Plateau, 5800 ft. Clark Co: none.

Agrostis semiverticillata (Forsk.) C. Chr. (bentgrass)

Perennial herb; occasional in moist places, mostly at lower elevations. May-September.

Mohave Co: Clover 6039 (MO), damp soil near lake shore, just above Pierce Ferry; Clover 4203 (MO), mouth of Separation Canyon; Grater 201 (LM), Twin Canyon, Shivwits Plateau; Grater & Collins (LM), Willow Beach, 7000 ft. Clark Co: Niles & Leary 1856, in deep moist sand, bank of the Virgin River at the Riverside bridge, 1450 ft.

Aristida adscensionis L.

(six-weeks three-awn)

Annual; abundant and widespread on slopes and hillsides, lower elevations. Through most of the year.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 354, gravels, 3 miles west of Boulder Beach, River Mountains, 2800 ft; Holland 1529, granitic gravels 2 miles north of state highway 77, 1 mile west of Bridge Canyon, Newberry Mountains, 2800 ft; Leary 1698, north-facing limestone slope, ridge northeast of Hamblin Mountain, Black Mountains, 2500 ft; Nickell 481, 5.2 miles east of U.S. highway 95, off state highway 77, Newberry Mountains, 2800 ft.

Aristida fendleriana Steud.

(three-awn)

Perennial herb; occasional in pinon-juniper areas. May-July.

Mohave Co: Bostick & Holland 621, limestone outcrop, rim of Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: none.

Aristida glauca (Nees) Walp.

(three-awn)

Perennial herb; occasional in dry places, lower elevations. March-May.

Mohave Co: Clover 4200 (MO), mouth of Separation Canyon. Clark Co: Bostick (UNLV), Black Mountains, west of Cottonwood Cove, 1800 ft; Leary 1724, in metamorphic rock at base of cliff, just north of entrance to recreation area, Eldorado Canyon, 1900 ft.

Aristida arizonica Vasey

(three-awn)

Perennial herb; occasional from low to mid elevations. May-September.

Mohave Co: Leary 1655, south-facing slope in loose limestone, 1 mile east of Andrus Point, Shivwits Plateau, 4200 ft. Clark Co: Grater (LM), canyon above Hemenway Wash, 1800 ft.

Aristida parishii Hitchc.

(three-awn)

Perennial herb; occasional in dry rocky places, lower elevations. April-June.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 996, roadside gravels, North Shore road, Fire Rock area, 5 miles south of Bitter Springs Wash, 2200 ft; Niles 1096, bottom of Bridge Canyon, Newberry

Mountains; Nickell 522, 1/2 mile northeast of Juniper Mine, Newberry Mountains, 3400 ft; Bostick 3217, Valley of Fire State Park, 2400 ft; Keyhole Canyon, Eldorado Mountains, 4500 ft; Bostick 3332, Black Mountains, west of Cottonwood Cove, 1800 ft.

Aristida wrightii Nash (three-awn)

Perennial herb; occasional on rocky slopes, lower elevations. March-September.

Mohave Co: none. Clark Co: Holland 943, Grapevine Canyon, below Christmas Tree Pass road, 2500 ft; Holland 1183, floor of Bridge Canyon, 1 mile west of state highway 77, 2450 ft; Leary 1699, ridge northeast of Hamblin Mountain, Black Mountains, 2500 ft.

Avena fatua L. (wild oat)

Annual; occasional in waste places, lower elevations. April-June.

Mohave Co: none. Clark Co: Anderson 35, dry sandy area, 1 mile west of Nelson's Landing, off state highway 60, 1000 ft.

Avena sativa L. (cultivated oat)

Annual; occasional escape, waste places of lower elevations. March-June.

Mohave Co: none. Clark Co: Holland 1639, moist gravels, bottom of Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2600 ft.

Bothriochloa barbinodes (Lag.) Herter (beard grass)

Perennial herb; occasional throughout area. Flowering most of the year.

Mohave Co: none. Clark Co: Holland 1186, moist gravels, floor of Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft.

Bouteloua aristidoides (HBK.) Griseb. (needle grama)

Annual; locally abundant in lower elevations. April-September.

Mohave Co: none. Clark Co: Holland 1535, sandy soil, 1 mile south of Boulder City golf course, 2200 ft; Grater 32 (LM), Hemenway Wash, 1200 ft; Niles & Holland 865, wash gravels, Eldorado Canyon, 1/4 mile west of the Colorado River, 800 ft.

Bouteloua barbata Lag.

(six-weeks grama)

Annual; occasional, mostly in sand and gravels, lower elevations. Throughout most of the year.

Mohave Co: Clover 4198 (MO), in sand and gravel, Separation Canyon.

Clark Co: Fiero, Meyer & Leary 1820, near Sandstone Spring, Pinto Valley, 2000 ft; Holland 351, large wash, 5 miles east of U.S. highway 93, 1 mile north of Red Mountain, River Mountains, 2800 ft; Holland, 5 miles east of U.S. highway 95, off state highway 77, Newberry Mountains.

Bouteloua curtipendula (Michx.) Torr.

(side-oats grama)

Perennial herb; occasional on rocky slopes in pinon-juniper areas. May-August.

Mohave Co: Holland 1402, floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Holland 749, Mt. Dellenbaugh meadow, Shivwits Plateau, 6200 ft. Clark Co: Holland 1129, pinon-juniper community, just west of Christmas Tree Pass, Newberry Mountains, 3500 ft.

Bouteloua eriopoda (Torr). Torr.

(black grama)

Perennial herb; rare to occasional, rocky slopes in the pinon-juniper belt. June-September.

Mohave Co: Grater 2 (LM), Rampart Point, 5500 ft. Clark Co: none.

Bouteloua trifida Thurb.

Perennial herb; rare, lower elevations. May-September.

Mohave Co: none. Clark Co: Leary 1773, in crack of Virgin limestone, narrow canyon 1 mile northeast of junction of West End Wash and North Shore road, 1900 ft.

Bromus arizonicus (Shear) Steb.

(bromegrass)

Annual; occasional in dry places at lower elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1217, Bridge Canyon, just below state highway 77, 2300 ft.

Bromus marginatus Nees

(bromegrass)

Perennial herb; locally common, higher elevations. April-July.

Mohave Co: Leary 2215, in an oak thicket, 0.5 mile north of the summit of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft; Leary 1631, north-facing slope, 1 mile southwest of Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: none.

Bromus rubens L.

(foxtail chess)

Annual; common and widespread throughout the lower elevations. March-June.

Mohave Co: Grater 74 (LM), Pierce Ferry, 40 miles east of Hoover Dam; Grater (LM), Emory Falls, 1200 ft; Trelease 35, 3 miles west of Hoover Dam; Leary 1636, in pinon-juniper woodland, on a north-facing slope, 1 mile southwest of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: Leary 1665, in sandy soil 3 miles south of Overton, along state highway 12, 1500 ft; Nickell 513, spring site north of Juniper Mine, Newberry Mountains, 3800 ft.

Bromus tectorum L.

(cheat grass)

Annual; occasional to common, mostly at mid to high elevations. May-June.

Mohave Co: Holland 1407, Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: Holland 1187, moist gravels, floor of Bridge Canyon, west of state highway 77, Newberry Mountains, 2400 ft; Niles & Leary 1937, moist sand in a pine-oak-juniper woodland, along semi-permanent creek of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Bromus trinii Desv. in Gray

(bromegrass)

Annual; occasional at low elevations. March-May.

Mohave Co: none. Clark Co: Holland 1638, moist gravels, bottom of Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2600 ft; Holland 1681, moist soils along edge of boulders, 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 2800 ft; Holland 818, upper Sacatone Wash, 1/2 mile east of Christmas Tree Pass, Newberry Mountains, 2700 ft.

Bromus willdenovii Kunth (brome grass)  
[= B. catharticus Vahl.]

Perennial herb; occasional in moist gravels, southern portions of the recreation area. April-November.

Mohave Co: none. Clark Co: Holland & Niles (UNLV), 2 miles south of state highway 77, Newberry Mountains, 2800 ft.

Chloris virgata Swartz (finger grass)

Annual or perennial herb; occasional in waste places, low elevations. April-October.

Mohave Co: none. Clark Co: Holland 1528, along Empire Wash Road, 1/2 mile east of U.S. highway 95, western exposure of the Newberry Mountains, 2600 ft.

Cynodon dactylon (L.) Pers. (Bermuda grass)

Perennial herb; common in waste places, low elevations. May-August.

Mohave Co: Clover 6121 (MO), Boulder Wash. Clark Co: Nickell (UNLV), along state highway 77, Newberry Mountains, 2200 ft.

Digitaria sanguinalis (L.) Scop. (crab grass)

Annual; occasional in waste places, low elevations. June-October.

Mohave Co: none. Clark Co: Niles, Schramm & Holland 1533, in sandy soils, 1 mile south of Boulder City golf course, 2200 ft.

Distichlis spicata (L.) Greene (salt grass)

Perennial herb; occasional in saline soils, low elevations. May-August.

Mohave Co: none. Clark Co: Gullion 311, 2 miles east of Las Vegas; Leary 1694, in saline soils around Blue Point Spring, 1600 ft; Niles (UNLV), Las Vegas Wash.

Echinochloa crusgalli (L.) Beauv. (barnyard grass)

Annual; occasional in moist waste places, lower elevations. July-October.



Mohave Co: none. Clark Co: Gullion 52, Las Vegas Wash, 3 miles east of Las Vegas, 1900 ft.

Erioneuron pulchellum (HBK.) Tateoka (fluff grass)

Perennial herb; common and widespread in dry, rocky places, lower elevations. February-September.

Mohave Co: Phillips (MNA), Rampart Cave area; Clover 4168 (MO), Boulder Dam area; Trelease 39, 2 miles east of Davis Dam. Clark Co: Holland 1099, 5 miles east of U.S. highway 95, on the Empire Wash road, 2800 ft; Leary 1714, north slope of a limestone ridge, northeast of Hamblin Mountain, Black Mountains, 2500 ft; Nickell 475, 5.2 miles east of U.S. highway 95, off state highway 77, Newberry Mountains, 2800 ft.

Festuca octoflora Walt. (six-weeks fescue)

Annual; common and widespread throughout lower elevations. April-June.

Mohave Co: Clover 6231 (MO), Detrital Wash; Phillips (MNA), Rampart Cave area. Clark Co: Poyser 53, Hemenway Wash; Schramm & Holland 1560, 1 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2600 ft; Holland 1184, Bridge Canyon floor, 1/2 mile north of state highway 77, Newberry Mountains, 2400 ft; Schramm & Holland 875, along road to Anniversary Mine, 2 miles north of West End Wash, 2200 ft; Bostick 3331, Black Mountains, west of Cottonwood Cove, 1800 ft.

Festuca reflexa Buckl. (fescue)

Annual; occasional, low to mid elevations. April-June.

Mohave Co: none. Clark Co: Niles & Leary 1927, in a pine-oak-juniper woodland along the semi-permanent creek of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Heteropogon contortus (L.) Beauv. ex Roem. & Schult. (tangle-head)

Perennial herb; rare, low elevations. September-October.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: none.

Hilaria rigida (Thurb.) Benth. ex Scribn. (galleta)

Perennial herb; common in sandy places throughout lower elevations.  
February-June.

Mohave Co: none. Clark Co: Nickell 56, 3 miles north of Christmas Tree Pass turn-off, on U.S. highway 95, 2500 ft; Holland 843, powerline road, south of Bridge Canyon, below state highway 77, Newberry Mountains, 2000 ft; Gullion 84, 3 miles east of Searchlight.

Hordeum jubatum L. (foxtail)

Perennial herb; occasional in moist places throughout the area. May-July.

Mohave Co: none. Clark Co: Niles & Leary 1736, with other weeds in agricultural area, 0.6 mile south of the Riverside bridge, 1450 ft.

Hordeum leporinum Link (barley)

Annual; common and widespread in waste places, lower elevations. April-June.

Mohave Co: none. Clark Co: Nickell 521, 1/2 mile northeast of Juniper Mine, Newberry Mountains, 3500 ft; Holland 1125, granitic soils of Bridge Canyon, east of state highway 77, Newberry Mountains, 2300 ft; Niles & Leary 1920, at spring near corral, 6.4 miles south of Scanlon Ferry road - Overton Arm jeep trail junction, Gold Butte area, 3000 ft.

Lolium perenne L. (rye grass)

Perennial herb; occasional in disturbed areas, lower elevations. April-November.

Mohave Co: none. Clark Co: Niles & Leary 1859, weed in an agricultural area, 0.6 mile south of Riverside bridge, 1450 ft.

Muhlenbergia microsperma (DC.) Kunth (muhly)

Annual; occasional in rocky places, lower elevations. March-May.

Mohave Co: none. Clark Co: Niles 1079, bottom of Bridge Canyon, Newberry Mountains, 2400 ft; Holland 944, Grapevine Canyon, 1/2 mile above petroglyphs, Newberry Mountains, 2600 ft; Holland 1587, 1 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2400 ft.

Muhlenbergia porteri Scribn. (muhly)

Perennial herb; occasional on dry, rocky slopes, lower elevations.  
June-October.

Mohave Co: none. Clark Co: Holland 1530, along the western base of Spirit Mountain, 1/2 mile north of Christmas Tree Pass road, Newberry Mountains, 2800 ft; Leary 1722, in volcanic, rocky soil, northeast of Hamblin Mountain, Black Mountains, 2500 ft; Niles & Leary 1882, base of cliffs and among boulders in south-facing limestone, south end of Virgin Mountains, 1/2 mile north of Whitney Pockets, 3100 ft; Holland 352, large wash 5 miles east of U. S. highway 93, and 1 mile north of Red Mountain, River Mountains, 2800 ft.

Oryzopsis hymenoides (R. & S.) Ricker (Indian ricegrass)

Perennial herb; common in sandy places, low elevations. April-July.

Mohave Co: Clover 4186 (MO), dry hills near Boulder Dam. Clark Co: Guillon 361, Parker powerline road, 2.5 miles south of Searchlight; Nickell 69, 3 miles north of Christmas Tree Pass turn-off, on U. S. highway 93, 2500 ft.

Panicum capillare L. (witch grass)  
var. occidentale Rydb.

Annual; occasional in moist, protected sites, lower elevations.  
July-September.

Mohave Co. and Clark Co: Bostick 5024, both sides of the Colorado River above Willow Beach, 800 ft.

Panicum hirticaule Presl. (panic grass)

Annual; occasional, low elevations. July-October.

Mohave Co: Clover 4229 (MO), Separation Canyon. Clark Co: none.

Phragmites australis (Cav.) Trin. ex Steudel. (reed)

Perennial herb; locally abundant in wet places, low elevations.  
July-November.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Nickell 624, seep site 2 miles west of state highway 77, Bridge Canyon,

Newberry Mountains, 2800 ft.

Poa bigelovii Vasey & Scribn. (blue grass)

Annual; occasional in protected sites, lower elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 956, Sacatone Wash, northern exposure 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 2800 ft.

Poa fendleriana (Steud.) Vasey (mutton grass)

Perennial herb; occasional on rocky slopes in the pinon-juniper belt. April-July.

Mohave Co: none. Clark Co: Holland 1130, pinon-juniper community, in vicinity of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Poa pratensis L. (Kentucky blue grass)

Perennial herb; common in moist places at higher elevations. April-August.

Mohave Co: Fries & Holland 1694, Parashant Canyon, 4000 ft; Leary 1617, near Whipple reservoir, Shivwits Plateau, 5600 ft; Leary 2241, fire camp, north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Polygonum monspeliensis (L.) Desf. (rabbit-foot grass)

Annual; occasional to common in moist places, low elevations. April-August.

Mohave Co: Clover 4230 (MO), Separation Canyon; Grater & Collins (LM), Willow Beach; Phillips (MNA), Rampart Cave area. Clark Co: Nickell 616, 3 miles north of state highway 77, off Christmas Tree Pass road, Newberry Mountains, 2400 ft.

Schismus arabicus Nees

Annual; common in sandy places throughout lower elevations.  
February-April.

Mohave Co: none. Clark Co: Leary 1668, in sand, 3 miles south of Overton, along state highway 12, 1500 ft.

Schismus barbatus (L.) Thell.

Annual; occasional in sandy places throughout lower elevations.  
February-April.

Mohave Co: none. Clark Co: Gullion 195, Colorado River Valley, 5 miles southwest of Davis Dam, 550 ft; Gullion 177, 1 mile northwest of Logandale, 1400 ft; Niles 1080, Bridge Canyon, Newberry Mountains; Nickell & Holland 87, Sacatone Wash, 1.5 miles east of Christmas Tree Pass, Newberry Mountains, 3000 ft.

Scleropoa rigida (L.) Griseb.

Annual; rare in sandy places, low elevations. May-September.

Mohave Co: Bostick (UNLV), sand bar, 2 miles above Willow Beach, 700 ft. Clark Co: none.

Setaria macrostachya HBK.

(bristle grass)

Perennial herb; occasional in protected sites, low to mid elevations.  
May-July.

Mohave Co: Leary 1807, at base of sandstone boulder, Paw's Pocket, Whitmore Canyon, Shivwits Plateau, 3900 ft. Clark Co: none.

Sitanion hystrix (Nutt.) J. G. Smith

(squirrel-tail)

Perennial herb; occasional in rocky places throughout area.  
April-May.

Mohave Co: none. Clark Co: Holland 1197, pinon-juniper community, 1 mile west of Christmas Tree Pass, Newberry Mountains, 3500 ft; Fiero, Meyer & Leary 1802, Sandstone Spring, Pinto Valley, 2000 ft.

Sporobolus airoides (Torr.) Torr. (alkali-sacatone)

Perennial herb; occasional in moist, alkaline soils, low elevations.  
April-October.

Mohave Co: none. Clark Co: Nickell 485, 1/2 mile west of state  
highway 77, Newberry Mountains, 2500 ft.

Sporobolus cryptandrus (Torr.) Gray (sand drop-seed)

Perennial herb; occasional in dry sandy-rocky places, lower elevations.  
April-August.

Mohave Co: Clover (MO), floor of Separation Canyon. Clark Co:  
Holland 1123, Bridge Canyon, below state highway 77, Newberry Mountains,  
2300 ft; Holland 1540, along U. S. highway, 1 mile south of Henderson,  
western slope of River Mountains, 2000 ft.

Sporobolus flexuosus (Thurb.) Rydb. (drop-seed)

Perennial herb; occasional in sandy soils, low elevations. May-October.

Mohave Co: none. Clark Co: Leary 1701, limestone ridge northeast  
of Hamblin Mountain, Black Mountains, 2400 ft; Leary 1668, in sand,  
3 miles south of Overton, along state highway 12, 1500 ft.

Stipa comata Trin. & Rupr. (needle grass)

Perennial herb; occasional in dry places, mid to high elevations.  
May-July.

Mohave Co: Niles & Holland 659, 5 miles west of Grassy Mountain,  
on road to Mt. Dellenbaugh, Shivwits Plateau, 4700 ft; Leary 1653,  
in a blackbrush community, 1 mile east of Andrus Point, Shivwits  
Plateau, 4200 ft; Leary 1811, Paw's Pocket, Whitmore Canyon, Shivwits  
Plateau, 3900 ft. Clark Co: none.

Stipa coronata Thurb. in Wats. (needle grass)  
var. depauperata (Jones) Hitchc.

Perennial herb; occasional on dry slopes, mid to high elevations.  
May-August.

Mohave Co: none. Clark Co: Niles & Leary 1914, north-facing slope  
of metamorphic rock, near spring and corral, 6.4 miles south of junction

of Overton Arm jeep trail and Scanlon Ferry road, Gold Butte area, 3000 ft.

Stipa speciosa Trin. & Rupr. (needle grass)

Perennial herb; occasional to common and widespread on rocky slopes, low to mid elevations. April-June.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1208, Empire Wash road, 5 miles east of U. S. highway 95, 3000 ft; Leary 1730, north-facing slope, northeast of entrance to recreation area, Nelson, 2000 ft; Niles & Holland 518, on granitic outcrop, 1/4 mile north of Juniper Mine, Newberry Mountains, 4600 ft; Gullion 329, Davis Dam powerline tower 30/3, 7 miles northeast of Searchlight, 3400 ft; Fiero, Meyer & Leary 1777, west-facing slope in sand among the Gale Hills conglomerate, in a large Aztec outcrop, Pinto Valley near Sandstone Spring, 2100 ft.

Trichachne californica (Benth.) Chase (cotton-top)

Perennial herb; rare in rocky places, mid elevations. May-October.

Mohave Co: Leary 1819, in rubble and sand beneath sandstone cliff, Paw's Pocket, Whitmore Canyon, Shivwits Plateau, 3900 ft. Clark Co: none.

Tridens muticus (Torr.) Nash

Perennial herb; occasional in rocky places, low to mid elevations. Throughout most of the year.

Mohave Co: Leary 1652, blackbrush community, 1 mile east of Andrus Point, Shivwits Plateau, 4200 ft; Leary 1766, below summit on ridge northeast of junction of West End Wash and North Shore road, 2400 ft. Clark Co: Holland 355, wash gravels 3 miles west of Boulder Beach, River Mountains, 2800 ft; Leary 846, east-facing ridge northwest of Lava Butte; Gullion 356, 13 miles southeast of Searchlight; Leary 1716, north slope of limestone ridge, northeast of Hamblin Mountain, Black Mountains, 2500 ft.

## CYPERACEAE

Carex occidentalis Bailey (sedge)

Perennial herb; occasional on the Shivwits Plateau.

Mohave Co: Leary 2255, in pocket of soil, volcanic rock crevice, with Galium wrightii, Brickellia, Fendlera and Ribes, at the head of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft.  
Clark Co: none.

Carex subfusca W. Boott (sedge)

Perennial herb; reported from a single location in the Grand Canyon.

Mohave Co: Clover 4292a (MO), at water's edge, 2 miles above Emory Falls. Clark Co: none.

Cladium californicum (Wats.) O'Neill in Tides. & Kittell (saw-grass)

Perennial herb; occasional in moist sites.

Mohave Co: Clover 4292 (MO), 2 miles above Emory Falls. Clark Co: Meyer 4178, along wet ditch in alkaline soils, with Anemopsis, Distichlis, Pluchea and Allenrolfea, Rogers Spring.

Cyperus laevigatus L. (umbrella-sedge)

Perennial herb; reported from near the southern boundary of LMNRA.

Mohave Co: none. Clark Co: Berg 54, in marsh below Davis Dam.

Heleocharis montevidensis Kunth (spike-rush)

Perennial herb; often locally abundant in moist areas.

Mohave Co: none. Clark Co: Holland (UNLV), Blue Point and Rogers Springs.



Heleocharis rostellata (Torr.) Torr. (spike-rush)

Perennial herb; reported from a single site to the west of the recreation area.

Mohave Co: none. Clark Co: Deacon (UNLV), Moapa Valley Water District spring, Moapa Valley; Leary 1695, common along small creek at Blue Point Spring, 1600 ft.

Scirpus americanus Pers. (bulrush)

Perennial herb; occasional in wet places at low elevations.

Mohave Co: none. Clark Co: Niles and Leary 1854, in deep sand with Agrostis, Juncus and Cyperus, along the Virgin River, near the Riverside bridge, 1450 ft.

Scirpus californicus (C. A. Mey.) Steudel. (bulrush)

Perennial herb; known from a single collection to the south of the recreation area boundary.

Mohave Co: Niles 846, Colorado River near bridge and across from Needles, California, 500 ft. Clark Co: none.

Scirpus olneyi Gray (bulrush)

Perennial herb; occasional in marshy, low elevation areas.

Mohave Co: none. Clark Co: Holland 1142, Las Vegas Wash below North Shore road, 1500 ft; Reed (UNLV), Lake Mead Wash, along North Shore road, east of Las Vegas, 2200 ft; Leary 1696, common with Heleocharis in saline soil along small stream at Blue Point Spring, 1600 ft.

Scirpus robustus Pursh (bulrush)

Perennial herb; occasional in marshy, low elevation areas.

Mohave Co: none. Clark Co: Holland 1141, Las Vegas Wash, 2 miles east of U. S. highway 93, 1600 ft; Niles and Leary 1855, occasional in deep moist sand, with Agrostis, Carex and Juncus, along the Virgin River, near the Riverside bridge, 1450 ft.

## JUNCACEAE

Juncus acutus L. (rush)  
var. sphaerocarpus Engelm.

Perennial herb; rare in moist places, low elevations.

Mohave Co: none. Clark Co: Niles 1093, bottom of Bridge Canyon, Newberry Mountains, 2500 ft.

Juncus balticus Willd. (rush)

Perennial herb; occasional in moist, low elevation sites.

Mohave Co: none. Clark Co: James (UNLV), Juanita Spring, Virgin Mountains, 2300 ft; Leary 1618, with Carex and Heleocharis in saline soil along creek at Blue Point Spring, 1600 ft.

Juncus bufonius L. (toad rush)

Annual; occasional in moist soils, low to mid elevations.

Mohave Co: Grater (LM), Willow Beach, 700 ft. Clark Co: Niles and Leary 1929, in moist granitic sand in a pine-oak-juniper woodland, along the semi-perennial stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft; Niles and Leary 1853, common in moist sand with Agrostis, Carex and Scirpus, along the Virgin River, near the Riverside bridge, 1450 ft.

Juncus effusus L. (rush)

Perennial herb; reported from north of the recreation area boundary.

Mohave Co: none. Clark Co: Lesser (UNLV), Juanita Spring, Virgin Mountains, 2200 ft.

Juncus mexicanus Willd. (rush)

Perennial herb; a single collection to the north of our area, but probably occurring in LMNRA.

Mohave Co: none. Clark Co: Niles and Leary 1876, common along the watercourse at the spring west of Juanita Springs, 2000 ft.

Juncus xiphioides E. Mey. (rush)

Perennial herb; occasional in wet places, low deserts.

Mohave Co: none. Clark Co: Nickell 627, seep site 2 miles west of state highway 77, Bridge Canyon, Newberry Mountains, 2800 ft.

## LILIACEAE

Calochortus flexuosus Wats. (mariposa-lily)

Perennial herb; occasional to common on desert mountain slopes, mostly at lower elevations. April-May.

Mohave Co: Austin and Holland 1307, in clay soils with Gutierrezia sarothrae, Artemisia tridentata and Chrysothamnus depressus, 45 miles north of Mt. Dellenbaugh in Mainstreet Valley, 5000 ft; Phillips (MNA), Rampart Cave area. Clark Co: Holland 1012, entangled in Amphipappus fremontii, with Ambrosia dumosa and Ephedra nevadensis, Mormon Mesa, 2 miles east of turn-off to the Overton airport, 2200 ft.

Calochortus kennedyi Porter (mariposa-lily)

Perennial herb; occasional in a variety of habitats and appearing in two color forms, orange or yellow. April-May.

Mohave Co: Holland 540, with bright yellow flowers, in the Artemisia-Gutierrezia type, just above the Grand Canyon Cliffs, 5000 ft; Holland 541, with vermilion-orange flowers, in meadows of an Artemisia community, above the Grand Wash Cliffs, on the Grapevine Canyon road, 5000 ft. Clark Co: Holland 527, locally abundant in protected areas on the northern slope of Spirit Mountain, Newberry Mountains, 4800 ft; Holland 841b, flowers bright orange, in compact soil with Yucca schidigera, Opuntia erinaceae and Juniperus californica, 1/4 mile west of Christmas

Tree Pass, Newberry Mountains, 3500 ft; Holland 112b, in pinyon-juniper, 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft; Baggle (LM), granite hillside, east of Searchlight.

Calochortus nuttallii Torr. (mariposa-lily)  
var. aureus (Wats.) Ownbey

Perennial herb; occasional on dry slopes, northern portion of the recreation area. May-June.

Mohave Co: Niles & Holland 591, with Artemisia tridentata and Hilaria jamesii, in heavily grazed area just north of Diamond Butte in Mainstreet Valley, 5000 ft; Holland 1237, in limestone with Juniperus osteosperma, Penstemon pachyphyllus and Ipomopsis aggregata, at the Sanup Plateau trail head, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft; Leary 2194, occasional, about 1 mile north of Mt. Dellenbaugh, Shivwits Plateau, 6300 ft. Clark Co: none.

Fritillaria atropurpurea Nutt. (fritillary)

Perennial herb; occasional on the Shivwits Plateau. April-July.

Mohave Co: Holland 1280, in limestone with Juniperus osteosperma, Artemisia tridentata and Quercus gambelii, 2 miles south of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6400 ft. Clark Co: none.

Hesperocallis undulata Gray (ajo-lily)

Perennial herb; locally abundant in a single locality at the southern boundary of the recreation area. March-May.

Mohave Co: none. Clark Co: Holland 911, in sand with Opuntia ramosissima, Croton californica and Encelia frutescens, 2 miles southwest of Davis Dam, foothills of the Newberry Mountains, 900 ft; Swearingen and Holland 911, in deep sand with Larrea, Opuntia basilaris and Croton californica, 1 mile west of Davis Dam, off state highway 77, 1000 ft.

Leucocrinum montanum Nutt. ex A. Gray (star-lily)

Perennial herb; a meadow species on the Shivwits Plateau. April-June.

Mohave Co: Niles & Holland 592, locally abundant with Lotus wrightii and Arenaria aberrans, in open meadow 1/2 mile north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Leary 2186, uncommon in a large meadow with Agropyron, Convolvulus, Phlox amabilis and Lupinus kingii,

north of fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

## AMARYLLIDACEAE

Allium acuminatum Hook. (wild onion)

Perennial herb; known in our area only from the Shivwits Plateau.  
May-July.

Mohave Co: Leary 2218, occasional in a Juniperus-Artemisia association on the north slope of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft. Clark Co: none.

Allium nevadense Wats. (wild onion)  
var. cristatum (Wats.) Ownbey

Perennial herb; occasional on dry slopes, at low to mid elevations.  
April-July.

Mohave Co: Holland 649, 5 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 4500 ft; Niles and Holland 662, in limestone soil, with Oenothera lavandulaefolia, Ambrosia dumosa and Ephedra viridis, 5 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 4700 ft. Clark Co: none.

Allium bisceptrum Wats. (wild onion)  
var. palmeri (Wats.) Cronq.

Perennial herb; occasional on the Shivwits Plateau. May-June.

Mohave Co: Niles and Holland 627, with Pinus ponderosa and Artemisia tridentata, at the rim of Green Spring Canyon, 5 miles east of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6000 ft. Clark Co: none.

Androstephium breviflorum Wats.

Perennial herb; occasional in dry, exposed sites, lower elevations.  
April-May.

Mohave Co: Bostick and Holland 396, with Larrea and Ambrosia dumosa, in desert pavement of rolling hills, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 51, with Larrea, Ambrosia and Stephanomeria, 1 mile west of Buchanan Road and 2 miles south of Boulder City, 2200 ft; Niles and Holland 792, uncommon in sandy soils with Croton californica, Encelia frutescens and Opuntia ramosissima, 1 mile west of Davis Dam, along state highway 77, Newberry Mountains, 800 ft; Holland 942, uncommon with Fouquieria splendens, Hyptis emoryi and Eriogonum fasciculatum, just south of junction of Christmas Tree Pass road and state highway 77, Newberry Mountains, 1100 ft; Schramm and Holland 868, with Larrea, Ambrosia and Krameria, in desert pavement along road to the Anniversary Mine, 2 miles north of West End Wash, 2500 ft; Leary 1548, in sandy soil east of Mouse's Tank, Valley of Fire State Park, 2000 ft.

Dichelostemma pulchella (Salisb.) Heller (blue dicks)  
var. pauciflora (Torr.) Mort.

Perennial herb; occasional to locally abundant in dry open places, mostly lower elevations. March-May.

Mohave Co: none. Clark Co: Whitney and Holland 799a, with Eriogonum fasciculatum, Yucca schidigera and Viguiera deltoidea, head of Sacatone Wash, 1 mile east of Christmas Tree Pass, Newberry Mountains, 3200 ft; Holland 1127, with Pinus monophylla, Coleogyne ramosissima and Calochortus kennedyi, on the northern exposure of ridge along southern border of Christmas Tree Pass, Newberry Mountains, 3800 ft.

## AGAVACEAE

Agave utahensis Engelm. (agave)  
var. nevadensis Engelm. ex Greenm. & Roush

Low shrub; locally abundant on limestone slopes and ridges. May-July.

Mohave Co: Reigle and Holland 1399, road to Twin Point, 1 mile north of Twin Point, 6000 ft; Leary 1839, abundant with Mortonia, north of Cane Spring, Shivwits Plateau, 3500 ft. Clark Co: none.

Nolina bigelovii (Torr.) Wats. (bear-grass)

Shrub; occasional on dry slopes, mostly below 3500 ft. May-June.

Mohave Co: Holland 668, in washes and draws of Whitmore Canyon, 3400 ft. Clark Co: Holland 1367, in a blackbrush community, vicinity of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Nolina microcarpa Wats. (bear-grass)

Perennial herb; occasional on dry, exposed slopes, apparently restricted to the northern portion of the recreation area. May-July.

Mohave Co: Fries and Holland 1674, common in sandstone outcrop at the Exxon Uranium Lease Site, 1 mile north of the Grand Canyon rim, in Whitmore Canyon, 3500 ft. Clark Co: none.

Yucca angustissima Engelm. (yucca)  
ex Trelease [=Y. utahensis McKelvey]

Shrub; occasional in sandy sites near the northwestern boundary of LMNRA, probably extending into the recreation area. May-July.

Mohave Co: Leary 1817, on south-facing side of sandstone boulder, with Rhus, Ephedra and Acacia, Paw's Pocket, Whitmore Canyon, 3900 ft. Clark Co: Niles 884, in deep sand along road to Coyote Pass, Valley of Fire State Park, 2000 ft; Fisher 449, 1/2 mile north of Duck Rock-White Dome junction, Valley of Fire State Park, 2500 ft.

Yucca baccata Torr. (banana yucca)

Shrub; occasional to abundant, mostly in blackbrush-Joshua tree communities. April-May.

Mohave Co: Holland (UNLV), abundant at Whitmore Point. Clark Co: none.

Yucca brevifolia Engelm. in Wats. (Joshua tree)  
var. brevifolia

Tree; occasional to abundant on dry slopes, low to mid elevations. March-May.

Mohave Co: Clover 6007 (MO), 20 miles south of Pierce Ferry. Clark Co: Holland (UNLV), Searchlight area.

Yucca schidigera Roezl ex Ortiges

(Mojave yucca)

Shrub or small tree; widely distributed and often abundant throughout the lower desert regions. April-May.

Mohave Co: Holland (UNLV), common in the Willow Beach area. Clark Co: Nickell 578, Empire Wash road, on the western alluvial fan of the Newberry Mountains, 3500 ft; Holland and Whitney 41, with Ambrosia, Larrea and Opuntia acanthocarpa, 3 miles east of Christmas Tree Pass, Newberry Mountains, 3500 ft.

Yucca newberryi McKelvey

(yucca)

Shrub; apparently entering our area only on the east, along the Colorado River.

Mohave Co: Phillips and VanDevender (ARIZ), vicinity of Rampart Cave. Clark Co: none.

## ORCHIDACEAE

Epipactis gigantea Dougl.

(stream orchis)

Perennial herb; occasional, reported from the lower Grand Canyon. April-May.

Mohave Co: Phillips (MNA), common in glens and perennial seeps in the Grand Canyon, especially near Columbine Falls, below Muav Caves, and Evan's Heaven (Mile 271). Clark Co: none.

## SAURURACEAE

Anemopsis californica Hook.

(yerba mansa)

Perennial herb; often abundant around seeps and springs, low elevations. March-September.

Mohave Co: none. Clark Co: Holland 930, on stream bank just south of Rogers Spring pool, 1200 ft; Leary 1693, in alkaline soil at Blue Point Spring, 1600 ft.



## SALICACEAE

Populus fremontii Wats.

(cottonwood)

Tree; common along watercourses throughout most of the recreation area. March-April.

Mohave Co: Grater (LM), Willow Beach, 600 ft. Clark Co: Holland (UNLV), Sacatone Wash and Grapevine Canyon, Newberry Mountains, and along eastern exposure of the River Mountains.

Salix exigua Nutt.

(coyote willow)

Shrub or small tree; common in wet places throughout much of the recreation area. March-May.

Mohave Co: Trelease (UNLV), 1/2 mile east of Beaver Dam Wash, on bank of the Virgin River. Clark Co: Niles and Leary 1851, along the banks of the Virgin River, near the Riverside bridge, 1450 ft; Holland 1435, Grapevine Canyon, 2 miles above Christmas Tree Pass road, Newberry Mountains, 2800 ft.

Salix gooddingii Ball  
var. gooddingii

(Goodding willow)

Tree; occasional to abundant along watercourses, throughout most of the recreation area. March-May.

Mohave Co: none. Clark Co: Holland 1437, Grapevine Canyon, 1 mile west of petroglyphs, 2800 ft; Niles and Leary 1850, along the banks of the Virgin River, near the Riverside bridge, 1450 ft; Holland 1014, along the Virgin River, 1 mile north of its confluence with the Muddy River, 1500 ft; Holland 461, on the shore of Lake Mohave, 4 miles south of Cottonwood Cove, 750 ft.

## FAGACEAE

Quercus chrysolepis Liebm.

(canyon oak)

Large evergreen shrub or small tree; known from a single locality.

Mohave Co: none. Clark Co: Swearingen and Holland 1544, occasional in protected areas, with Garrya flavescens and Juniperus californica, at the summit of Spirit Mountain, Newberry Mountains, 5700 ft.

Quercus gambelii Nutt. (Gambel oak)

Shrub or small tree; locally common on the Shivwits Plateau.

Mohave Co: Holland (UNLV), north face of Mt. Dellenbaugh and along eastern edge of the Shivwits Plateau. Clark Co: none.

Quercus turbinella Greene (shrub oak)  
ssp. turbinella

Evergreen shrub; locally abundant at mid to high elevations on mountain slopes.

Mohave Co: Wallis (LM), near Green Spring; Holland 1257, with Robinia neomexicana, Fallugia paradoxa and Ribes cereum, at the summit of Mt. Dellenbaugh, Shivwits Plateau, 7000 ft. Clark Co: Holland 819, Sacatone Wash, 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 3000 ft.

Quercus undulata Torr. (wavyleaf oak)

Evergreen shrub; restricted in our area to the Shivwits Plateau.

Mohave Co: Holland 1284, with Juniperus, Artemisia and Ceanothus, on the north-facing slopes of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft. Clark Co: none.

## ULMACEAE

Celtis reticulata Torr. (hackberry)

Small tree; occasional in protected sites. April-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Grater (LM), Quartermaster Canyon. Clark Co: none.

## URTICACEAE

Parietaria floridana Nutt.

(pellitory)

Annual; occasional in moist, protected sites, lower elevations.

Mohave Co: Phillips (MNA), Rampart Cave area; Nickell (UNLV), 3 miles east of Hoover Dam, in first major canyon running to the Colorado River, 1000 ft. Clark Co: Holland 849, in rock crevices, Bridge Canyon, Newberry Mountains, 2400 ft; Niles and Leary 1902, at base of limestone cliff, with Buddleja and Muhlenbergia, east-facing slope in Paradise Gap, below Tramp Ridge, Gold Butte area, 4000 ft; Fiero, Meyer and Leary 1789, on the north side of a packed alluvium bank, Boulder Wash, just below Guardian Peak, Black Mountains, 1500 ft; Leary 1744, on an alluvial bank, Eldorado Canyon, 1800 ft; Schramm and Holland 1549, Hiko Spring, in rocky outcrop above wash, Newberry Mountains, 2000 ft.

## VISCACEAE

Phoradendron californicum Nutt.

(mistletoe)

Shrub; common parasite, primarily on mesquite and catclaw.

Mohave Co: Clover (MO), on Acacia greggii, between Quartermaster Canyon and upper Travertine Falls; Phillips (MNA), Rampart Cave. Clark Co: Bostick & Holland 360, on Prosopis, in a gravelly wash 1 mile east of the 3-Kids Mine and 2.5 miles south of state highway 41, River Mountains, 2800 ft.

## SANTALACEAE

Comandra umbellata (L.) Nutt.

(bastard toad-flax)

ssp. californica (Eastw. ex Rydb.) Piehl

Semi-parasitic perennial herb; occasional in a variety of habitats at mid to high elevations. April-August.

Mohave Co: Leary 2210, on Ceanothus, a south-facing area of volcanic rock just below the summit of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Niles and Holland 642, on the roots of Artemisia, with Quercus, Symphoricarpos and Hymenoxys, northern slope of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft. Clark Co: none.

## POLYGONACEAE

Chorizanthe brevicornu Torr.

Annual; common on dry, gravelly slopes throughout low elevations. March-June.

Mohave Co: Phillips (MNA), upstream from Rampart Cave. Clark Co: Holland 1105, Empire Wash, 1/2 mile west of Lake Mohave, 1000 ft; Holland 109, in gravels, 1 mile northeast of Railroad Pass, along U. S. highway 93, 2400 ft; Nickell 596, 1/2 mile west of Hiko Spring, just off state highway 77, Newberry Mountains, 2400 ft.

Chorizanthe rigida (Torr.) T. & G.

Annual; common in dry, gravelly places, low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 889, Empire Wash, 1/2 mile east of the recreation area boundary, 2600 ft.; Holland 91, 1 mile west of Railroad Pass, on plateau below the River Mountains, 2600 ft.

Chorizanthe watsonii T. & G.

Annual; rare, in sandy places, low elevations. April-July.

Mohave Co: none. Clark Co: Holland 1064, in sand, 1/2 mile west of Davis Dam, 1000 ft.

Eriogonum alatum Torr.

(wild-buckwheat)

Perennial herb; occasional to common in open areas of pine forests, higher elevations. June-September.

Mohave Co: Niles and Leary 2148, in red sandy soil with Agave, Hilaria, Forsellesia and Bernardia, flat area about 1 mile east of Vulcan's Throne, Grand Canyon National Monument, 4600 ft; common with Artemisia tridentata and Pinus ponderosa, 1 mile northwest of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Eriogonum brachypodum T. & G.

(wild-buckwheat)

Annual; occasional in sand, mostly at low elevations. March-October.

Mohave Co: none. Clark Co: Holland 1088, junction of Piute Wash and Empire Wash roads, 2600 ft; Holland 962, vicinity of Christmas Tree Pass, Newberry Mountains, 4000 ft.

Eriogonum deflexum Torr.  
ssp. deflexum

(nodding-buckwheat)

Annual; common in a variety of sites, low to mid elevations. Flowering most of the year.

Mohave Co: Holland 258, 2 miles north of LMNRA boundary, in Whitmore Canyon, 4800 ft; Holland 730, in open area, 2 miles east of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Nickell and Niles 1073, Bridge Canyon, Newberry Mountains, 2200 ft; Holland 1366, in blackbrush, Christmas Tree Pass, Newberry Mountains, 3600 ft; Leary 1711, in white gypsiferous soil at base of a limestone cliff, with Larrea, Ambrosia and Peucephyllum, ridge northeast of Hamblin Mt., Black Mountains, LMNRA, 2400 ft; Leary 1564, on east-facing alluvial fan, in a Larrea-Ambrosia association, just west of the pumping station, River Mountains, 2000 ft; Bostick and Holland 366, on the basalt summit of Black Mountain, River Mountains, 3600 ft; Grater (IM), Hemenway Wash, 1800 ft.

Eriogonum fasciculatum Benth.

(wild-buckwheat)

ssp. polifolium (Benth.) Stokes

Low shrub; common on dry slopes, low to mid elevations. Flowering through most of the year.

Mohave Co: Phillips (MNA), Rampart Cave. Clark Co: Holland 1207, Empire Wash road, 5 miles east of U. S. highway 95, 3000 ft; Bahlo 33, 3 miles west of Hoover Dam, near U. S. highway 93, 2000 ft;

Holland 143, lateral branch of Bootleg Canyon, River Mountains, 3250 ft; Holland 1314, in granitic soil with Larrea, Tetradymia and Yucca, 1/2 mile east of Christmas Tree Pass, Sacatone Wash, Newberry Mountains, 3000 ft; Grater (LM), Hemenway Wash, 1800 ft.

Eriogonum heermannii Dur. & Hilg. (wild-buckwheat)  
ssp. floccosum (Mung) Mung

Low, intricately branched shrub; locally common on rock outcrops, but apparently with a restricted distribution in our area. September-November.

Mohave Co: none. Clark Co: Schramm and Holland 1591, with Atriplex canescens, Penstemon bicolor and Eurotia lanata, along the northern exposure of Red Mountain, River Mountains, 3400 ft.

Eriogonum heermannii Dur. & Hilg. (wild-buckwheat)  
ssp. sulcatum (Wats.) Munz & Reveal

Low, intricately branched shrub; occasional on rock outcrops and cliffs, mid to high elevations. September-November.

Mohave Co: Holland 320, in limestone outcrop with Agave utahensis, Polygala subspinosa and Eriogonum simpsonii, 2 miles north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: Bostick & Holland 371, on basalt with E. fasciculatum, Larrea and Chrysothamnus, 1/2 mile west of the summit of Black Mountain, River Mountains, 3150 ft.

Eriogonum inflatum Torr. & Fren. (desert-trumpet)

Perennial herb; common in a variety of sites throughout low and mid elevations. March-October.

Mohave Co: Leary 20, in gravelly soil just off road from U. S. highway 93 to Willow Beach resort, 1500 ft; Clark Co: Leary 1522, in gypsiferous soil with Larrea, Petalonyx and Psoralea, along North Shore road near cut-off to gypsum plant, 2000 ft; Holland 1327, with Larrea, Lycium and Yucca, on south-facing slope 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Holland 147, in rocky soil with Ambrosia and Larrea, 5.5 miles southeast of Henderson, on powerline road leading to summit of the River Mountains, 3200 ft; Holland 1106, Empire Wash, 1/2 mile west of Lake Mohave, 1000 ft.

Eriogonum insigne Wats.

(wild-buckwheat)

Annual; locally common, mostly in sandy places, low elevations.  
May-October.

Mohave Co: none. Clark Co: Leary 818, common with Anulocaulis, in white gypsiferous soil, 1.5 air miles southwest of Lava Butte, near White Eagle Mine, 2000 ft; Leary 1758, in loose red gypsiferous clay with Mantzelia, Camissonia and Eriogonum inflatum, at base of limestone cliff on ridge northeast of junction of North Shore road and West End Wash, 1800 ft.

Eriogonum jamesii Benth.

(wild-buckwheat)

var. flavescens S. Wats.

Perennial herb; occasional in coniferous forests. June-October.

Mohave Co: Holland 687, with Juniperus, Berberis and Eriogonum alatum, 3 miles north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6000 ft; Holland 719, with Pinus ponderosa, Chrysothamnus and Artemisia, in the meadow north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Eriogonum maculatum Heller

(wild-buckwheat)

Annual; occasional to common in sandy-gravelly places, low to mid elevations.  
April-May.

Mohave Co: none. Clark Co: Holland 1054, vicinity of junction of Christmas Tree Pass road and state highway 77, 2000 ft; Holland 1083, junction of Piute Wash and Empire Wash road, 2600 ft; Wagner 33, on east-facing rocky hillside, creosotebush community, Bootleg Canyon, River Mountains, 2800 ft.

Eriogonum nidularium Cov.

(wild-buckwheat)

Annual; occasional to common, creosotebush communities of lower elevations.  
April-October.

Mohave Co: none. Clark Co: Holland 111, in gravel, 2 miles north of Red Mountain and 5 miles west of U. S. highway 95, 2300 ft; Niles 1162, in granitic soil, Sacatone Wash, Newberry Mountains, 2800 ft; Niles 1072, east-facing slope of Bridge Canyon, below state highway 77, Newberry Mountains, 2200 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft; Holland 1212, rocky area north of state highway 77, 4 miles east of U. S. highway 95, 2800 ft.

Eriogonum ovalifolium Nutt.

(wild-buckwheat)

Perennial herb; occasional in pinyon-juniper woodlands, mid to high elevations. May-June.

Mohave Co: Niles & Holland 584, with Coleogyne and Juniperus, in Quail Canyon on the north side of Segmiller Mountain, 8 miles south of the Utah state line, 4700 ft. Clark Co: none.

Eriogonum palmerianum Reveal

(wild-buckwheat)

Annual; locally common in sandy-gravelly sites, low to mid elevations. May-October.

Mohave Co: none. Clark Co: Niles & Leary 1888, in large broad wash, gypsum soil - reddish sand, with Psorothamnus, Atriplex and Petalonyx, 2 miles north of Devil's Throat, Gold Butte area, 2300 ft; Niles & Leary 1918, common in bladed area with Eriogonum fasciculatum, Coleogyne, Gutierrezia and Yucca baccata, Windmill Mine, 3 air miles south of Jumbo Peak, Gold Butte area, 4000 ft.

Eriogonum parryi Gray

(wild-buckwheat)

Biennial; locally common in creosotebush areas, low elevations. April-May.

Mohave Co: none. Clark Co: Schramm & Holland 869, with Larrea, Ambrosia and Ephedra nevadensis, along road to the Anniversary Mine, 2 miles north of West End Wash, 2200 ft.

Eriogonum pharnaceoides Torr. in Sitgr.  
var. odocoileum Reveal

(wild-buckwheat)

Annual; occasional in pine forests, high elevations. July-October.

Mohave Co: Holland 731, with Pinus ponderosa, Artemisia and Chrysothamnus, 2 miles east of Mt. Dellenbaugh fire camp, on road to Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: none.

Eriogonum plumatella Dur. & Hilg.

(wild-buckwheat)

Perennial herb; occasional in the extreme southern portions of the area. July-September.

Mohave Co: none. Clark Co: Nickell 478, off of state highway 77, 5 miles east of U. S. highway 95, 2800 ft; Holland 1433, in coarse gravels of Sacatone Wash, 3000 ft.



Eriogonum pusillum T. & G. (wild-buckwheat)

Annual; common in sands and gravels throughout lower elevations.  
March-June.

Mohave Co: none. Clark Co: Holland 146, with Larrea, Psoralea and Opuntia echinocarpa, 1/2 mile north of Railroad Pass, River Mountains, 2500 ft; Niles & Leary 1909, in a granitic sandy wash in a Yucca schidigera-Coleogyne community, 3.1 miles south of Gold Butte, in Cataract Wash, 3450 ft; Holland 1616, in coarse gravels with Bebbia, Hymenoclea, Chilopsis and Chrysothamnus, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 1800 ft; Leary 1734, in a large wash, 1/4 mile east of entrance to LMNRA, in Eldorado Canyon, 1800 ft.

Eriogonum racemosum Nutt. (wild-buckwheat)

Perennial herb; occasional in coniferous forests, high elevations.  
July-October.

Mohave Co: Bostick & Holland 303, with Chrysothamnus, Pinus ponderosa and Artemisia, at Mt. Dellenbaugh fire camp, Shivwits Plateau, 6000 ft; Holland 707, 2 miles northwest of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Eriogonum reniforme Torr. & Frem. (wild-buckwheat)

Annual; occasional in sandy-gravelly places, low elevations. March-June.

Mohave Co: Leary 19, in gravelly soil, off road from U. S. highway 93 to Willow Beach resort, 1500 ft. Clark Co: none.

Eriogonum saxatile Wats. (wild-buckwheat)

Perennial herb; uncommon on rocky slopes, southern portion of the recreation area. May-June.

Mohave Co: none. Clark Co: Niles & Holland 529, with Quercus, Juniperus and Opuntia erinacea, in sheltered areas on the western slope of Spirit Mountain, Newberry Mountains, 4700 ft; Schramm & Holland 1161, pinyon-juniper woodland, 1/2 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft.

Eriogonum simpsoni Benth. (wild-buckwheat)

Perennial herb; occasional to common in coniferous forests, northern portion of the recreation area. June-September.

Mohave Co: Holland 1397, abundant, with Agave utahensis and Polygala subspinos, at Twin Point, 10 miles southwest of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Holland 728, with Juniperus and Artemisia, 20 miles south of Mt. Dellenbaugh fire camp, on road to Kelly Point, Shivwits Plateau, 6000 ft. Clark Co: none.

Eriogonum thomasii Torr.

(wild-buckwheat)

Annual; common and widely distributed throughout the lower elevations. March-June.

Mohave Co: Phillips (MNA), Rampart Cave, at the head of Lake Mead; Bostick & Holland 392, with Larrea and Ambrosia, on rolling hills, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 156, in large open areas 3 miles west of Boulder City, just north of U. S. highway 93, in the foothills of the River Mountains, 2400 ft; Holland 1635, on the floor of Bridge Canyon, Newberry Mountains, 2400 ft; Leary 1732, with Larrea and Acacia, in a broad wash 1/2 mile northeast of entrance to LMNRA, Eldorado Canyon, 1800 ft; Leary 1919, common with Larrea, Ambrosia and Ferocactus on ridge northeast of Hamblin Mountain, Black Mountains, LMNRA, 2700 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft.

Eriogonum trichopes Torr.

(wild-buckwheat)

Annual; common in a variety of sites throughout low elevations. April-June.

Mohave Co: none. Clark Co: Niles & Leary 1889, forming a ground cover locally, with Psoralea, Petalonyx and Atriplex confertifolia, 2 miles north of Devil's Throat, Gold Butte area, 2300 ft; Leary 1706, in white gypsiferous soil at the base of a limestone cliff, ridge northeast of Hamblin Mountain, Black Mountains, LMNRA, 2400 ft; Leary 1676, in red sand with Larrea, Ambrosia and Hilaria, off state highway 12, 3 miles south of Overton, 1500 ft; Holland 913, off powerline road south of Bridge Canyon, Newberry Mountains, 2400 ft.

Eriogonum umbellatum Torr.  
ssp. aridum Stokes

(wild-buckwheat)

Perennial herb-subshrub; occasional in coniferous forests, northern portion of recreation area. June-August.

Mohave Co: Leary 2244, in loose, well developed volcanic soil, with Pinus ponderosa, Quercus and Artemisia, at the top of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft; Holland 700, with Juniperus, Quercus and Artemisia, road to Mt. Dellenbaugh fire camp, Shivwits Plateau, 4700 ft. Clark Co: none.

Eriogonum viscidulum J. T. Howell (wild-buckwheat)

Annual; rare, known only from the type locality. This plant has been proposed for endangered status (Federal Register, 1976). March-June.

Mohave Co: none. Clark Co: Niles, Schramm & Holland 1877, in deep red sand, 0.3 mile below the Riverside bridge, along the west side of the Virgin River, 1450 ft.

Eriogonum wrightii Torr. ex Benth. (wild-buckwheat)  
ssp. wrightii

Perennial herb-subshrub; occasional in rocky sites, mid elevations. August-October.

Mohave Co: none. Clark Co: Holland 1604, on a granitic outcrop, 1/2 mile west of Grapevine Canyon, along the Christmas Tree Pass road, Newberry Mountains, 4000 ft.

Eriogonum wrightii Torr. ex Benth. (wild-buckwheat)  
ssp. membranaceum Stokes

Perennial herb-subshrub; occasional in rocky places, low to mid elevations. August-October.

Mohave Co: none. Clark Co: Holland 1610, with Bebbia and Hymenoclea, in the upper portions of Empire Wash, 1/2 mile south of the Empire Mine, Newberry Mountains, 2600 ft.

Oxytheca perfoliata T. & G.

Annual; occasional, mostly at low elevations. April-July.

Mohave Co: none. Clark Co: Holland 1102, 1/2 mile north of Empire Wash, where it joins Roman Wash, 3200 ft.

Polygonum argyrocoleon Stueud. ex Kunze (knotweed)

Annual; a weedy species, mostly of waste areas. June-October.

Mohave Co: Phillips (MNA), at the head of Lake Mead. Clark Co: none.

Polygonum aviculare L.

(knotweed)

Annual; an occasional weed of waste places. May-October.

Mohave Co: Bostick & Holland 304, at Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Holland 191, with Cynodon, in outflow area from reservoir, 1 mile southwest of Lake Mead Lodge, eastern exposure of the River Mountains, 1600 ft.

Polygonum ramosissimum Michx.

(knotweed)

Annual; a weed in cultivated areas. May-September.

Mohave Co: none. Clark Co: Niles & Leary 1864, abundant on bank of ditch, with Apium graveolens, Xanthium saccharatum and Rumex crispus, in a cultivated field 0.6 mile south of Riverside bridge, 1500 ft.

Polygonum sawatchense Small

(knotweed)

Annual; occasional in pine forests, northern portion of recreation area. June-September.

Mohave Co: Holland 336, with Pinus ponderosa, Artemisia and Chrysothamnus, at the junction of Twin Point and Mt. Dellenbaugh roads, Shivwits Plateau, 6000 ft. Clark Co: none.

Pterostegia drymarioides F. & M.

Annual; occasional to common in shady rocky sites, low elevations. February-June.

Mohave Co: Phillips (MNA), at the head of Lake Mead; Phillips (MNA), Rampart Cave. Clark Co: Schramm & Holland 1550, in rocky outcrops above Hiko Springs Wash, 1 mile west of Hiko Springs, along state highway 77, Newberry Mountains, 2600 ft.

Rumex crispus L.

(dock)

Perennial herb; a weed in cultivated areas. Flowering through much of the year.

Mohave Co: none. Clark Co: Niles & Leary 1863, occasional along irrigation ditch, with Xanthium, Apium and Polygonum, 0.6 mile south of Riverside bridge, in a cultivated field, 1500 ft.

Rumex hymenosepalus Torr.

(wild-rhubarb)

Perennial herb; occasional in sandy sites, mostly at low elevations.  
January-May.

Mohave Co: none. Clark Co: Nickell 47, 3 miles north of Searchlight, off U. S. highway 95, 3200 ft; Grater (LM), Muddy River valley, near Glendale; Holland 947, top of Empire Wash, 1/2 mile west of LMNRA boundary, 3000 ft.

## CHENOPODIACEAE

Allenrolfea occidentalis (Wats.) Kuntze

(iodine-bush)

Shrub; alkaline places, low elevations. June-August.

Mohave Co: none. Clark Co: Bostick 3261, alkaline soil, vicinity of Rogers Spring, LMNRA, 1600 ft.

Atriplex canescens (Pursh) Nutt.

(four-wing salt-bush)

Shrub; occasional to common in saline to subsaline soils throughout the recreation area. June-August.

Mohave Co: Holland 326, in limestone with Chamaebatiaria and Juniperus, at the Sanup Plateau trail head, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: Schramm & Holland 1519, occasional in protected area, with Gutierrezia, Eurotia and Grayia, along the northern exposure of Red Mountain, River Mountains, 3400 ft.

Atriplex elegans (Moq.) D. Dietr.

ssp. fasciculata (Wats.) Hall & Clem.

Annual; occasional in waste places at low elevations. March-October.

Mohave Co: none. Clark Co: Schramm & Holland 1520, on valley floor with Atriplex, Tamarix and Tidestromia, along U. S. highway 93 south of Henderson, foothills of the River Mountains, 2000 ft.

Atriplex hymenelytra (Torr.) Wats.

(desert-holly)

Shrub; locally abundant on alkaline slopes and in washes, low elevations. January-April.

Mohave Co: Grater (LM), Emory Falls, Grand Canyon, 1200 ft; Phillips (MNA), Rampart Cave. Clark Co: Bostick, just outside Lake Mead recreation area building, 1600 ft; Leary 1513, common shrub near entrance to LMNRA, east of Frenchman Mountain, 1600 ft.

Atriplex lentiformis (Torr.) Wats.

(quail-bush)

Shrub; occasional in alkaline places, low elevations. August-October.

Mohave Co: none. Clark Co: Jeffers 5, area southwest of Davis Dam.

Atriplex polycarpa (Torr.) Wats.

(salt-bush)

Shrub; locally abundant in alkaline places, low elevations. July-October.

Mohave Co: none. Clark Co: Jeffers 23, in sandy soil south of Davis Dam; Schramm & Holland 1520, common at low elevations in alkaline soils, with Pluchea, Larrea and Tamarix, along U. S. highway 93, just south of Henderson, in the foothills of the River Mountains, 2000 ft.

Bassia hyssopifolia (Pall.) Kuntze

Annual; occasional to common as a weed in cultivated areas. May-October.

Mohave Co: Clover (MO), Separation Canyon. Clark Co: Niles & Leary 1866, common with Polygonum, Kochia and Salsola, along a drainage ditch near a cultivated field 0.6 mile south of Riverside bridge, 1500 ft.

Chenopodium album L.

(lamb's-quarters)

Annual; occasional weed in waste places. Flowering most of the year.

Mohave Co: Holland (UNLV), in meadow north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Niles & Leary 1858, dominant weed in pasture, 0.6 mile south of Riverside bridge, 1450 ft; Gullion (LM), 3 miles east of Las Vegas, 1800 ft.

Chenopodium atrovirens Rydb.

Annual; occasional weed in waste places. July-September.

Mohave Co: none. Clark Co: Gullion (LM), in hedge along lawn in Boulder City.

Chenopodium berlandieri Moq.  
var. sinuatum (J. Murr.) Wahl.

Annual; occasional weed in waste places. Flowering during much of the year.

Mohave Co: Holland 1428, in meadow at Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Holland 184, in a dry basin 1 mile northwest of Lake Mead marina, in the River Mountains, 1950 ft.

Chenopodium incanum Heller

Annual; occasional in dry places, mostly at low elevations. April-August.

Mohave Co: none. Clark Co: Holland 1085, sandy soil, Piute Wash and Empire Wash road, 2600 ft.

Corispermum nitidum Kit. (bug-seed)

Annual; a weed of sandy places. July-September.

Mohave Co: none. Clark Co: Clover (MO), Calville Wash.

Cycloloma atriplicifolium (Spreng.) Coult.

Annual; a weed of sandy places. May-June.

Mohave Co: none. Clark Co: Niles 869, east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft.

Eurotia lanata (Pursh) Moq. (winter-fat)  
[=Ceratoides lanata (Pursh) J.T. Howell]

Mohave Co: none. Clark Co: Holland 1045, occasional in granitic soils along powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, Newberry Mountains, 2600 ft; Poyser (LM), between Railroad Pass and Boulder City; Holland 137, summit of Red Mountain, 3400 ft; Gullion 334, Piute Valley, 7 miles southeast of Searchlight, 2800 ft.

Grayia spinosa (Hook.) Moq.

(hop-sage)

Shrub; occasional to common on dry flats and slopes, low to mid elevations. March-June.

Mohave Co: Holland & Niles 580, with blackbrush and juniper, north exposure of Segmiller Mountains, 18 miles south of St. George, on road to Mt. Dellenbaugh, 3300 ft. Clark Co: Niles 1053, in gravelly soil of north-facing slope, vicinity of Sacatone Wash, Newberry Mountains, 2800 ft; Holland 129, occasional in a lateral branch of Bootleg Canyon, River Mountains, 2.5 miles northwest of Boulder City, 3000 ft; Holland 1044, occasional in granitic soils along powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, Newberry Mountains, 2600 ft.

Kochia californica Wats.

Perennial herb; a weed of alkaline soils. May-September.

Mohave Co: none. Clark Co: Stepp (UNLV), at the dry lake just south of Railroad Pass.

Kochia scoparia (L.) Schrad.

Annual; a weed, often locally abundant in cultivated areas. August-October.

Mohave Co: none. Clark Co: Leary & Niles 1867, mingled with Salsola along drainage ditch near a cultivated field, 0.6 mile south of Riverside bridge, 1500 ft.

Monolepis nuttalliana (Schult.) Greene

Annual; occasional to common in moist, saline soils. April-September.

Mohave Co: Leary 2192, occasional weed at the fire camp north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Salsola paulsenii Litv.

(Russian-thistle)

Annual; weed of waste places, at lower elevations throughout the area. July-October.

Mohave Co: Bostick & Holland 270, common in overgrazed area, with Ambrosia, Gutierrezia and Lycium, Whitmore Canyon, 1/4 mile south of the recreation area boundary, 3900 ft; Clover (MO), on low gravelly hills down from dam, near Lake Mead. Clark Co: Holland (UNLV), occasional to common in disturbed sites throughout the county.



Suaeda fruticosa (L.) Forsk.

Perennial herb; locally common in alkaline soils at low elevations.  
July-October.

Mohave Co: none. Clark Co: Leary 738, common around a large pool in dry lake, 4 miles south of Railroad Pass, off U. S. highway 95, 1800 ft.

Suaeda torreyana Wats.

Perennial herb; locally abundant in alkaline soils, low to mid elevations.  
May-October.

Mohave Co: Phillips (MNA), Rampart Cave. Clark Co: Fay 29, 9.2 miles south of Railroad Pass, near dry lake.

## AMARANTHACEAE

Amaranthus blitoides Wats.

(amaranth)

Annual; an occasional weed in waste places. May-November.

Mohave Co: Holland 716, in open areas 1/2 mile east of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland 1406, in coarse gravels at the bottom of Green Spring Canyon, 1 mile east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: Schramm & Holland 1599, with Salsola, Euphorbia and Dicoria, along the southern edge of Boulder City, 2300 ft.

Amaranthus fimbriatus (Torr.) Benth.

(amaranth)

Annual; occasional to common in dry, gravelly places. August-November.

Mohave Co: Holland 295, on the northern slope of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft. Clark Co: Holland 1609, in an open wash, Larrea-Ambrosia community, along state highway 77, just north of Hiko Spring, 2300 ft; Bostick and Holland 356, in a large wash 1 mile north of Red Mountain, River Mountains, and 3 miles east of U. S. highway 93, 2800 ft; Nickell 471, 5.2 miles east of U. S. highway 95, off state highway 77, Newberry Mountains, 2800 ft.

Tidestromia lanuginosa (Nutt.) Standl.

Annual; occasional in sandy soils following summer rains. July-October.

Mohave Co: none. Clark Co: Armstrong 325, in sandy soil near the Virgin River, 1600 ft.

Tidestromia oblongifolia (Wats.) Standl.

Perennial herb; occasional in sand, low elevations. April-October.

Mohave Co: Clover (MO), Separation Canyon; Martin (ARIZ), Whitmore Wash.  
Clark Co: Schramm & Holland 1517, with Atriplex, Pluchea and Larrea, southern edge of Henderson, along U. S. highway 93, 2000 ft; Holland 1013, Valley of the Virgin River, 2000 ft.

## NYCTAGINACEAE

Abronia micrantha Torr.

(sand-verbena)

Annual; occasional in sandy places, low elevations. April-May.

Mohave Co: none. Clark Co: Niles 883, 1 mile north of Mouse's Tank, Valley of Fire State Park, 2000 ft.

Abronia villosa Wats.  
var. villosa

(sand-verbena)

Annual; occasional to common in sandy soils, low elevations. February-May.

Mohave Co: none. Clark Co: Holland 910, 1/2 mile southwest of Davis Dam, 850 ft; Leary 1575, with Larrea, Ambrosia and Hilaria, south of Boulder City, 2300 ft; Grater (LM), Las Vegas Wash, 1200 ft; Niles 882, northwest corner of Valley of Fire State Park, 2000 ft.

Allionia incarnata L.

(windmills)

Perennial herb; occasional on dry, rocky flats and slopes, low to mid elevations. April-September.

Mohave Co: none. Clark Co: Grater (LM), open flats, Hemenway Wash, 1200 ft; Holland 150, in a lateral branch of Bootleg Canyon, River Mountains, 3 miles northwest of Boulder City, 3350 ft.

Anulocaulis leisolenus (Torr.) Standl.

Perennial herb; locally common, low elevations. May-October.

Mohave Co: none. Clark Co: Meyer, Fiero & Leary 1791, common and conspicuous with Salazaria, Arctomecon and Enceliopsis, in white gypsiferous clay in basal Moenkopi, just above Virgin limestone, junction of Pinto Valley and state highway 41, 2100 ft; Leary 817, in loose, calcareous alluvium, sparsely vegetated area just northwest of Lava Butte, 2400 ft.

Boerhaavia erecta L.

var. intermedia (Jones) Kearn. & Peebles

Annual; occasional in dry, rocky places, low elevations. August-October.

Mohave Co: none. Clark Co: Nickell 482, 5.2 miles east of U. S. highway 95, off state highway 77, Newberry Mountains, 2400 ft; Holland 1611, in alluvial gravels, Larrea-Ambrosia-Encelia community, along Empire Wash, 2 miles west of Lake Mohave, 800 ft.

Boerhaavia wrightii Gray

Annual; occasional in sandy-gravelly areas, low elevations. August-December.

Mohave Co: none. Clark Co: Grater (LM), open flats, Hemenway Wash, 1200 ft.

Mirabilis bigelovii Gray

(four-o'clock)

var. aspera (Greene) Munz

Perennial herb; occasional in dry, rocky sites, low to mid elevations. April-June.

Mohave Co: none. Clark Co: Holland 1107, in Empire Wash, 1 mile west of Lake Mohave, 1000 ft; Holland 850, open area in Bridge Canyon, Newberry Mountains, 1 mile west of state highway 77, 2400 ft.

Mirabilis bigelovii Gray

(four-o'clock)

var. retorsa (Heller) Munz

Perennial herb; occasional in dry, rocky places, low elevations. March-June.

Mohave Co: none. Clark Co: Holland 99, in rocks, south-facing slope, base of Black Mountain, 2500 ft.

Mirabilis froebelii (Behr) Greene (four-o'clock)  
var. froebelii

Perennial herb; occasional in dry, rocky places, low to mid elevations.  
April-August.

Mohave Co: none. Clark Co: Holland 1109, vicinity of Christmas Tree  
Pass, Newberry Mountains, 3500 ft.

Mirabilis multiflora (Torr.) Gray (four-o'clock)

Perennial herb; occasional on dry slopes and flats, mid to high elevations.  
April-September.

Mohave Co: Niles & Leary 2161, at roadside with Hilaria rigida and  
Gutierrezia, 1/2 mile south of Tuweep Ranger Station, 4700 ft; Niles &  
Leary 1917, in a blackbrush association, Windmill Mine, 3 air miles south  
of Jumbo Peak, Gold Butte area, 4000 ft. Clark Co: none.

Oxybaphus coccineus Torr.

Perennial herb; occasional in dry, rocky sites, mid to high elevations.  
June-July.

Mohave Co: Holland 1411, at the rim of Green Spring Canyon, 5 miles east  
of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Leary 2251, in pine forest  
along rim of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft.  
Clark Co: none.

Oxybaphus linearis (Pursh) Rob.

Perennial herb; occasional in dry rocky places, mid to high elevations.  
July-September.

Mohave Co: Holland 701, Mainstreet Valley, 49 miles south of St. George,  
Utah, at turn-off to Mt. Dellenbaugh, 5000 ft. Clark Co: none.

Selinocarpus diffusus Gray

Perennial herb; rare to occasional on dry flats and slopes, lower elevations.  
May-June.

Mohave Co: Holland 536, along U. S. highway 93, at intersection with the  
Lake Mead boundary, 18 miles south of Hoover Dam, 3000 ft. Clark Co:  
Holland and Niles (UNLV), Mormon Mesa.

## AIZOACEAE

Trianthema portulacastrum L.

(horse-purslane)

Annual; Rare, known from a single location in our area. May-November.

Mohave Co: none. Clark Co: Nickell 763, around margins of a small pool in an alkaline playa, Eldorado Valley, 4 miles south of Railroad Pass, 1800 ft.

## PORTULACACEAE

Calyptridium monandrum Nutt. in T. & G.

Annual; occasional on desert slopes. April-June.

Mohave Co: none. Clark Co: Holland 1120, 1/4 mile north of Christmas Tree Pass road, at the head of Pipe Springs Canyon, Newberry Mountains, 2800 ft; Niles 1077, bottom of Bridge Canyon, Newberry Mountains, 2400 ft; Nickell 602½, disturbed roadside area, 1/2 mile west of Hiko Spring, just south of state highway 77, Newberry Mountains, 2400 ft.

Claytonia perfoliata Donn

(miner's-lettuce)

var. utahensis Poelln. [=Montia perfoliata Howell]

Annual; occasional in shady, moist places, low to mid elevations. February-May.

Mohave Co: none. Clark Co: Holland 953, 1/4 mile east of Christmas Tree Pass, in Sacatone Wash, Newberry Mountains, 2800 ft; Hollnad 520, north-facing slope, Juniper Mine area, Newberry Mountains, 4600 ft.

Portulaca oleraceae L.

(purslane)

Annual; occasional weed of waste places. May-October.

Mohave Co: Holland 315, with Convolvulus arvensis in open meadow just north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Niles (UNLV), a weed in cultivated sites, Las Vegas - Boulder City areas.

## CARYOPHYLLACEAE

Achyronychia cooperi T. & G.

(sand-mat)

Annual; occasional in sandy areas, low elevations. February-May.

Mohave Co: none. Clark Co: Holland 964, with Croton, Encelia frutescens, and Hesperocallis, 1 mile southwest of Davis Dam, along state highway 77, eastern exposure of the Newberry Mountains, 800 ft.

Arenaria aberrans Jones

(sandwort)

Perennial herb; uncommon, known in our area only from the vicinity of Mt. Dellenbaugh. May-July.

Mohave Co: Holland 1296, in a pine forest 1 mile north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland & Niles 594, with Leucocrinum montanum in an open meadow, 1/2 mile north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Arenaria macradenia Wats.  
var. ferrisiae Abrams

(sandwort)

Perennial herb; occasional to locally common on dry, rocky slopes throughout the area. May-June.

Mohave Co: Holland 1396, with Agave utahensis and Eriogonum simpsonii, 6 miles north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: Holland 1318, in a pinyon-blackbrush-juniper area, 1 1/2 miles west of Christmas Tree Pass, Newberry Mountains, 3800 ft.

Arenaria macradenia Wats.  
var. macradenia

(sandwort)

Perennial herb; occasional in pinyon-juniper woodlands, Shivwits Plateau. May-June.

Mohave Co: Holland 682, western exposure of Twin Springs Point, 10 miles southwest of Mt. Dellenbaugh, 6000 ft. Clark Co: none.

Arenaria macradenia Wats. (sandwort)  
var. parishiorum Rob.

Perennial herb; occasional on dry rocky slopes. May-June.

Mohave Co: none. Clark Co: Holland 1132, with Nolina bigelovii, Opuntia phaeacantha and Juniperus californica, 1/4 mile east of Christmas Tree Pass, along the southern edge of Spirit Mountain, Newberry Mountains, 3600 ft.

Cerastium vulgatum L. (mouse-eared chickweed)

Perennial herb; a weed in lawns. April-August.

Mohave Co: none. Clark Co: Holland 866, in lawns, Boulder City, 1800 ft.

Silene antirrhina L. (catchfly)

Annual; uncommon to occasional in a variety of sites throughout the area. May-August.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Niles & Leary 1941, in moist granitic sand, with Bromus rubens in a pinyon-juniper woodland, along semi-permanent stream from Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft; Holland 1324, on a steep south slope, 1 mile east of Christmas Tree Pass, Newberry Mountains, 4000 ft.

Spergularia marina (L.) Griseb. (sand-spurrey)

Annual; rare, known in our area from a single location. March-September.

Mohave Co: none. Clark Co: Holland (UNLV), in moist soils with Heliotropium, 1/4 mile west of the Overton Arm of Lake Mead, at Stewart's Point, 1200 ft.

## RANUNCULACEAE

Anemone tuberosa Rydb. (windflower)

Perennial herb; occasional in dry, rocky places. April-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Nickell 620, 1/2 mile northeast of Juniper Mine, near road to telephone relay station, western edge of the Newberry Mountains, 3500 ft; Holland 826, under rocks in areas of limestone exposure, Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 2800 ft; Niles & Leary 1933, beneath granite boulders in a pine-oak-juniper woodland, near the head of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4700 ft.

Aquilegia chrysantha Gray

(columbine)

Perennial herb; occasional to locally common, in moist soil of protected sites. April-September.

Mohave Co: Phillips (MNA), Rampart Cave area; Grater (LM), Emory Falls, 1200 ft; Niles & Holland 685, near seeps with Penstemon, Mimulus and Robinia, floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: the species reportedly occurs along water courses in canyons within the Newberry Mountains.

Delphinium nelsoni Greene

(larkspur)

Perennial herb; occasional, mostly in pine forests, northern portion of the recreation area. May-June.

Mohave Co: Holland 537, in limestone outcrops with Artemisia and Juniperus, Grapevine Canyon, 14 miles east of Pierce Ferry, 4700 ft; Niles & Holland 646, with Pinus, Juniperus, and Artemisia, 2 miles north of Mt. Dellenbaugh summit, Shivwits Plateau, 6400 ft; Niles & Holland 638, in a pine woodland, 2 miles north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Delphinium parishii Gray  
ssp. parishii

(larkspur)

Perennial herb; occasional on gravelly slopes and in washes, lower elevations. April-June.

Mohave Co: Phillips (MNA), Rampart Cave area and Emory Falls. Clark Co: Gullion 233, in drained, coarse granite, Davis Dam powerline road, 6 miles north of Searchlight; Nickell 73, in loose granite soil at intersection of Bridge Canyon and state highway 77, Newberry Mountains, 2500 ft; Holland 155, in a gravel wash 1/2 mile east of Railroad Pass, River Mountains, 2500 ft; Holland 1203, junction of Piute Wash and Empire Wash road, 2600 ft.



Delphinium scaposum Greene

(larkspur)

Perennial herb; uncommon to occasional on desert slopes, mid to high elevations. March-June.

Mohave Co: Leary 2223, below the head of Green Spring Canyon, 4 miles southeast of Mt. Dellenbaugh, Shivwits Plateau, 5900 ft. Clark Co: none.

Myosurus cupulatus Wats.

(mouse-tail)

Annual; uncommon in wet soils, mid elevations. February-May.

Mohave Co: none. Clark Co: Niles & Leary 1924, in granitic sand along the semi-perennial stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Ranunculus testiculatus Crantz.

(buttercup)

Annual; rare in our area, known from a single collection. May-June.

Mohave Co: Leary 2183, in a corral with Sisymbrium and Descurainia, 5 miles north of Yellow John Mountain, Shivwits Plateau, 5900 ft. Clark Co: none.

Thalictrum fendleri Engelm. ex Gray

(meadow-rue)

Perennial herb; occasional to common, mostly in pine forests. April-August.

Mohave Co: Leary 2228, on a north-facing slope near the head of Green Spring Canyon, 4 miles southeast of Mt. Dellenbaugh, Shivwits Plateau, 5900 ft; Holland 1409, in moist gravels, Green Spring Canyon, Shivwits Plateau, 6000 ft. Clark Co: none.

## BERBERIDACEAE

Berberis fremontii Torr.

(barberry)

Shrub; occasional to common, mostly in pinyon-juniper woodlands. April-July.

Mohave Co: Niles & Leary 2157, common with Pinus, Juniperus and Artemisia, in Mokaac Canyon, along road to St. George, near Segmiller Mountain, 4200 ft;

Holland 308, with Pinus and Artemisia, on the road to Mt. Dellenbaugh, 3 miles north of the fire camp, Shivwits Plateau, 6000 ft. Clark Co: none.

## PAPAVERACEAE

Arctomecon californica Torr. & Frem. (bearclaw poppy)

Perennial herb; occasional to locally common in dry, low desert areas. This species has been recommended for critically endangered status (Workshop on Threatened and Endangered Species, Reno, 1978). March-May.

Mohave Co: none. Clark Co: Leary 1506, locally common with Enceliopsis argophylla and Petalonyx parryi, near entrance to LMNRA, east of Frenchman Mountain, 1600 ft; Schramm & Holland 867, occasional near road to Mansville gypsum plant, 1 mile north of Lake Mead Boulevard, 1900 ft; Schramm & Holland 867a, with Ambrosia dumosa and Enceliopsis argophylla, near road to the Anniversary Mine, 2 miles north of West End Wash, 2200 ft; Powers 18, in sandy soil at Stewart's Point, Echo Bay, 2000 ft; Grater (LM), Las Vegas Wash, 1200 ft; Sterling 1906, Searchlight; Convis (LM), Overton District, near Rogers Spring; Grater (LM), Valley of Fire, 12 miles southwest of Overton.

Argemone munita Dur. & Hilg. (prickly poppy)

Perennial herb; occasional in a variety of dry sites throughout the area. May-August.

Mohave Co: none. Clark Co: Holland 936, on talus slopes with Larrea, Neolloydia and Opuntia basilaris, just south of the fire rock area, along North Shore road, 10 miles south of Bitter Springs Wash, 2500 ft.

Argemone platycera Link & Otto (prickly poppy)

Perennial herb; occasional in a variety of sites, most elevations. May-August.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: none.

Eschscholzia californica Cham. (California poppy)

Annual or perennial herb; common in favorable springs, Newberry Mountains area and probably elsewhere. March-April.

Mohave Co: none. Clark Co: Holland 852, Pipe Springs Canyon area, Newberry Mountains, 2500 ft; Holland 1118, eastern slope of Spirit Mountain, near head of Pipe Springs Canyon, Newberry Mountains, 2500 ft.

Eschscholzia glyptosperma Greene (California poppy)

Annual; locally common in favorable springs in sandy desert soils. April-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Nickell 822, Willow Beach. Clark Co: Holland 844, powerline road south of Bridge Canyon, Newberry Mountains, 2400 ft; Holland 900, junction of road to the smoke-tree grove and state highway 77, Newberry Mountains area, 1800 ft; Holland 893, 1 mile north of state highway 77 and 2 miles west of Lake Mohave, 1500 ft; Holland 60, with Larrea and Ambrosia, near U. S. highway 93, 2 miles east of Boulder City, 1800 ft; Nickell 809, Eldorado Canyon; Leary 1754, in a sandy wash, 6.2 miles north of junction of North Shore road at Lake Mead Boulevard, LMNRA, 1600 ft; Bagglely (LM), Boulder Beach District, Lake Mead Lodge.

Eschscholzia minutiflora Wats

Annual; locally common in favorable springs in sandy-gravelly desert soils. March-May.

Mohave Co: none. Clark Co: Leary 1560, on an east-facing alluvial fan with Larrea, Encelia and Ambrosia, west of the water pumping station, LMNRA, 2000 ft; Wagner 34, on east-facing rocky hillsides, creosotebush community, River Mountains, 2800 ft; Holland 784, near junction of Empire Wash road and Piute Wash, 2600 ft; Nickell 567, 1/2 mile west of Hiko Spring, near state highway 77, Newberry Mountains, 2400 ft; Leary 1728, on the side of a broad wash in metamorphic gravels, entrance to LMNRA, Eldorado Canyon, 1900 ft; Gullion (LM), 16 miles south-southeast of Searchlight.

## FUMARIACEAE

Corydalis aurea Willd.

Biennial or perennial herb; occasional in a variety of sites, higher elevations. April-June.

Mohave Co: Leary 1614, in red sandstone alluvium, Parashant Wash, south of Salt Spring, Shivwits Plateau, 5600 ft; Holland 1298, in a large meadow

just north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Niles & Holland 604, in upper portion of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

## BRASSICAECEAE

### Arabis gracilipes Greene

(rock-cress)

Perennial herb; rare to occasional in canyons and on mountain slopes, low to mid elevations. The plant has been proposed for threatened status (Smithsonian Institution, 1975). April-June.

Not collected or observed during this study within the boundaries of LMNRA, but McDougall (1973) and Kearney and Peebles (1960) report its occurrence in Mohave County.

### Arabis gracilis Greene

(rock-cress)

Perennial herb; locally common in pinyon-juniper in the vicinity of Mt. Dellenbaugh, Shivwits Plateau. June-July.

Mohave Co: Leary and Leary 2212, common in open sagebrush-juniper areas on the north slope of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Holland and Niles 609, in Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, 6000 ft. Clark Co: none.

### Arabis perennans Wats.

(rock-cress)

Perennial herb; common in blackbrush, pinyon-juniper associations throughout the recreation area. March-May.

Mohave Co: Holland 1295, in basalts, northern slope of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft; Phillips (MNA), scattered in dry side canyons at 400 m in the Grand Canyon and on the Sanup Plateau, 1475 m. Clark Co: Holland 964, blackbrush association, 1 mile west of the recreation area boundary on the road to Christmas Tree Pass, Newberry Mountains, 3500 ft; Holland 851, Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft.

Arabis pulchra Jones (rock-cress)

Perennial herb; uncommon, known from a single collection in the Newberry Mountains. April-May.

Mohave Co: none. Clark Co: Holland 1108, base of the western exposure of Spirit Mountain, Newberry Mountains, 3000 ft.

Brassica juncea (L.) Coss. (mustard)

Annual; common roadside annual and invader of disturbed sites at the lower elevations. March-April.

Mohave Co: none. Clark Co: Holland 105, in roadside gravels 1/2 mile north of Railroad Pass, River Mountains, 2400 ft; Nickell 503, 2 miles west of Hiko Spring, Newberry Mountains, 2400 ft; Holland (UNLV), common along U. S. highway 95, just north of the turn-off to Christmas Tree Pass, 2600 ft.

Brassica tournefortii Gouan. (mustard)

Annual; uncommon, known only from a single roadside collection along the southern portion of the recreation area. March.

Mohave Co: none. Clark Co: Holland 1620, in coarse gravels, at the junction of U. S. highway 95 and the Empire Wash road, Newberry Mountains, 2600 ft.

Capsella bursa-pastoris (L.) Medic. (shepherd's-purse)

Annual; occasional invader of disturbed moist habitats throughout the recreation area. March-May.

Mohave Co: Holland 1271, 2 miles south of the road to Mt. Dellenbaugh on the road to Twin Point, Shivwits Plateau, 5800 ft. Clark Co: Schramm (UNLV), in disturbed soils 3 miles northeast of Railroad Pass, River Mountains, 2500 ft.

Caulanthus cooperi (Wats.) Pays.

Annual; common in dry washes and on gravel slopes in areas of limited exposure throughout the lower elevations. March-May.

Mohave Co: Holland and Bostick 380, in large gravel wash, 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), rare in dry side canyons near Rampart Cave; Grater (LM), Willow Beach. Clark Co: Holland 1624, occasional, 1 mile west of Lake Mohave along the eastern exposure of the Newberry Mountains, 900 ft; Holland 467, in Bootleg Canyon, 1.5 miles northwest of Boulder City, River Mountains, 2500 ft.

Chorisporea tenella (Pall.) DC.

Annual; common in pinyon-juniper associations of the Shivwits Plateau. May-August.

Mohave Co: Holland and Fries 1673, in Whitmore Canyon, 1/4 mile south of the recreation area boundary, 4000 ft; Holland and Austin 1305, Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Descurainia obtusa (Greene) O.E. Schultz (tansy-mustard)

Annual; uncommon in limestone, known from a single locality but probably more widespread. July.

Mohave Co: Holland 723, on the floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Descurainia pinnata (Walt.) Britton (tansy-mustard)  
ssp. glabra (Woot. & Strandl.) Detl.

Annual; occasional to common, lower elevations. March.

Mohave Co: Phillips (MNA), common in washes on lower slopes and in sandy beds of dry side canyons, as at Columbine Falls. Clark Co: Leary 90, common in gravelly soils, 4.5 miles north of state highway 77 in the Sacatone Wash area, 2500 ft.

Descurainia pinnata (Walt.) Britton (tansy-mustard)  
ssp. halictorum (Cockerell) Detl.

Annual; known from a single collection along the southwestern boundary of the recreation area. March-May.

Mohave Co: none. Clark Co: Nickell 515, in wash gravels just north of the Juniper Mine, Newberry Mountains, 3200 ft; Trelease 30, 5 miles south of Boulder City.

Descurainia pinnata (Walt.) Britton (tansy-mustard)  
ssp. menziesii (DC.) Detl.

Annual; common in gravels of dry washes and slopes throughout the lower elevations. March-May.

Mohave Co: Grater (IM), Pierce Ferry, 40 miles east of Hoover Dam.  
Clark Co: Holland 1196, in pinyon-juniper association, 1 mile west of the recreation area boundary on the Christmas Tree Pass road, Newberry Mountains, 3400 ft; Holland 97, 1/2 mile north of Railroad Pass, River Mountains, 2400 ft; Schramm 44, 3 miles west of Hoover Dam just south of U. S. highway 466, 1700 ft.

Descurainia sophia (L.) Webb. (tansy-mustard)

Annual; common and widespread through the recreation area. April-June.

Mohave Co: Leary 1638, south of Crepe Spring, Shivwits Plateau, 5500 ft; Holland and Niles 607, in limestone gravels, 5 miles east of Mt. Dellenbaugh in Green Spring Canyon, 6000 ft. Clark Co: Holland 122, in gravels, 1/2 mile north of Railroad Pass, River Mountains, 2400 ft.

Dithyrea californica Harv. (spectacle-pod)

Annual; common in sandy soils throughout the lower elevations. February-April.

Mohave Co: none. Clark Co: Nickell and Niles 70, junction of U. S. highway 95 and the Christmas Tree Pass road, Piute Valley, 2200 ft; Niles and Bostick 867, east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft; Gullion 152, in deep sandy soils, 5 miles southwest of Boulder City; Fisher 470, 2 miles southwest of Duck Rock, Valley of Fire State Park, 2000 ft.

Draba cuneifolia Nutt. ex T. & G.  
var. cuneifolia

Annual; the common variety of the higher elevations. March-May.

Mohave Co: Leary and Leary 1626, on northern slopes in the vicinity of Crepe Spring, Shivwits Plateau, 5500 ft; Leary 1958, with Rhus, Quercus, and Pinus along the semi-perennial spring of Grapevine Spring, north of Jumbo Peak, Gold Butte Area, 4200 ft. Clark Co: none.

Draba cuneifolia Nutt. ex T. & G.  
var. integrifolia Wats.

Annual; common in areas of limited exposure throughout the lower elevations. February-May.

Mohave Co: Holland and Bostick 386, in large wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), occasional in sandy beds and dry side canyons, Rampart Cave area. Clark Co: Holland and Schramm 1555, common at the base of cliffs, 1 mile west of Hiko Spring, Newberry Mountains, 2600 ft; Leary 42, scattered in gravelly soils in wash below Spirit Peak, Newberry Mountains, 2500 ft.

Erysimum capitatum (Dougl.) Greene (wallflower)

Perennial herb; common in blackbrush-sagebrush, pinyon-juniper associations of the higher elevations. May-June.

Mohave Co: Phillips (MNA), common on the Sanup Plateau, at the north rim, 1475 m; Grater (LM), Pierce Ferry. Clark Co: none.

Erysimum repandum L. (wallflower)

Annual; common on disturbed clay soils on the Shivwits Plateau. June-July.

Mohave Co: Leary and Niles 2156, very common in old reservoir, 8 miles east of Mt. Trumbull, 6400 ft; Leary 2188, fire camp north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Lepidium densiflorum Schrad. (pepper-grass)

Annual; known from a single locality on the Shivwits Plateau, but probably more widespread. June.



Mohave Co: Holland and Niles 608, in Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, 6000 ft. Clark Co: none.

Lepidium fremontii Wats. (pepper-grass)

Perennial herb; common on many soil types below 4000 ft. throughout the recreation area. March-May, November.

Mohave Co: Holland and Fries 1680, common in sandstone, Exxon Lease Site, Whitmore Canyon, 3400 ft; Phillips (MNA), rare, found only on the steep slopes above the narrow canyon above Columbine Falls, 500 m; Grater (LM), gravel wash at Willow Beach. Clark Co: Holland 1047, along U. S. highway 95 at junction with state highway 77, Newberry Mountains, 2500 ft; Holland 367, 1 1/2 miles southeast of the 3-Kids Mine, River Mountains, 1600 ft; Grater (LM), on gypsum, 8 miles northeast of Henderson; Poyser 72, Quarry Canyon, 1/2 mile northeast of Boulder Beach, River Mountains.

Lepidium lasiocarpum Nutt. (pepper-grass)  
var. lasiocarpum

Annual; widespread in dry gravel washes and on steep slopes at the lower elevations. March-May.

Mohave Co: Holland and Bostick 491, wash gravels, 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), scattered on talus slopes at lower elevations in the canyon; especially common in washes below Rampart Cave; Grater (LM), gravel wash, Willow Beach. Clark Co: Holland 466, in moist soils surrounding the water storage tank, 2 miles west of Cottonwood Cove, 1500 ft; Leary 45, in wash below southern exposure of Spirit Peak, Newberry Mountains, 2150 ft; Nickell 518, oak-juniper association, 1/2 mile north of Juniper Mine, Newberry Mountains, 3500 ft; Holland 117, in disturbed roadside gravels 1/2 mile north of Railroad Pass, River Mountains, 2400 ft; Schramm 43, Larrea-Ambrosia association, 3 miles west of Hoover Dam, 1700 ft.

Lepidium lasiocarpum Nutt. (pepper-grass)  
var. wrightii (Gray) Hitch.

Annual; uncommon, reported from only a few localities within the recreation area. March-April.

Mohave Co: Carothers (MNA), Rampart Cave. Clark Co: Holland and Schramm 883, 2 miles north of West End Wash, on the road to the Anniversary Mine, 2200 ft.

Lepidium montanum Nutt. (pepper-grass)  
var. glabrum C.L. Hitchc.

Perennial herb; uncommon, known only from the vicinity of Cane Spring, Shivwits Plateau. May-September.

Mohave Co: Leary 1829, in sandstone alluvium on side of wash, north of Cane Spring with Ephedra, Muhlenbergia, Gutierrezia and Cirsium, Shivwits Plateau, 3300 ft. Clark Co: none.

Lesquerella intermedia (Wats.) Heller (bladder-pod)

Perennial herb; locally common at the higher elevations. May-June.

Mohave Co: Holland 1267, at the junction of the Mt. Dellenbaugh road and the road to Twin Point, Shivwits Plateau, 5800 ft; Holland and Niles 652, common, 6 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 5500 ft; Holland 538, on the floor of Grapevine Canyon, 14 miles south of Pierce Ferry, 4500 ft. Clark Co: none.

Lesquerella palmeri Wats. (bladder-pod)

Annual; common in coarse gravels in washes and on disturbed roadsides throughout the lower elevations of the recreation area. March-May.

Mohave Co: Bagglely (LM), roadside, Temple Bar District. Clark Co: Holland 1619, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 1800 ft; Holland 1095, 5 miles east of U. S. highway 95 on the Empire Wash road, 2800 ft; Gullion (LM), along U.S. highway 95, 11 miles north of Searchlight.

Lesquerella tenella Nelson (bladder-pod)

Annual; reported only from the lower Grand Canyon.

Mohave Co: Phillips (MNA), occasional in side canyons in the Grand Canyon and at Pierce Ferry. Clark Co: none.

Lobularia maritima (L.) Desv. (sweet-alyssum)

Perennial herb; uncommon, known from a single locality. March-April.

Mohave Co: none. Clark Co: Anderson 32, 2 miles west of Nelson's Landing, along state highway 60, 1000 ft.

Sisymbrium altissimum L.

Annual; common and widespread in disturbed soils throughout the lower elevations. March-May.

Mohave Co: Carothers (MNA), Diamond Creek, mile 225L. Clark Co: Holland 811, roadside along U. S. highway 95, just north of state highway 77, Newberry Mountains, 2800 ft; Holland 194, occasional, 1/2 mile west of Hemenway Harbor, 1400 ft.

Sisymbrium ambiguum (Wats.) Pays.

Perennial herb; occasional to common on the Sanup and Shivwits Plateaus. May-June.

Mohave Co: Holland 1238, at the Sanup Plateau trailhead, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), common on both rims (Grand Canyon) at 1475 m. Clark Co: none.

Sisymbrium irio L.

(London-rocket)

Annual; occasional in disturbed sites at the lower elevations. Flowering throughout the year.

Mohave Co: Holland and Niles 619, in Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, 6000 ft. Clark Co: Holland 180, Hemenway Wash, 1 mile west of state highway 41 along a powerline road, 1650 ft; Leary 91, in gravelly soil, 4.5 miles north of state highway 77, in Sacatone Wash, Newberry Mountains, 2500 ft; Gullion (LM), disturbed soils at the Spirit Mine, 11 miles west of Davis Dam, Newberry Mountains.

Stanleya pinnata (Pursh) Britton  
ssp. pinnata

(prince's-plume)

Perennial herb; common and widespread throughout the recreation area. April-May.

Mohave Co: Holland 1263, at the trailhead to the Sanup Plateau, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), common on steep rocky slopes in the canyon at about 400-500 m and on the Sanup Plateau, 1475 m. Clark Co: Holland 1048, 4 miles east of U. S. 95 along state highway 77, Newberry Mountains, 2800 ft; Holland and Schramm 881, 2 miles north of West End Wash, in the canyon above the Anniversary Mine, 2200 ft.

Streptanthus cordatus Nutt.

Perennial herb; in Coleogyne-Artemisia-Juniperus at the higher elevations. May-June.

Mohave Co: Holland 1240, at the Sanup Plateau trail head, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), found only on the Sanup Plateau at 1475 m. Clark Co: none.

Streptanthella longirostris (Wats.) Rydb.

Annual; common and widespread throughout the lower elevations. February-May.

Mohave Co: Grater (IM), Willow Beach, 600 ft. Clark Co: Holland and Schramm 1556, 1 mile west of Hiko Spring along state highway 77, Newberry Mountains, 2600 ft; Holland and Schramm 870, in the canyon above the Anniversary Mine, 2 miles north of West End Wash, 2200 ft; Holland 104, in wash gravels, 3/4 mile northeast of Railroad Pass, River Mountains, 2500 ft; Berg 34, 5 miles east of Henderson along state highway 41.

Thelypodium integrifolium (Nutt.) Endl.

Biennial; uncommon in the lower Grand Canyon, not yet located in LMNRA. July-August.

Mohave Co: Phillips (MNA), rare in open seep areas near Muav Caves (450 m) and at Juniper Seep (mile 268, 375 m); Clover (MO), Lake Mead, 2 miles above Emory (Columbine) Falls. Clark Co: none.

Thelypodium lasiophyllum (H. & A.) Greene  
var. lasiophyllum

Annual; common in dry washes and slopes of the low mountain ranges along Lakes Mead and Mohave. March-May.

Mohave Co: Holland 410, in gravel wash, 5 miles north of Katherine Landing, 750 ft. Clark Co: Holland 1076, 4 miles northwest of Hiko Spring and 1/5 mile south of Spirit Mountain, Newberry Mountains, 3000 ft; Holland 468, on rolling hills at the mouth of Bootleg Canyon, 1 1/2 miles northwest of Boulder City, River Mountains, 2500 ft.

Thelypodium wrightii Gray

Annual; common at springs and seeps in the northeastern portion of the recreation area. April-August.

Mohave Co: Holland 1408, in Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: Holland, at Juanita Spring along the road to Gold Butte.

Thlaspi arvense L.

Annual or biennial herb; uncommon, known in southern Nevada only from Las Vegas Wash. 1900 ft.

Mohave Co: none. Clark Co: Hiatt (UNLV), a weed in a cultivated field, Mormon Church welfare farm, powerline road, Las Vegas Wash, 1700 ft.

Thysanocarpus curvipes Hook. (lace-pod)  
var. eradiatus Jeps.

Annual; common in areas of limited exposure at most elevations. April-May.

Mohave Co: none. Clark Co: Holland 486, 1 mile east of Railroad Pass, River Mountains, 2500 ft; Niles 1056, common in moist sites in canyon bottoms, vicinity of Sacatone Wash, Newberry Mountains, 2800 ft.

## CAPPARACEAE

Cleome lutea Hook.

Annual; locally common in disturbed soils along the roads on the Shivwits Plateau. July-August.

Mohave Co: Holland 694, in Wolfhole Valley, 37 miles south of St. George, Utah, 5000 ft; VanDevender and Mead (ARIZ), Peach Springs Wash. Clark Co: none.

Cleome serrulata Pursh

Annual; similar in habit to C. lutea, found in roadside gravels or other areas of disturbance. June-September.

Mohave Co: Holland 747, 30 miles north of Mt. Dellenbaugh, Shivwits Plateau, 4500 ft. Clark Co: none.

Wislizenia refracta Engelm.

Annual; uncommon, reported from only a few localities along the Colorado River. March-October.

Mohave Co: Grater and Collins (LM), Willow Beach, 600 ft; Clover (MO), Separation Canyon. Clark Co: none.

RESEDACEAE

Oligomeris linifolia (Vahl) Macbr.

Annual; common in rocky or clay soils at the lower elevations. March-May.

Mohave Co: Holland 401, in large gravel wash, 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), scattered on Lake Mead mud flats. Clark Co: Leary 1704, in clay soils on ridge northeast of Hamblin Mountain, Black Mountains, 2300 ft; Leary 1510, near the entrance to LMNRA, east of Frenchman Mountain, 1600 ft; Holland and Schramm 1586, 1 mile southwest of Davis Dam, eastern exposure of the Newberry Mountains, 800 ft; Niles 981, eastern edge of the Eldorado Playa, north of the turn-off to Nelson, 1900 ft; Holland 160, 1/2 mile east of Railroad Pass, River Mountains, 2500 ft.

## CRASSULACEAE

### Dudleya arizonica Rose

Perennial herb; locally common in the granitic outcrops of the Newberry Mountains. May-June.

Mohave Co: none. Clark Co: Holland and Niles 528, on south-facing slopes of Spirit Mountain; Newberry Mountains, 4900 ft; Holland, on the walls and crevices of Bridge Canyon, 1/4 mile east of state highway 77, 2500 ft; Littlefield 257, in cracks of rocks, Sacatone Wash, Newberry Mountains.

## SAXIFRAGACEAE

### Fendlera rupicola Gray

Shrub; uncommon, on eastern exposures of the canyons in the northeastern portion of the recreation area. June-July.

Mohave Co: Leary 2252, local stand, just below rim in volcanic soils, at Ambush Canyon (Paw's Pocket), 6000 ft. Clark Co: none.

### Fenderella utahensis (Wats.) Heller

Shrub; in blackbrush associations on the west side of Parashant Canyon. April-May.

Mohave Co: Holland and Fries 1693, eastern exposure of Parashant Canyon, 4000 ft. Clark Co: none.

### Heuchera rubescens Torr.

Perennial herb; uncommon in rock crevices at the higher elevations of the Shivwits Plateau. June-July.

Mohave Co: Leary 2245, on north-facing slope in volcanic soils at the rim of Ambush Canyon (Paw's Pocket), 6000 ft. Clark Co: none.

Heuchera versicolor Greene

Perennial herb; known only from the Mt. Dellenbaugh summit. June-July.

Mohave Co: Leary 2206, on north-facing slopes at the summit of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Holland and Niles 633, summit of Mt. Dellenbaugh, in cracks of igneous rocks, Shivwits Plateau, 6990 ft. Clark Co: none.

Ribes cereum Dougl.

(currant)

Shrub; locally common at the summit and along the northern exposure of Mt. Dellenbaugh. May-June.

Mohave Co: Holland 1276, on the north-facing slope of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft. Clark Co: none.

CROSSOSOMATACEAE

Crossosoma bigelovii Wats.

Shrub; uncommon, known within the recreation area only from the lower Grand Canyon.

Mohave Co: Phillips (MNA), scattered on rock faces at lower elevations; found at the mouth of Rampart Cave (535 m), near Columbine Falls (400 m) and in dry side canyon on the north side of the river. Clark Co: none.

Crossosoma parviflorum Robins. & Fern.

Shrub; rare. The plant has been proposed for a threatened status (Smithsonian Institution, 1975).

Reported from our area (Kearney and Peebles, 1960) from Quartermaster Canyon and the Black Mountains of Mohave County. It has not been collected or observed during this study.



## ROSACEAE

Amelanchier utahensis Koehne (service-berry)

Shrub; occasional in rocky habitats on the Shivwits Plateau. May-June.

Mohave Co: Holland and Niles 1295, head of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland 1283, eastern slope of Mt. Dellenbaugh, Shivwits Plateau, 6500 ft; Phillips (MNA), scattered at the base of the upper Grand Canyon Cliffs and Shivwits Plateau. Clark Co: none.

Cercocarpus montanus Raf. (mountain-mahogany)

Shrub; known only from the base of the upper Grand Wash Cliffs. March-November.

Mohave Co: Phillips (MNA), scattered at the base of the upper Grand Wash Cliffs, 1585 m. Clark Co: none.

Chamaebatiaria millefolium (Torr.) Maxim. (fern-bush)

Shrub; known from a single collection along the rim of the Shivwits Plateau, probably more widespread. July-November.

Mohave Co: Holland 327, at the Sanup Plateau trailhead, 1 mile north of Twin Point, 6000 ft. Clark Co: none.

Coleogyne ramosissima Torr. (blackbrush)

Shrub; common and widespread, forming almost pure stands in Whitmore and Parashant Canyons, also on the Sanup Plateau in Arizona and in the Newberry Mountains of southern Nevada. April-May.

Mohave Co: Holland 1258, in limestone soils at Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), in nearly pure stands on level ground along both rims of the lower Grand Canyon, 2475 to 1800 m; VanDevender and Mead (ARIZ), Peach Springs Wash. Clark Co: Holland 1134, head of Sacatone Wash along the recreation area boundary, Christmas Tree Pass, Newberry Mountains, 3400 ft; Holland 969, Roman Wash, 1/2 mile south of Empire Wash, Newberry Mountains, 3000 ft; Holland (UNLV), occasional, 1 mile west of Red Mountain, River Mountains, 3000 ft; Holland (UNLV), common on the Mormon Mesa, 2200 ft.

Cowania mexicana D. Don (cliff-rose)  
var. stansburiana (Torr.) Jeps.

Shrub; common in rocky outcrops at the higher elevations. May-June, October.

Mohave Co: Holland 1272, 2 miles south of the Mt. Dellenbaugh Road on the road to Twin Point, Shivwits Plateau, 5800 ft; Holland and Niles 628, rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland 319, common in limestone, 2 miles north of Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), walls of Columbine Falls Canyon (500 m), common on the rims; VanDevender and Mead (ARIZ), Peach Springs Wash. Clark Co: none.

Fallugia paradoxa (D. Don) Endl. (Apache-plume)

Shrub; common and widespread on the Sanup and Shivwits Plateaus. April-July.

Mohave Co: Holland (UNLV), common, at the summit of Mt. Dellenbaugh, 6990 ft. and in Whitmore and Parashant Canyons, 4000 ft; Phillips (MNA), scattered on the south rim (1475 m) and one individual seen in a side canyon on the north side of the lower Grand Canyon (530 m); VanDevender and Mead (ARIZ), Peach Springs Wash; Grater (LM), rim of Quartermaster Canyon. Clark Co: none.

Petrophytum caespitosum (Nutt.) Rydb. (rock-mat)

Subshrub; uncommon, known only from the lower Grand Canyon. June-October.

Mohave Co: Phillips (MNA), found only on active travertine seep below Muav Cave and at Columbine Falls. Clark Co: none.

Prunus fasciculata (Torr.) Gray (desert-almond)

Shrub; locally common in dry washes in the southern portion of the recreation area. March-May.

Mohave Co: Phillips (MNA), in the bottom of one dry side canyon about 1 mile north of Lake Mead (450 m), just down stream and across from Rampart Cave. Clark Co: Holland 1084, Piute Wash and Empire Wash road, Newberry Mountains, 2600 ft; Holland 857, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3000 ft; Holland 120, in lateral branch of Bootleg Canyon, River Mountains, 2900 ft; Mauer 20, Valley of Fire State Park.

Prunus virginiana L.

(choke-cherry)

Shrub; uncommon, known only from Mt. Dellenbaugh, Shivwits Plateau. May-June.

Mohave Co: Leary 2203, summit of Mt. Dellenbaugh, 6900 ft; Holland 1256, on the eastern exposure of Mt. Dellenbaugh, 6800 ft. Clark Co: none.

Rosa stellata Wooton

Shrub; uncommon, known only from a single locality on the Shivwits Plateau. This species has been proposed for threatened status (Smithsonian Institution, 1975). July-August.

Mohave Co: Holland 690, in limestone substrate, 10 miles south of the road to Mt. Dellenbaugh, on the road to Twin Point. Clark Co: none.

## FABACEAE

Acacia greggii Gray

(cat-claw)

Shrub; common in dry washes below 3000 ft. April-October.

Mohave Co: Holland, common in red soils, 1/4 mile north of Whitmore Point, in Whitmore Canyon, 3500 ft; VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), common and widespread, especially along streams and dry washes and around seeps near Rampart Cave; Martin (ARIZ), generally common around the "bath tub ring" or the lower Grand Canyon; Clover and Jotter (MO), Emory Falls, Spencer Canyon, Separation Canyon and along the Hurricane Fault. Clark Co: Holland (UNLV), common in igneous rock along the eastern exposure of the River Mountains, 1500 ft; Nickell 618, common, 3 miles north of state highway 77, off the Christmas Tree Pass Road, Newberry Mountains, 2400 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft; Deming (UNLV), Moapa Valley, in washes and on flats in the lower elevations of the county.

Alhagi camelorum Fisch.

Shrub; found only along the mud flats at the mouth of the Grand Canyon. May-July.

Mohave Co: Phillips (MNA), infrequent on Lake Mead mud flats, 360 m.  
Clark Co: none.

Astragalus amphioxys Gray (milk-vetch)  
var. amphioxys

Perennial herb; occasional with Juniperus, Artemisia and Cowania on the Shivwits Plateau. April-June.

Mohave Co: Leary and Walker 2299, volcanic soils on the north slope of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft; Holland 1294, occasional, 2 miles south of the Mt. Dellenbaugh fire camp, northern exposure, Shivwits Plateau, 6400 ft; Holland 651, locally common along the western edge of the Shivwits Plateau, 2 miles north of Twin Point, 6000 ft; Holland and Niles 600, occasional in acidic soils with Pinus ponderosa at the western rim of Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: none.

Astragalus amphioxys Gray (milk-vetch)  
var. melanocalyx (Rydb.) Tidestr.

Perennial herb; found only along the Overton Arm of Lake Mead and on the Mormon Mesa in sandy soils. March-May.

Mohave Co: none. Clark Co: Leary and Leary 1664, in sandy soils with Astragalus sabulonum, Larrea, Ambrosia and Hilaria, 3 miles south of Overton along state highway 12, 1500 ft; Leary and Leary 1534, fairly common in red sand near Mouse's Tank, Valley of Fire State Park, 2000 ft; Holland 1000, with Ephedra nevadensis, Amphipappus fremontii and Ambrosia dumosa, 4 miles north of Logandale on the Mormon Mesa, 2000 ft; Convis (LM), Salt Wash, 4 miles south of Overton Beach.

Astragalus calycosus Torr. scaposus (Gray) Jones (milk-vetch)

Perennial herb; occasional on limestone with Coleogyne, Artemisia and Juniperus on the Sanup and Shivwits Plateaus. April-June.

Mohave Co: Holland and Fries 1695, Parashant Canyon, eastern exposure, T32N R10W Sec 25, 4000 ft; Holland 1241, locally common with Polygala subspinosa, Artemisia, and Juniperus, 1 1/2 miles north of Twin Point, Shivwits Plateau, 6000 ft; Holland 650, common with Coleogyne, Agave, Juniperus and Cowania, 2 miles north of Twin Point, along the western rim, Shivwits Plateau, 6000 ft. Clark Co: none.

Astragalus geyeri Gray (milk vetch)  
var. triquetrus (Gray) Jones

Annual; rare. The plant has been proposed for a threatened status (Smithsonian Institution, 1975). April-May.

According to Barneby (1964), this taxon has been collected from sandy sites along the Muddy, Virgin and Colorado Rivers. It has not been re-collected or sighted during this study.

Astragalus humistratus Gray (milk-vetch)  
var. hosackiae (Greene) Jones

Perennial herb; occasional in clay soils throughout the Shivwits Plateau. May-September.

Mohave Co: Holland 595, with Eremocrinum montanum, Pinus ponderosa and Arenaria aberrans near the tank, 1 mile north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Astragalus layneae Greene (milk-vetch)

Perennial herb; common along roadsides and in coarse gravels along the southern portions of the recreation area. March-May.

Mohave Co: none. Clark Co: Holland 965, along a western exposure between Christmas Tree Pass and Empire Wash, Newberry Mountains, 3000 ft; Holland 775, roadside, 7 miles south of Searchlight along U. S. highway 95, 2800 ft; Nickell 11, 10 miles south of Searchlight, at junction of Christmas Tree Pass road and U. S. highway 95, 2800 ft; Baggle (LM), near Nelson.

Astragalus lentiginosus Dougl. ex Hook. (milk-vetch)  
var. ambiguus Barneby

Perennial herb; rare on open limestone or granite hillsides. This variety has been proposed for a threatened status (Smithsonian Institution, 1975). April-May.

Barneby (1964) reports this taxon from near Peach Springs and Chloride, Mohave County. It has not been collected or observed during this study.

Astragalus lentiginosus Dougl. (milk-vetch)  
var. australis Barneby

Perennial herb; clay flats and seeps in the lower Grand Canyon. April-July.

Mohave Co: Phillips (MNA), south rim, Rampart Cave. Clark Co: none.

Astragalus lentiginosus Dougl. (milk-vetch)  
var. fremontii (Gray) Wats.

Perennial herb; widespread throughout the Mojave Desert, but known from only a few localities within the recreation area. April-July.

Mohave Co: none. Clark Co: Nickell 511, in disturbed sites at the summit of Christmas Tree Pass, Newberry Mountains, 4400 ft; Holland 1081, along U. S. highway 95, 7 miles south of Searchlight, 2800 ft.

Astragalus lentiginosus Dougl. (milk-vetch)  
var. palans Jones

Perennial herb; locally common at the higher elevations of the recreation area. April-May.

Mohave Co: Leary and Leary 1622, fairly common south of Crepe Spring, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: none.

Astragalus lentiginosus Dougl. (milk-vetch)  
var. vitreus Barneby

Perennial herb; locally common in ponderosa pine associations on the Shivwits Plateau. April-June.

Mohave Co: Leary and Walker 2227, along the rim of Green Spring Canyon, 4 miles east of Mt. Dellenbaugh, Shivwits Plateau, 5900 ft.  
Clark Co: none.

Astragalus mohavensis Wats.  
var. mohavensis

(milk-vetch)

Perennial herb; locally common Mojave Desert species found only in the Newberry Mountains of the recreation area. April-May.

Mohave Co: none. Clark Co: Holland 1527, occasional in granitic soils 1 mile west of Christmas Tree Pass on steep north-facing slopes, Newberry Mountains, 4600 ft; Holland 1128, scattered in granitic soils 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 3400 ft.

Astragalus mokiensis Gray

(milk-vetch)

[=Astragalus lentiginosus Dougl. var. mokiensis (Gray) Jones]

Perennial herb; locally common species of the Pierce Ferry and Gold Butte areas. May-June.

Mohave Co: Phillips (MNA), common at Pierce Ferry. Clark Co: Leary and Niles 1947, in disturbed soils along stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft; Leary and Niles 1910, 3.1 miles south of Gold Butte in Cataract Wash, 3450 ft; Holland, Schramm and Niles (UNLV), locally common at the junction of interstate highway 15 and the road to Riverside, 2000 ft; Holland, Schramm and Niles (UNLV), in red sands along the southern exposure of the Virgin Mountains.

Astragalus nuttallianus DC.

(milk-vetch)

var. imperfectus (Rydb.) Barneby

Annual; common and widespread throughout the lower elevations of the recreation area. March-May.

Mohave Co: Leary and Leary 1835, in muddy sand of wash bottom just north of Cane Spring, 3000 ft; Leary and Leary 1805, in an overgrazed meadow along the Lake Mead boundary in Whitmore Canyon, 4000 ft; Phillips (MNA), occasional in dry side canyons in the Grand Canyon. Clark Co: Leary and Niles 1939, along semi-perennial stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft; Leary and Niles 1885, in fine-grained alluvium 0.5 mile north of Whitney Pocket, 3100 ft; Leary 1708, at base of ridge northeast of Hamblin Mountain, Black Mountains, 2300 ft; Holland and Schramm 1566, 1 mile southwest of Davis Dam along state highway 77, Newberry Mountains, 800 ft.

Astragalus oophorus Wats.  
var. caulescens Jones

(milk-vetch)

Perennial herb; isolated populations occur throughout the Shivwits Plateau. May-July.

Mohave Co: Holland 1281, on the northern slopes of Mt. Dellenbaugh, 2 miles south of the fire camp, Shivwits Plateau, 6400 ft. Clark Co: none.

Astragalus praelongus Sheld.  
var. praelongus

(milk-vetch)

Perennial herb; widespread and locally common in disturbed soils in the Muddy and Virgin Valleys. April-May.

Mohave Co: none. Clark Co: Holland, Schramm and Niles (UNLV), locally common along interstate highway 15, 10 miles east of Las Vegas; Clover (MO), confluence of the Muddy and Virgin Rivers; Palmer (GH), near St. Thomas, southeastern Nevada at the confluence of the Muddy River with the Virgin.

Astragalus preusii Gray  
var. laxiflorus Gray

(milk-vetch)

Perennial herb; reported by Barneby (1964) as uncommon, lower Muddy and Virgin Valleys around the common boundary point of Nevada, Utah and Arizona; isolated, probably on alkaline clay flats at  $\pm$  2350 ft. March-May.

Astragalus preussi Gray  
var. preussi

(milk-vetch)

Perennial herb; the common Astragalus of disturbed sites along the North Shore road from West End Wash to Overton. April-May.

Mohave Co: none. Clark Co: Holland 195, 2 miles south of the Lake Mead fish hatchery along state highway 41, River Mountains, 1500 ft; Larsen 104, Gold Butte, Virgin Mountains.



Astragalus sabulonum Gray

(milk-vetch)

Annual; common in sandy soils throughout the lower elevations of Clark County. March-May.

Mohave Co: none. Clark Co: Leary and Niles 1870, occasional in sandy soils south of Riverside, 1450 ft; Leary and Leary 1633, 3 miles south of Overton along state highway 12, 1500 ft; Leary and Leary 1573, sandy soils south of Boulder City golf course, 2300 ft; Holland 1001, in areas of deep sand, 1 mile east of the North Shore road toward the Overton Airport, 2000 ft; Holland (UNLV), in red sands, south of the Riverside bridge on the road to Gold Butte.

Calliandra humilus Benth.

(fairy-duster)

var. reticulata Benson

Perennial herb; occasional in ponderosa pine woodland, in rocky soils, Shivwits Plateau. June-August.

Mohave Co: Holland 706, locally common 2 miles northwest of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Cassia armata Wats.

(senna)

Shrub; common in dry washes throughout the lower elevations of the recreation area. March-June.

Mohave Co: Grater (LM), Willow Beach, 700 ft. Clark Co: Holland 1312, in dry riparian gravels with Acacia, Psoralea and Yucca, 6 miles west of U. S. highway 95, on state highway 77, Newberry Mountains, 3000 ft; Holland 114, common in wash gravels, 1 mile east of the 3-Kids Mine along state highway 41, River Mountains, 1800 ft; Bostick 3384, mouth of Keyhole Canyon, Eldorado Mountains, 3500 ft; Poyser (LM), Hemenway Wash above Boulder Beach; Coville (US), great bend of the Colorado River.

Cassia covesii Gray

Suffrutescent perennial; uncommon to occasional in sandy soils throughout the lower elevations of the recreation area. April-October.

Mohave Co: Holland and Bostick 279, with Larrea, Ambrosia and Fouquieria at the Whitmore Canyon trailhead, 2600 ft; Martin (ARIZ), Lava Falls and Whitmore Canyon; Grater (LM), Surprise Canyon, 1700 ft. Clark Co: Schramm (UNLV), uncommon in the southern extension of the Newberry Mountains, 1.5 miles south of state highway 77, 2600 ft.

Cercidium floridum Benth.

(palo-verde)

Tree; introduced, known within the recreation area only from Eldorado Canyon. April-May.

Mohave Co: none. Clark Co: Holland and Niles 861, in wash gravels 1/4 mile west of Lake Mohave in Eldorado Canyon, 850 ft.

Cercidium microphyllum (Torr.) Rose and Johnson (palo-verde)

Tree; locally abundant for a 1-mile strip along only the Arizona side of Lake Mohave opposite Eldorado Canyon. This stand is primarily restricted to the desert riparian association but individuals can occasionally be found on steep eastern exposures at the base of the Black Mountains. April-May.

Mohave Co: Holland (UNLV), common in coarse wash gravels with Acacia, Bebbia, and Encelia in narrow canyons, 1/2 mile east of Lake Mohave, opposite Eldorado Canyon, 1000 ft. Clark Co: none.

Cercis occidentalis Torr.

(redbud)

Small tree; uncommon, known only from the narrow canyons east of the Shivwits Plateau. March-April.

Mohave Co: Holland and Fries 1696, a few isolated individuals along the eastern exposure within Parashant Canyon, T32N R10W Sec 25, 4000 ft. Clark Co: none.

Dalea candida (Michx.) Willd.

(prairie-clover)

[=Petalostemon candidum Michx.]

Perennial herb; local populations in open areas on the Shivwits Plateau. May-September.

Mohave Co: Holland 709, roadside species with Pinus ponderosa, Artemisia tridentata, Penstemon barbatus and Calliandra humilis, 2 miles north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Dalea mollis Benth.

Annual; locally common in sandy soils from Boulder City south to the Newberry Mountains. February-April.

Mohave Co: Holland (UNLV), in sandy soils just north of the Katherine Landing ranger station, 1000 ft. Clark Co: Holland, Niles and Schramm 1588, 1 mile south of the Boulder City golf course, 2200 ft; Holland and Schramm 1584, 1 mile southeast of Davis Dam along the eastern exposure of the Newberry Mountains, 800 ft; Holland 803, along the powerline road south of Cottonwood Cove where it intersects Empire Wash, Newberry Mountains, 1100 ft.

Dalea mollissima (Rydb.) Munz

Annual or short-lived perennial herb; common on many substrates throughout the lower elevations of the recreation area. March-May.

Mohave Co: Holland 490, common on sand dunes just north of Katherine Landing, 800 ft; Holland (UNLV), common at Fortification Mountain, 2400 ft; Carothers (MNA), 3 miles south of Temple Bar. Clark Co: Leary 1707, on ridge northeast of Hamblin Mountain, Black Mountains, 2300 ft; Holland 781, abundant, in Empire Wash 1 mile west of Lake Mohave, Newberry Mountains, 1000 ft; Holland 178, occasional in wash gravels, 2 miles west of state highway 41, 1 mile south of the Boulder Beach turn-off, River Mountains, 1800 ft.

Dalea searlsiae (Gray) Barneby (prairie-clover)  
[=Petalostemon searlsiae Gray]

Perennial herb; common along roads and in meadows at the higher elevations within the recreation area. April-June.

Mohave Co: Holland and Niles 655, with Pinus ponderosa and Artemisia tridentata, 3 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Clover 65 (MO), Hemenway Wash, Lake Mead. Clark Co: none.

Desmanthus cooleyi (Eaton) Trel.

Perennial herb; locally abundant in isolated areas of the Shivwits Plateau. May-September.

Mohave Co: Holland 685, common with Pinus ponderosa, Artemisia tridentata and Penstemon barbatus, 1 mile north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Krameria grayi Rose and Painter (ratany)

Shrub; common in the desert riparian association throughout the southern portion of the recreation area. March-September.

Mohave Co: Holland (UNLV), occasional in wash gravels, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 800 ft. Clark Co: Holland 1368, common in Sacatone Wash where it intersects with the Christmas Tree Pass road, Newberry Mountains, 2400 ft; Holland and Schramm 1156, occasional, Empire Wash, just east of the recreation area boundary, Newberry Mountains, 2800 ft; Niles 864, in deep sand, Atlatl Rock, Valley of Fire State Park, 2000 ft; Grater (LM), Hemenway Wash, 1225 ft.

Krameria parvifolia Benth. (ratany)

Shrub; a common species of the bajadas and low mountains throughout the recreation area. Two varieties are found in generally equal proportions: var. glandulosa (Rose & Painter) Macbr. and var. imparata Macbr. April-June.

Mohave Co: Phillips (MNA), common on steep slopes, in dry side canyons, on flat shelves, at Pierce Ferry and on the North Rim (Grand Canyon), 1475 m. Clark Co: Holland 1210, abundant, junction of U. S. highway 95 and the Christmas Tree Pass road, Newberry Mountains, 2800 ft; Holland 1323, in granitic soils, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Holland 980, wash gravels, Empire Wash, 1/4 mile west of the recreation area boundary, Newberry Mountains, 3000 ft; Holland 165, wash gravels, Hemenway Wash, 1 mile northwest of state highway 41, River Mountains, 1600 ft; Paulson 34, 30 yards north of Lake Mead Drive near road to the gypsum plant turn-off, 2200 ft; Clover (MO), common, Boulder Dam; Poyser 81, Quarry Canyon, 1/2 mile northeast of Boulder Beach.

Lathyrus eucosmus Butters & St. John (pea)

Perennial herb; locally common in canyons and pinyon-juniper woodlands on the Shivwits Plateau. May-June.

Mohave Co: Holland and Austin 1310, in clay soils with Pinus ponderosa, Artemisia tridentata and Chrysothamnus nauseosus, 1/2 mile west of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland and Niles 603, with Acer negundo, Robinia neomexicana and Aquilegia chrysantha on the floor of Green Spring Canyon, Shivwits Plateau, 6000 ft; Long (LM), 3 miles south of Green Spring Creek, Shivwits Plateau. Clark Co: none.

Lotus humistratus Greene

(deer-vetch)

Annual; uncommon in sandy soils, known only from the Newberry Mountains. February-May.

Mohave Co: none. Clark Co: Holland and Schramm 1551, uncommon in granitic soils with Acacia, Cassia, Hyptis and Eriogonum plumatella, 1/2 mile west of Hiko Spring, in large wash paralleling state highway 77, Newberry Mountains, 2400 ft.

Lotus rigidus (Benth.) Greene

(deer-vetch)

Perennial herb; common along roadways and washes in the Newberry Mountains and less so in the Eldorado Mountains. February-May.

Mohave Co: none. Clark Co: Holland 860, occasional at the head of Pipe Springs Canyon, Newberry Mountains, 2600 ft; Nickell 44, 4.5 miles north of state highway 77, along the Christmas Tree Pass road, Newberry Mountains, 2800 ft; Bostick 2860, Keyhole Canyon, Eldorado Mountains, 3500 ft.

Lotus salsuginosus Greene

(deer-vetch)

ssp. brevivexillus (Ottley) Munz

Annual; occasional to common in sandy soils of the Newberry Mountains. February-April.

Mohave Co: none. Clark Co: Holland and Schramm 1580, locally common with Ambrosia, Croton, Opuntia basilaris and Encelia virginensis, 1 mile southwest of Davis Dam, eastern exposure of the Newberry Mountains, 800 ft; Holland 805, occasional in coarse wash gravels of Empire Wash, 1/2 mile east of the recreation area boundary, 2800 ft.

Lotus strigosus (Nutt. in T. & G.) Greene

(deer-vetch)

Annual; known only from the Newberry Mountains where it occurs in granitic soils. March-May.

Mohave Co: none. Clark Co: Holland 1652, occasional in granitic soils with Brickellia incana, Cassia armata and Eriogonum plumatella, on the powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, Newberry Mountains, 2600 ft; Holland 1206, occasional in sandy soils on the Empire Wash road, 5 miles east of U. S. 95, western exposure of the Newberry Mountains, 3000 ft; Holland 886, locally common, 1/2 mile east of Christmas Tree Pass in Sacatone Wash, Newberry Mountains, 2800 ft.

Lotus tomentellus Greene

(deer-vetch)

Annual; abundant in wash gravels, lower elevations of the recreation area. March-May.

Mohave Co: Holland (UNLV), locally common in a large wash, 5 miles north of Katherine Landing and 1/4 mile east of Lake Mohave, 750 ft; Grater (LM), gravel wash, Willow Beach, 850 ft. Clark Co: Leary, Meyer and Fiero 1782, common in sand of west-facing wash, Pinto Valley, Muddy Mountains, 2100 ft; Holland 796, common in Empire Wash, 1/2 mile east of the recreation area boundary, Newberry Mountains, 2800 ft; Schramm 29, abundant, in deep sand, south of Boulder City, near the golf course, 2400 ft; Littlefield 382, 8.2 miles east of Searchlight along state highway 68, 1300 ft.

Lotus wrightii (Gray) Greene

(deer-vetch)

Perennial herb; known only from the pinyon-juniper woodlands of the Shivwits Plateau. May-October.

Mohave Co: Holland 705, locally common with Pinus ponderosa, Artemisia and Arenaria in rocky volcanic soils, 1 mile east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland and Niles 596, along the rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland 329, in clay-rich soils at the junction of Twin Point and Mt. Dellenbaugh roads, 3 miles northwest of Mt. Dellenbaugh, 6000 ft. Clark Co: none.

Lupinus argenteus Pursh.

(lupine)

Perennial herb; known within the recreation area only from the Shivwits Plateau. May-June.

Mohave Co: Holland 1262, in limestone soils with Amalanchier utahensis, Ceanothus greggii and Hymenoxys cooperi, along the western rim of Green Spring Canyon, Shivwits Plateau, 6000 ft. Clark Co: none.

Lupinus arizonicus (Wats.) Wats.

(lupine)

Annual; common and widespread throughout the lower elevations of the recreation area. February-May.

Mohave Co: Holland (UNLV), common among the wash gravels at Katherine Landing, Willow Beach and the Arizona side of Hoover Dam. Clark Co: Leary and Leary 1551, east-facing wash 1/2 mile southwest of pumping station, northeast end of the River Mountains, 2000 ft; Leary 44, scattered in sandy-gravelly soils of the wash below the southern exposure of

Spirit Mountain, Newberry Mountains, 2500 ft; Nickell 208, 2.8 miles south of state highway 77, along the Colorado River, 600 ft; Poyser 34, Hemenway Wash within LMNRA, 1225 ft.

Lupinus concinnus Agardh. (lupine)  
ssp. orcuttii (Wats.) D. Dunn

Annual; locally abundant in the Newberry Mountains, becoming more restricted in the lower Eldorado Mountains. March-May.

Mohave Co: none. Clark Co: Holland 1114, common in granitic soils of Sacatone Wash, just east of Christmas Tree Pass, Newberry Mountains, 3000 ft; Holland 1087, abundant in sandy soils with Acacia, Larrea and Ambrosia at the intersection of Piute and Empire Washes, western exposure of the Newberry Mountains, 2600 ft.

Lupinus flavoculatus Heller (lupine)

Annual; occasional in dry wash gravels of the granitic complex of the Newberry Mountains. 2500 ft.

Mohave Co: none. Clark Co: Holland 1553, uncommon in wash bottom, 1/2 mile west of Hiko Spring, just south of state highway 77, Newberry Mountains, 2500 ft; Holland 1033, occasional with Ambrosia, Krameria and Stephanomeria in sandy soils at the intersection of Piute Wash and Empire Wash, Newberry Mountains, 2600 ft; Fey 1139, along U. S. highway 95 just south of Searchlight; Johnson 1137, north of Searchlight.

Lupinus hillii Greene (lupine)

Perennial herb; locally common in isolated localities in Pinus ponderosa associations on the Shivwits Plateau. May-September.

Mohave Co: Holland 711, in rocky volcanic substrate with Querus gambelii, Pinus ponderosa and Artemisia, 2 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland and Niles 599, occasional, at the rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Lupinus kingii Wats.

(lupine)

Annual; uncommon, known only from the Shivwits Plateau. June-September.

Mohave Co: Leary 2187, in open field, north of the fire camp, Shivwits Plateau, 6200 ft; Holland and Niles 626, with Amelanchier utahensis, Marrubium vulgare and Pinus ponderosa at the rim of Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: none.

Lupinus shockleyi Wats.

(lupine)

Annual; uncommon at low to mid elevations. April-May.

Mohave Co: McDougall (MNA), from Kingman to Peach Springs at 3500 to 5000 ft. Clark Co: Holland, uncommon in Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 2600 ft; Johnson 1135, north side of Searchlight.

Lupinus sparsiflorus Benth.

(lupine)

ssp. mohavensis Dziekanowski & Dunn

Annual; common and widespread throughout the lower elevations of the recreation area. March-May.

Mohave Co: Holland 1647, common in the coarse wash gravels above the residence area 1/2 mile east of the Colorado River at Willow Beach, 1000 ft; Baggeley 27, in roadside gravels east of Hoover Dam; Clover (MO), on gypsum in Detrital Wash. Clark Co: Holland 1682, abundant in Sacatone Wash, 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 2800 ft; Holland 1651, common along the powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, Newberry Mountains, 2800 ft; Holland 41, with Larrea, Lycium and Penstemon bicolor in Bootleg Canyon, 2 miles northwest of Boulder City, River Mountains, 2800 ft.

Marina parryi (T. & G.) Barneby

[=Dalea parryi T. & G.]

Perennial herb; locally common in the extreme southern portion of the recreation area. March-May.

Mohave Co: Holland (UNLV), occasional in desert pavement 5 miles north of Katherine Landing, 800 ft. Clark Co: Holland 1653, locally common, 1/2 mile west of Lake Mohave, 800 ft; Holland 460, occasional at the water storage tank, 2 miles west of Cottonwood Cove, 1500 ft; Nickell 494, bottom of sandy wash, 1/4 mile below Hiko Spring, Newberry Mountains, 2200 ft.



Medicago sativa

(alfalfa)

Perennial herb; weedy species established in certain roadside localities. April-October.

Mohave Co: none. Clark Co: Holland 169, in roadside gravels with Larrea, Cassia and Salsola, 1 1/2 miles northeast of Railroad Pass, River Mountains, 2300 ft.

Melilotus albus Desr.

(sweet-clover)

Annual; introduced, common in areas of irrigation throughout the lower elevations of the recreation area. July-September.

Mohave Co: Leary & Niles 1865, in cultivated field, 0.6 mile south of the Riverside bridge, 1500 ft; Holland (UNLV), in moist soils along pavement, 1/4 mile west of the Willow Beach residential area, 850 ft. Clark Co: Holland 164, with Encelia farinosa, Acacia and Hymenoclea in moist soils near areas of irrigation at the junction of state highway 41 and the road to Lake Mead marina, 1250 ft.

Melilotus indicus (L.) All.

(sweet-clover)

Annual; common in irrigated soils at the lower elevations throughout the recreation area. April-October.

Mohave Co: none. Clark Co: Holland (UNLV), locally abundant at the junction of state highway 41 and the road to Lake Mead marina, 1250 ft; Gullion 212, common in lawns in Boulder City, 2400 ft.

Melilotus officinalis (L.) Lam.

(sweet-clover)

Biennial; local populations in open areas on the Shivwits Plateau.

Mohave Co: Holland 739, 1 mile north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland 335, common with Pinus ponderosa, Artemisia tridentata and Chrysothamnus nauseosus in clay-rich soils in the meadow at the northern foot of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Prosopis glandulosa Torr.

(mesquite)

var. torreyana (Benson) M.C. Jtn.

Tree; common and widespread throughout the desert riparian and stream riparian associations of the lower elevations within the recreation area. April-August.

Mohave Co: Holland (UNLV), common at the base of the Grand Wash Cliffs and along the shoreline at Pierce Ferry, 1000 ft; VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), scattered at the base on upper talus slopes near Rampart Cave and Muav Cave, 400-535 m; Martin (ARIZ), mile 170 to Diamond Creek; Clover (MO), Separation and Spencer Canyons and 2 miles above Emory Falls, mile 193, 225L and 217L. Clark Co: Holland & Schramm 1151, common in Empire Wash, 4 miles east of the recreation area boundary, Newberry Mountains, 1000 ft; Coville (US), Las Vegas Wash.

Prosopis pubescens Benth. (screw-bean)

Tree; occasional to locally common at seeps and in riparian associations of the recreation area. May-June.

Mohave Co: Holland (UNLV), locally abundant at Black Willow Spring, 2 miles north of the Lake's edge, in Grand Wash. Clark Co: Leary & Niles 1874, several shrubby forms around Juanita Spring, Gold Butte area, 2000 ft; Holland 1364, occasional in Sacatone Wash at its junction with the Christmas Tree Pass road, Newberry Mountains, 2400 ft; Holland, common, Rogers Spring, 5 miles northwest of Echo Bay along the North Shore road, Muddy Mountains, 1600 ft.

Psorelea castorea Wats. (scurf-pea)

Perennial herb; locally common in red sands along the Virgin and Muddy Rivers, also in the Gold Butte area. April-May.

Mohave Co: none. Clark Co: Holland, Schramm & Niles (UNLV), locally common 25 miles southeast of Riverside along the road to Gold Butte, 2500 ft; Holland 1016, in the Virgin River Valley, 3 miles north of its confluence with the Muddy River, 1900 ft.

Psorelea tenuiflora Pursh (scurf-pea)

Perennial herb; common in pinyon-juniper-ponderosa pine associations throughout the Shivwits Plateau. June-July.

Mohave Co: Holland 689, 2 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Wallis (LM), Mathis ranch house (Shivwits Plateau). Clark Co: none.

Psorothamnus fremontii (Torr.) Barneby (indigo bush)  
[=Dalea fremontii Torr. ex Gray]

Shrub; common throughout the low elevations. April-June. According to Barneby (1977), two varieties are found in the recreation area. Variety fremontii ranges through Clark Co: west and north of the Colorado River to the Grand Wash Cliffs; variety attenuatus Barneby extends northward along the Colorado

River, and (in Mohave Co.) extends east and south of the river as far as Lake Mead and the Grand Wash Cliffs.

Mohave Co: Leary & Leary 1830, in sandstone just north of Cane Spring, Shivwits Plateau, 3300 ft; Holland (UNLV), common shrub along the base of the upper Grand Wash Cliffs, 3000 ft; Phillips (MNA), common on steep slopes, in dry side canyons and on flat shelves in the Grand Canyon, Pierce Ferry; VanDevender & Mead (ARIZ), Peach Springs Wash. Clark Co: Leary & Niles 1898, at Devil's Throat, Gold Butte area, 2300 ft; Holland & Schramm 1155, abundant in Empire Wash, 1/4 mile east of the recreation area boundary, 2800 ft; Holland 1070, common along state highway 77 at junction with road to the Mohave generating plant, southeastern Newberry Mountains, 2000 ft; Holland 115, common 1 mile west of Railroad Pass, River Mountains, 2400 ft; Stanhill 1107, Valley of Fire State Park; Convis (LM), Overton District, near Valley of Fire turn-off.

Psorothamnus spinosus (Gray) Barneby (smoke-tree)  
[=Dalea spinosa Gray]

Tree; uncommon, found only in the extreme southern Nevada portion of the recreation area. May-July.

Mohave Co: none. Clark Co: Holland 1369, along Lake Mohave, 2 miles north of state highway 77, Newberry Mountains, 750 ft; Holland 1334, 4 miles north of state highway 77, in lower Grapevine Canyon, Newberry Mountains, 750 ft; Bradley 138, along the Colorado River, 3.8 miles south of Davis Dam, 650 ft.

Robinia neomexicana Gray (New Mexican locust)

Shrub or small tree; locally common in canyons and on northern exposures, Shivwits Plateau. June-July.

Mohave Co: Leary & Walker 2216, forming nearly impenetrable thickets 1/2 mile northwest of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft; Holland & Reigle 684, on the floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Vicia exigua Nutt. in T. & G. (vetch)

Annual; occasional in pinyon-juniper associations in the spring areas of the northeastern portion of the recreation area.

Mohave Co: Leary & Leary 1826, in sandstone soils just north of Cane Spring, Shivwits Plateau, 3300 ft; Phillips (MNA), scattered among shrubs in dry side canyons of the Grand Canyon. Clark Co: Leary & Niles 1881, at the base of the limestone hills north of Whitney Pocket, southern end of the Virgin Mountains, 3100 ft.

## GERANIACEAE

Erodium cicutarium (L.) L'Her. (filaree)

Annual; common and widespread throughout the lower and middle elevations. February-May.

Mohave Co: Phillips (MNA), scattered on flat shelves, lower elevation washes, and Lake Mead mud flats; Clover (MO), Pierce Ferry. Clark Co: Holland 1173, at the junction of U. S. highway 95 and the Christmas Tree Pass road, Newberry Mountains, 2600 ft; Leary 44, in the wash south of Spirit Peak, Newberry Range, 2500 ft; Holland 64, abundant 2 miles northwest of Boulder City, River Mountains, 2800 ft.

Erodium texanum Gray

Annual; occasional to common in the low mountains surrounding Lake Mead. February-May.

Mohave Co: Phillips (MNA), occasional on lower slopes, such as below Rampart Cave at about 375 m; Grater (LM), gravel wash, Willow Beach. Clark Co: Holland & Schramm 1583, 1 mile southwest of Davis Dam along state highway 77, Newberry Mountains, 800 ft; Schramm 49, common in waste soils, Railroad Pass, River Mountains, 2600 ft.

Geranium richardsonii Fisch. & Trautv. (geranium)

Perennial herb; locally common in pinyon-juniper woodlands, Shivwits Plateau. June-July.

Mohave Co: Leary & Leary 2236, in bottom of wash near the head of Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: none.

Geranium caespitosum Jones (geranium)

Perennial herb; known only from the vicinity of the Mt. Dellenbaugh fire camp, Shivwits Plateau. June-August.

Mohave Co: Holland 708, with Chrysothamnus and Pinus ponderosa at the Mt. Dellenbaugh fire camp, 6200 ft. Clark Co: none.

## LINACEAE

Linum aristatum Engelm. (flax)

Perennial herb; common in Pinus ponderosa forest, vicinity of the fire camp, Shivwits Plateau. May-September.

Mohave Co: Leary (UNLV), at the fire camp north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Linum lewisii Pursh (flax)

Perennial herb; common in blackbrush and pinyon-juniper on the Sanup and Shivwits Plateaus. April-August.

Mohave Co: Leary & Leary 1621, 1.5 miles south of Crepe Spring, Shivwits Plateau, 5500 ft; Holland 743, with Artemisia, Eriogonum alatum and Menodora scabra, 3 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Phillips (MNA), scattered on the Sanup Plateau, 1475 m; Grater (LM), rim above Quartermaster Canyon, 5500 ft. Clark Co: none.

## ZYGOPHYLLACEAE

Fagonia laevis Standl.

Perennial herb; uncommon, known only from a single locality within the recreation area. March-May.

Mohave Co: none. Clark Co: Leary 1765, with Encelia, Gutierrezia, Larrea, Ambrosia and Eucnide near summit of ridge northwest of junction of North Shore road and West End Wash, 2400 ft; Holland & Schramm 1016, uncommon, 2 miles north of the North Shore road and 2 miles east of West End Wash, 2000 ft.

Larrea tridentata (DC.) Cov. (creosote bush)

Shrub; dominant or codominant species of the lower elevations of the recreation area. March-November.

Mohave Co: Phillips (MNA), widespread, but especially common on flat shelves and lower slopes, also at Pierce Ferry and on both lower rims,

1475 m; VanDevender & Mead (ARIZ), lower elevations in Peach Springs Wash; Clover (MO), Hurricane Fault and Separation Canyon. Clark Co: Holland & Bostick 368, 1 mile west of the Las Vegas Wash ranger station and 1 mile south of state highway 41, River Mountains, 1650 ft; Holland 1332, with Eriogonum fasciculatum, Krameria parvifolia and Salvia mohavensis, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Grater (LM), Hemenway Wash, 1700 ft.

Tribulus terrestris L.

(puncture-vine)

Annual; occasional to common in disturbed soils throughout the lower elevations. April-October.

Mohave Co: none. Clark Co: Holland 862, with Cercidium, Croton and Bouteloua curtipendula in Eldorado Canyon, 1/2 mile west of the Colorado River, 850 ft; Holland 116, in roadside gravels, 1 mile northwest of Railroad Pass, River Mountains, 2300 ft.

Kallstroemia californica (Wats.) Vail

Annual; rare, known only from a seed collection in sandy soils southwest of Boulder City.

Mohave Co: none. Clark Co: Niles (UNLV), locally abundant in deep sand, plants in fruiting stage only, northeastern portion of Eldorado Valley, 1800 ft.

## RUTACEAE

Ptelea pallida Greene

(hop-tree)

Shrub or small tree; uncommon in limestone canyons. May-June.

Mohave Co: Holland & Niles 601, with Quercus gambelii, Acer negundo and Robinia at the head of Green Spring Canyon, Shivwits Plateau, 6000 ft; Holland 543, on limestone in Grapevine Canyon, 12 miles east of the Pierce Ferry road in the Grand Wash Cliffs, 4500 ft; Phillips (MNA), rare in areas of moist side canyons above Columbine Falls. Clark Co: none.

Thamnosma montana Torr. & Frem.

(turpentine-broom)

Shrub; common in both the Larrea and Coleogyne associations. March-May.

Mohave Co: Phillips (MNA), fairly common in dry side canyons in the Grand Canyon on the rims. Clark Co: Holland 1192, Sacatone Wash, 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 3000 ft; Whitney & Holland 64, in wash gravels at Christmas Tree Pass, Newberry Mountains, 4000 ft; Holland 489, with Encelia, Ferocactus and Neolloydia, 1 mile southeast of Railroad Pass, River Mountains, 2800 ft.

## POLYGALACEAE

Polygala subspinosa Wats.

Perennial herb; locally common north of Twin Point, Shivwits Plateau. May-June.

Mohave Co: Holland 1244, with Juniperus, Artemisia and Eriogonum caespitosum, 3 miles north of Twin Point, 6000 ft; Long (LM), near Twin Point, Shivwits Plateau. Clark Co: none.

## SIMAROUBACEAE

Castela emoryi (Gray) Morgan & Felger  
[=Holacantha emoryi Gray]

(crucifixion-thorn)

Shrub; known only from the lower Grand Canyon and Whitmore Point areas. June-July.

Mohave Co: Holland & Fries (UNLV), few individuals in blackbrush association at the mouth of Whitmore Canyon, 3500 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Martin (ARIZ), Diamond Creek. Clark Co: none.

## MALPIGHIACEAE

### Janusia gracilis Gray

Perennial herb; uncommon, known only from Peach Springs Wash. April-October.

Mohave Co: VanDevender & Mead (ARIZ), Peach Springs Wash. Clark Co: none.

## EUPHORBIACEAE

### Bernardia incana Mort.

Shrub; common in the lower Grand Canyon and on the Sanup Plateau. April-October.

Mohave Co: Phillips (MNA), common and widespread on rocky slopes, in dry side canyons and on the north rim on the Sanup Plateau to the base of the upper Grand Wash Cliffs, 375 to 1600 m. Clark Co: none.

### Croton californicus Muell.-Arg. var. mohavensis Ferg.

(croton)

Perennial herb; common in sandy soils throughout the lower elevations. March-May.

Mohave Co: none. Clark Co: Leary 1669, in sandy area with Larrea, Ambrosia and Hilaria, 3 miles south of Overton along state highway 12, 1500 ft; Leary & Niles 1868, in sandy soils south of Riverside, 1450 ft; Holland 1011, with Psorelea, Baileya and Tidestromia, along the Virgin River, 3 miles north of its confluence with the Muddy River, 1500 ft; Holland 762, deep sand, 1 mile west of Davis Dam, 1000 ft; Niles 862, in deep sand at the east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft.

### Ditaxis neomexicana (Muell.-Arg.) Heller

Annual or perennial herb; common in rocky soils throughout the lower elevations. February-May.

Mohave Co: Phillips (MNA), common in dry side canyons on both sides of the Grand Canyon, also found at Rampart Cave, 525 m; Holland & Bostick 399, in



large gravel wash with Encelia, Krameria and Lycium, 5 miles north of Katherine Landing, 750 ft; Clover & Jotter (MO), Separation and Spencer Canyons. Clark Co: Leary 1739, with Larrea, Ambrosia and Encelia near the entrance to Lake Mead at Nelson, 1900 ft; Holland 779, Sacatone Wash and Christmas Tree Pass road, Newberry Mountains, 2600 ft; Holland 376, with Larrea and Ambrosia on rocky basalt slopes, 1/2 mile northeast of Railroad Pass, River Mountains, 2600 ft.

Euphorbia albomarginata T. & G. (spurge)

Perennial herb; common throughout all elevations within the recreation area. April-November.

Mohave Co: Holland 1427, common in clay soils in the meadow north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland & Niles 641, common with Pinus ponderosa, Artemisia and Hymenoxys, 3 miles north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Grater (LM), near Twin Springs Point, Shivwits Plateau; Grater (LM), rim of Quartermaster Canyon, 5500 ft. Clark Co: Holland 1038, in disturbed roadside gravels at the junction of Piute Wash and the Empire Wash road, 2600 ft; Nickell 46, 5 miles east of U. S. highway 95 on the Christmas Tree Pass road, Newberry Mountains, 2800 ft.

Euphorbia fendleri T. & G. (spurge)

Perennial herb; uncommon, known only from a single collection. May-September.

Mohave Co: Leary 1814, in a large wash with Chrysothamnus, Brickellia, Aristida and Encelia at Paw's Pocket, Whitmore Canyon, 3900 ft. Clark Co: none.

Euphorbia incisa Engelm. (spurge)

Perennial herb; occasional in dry washes at mid to high elevations within the recreation area. February-August.

Mohave Co: Leary & Leary 2257, in well developed volcanic soils beneath Pinus ponderosa and Artemisia tridentata, 0.5 mile southwest of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Grater (LM), end of the road at Twin Point, Shivwits Plateau. Clark Co: Holland 1319, with Pinus, Coleogyne and Calochortus, 1 1/2 miles west of Christmas Tree Pass, Newberry Mountains, 3800 ft; Holland & Hogan 219, with Encelia, Acacia and Sarcostemma in narrow canyon, 1/2 mile south of Hoover Dam, 650 ft; Gold 32, 6 miles south of the Valley of Fire State Park, 2800 ft.

Euphorbia lurida Engelm. (spurge)

Perennial herb; occasional to common throughout the recreation area. April-August.

Mohave Co: Holland & Niles 592, with Artemisia and Chrysothamnus, 60 miles south of St. George on the road to Mt. Dellenbaugh, 5745 ft.  
Clark Co: none.

Euphorbia micromera Boiss. (spurge)

Annual; common and widespread throughout the lower elevations. June-September.

Mohave Co: none. Clark Co: Holland & Schramm 1538, with Stephanomeria, Baileya and Aristida at Railroad Pass, 4.5 miles west of Boulder City, River Mountains, 2600 ft; Holland 927, head of Pipe Springs Canyon, Newberry Mountains, 2600 ft.

Euphorbia parryi Engelm. (spurge)

Annual; common in sandy soils throughout the lower elevations. April-September.

Mohave Co: none. Clark Co: Holland, Schramm & Niles 1878, in deep red sands, on the northern side of the Virgin River, 0.3 mile south of the Riverside bridge, 1500 ft; Niles 871, east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft.

Euphorbia ocellata Dur. & Hilg. (spurge)  
var. arenicola (Parish) Jepson

Annual; uncommon in sandy soils, known from a single collection. April-May.

Mohave Co: none. Clark Co: Holland, Schramm & Niles 1881, with Larrea, Prosopis and Eriogonum viscidulum in red sands 0.3 mile south of the Riverside bridge, along the Virgin River, 1500 ft.

Euphorbia polycarpa Benth. (spurge)  
var. hirtella Boiss.

Perennial herb; common throughout the lower and middle elevations. Flowering most of the year.

Mohave Co: Holland 281, with Larrea, Fouquieria and Brickellia arguta, 2 miles north of the Whitmore Canyon trailhead, 3000 ft; Leary & Meinke 37, along the road to Willow Beach resort, 1500 ft; Phillips (MNA), common on flat shelves, lower slopes and sandy floors of dry side canyons in the Grand Canyon and at Pierce Ferry. Clark Co: Leary 1727, common with Encelia, Peucephyllum, Ferocactus and Opuntia bigelovii, near the entrance to the recreation area at Nelson, 1900 ft; Holland & Schramm 1537, in coarse roadside gravels, with Baileya, Stephanomeria and Aristida, 4.5 miles west of Boulder City, River Mountains, 2600 ft; Holland 1311, in gravels with Cassia, Acacia and Eriogonum plumatella, 6 miles east of U. S. highway 95 along state highway 77, Newberry Mountains, 3000 ft; Bostick 3363, sandstone crevices, Mouse's Tank, Valley of Fire State Park, 2000 ft; Nickell (UNLV), in bottom of the first major canyon running to the Colorado River, 3 miles southeast of Hoover Dam, 1000 ft.

Euphorbia revoluta Engelm. (spurge)

Annual; uncommon in igneous substrates in Whitmore Canyon. August-October.

Mohave Co: Holland & Bostick 277, with Larrea, Fouquieria and Cassia covesii at the Whitmore Canyon trailhead, 2600 ft. Clark Co: none.

Stillingia linearifolia Wats.

Perennial herb; common in granitic soils of the Newberry Mountains. April-June.

Mohave Co: none. Clark Co: Nickell 491, in the bottom of a sandy wash below Hiko Spring, Newberry Mountains, 2200 ft; Nickell 563, 3 miles north of state highway 77, on the Christmas Tree Pass road, Newberry Mountains, 2600 ft.

Tetracoccus hallii Bdg.

Shrub; uncommon, known only from a single locality along the eastern exposure of the Newberry Mountains. April-May.

Mohave Co: none. Clark Co: Holland & Schramm 1700, 1701, 1613, with Acacia, Hymenoclea and Psoralea fremontii in wash gravels 2 miles west of Davis Dam and 2 miles north of state highway 77, Newberry Mountains, 1400 ft.

## ANACARDIACEAE

Rhus trilobata Nutt. ex T. & G.

Shrub; occasional at mid to high elevations. March-June.

Mohave Co: Leary & Niles 2153, among sandstone boulders with Pinus and Quercus, 2 miles south of Tuweep ranger station, 4800 ft; Leary & Niles 1657, common on south-facing cliff area, 2 miles south of Crepe Spring, Shivwits Plateau, 5000 ft; Holland, common at the junction of the roads to Twin Point and Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on the rims and at higher elevations, but not found within the canyon in the Rampart Cave area; Martin (ARIZ), Whitmore Wash. Clark Co: Holland 858, with Prunus, Euphorbia incisa and Juniperus californica at the head of Sacatone Wash, Newberry Mountains, 4000 ft; Holland 949, with Acacia, Salazaria and Haplopappus cuneatus, 1 mile west of Christmas Tree Pass, Newberry Mountains, 3800 ft.

## CELASTRACEAE

Forsellesia nevadensis (Gray) Greene

Shrub; known from only a few localities within the recreation area. March-June.

Mohave Co: Phillips (MNA), at the base of the upper Grand Wash Cliffs, 1585 m. Clark Co: Nickell (UNLV), 1/2 mile north of the Juniper Mine, west exposure of the Newberry Mountains.

Mortonia utahensis (Cov.) A. Nels.

Shrub; common at mid elevations, mostly in the northeastern portion of the recreation area. April-June.

Mohave Co: Leary & Leary 1663, in blackbrush community 1 mile east of Andrus Point, Shivwits Plateau, 4200 ft; Holland 668, with Fouquieria, Holacantha and Coleogyne, 1 mile north of the rim in Whitmore Canyon, 3400 ft; Phillips (MNA), common on steep slopes at intermediate elevations (above 500 m) and on the north rim at 1475 m; Grater (LM), rim above Quartermaster Canyon, 5500 ft. Clark Co: Leary & Niles 1883, locally on south-facing slope, southern end of the Virgin Mountains, 1/2 mile north of Whitney Pockets, 3100 ft; Swearingen (UNLV), Frenchman Mountain; Niles 881, 1/2 mile north of Mouse's Tank, Valley of Fire State Park, 2000 ft.

## ACERACEAE

Acer negundo L.

(box-elder)

Tree; occasional in limestone canyons of the Shivwits Plateau.  
April-June.

Mohave Co: Holland & Fries 1699, uncommon on the floor of Parashant Canyon, 4000 ft; Holland & Niles 620, common with Ptelea pallida, Mimulus guttatus and Aquilegia chrysantha in Green Spring Canyon, Shivwits Plateau, 6000 ft. Clark Co: none.

## RHAMNACEAE

Ceanothus greggii Gray

Shrub; occasional to locally common in limestone at the Grand Wash Cliffs and on the Shivwits Plateau. May-June.

Mohave Co: Leary 2207, common with Quercus and Cowania at the summit of Mt. Dellenbaugh, Shivwits Plateau, 6990 ft; Holland 1291, with Quercus, Juniperus and Robinia on the north-facing slope of Mt. Dellenbaugh, 2 miles south of the fire camp, Shivwits Plateau, 6400 ft; Holland & Niles 629, with Amelanchier, Pinus and Cowania on the rim of Green Spring Canyon, Shivwits Plateau, 6200 ft; Phillips (MNA), common at the base of the upper Grand Wash Cliffs (1585 m) and on the Shivwits Plateau (1940 m).  
Clark Co: none.

Rhamnus ilicifolia Kell.

(buckthorn)

Shrub; common in areas of limited exposure, Newberry Mountains. May-June.

Mohave Co: none. Clark Co: Holland & Schramm 1158, occasional in the pinyon-juniper association, 1 mile west of Christmas Tree Pass, 4000 ft; Holland & Niles 519, with Sarcostemma, Perezia and Menodora at the base of a steep north-facing slope, 1/4 mile north of the Juniper Mine, Newberry Mountains, 4500 ft; Nickell (UNLV), in granitic rock pockets, just east of the Christmas Tree Pass summit, 8 miles east of U. S. highway 95, Newberry Mountains, 3400 ft.

Condaliopsis lycioides (Gray) Suesseng. (gray-thorn)  
var. canescens (Gray) Suesseng.

Shrub; uncommon, known only from the lower Grand Canyon. May-September.

Mohave Co: Martin (ARIZ), mile 201; VanDevender & Mead (ARIZ), Peach Springs Wash. Clark Co: none.

## VITACEAE

Vitis arizonica Engelm. (grape)

Perennial herb (vine); locally abundant along streams in canyons and at spring sites. April-May.

Mohave Co: Clover & Jotter (MO), abundant 2 miles above Emory Falls on Lake Mead. Clark Co: Leary & Niles (UNLV), common at seep/spring sites, Gold Butte area.

## MALVACEAE

Eremalche exilis (Gray) Greene  
[=Malvastrum exile Gray]

Annual; common in disturbed sites throughout the recreation area. April-September.

Mohave Co: Holland 1404, common with Pinus ponderosa, Cowania mexicana and Allium palmeri at the rim of Green Spring Canyon, Shivwits Plateau, 6200 ft. Clark Co: Holland 1020, in sandy soils at the junction of U. S. highway 95 and the Empire Wash road, Newberry Mountains, 2600 ft; Holland 63, with Larrea, Ambrosia and Psoralea, 2 miles below Boulder City in sandy soils, 2000 ft; Gullion (LM), along the Parker powerline road, 2 1/2 miles south of Searchlight.

Eremalche rotundifolia (Gray) Greene  
[=Malvastrum rotundifolium Gray]

Annual; common on dry rocky slopes along the southern portion of the recreation area. March-May.

Mohave Co: Leary & Meinke 39, on hillside just off the road from U.S. highway 93 to Willow Beach, 1200 ft; Phillips (MNA), common along the lake shore at Pierce Ferry. Clark Co: Holland 986, in coarse gravels of Empire Wash, 1/2 mile east of LMNRA boundary, Newberry Mountains, 2800 ft; Holland 163, on hillsides, 1/2 mile west of state highway 41 and 3 miles south of the Las Vegas Wash ranger station, River Mountains, 1800 ft; Brochman (UNLV), dry sandy slope near Davis Dam, 1000 ft.

Hibiscus denudatus Benth.

(hibiscus)

Perennial herb; known from near the southern boundary of the recreation area. February-May.

Mohave Co: none. Clark Co: Fey 22, along the Colorado River, 6.9 miles south of Davis Dam, 600 ft.

Malva neglecta Wallr.

(cheese-weed)

Annual or biennial herb; reported only from the Shivwits Plateau. June-October.

Mohave Co: Holland & Niles 623, with Pinus ponderosa, Artemisia tridentata, and Erigeron divergens at the rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Holland 337, with Artemisia tridentata, Chrysothamnus nauseosus and Berberis fremontii along the edge of the meadow just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Sida leprosa (Ort.) K. Schum.  
var. hederacea K. Schum.

(alkali-mallow)

Perennial herb; local population at the confluence of the Virgin and Muddy Rivers. April-May.

Mohave Co: none. Clark Co: Holland 1003, in lakeshore gravels with Amphipappus, Pluchea and Baileya at the confluence of the Muddy and Virgin Rivers, 2000 ft.

Sphaeralcea ambigua Gray

(globe-mallow)

Perennial herb; common and widely distributed throughout the recreation area. March-June.

Mohave Co: Holland 1251, in limestone soils with Calochortus kennedyi, Penstemon eatoni and Penstemon pachyphyllus, 1/2 mile north of Twin Point, Shivwits Plateau, 6000 ft; Phillips (MNA), common and widespread in drier,

open habitats and on rocky, north-facing slopes near Rampart Cave, 535 m; Clover & Jotter (MO), common at Spencer Canyon. Clark Co: Leary 1467, with Larrea, Ambrosia and Encelia on alluvial fan west of the water treatment plant, River Mountains, 1800 ft; Holland 1092, with Larrea, Ambrosia and Machaeranthera, 5 miles east of U.S. highway 95, on the Empire Wash road, 3000 ft; Holland 170, in Bootleg Canyon, 3 1/2 miles northwest of Boulder City, River Mountains, 3000 ft.

Sphaeralcea angustifolia (Cav.) G. Don (globe-mallow)

Perennial herb; occasional waif, known only from agricultural areas along the Mormon Mesa. April-May.

Mohave Co: none. Clark Co: Holland 990, with Mentzelia pterosperma, Larrea and Ephedra nevadensis, 4 miles north of Overton along the North Shore road, 1500 ft.

Sphaeralcea grossulariaefolia (Hook. & Arn.) Rydb. (globe-mallow)

Perennial herb; common in limestone soils over much of the Arizona Strip. April-October.

Mohave Co: Holland 331, with Pinus ponderosa, Eriogonum umbellatum and Verbascum thapsus, in meadow just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Leary & Leary 1630, common in overgrazed area with Artemisia, 1.5 miles south of Crepe Spring, Grassy Point, Shivwits Plateau, 5500 ft; Holland 587, with Artemisia, Townsendia and Leucelene, at Wolfhole Lake, 33 miles south of the Utah State line, 5000 ft; Wallis & Mitchell (LM), near NPS fire camp, 1/2 mile west of Mt. Dellenbaugh, Shivwits Plateau. Clark Co: none.

## TAMARICACEAE

Tamarix L. (tamarisk, salt-cedar)

Shrub or tree. March-August.

According to Baum (1967), the genus Tamarix is represented in our area by several species. The evergreen tree, T. aphylla (L.) Karsten, is commonly planted around habitations for shade and as a wind break. It may occasionally escape from cultivation. Throughout low to mid elevations in the recreation area, along watercourses, at springs and seeps, and usually in saline soils, there often occur extensive stands of one or more of the following species: T. ramosissima Ledeb., T. parviflora DC. and T. chinensis Loureiro.



## VIOLACEAE

Viola nuttallii Pursh

(violet)

Perennial herb; locally common in clay soils, a single locality on the Shivwits Plateau. May-June.

Mohave Co: Holland & Niles 597, Holland 1265, with Artemisia tridentata, Townsendia excapa and Eriogonum alatum at the junction of the roads to Twin Point and Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

## LOASACEAE

Eucnide urens Parry

(rock-nettle)

Perennial herb; common in washes and canyons draining into Lake Mead. March-June.

Mohave Co: Holland & Bostick 390, common on steep walls of a wash, with Peucephyllum and Encelia, 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), common on rock faces along the shore of Lake Mead; Clover & Jotter (MO), near dock at the lower end of Lake Mead, Separation Rapids. Clark Co: Holland & Niles 193, in disturbed soils along the road to the sewage treatment plant along the eastern exposure of Lake Mead, 1500 ft; Nickell 617, 3 miles north of state highway 77, on the Christmas Tree Pass road, Newberry Mountains, 2400 ft; Trelease 50, 1/2 mile north of Lake Mead, along state highway 41.

Mentzelia affinis Greene

Annual; known only within the recreation area from Christmas Tree Pass. April-May.

Mohave Co: Phillips (MNA), 3 miles south of Temple Bar. Clark Co: Holland & Schramm 905, with Pinus monophylla, Juniperus californica and Coleogyne, 1 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Mentzelia albicaulis (Hook.) T. & G.

Annual; common and widespread throughout the area. March-June.

Mohave Co: Holland 1297, in limestone with Artemisia, Juniperus and Fallugia on the western exposure of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft; Holland 1246, common in limestone with Juniperus osteosperma, Agave utahensis and Yucca baccata at Twin Point, 14 miles south of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Holland & Niles 639, 1/2 mile southwest of the summit of Mt. Dellenbaugh, Shivwits Plateau, 6400 ft; Holland & Bostick 393, common with Hymenoclea, Krameria and Lycium in a large gravel wash 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), common on flat shelves in the Grand Canyon, especially below Rampart Cave, 3 miles south of Temple Bar. Clark Co: Leary & Leary 1553, in a broad wash near the pumping station along the northern end of the River Mountains, 2000 ft; Holland 1098, Empire Wash road, 5 miles east of U. S. highway 95, western exposure of the Newberry Mountains, 3000 ft; Holland 110, in lateral tributary of Bootleg Canyon, 3 miles northwest of Boulder City, River Mountains, 3100 ft.

Mentzelia involucrata Wats.

Annual; known only from the Newberry Mountains, but scattered at the low elevations. April-May.

Mohave Co: none. Clark Co: Holland & Schramm 1101, with Larrea, Ambrosia and Encelia, on dry south-facing slope along Empire Wash, Newberry Mountains, 1000 ft; Holland 899, open hillsides along the road to the smoke tree stand, 1 mile north of state highway 77, Newberry Mountains, 1700 ft.

Mentzelia nitens Greene

Annual; widespread throughout the lower elevations of the southern extension of the recreation area. March-May.

Mohave Co: Holland & Bostick 410, with Porophyllum and Peucephyllum in a large wash 5 miles north of Katherine Landing, 700 ft; Phillips (MNA), sandy areas at Pierce Ferry. Clark Co: Holland 835, in Larrea-Ambrosia along state highway 77, between Bridge Canyon and Hiko Spring Wash, Newberry Mountains, 2500 ft; Holland 790, Empire Wash, 1/4 mile west of Lake Mohave, Newberry Mountains, 2800 ft; Holland 497, with Acacia, Hymenoclea, Krameria and Ambrosia, 10 miles east of U.S. highway 95 along the northern exposure of the Newberry Mountains, 1800 ft.

Mentzelia puberula Darl.

Perennial herb; occasional in washes and canyons at the lower elevations. April-October.

Mohave Co: Phillips (MNA), common on rocky slopes and dry side canyons on both sides of the Grand Canyon. Clark Co: Leary, Meyer & Fiero 1793, in Pinto Valley, Black Mountains, LMNRA, 2100 ft; Leary 1748, with Aristida and Encelia virginensis at the pass west of Nelson, Eldorado Mountains, 3500 ft; Leary & Leary 1689, with Petalonyx parryi, Ephedra torreyana, Coldenia hispidissima and Phacelia palmeri near the Valley of Fire State Park, at the junction of state highways 12 and 40, 1600 ft; Holland & Schramm 1018, with Stanleya, Fagonia and Gaura in the canyon above the Anniversary Mine, 2 miles north of West End Wash, 2800 ft; Holland & Schramm 1516, occasional in rocky outcrop with Eriogonum heermanii, Cryptantha racemosa and Penstemon bicolor on the northern exposure of Red Mountain, River Mountains, 3400 ft; Niles 1092, south-facing canyon side, Bridge Canyon, Newberry Mountains, 2300 ft.

Mentzelia pumila (Nutt.) Torr. & Gray

Biennial; scattered throughout the Arizona Strip. April-June.

Mohave Co: Leary & Leary 1654, with Psilostrophe sparsiflora, 1.5 miles south of Crepe Spring, Grassy Point, Shivwits Plateau, 4600 ft; Holland 1410, with Aguilegia chrysantha, Mimulus guttatus and Penstemon bridgesii on the floor of Green Spring Canyon, Shivwits Plateau, 6000 ft; Phillips (MNA), rare on rocky slopes of intermediate elevations. Clark Co: Leary & Niles 1846, with Larrea, Ambrosia and Eriogonum inflatum, 215 miles past the Riverside exit of interstate highway 15, toward Riverside, 1600 ft; Holland 991, uncommon with Baileya, Ephedra and Psorelea in red sands along the western edge of the Virgin River, 2 miles above its confluence with the Muddy River, 1200 ft.

Mentzelia tricuspis Gray

Annual; common throughout the lower elevations. March-May.

Mohave Co: Holland 395, with Acacia, Krameria and Lycium in a large wash, 5 miles north of Katherine Landing, 750 ft; Phillips (MNA), 3 miles south of Temple Bar, scattered on rocky talus slopes above side canyons in the Grand Canyon. Clark Co: Leary, Meyer & Fiero 1800, common in conglomerate of a wash just east of Sandstone Spring, Pinto Valley, 2000 ft; Holland 974, 1/4 mile north of Empire Wash and 1/2 mile west of the Lake Mead boundary, Newberry Mountains, 3000 ft; Holland 13, 2 miles north of the Boulder Beach visitor center on the west side of state highway 41, River Mountains, 1600 ft.

Mentzelia veatchiana Kell.

Annual; occasional in isolated populations at the lower elevations.  
March-May.

Mohave Co: Leary & Meinke 32, beneath north-facing cliff along road from U. S. highway 93 to Willow Beach, 1200 ft. Clark Co: Holland 1021, in sandy soils with Larrea, Yucca and Acamptopappus at the entrance to Empire Wash, Newberry Mountains, 2800 ft; Nickell 19, in granitic outcrop in Sacatone Wash, 5 miles north of state highway 77, Newberry Mountains, 2800 ft.

Petalonyx parryi Gray

(sandpaper-plant)

Shrub; scattered in gypsum soils along the northern portions of the area.  
April-May.

Mohave Co: Holland (UNLV), common in gypsum soils at the Mobil and Wahl Yee lease sites, 5 miles northeast of Grand Wash Bay, 2500 ft. Clark Co: Leary & Leary 1612, with Ephedra torreyana, Phacelia palmeri and Coldenia hispidissima in gypsiferous-sandy soils near junction of state highway 40 and 12, near Valley of Fire State Park, 1600 ft; Leary & Niles 1887, abundant in gypsum soil with Phacelia palmeri, Psorothamnus fremontii and Atriplex confertifolia, 2 miles north of Devil's Throat, Gold Butte area, 2300 ft; Holland 130, in gypsiferous soils, 1 mile west of the Las Vegas Wash ranger station, 1350 ft; Niles 879, northwest corner of the Valley of Fire State Park, 2000 ft; Williams 557, Rogers Spring, 10 miles west of Las Vegas; Hop 67, near state highway 41, 4 miles east of Henderson.

Petalonyx thurberi Gray  
var. thurberi

(sandpaper-plant)

Perennial herb; widespread in the southern portions of the recreation area. June-July.

Mohave Co: Holland (UNLV), scattered plants in Detrital Wash, in the vicinity of Temple Bar. Clark Co: Leary & Niles 1892, in reddish sandy soil of wash with Hymenoclea and Psorothamnus fremontii, 1/4 mile north of Devil's Throat, Gold Butte area, 2300 ft; Holland 1333, in wash gravels with Psorothamnus spinosus, Acacia greggii and Bebbia juncea at the mouth of Grapevine Canyon, 4 miles north of state highway 77, Newberry Mountains, 800 ft; Holland 225, along U. S. highway 93, 1 mile east of Boulder City, in disturbed roadsides, 2250 ft; Nickell 227, 2 miles east of Railroad Pass, U. S. highway 93, 2100 ft; Clover & Jotter (MO), common near Boulder dock; Deming (UNLV), near Hoover Dam.

## CACTACEAE

Coryphantha vivipara (Nutt.) Britt. & Rose  
var. arizonica (Engelm.) W.T. Marshall

Succulent; scattered populations located primarily on the Shivwits Plateau. June-July.

Mohave Co: Holland (UNLV), local stands in the vicinity of the junction of the roads to Twin Point and Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Leary 2200, stems forming a cluster of 12 heads, with Juniperus, Pinus and Artemisia, 1 mile north of Mt. Dellenbaugh, Shivwits Plateau, 6300 ft; Phillips (MNA), scattered on both rims but not found within the Grand Canyon. Clark Co: none.

Coryphantha vivipara (Nutt.) Britton & Rose  
var. rosea (Clokey) Benson

Succulent; rare. This plant has been proposed for a threatened status (Smithsonian Institution, 1975). May-July.

Known from mountain areas of southern Nevada and California, and reported from near Peach Springs, Mohave County (Benson, 1969). The plant has apparently not been collected within LMNRA, but is to be expected in limestone substrates at higher elevations.

Echinocactus polycephalus Engelm. & Bigel. (cotton-top cactus)  
var. polycephalus

Succulent; common and widespread from the lake shore to 2500 ft. throughout the recreation area. August-September.

Mohave Co: Holland (UNLV), common on western exposures and rocky slopes in the vicinity of South Cove; VanDevender and Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on steep, rocky slopes and open, dry side canyons in the Grand Canyon and on the rims; Clover and Jotter (MO), abundant 2 miles above Emory Falls and at Spencer Canyon.  
Clark Co: Holland (UNLV), common in open exposures of the lower elevations of the Newberry Mountains; Coville (US), Valleys of the Virgin and Muddy Rivers.

Echinocereus engelmannii (Parry) Lem. (hedgehog cactus)  
var. chrysocentrus (Engelm.) Engelm. ex Rumpfer

Succulent; widespread between 3000 and 5000 feet throughout the recreation area. March-May.

Mohave Co: Leary & Leary 1663, common on south-facing alluvial fan in blackbrush community, 1 mile east of Andrus Point, Shivwits Plateau, 4200 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on the rocky slopes, flat shelves, dry side canyons and rims of the Grand Canyon; Clover & Jotter (MO), 2 miles above Emory Falls; Surprise Canyon, mile 205 and mile 193. Clark Co: Holland 884, Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3500 ft; Coville (US), Muddy Mountains.

Echinocereus engelmannii (Parry) Lem. (hedgehog cactus)  
var. variegatus (Engelm.) Engelm. ex Rumpfer

Succulent; reported by Benson (1969) from the southern Grand Wash Cliffs area. During this study, efforts to locate this variety within LMNRA have been unsuccessful.

Echinocereus fasciculatus (Engelm.) L. Benson (hedgehog cactus)  
var. fasciculatus

Succulent; rare, few specimens observed in weathered sandstone areas in lower Whitmore Canyon.

Mohave Co: Holland (UNLV), uncommon in sandstone with Coleogyne, Artemisia and Holacantha at the Exxon Uranium lease site at the mouth of Whitmore Canyon; Holland (UNLV), occasional on the road to Twin Point, 2 miles south of the LMNRA boundary, Shivwits Plateau. Clark Co: none.

Echinocereus triglochidiatus Engelm. (mound cactus)  
var. melanacanthus (Engelm.) L. Benson

Succulent; reported from the Arizona Strip portion of the recreation area. May-July.

Mohave Co: Holland (UNLV), observed several many-stemmed mounds in Parashant Canyon, 4 miles below the rim; Holland (UNLV), located at the summit of Mt. Dellenbaugh, Shivwits Plateau. Clark Co: none.

Echinocereus triglochidiatus Engelm. (mound cactus)  
var. mohavensis (Engelm. & Bigel.) Benson

Succulent; the common variety in Nevada, found in the Newberry Mountains and in the Gold Butte area. May-June.

Mohave Co: Leary & Leary 1615, 1/2 mile west of Crepe Spring, Grassy Point, Shivwits Plateau. Clark Co: Holland & Niles 534, with Pinus, Coleogyne and Calochortus in areas of limited exposure along the western edge of the recreation area, Newberry Mountains, 4800 ft; Holland & Schramm 1139, in granitic outcrop 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Ferocactus acanthodes (Lem.) Britt. & Rose (barrel cactus)

Succulent; common and widespread below 4000 feet throughout the recreation area. May-June.

Mohave Co: Holland (UNLV), common in the lava flows of Whitmore Canyon, 3800 ft; Holland (UNLV), at the base of the upper Grand Wash Cliffs; Holland (UNLV), scattered in the vicinity of Pierce Ferry, 3600 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on rock faces, steep rock slopes, dissected lower slopes and flat areas within the Grand Canyon; Clover & Jotter (MO), Lava Falls, Separation Canyon and mile 193. Clark Co: Holland (UNLV), common and widespread in the granitic substrate of the Newberry Mountains; Holland (UNLV), common in the Gold Butte area along the western exposure of the Overton Arm of Lake Mead.

Mammillaria microcarpa Engelm.

Succulent; known in the recreation area only from the Newberry Mountains. August-September.

Mohave Co: Phillips (MNA), scattered over rocky areas in the Grand Canyon and common at Rampart Cave. Clark Co: Holland (UNLV), observed in Empire Wash, 1/4 mile east of the LMNRA boundary, Newberry Mountains, 3300 ft.

Mammillaria tetrancistra Engelm.

Succulent; scattered throughout the lower elevations of the recreation area. August-September.

Mohave Co: Holland (UNLV), common, rocky volcanic slopes in the vicinity of South Cove, 2000 ft; Holland (UNLV), infrequent in gravels and on rocky slopes surrounding Willow Beach, 1200 ft; Clover & Jotter (MO), abundant at Spencer Canyon, Separation Canyon, and 2 miles above Emory Falls.

Clark Co: Holland (UNLV), common in granitic outcrops, 1/4 mile north of state highway 77, near the Christmas Tree Pass road, Newberry Mountains, 2200 ft; Holland & Schramm (UNLV), few plants in crevices of volcanic rocks near the summit of Red Mountain, River Mountains, 3600 ft; Nickell 534, 1/4 mile west of the Juniper Mine, western slope of the Newberry Mountains, 3300 ft; Coville (US), Las Vegas Wash.

Neolloydia johnsonii (Parry) Benson

Succulent; widespread and variable, known from many localities within the recreation area. April-May.

Mohave Co: Phillips (MNA), scattered at intermediate elevations on rocky hillsides in the Grand Canyon; Clover & Jotter (MO), abundant south of Pierce Ferry. Clark Co: Leary 1705, in light gypsiferous soils with Larrea, Ambrosia and Peucephyllum on the north ridge of Hamblin Peak, Black Mountains, 2500 ft; Holland 1229, with Larrea, Ambrosia, Acamptopappus and Yucca, 1/4 mile north of Empire Wash in metamorphic rock, Newberry Mountains, 2800 ft; Holland 515, on alluvial slopes, 1/4 mile east of Railroad Pass, River Mountains, 2800 ft; Holland (UNLV), in limestone substrate along the southern exposure of the Muddy Mountains, 2800 ft; Holland, Niles & Schramm (UNLV), occasional along the road to Gold Butte, 17 miles south of Riverside, 3000 ft.

Opuntia acanthocarpa Engelm. & Bigel. (cholla)  
var. coloradensis Benson

Succulent; common and widespread at elevations below 4000 feet, forming dense thickets in the Newberry Mountains. May-June.

Mohave Co: Leary & Leary 1837, common in limestone with Coleogyne, Ephedra, Larrea, Agave and Fouquieria near Cane Spring, Shivwits Plateau, 2800 ft; Holland (UNLV), common at the base of the Grand Wash Cliffs, near Pierce Ferry, 2800 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on the flat shelves and lower slopes within the Grand Canyon and lower rims; Clover & Jotter (MO), mile 205, Quartermaster Canyon and Surprise Canyon. Clark Co: Leary & Niles 1896, with Yucca shidigera, Yucca brevifolia, Thamnosma, Acamptopappus, Larrea and Opuntia echinocarpa, 6.2 miles south of St. Thomas Gap in Horse Spring Wash, Gold Butte area, 3300 ft; Holland & Schramm 1163, a dense stand 1/2 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft; Holland & Bostick (UNLV), with Cirsium neomexicana, Asclepias sublulata and Larrea in Empire Wash, 22 miles east of U. S. highway 95, Newberry Mountains, 700 ft; Holland, Niles & Schramm (UNLV), common on gentle alluvial slopes in the Devil's Throat area in the vicinity of Gold Butte, 2600 ft; Clover & Jotter (MO), Boulder Dock; Coville (US), Virgin River Valley.



Opuntia basilaris Engelm. and Bigel. (beavertail cactus)  
var. basilaris

Succulent; probably the most common and widely distributed cactus in the recreation area, found in all plant associations. March-May.

Mohave Co: Holland and Fries (UNLV), common at the proposed Exxon Uranium lease site at the mouth of Whitmore Canyon, 3500 ft; Holland, Niles and Schramm (UNLV), in gypsum soils, 3 miles northeast of Grand Wash Bay, 2500 ft; Holland & Blake (UNLV), in Grapevine Canyon, 12 miles south of Pierce Ferry in the southern Grand Wash Cliffs, 3400 ft; Holland (UNLV), a white-flowered form observed 1/4 mile south of Katherine Landing in volcanic outcrop, 700 ft; VanDevender and Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on flat shelves, lower slopes, and dry side canyons at low elevations; Clover and Jotter (MO), miles 193, 205, abundant at Spencer Canyon, 2 miles above Emory Falls. Clark Co: Holland (UNLV), abundant in red sands in the Valley of Fire State Park, 2800 ft; Holland, Niles and Schramm (UNLV), common in alluvial gravels, 17 miles south of the Riverside bridge on the Gold Butte road, 3000 ft; Holland (UNLV), common at Railroad Pass, River Mountains, 2800 ft; Holland 885, with Larrea, Acamptopappus and Yucca shidigera, 1/2 mile east of the LMNRA boundary, Newberry Mountains, 3200 ft; Holland and Niles 625, road to the smoke tree grove, 1 mile north of state highway 77, Newberry Mountains, 700 ft; Clover and Jotter (MO), Boulder Dock; Coville (US), Valley of the Muddy and Virgin Rivers.

Opuntia basilaris Engelm. & Bigel. (beavertail cactus)  
var. treleasei (Coulter.) Toumey

Succulent; apparently a rare plant. It has been proposed for an endangered status (Federal Register, 1976). March-May.

Benson (1969) reports the variety from below Hoover Dam, on the Arizona side of the Colorado River. It is not known to occur elsewhere within the recreation area, but is reported from other localities in Arizona and California.

Opuntia bigelovii Engelm. (teddybear cactus)

Succulent; reported only from the Nevada portion of the recreation area, where it occurs in an almost pure stand along the road to Cottonwood Cove. April-May.

Mohave Co: VanDevender and Meade (ARIZ), Peach Springs Wash; Clover and Jotter (MO), mile 193 and Spencer Canyon. Clark Co: Holland and Schramm 1153, with Larrea, Ambrosia and Encelia in Empire Wash, 3 miles west of Lake Mohave, Newberry Mountains, 2500 ft; Holland (UNLV), River Mountains, 4 miles northwest of the NPS visitor center, 2500 ft, the northern-most distribution of the species in Nevada.

Opuntia chlorotica Engelm. & Bigel. (prickly-pear cactus)

Succulent; uncommon, but found in a variety of habitats within the recreation area. May.

Mohave Co: Holland and Fries (UNLV), occasional on the proposed Exxon Uranium lease site, at the mouth of Whitmore Canyon, 3500 ft; Holland and Fries (UNLV), on the Knight lease areas in Parashant Canyon, in predominately blackbrush areas, 3700 ft; Holland and Blake (UNLV), in Grapevine Canyon in the lower Grand Wash Cliffs, south of Pierce Ferry, 3500 ft; VanDevender and Meade (ARIZ), Peach Springs Wash. Clark Co: Holland and Schramm 1337, in granitic soils with Quercus turbinella, Coleogyne and Nolina 1/2 mile north of Christmas Tree Pass, Newberry Mountains, 3800 ft.

Opuntia echinocarpa Engelm. & Bigel. (cholla)  
var. echinocarpa

Succulent; common and widespread below 5000 ft. throughout the recreation area. April-May.

Mohave Co: Holland and Blake 535, on open hillsides with Larrea, Ferocactus and Psorothamnus along the Pierce Ferry road, 2.6 miles north of the LMNRA boundary, 3100 ft; Holland and Fries (UNLV), locally common with Coleogyne, Chrysothamnus and Gutierrezia at the proposed Exxon lease site at the mouth of Whitmore Canyon, 5500 ft; Phillips (MNA), scattered on flat shelves in the Grand Canyon; Clover and Jotter (MO), mouth of Spencer Canyon. Clark Co: Leary and Niles 1895, with Yucca brevifolia, Yucca schidigera, Thamnosma, Acamptopappus and Larrea, 6.2 miles south of St. Thomas Gap along the Gold Butte road in Horse Spring Wash, 3300 ft; Holland and Whitney 939, with Opuntia basilaris, Ambrosia and Croton, in sandy soils, 2 miles west of Davis Dam, along state highway 77, Newberry Mountains, 1500 ft; Holland (UNLV), scattered among volcanic boulders at Railroad Pass, 4 miles west of Boulder City, River Mountains, 2700 ft; Holland (UNLV), in red sands with Atriplex hymenelytra, just south of the Valley of Fire visitors center, 2600 ft.

Opuntia erinacea Engelm. & Bigel.  
var. erinacea

(prickly-pear cactus)

Succulent; uncommon, known from only a few localities in and around the recreation area. April-May.

Mohave Co: Holland and Blake (UNLV), in limestone substrate in Grapevine Canyon, south of the recreation area in the lower Grand Wash Cliffs, 3300 ft; Holland and Fries (UNLV), with Coleogyne, Yucca bacata and Artemisia at the proposed Exxon Uranium lease site at the mouth of Whitmore Canyon, 3500 ft. Clark Co: Leary and Niles 1897, with Coleogyne, Yucca schidigera, Yucca brevifolia and Thamnosma, 7.6 miles south of St. Thomas Gap in Horse Spring Wash along the Gold Butte road 3500 ft; Holland 1230, with Coleogyne, Opuntia chlorotica and Quercus turbinella in granitic outcrops, 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft; Holland and Niles 532, with Pinus monophylla, Echinocereus triglochidiatus and Coleogyne on the western slope of Spirit Mountain, Newberry Mountains, 4600 ft.

Opuntia macrorhiza Engelm.

Succulent; in a ponderosa pine woodland on the road to Twin Point, Shivwits Plateau. June-July.

Mohave Co: Holland and Bostick (UNLV), in clay-rich soils with ponderosa pine, on the road to Twin Point, 1 mile south of the Mt. Dellenbaugh road, Shivwits Plateau, 6000 ft. Clark Co: none.

Opuntia phaeacantha Engelm.  
var. major Engelm.

(prickly-pear cactus)

Succulent; reported from the Newberry Mountains, the Shivwits Plateau and Grand Canyon. April-June.

Mohave Co: Holland (UNLV), occasional in weathered sandstone at the proposed Exxon Uranium lease site, Whitmore Canyon, 3500 ft; VanDevender and Meade (ARIZ), Peach Springs Wash; Phillips (MNA), scattered on ledges in steep side canyons above Emory Falls. Clark Co: Holland and Schramm 1235, with Juniperus californica, Coleogyne and Acamptopappus, 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft; Holland and Niles 531, with Keckiella, Juniperus and Coleogyne, on the southwestern exposure of Spirit Mountain, Newberry Mountains, 4200 ft.

Opuntia polyacantha Haw. (prickly-pear cactus)  
var. rufispina (Engelm. & Bigel.) Benson

Succulent; occasional in varied habitats on the Colorado Plateau.  
April-June.

Mohave Co: Leary and Leary 1803, in an overgrazed meadow with Erodium  
and Salsola along the LMNRA boundary in Whitmore Canyon, 4000 ft;  
Holland 664, abundant with Yucca brevifolia along the road to Pierce  
Ferry, 10 miles northeast of U.S. highway 93, 3500 ft. Clark Co:  
none.

Opuntia ramosissima Engel. (pencil cactus)

Succulent; common in varied habitats at low elevations. May.

Mohave Co: Holland and Bostick (UNLV), with Larrea-Ambrosia, 5 miles  
north of Katherine Landing, 700 ft; Holland (UNLV), common in sandy  
soils, 10 miles north of U.S. highway 95, on the road to Pierce Ferry,  
3500 ft. Clark Co: Holland and Schramm 1234, in open sandy area,  
with Larrea, Ambrosia, Opuntia basilaris and Croton californica, 1  
mile southwest of Davis Dam along state highway 77, Newberry Mountains,  
800 ft; Bench 23, near Railroad Pass in the foothills of the River  
Mountains, 3000 ft.

Opuntia stanlyi Engel. (cholla)  
var. parishii (Orcutt) Benson

Succulent; uncommon in the recreation area, but a few plants located  
along the southern extension. May-June.

Mohave Co: none. Clark Co: Holland 1370, occasional in sandy soils  
with Larrea, Krameria and Ambrosia at the junction of Piute Wash and  
the Empire Wash road, Newberry Mountains, 2600 ft; Holland, scattered  
with Echinocereus engelmannii, Neolloydia johnsonii and Larrea on the  
hillside north of Searchlight, 3800 ft.

Opuntia whipplei Engelm. & Bigel. (cholla)  
var. multigeniculata (Clokey) Benson

Succulent; rare. This variety has been proposed for a threatened  
status (Smithsonian Institution, 1975).

Reported by Benson (1969) from the lower Grand Canyon, from Diamond  
Creek to Peach Springs Wash; also occurring on hillsides west of Las  
Vegas. The plant was not collected or observed during this study.

Opuntia whipplei Engelm. & Bigel.  
var. whipplei

Succulent; common in localized stands on the Shivwits Plateau and in the Grand Canyon. June-July.

Mohave Co: Holland 299, with Artemisia, Juniperus and Berberis fremontii on the road to the Mt. Dellenbaugh fire camp at the LMNRA boundary, 6000 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on the north rim of the Grand Canyon; Clover & Jotter (MO) rare in dry side canyons in the Grand Canyon, Lava Falls and mile 225. Clark Co: none.

Pediocactus simpsonii (Engelm.) Britt. & Rose

Succulent; uncommon, reported from the Shivwits Plateau. July.

Mohave Co: Holland (UNLV), with Pinus ponderosa, Artemisia tridentata and Penstemon linarioides in rocky substrate east of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Phillips (MNA), scattered on the Shivwits Plateau. Clark Co: none.

## ELAEAGNACEAE

Sherpherdia rotundifolia Parry (buffalo-berry)

Shrub; uncommon, reported from the Shivwits Plateau. April-May.

Mohave Co: Leary & Leary 1628, with Pinus and Juniperus, 5 miles southwest of Crepe Spring, Grassy Point, Shivwits Plateau, 5100 ft; Holland & Fries 1692, in dense Coleogyne on an eastern exposure in Parashant Canyon at the Knight mineral lease site, 4000 ft. Clark Co: none.

## LYTHRACEAE

Lythrum californicum T. & G. (loosestrife)

Perennial herb or sub-shrub; restricted to riparian zones within the recreation area. April-September.

Mohave Co: none. Clark Co: Holland (UNLV), common along the Muddy River from

Logandale to Lake Mead, 1200 ft; Holland (UNLV), with Pluchea, Tamarix and Salix along the Virgin River, 1 mile north of Lake Mead, 1200 ft; Nickell 623, 2 miles north of state highway 77, Bridge Canyon, Newberry Mountains, 2800 ft.

## ONAGRACEAE

Calylophus hartwegii (Benth.) Raven (evening-primrose)  
var. hartwegii

Perennial herb; uncommon in the recreation area, known only from the extreme northeast portion. May-September.

Mohave Co: Leary & Leary 2258, in an overgrazed Artemisia area just north of the runway on the Gubler Ranch, north of Mt. Dellenbaugh, Shivwits Plateau, 5800 ft; Leary & Niles 2162, locally uncommon in red sandy soil with Erigeron utahensis, 2 miles south of the Toroweap ranger station, Grand Canyon National Monument, 4800 ft. Clark Co: none.

Calylophus hartwegii (Benth.) Raven (evening-primrose)  
ssp. lavandulifolius (T. & G.) Towne & Raven

Perennial herb; not found in the recreation area, but collected on the northern portion of Shivwits Plateau. June-July.

Mohave Co: Holland & Niles 660, in limestone outcrop with Gilia multiflora, Penstemon pachyphyllus and Artemisia, 5 miles west of Grassy Mountain, near the road to Mt. Dellenbaugh, Shivwits Plateau, 4700 ft. Clark Co: none.

Camissonia boothii (Dougl. in Hook.) Raven  
ssp. condensata (Munz) Raven

Annual; common and widely distributed below 3500 ft. throughout the recreation area. March-May.

Mohave Co: Holland (UNLV), in deep sand with Hesperocallis and Palafoxia, 1/2 mile northwest of the Katherine ranger station, 850 ft; Holland (UNLV), in coarse gravels along the pavement, Willow Beach campground, 1100 ft. Clark Co: Holland 280, in coarse granitic soils with Viguiera, Fouquieria, Larrea and Cassia on the powerline road south of Bridge Canyon, Newberry Mountains, 2400 ft; Holland 983, in granitic soils with Tetradymia, Opuntia and Yucca, 1/4 mile north of the water channel in Sacatone Wash, Newberry Mountains, 3200 ft; Holland 142, in gravelly soils with Psoralea, Larrea and Krameria, 1 mile east of Railroad Pass, River Mountains, 2400 ft.

Camissonia brevipes (Gray) Raven  
ssp. brevipes

Annual; widely distributed throughout the region. March-May.

Mohave Co: Cooper (GH), "the most densely villous and succulent individuals within the ssp. brevipes are found in Mohave County, Arizona and Clark County, Nevada in the region about Hoover Dam." Clark Co: Holland 845, common in granitic soils with Cassia, Eriogonum fasciculatum and Nolina bigelovii, 1/4 mile south of Bridge Canyon, Newberry Mountains, 2500 ft; Holland 785, common with Acamptopappus, Coleogyne and Juniperus, 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 3400 ft; Fisher 473, scattered on road shoulders at Railroad Pass, River Mountains, 2200 ft; Hop 26, along state highway 41, 2 miles east of Henderson, River Mountains, 1600 ft.

Camissonia brevipes (Gray) Raven  
ssp. pallidula (Munz) Raven

Annual; widely scattered at the lower elevations throughout the recreation area. April-July.

Mohave Co: Phillips (MNA), locally abundant in the lower Grand Canyon, miles 270, 272, 274, 275, 276, 278 and 280. Clark Co: Holland & Schramm 880, common with Larrea, Ambrosia, Krameria, Amphipappus and Neolloydia along the North Shore road, 2 miles northeast of West End Wash, Muddy Mountains, 2000 ft; Nickell 561, in granitic soils, 1/2 mile west of Hiko Spring, just off state highway 77, Newberry Mountains, 2400 ft; Niles 872, Coyote Pass, Valley of Fire State Park, 2000 ft.

Camissonia californica (Nutt. ex T. & G.) Raven

Annual; reported only from the vicinity of the Newberry Mountains where it is restricted to granitic soils. March-May.

Mohave Co: none. Clark Co: Holland 1051, common with Juniperus, Coleogyne and Nolina at Christmas Tree Pass, Newberry Mountains, 3600 ft; Holland 926, in granitic soils with Yucca, Eriogonum fasciculatum and Larrea, at the head of Pipe Springs Canyon, 2800 ft; Holland 830, abundant in coarse gravels with Hyptis, Tamarix and Ambrosia eriocentra in Bridge Canyon, 1 mile west of state highway 77, Newberry Mountains, 2400 ft.

Camissonia chamaenerioides (Gray) Raven

Annual; scattered throughout the lower elevations of the recreation area. March-June.

Mohave Co: Holland & Bostick 405, with Larrea, Psoralea and Acacia, 5

miles north of Katherine Landing and 1/2 mile east of Lake Mohave, 750 ft. Clark Co: Holland 1103, scattered with Larrea, Ambrosia, Asclepias and Tricoptilium incisum, in Empire Wash, 1/2 mile west of Lake Mohave, Newberry Mountains, 800 ft; Holland 1059, uncommon in disturbed soils with Camissonia multijuga and Baileya at the junction of state highway 77 and the Christmas Tree Pass road, Newberry Mountains, 2300 ft.

Camissonia claviformis (Torr. & Fren.) Raven  
ssp. aurantiaca (Wats.) Raven

Annual; widely distributed throughout the lower elevations of the recreation area. April-May.

Mohave Co: Holland 492, common with Psoralea fremontii, Acacia greggii and Hyptis emoryi in wash gravels 5 miles north of Katherine Landing and 1/4 mile east of Lake Mohave, 800 ft; Phillips (MNA), found only at Pierce Ferry, 365 m; Cooper (GH), Lectotype, Fort Mohave, Mohave County, Arizona. Clark Co: Leary 29, in gravelly soils in Sacatone Wash, 5 miles north of state highway 77, Newberry Mountains, 1500 ft; Holland 923, with Coleogyne, Opuntia acanthocarpa and Eriogonum fasciculatum, 1 mile west of Christmas Tree Pass, Newberry Mountains, 2600 ft; Nickell 598, common 1/2 mile west of Hiko Spring, just off state highway 77, Newberry Mountains, 2400 ft; Trelease 29, 3 miles south of Railroad Pass, River Mountains; Berg 36, Boulder Beach, 1 mile from the shore of Lake Mead.

Camissonia confertiflora (Raven) Raven

Annual; rare, according to Raven (1969), known from a single locality to the northeast of LMNRA. April.

Mohave Co: McClintock (CAS), in cinder soil, on east side, base of Vulcan's Throne, Toroweap Valley, Grand Canyon National Monument. Clark Co: none.

Camissonia exilis (Raven) Raven

Annual; rare, reported along the northern boundary of LMNRA (Raven, 1969). June.

Mohave Co: Munz (POM), in gypsum, near Cottonwood Spring, east base of Virgin Mountains, 3500 ft. Clark Co: none.

Camissonia multijuga (S. Wats.) Raven

Annual or biennial; common, mostly in disturbed roadside gravels and gypsum soils throughout the lower elevations of the recreation area. Flowering throughout most of the year.

Mohave Co: Phillips (MNA), scattered in side canyons (Columbine Falls) and



flat areas in the Grand Canyon; Holland (UNLV), in gypsum soils with Larrea, Psoralea and Sphaeralcea at the proposed Mobil and Wahl Yee oil and gas lease sites, 3 miles northeast of Grand Wash Bay, 2200 ft; Clover & Jotter (MO), Separation and Spencer Canyons. Clark Co: Leary 1738, common along large wash with Larrea, Ambrosia, Aristida and Encelia, at the entrance to the recreation area in Eldorado Canyon, Eldorado Mountains, 1800 ft; Leary & Leary 1671, common with Larrea, Hilaria, Ambrosia and Prosopis, 3 miles south of Overton on state highway 12, 1500 ft; Leary & Leary 1569, in gypsiferous soil with Larrea, Ambrosia, Psoralea and Enceliopsis at the junction of state highway 41 and the North Shore road, LMNRA, 1700 ft; Holland & Schramm 1623, along the edges of alluvial slopes with Hymenoclea, Encelia and Hyptis in Empire Wash, 1 mile west of Lake Mohave, Newberry Mountains, 900 ft; Holland 1219, scattered with Brickellia, Opuntia basilaris and Nolina in Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft; Holland 995, common in alkaline gravels with Anulocaulis leiosolenus at the junction of the North Shore road and the turn-off to Stewart Point, 1500 ft.

Camissonia pallida (Abrams) Raven  
ssp. pallida

Annual; uncommon, recorded from two collections within the recreation area. April.

Mohave Co: Phillips (MNA), mile 209 in the lower Grand Canyon. Clark Co: Holland (UNLV), in granitic gravels with Tetradymia, Acamptopappus, Yucca schidigera and Larrea, 1 mile east of Christmas Tree Pass, Newberry Mountains, 2500 ft.

Camissonia parryi (Wats.) Raven

Annual; scattered in clay-gypsum soils to the north of LMNRA, to be expected in similar areas to the south. The species has been proposed for a threatened status (Smithsonian Institution, 1975). May-June.

Mohave Co: Holland & Niles 579, with Grayia spinosa, Eriogonum fasciculatum and Echinocereus engelmannii, on the northern exposure of Segmiller Mountain, 25 miles south of St. George, Utah, 3000 ft. Clark Co: none.

Camissonia pterosperma (Wats.) Raven

Annual; not known from the recreation area, however, McDougall (1974), reports it from Toroweap Valley, immediately east of the recreation area.

Camissonia refracta (Wats.) Raven

Annual; widespread and common at the lower elevations of the recreation area. March-May.

Mohave Co: Holland & Bostick 493, with Acacia, Lycium, Krameria and Hyptis, in a large gravel wash, 5 miles north of Katherine Landing and 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), scattered on the lower slopes and in the side canyons in the Grand Canyon (400 m) and at Pierce Ferry. Clark Co: Leary & Leary 1465, common in wash west of the water pumping station, north of Boulder Beach, River Mountains, 1800 ft; Holland 846, common in granitic gravels with Larrea, Krameria and Cassia along the powerline road south of Bridge Canyon, Newberry Mountains, 2400 ft; Holland 124, in wash gravels, with Larrea, Ambrosia, Krameria and Machaeranthera, 1 mile southeast of the 3-Kids Mine, River Mountains, 1900 ft.

Camissonia speculicola (Raven) Raven  
var. hesperia (Raven) Raven

Perennial herb; rare. The variety has been proposed for a threatened status (Smithsonian Institution, 1975).

Raven (1969) reports this variety as occurring in washes and dry stream beds along the Colorado River, from Separation Canyon to Spencer Canyon, at elevations from 2300-3500 ft.

Camissonia walkeri (Nels.) Raven  
ssp. tortilis (Jeps.) Raven

Annual or short-lived perennial; uncommon and not previously reported from Mohave County, Arizona. May-June.

Mohave Co: Leary & Leary 1818, in crevices of sandstone with Laphamia, Physalis, Stipa and Artemisia at Paw's Pocket, Whitmore Canyon, 3900 ft.  
Clark Co: none.

Epilobium hornemannii Reichenb. (willow-weed)

Perennial herb; uncommon in scattered ponderosa pine on the Shivwits Plateau. June-August.

Mohave Co: Holland 1405, uncommon with Malva neglecta, Oxybaphus coccinea and Penstemon bridgesii in Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Gaura coccinea (Nutt.) Pursh

Perennial herb; occasional in sand and clay soils along the Overton Arm. March-August.

Mohave Co: Holland 696, with Cleome lutea, Tetradymia canescens and Asclepias subverticillata in Wolfhole Valley, 37 miles south of St. George, 5000 ft; Grater (LM), rim of Quartermaster Canyon, 5500 ft. Clark Co: Leary & Leary 1539, with Oenothera deltoides, Ephedra and Dithyrea californica, in sandy soil 1 mile east of Mouse's Tank, Valley of Fire State Park, 2000 ft; Holland 1015, common with Ambrosia, Hilaria, Sphaeralcea and Euphorbia in sandy soil on Mormon Mesa along the road to the Virgin Valley, 2000 ft.

Gaura parviflora Dougl.

Biennial; uncommon in varied habitats in the recreation area. June-October.

Mohave Co: Holland 696, with Cleome lutea, Tetradymia canescens and Asclepias subverticillata in Wolfhole Valley, 37 miles south of St. George, 5000 ft. Clark Co: Niles 1087, bottom of Bridge Canyon, Newberry Mountains, 2200 ft; Niles 860, Atlatl Rock, Valley of Fire State Park, 2000 ft.

Gayophytum ramosissimum T. & G.

Annual; uncommon, known from a single collection on the Shivwits Plateau. June-August.

Mohave Co: Holland 1401, with Pinus ponderosa, Arenaria aberrans and Allium palmeri, in clay-rich soils in the meadow north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Oenothera albicaulis Pursh

(evening-primrose)

Annual; common in the red sands south of the Virgin Mountains. May-June.

Mohave Co: none. Clark Co: Holland, Niles & Schramm 1904, with Larrea, Yucca and Ferocactus at the junction of the Gold Butte and Devil's Throat roads, north Tramp Ridge, Gold Butte area, 2200 ft; Holland, Niles & Schramm 1914, 3.3 miles west of the Arizona-Nevada state line, 2000 ft.

Oenothera avita (W. Klein) W. Klein  
ssp. avita

(evening-primrose)

Perennial herb; locally common roadside species of the extreme southern borders of the recreation area. March-June.

Mohave Co: Holland (UNLV), common at the junction of the Pierce Ferry road and U.S. highway 93, 3000 ft. Clark Co: Holland & Schramm 1702, common with Datura, Baileya and Larrea on the road shoulder, 11 miles south of Searchlight, 2600 ft; Holland 1198, roadside along U. S. highway 95 at the junction with the Empire Wash road, Newberry Mountains, 2600 ft; Nickell 514, along U. S. highway 95, 8 miles south of Searchlight, Newberry Mountains, 2400 ft.

Oenothera caespitosa Nutt. (evening-primrose)  
var. marginata (Nutt.) Munz

Perennial herb; occasional at the lower elevations of the recreation area. April-May.

Mohave Co: none. Clark Co: Holland & Niles (UNLV), uncommon in Eldorado Canyon, 600 yards west of Lake Mohave, 800 ft; Leary 50, scattered in sandy soils, 2.5 miles south of Boulder City, 2000 ft; Holland, Schramm & Niles 1892, 16 miles south of the Riverside bridge on the Gold Butte road, 2000 ft.

Oenothera cavernae Munz (evening-primrose)

Perennial herb; rare to occasional in the gravel floors of steep canyons. March-May.

Mohave Co: Phillips (MNA), occasional on steep slopes near Rampart Cave and Emory Falls, lower Grand Canyon. Clark Co: Holland 877, scattered with Fagonia, Psathyrotes and Eriogonum brachypodium in the canyon just north of the Anniversary Mine, 2 miles east of West End Wash, Muddy Mountains, 2000 ft; Fisher (UNLV), Las Vegas Wash, 1800 ft.

Oenothera deltoides Torr. & Fren. (evening-primrose)  
ssp. ambigua (S. Wats.) W. Klein

Annual; common in sandy soils at the lower elevations of the recreation area. March-May.

Mohave Co: Holland & Bostick 490, common with Hesperocallus, Androstephium and Palafoxia, in sandy soils, 1/4 mile northwest of Katherine Landing ranger station, 700 ft. Clark Co: Schramm 9, common on sandy roadside, with Phacelia crenulata, Hesperocallis and Larrea, 4 miles west of Davis Dam on state highway 77, Newberry Mountains, 900 ft; Rounsaville 50, Boulder City, 2000 ft.

Oenothera deltoides Torr. & Frem. (evening-primrose)  
var. decumbens (Wats.) Munz

Annual; occasional in sandy soils within the recreation area. March-May.

Mohave Co: none. Clark Co: Leary & Leary 1542, common in sand with Dithyrea, Lesquerella, Descurainia and Hilaria east of Mouse's Tank, Valley of Fire State Park, 2000 ft.

Oenothera flava (Nels.) Garrett (evening-primrose)

Perennial herb; occasional to common on the Shivwits Plateau. June-July.

Mohave Co: Leary 2193, common in pine litter with Artemisia at the fire camp, north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland & Niles 630, 612, with Pinus, Artemisia and Penstemon linarioides west of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Oenothera primiveris Gray (evening-primrose)  
ssp. primiveris

Annual; uncommon at the middle elevations in the southern extension of the recreation area. February-May.

Mohave Co: none. Clark Co: Holland & Schramm 1541, in coarse gravels with Acacia, Prosopis, Hyptis and Eriogonum plumatella, 1 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2600 ft; Holland 776, along U. S. highway 95, 7 miles south of Searchlight, 2600 ft.

Oenothera primiveris Gray (evening-primrose)  
ssp. bufonis (Jones) Munz

Annual; uncommon in sandy soils west of the recreation area. April-May.

Mohave Co: none. Clark Co: Holland (UNLV), with Larrea, Ambrosia and Krameria, 2 miles southeast of Railroad Pass, 2000 ft.

Oenothera trichocalyx Nutt. (evening-primrose)

Perennial herb; uncommon in the vicinity of Whitmore and Parashant Canyons. April-June.

Mohave Co: Leary & Niles 2152, in deep red sand, 2 miles south of the Tuweep ranger station, Grand Canyon National Monument, 4500 ft; Holland & Fries 1691, in deep sands with Acacia on the floor of Parashant Canyon, 3500 ft. Clark Co: none.

## APIACEAE

Apium graveolens L.

(celery)

Perennial herb; introduced locally in the Virgin River drainage.  
May-August.

Mohave Co: none. Clark Co: Leary & Niles 1862, common immediately around ditches south of the Riverside bridge near cultivated fields, 1500 ft.

Bowlesia incana R. & P.

Annual; locally common in moist, protected sites, lower elevation areas.  
February-May.

Mohave Co: Phillips (MNA), scattered in seeps and glens, as at Columbine Falls, 400 m. Clark Co: Holland & Schramm 1548, Holland 1073, with Viguiera, Ephedra and Eriogonum fasciculatum in rocky outcrops above Hiko Spring Wash along state highway 77, Newberry Mountains, 2600 ft; Niles 1091, bottom of Bridge Canyon, Newberry Mountains, 2400 ft.

Cymopteris multinervatus (Coulter & Rose) Tidestrom

Perennial herb; uncommon and scattered at various elevations throughout the recreation area. March-May.

Mohave Co: Holland & Fries 1672, occasional with Artemisia, Pinus and Juniperus at the rim of Parashant Canyon, Shivwits Plateau, 5000 ft; Holland, Austin and Blake 799, with Yucca brevifolia, Coleogyne and Acamptopappus, 20 miles south of Meadview on the Pierce Ferry road; 3500 ft. Clark Co: none.

Cymopteris purpurascens (Gray) Jones

Perennial herb; uncommon and scattered on the Shivwits Plateau. April-May.

Mohave Co: Phillips (MNA), scattered on the north rim (elev. 1475 m) and on the Shivwits Plateau (elev. 1940 m); Holland (UNLV), uncommon with Juniperus and Agave at Twin Point, Shivwits Plateau, 6000 ft. Clark Co: none.

Lomatium macdougali Coult. & Rose

Perennial herb; common in the pinyon-juniper woodlands of the Shivwits Plateau. May-June.

Mohave Co: Holland 1287, locally abundant with Lomatium nevadense, Artemisia tridentata and Calochortus nuttallii on the north face of Mt. Dellenbaugh, 2.5 miles south of the fire camp, Shivwits Plateau, 6800 ft; Holland & Niles 645, in limestone soils with Quercus, Robinia, Artemisia and Pinus on the northern exposure of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft. Clark Co: none.

Lomatium nevadense (Wats.) Coult. & Rose

var. parishii (Coult. & Rose) Jeps.

Perennial herb; locally common in pinyon-juniper associations on the Shivwits Plateau. April-June.

Mohave Co: Leary 2185, with Agropyron and Convolvulus north of the fire camp near Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland & Niles 1291, 1292, common with Artemisia, Berberis and Quercus on the north slope of Mt. Dellenbaugh, 2 miles south of the fire camp, Shivwits Plateau, 6800 ft. Clark Co: none.

Lomatium nevadense (Wats.) Coult. & Rose

var. pseudorientale (Jones) Munz

Perennial herb; uncommon in the recreation area, collected only in the Newberry Mountains. April-May.

Mohave Co: none. Clark Co: Holland 1195, 961, common in granitic soils with Coleogyne, Pinus and Juniperus 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft; Holland & Schramm 1162, in a pinyon-juniper association, Christmas Tree Pass, Newberry Mountains, 4000 ft.

Lomatium parryi (Wats.) Macbr.

Perennial herb; reported only from the Christmas Tree Pass area, Newberry Mountains. April-June.

Mohave Co: none. Clark Co: Holland & Swearingen 1545, uncommon with Quercus, Garrya and Juniperus at the summit of Spirit Mountain, Newberry Mountains, 5700 ft; Holland 898, occasional with Pinus and Juniperus on a northern exposure, 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft.

## GARRYACEAE

Garrya flavescens Wats.

(silk-tassel)

Shrub; occasional on mountain slopes, at mid to high elevations.  
January-May.

Mohave Co: Holland 1275, with Prunus virginiana, Ribes cereum and Quercus gambelii on the eastern exposure of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Phillips (MNA), common on the Shivwits Plateau at 1940 m, but absent at the lower elevations. Clark Co: Leary & Niles 1946, occasional with Pinus, Arctostaphylos, Juniperus and Quercus along a semi-perennial stream, just north of Grapevine Spring, Gold Butte area, 4200 ft; Holland & Swearingen 1543, occasional in areas of limited exposure with Quercus chrysolepis and Lomatium parryi just west of the summit of Spirit Mountain, Newberry Mountains, 5500 ft.

## ERICACEAE

Arctostaphylos pungens HBK.

(manzanita)

Shrub; common at the higher elevations within the recreation area.  
May-June.

Mohave Co: Holland 1279, in igneous soils with Ceanothus, Artemisia and Ribes on the south-facing slope of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Phillips (MNA), common on the Shivwits Plateau at 1940 m, but not found at lower elevations. Clark Co: Leary & Niles 1925, in dense stands in granitic sand with Quercus, Pinus, Juniperus and Haplopappus linearifolius along the semi-perennial stream north of Jumbo Peak, Gold Butte area, 4200 ft.

## PRIMULACEAE

Samolus ebracteatus HBK.

(water-pimpernel)

Perennial herb; locally common in mesic soils at spring sites, lower elevations. May-November.



Mohave Co: none. Clark Co: Leary & Leary 1692, in saline soil at Blue Point Spring, LMNRA, 1600 ft; Meyer 4179, occasional along wet-mesic ditch bank in alkaline soils with Anamopsis, Distichlis, Allenrolfea and Pluchea at Rogers Spring, at the eastern base of the Muddy Mountains, 1600 ft.

Androsace elongata L.  
ssp. acuta (Greene) Robbins

Annual; uncommon in sandy soils at the lower elevations along the southern portions of the recreation area. March-May.

Mohave Co: none. Clark Co: Holland & Niles 2048, in granitic gravels with Eriogonum plumatella, Acacia greggii and Ambrosia eriocentra, 1/2 mile west of Hiko Spring, Newberry Mountains, 2400 ft; Holland, Niles & Schramm (UNLV), in sandy soils south of Boulder City, 2200 ft.

## PLUMBAGINACEAE

Limonium californicum (Boiss.) Heller (sea-lavender)

Shrub; locally common along perennial streams within the recreation area. July-November.

Mohave Co: none. Clark Co: Niles 1247, locally abundant in Las Vegas Wash, 1300 ft; Holland (UNLV), common in moist gravels with Sporobolus cryptandrus, Pluchea and Tamarix in Sacatone Wash, 1/2 mile east of the Christmas Tree Pass road, Newberry Mountains, 2300 ft; Holland & Thomas (UNLV), common with Baccharis and Tamarix along the Muddy River, 3 miles north of Overton, 1800 ft.

## OLEACEAE

Forestiera neomexicana Gray (desert-olive)

Shrub; uncommon within the recreation area, reported only from the Newberry Mountains. April-May.

Mohave Co: none. Clark Co: Nickell 527, 1/2 mile northeast of Juniper Mine, near road to the telephone relay station, Newberry Mountains, 3500 ft.

Fraxinus cuspidata Torr. (ash)  
var. macropetala (Eastw.) Rehder

Tree; occasional in areas of limited exposure in the Grand Wash Cliffs and on the Shivwits Plateau. April-June.

Mohave Co: Leary & Leary 2250, with Amelanchier, Philadelphus, Pinus monophylla and Juniperus on a north-facing slope below the rim in Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft; Phillips (MNA), found only in the lower woodland at the base of the Grand Wash Cliffs. Clark Co: none.

Fraxinus pennsylvanica Marshall (ash)  
ssp. velutina (Torr.) G. N. Miller

Tree; occurring in localized populations in canyons and other areas of limited exposure in the lower Grand Canyon. May-June.

Mohave Co: Leary & Leary 2243, with Amelanchier, Pinus monophylla, Juniperus, Philadelphus and Quercus on a north-facing slope just below the rim in volcanic rocky soils at Paw's Pocket (Ambush Canyon), Shivwits Plateau, 6000 ft; Phillips (MNA), forming a closed canopy in glens and moist side canyons near the lake at Ash Seep (mile 272) and Evans' Heaven (mile 271). Clark Co: none.

Menodora scabra Gray

Perennial herb; scattered populations in the Newberry Mountains and on the Shivwits Plateau. April-September.

Mohave Co: Holland 1252, in limestone soils with Leucelene, Penstemon thompsonii and Erigeron pumilus at the trailhead to the Sanup Plateau, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft; Holland 737, with Eriogonum alatum, Artemisia and Gilia longiflora, 3 miles northwest of Mt. Dellenbaugh, near the turn-off to Twin Point, Shivwits Plateau, 6200 ft. Clark Co: Holland 1325, in granitic soils with Eriogonum fasciculatum, Larrea and Yucca schidigera, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Holland 1118, 3/4 mile east of Christmas Tree Pass, Newberry Mountains, 2500 ft.

## FOUQUIERIACEAE

Fouquieria splendens Engelm.

Shrub; scattered in localized stands throughout the recreation area. May-November.

Mohave Co: Holland (UNLV), in sandstone with Yucca elata, Holacantha emoryi and Coleogyne at the Exxon Uranium lease site, 1 mile north of the canyon rim in Whitmore Canyon, 3400 ft; Leary & Leary 1833, 2 specimens, 8 ft. tall, in sandstone rubble with Mortonia, Stipa, Krameria and Agave, north of Cane Spring, Shivwits Plateau, 3300 ft; VanDevender & Mead (ARIZ), Peach Springs Wash; Phillips (MNA), common on rocky slopes and flat shelves in the Grand Canyon; Clover & Jotter (MO), 3 miles below Emory Falls, on high ledges, miles 192 and 193, Separation Rapids, Quartermaster Canyon, Emory Falls to Lake Mead. Clark Co: Holland (UNLV), few plants in alluvial gravels, with Larrea, Ambrosia and Psoralea, 1/2 mile northwest of Grand Wash Bay, 2000 ft; Holland (UNLV), plants scattered in rolling granitic hills south of state highway 77 in the vicinity of the turnoff to Christmas Tree Pass, Newberry Mountains, 2400 ft; Bradley 1502, 4.3 miles south of Davis Dam along the Edgewater road, 650 ft.

## LOGANIACEAE

Buddleja utahensis Coville

Shrub; uncommon, known only from the nearby Virgin Mountains. May-June.

Mohave Co: Cottam (US), Virgin River Narrows, northern Mohave County, 2500 ft, in limestone. Clark Co: Leary & Niles 1880, on a south-facing limestone cliff at the southern end of the Virgin Mountains, 1/2 mile north of Whitney Pocket, 3000 ft.

## GENTIANACEAE

Centaurium calycosum (Buckl.) Fern. (centaury)

Annual; uncommon in the recreation area, in moist low elevations sites. May-October.

Mohave Co: Phillips (MNA), reported from the eastern portion of the Grand Canyon. Clark Co: Holland 2045, common in moist granitic soils of Sacatone Wash, just east of the Christmas Tree Pass road, Newberry Mountains, 2400 ft; Holland 1439, in moist gravels with Pluchea, Salix and Apocynum in Bridge Canyon, 2 miles northeast of state highway 77, Newberry Mountains, 2600 ft.

Frasera albomarginata Wats.

(green gentian)

Perennial herb; locally common on the Shivwits Plateau. May-October.

Mohave Co: Holland 746; Holland & Bostick 312, with Eriogonum alatum, Artemisia tridentata and Menodora scabra, 3 miles northwest of Mt. Dellenbaugh, at the turn-off to Twin Point, Shivwits Plateau; 6200 ft; Phillips (MNA), scattered on the Shivwits Plateau at 1940 m, but not found at lower elevations. Clark Co: none.

## APOCYNACEAE

Amsonia brevifolia Gray

Perennial herb; scattered throughout the middle elevations of the recreation area. April-May.

Mohave Co: none. Clark Co: Holland 920, common in disturbed soils with Gutierrezia, Rumex and Senecio douglasii along the Christmas Tree Pass road, 1.5 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Berg 52, 4 miles south of Boulder City near Railroad Pass, River Mountains, 2400 ft.

Amsonia eastwoodiana Rydb.

Perennial herb; known only from the lower Grand Canyon. April-June.

Mohave Co: Phillips (MNA), found only in one area on steep talus slopes above Columbine Falls, 475 m. Clark Co: none.

Amsonia tomentosa Torr. & Frem.

Perennial herb; scattered at various elevations throughout the recreation area. April-June.

Mohave Co: Leary & Leary 1834, sandy pocket in sandstone with Gutierrezia, Stipa, Galium, Mortonia and Agave north of Cane Spring, Shivwits Plateau, 3300 ft. Clark Co: Holland 921, Nickell 577, common with Larrea, Acamptopappus and Yucca schidigera 1 mile south of the Pipe Springs - Christmas Tree Pass roads in Sacatone Wash, Newberry Mountains, 2600 ft.

Apocynum sibiricum Jacq. (dogbane)  
var. salignum (Greene) Fern.

Perennial herb; occurring in isolated populations in mesic canyon floors.  
June-July.

Mohave Co: Leary & Leary 2248, in dense clumps on the canyon bottom at the head of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft.  
Clark Co: Nickell 635, Niles 1095, in moist gravels in Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2800 ft.

### ASCLEPIADACEAE

Asclepias asperula (Decne.) Woodson (milkweed)

Perennial herb; reported only from the pinyon-ponderosa pine woodland, Shivwits Plateau. July-August.

Mohave Co: Holland 715, with Pinus ponderosa, Artemisia and Chrysothamnus at the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland & Reigle 686, with Pinus ponderosa, Penstemon barbatus, Gutierrezia and Chrysothamnus 1/2 mile south of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Leary & Leary 2246, with Pinus ponderosa, Artemisia tridentata and Quercus gambelii at the top of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft. Clark Co: none.

Asclepias erosa Torr. (milkweed)

Perennial herb; scattered in wash gravels throughout the lower elevations. May-June.

Mohave Co: Holland & Blake 681, with Larrea, Ambrosia and Hymenoclea, in a draw along the road 30 miles south of Pierce Ferry, 2800 ft. Clark Co: Holland & Schramm 1233, in sandy soils with Larrea, Acamptopappus and Krameria along the road to Empire Wash, 1/2 mile east of U. S. highway 95, Newberry Mountains, 2600 ft.

Asclepias subulata Dcne. (milkweed)

Perennial herb; scattered in the southern portion of the recreation area. April-May.

Mohave Co: none. Clark Co: Leary & Leary 1771, in a south-facing wash with Sphaeralcea, Encelia, Larrea, Ferocactus, Ephedra and Salvia mojavensis near summit of ridge northeast of junction of West End Wash and the North Shore road, 2300 ft; Leary 1731, 1/2 mile northeast of the entrance to LMNRA at Nelson, 1800 ft; Holland 959, with Acacia, Hymenoclea, Bebbia and Brickellia incana in a large wash 1 mile west of Davis Dam, Newberry Mountains, 800 ft; Holland 510, in Empire Wash, 18 miles east of U. S. highway 95, Newberry Mountains, 1800 ft.

Asclepias subverticillata (Gray) Vail (milkweed)

Perennial herb; common in localized stands in disturbed sites on the Shivwits Plateau. July-October.

Mohave Co: Holland 714, with Pinus ponderosa, Artemisia and Chrysothamnus 2 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland & Bostick 266, with Brickellia longifolia, Fallugia and Psilostrophe in large wash, 2 miles north of the recreation area boundary in Whitmore Canyon, 4800 ft. Clark Co: none.

Cynanchum utahense (Engelm.) Woodson

Perennial herb; uncommon, known only from a single collection. April-June.

Mohave Co: none. Clark Co: Niles 863, Atlatl Rock, Valley of Fire State Park, 2000 ft.

Sarcostemma cynanchoides Decne.  
ssp. hartwegii (Vail) R. Holm.

Perennial herb; uncommon, reported only from the lower Grand Canyon. April.

Mohave Co: Phillips (MNA), in the vicinity of one small seep on the north shore of the lake at mile 274 and at Emory Falls Canyon, just above the falls. Clark Co: none.

Sarcostemma hirtellum (Gray) R. Holm.

Perennial herb; common in wash bottoms throughout the lower elevations. April-November.

Mohave Co: Phillips (MNA), common in moist side canyons, especially Columbine Falls Canyon and in protected areas on slopes; Holland (UNLV), in wash gravels north of Grand Wash Bay, 2200 ft. Clark Co: Leary 1764,

with Ephedra, Salvia, Gutierrezia, Aristida and Encelia in limestone on ridge north of junction of West End Wash and the North Shore road, 2200 ft; Holland & Whitney 960, climbing on Lotus rigidus at the junction of the Christmas Tree Pass road and state highway 77, Newberry Mountains, 1400 ft; Holland & Bostick 349, with Ambrosia dumosa and Encelia virginensis in Quarry Canyon opposite the Lake Mead marina, River Mountains, 1600 ft; Holland 151, with Sphaeralcea and Psathyrotes in gypsum substrate 1 mile west of the Vegas Wash ranger station, 1300 ft.

## CONVOLVULACEAE

Convolvulus arvensis L.

(bind-weed)

Perennial herb; common in disturbed soils on the Shivwits Plateau. May-September.

Mohave Co: Holland 703, common with Gutierrezia, Chrysothamnus and Artemisia, in meadow just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Cressa truxillensis HBK.

(alkali-weed)

Perennial herb; uncommon in alkaline soils in the Virgin River Valley. May-August.

Mohave Co: none. Clark Co: Leary & Niles 1844, dominant weed with Heliotropium in Glendale, 1600 ft; Holland, Niles & Schramm (UNLV), isolated individuals observed at Glendale, near cultivated field, 1600 ft; Coville (US), Valley of the Virgin River.

Cuscuta californica Hook. & Arn.

(dodder)

Annual; a parasite on many species throughout the low elevations. March-May.

Mohave Co: Nickell 501, 2 miles east of Hoover Dam along U. S. highway 93, 1200 ft. Clark Co: Leary 1750, with Acacia, Psoralea, Hilaria and Larrea, 6 miles north of state highway 41 on the North Shore road, 1600 ft.

Cuscuta denticulata Engelm.

(dodder)

Annual; a parasite, common at the lower elevations. April-May.

Mohave Co: none. Clark Co: Clover & Jotter (MO), parasitic on Larrea south of Boulder City.

## POLEMONIACEAE

Eriastrum diffusum (Gray) Mason

Annual; occasional to common on sandy-gravelly deserts. March-June.

Mohave Co: Holland 654, on limestone gravels 5 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 4700 ft; Niles & Leary 2151, in deep red sand with Hilaria, 2 miles south of Tuweep ranger station, Grand Canyon National Monument, 4800 ft. Clark Co: Niles & Leary 1921, in a wash beneath Quercus dumosa, 9 miles south of junction of Scanlon Ferry and Overton Arm roads, Gold Butte area, 4000 ft; Niles & Leary 1869, in sand with Larrea, Krameria and Hilaria, south of Riverside, 1450 ft; Niles 866, east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft.

Eriastrum eremicum (Jeps.) Mason

Annual; occasional to common, usually in sandy desert areas. April-June.

Mohave Co: none. Clark Co: Holland 1028, Empire Wash road, 1/2 mile east of the recreation area boundary, 2800 ft; Holland 1211, in gravels with Acacia, Brickellia and Hyptis, along state highway 77, 1/2 mile west of Hiko Spring, Newberry Mountains, 2200 ft; Gullion (LM), at guzzler N-17, 4 miles east of Searchlight; Holland 1326, with Larrea, Acacia and Chilopsis, Christmas Tree Pass, 4 miles east of U.S. highway 95, Newberry Mountains, 3600 ft.

Gilia brecciarum Jones  
ssp. brecciarum

Annual; occasional to common on sandy-gravelly slopes, creosote-bush areas. March-June.

Mohave Co: none. Clark Co: Holland 1659, near powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, 2800 ft; Holland 837, common in granitic soils 3 miles east of the recreation area boundary, 1/2 mile north of state highway 77, Newberry Mountains, 2200 ft.



Gilia filiformis Parry ex Gray

Annual; occasional to locally common in gravelly, low desert areas. March-May.

Mohave Co: Leary 17, common but inconspicuous in gravelly soils, off road to Willow Beach resort, 1500 ft; Holland 398, in a large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 125, common with Acacia, Hymenoclea and Psoralea fremontii, in areas of large gravel washes, 1 mile northeast of Railroad Pass, River Mountains, 2500 ft; Holland 1622, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 2800 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft.

Gilia hutchinsifolia Rydb.

Annual; occasional to locally common, low sandy deserts. March-May.

Mohave Co: none. Clark Co: Leary 12, scattered in loose soil, vicinity of the southern base of Spirit Mountain, Newberry Mountains, 2500 ft.

Gilia latifolia Wats.

Annual; locally common, often in disturbed sites, low deserts. March-May.

Mohave Co: none. Clark Co: Leary 1559, on east-facing alluvial fan, near pumping station north of Boulder Beach, River Mountains, 2000 ft; Holland 183, in disturbed area along state highway 41, River Mountains, 5 miles east of Henderson, 2000 ft.

Gilia leptantha Parish  
ssp. leptantha

Annual; occasional in sands and gravels, low desert areas. March-May.

Mohave Co: none. Clark Co: Holland 1627, in coarse gravels with Hyptis, Cassia armata and Prosopis glandulosa, Hiko Spring Canyon, 1/4 mile west of Hiko Spring, Newberry Mountains, 2400 ft.

Gilia leptomeria Gray

Annual; occasional in low, sandy desert areas. April-May.

Mohave Co: none. Clark Co: Holland (UNLV), uncommon in red blow sand, with Ephedra, Ambrosia and Larrea, Fire Rock area, 5 miles south of Bitter Springs Wash, 2500 ft.

Gilia longiflora (Torr.) G. Don

Annual; occasional to locally common on slopes and plains, mid to high elevation areas. March-October.

Mohave Co: Holland 342, locally abundant, with Artemisia tridentata and Berberis fremontii, at the junction of the Twin Point and Mt. Dellenbaugh roads, Shivwits Plateau, 6000 ft; Niles & Leary 2144, common in sand, with Artemisia filifolia, Two-mile Wash, on road to Tuweep, 2 miles south of Utah state highway 389, west of Fredonia, 4500 ft; Holland 738, 3 miles northwest of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft.

Clark Co: none.

Gilia multiflora Nutt.

Perennial herb; occasional on dry slopes, higher elevations. June-October.

Mohave Co: Niles & Holland 657, with Artemisia and Juniperus, 5 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 5000 ft. Clark Co: none.

Gilia ophthalmoides Brand.

Annual; widely distributed and often locally common. March-July.

Mohave Co: Niles & Holland 653, common with Artemisia tridentata, in areas of limestone outcroppings, 6 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 4700 ft; Bostick, Niles & Holland 404, 5 miles north of Katherine Landing, 800 ft; Holland 1250, Twin Point, 14 miles south of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: Holland 1644, in coarse gravel, floor of Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft.

Gilia scopulorum Jones

Annual; widely distributed throughout lower elevations, often locally common. February-May.

Mohave Co: Bostick & Holland 384, common with Hymenoclea, Acacia and Lycium, large gravel wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), Rampart Cave area; Meinke & Leary 9, near the Willow Beach resort area, 1500 ft. Clark Co: Holland 483, in a large gravel wash opening to the north, 1 mile east of Railroad Pass, River Mountains, 2800 ft; Fiero, Meyer & Leary 1795, common in sandstone soil near Sandstone Spring, Pinto Valley, LMNRA, 2000 ft; Holland 966, Empire Wash, 1/2 mile east of the recreation area boundary, Newberry Mountains, 3200 ft; Leary 1466, in loose sandy-gravelly soil,

east-facing wash west of pumping station, north of Boulder Beach, River Mountains, 1800 ft; Schramm & Holland 871, in a canyon 1/2 mile above the Anniversary Mine, 2 miles north of West End Wash, foothills of the Muddy Mountains, 2000 ft; Holland 856, Pipe Springs Canyon, 3 miles northwest of Spirit Mountain, Newberry Mountains, 2600 ft.

Gilia sinuata Dougl. ex Benth.

Annual; widely distributed and often locally common at lower elevations, usually in sandy soils. February-May.

Mohave Co: none. Clark Co: Leary 1571, common in sand, with Larrea, Ambrosia and Hilaria south of Boulder City, 2000 ft; Holland 1029, Empire Wash, 2 miles east of the recreation area boundary, Newberry Mountains, 2000 ft; Holland 1656, near powerline road paralleling state highway 77, 7 miles east of U. S. highway 95, 2800 ft; Schramm & Holland 879, in a canyon 1/2 mile above the Anniversary Mine, 2 miles north of West End Wash, foothills of the Muddy Mountains, 2000 ft.

Gilia stellata Heller

Annual; widely distributed at lower elevations, occurring in a variety of sites. February-May.

Mohave Co: none. Clark Co: Holland 1019, locally common with Yucca brevifolia, Neolloydia johnsonii and Coleogyne ramosissima, along U. S. highway 95, 1/4 mile northwest of Searchlight, 2600 ft; Schramm & Holland 1562a, Hiko Spring Wash, near state highway 77, Newberry Mountains, 2500 ft.

Gilia transmontana (Mason & A. Grant) A. & V. Grant

Annual; widely distributed and common throughout our area. February-May.

Mohave Co: Holland 1300a, south-facing slope of Mt. Dellenbaugh, Shivwits Plateau, 6500 ft. Clark Co: Holland 484, in a wash opening to the north, 1 mile east of Railroad Pass, River Mountains, 2800 ft; Holland 1178, locally common in wash gravels, bottom of Bridge Canyon, 1 mile west of state highway 77, Newberry Mountains, 2400 ft; Trelease 28, 3 miles west of Railroad Pass, 2500 ft; Holland 1030, along the Empire Wash road, 1/2 mile east of U. S. highway 95, western exposure of the Newberry Mountains, 2600 ft.

Ipomopsis aggregata (Pursh) V. Grant  
ssp. aggregata

(skyrocket)

Perennial herb; occasional and conspicuous, mostly in coniferous forests. April-October.

Mohave Co: Holland 309, with Pinus ponderosa and Artemisia tridentata, 4 miles north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Fries & Holland 1697, Parashant Canyon; Holland 1268, in limestone soil, 1 mile north of trail head to Sanup Plateau, along road to Twin Point, Shivwits Plateau, 6000 ft; Leary 1616, in volcanic soil, near Whipple Reservoir, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: none.

Ipomopsis polycladon (Torr.) V. Grant

Annual; occasional in a variety of sites, lower elevations. April-June.

Mohave Co: none. Clark Co: Fiero, Meyer & Leary 1787, in red sandy soil among sandstone boulders, above Sandstone Spring, Pinto Valley, LMNRA, 2100 ft; Holland 181, in a disturbed area, Bootleg Canyon, River Mountains, 2 miles northwest of Boulder City, 2800 ft; Whipple 4, 2.4 miles south of Railroad Pass.

Langloisia punctata (Cov.) Goodd.

Annual; occasional on dry desert slopes, low elevations. April-May.

Mohave Co: none. Clark Co: Stay 23, 2 miles east of Boulder City.

Langloisia schottii (Torr.) Greene

Annual; occasional to common in sandy-gravelly places, low elevations. March-May.

Mohave Co: none. Clark Co: Leary 1678, common in deep red sand, with Larrea, Hilaria, Ambrosia and Prosopis, 3 miles south of Overton, along state highway 12, 1500 ft; Holland 1024, along the Empire Wash road, 1 mile east of U. S. highway 95, Newberry Mountains, 2800 ft; Stay 35, 2 miles east of Boulder City; Nickell 66, near junction of Christmas Tree Pass road and U. S. highway 95, 2400 ft.

Langloisia setosissima (T. & G.) Greene

Annual; widely distributed and often locally common at low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1067, in coarse gravels at the mouth of Grapevine Canyon, Newberry Mountains, 800 ft; Holland 94, rocky wash 1 mile east of Railroad Pass, River Mountains, 2400 ft; Leary 1557, common on an east-facing alluvial fan, with Larrea, Ambrosia and Encelia, west of water pumping station, north of Boulder Beach, River Mountains, 2000 ft; Leary 1713, on north-facing talus beneath a limestone cliff, ridge northeast of Hamblin Mountain, Black Mountains, LMNRA, 2600 ft; Convis (LM), Lake Mead shore, near the St. Thomas road; Grater (LM), Quartermaster Canyon; Poyser (LM), Hemenway Wash.

Linanthus arenicola (Jones) Jeps. & Bailey

Annual; rare in our area, known from a single collection along the western boundary. To be expected in similar habitats within LMNRA. The species has been proposed for threatened status (Smithsonian Institution, 1975). March-April.

Mohave Co: none. Clark Co: Niles 1196, a few scattered plants in deep sand, southeast of Boulder City, near the municipal golf course, 2400 ft.

Linanthus aureus (Nutt.) Greene  
var. aureus

Annual; occasional, or in favorable springs locally common and conspicuous, low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1202, common in roadside gravels, 5 miles south of Searchlight, along U. S. highway 95, 3500 ft.

Linanthus aureus (Nutt.) Greene  
var. decorus (Gray) Jeps.

Annual; occasional to locally common and conspicuous during favorable springs, low elevations. March-May.

Mohave Co: none. Clark Co: Holland 894, common in alluvium 1 mile north of state highway 77, 2 miles west of Lake Mohave, Newberry Mountains, 1200 ft; Holland 789, in Empire Wash, 1/2 mile east of the recreation area boundary, Newberry Mountains, 2800 ft; Trelease 48, 3 miles south of Davis Dam.

Linanthus bigelovii (Gray) Greene

Annual; occasional to common in sandy-gravelly sites, low elevations.  
February-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1057, common in granitic soil off state highway 77, south of the Christmas Tree Pass road, 1400 ft; Holland 1082, along the Empire Wash road, 2 miles east of U. S. highway 95, Newberry Mountains, 2800 ft.

Linanthus demissus (Gray) Greene

Annual; occasional to locally common, slopes and washes at low elevations.  
March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 1039, Piute Wash, 1.5 miles north of the Empire Wash road, Newberry Mountains, 2600 ft; Grater (LM), Boulder Beach, near lake shore; Holland 82, occasional in patches, in disturbed soil along U. S. highway 93, 1 mile northeast of Railroad Pass, River Mountains, 2400 ft.

Linanthus jonesii (Gray) Greene

Annual; occasional to locally common, slopes and washes at low elevations.  
March-May.

Mohave Co: Bostick & Holland 398, common in a large gravel wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft.  
Clark Co: Holland 118, wash, 1 mile west of Railroad Pass, River Mountains, 2600 ft.

Phlox austromontana Cov.

(phlox)

var. densa (Brand.) Wherry

Perennial herb; occasional to locally common at higher elevations.  
April-July.

Mohave Co: Niles & Holland 605, common in dense clusters, Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Leary 1635, common in an overgrazed area, 1.5 miles south of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: none.

Phlox woodhousei (Gray) E. Nels. (phlox)

Perennial herb or dwarf shrub; occasional on the Shivwits Plateau. May-August.

Mohave Co: Reigle, Austin & Holland 1309, in clays, coniferous forest, Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Phlox stansburyi (Torr.) Heller (phlox)

Perennial herb; occasional on the Shivwits Plateau. May-June.

Mohave Co: Niles & Holland 582, in limestone, Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

## HYDROPHYLLACEAE

Emmenanthe penduliflora Benth. (whispering-bells)

Annual; occasional to locally common in a variety of sites, but often in protected places, low to mid elevations. March-May.

Mohave Co: none. Clark Co: Niles 1055, vicinity of Sacatone Wash, 4.5 miles north of state highway 77, Newberry Mountains, 2800 ft; Holland 1615, in coarse gravels, Empire Wash, 3 miles east of the recreation area boundary, 1800 ft; Holland 1121, uncommon in Bridge Canyon, 1/4 mile east of state highway 77, Newberry Mountains, 2200 ft.

Eucrypta chrysanthemifolia (Benth.) Greene  
var. bipinnatifida (Torr.) Const.

Annual; common in moist shaded area, mostly in low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Leary 22, under outcropping off state highway 77, to Willow Beach resort, 1500 ft. Clark Co: Leary 1550, in shade of boulders on an east-facing alluvial fan, north of Boulder Beach, west of pumping station, River Mountains, 2000 ft; Niles & Leary 1907, in shade of large granitic boulders, 3.1 miles south of Gold Butte, in Cataract Wash, 3450 ft; Holland 950, head of Sacatone Wash, 1/4 mile southeast of Christmas Tree Pass, Newberry Mountains, 3900 ft.

Eucrypta micrantha (Torr.) Heller

Annual; occasional to abundant in moist, shady places, mostly at lower elevations. March-May.

Mohave Co: Meinke & Leary 61, shaded area of a north-facing cliff, sandy soil, off road leading to Willow Beach resort, 1200 ft; Phillips (MNA), Rampart Cave area; Bostick & Holland 389, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 107, locally abundant, 1 mile north of Railroad Pass, along U. S. highway 93, 2300 ft; Holland 853, in wash gravels, 1/4 mile west of the head of Pipe Springs Canyon, at the base of Spirit Mountain, Newberry Mountains, 3000 ft; Holland 831, in Empire Wash, 3 miles northeast of Camp Thurman, Newberry Mountains, 1600 ft.

Nana demissum Gray  
var. demissum

Annual; occasional to common on low elevation slopes and flats. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Grater (LM), in gravel, Kingman Wash, 2 miles northeast of Hoover Dam. Clark Co: Bagley (LM), behind boat captain's residence, Boulder Beach; Grater (LM), canyon above Hemenway Wash, 1500 ft; Leary 1568, common on east-facing alluvial fan, with Larrea, Encelia and Acacia, west of the pumping station, north of Boulder Beach, River Mountains, 2000 ft; Holland 1649, in gravels of Empire Wash, 1.5 miles west of the recreation area boundary, Newberry Mountains, 3200 ft; Holland 847, common in granitic gravels, 1/2 mile north of state highway 77 and 3 miles east of the recreation area boundary, Newberry Mountains, 2400 ft; Leary 1756, in red shale with much gypsum, near junction of West End Wash and North Shore road, 1700 ft; Holland 31, Bootleg Canyon, River Mountains, 2.4 miles northwest of Boulder City, 2800 ft; Grater (LM), open flats, Valley of Fire, 6 miles southwest of Overton.

Nama hispidum Gray  
var. spathulatum (Torr.) Hitchc.

Annual; occasional, mostly in sandy soils, low desert areas. March-May.

Mohave Co: none. Clark Co: Holland 1035, creosote-bush type, junction of U. S. highway 95, and the Empire Wash road, 2600 ft.



Nama pusillum Lemmon ex Gray

Annual; apparently rare, reported from a single locality in our area. March-May.

Mohave Co: none. Clark Co: Poyser (IM), Hemenway Wash.

Nemophila menziesii H. & A.  
ssp. integrifolia (Pursh) Munz

Annual; rare, in protected sites, low deserts to the south. March-May.

Mohave Co: none. Clark Co: Holland 832, uncommon in areas of limited exposure, Sacatone Wash, 2 miles east of Christmas Tree Pass, Newberry Mountains, 3000 ft; Niles & Holland 4, in coarse wash gravels, with Acamptopappus, Yucca and Encelia farinosa, 1/2 mile west of the head of Pipe Springs Canyon, at the base of Spirit Mountain, Newberry Mountains, 3100 ft.

Phacelia affinis Gray

Annual; rare in sandy-gravelly places, low to mid elevations. March-June.

Mohave Co: none. Clark Co: Niles & Leary 1935, pinyon-juniper area, in moist granitic sand along the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Phacelia anelsonii Macbr.

Annual; apparently rare in our area, occurring in dry rocky places, mid elevations. The species has been proposed for threatened status (Smithsonian Institution, 1975). April-May.

Mohave Co: none. Clark Co: Niles & Leary 1905, with Chrysothamnus teretifolius and Thamnosma, in a granite boulder pile, 1.2 miles southwest of junction of Scanlon Ferry and Gold Butte roads, 3700 ft.

Phacelia cicutaria Greene  
var. hispida (Gray) J. T. Howell

Annual; rare, known from a single collection in our area. March-May.

Mohave Co: none. Clark Co: Holland 1227, with Salix, Tamarix and Pluchea, at the bottom of Bridge Canyon, 1.5 miles west of state highway 77, Newberry Mountains, 2400 ft.

Phacelia crenulata Torr.

Annual; widely distributed and common, occurring as one or more varietal forms in a diversity of sites. March-May.

Mohave Co: Trelease 5, Willow Beach; Meinke & Leary 10, off road leading to Willow Beach resort, 1500 ft; Grater (LM), Emory Falls, Grand Canyon; Phillips (MNA), Rampart Cave area and Diamond Creek; Baggley (LM), Temple Bar district. Clark Co: Gullion (LM), guzzler N-2, 6 miles east of Searchlight, 2600 ft; Leary 1666, in sand with Larrea, Ambrosia and Hilaria, 3 miles south of Overton, off state highway 12, 1500 ft; Niles & Leary 1922, with Quercus dumosa, Eriogonum fasciculatum and Prunus fasciculata, 9 miles south of junction of Scanlon Ferry and Overton Arm roads, 3700 ft; Holland 1008, locally abundant at the confluence of the Virgin and Muddy Rivers, 1200 ft; Holland 985, in Empire Wash, Newberry Mountains, 3200 ft; Nickell 587, 1/2 mile west of Hiko Spring, just off state highway 77, Newberry Mountains, 2400 ft.

Phacelia cryptantha Greene

Annual; occasional on dry, rocky slopes, low to mid elevations. March-May.

Mohave Co: Phillips (MNA), Emory Falls Canyon; Phillips (MNA), Rampart Cave area. Clark Co: Leary 1549, with Encelia, Larrea and Acacia, at the base of a volcanic cliff, 1.5 miles west of the pumping station, north of Boulder Beach, River Mountains, 2000 ft; Holland 1228, juniper-oak area, north-facing slope 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft.

Phacelia distans Benth.

Annual; occasional to locally common, mostly in protected sites, low elevations. March-May.

Mohave Co: Bostick & Holland 378, in areas of limited exposure in a large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), Diamond Creek. Clark Co: Schramm 11, under shrubs, area of petroglyphs, Newberry Mountains, 2700 ft; Holland 482, with Larrea, Acacia and Bebbia, 1 mile east of Railroad Pass, River Mountains, 2500 ft; Holland 1225, bottom of Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft; Whitney & Holland 188, Sacatone Wash, 3 miles east of Christmas Tree Pass, 3 miles north of state highway 77, Newberry Mountains, 2600 ft.

Phacelia fremontii Torr.

Annual; widely distributed and common during favorable springs, mostly under shrubs. March-May.

Mohave Co: Holland 1242, common in limestone soils, 5 miles south of the recreation area boundary on the road to Twin Point, Shivwits Plateau, 6000 ft; Grater (LM), Pierce Ferry, 40 miles east of Hoover Dam; Phillips (MNA), Rampart Cave area. Clark Co: Niles 1059, 6 miles north of state highway 77, Newberry Mountains, 2800 ft; Lee 18, Bootleg Canyon, River Mountains, 2700 ft; Holland 1133, at the head of Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3400 ft.

Phacelia glechomaefolia Gray

Annual; occasional in low desert elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Grater (LM), Emory Falls, 1200 ft. Clark Co: none.

Phacelia ivesiana Torr.

Annual; occasional in sandy-gravelly places. March-May.

Mohave Co: Holland 1245, Twin Point, 14 mile south of the Mt. Dellenbaugh road, Shivwits Plateau, 6000 ft. Clark Co: Holland 994, in alkaline gravels, Stewart's Point, 4 miles east of Blue Point Springs, 1200 ft.

Phacelia lemmonii Gray

Annual; occasional in moist, sandy sites, low to mid elevations. March-May.

Mohave Co: none. Clark Co: Niles 1071, bottom of Bridge Canyon, Newberry Mountains, 2500 ft; Niles & Leary 1934, scattered in moist sand along a semi-permanent stream in a Pinus-Juniperus woodland, Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Phacelia neglecta Jones

Annual; occasional on dry rocky slopes, low elevations. March-May.

Mohave Co: Meinke & Leary 31, scattered in gravelly soil along state highway 73 to Willow Beach resort, 1200 ft. Clark Co: none.

Phacelia palmeri Torr.

Biennial; occasional to locally common in gypsum-bearing soils, low to mid elevations. April-May.

Mohave Co: Leary 1840, on a gypsum outcrop at base of a limestone cliff, with Chrysothamnus nauseosus and Ephedra viridis, Whitmore Canyon, 2 miles north of the recreation area boundary, Shivwits Plateau, 4700 ft; Clover (MO), 1/2 mile north of Temple Bar. Clark Co: Grater (LM), Las Vegas Wash, 1200 ft; Wagner 35, with Petalonyx nitidus and Lepidium fremontii, 1/2 mile below North Shore turn-off, on Lake Shore road, 1450 ft; Leary 1686, locally common near the junction of state highways 40 and 12, near Valley of Fire, LMNRA, 1600 ft; Niles & Leary 1886, in gypsum outcrops with reddish sand, 2 miles north of Devil's Throat, Gold Butte area, 2300 ft; Leary 1565, in gypsiferous soil, with Arctomecon, Enceliopsis and Psoralea fremontii, near entrance to the recreation area, south of Las Vegas Wash, 1600 ft; Holland 133, 1 mile west of Las Vegas Wash ranger station, 1350 ft.

Phacelia pedicellata Gray

Annual; occasional in dry, mostly rocky areas, low elevations. March-May.

Mohave Co: none. Clark Co: Gullion (LM), in loose gravel, 1 mile northwest of guzzler M-5, 6 miles south of Henderson; Niles & Holland 189, at the base of steep canyon wall, Quarry Canyon, 3/4 mile west of state highway 41, at intersection with Lake Mead marina road, 1650 ft; Schramm & Holland 406, in areas of limited exposure, eastern slope of the River Mountains, just above Boulder Beach campground, 1600 ft; Leary 1743, at the base of boulders in Eldorado Canyon, near entrance to LMNRA, 1800 ft; Leary 1541, in a narrow cleft of sandstone, 1.5 miles east of Mouse's Tank, Valley of Fire State Park, 2000 ft; Schramm & Holland 1157, rocky outcrop, Empire Wash, 1/2 mile east of recreation area boundary, Newberry Mountains, 2800 ft; Niles 1088, bottom of Bridge Canyon, Newberry Mountains, 2400 ft.

Phacelia perityloides Cov.  
var. jaegeri Munz

Perennial herb; occasional on boulders and cliffs, low desert elevations. May-July.

Mohave Co: none. Clark Co: Leary 2179, north-facing limestone cliff, with Scopulophila, Pleurocoronis and Haplopappus gooddingii, 3 miles west of Rogers Spring, 2800 ft; Holland 1315, north-facing granitic cliff, upper portion of Sacatone Wash, 1 mile southeast of Christmas Tree Pass, Newberry Mountains, 2500 ft.

Phacelia pulchella Gray  
var. gooddingii (Brand.) J.T. Howell

Annual; occasional to locally common, mostly on alkaline flats, low to mid elevations. March-June.

Mohave Co: Niles & Holland 578, Quail Canyon, 18 miles south of the Utah state line, 4700 ft. Clark Co: Leary 1688, common with Coldenia hispidissima, Phacelia palmeri and Petalonyx parryi, near junction of state highways 40 and 12, LMNRA, 1600 ft; Schramm & Holland 495, gypsiferous soil, 2 miles west of Las Vegas Wash ranger station, near highway 41, 1350 ft; Convis (LM), 13 miles south of Overton, at Rogers Spring; Glazier 3, Lake Mead area, near Calville Bay marina, 1000 ft.

Phacelia rotundifolia Torr. ex Wats.

Annual; occasional in rock crevices, mostly low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Fiero, Meyer & Leary 1783, in red sandstone east of Sandstone Spring, Pinto Valley, LMNRA, 2100 ft; Niles & Leary 1915, on a metamorphic cliff face, near spring and corral, 6.4 miles south of junction of Scanlon Ferry and Overton Arm roads, Gold Butte area, 3000 ft; Holland 1636, in moist gravels, Bridge Canyon, 1 mile west of state highway 77, Newberry Mountains, 2700 ft; Morris & Holland 145, summit of Quarry Canyon, River Mountains, 1 mile west of Lake Mead marina, 1700 ft; Grater (LM), Hemenway Wash, 1225 ft.

Phacelia vallis-mortae J. Voss.

Annual; occasional, usually under shrubs, low to mid elevations. April-May.

Mohave Co: Grater (LM), Kingman Wash, 2 miles northeast of Hoover Dam. Clark Co: Holland 1226, with Pinus and Coleogyne, 1/2 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft; Holland 1096, under shrubs, Empire Wash, 5 miles east of U. S. highway 95, Newberry Mountains, 3200 ft.

Pholistoma auritum (Lindl.) Lilja

Annual; occasional to common in shady, protected sites, low deserts. February-May.

Mohave Co: Phillips (MNA), Emory Falls Canyon; Phillips (MNA), Rampart Cave area. Clark Co: Littlefield 3, Empire Wash, 1000 ft.

Pholistoma membranaceum (Benth.) Const.

Annual; occasional to common in shady, protected sites, low deserts. March-May.

Mohave Co: none. Clark Co: Niles 1058, vicinity of Sacatone Wash, Newberry Mountains, 2800 ft; Holland 801, head of Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 4000 ft; Niles & Holland 93, under large boulders in Sacatone Wash, 2 miles east of the recreation area boundary, Newberry Mountains, 3000 ft.

Tricardia watsonii Torr. ex Wats.

Perennial herb; occasional but inconspicuous, often under shrubs, slopes and flats at low to mid elevations. April-May.

Mohave Co: none. Clark Co: Grater (LM), Valley of Fire, 12 miles south of Overton.

## BORAGINACEAE

Amsinckia intermedia F. & M. (fiddleneck)

Annual; occasional throughout the lower elevations, often with A. tessellata. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Schramm & Holland 1552, 1 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2600 ft; Holland 1122, in a granitic outcrop in Bridge Canyon, 1/2 mile east of state highway 77, Newberry Mountains, 2200 ft.

Amsinckia tessellata Gray (fiddleneck)

Annual; widely distributed and common throughout the lower elevations. March-May.

Mohave Co: Trelease 12, Willow Beach. Clark Co: Powers 23, 3 miles east of Nelson, 2500 ft; Leary 1562, on an east-facing alluvial fan dominated by Larrea and Ambrosia, west of water pumping station, River Mountains, 2000 ft.

Cryptantha angustifolia (Torr.) Greene

Annual; widely distributed and common at all lower elevations. March-May.

Mohave Co: Grater (LM), in wash at Pierce Ferry. Clark Co: Leary 1674, in red sand with Larrea and Ambrosia, 3 miles south of Overton, 1800 ft; Holland 896, in alluvial gravels, 1/4 mile west of Davis Dam, along state highway 77, Newberry Mountains, 700 ft; Holland 1006, common at the confluence of the Virgin and Muddy rivers, 1200 ft; Leary 1712, beneath a limestone cliff, ridge northeast of Hamblin Mountain, Black Mountains, 2400 ft; Holland 90, in gravels of Bootleg Canyon, River Mountains, 2 miles northwest of Boulder City, 2800 ft.

Cryptantha barbigera (Gray) Greene

Annual; occasional throughout lower elevations. March-May.

Mohave Co: none. Clark Co: Grater (LM), canyon above Hemenway Wash, 1800 ft; Nickell 510, near the Juniper Mine, western ridge of the Newberry Mountains, 3800 ft; Leary 1735, Eldorado Canyon, 1/4 mile east of entrance to the recreation area, 1800 ft; Holland 1633, floor of Bridge Canyon, Newberry Mountains, 2400 ft; Holland 1068, in coarse alluvium just south of the junction of Christmas Tree Pass road and state highway 77, Newberry Mountains, 2150 ft.

Cryptantha circumscissa (H. & A.) Jtn.

Annual; occasional to locally common in sand, mostly at low elevations. April-June.

Mohave Co: Grater (LM), Pierce Ferry; Nickell 582, 10 miles south of Pierce Ferry, 3800 ft. Clark Co: Holland 924, in granitic soils at the head of Pipe Springs Canyon, Newberry Mountains, 2800 ft; Holland 1026, in sandy soil 2 miles east of U. S. highway 95, along the Empire Wash road, western exposure of the Newberry Mountains, 2800 ft.

Cryptantha confertiflora (Greene) Pays.

Perennial herb; occasional in dry, rocky places, mid elevations. March-May.

Mohave Co: Fries & Holland 1658, with Foquieria, Mortonia and Ephedra viridis, Whitmore Canyon, 1 mile northwest of trail to the Colorado River, on the Exxon lease site, 3400 ft; Leary 1648, in a blackbrush community on a south-facing alluvium, 1 mile east of Andrus Point, Shivwits Plateau, 4100 ft; Leary 1821, on a north slope among sandstone boulders, Paw's Pocket, Whitmore Canyon, Shivwits Plateau, 3900 ft. Clark Co: Convis (LM), Buffington Pocket, Overton District.

Cryptantha dumetorum (Greene ex Gray) Greene

Annual; occasional, often in sand and mixed in or around shrubs, lower desert regions. March-May.

Mohave Co: none. Clark Co: Holland 1037, with Acacia, Krameria and Ambrosia, Piute Wash, 2 miles east of U. S. highway 95, along the Empire Wash road, western exposure of the Newberry Mountains, 2800 ft; Nickell, Meinke & Leary 63, off state highway 41, in a sandy wash, 7 miles east of Henderson, 1200 ft.

Cryptantha gracilis Osterh.

Annual; occasional on dry, rocky slopes, at higher elevations. May-June.

Mohave Co: Holland 1253, in a juniper woodland at the Sanup Plateau trailhead, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: none.

Cryptantha holoptera (Gray) Macbr.

Annual; rare in dry, rocky places, low deserts. March-May.

Mohave Co: none. Clark Co: Leary 1767, with Larrea and Ambrosia, ridge northeast of junction of West End Wash and state highway 41, 2500 ft.

Cryptantha inaequata Jtn.

Annual; occasional in sandy-gravelly sites, low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Leary 1759, in red, gypsiferous, clay-like soil, loose slope below ridge, northeast of junction of West End Wash and state highway 41, 1800 ft; Leary 1747, north-facing wash bank, Larrea-Ambrosia area, Eldorado Canyon, 2 miles east of entrance to recreation area, 1800 ft; Leary 1480, sandy wash in a Larrea-Ambrosia community, east-facing alluvial fan west of water pumping station, River Mountains, 1800 ft; Leary 1675, in red sand, 3 miles south of Overton off state highway 12, 1500 ft.

Cryptantha insolita (Macbr.) Pays.

Biennial or short-lived perennial herb; apparently very rare, known only from the type locality, in the vicinity of Las Vegas (Payson, 1927). The species has not been recollected in recent years. Its apparent restricted distribution may extend into LMNRA, in areas along North Shore road. This taxon has been proposed for endangered status (Federal Register, 1976). May.



Cryptantha jamesii (Torr.) Pays.

Perennial herb; occasional on dry, gravelly slopes, at mid to high elevations. April-August.

Mohave Co: Fries & Holland 1675, in red clays, with Coleogyne, Canotia and Grayia, within the Exxon lease site, 1 mile north of the rim of the Grand Canyon, in Whitmore Canyon, 3600 ft. Clark Co: none.

Cryptantha maritima (Greene) Greene

Annual; occasional to locally common in sandy-gravelly sites, low deserts. March-May.

Mohave Co: none. Clark Co: Holland 975, in desert pavement with Larrea and Encelia, at the southern margin of Empire Wash, 1 mile west of Lake Mohave, 800 ft; Holland 1642, floor of Bridge Canyon, Newberry Mountains, 1 mile west of state highway 77, 2450 ft; Holland 1069, common in wash gravels, junction of Christmas Tree Pass road and state highway 77, Newberry Mountains, 1400 ft; Leary 1769, on north-facing limestone ridge northeast of junction of West End Wash and state highway 41, 2500 ft.

Cryptantha micrantha (Torr.) Jtn.

Annual; occasional to common in sandy sites, low deserts. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Niles 868, in sand at edge of Atlatl Rock, Valley of Fire State Park, 2000 ft; Holland 78, 1/4 mile south of junction of U. S. highway 93, east side of Boulder City, 1800 ft; Holland 1025, 2 miles east of U. S. highway 95, along the Empire Wash road, Newberry Mountains, 2800 ft; Holland 998, with Larrea and Ambrosia, Fire Rock area, 5 miles south of Bitter Springs, 2500 ft; Leary 1536, in red sand east of Mouse's Tank, Valley of Fire State Park, 2000 ft; Leary 1681, in a Larrea-Ambrosia community, 3 miles south of Overton, off state highway 12, 1500 ft.

Cryptantha muricata (H. & A.) Nels. & Macbr.  
var. jonesii (Gray) Jtn.

Annual; apparently rare in our area, known from a single locality. March-May.

Mohave Co: Leary 16, in loose, gravelly soil, off road to Willow Beach resort, 1500 ft. Clark Co: none.

Cryptantha nevadensis Nels. & Kenn.  
var. nevadensis

Annual; occasional in sand or gravel, low elevations. March-May.

Mohave Co: none. Clark Co: Gullion (LM), Davis Dam powerline tower, 6 miles northeast of Searchlight, 2900 ft; Holland 1007, at the confluence of the Virgin and Muddy Rivers, 1200 ft; Holland 823, at the mouth of Bridge Canyon, Newberry Mountains, 1400 ft; Holland 113, in wash gravels, mouth of Bootleg Canyon, River Mountains, 2800 ft.

Cryptantha nevadensis Nels. & Kenn.  
var. rigida Jtn.

Annual; occasional, usually at mid elevations. March-May.

Mohave Co: none. Clark Co: Niles & Leary 1928, beneath granite boulders in a pine-oak woodland, along a semi-permanent creek north of Jumbo Peak, Gold Butte area, 4200 ft.

Cryptantha pterocarya (Torr.) Greene

Annual; occasional to common, widely distributed in one or more varietal forms throughout the low elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area and Diamond Creek. Clark Co: Meinke & Leary 83, in gravels, Frenchman Mountain, along Lake Mead Boulevard, 3000 ft; Holland 34, among rocks, upper portion of Hemenway Wash, 2800 ft; Holland 1058, 1/2 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2200 ft; Holland 1175, in coarse gravels, Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2400 ft.

Cryptantha racemosa (Wats.) Greene

Perennial herb; occasional to locally common on boulders and cliffs, low to mid elevations. March-October.

Mohave Co: Leary 1832, west-facing crack in sandstone, with Mortonia and Thamnosma, wash north of Cane Spring, Shivwits Plateau, 3300 ft. Clark Co: Schramm & Holland 1518, along the northern exposure of Red Mountain, River Mountains, 3400 ft; Schramm & Holland 874, in limestone, 1/2 mile above the Anniversary Mine, 2 miles north of West End Wash, foothills of the Muddy Mountains, 2500 ft; Fiero, Meyer & Leary 1799, common among sandstone boulders, east of Sandstone Spring, Pinto Valley, Black Mountains, 2100 ft.

Cryptantha recurvata Cov.

Annual; apparently rare in our area. March-May.

Mohave Co: none. Clark Co: Holland 1005, at the confluence of the Virgin and Muddy Rivers, 1200 ft.

Cryptantha utahensis (Gray) Greene

Annual; occasional to locally common in sandy-gravelly places, from low to mid elevations. March-May.

Mohave Co: Baggley (LM), Willow Beach, 15 miles south of Hoover Dam; Phillips (MNA), Rampart Cave area. Clark Co: Leary 54, in sandy soil among rocks, southern exposure, Bootleg Canyon, River Mountains, 1.5 miles northwest of Boulder City, 2800 ft; Holland 1124, in a pinyon-juniper-blackbrush area, north-facing slope, 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft; Leary 1479, common on an east-facing alluvial fan, with Larrea and Ambrosia, west of water pumping station, River Mountains, 1800 ft; Niles & Holland 864, Eldorado Canyon, 1/4 mile west of the Colorado River, 850 ft; Holland 955, northern exposure, Sacatone Wash, 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3000 ft.

Cryptantha virginensis (Jones) Pays.

Biennial or perennial herb; occasional on dry, rocky slopes, mid to high elevations. April-June.

Mohave Co: none. Clark Co: Fiero, Meyer & Leary 1781, on a west-facing slope among sandstone boulders, near Sandstone Spring, Pinto Valley, Black Mountains, 2100 ft; Niles & Leary 1860, at springs west of Juanita Spring, 2000 ft.

Heliotropium convolvulaceum (Nutt.) Gray (heliotrope)  
var. californicum (Greene) Jtn.

Annual; rare to occasional in sands, low elevations. April-May.

Mohave Co: none. Clark Co: Niles 870, east edge of Atlatl Rock, Valley of Fire State Park, 2000 ft.

Heliotropium curassavicum L. (heliotrope)  
var. oculatum (Heller) Jtn.

Perennial herb; occasional to common locally, usually in moist saline-alkaline soils, at low elevations throughout our area. March-October.

Mohave Co: Grater (LM), Willow Beach, 60 ft. Clark Co: Holland 163, 1/2 mile west of state highway 41, south of Boulder Beach turn-off, 1400 ft; Niles & Leary 1852, in a grove of Pluchea and Baccharis, sandy mud along east side of the Virgin River, at the Riverside bridge, 1450 ft; Holland 992, common with Tamarix, Pluchea and Prosopis, along road to Stewart Point, 2.5 miles east of Blue Point Spring, 900 ft.

Lappula occidentalis (Wats.) Greene (stickseed)

Annual; occasional to locally common, occurring as one or more varietal forms in a variety of sites at higher elevations. April-July.

Mohave Co: Niles & Holland 615, floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Leary (UNLV), common in an open sagebrush area south of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft; Clark Co: none.

Lappula texana (Scheele) Britton (stickseed)

Annual; apparently rare, known from a single collection near the northern boundary of the recreation area. April-June.

Mohave Co: Niles & Holland 588, at Wolfhole Lake, 30 miles south of St. George, 5000 ft. Clark Co: none.

Lithospermum incisum Lehm. (puccoon)

Perennial herb; occasional on the Shivwits Plateau. May.

Mohave Co: Austin & Holland 1303, with sagebrush, rabbitbrush and western yellow pine, just east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Pectocarya platycarpa (M. & J.) M. & J.

Annual; common and widespread at low elevations. March-May.

Mohave Co: Grater (LM), Pierce Ferry, 1200 ft. Clark Co: Leary 1718, limestone ridge northeast of Hamblin Mountain, Black Mountains, 2800 ft; Holland 55, with Larrea and Ambrosia in a gravel wash, along U. S. highway 93, 1 mile northeast of Railroad Pass, River Mountains, 2400 ft; Holland 833, in granitic soils between Hiko Spring and Bridge Canyon, Newberry Mountains, 2700 ft.

Pectocarya recurvata Jtn.

Annual; the most common and widespread representative of the genus in our area, low deserts. March-May.

Mohave Co: Meinke & Leary 13, in gravelly soil off road from U. S. highway 93 to Willow Beach resort area, 1500 ft. Clark Co: Holland 54, with Larrea and Ambrosia, along U. S. highway 93, 1 mile northeast of Railroad Pass, River Mountains, 2800 ft; Holland 836, in granitic soils between Bridge Canyon and Hiko Spring, Newberry Mountains, 2700 ft; Schramm & Holland 810, upper Pipe Springs Canyon, Newberry Mountains, 2500 ft; Holland 1631, floor of Bridge Canyon, 1.5 miles west of state highway 77, Newberry Mountains, 2700 ft.

Pectocarya setosa Gray

Annual; occasional in sands and gravels at low to mid elevations. March-May.

Mohave Co: none. Clark Co: Niles & Leary 1942, in moist granitic sand along north fork of a semi-permanent creek, with Juniperus, Quercus and Pinus, below Grapevine Spring, near Jumbo Peak, Gold Butte area, 4200 ft; Schramm & Holland 1557, in coarse wash gravels, 1 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2600 ft.

Plagiobothrys arizonicus (Gray) Greene ex Gray

Annual; occasional in sands and gravels, lower elevations. March-May.

Mohave Co: none. Clark Co: Niles 1146, 1 mile above Pipe Spring, east slope of the Newberry Mountains, 2300 ft; Holland 887, head of Sacatone Wash, 1/4 mile south of Spirit Mountain, Newberry Mountains, 3600 ft.

Plagiobothrys jonesii Gray

Annual; occasional to locally common, mostly in rocky places, lower elevations. March-May.

Mohave Co: Holland 1648, in a large canyon with Acacia, Hymenoclea and Bebbia, 1/4 mile south of fish hatchery, Willow Beach. Clark Co: Holland 778, in coarse gravels, 1/2 mile west of Hiko Spring, along state highway 77, Newberry Mountains, 2200 ft; Holland 1617, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 1800 ft.

Tiquilia canescens (DC.) A. Richardson  
[=Coldenia canescens DC.]

Perennial herb or dwarf shrub; occasional on dry slopes and ridges, lower elevations. March-May.

Mohave Co: none. Clark Co: Fiero, Meyer & Leary 1798, among sandstone boulders with Hilaria, Ambrosia and Ephedra, east of Sandstone Spring, Pinto Valley, Black Mountains, 2100 ft.

Tiquilia hispidissima (Torr. & Gray) A. Richardson  
[=Coldenia hispidissima Torr. & Gray]

Perennial herb; occasional, usually in low elevational sandy places. April-September.

Mohave Co: Phillips (MNA), Rampart Cave area; Bostick & Holland 280, rocky lava flow area, 2 miles north of the Whitmore Canyon trail head, 3000 ft. Clark Co: Bostick 3567, Valley of Fire State Park, 3000 ft; Leary 1685, in red sand with Petalonyx, Larrea and Ambrosia, 1/2 mile north of junction of state highways 40 and 12, near Valley of Fire State Park, 1600 ft; Fiero, Meyer & Leary 1780, among sandstone boulders, west-facing hillside east of Sandstone Spring, Pinto Valley, Black Mountains, 2100 ft; Niles & Leary 1845, 1/2 mile northwest of Riverside, near interstate highway 15, 1600 ft; Schramm & Holland 1017, in canyon 1/2 mile above the Anniversary Mine, 2 miles north of West End Wash, 2500 ft.

Tiquilia palmeri (Gray) A. Richardson  
[=Coldenia palmeri Gray]

Perennial herb; rare in sandy places, low elevations to the south. March-October.

Mohave Co: none. Clark Co: Gullion (LM), at powerline tower 7/4, 4 miles north of Davis Dam, 750 ft.

Tiquilia plicata (Torr.) A. Richardson  
[=Coldenia plicata (Torr.) Cov.]

Perennial herb; occasional in sand, low elevations. April-October.

Mohave Co: Clover (MO), on road to Lake Mead from Boulder Dam; Grater (LM), Willow Beach, 600 ft. Clark Co: Leary 1667, in sand with Larrea, Ambrosia and Hilaria, 3 miles south of Overton, off state highway 12, 1500 ft; Holland 1201, in sandy soils with Krameria parvifolia and Acamptopappus sphaerocephalus, along a tributary to Piute Wash, 1/2 mile east of U. S. highway 95 and 1/4 mile north of the Empire Wash road, Newberry Mountains, 2600 ft.

## VERBENACEAE

### Lippia wrightii Gray

Shrub; apparently rare, a single collection from near the northern boundary of the recreation area. May.

Mohave Co: none. Clark Co: Niles & Leary 1879, along washes at the base of south-facing limestone hills, south end of the Virgin Mountains, north of Whitney Pocket, 3100 ft.

### Verbena bracteata Lag. & Rodr. (verbena)

Annual or perennial herb; occasional, often in waste places, throughout our area. May-October.

Mohave Co: Leary 2190, around the fire camp, north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland 290, in clay-rich soils, meadow north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

### Verbena gooddingii Briq. (verbena)

Perennial herb; occasional in a variety of sites, all elevations. April-June.

Mohave Co: Halse (UNLV), 5 miles upstream from Pierce Ferry, 1250 ft; Leary 1634, in an overgrazed area, 1.5 miles south of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft; Phillips (MNA), Rampart Cave area; Grater (LM), Quartermaster Canyon rim, east of Pierce Ferry; Austin & Holland 1308, in limestone soils with Artemisia, Juniperus and Gutierrezia, road to Twin Point, 8 miles south of the Mt. Dellenbaugh road, Shivwits Plateau, 6000 ft. Clark Co: Leary 1740, Eldorado Canyon, near entrance to recreation area, 1800 ft; Baggle (LM), near Nelson; Fisher 9, central section of the Eldorado Mountains.

## LAMIACEAE

### Hedeoma nanum (Torr.) Briq. (pennyroyal)

Perennial herb; occasional in its one or more varietal forms on dry rocky slopes, mid to high elevations. May-June.

Mohave Co: Phillips (MNA), Rampart Cave area; Reigle & Holland 669, in sandstone in Whitmore Valley, 2 miles north of the canyon rim, 3800 ft.  
Clark Co: none.

Hyptis emoryi Torr. (desert-lavender)

Shrub; occasional to locally common in dry, rocky places, low deserts.  
March-May.

Mohave Co: Bostick & Holland 382, in a large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 1625, in gravels, Empire Wash, 1 mile west of Lake Mohave, eastern exposure of the Newberry Mountains, 900 ft; Nickell 75, upper end of Bridge Canyon, Newberry Mountains, 3000 ft; Holland 842, along powerline through the lower portion of the Newberry Mountains, paralleling state highway 77, 2500 ft.

Marrubium vulgare L. (horehound)

Perennial herb; occasional weed in waste places, higher elevations.  
June-October.

Mohave Co: Holland 1400, junction of Twin Point and Mt. Dellenbaugh roads, Shivwits Plateau, 6000 ft; Niles & Holland 625, on the rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Moldavica parviflora (Nutt.) Britton (dragon-head)

Annual or biennial; occasional on the Shivwits Plateau. June-October.

Mohave Co: Leary 2196, on side of small wash, 1/4 mile north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Niles & Holland 625, on the rim of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Monardella linoides Gray  
ssp. linoides

Perennial herb; apparently rare in the recreation area, known from a single collection. July.

Mohave Co: none. Clark Co: Holland 1440, in rock outcrops, Bridge Canyon, 1/4 mile west of state highway 77, Newberry Mountains, 2400 ft.



Salazaria mexicana Torr.

(bladder-sage)

Shrub; occasional to locally common in washes and canyons, low elevations. April-May.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 119, in a lateral branch of Bootleg Canyon, River Mountains, 3000 ft; Grater (LM), Hemenway Wash, 1225 ft; Holland 797, 5 miles east of U. S. highway 95, on the Empire Wash road, 3000 ft; Holland 948, southern wall of Sacatone Wash, 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 2800 ft.

Salvia columbariae Benth.

(chia)

var. columbariae

Annual; common and widespread during favorable springs, low elevations. March-May.

Mohave Co: Bostick & Holland 383, in large gravel wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Major 11, Willow Beach. Clark Co: Leary 1555, in a broad wash near pumping station, northeast end of the River Mountains, 2850 ft; Leary 34, in sand, southern base of Spirit Mountain, Newberry Mountains, 2500 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft.

Salvia dorrii (Kell.) Abrams

(sage)

Shrub; occasional to locally common in low desert washes; variable, occurring in several forms. April-June.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Holland 891, Roman Wash, 1/2 mile south of Empire Wash, 2800 ft; Grater (LM), Valley of Fire State Park, 12 miles southwest of Overton; Bagley (LM), near Nelson; Nickell 562, western foot of Spirit Mountain, Newberry Mountains, 3200 ft.

Salvia mohavensis Greene

(sage)

Shrub; occasional in washes and canyons, low deserts. May-June.

Mohave Co: none. Clark Co: Holland 1335, in granitic soils, 2 miles east of Christmas Tree Pass, Newberry Mountains, 3200 ft; Leary 1761, in limestone crevice, ridge northeast of junction of West End Wash and North Shore road, 2200 ft; Niles & Holland 190, canyon 1.5 miles west of state highway 41, River Mountains, 2500 ft; Holland 190, on north-facing basalt slopes, 2 miles northwest of Lake Mead marina, River Mountains, 2100 ft; Poyser (LM), hillsides near Boulder City.

## SOLANACEAE

Datura meteloides A. DC.

(Jimson-weed)

Perennial herb; occasional in sandy-gravelly sites, low to mid elevations. May-October.

Mohave Co: none. Clark Co: Holland 1328, in blow sand with Larrea, at the junction of U.S. highway 95 and Empire Wash road, Newberry Mountains, 2500 ft; Holland 182, in a wash, 1 mile north of visitor's center, along highway 41, 1 mile west of Lake Mead, foothills of the River Mountains, 1900 ft; Holland (UNLV), in washes of south-facing slopes, 3 miles west of Boulder City, River Mountains, 2400 ft.

Lycium andersonii Gray

(desert-thorn)

Shrub; occasional to locally common in a variety of sites, low to mid elevations. March-May.

Mohave Co: none. Clark Co: Poyser (LM), Quarry Canyon, 1/2 mile northeast of Boulder Beach; Holland 934, in alkaline soils surrounding Rogers Spring, 5 miles north of turn-off to Echo Bay, on the North Shore road, 1500 ft; Holland 741, lower Grapevine Canyon, Newberry Mountains, 2000 ft.

Lycium cooperi Gray

(desert-thorn)

Shrub; occasional, mostly at lower elevations. March-May.

Mohave Co: none. Clark Co: Nickell 580, along Empire Wash road, western edge of Spirit Mountain, Newberry Mountains, 3500 ft; Niles & Leary 1894, Horse Spring Wash, 6.2 miles south of St. Thomas Gap, along the Gold Butte road, 3300 ft.

Lycium fremontii Gray

(desert-thorn)

Shrub; known from a single collection. March-April.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: none.

Lycium pallidum Miers (desert-thorn)  
var. oligospermum C. L. Hitchc.

Shrub; occasional to locally common, rocky slopes and plains. March-May.

Mohave Co: Holland 702, Mainstreet Valley, 49 miles south of St. George, at turn-off to Mt. Dellenbaugh, 5000 ft; Grater (LM), rim of Quartermaster Canyon, east of Pierce Ferry. Clark Co: none.

Lycium parishii Gray (desert-thorn)

Shrub; occasional in dry desert sites to the south. March-May.

Mohave Co: none. Clark Co: Holland 1971, Roman Wash, 1/2 mile south of Empire Wash, 2800 ft; Holland 1331, in granitic soils, with Larrea on small rolling hills, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft.

Lycium torreyi Gray (desert-thorn)

Shrub; occasional in low elevation desert washes. March-May.

Mohave Co: none. Clark Co: Holland 735, Empire Wash, 9 miles east of U. S. highway 95, Newberry Mountains, 3000 ft; Holland 462, in large gravel wash, 1/2 mile east of the recreation area boundary, on road to Cottonwood Cove, 2000 ft; Niles 1076, bottom of Bridge Canyon, Newberry Mountains, 2500 ft.

Nicotiana attenuata Torr. (tobacco)

Annual; occasional and widespread through mid to high elevations. May-October.

Mohave Co: Leary 2259, in a Juniperus-Artemisia association, near junction of Mt. Dellenbaugh and Andrus Canyon roads, Shivwits Plateau, 6000 ft; Bostick & Holland 263, 2 miles north of recreation area boundary, Whitmore Canyon, 4800 ft; Holland 339, road to Twin Point, 8 miles south of junction to Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Grater (LM), between Oak Grove and Twin Springs, Shivwits Plateau; Grater (LM), rim above Quartermaster Canyon. Clark Co: Leary & Niles (UNLV), in a Larrea-Ambrosia community, along road to Cane Springs Wash, 3 miles north of state highway 7, 3000 ft.

Nicotiana glauca Grah.

(tree tobacco)

Large shrub or small tree; occasional near the lake shore. Flowering through much of the year.

Mohave Co: none. Clark Co: Reed (UNLV), Calville Bay, 1900 ft; Stephenson (UNLV), shore opposite Saddle Island, 1200 ft.

Nicotiana trigonophylla Dunal in A. DC.

(tobacco)

Perennial herb; occasional to locally common and widely distributed throughout low elevations, usually in rocky, protected places.

March-June, sometimes in late summer and fall.

Mohave Co: Bagglely (LM), Temple Bar district; Clover (MO), just above Pierce Ferry; Phillips (MNA), Rampart Cave area. Clark Co: Grater (LM), Hemenway Wash, 1225 ft; Leary 256, in Gypsum Wash, just south of North Shore road, 1280 ft; Nickell 526, western slope of the Newberry Mountains, 3500 ft; Holland 95, Bootleg Canyon, River Mountains, 3000 ft.

Physalis crassifolia Benth.

(ground-cherry)

var. crassifolia

Perennial herb; occasional in sand and rocks, usually protected sites, primarily low elevations. March-May.

Mohave Co: Clover (MO), Pierce Ferry; Halse (UNLV), 4 miles upstream from Pierce Ferry, 1250 ft; Leary 1812, at base of a sandstone cliff, Paw's Pocket, Whitmore Canyon, 3900 ft; Clover (MO), Separation Canyon. Clark Co: Grater (LM), Hemenway Wash, 1225 ft; Leary 257, in Gypsum Wash, just south of North Shore road, 1280 ft; Poyser (LM), Quarry Canyon, 1/2 mile northeast of Boulder Beach; Bostick & Holland 353, gravel wash 1 mile north of Red Mountain, 5 miles east of U. S. highway 93, River Mountains, 3000 ft; Holland 1213, rocky area north of state highway 77, 4 miles east of U. S. highway 95, 3000 ft.

Physalis hедераefolia Gray

(ground-cherry)

var. cordifolia (Gray) Waterfall

Perennial herb; occasional on rocky slopes, higher elevations. March-June.

Mohave Co: Holland 1288, in gravels at the bottom of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Holland 1396, in a limestone outcrop, north face of Mt. Dellenbaugh, Shivwits Plateau, 6500 ft; Leary 2240, in loose rocky-clay soil, near head of Green Spring Canyon, Shivwits Plateau, 5900 ft. Clark Co: none.

Physalis lobata Torr.

(ground-cherry)

Perennial herb; occasional in sandy-rocky places, low deserts. March-May.

Mohave Co: none. Clark Co: Rounsaville (UNLV), Roman Wash, 10 miles south of Searchlight; Holland 1034, in sandy soil, Piute Wash and Empire Wash road, 2600 ft.

Solanum americanum Mill.

(nightshade)

Annual; apparently rare in the recreation area, reported from a single locality.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: none.

Solanum elaeagnifolium Cav.

(horse-nettle)

Perennial herb; an occasional weed of disturbed sites. May-July.

Mohave Co: none. Clark Co: Gullion (LM), edge of U. S. highway 95, 7 miles north of Searchlight, 3250 ft.

Solanum triflorum Nutt.

(nightshade)

Annual; reported from the Shivwits Plateau. June-September.

Mohave Co: Holland 724, common in open areas along meadow just north of Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

## SCROPHULARIACEAE

Antirrhinum filipes Gray

(snapdragon)

Annual; occasional but inconspicuous, usually twining within shrubs, low deserts. February-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Holland 385, large gravel wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Niles & Holland 863, in wash gravels with Acacia, Hymenoclea and Bebbia, Eldorado Canyon, 1/2 mile from the Colorado River, 900 ft; Schramm & Holland 1547, 1 mile west of Hiko Spring, along state

highway 77, Newberry Mountains, 2600 ft; Leary 1509, east of Frenchman Mountain, near entrance to recreation area, 1600 ft; Leary 1703, on a limestone ridge northeast of Hamblin Mountain, IMNRA, 2500 ft; Baggle (LM), canyon near Boulder City; Holland 128, entwined in Ambrosia, in a lateral branch of Bootleg Canyon, River Mountains, 2.5 miles northwest of Boulder City, 3000 ft; Leary 36, in a wash running east-west, just south of Spirit Mountain, Newberry Mountains, 2500 ft.

Castilleja chromosa A. Nels.

(paint-brush)

Perennial herb; occasional and conspicuous in flower, rocky slopes from low to mid elevations. April-June.

Mohave Co: Phillips (MNA), Rampart Cave area; Leary 1623, in an overgrazed area 1.5 miles southeast of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: Holland 791, on open hillside with Coleogyne, western exposure of Spirit Mountain, Newberry Mountains, 3200 ft; Holland 121, western exposure of Red Mountain, River Mountains, 3000 ft; Nickell 523, 1/2 mile northeast of the Juniper Mine, Newberry Mountains, 3500 ft; Holland 1190, 1/4 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Castilleja linariaefolia Benth.

(paint-brush)

Perennial herb; occasional in coniferous woodlands, Shivwits Plateau. May-October.

Mohave Co: Holland 318, in limestone, with Pinus, Juniperus and Artemisia, junction of the Mt. Dellenbaugh road and the recreation area boundary, 6000 ft; Holland 1236, 1/2 mile north of Mt. Dellenbaugh fire camp, 6200 ft. Clark Co: none.

Cordylanthus parviflorus (Ferris) Wiggins

(bird's-beak)

Annual; occasional in juniper woodlands, Shivwits Plateau. July-September.

Mohave Co: Holland 726, 20 miles south of Mt. Dellenbaugh fire camp, on road to Kelly Point, 5800 ft. Clark Co: none.

Keckiella antirrhinoides (Benth.) Straw  
ssp. microphylla (Gray) Straw

Shrub; locally common but with a limited distribution in our area. April-May.

Mohave Co: Holland 542, on limestone cliffs, 12 miles east of the Pierce Ferry road, in Grapevine Canyon, 4500 ft. Clark Co: Niles & Holland 525, in a granitic outcrop, southern exposure of Spirit Mountain, Newberry Mountains, 4000 ft; Holland 1135, head of Sacatone Wash, Newberry Mountains, 3600 ft; Swearingen & Holland (UNLV), Christmas Tree Pass, Newberry Mountains, 3800 ft.

Maurandya antirrhiniflora Humb. & Bonpl. ex Willd.

Perennial herb; occasional, usually twining among shrubs. April-May.

Mohave Co: Clover (MO), Separation Canyon, 1/2 mile from the Colorado River. Clark Co: none.

Mimulus bigelovii (Gray) Gray (monkey-flower)

Annual; common during favorable springs, widespread throughout the lower elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Bagglely (LM), in wash along U. S. highway 93, east of Hoover Dam; Grater (LM), Kingman Wash; Meinke & Leary 6, on hillside off road from U. S. highway 93 to Willow Beach resort, 1500 ft. Clark Co: Holland 1614, in coarse gravels, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 1800 ft; Holland 786, mouth of Bridge Canyon, Newberry Mountains, 1800 ft; Leary 1733, in a sandy-rocky wash, north of road in Eldorado Canyon, near entrance to recreation area, 1800 ft.

Mimulus cardinalis Dougl. ex Benth. (crimson monkey-flower)

Perennial; occasional to locally common at seeps and along streams. March-October.

Mohave Co: Bostick 5062, common at Emory Falls, Colorado River, 6 miles up from Pierce Ferry, 1400 ft; Halse (UNLV), 5 miles upstream from Pierce Ferry, 1 mile up from Rampart Cave; Grater (LM), Emory Falls, 1200 ft. Clark Co: none.

Mimulus guttatus Fisch. ex DC. (monkey-flower)  
ssp guttatus

Perennial; occasional to locally common in moist sites throughout the recreation area. March-August.

Mohave Co: Niles & Holland 613, in upper portions of Green Spring Canyon,

5 miles east of Mt. Dellenbaugh, 6000 ft. Clark Co: Holland 1180, Bridge Canyon, 1 mile west of state highway 77, Newberry Mountains, 2400 ft; Nickell 516, 1/2 mile northeast of the Juniper Mine, Newberry Mountains, 3500 ft; Niles & Leary 1936, along the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Mimulus parryi Gray (monkey-flower)

Annual; occasional to locally common, low to mid elevations to the north and east. April-June.

Mohave Co: Niles & Leary 577, open hillsides with Coleogyne, Quail Canyon, 18 miles south of the Utah state line, 4700 ft. Clark Co: none.

Mimulus pilosus (Benth.) Wats. (monkey-flower)

Annual; occasional in moist places. May-August.

Mohave Co: none. Clark Co: Niles & Leary 1938, in moist sand in a pinyon-juniper woodland, along the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Mimulus rubellus Gray in Torr. (monkey-flower)

Annual; occasional in moist places. April-June.

Mohave Co: none. Clark Co: Niles & Leary 1926, beneath granite boulders in pinyon-oak-juniper woodland, along the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Mohavea breviflora Cov.

Annual; occasional on sandy-gravelly slopes, low elevations. March-April.

Mohave Co: Phillips (MNA), Rampart Cave area; Leary 35, on gravelly hillsides, just off road from U. S. highway 93, to Willow Beach resort, 1500 ft; Holland 1645, in coarse gravels, 1/4 mile south of fish hatchery, Willow Beach, 900 ft. Clark Co: Holland 471, in wash gravels, Eldorado Canyon, 1/2 mile from the Colorado River, 850 ft; Grater (LM), Hemenway Wash; Berg 28, Railroad Pass.



Mohavea confertiflora (Benth. in DC.) Heller (ghost-flower)

Annual; occasional in sandy-gravelly washes, low elevations.  
February-April.

Mohave Co: Holland 379, large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Leary 1746, Eldorado Canyon, near entrance to recreation area, 1500 ft; Schramm & Holland 1579, in wash gravels with Hymenoclea, Acacia and Ambrosia, 1 mile southwest of Davis Dam, along state highway 77, eastern exposure of the Newberry Mountains, 800 ft.

Penstemon barbatus (Cav.) Roth. (beard-tongue)

Perennial herb; a variable species, occurring in our area on the Shivwits Plateau. June-October.

Mohave Co: Holland 1414, in wash gravels, floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft; Leary 2253, with Pinus ponderosa and Artemisia tridentata, at the head of Ambush Canyon (Paw's Pocket), Shivwits Plateau, 6000 ft; Holland 699, with Juniperus, Quercus, and Artemisia, 65 miles south of St. George, on road to Mt. Dellenbaugh, 5500 ft. Clark Co: none.

Penstemon bicolor (T.S. Brandeg.) Clokey & Keck (beard-tongue)  
ssp. roseus Clokey & Keck

Perennial herb; occasional as local populations, low elevations. This variety has been proposed for threatened status (Smithsonian Institution, 1975). April-May.

Mohave Co: none. Clark Co: Holland 1239, with Hymenoclea, Chrysothamnus paniculatus and Bebbia, on roadside within the town of Nelson, 3400 ft; Holland 96, in coarse gravel with Larrea and Ambrosia, Bootleg Canyon, River Mountains, 1 mile north of Boulder City, 2800 ft; Leary 1749, at pass west of Nelson, Eldorado Mountains.

Penstemon bridgesii Gray (beard-tongue)

Perennial herb; occasional on rocky slopes, Shivwits Plateau. June-August.

Mohave Co: Reigle & Holland 683, on a south-facing wall at the head of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Leary 2231, on a southwest slope in loose volcanic soil, near the head of Green Spring Canyon, Shivwits Plateau, 5900 ft. Clark Co: none.

Penstemon eatoni Gray

(beard-tongue)

Perennial herb; occasional in one or more varietal forms, primarily at higher elevations. April-July.

Mohave Co: Reigle & Holland 582, on south-facing walls at head of Green Spring Canyon, Shivwits Plateau, 6200 ft; Holland 1260, at the trail head to Sanup Point, Shivwits Plateau, 6000 ft; Leary 2232, on a southwest slope of loose volcanic soil, near head of Green Spring Canyon, Shivwits Plateau, 5900 ft; Leary 1647, in a blackbrush community, 1 mile east of Andrus Point, LMNRA, 4100 ft; Phillips (MNA), Rampart Cave area. Clark Co: Niles & Leary 1932, at water's edge, beneath Quercus dumosa, near head of main fork of the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Penstemon linarioides Gray

(beard-tongue)

Perennial herb; a variable species, found in our area in the higher elevations of the Shivwits Plateau. June-August.

Mohave Co: Reigle & Holland 687, with Pinus ponderosa, 1/2 mile east of the Mt. Dellenbaugh fire camp, 6200 ft; Leary 2233, in loose volcanic soil near the head of Green Spring Canyon, 5900 ft; Leary 2219, in a juniper-sagebrush association, volcanic soil, 1.5 miles north of the summit of Mt. Dellenbaugh, 6700 ft; Niles & Holland 648, 6 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 5500 ft. Clark Co: none.

Penstemon nudiflorus Gray

(beard-tongue)

Perennial herb; uncommon in pine woodlands of the Shivwits Plateau. June-July.

Mohave Co: Leary 2241, at the fire camp north of Mt. Dellenbaugh, 6200 ft; Holland 1414, near the Mt. Dellenbaugh fire camp, 6200 ft. Clark Co: none.

Penstemon pachyphyllus Gray

(beard-tongue)

ssp. congestus (Jones) Keck

Perennial herb; occasional on the Shivwits Plateau. May-June.

Mohave Co: Niles & Holland 658, in a juniper woodland, 5 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 5000 ft; Holland 1259, at the trail head to Sanup Plateau, 1 mile north of Twin Point, 6000 ft. Clark Co: none.

Penstemon palmeri Gray

(beard-tongue)

Perennial herb; occasional to locally common in a variety of sites, low to mid elevations. May-June.

Mohave Co: Leary 2230, occasional in loose volcanic soil on a southeast-facing slope, near the head of Green Spring Canyon, Shivwits Plateau, 5900 ft; Phillips (MNA), Rampart Cave area. Clark Co: Niles & Leary 1908, in a blackbrush-yucca community, 3.1 miles south of Gold Butte, in Cataract Wash, 3450 ft; Brown 63, 2 miles south of Railroad Pass.

Penstemon thompsoniae (Gray) Rydb.

(beard-tongue)

Perennial herb; occasional in coniferous forests, Shivwits Plateau. May-June.

Mohave Co: Niles & Holland 648, 6 miles west of Grassy Mountain, on road to Mt. Dellenbaugh, 5000 ft; Holland 1249, 1/2 mile north of the Sanup Plateau trail head, along the western rim of the Shivwits Plateau, 6000 ft. Clark Co: none.

Penstemon utahensis Eastw.

(beard-tongue)

Perennial herb; apparently occurring in our area only in the Newberry Mountains. April-March.

Mohave Co: none. Clark Co: Holland 1110, just north of Christmas Tree Pass, Newberry Mountains, 3600 ft; Joy 20, Roman Wash, 10 miles south of Searchlight.

## BIGNONIACEAE

Chilopsis linearis (Cav.) Sweet

(desert-willow)

Shrub or tree; common along watercourses at lower elevations. May-August.

Mohave Co: Clover & Jotter (MO), Separation Rapids below Diamond Creek; Bagglely (LM), Willow Beach, 15 miles south of Hoover Dam. Clark Co: Schramm & Holland 1154, in wash gravels with Hymenoclea, Baccharis brachyphylla and Acacia, Empire Wash, 3 miles east of the recreation area boundary, Newberry Mountains, 1600 ft; Nickell 609, 3 miles north of state highway 77, Newberry Mountains, 2400 ft.

## OROBANCHACEAE

Orobanche cooperi (Gray) Heller (broom-rape)

Parasitic perennial herb; occasional at lower elevations. February-May.

Mohave Co: Bostick & Holland 408, on Ambrosia dumosa, large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 700 ft; Holland 1238, on Ambrosia, in area of deep sands, Katherine Landing, 1/4 mile north of ranger station, 700 ft. Clark Co: Schramm & Holland 1565, on Ambrosia, sandy soils, 1 mile southwest of Davis Dam, along state highway 77, eastern exposure of the Newberry Mountains, 800 ft; Holland 1040, in sand, powerline road connecting Empire Wash and Christmas Tree Pass roads, Newberry Mountains, 2800 ft; Leary 1751, parasitic on Acacia, 6.2 miles north of junction of state highway 41 and Lake Mead Boulevard, LMNRA, 1600 ft.

Orobanche fasciculata Nutt. (broom-rape)

Parasitic perennial herb; occasional, mid to high elevations. May-June.

Mohave Co: Leary 2204, on Artemisia, 0.8 mile north of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft; Holland 1269, attached to Artemisia, 2 miles south of main road to Twin Point, Shivwits Plateau, 5800 ft; Niles & Holland 589, on the roots of Artemisia, Wolfhole Lake, 10 miles south of St. George, Utah, 5000 ft. Clark Co: none.

Orobanche multiflora Nutt. (broom-rape)  
var. arenosa (Suksd.) Munz

Parasitic perennial herb; occasional in sandy places, low elevations. May.

Mohave Co: none. Clark Co: Leary 1690, on Ambrosia dumosa in sandy area, north of junction of state highways 40 and 12, near Valley of Fire State Park, 1500 ft.

## PLANTAGINACEAE

Plantago insularis Eastw.  
var. fastigiata (Morris) Jeps.

Annual; common and widespread at low elevations. March-May.

Mohave Co: Meinke & Leary 11, hillsides and washes, along road from U. S. highway 93 to Willow Beach resort, 2000 ft; Phillips (MNA), Rampart Cave area; Grater (LM), in wash gravels, Willow Beach; Clover (MO), 1/2 mile due north of Temple Bar. Clark Co: Gullion (LM), guzzler M-3, 11 miles southwest of Searchlight; Baggley (LM), roadside between Boulder City and Lake Mead; Poyser (LM), Hemenway Wash; Leary 1670, in deep red sand with Larrea, Ambrosia and Hilaria, 3 miles south of Overton, along state highway 12, 1500 ft; Whitney & Holland (UNLV), in a Larrea association, 6 miles east of U. S. highway 95, north of state highway 77, Newberry Mountains, 2500 ft; Mauer (UNLV), Railroad Pass.

Plantago purshii R. & S.  
var. oblonga (Morris) Shinnars

Annual; uncommon to occasional, low to mid elevations. February-May.

Mohave Co: Leary 1642, in an overgrazed area with Juniperus and Artemisia, 1.5 miles south of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft. Clark Co: Niles & Leary 1945, in granitic sand, pinyon-juniper-oak woodland, along semi-permanent stream from Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft; Holland 1654, along state highway 77, 1/2 mile west of Hiko Spring, Newberry Mountains, 2200 ft.

## RUBIACEAE

Galium aparine L. (bedstraw)

Annual; occasional in moist sites. May-June.

Mohave Co: Phillips (MNA), Rampart Cave area. Clark Co: Niles & Leary 1940, in moist sand in shaded areas beneath boulders and shrubs, along the semi-permanent stream of Grapevine Spring, north of Jumbo Peak, Gold Butte area, 4200 ft.

Galium stellatum Kell. (bedstraw)  
ssp. eremicum (Hilend & Howell) Ehrendf.

Perennial herb; occasional to locally common, rocky slopes at lower elevations. March-May.

Mohave Co: Phillips (MNA), Rampart Cave area; Phillips (MNA), Emory Falls Canyon. Clark Co: Niles 875, Atlatl Rock, Valley of Fire State Park, 2000 ft; Holland 488, in a large gravel wash 1 mile east of Railroad Pass,

River Mountains, 2500 ft; Holland 65, in a wash opening to the west, 1.5 miles south of 3-Kids Mine, River Mountains, 2500 ft; Fiero, Meyer & Leary 1778, in a west-facing sandy wash, in Gale Hills conglomerate, Pinto Valley, Black Mountains, LMNRA, 2100 ft; Schramm & Holland 882, in protected areas in canyon above the Anniversary Mine, 2 miles north of West End Wash, 2200 ft; Holland 839, southern exposure, powerline road paralleling state highway 77, Newberry Mountains, 2500 ft.

Galium wrightii Gray

(bedstraw)

Perennial herb; occasional on rocky slopes, Shivwits Plateau. May-June.

Mohave Co: Leary 2237, in a crevice, volcanic rock on a southwest-facing slope, near head of Green Spring Canyon, Shivwits Plateau, 5900 ft.

Clark Co: none.

## CAPRIFOLIACEAE

Symphoricarpos longiflorus Gray

(snowberry)

Shrub; occasional on rocky slopes, mid to high elevations. April-August.

Mohave Co: Holland 542, in north-facing limestone of Grapevine Canyon, 12 miles east of the Pierce Ferry road, in the Grand Wash Cliffs, 4500 ft; Long (LM), near Green Spring, Shivwits Plateau. Clark Co: none.

Symphoricarpos parishii Rydb.

(snowberry)

Shrub; occasional on the Shivwits Plateau. June-August.

Mohave Co: Leary 2235, cliff area near the head of Green Spring Canyon, 5900 ft; Niles & Holland 637, north slope of the Mt. Dellenbaugh summit, 6700 ft. Clark Co: none.

## CUCURBITACEAE

Curcubita palmata Wats.

(gourd)

Perennial herb; occasional, mostly in sand at lower elevations. April-September.

Mohave Co: Clover (MO), Separation Canyon. Clark Co: Niles 1089, bottom of Bridge Canyon, Newberry Mountains, 2300 ft; Nickell 637, 7 miles south of Searchlight, on the alluvial fan of the Newberry Mountains, 2400 ft; Holland 1061, in a large wash 1 mile east of Davis Dam, 1000 ft; Holland 1330, in alluvial gravels with Larrea, Ambrosia and Yucca, along the powerline road paralleling U. S. highway 95, 5 miles west of the Newberry Mountains, 2800 ft.

Marah fabaceus (Naud.) Greene

(wild-cucumber)

var. agrestis (Greene) Stocking

Perennial herb; occasional to locally common, protected sites at low elevations. April-May.

Mohave Co: none. Clark Co: Holland 943, twining in Prosopis, Christmas Tree Pass area, Newberry Mountains, 3500 ft.

## CAMPANULACEAE

Nemacladus glanduliferus Jeps.

var. glanduliferus

Annual; occasional in sandy-gravelly places, low elevations west of the Colorado River. February-May.

Mohave Co: none. Clark Co: Holland 1120a, in coarse gravels, Empire Wash, 1 mile west of Lake Mohave, 1000 ft; Schramm & Holland 1578, in sandy soils with Ambrosia, Encelia frutescens and Croton californica, 1 mile southwest of Davis Dam, along state highway 77, eastern exposure of the Newberry Mountains, 800 ft.

Nemacladus glanduliferus Jeps.  
var. orientalis McVaugh

Annual; occasional in sandy-gravelly places, low elevations east of the Colorado River. February-May.

Mohave Co: Phillips (MNA), Diamond Creek; Phillips (MNA), Rampart Cave area. Clark Co: none.

## ASTERACEAE

Acamptopappus sphaerocephalus (Harv. & Gray) Gray (golden-head)

Shrub; scattered populations throughout the area, below 4000 ft. April-May.

Mohave Co: Phillips (MNA), on lower slopes below Rampart Cave near Lake Mead, 1000-4500 ft. Clark Co: Holland 1042, at base of western exposure of Spirit Mountain, Newberry Mountains, 3600 ft; Holland 503, on low rounded hills at the mouth of Empire Wash, Newberry Mountains, 3000 ft; Holland 177, 1 mile northwest of Railroad Pass, River Mountains, 2300 ft; Leary 1871, in sandy area south of Riverside, 1450 ft; Grater (LM), in red sands, Valley of Fire State Park, 6 miles southwest of Overton.

Agoseris glauca (Pursh) Greene (mountain-dandelion)  
var. parviflora (Nutt.) Rydb.

Perennial herb; occasional with Quercus gambelii on the Shivwits Plateau. June.

Mohave Co: Leary (UNLV), just north of Mt. Dellenbaugh, Shivwits Plateau, 6800 ft; Holland 1274, 1 mile north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Ambrosia acanthicarpa Hook. (sand-bur)

Annual; occasional in sandy soils throughout lower elevations. August-November.

Mohave Co: Holland 260, along the northern park boundary at the head of Whitmore Wash, 4800 ft; Phillips (MNA), low elevations in Peach Springs Wash; Clover & Jotter (MO), Separation Canyon. Clark Co: Holland, in areas of deep sand south of Boulder City, 2200 ft.



Ambrosia dumosa (Gray) Payne

(bur-sage)

Shrub; co-dominant with Larrea throughout most of the recreation area. April-May.

Mohave Co: Phillips (MNA), in all habitats below the rim except seeps; Major 2162, Willow Beach. Clark Co: Holland 1205, dominant species 3 miles west of Lake Mohave in Empire Wash, Newberry Mountains, 1200 ft; Nickell 470, 5 miles east of U. S. highway 95, along state highway 77, southern Newberry Mountains, 2800 ft; Holland 108, 1 mile southwest of Railroad Pass, River Mountains, 2700 ft; Reed 5311, junction of state highway 41 and the North Shore road, 2000 ft; Stanfill 2155, Valley of Fire State Park; James 3487, Juanita Spring, Virgin Mountains, 2300 ft.

Ambrosia eriocentra (Gray) Payne

Shrub; abundant in low desert washes in the southern portions of the recreation area; commonly with Hymenoclea, Acacia and Chrysothamnus. February-May.

Mohave Co: none. Clark Co: Holland 1071, in wash gravels 1/2 mile west of Hiko Spring, Newberry Mountains, 2200 ft; Leary 1919, in granitic sands of a blackbrush community, 3 miles south of Gold Butte, 3450 ft; Nickell 556, western foot of Spirit Mountain, Newberry Mountains, 3200 ft; Holland 504, Empire Wash, northern Newberry Mountains, 1800 ft.

Ambrosia psilostachya DC.

(western ragweed)

Annual; known only from Whitmore Canyon where it occurs in wash gravels with Chrysothamnus nauseosus and Lycium pallidum. July-November.

Mohave Co: Holland 271, 1/4 mile south of the recreation area boundary, in Whitmore Canyon, 4800 ft. Clark Co: none.

Amphipappus fremontii Torr. & Gray

(chaff-bush)

Shrub; common in the low mountains along the northern portions of the recreation area; southern distribution apparently terminating in the Eldorado Mountains area. March-May.

Mohave Co: Phillips (MNA), on the lower slopes and flat shelves on both sides of Lake Mead in the Grand Canyon, 2000 to 2500 ft; Grater (LM), Emory Falls, Grand Canyon, 1200 ft. Clark Co: Holland (UNLV), common on dark exposures of the River Mountains, 2500 ft; Leary 1760, on limestone interface northeast of West End Wash, 1700 ft.

Anisocoma acaulis T. & G.

Annual; found only in dark soils just west of Christmas Tree Pass, Newberry Mountains, 3400 ft. March-April.

Mohave Co: none. Clark Co: Holland 1629, local population 1/2 mile south of the Yellow Stone Mine, Newberry Mountains, 3400 ft; Holland 954, 1/2 mile west of Christmas Tree Pass, Newberry Mountains, 3400 ft; Nickell 49, 5 miles east of U. S. highway 95, on Christmas Tree Pass road, Newberry Mountains, 3500 ft.

Artemisia bigelovii Gray

Shrub; uncommon on the Shivwits Plateau. June.

Mohave Co: Holland 294, 1 mile west of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6000 ft. Clark Co: none.

Artemisia filifolia Torr.

Shrub; known only from a single collection in rocky basalt outcrops in Whitmore Canyon. August-September.

Mohave Co: Holland 283, with Brickellia californica and Dyssodia thurberi, 8 miles north of Whitmore Point, 4000 ft. Clark Co: none.

Artemisia frigida Willd.

(estafiata)

Perennial herb; known from a single collection, but probably more widespread in rocky outcrops on the Shivwits Plateau. June-August.

Mohave Co: Holland 721, in ponderosa pine association along the base of the northern exposure of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft.  
Clark Co: none.

Artemisia ludoviciana Nutt.

ssp. albula (Woot.) Keck

Perennial herb; occasional in moist rocky outcrops above 3500 ft. in the vicinity of Whitmore Canyon. August-September.

Mohave Co: Holland 285, 6 miles north of Whitmore Point, Whitmore Canyon, 2600 ft; Holland 256, 3 miles north of the recreation area boundary in Whitmore Canyon, 3900 ft. Clark Co: none.

Artemisia ludoviciana Nutt.  
ssp. mexicana (Willd.) Keck

Perennial herb; occasional in moist canyons throughout much of the area.  
August-September.

Mohave Co: Phillips (MNA), seeps and side canyons of lower elevations in the Grand Canyon; Phillips (MNA), south rim of the Grand Canyon. Clark Co: Holland, in moist areas of limited exposure in Grapevine Canyon, Newberry Mountains, 2500 ft.

Artemisia ludoviciana Nutt.  
ssp. sulcata Rydb.

Perennial herb; occasional in sandstone and basalt outcrops in the lower portions of Whitmore Canyon. August-September.

Mohave Co: Holland 284, on basalts, 2 miles north of the Whitmore Canyon trail head, 4000 ft. Clark Co: none.

Artemisia tridentata Nutt. (big sagebrush)

Shrub; dominant species in meadows and along the rim of the Shivwits Plateau and Whitmore Point Mesa, 5000-6000 ft. July-September.

Mohave Co: Phillips (MNA), Shivwits Plateau; VanDevender (ARIZ), Peach Springs Wash; Holland, Mt. Dellenbaugh fire camp, common with Chrysothamnus nauseosus. Clark Co: none.

Aster adscendens Lindl. in Hook. (aster)

Perennial herb; common in meadows on the Shivwits Plateau with Artemisia tridentata.

Mohave Co: Holland 1426, in dark clays just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Aster arenosus (Heller) Blake (aster)  
[=A. hirtifolius Blake]

Suffrutescent perennial; reported from the south rim of the Grand Canyon, at elevations ranging from 3000 to 8000 ft. August-September.

Mohave Co: Phillips (MNA), rare on the south rim of the Grand Canyon, 4850 ft. Clark Co: none.

Atrichoseris platyphylla Gray

(gravel-ghost)

Annual; common in gravels throughout the recreation area below 2000 ft.

Mohave Co: Phillips (MNA), 3 miles south of Temple Bar; Phillips (MNA), in seeps, side canyons and on flats at low elevations in the Grand Canyon, 600 to 2000 ft; Holland 394, in wash gravels, 5 miles north of Katherine Landing, 750 ft; Niles 1065, 1 mile west of Willow Beach, 1500 ft.

Clark Co: Leary 1514, on road to gypsum plant east of Frenchman Mountain, 2000 ft; Leary 1792, in sandstone alluvium at Sandstone Spring in Pinto Valley, Black Mountains, 2000 ft; Holland 979, 1/4 mile south of Empire Wash and 1 mile west of Lake Mohave, Newberry Mountains, 800 ft; Holland 463, Cottonwood Cove road, Lake Mead boundary, 1500 ft; Holland 126, 1 mile northeast of Boulder City, River Mountains, 2200 ft; Leary 78, 10 miles east of Henderson, 1200 ft.

Baccharis brachyphylla Gray

Shrub; occasional in wash systems from the River Mountains south, below 3000 ft. October.

Mohave Co: none. Clark Co: Holland 1597, Sacatone Wash where it intersects with the Christmas Tree Pass road, Newberry Mountains, 2600 ft; Holland 1593, Empire Wash, 1 mile east of Camp Thurman, Newberry Mountains, 2400 ft; Holland, washes and canyons, north of Boulder City, River Mountains, 2500 ft; Bostick 5228, extending from McCullough Mountains into washes of Eldorado Valley, 2000 ft.

Baccharis emoryi Gray

Shrub; common in the lower grand Canyon along the shoreline extending into Lake Mead. August-December.

Mohave Co: Phillips (MNA), along the shore and in glens of the Grand Canyon; Martin (ARIZ), 3 miles south of Temple Bar. Clark Co: none.

Baccharis glutinosa Pers.

(seep-willow)

Shrub; common in the lower Grand Canyon and upper shores of Lake Mead; flowering throughout the year.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), moist side canyons in the Grand Canyon, 400 m; Trelease 63, 1/2 mile east of Beaver Dam Wash. Clark Co: Leary 1849, along the Virgin River below Riverside, 1450 ft.

Baccharis sarathroides Gray

(desert-broom)

Shrub; uncommon in shoreline washes at lower elevations. June-October.

Mohave Co: Clover (MO), mile 205, Grand Canyon. Clark Co: Holland 362, 1 mile west of the Las Vegas Wash ranger station, 1600 ft.

Baccharis sergiloides Gray

Shrub; common in washes and seeps along the lower portions of Lake Mohave. April-October.

Mohave Co: Phillips (MNA), in moist seeps and on mud flats along the lakeshore. Clark Co: Holland 1596, Sacatone Wash where it intersects with the Christmas Tree Pass road, Newberry Mountains, 2300 ft.

Baileya multiradiata Harv. & Gray

(desert-marigold)

Perennial herb; common along roadsides and in coarse alluvium throughout the recreation area. Flowering throughout the year.

Mohave Co: Phillips (MNA), on the upper mud flats along the lakeshore; Phillips (MNA), Pierce Ferry; Leary 1661, Crepe Spring, south of Grassy Point, Shivwits Plateau, 4300 ft. Clark Co: Holland 903, in granitic soils 1/4 mile east of Christmas Tree Pass, Newberry Mountains, 3400 ft; Holland 1539, Railroad Pass, 4.5 miles west of Boulder City, 2600 ft; Trelease 15, roadside, 3 miles south of Railroad Pass, 2200 ft; Armstrong 12, Overton; Austin (UNLV), roadside in Eldorado Canyon.

Baileya pleniradiata Harv. & Gray

Annual; common in areas of deep sand, lower elevations throughout the recreation area. March-June.

Mohave Co: Holland (UNLV), in deep sand north of the Katherine ranger station, along Lake Mohave, 700 ft. Clark Co: Holland (UNLV), in sandy area 1 mile southwest of Davis Dam, along state highway 77, Newberry Mountains, 700 ft; Gullion (LM), 5 miles southwest of Boulder City; Alper 17, Valley of Fire State Park, 1800 ft; Grater (LM), Hemenway Wash, 1225 ft; Stay (UNLV), 1 mile east of Boulder City, 2200 ft.

Bebbia juncea (Benth.) Greene

(sweet bush)

Subshrub; common to abundant throughout the desert wash communities below 3000 ft. April-July.

Mohave Co: Phillips (MNA), on rocky areas in dry side canyons on both sides of the Grand Canyon. Clark Co: Holland 1063, in large dry wash 1/2 mile west of Davis Dam, Newberry Mountains, 850 ft; Holland 139, 2 miles north of the turn-off to Hemenway Harbor in the River Mountains, 1300 ft; Bostick 3268, in rocky gorge 2 1/2 miles west of Rogers Spring, Muddy Mountains, 2000 ft; Nickell 600, Hiko Spring Wash and state highway 77, Newberry Mountains, 2400 ft; Bostick 3213, in deep sand at Atlatl Rock, Valley of Fire State Park, 2400 ft.

Brickellia arguta Rob.

[=B. atractyloides Gray]

Shrub; scattered in canyons and on low rocky slopes throughout the recreation area. April-May.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), dry side canyons within the lower Grand Canyon and on the lower rims; Clover (MO), Separation Rapids, Grand Canyon; Grater (LM), rim of Quartermaster Canyon east of Pierce Ferry. Clark Co: Holland 1119, Pipe Springs Canyon, Newberry Mountains, 3200 ft; Leary 1726, wash roadside, in Eldorado Canyon at the LMNRA boundary, 1900 ft; Holland 106, Quarry Canyon 1/2 mile west of the Lake Mead marina, 1650 ft; Niles 1074, rock crevices, Bridge Canyon, Newberry Mountains, 2300 ft.

Brickellia californica (Torr. & Gray) Gray

Shrub; occasional in drainage systems throughout the recreation area. August-October.

Mohave Co: Holland 722, along the walls of Green Spring Canyon, Shivwits Plateau, 6000 ft. Clark Co: Holland (UNLV), in narrow moist canyons of the Newberry Mountains, 3000 ft.

Brickellia coulteri Gray

Shrub; not known from the Lake Mead area, but may occur in the vicinity of the Grand Wash Cliffs. March-November.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash. Clark Co: none.

Brickellia desertorum Cov.

Shrub; common in the canyons of the low mountain ranges throughout the recreation area. August-November.

Mohave Co: Holland (UNLV), mountains along Black Canyon, 800 ft.

Clark Co: Holland 359, in wash gravels 1 mile east of the 3-Kids Mine, along state highway 41, River Mountains, 1800 ft; Holland 287, in narrow canyon 1/2 mile south of Hoover Dam, 700 ft; Bostick 3189, in granite crevices at Keyhole Canyon, Eldorado Mountains, 4500 ft.

Brickellia incana Gray

Shrub; common in wash gravels in the Newberry Mountains, the only known locality within the lower recreation area. This species does not range northward within LMNRA, but has been observed in alluvial gravels south of Eldorado Playa. April-October.

Mohave Co: Grater (LM), Quartermaster Canyon rim, east of Pierce Ferry; Holland (UNLV), 679, 1/2 mile west of the Diamond Bar Ranch, Grand Wash Cliffs, 3500 ft. Clark Co: Holland 1313, in wash gravels at the intersection of Grapevine Canyon and the Christmas Tree Pass road, Newberry Mountains, 2400 ft; Holland 508, Empire Wash, 8 miles west of Lake Mohave, 1800 ft; Nickell 492, 1/4 mile east of Hiko Spring, Newberry Mountains, 2200 ft.

Brickellia longifolia Wats.

Shrub; generally uncommon in the area, in narrow canyons and along the rim of the Shivwits Plateau. September.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), in the dry side canyons and along the lakeshore in the Grand Canyon; Holland 265, floor of Whitmore Canyon, along the northern boundary of the recreation area, 4000 ft; Clover (MO), 2 miles above Columbine Falls, Grand Canyon. Clark Co: Bostick 3173, limestone cliffs in the vicinity of Buffington Pocket, Muddy Mountains, 2800 ft.

Brickellia oblongifolia Nutt.  
var. oblongifolia

Perennial herb; known from a single collection within the recreation area.

Mohave Co: none. Clark Co: Holland 1320, in granitic outcrop on a north-facing slope in pinyon-juniper, 1/2 mile west of Christmas Tree Pass, Newberry Mountains, 3600 ft.

Calycoseris parryi Gray

(yellow tackstem)

Annual; locally common in the Newberry Mountains; apparently restricted to this area. March-May.

Mohave Co: none. Clark Co: Holland 1094, 5 miles east of U. S. highway 95 on the Empire Wash road, western exposure of the Newberry Mountains, 3200 ft; Holland 917, head of Pipe Springs canyon, Newberry Mountains, 3000 ft; Holland 500, Empire Wash, 5 miles west of Lake Mohave, Newberry Mountains, 1800 ft.

Calycoseris wrightii Gray

(white tackstem)

Annual; abundant in alluvial gravels throughout lower elevations. March-May.

Mohave Co: Phillips (MNA), 3 miles south of Temple Bar. Clark Co: Leary 1563, east-facing alluvial fan, with Larrea-Ambrosia, water pumping station, River Mountains, 2000 ft; Holland 967, in wash gravels of Empire Wash, 1 mile west of Lake Mohave, 800 ft; Holland 56, Hemenway Wash, 1 mile northeast of Boulder City, 2200 ft.

Chaenactis carphoclinia Gray

Annual; abundant in areas of desert pavement throughout the lower elevations. March-May.

Mohave Co: Holland (UNLV), on dark slopes from South Cove to Temple Bar. Clark Co: Leary 1752, sandy soils, in areas of wash along the North Shore road, 6 miles northeast of the junction with Lake Mead Boulevard, 1600 ft; Leary 1720, limestone soil on ridge northeast of Hamblin Mountain, Black Mountains, 2700 ft; Holland 972, 1/2 mile south of Empire Wash and 1 mile west of Lake Mohave, Newberry Mountains; Grater (LM), canyon above Hemenway Wash, 1500 ft; Coville (US), valley of the Virgin River near St. Thomas.

Chaenactis douglasii (Hook.) Hook. & Arn.

Annual; known only from the Shivwits Plateau where it occurs in the sagebrush associations. June-July.

Mohave Co: Holland 1248, common in limestone soils 1 mile north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: none



Chaenactis fremontii (Gray)

(Fremont pincushion)

Annual; abundant throughout the recreation area on alluvial slopes and wash gravels. March-May.

Mohave Co: Phillips (MNA), on flat shelves and lower slopes in the Grand Canyon; also at Pierce Ferry; Clover (MO), 1/2 mile north of Temple Bar.

Clark Co: Leary 1475, wash west of the water treatment plant, River Mountains, 1800 ft; Holland 855, confluence of Roman and Empire Washes, in coarse gravels, Newberry Mountains, 3000 ft; Holland 895, along Lake Mohave at the mouth of Grapevine Canyon with Psorothamnus spinosa, Newberry Mountains, 750 ft; Baggley (UNLV), roadside by Hemenway Beach, 1300 ft.

Chaenactis macrantha D.C. Eat.

Annual; uncommon, but populations are widely dispersed along the Nevada side of the river; probably more abundant than these two sites indicate. April-May.

Mohave Co: none. Clark Co: Holland 1657, 1/2 mile east of the recreation area boundary in Empire Wash, Newberry Mountains, 2800 ft; Holland 140, in compact desert pavement on basalt ridge just north of Black Mountain, River Mountains, 3400 ft.

Chaenactis stevioides Hook. & Arn.

Annual; found only in areas of deep sand at the lower elevations along the southern portion of the recreation area. March-May.

Mohave Co: Holland (UNLV), in deep sand just north of the Katherine ranger station, 700 ft. Clark Co: Holland 1852, in sandy soils 1 mile southwest of Davis Dam, Newberry Mountains, 750 ft; Holland 1052, in granitic soils at Christmas Tree Pass along the southern exposure of Spirit Mountain, Newberry Mountains, 3600 ft; Holland 1098, 5 miles east of U. S. highway 95 along the Empire Wash road, western exposure of the Newberry Mountains, 3000 ft.

Chrysopsis villosa (Pursh) Nutt.

(golden-aster)

Perennial herb; uncommon in the recreation area, reported from only a few localities. July-November.

Mohave Co: Holland 671, in weathered sandstone outcrops at the Exxon Mineral Lease site, 1 mile northwest of the Whitmore Canyon trail head, 3500 ft. Clark Co: Leary 1538, in sandstone crevices east of Mouse's Tank, Valley of Fire State Park, 2000 ft.

Chrysothamnus depressus Nutt.

Shrub; occasional with Artemisia on the Shivwits Plateau. August-October.

Mohave Co: Holland 732, 2 miles east of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Phillips (MNA), Shivwits Plateau. Clark Co: none.

Chrysothamnus nauseosus (Pall.) Britton (rabbit-brush)

Shrub; common at the higher elevations of the recreation area, restricted to the area from the Grand Wash Cliffs east. July-October.

Mohave Co: Holland 257, with Encelia, Ephedra and Cowania, 1/4 mile south of the LMNRA boundary in Whitmore Canyon, 4000 ft; Holland (UNLV), dominant species in the drainage paths and meadows, with Artemisia, on the Shivwits Plateau and Whitmore Point, 6000 ft; Phillips (MNA), base of the upper Grand Wash Cliffs. Clark Co: none.

Chrysothamnus paniculatus (Gray) Hall

Shrub; common to dominant in the riparian communities of lower elevations. June-December.

Mohave Co: Holland 262, dominant on the floor of Whitmore Wash, 2 miles north of the recreation area boundary, 4800 ft; Holland (UNLV), on the floor of the wash just west of the Exxon Mineral Lease site in Whitmore Canyon, 3500 ft. Clark Co: Holland 1612, at the intersection of Sacatone Wash and the Christmas Tree Pass road, Newberry Mountains, 2300 ft; Holland 1601, in coarse gravels in Empire Wash, 1/4 mile north of Empire Mine, Newberry Mountains, 2400 ft; Holland 1590, with Hymenoclea, Bebbia and Petalonyx in Hemenway Wash, 2 miles northeast of Boulder City, 2000 ft; Coville (US), mouth of Las Vegas Wash.

Chrysothamnus teretifolius (Dur. & Hilg.) Hall

Shrub; uncommon in the recreation area, known only from the River Mountains. September-November.

Mohave Co: none. Clark Co: Holland 1592, one plant found along U. S. highway 93, 2 miles west of Boulder City, 2400 ft; Holland 364, 1/4 mile west of the summit of Black Mountain in a narrow canyon at the LMNRA boundary, 3200 ft.

Chrysothamnus vicidiflorus (Hook.) Nutt.

Shrub; occasional, reported only from Whitmore Canyon, but probably more widespread. September-November.

Mohave Co: Holland (UNLV), in weathered sandstone at the Exxon Mineral Lease site, 1 mile northwest of the trail head, Whitmore Canyon, 3500 ft. Clark Co: none.

Cirsium arizonicum (Gray) Petrak (thistle)

Biennial; occasional, with Artemisia tridentata, in clay soils on the Shivwits Plateau; more common than this single collection indicates. May-October.

Mohave Co: Holland 745, 3 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Cirsium neomexicanum Gray (thistle)

Biennial; common in washes throughout the recreation area; one of the few species to occur both in the low mountains around Lake Mead and on the Shivwits Plateau. April-May.

Mohave Co: Leary 1828, in sandstone just north of Can Spring, Shivwits Plateau, 3300 ft; Holland 734, in rocky basalt soils, 2 miles east of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland 740, in limestone 3 miles northwest of the Mt. Dellenbaugh fire camp at the Twin Point turn-off, Shivwits Plateau, 6200 ft; Holland (UNLV), in Grapevine Canyon near the Diamond-bar Ranch in the Grand Wash Cliffs, 3500 ft. Clark Co: Leary 1691, in saline soils with Atriplex and Distichilis at Blue Point Spring, 1900 ft; Leary (UNLV), at spring west of Juanita Spring, Gold Butte area, 2000 ft; Holland 1111, head of Sacatone Wash 1/2 mile south of Spirit Mountain, Newberry Mountains, 3400 ft; Convis (LM), in gravel wash along the west end of the Valley of Fire; Nickell 73, 1 mile west of state highway 77 in Bridge Canyon, Newberry Mountains, 2800 ft.

Cirsium pulchellum (Greene) Woot. & Standl. (thistle)

Biennial; uncommon on the Plateau, only reported from a single locality. June-September.

Mohave Co: Holland 1676, locally abundant with Artemisia tridentata, Eriogonum alatum and Frasera albomarginata at the Twin Point turn-off, Shivwits Plateau, 6000 ft. Clark Co: none.

Cirsium undulatum (Nutt.) Spreng. (thistle)

Perennial herb; reported from a single collection in the lower Grand Canyon in 1944; intensive collecting has not relocated this species. July-September.

Mohave Co: Clover (MO), Emory Falls (Columbine Falls) on Lake Mead.  
Clark Co: none.

Conyza canadensis (L.) Cronq. (horseweed)

Annual; a weed species, adventive throughout our area. June-September.

Mohave Co: Holland (UNLV), in the large open meadow just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland (UNLV), in developed areas at Willow Beach, 700 ft. Clark Co: Holland 1589, common weed around the edge of the Boulder City golf course, 2200 ft.

Crepis intermedia Gray (hawks-beard)

Perennial herb; found in a single locality but expected to be more common in association with Quercus gambelii on the Plateau. June-August.

Mohave Co: Leary 2209, in oak thicket 1/4 mile west of the summit of Mt. Dellenbaugh, Shivwits Plateau, 6700 ft. Clark Co: none.

Dicoria canescens T. & G.  
ssp. canescens

Annual; locally abundant in areas of blow sand. Not presently known from LMNRA but collected in a contiguous area. September-January.

Mohave Co: none. Clark Co: Holland 1600, in sandy soils south of Boulder City, 2200 ft.

Dyssodia acerosa DC.

Perennial herb; local populations on the Colorado Plateau within the recreation area boundary. April-October.

Mohave Co: Leary 2154, flat area 1 mile east of Vulcans Throne, Grand Canyon National Park, 4600 ft; Holland (UNLV), abundant species at the Exxon Mineral Lease site, in the crevices of weathered sandstone in Whitmore Canyon, 3500 ft. Clark Co: none.

Dyssodia cooperi Gray

Perennial herb; common in wash gravels from the River Mountains south. May-October.

Mohave Co: Holland (UNLV), in wash 5 miles north of Katherine Landing, 700 ft. Clark Co: Holland 1511, in disturbed roadside gravels along U. S. highway 93, 1 mile north of Railroad Pass, River Mountains, 2700 ft; Holland 1214, in roadside gravels along state highway 77, Newberry Mountains, 2700 ft; Joy 4, Roman Wash, Newberry Mountains.

Dyssodia pentachaeta (DC.) Rob.

Perennial herb; uncommon in the Lake Mead area, known from only a few localities. March-October.

Mohave Co: Phillips (MNA), on dry slopes in the Grand Canyon. Clark Co: Leary 845, in Larrea-Ambrosia community on an east-facing ridge northwest of Lava Butte, 2500 ft.

Dyssodia porophylloides Gray

Perennial herb; occasional in the more southern portions of the area. March-June.

Mohave Co: Phillips (MNA), in dry side canyons in the Grand Canyon and on the rim, 1475 m. Clark Co: Leary 1729, east-facing ridgetop at the entrance to the recreation area in Eldorado Canyon, 1900 ft; Holland 1215, occasional in granitic outcrops 4 1/2 miles east of U. S. highway 95 on state highway 77, Newberry Mountains, 2800 ft.

Dyssodia thurberi (Gray) A. Nels.

Perennial herb; common roadside species, mostly in the northern portions of the area. April-October.

Mohave Co: Leary 1645, on southern exposures on limestone cliff area south of Cane Spring near Grassy Point along road to Mt. Dellenbaugh, 5200 ft; Holland 282, on massive lava flow in Whitmore Canyon, 2 miles north of the rim, 4800 ft; Phillips (MNA), on flat shelves and near the lakeshore, in the Grand Canyon; Grater (LM), Pierce Ferry airport. Clark Co: Leary 1515, roadside at the junction of Lake Mead Boulevard and the road to the gypsum plant, 2000 ft; Bostick 3367, Atlatl Rock, Valley of Fire State Park, 2000 ft.

Encelia farinosa Gray ex Torr.  
var. farinosa

(brittle-bush)

Shrub; common and widespread throughout the southern portion of the recreation area; often the dominant species on warm south-facing slopes. March-May.

Mohave Co: VanDevender (ARIZ), low elevations in Peach Springs Wash; Phillips (MNA), in all habitats below the rim in the Grand Canyon; Phillips (MNA), Pierce Ferry; Leary 68, in wash gravels beneath south-facing slope just below the Willow Beach turn-off from U. S. highway 93, 1200 ft; Clover (MO), 1/2 mile north of Temple Bar; Clover (MO), Separation Rapids. Clark Co: Holland 101, in washes and on roadsides 1/2 mile southwest of the Las Vegas Wash ranger station, River Mountains, 1400 ft; Leary 1464, on slopes with Ambrosia dumosa, west of the water treatment plant, River Mountains, 1800 ft; Covis (LM), entrance to the Valley of Fire, Overton District; Bostick 3322, Eldorado Canyon, 2500 ft; Alper 4, U. S. highway 95 in the vicinity of Railroad Pass.

Encelia farinosa Gray ex Torr.  
var. phenicodonta (Blake) Jtn.

(brittle-bush)

Perennial herb; scattered local populations in the lower elevations.

Mohave Co: none. Clark Co: Niles 1298, with the typical variety, east-facing rocky hillside, Davis Dam, 800 ft.

Encelia frutescens Gray  
var. frutescens

Shrub; common in areas of deep sand along the lower extension of the recreation area.

Mohave Co: Leary 1815, in sedimentary alluvium in large wash at Paw's Pocket, Whitmore Canyon, 3900 ft; Phillips (MNA), Ash Seep, mile 268. Clark Co: Holland 1216, in granitic outcrops 4 1/2 miles east of U. S. highway 95 along state highway 77, Newberry Mountains, 2800 ft; Holland 909, in sandy soils, 1 mile southwest of Davis Dam, Newberry Mountains, 800 ft; Holland 465, in moist soils at the water storage tank, 2 miles west of Cottonwood Cove, 1500 ft.

Encelia virginensis A. Nels.  
ssp. virginensis

Shrub; common on dark rolling hills southern extension of the recreation area. April-November.

Mohave Co: Holland (UNLV), on igneous substrates in the vicinity of Willow Beach, 800 ft. Clark Co: Holland 1531, in coarse gravels at the junction of the Christmas Tree Pass road and state highway 77, Newberry Mountains, 2000 ft; Holland 929, at the head of Pipe Springs Canyon 1.5 miles north of the Christmas Tree Pass road, Newberry Mountains, 3000 ft; Holland 348, in Quarry Canyon, 1 mile west of the Lake Mead marina, River Mountains, 1600 ft; Holland 152, in wash gravels 1/2 mile east of Railroad Pass, River Mountains, 2500 ft.

Enceliopsis argophylla (D.C. Eat.) A. Nels.  
var. grandiflora (Jones) Jeps.

Perennial herb; occasional, restricted to gypsum soils of the Muddy Creek formation, extending within the recreation area from Las Vegas to Overton Beach. April-June.

Mohave Co: none. Clark Co: Leary 1507, junction of Lake Mead Boulevard and road to gypsum plant, 2000 ft; Leary 67, roadside, 8 miles east of Henderson on state highway 41, 1200 ft; Holland 179, in gypsiferous substrate 7 miles east of Henderson on the northern edge of the River Mountains, 1300 ft; Austin 165, Echo Bay, LMNRA, Berg 2122, 1 mile from Lake Mead in Hemenway Wash; Coville (US), in gypsum cliffs in Las Vegas Wash.

Erigeron divergens Torr. & Gray (fleabane)

Perennial herb; common in local populations at higher elevations throughout the recreation area. March-November.

Mohave Co: Leary 2198, near the fire camp north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Leary 2234, in clay pockets in the bottom of Green Spring Canyon, Shivwits Plateau, 5900 ft; Holland 1270, in clay soils with Pinus ponderosa, 3 miles north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland 1278, on south-facing slopes of Mt. Dellenbaugh, Shivwits Plateau, 6500 ft; Holland 622, in clay soils at the rim of Green Spring Canyon, Shivwits Plateau, 6200 ft; Holland 544, in roadside gravels at the junction of U. S. highway 93 and the road to Pierce Ferry, 3000 ft. Clark Co: Holland 1078, junction of road to Cottonwood Cove and U. S. highway 95, in Searchlight, 3600 ft.

Erigeron lobatus Nels. (fleabane)

Annual; uncommon, reported in the area only from the lower Grand Canyon. February-May.

Mohave Co: Phillips (MNA), in protected areas in side canyons of the Grand Canyon; Clover (MO), Separation Canyon. Clark Co: none.

Erigeron pumilus Nutt. (fleabane)  
ssp. concinoides Cronq.

Perennial herb; occasional at higher elevations throughout the recreation area. April-May.

Mohave Co: Leary 1624, with Artemisia south of Crepe Spring on Grassy Point, Shivwits Plateau, 5500 ft; Phillips (MNA), scattered on the Shivwits Plateau, 1475 m; Holland 1254, 5 miles south of the recreation area boundary on the road to Twin Point, Shivwits Plateau, 6000 ft; Holland 306, with Artemisia and Chrysothamnus at the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Leary 1900, on an east-facing limestone slope at Tramp Point, Paradise Gap, Gold Butte area, 4000 ft; Holland 1160, on northern exposures with Pinus monophylla, 1 mile west of Christmas Tree Pass, Newberry Mountains, 4500 ft.

Erigeron utahensis Gray (fleabane)

Perennial herb; occasional to common at higher elevations of the recreation area. May-June.

Mohave Co: Leary 2213, summit of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft; Leary 2150, in weathered sandstone boulders 2 miles south of the Tuweep ranger station, 4800 ft; Holland (UNLV), in sandstone at the Exxon Mineral Lease Site, Whitmore Canyon, 3500 ft. Clark Co: none.

Eriophyllum lanosum (Gray) Gray

Annual; common and locally abundant in the coarse wash gravels throughout the creosotebush association of the recreation area. February-May.

Mohave Co: Holland 402, in large gravel wash 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), on shelves and lower slopes in dry side canyons in the Grand Canyon and at Pierce Ferry. Clark Co: Leary 1552, in wash with Hymenoclea, east-facing alluvial fan of volcanic soil, near the water pumping station, River Mountains, 2000 ft; Holland 1027, in Empire Wash, 3 miles west of Lake Mohave, Newberry Mountains, 1200 ft; Holland 159, sandy soils, 8 miles east of Henderson on state highway 41, River Mountains, 1200 ft; Coville (US), in the Valley of the Virgin River near St. Thomas.

Eriophyllum wallacei Gray

Annual; abundant in coarse wash gravels throughout the creosotebush association of the Lake Mead area. March-May.

Mohave Co: Phillips (MNA), on lower slopes and in dry side canyons of the



Grand Canyon, and at Pierce Ferry; Holland (UNLV) in gravels 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 1087, with Acacia and Hymenoclea in Empire Wash, 1/2 mile east of U. S. highway 95, Newberry Mountains, 2600 ft; Holland 907, with Baccharis brachyphylla in Empire Wash at the recreation area boundary, Newberry Mountains, 2800 ft; Nickell 593, in wash by Hiko Spring, Newberry Mountains, 2400 ft; Holland 458, 1/2 mile east of the LMNRA boundary along the road to Cottonwood Cove; 1500 ft; Harris 34, 3 miles east of Nelson on the Eldorado Canyon road, 2100 ft.

Filago californica Nutt.

Annual; known only from the lower Grand Canyon, not reported from the open Lake Mead habitat. March-June.

Mohave Co: Phillips (MNA), in dry sandy washes at lower slopes below Rampart Cave, 375 m. Clark Co: none.

Filago depressa Gray

Annual; common and widespread throughout the lower elevations of the recreation area. Although there are no collections from Mohave County, it should be expected in the alluvial gravels along Lake Mohave. February-May.

Mohave Co: none. Clark Co: Holland 1558, in coarse gravels 1 mile north of Hiko Spring along state highway 77, Newberry Mountains, 2600 ft; Holland 1032, in Empire Wash 1/4 mile east of the recreation area boundary, Newberry Mountains, 3000 ft; Holland 459, in large gravel wash 1/2 mile west of the LMNRA boundary on the road to Cottonwood Cove, 2000 ft.

Gaillardia parryi Greene

Perennial herb; locally abundant on the Arizona Strip and listed only because of its rarity. May-June.

Mohave Co: Leary 2170, in sparse pinyon-juniper along Mt. Dellenbaugh road in Mokaac Wash, north of Segmiller Mountain, 4200 ft; Holland 1300, in Quail Canyon 18 miles south of St. George, Utah on the road to Mt. Dellenbaugh, 4800 ft. Clark Co: none.

Gaillardia pinnatifida Torr.

Perennial herb; uncommon in sedimentary substrates at higher elevations, only reported from Lake Mead in Whitmore Canyon. May-June.

Mohave Co: Leary 1841, in gypsum outcrop with Artemisia at the north end of Whitmore Canyon, 4300 ft; Holland 1293, in clay soils south of St. George on road to Mt. Dellenbaugh, on the Arizona strip, 2700 ft.  
Clark Co: none.

Geraea canescens T. & G.

(desert gold)

Annual; common and widespread throughout the recreation area, mostly in sandy soils. March-May.

Mohave Co: Baggle (LM), Willow Beach, 15 miles south of Hoover Dam; Clover (MO), Virgin Basin, 5 miles northeast of Middepoint. Clark Co: Leary 1546, in sandy soils at the entrance to the Valley of Fire State Park, 2000 ft; Leary 1682, 3 miles south of Overton, 1300 ft; Holland 915, in sandy soils 1 mile southwest of Davis Dam along state highway 77, Newberry Mountains, 800 ft; Holland 138, 1 mile south of the Las Vegas Wash ranger station along state highway 41, River Mountains, 1300 ft; Grater (LM), Hemenway Wash, 1225 ft; Coville (US), Valley of the Virgin River.

Glyptopleura marginata D. C. Eat.

Annual; apparently rare, known from two localities along the western boundary of the recreation area.

Mohave Co: none. Clark Co: Holland 1223, in coarse wash gravels, 1/2 mile east of U. S. highway 95 on the Empire Wash road, Newberry Mountains, 2600 ft; Niles 1297, a few scattered plants, northwest portion of Eldorado Playa, Eldorado Valley, 1700 ft.

Gnaphalium chilense Spreng.

(everlasting)

Biennial; restricted to springs and seeps along the lower Colorado River. June-October.

Mohave Co: none. Clark Co: Holland 1437, in canyon bottom, 1/4 mile west of the petroglyphs in Grapevine Canyon, Newberry Mountains, 2600 ft; Nickell 633, bottom of Bridge Canyon, 2 miles west of state highway 77, Newberry Mountains, 2800 ft.

Gnaphalium palustre Nutt.

(everlasting)

Annual; reported from a single locality. April-October.

Mohave Co: Phillips (MNA), found at one location on Lake Mead mud flats near Evan's Heaven (mile 271). Clark Co: none.

Gnaphalium wrightii Gray

(everlasting)

Perennial herb; reported from two localities in Lake Mead but probably more common. Flowering throughout the year.

Mohave Co: Phillips (MNA), on Lake Mead mud flats in lower portions of the Grand Canyon. Clark Co: Holland 1542, in moist gravels below seep along southwest exposure of Spirit Mountain, Newberry Mountains, 3400 ft.

Grindelia squarrosa (Pursh) Dunal.

(gum-plant)

Biennial; a recent introduction into the Lake Mead area, apparently not common at this time. July-September.

Mohave Co: Holland, along U. S. highway 93 at the LMNRA boundary just south of the turn-off to Willow Beach, 2000 ft. Clark Co: none.

Gutierrezia microcephala (DC.) Gray  
[=G. lucida Greene]

(snake-weed)

Perennial herb; scattered throughout the recreation area, usually at the higher elevations with Coleogyne and Artemisia, less commonly in the Larrea association. July-October.

Mohave Co: Phillips (MNA), in all habitats in the Grand Canyon except glens; Holland 272, in wash 1/4 mile south of LMNRA boundary in Whitmore Canyon, 4000 ft; Holland (UNLV), in pinyon-juniper association on the Shivwits Plateau, 6200 ft. Clark Co: Holland 1607, in wash gravels at the intersection of Sacatone Wash and the Christmas Tree Pass road, Newberry Mountains, 2300 ft.

Gutierrezia sarothrae (Pursh) Britt. & Rusby

(snake-weed)

Perennial herb; common and widespread throughout the recreation area. May-October.

Mohave Co: Holland 267, with Chrysothamnus paniculatus 3 miles north of the recreation area boundary in Whitmore Canyon, 4200 ft; Holland 276, 1/4 mile south of the recreation area boundary in heavily grazed area

with Lycium pallidum, in Whitmore Canyon, 4000 ft. Clark Co: Holland 358, in wash gravels 1 mile east of the 3-Kids Mine along state highway 41, River Mountains, 1800 ft; Nickell 496, in rock wash at the southern toe of Spirit Mountain, Newberry Mountains, 4200 ft.

Haplopappus acradenius (Greene) Blake

Shrub; found in alkaline soils around seeps or springs, also in the lower Grand Canyon. August–November.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), in side canyons and near the lakeshore below Rampart Cave; Clover (MO), Separation Rapids. Clark Co: Holland (UNLV), in moist soils surrounding Rogers Spring, along the base of the Muddy Mountains, 3 miles northwest of Echo Bay, 1000 ft.

Haplopappus cooperi (Gray) Hall

Shrub; found only at one locality within LMNRA. May.

Mohave Co: none. Clark Co: Holland 1209, in wash gravels along the Christmas Tree Pass road 1/2 mile east of U. S. highway 95, western exposure of the Newberry Mountains, 2800 ft.

Haplopappus cuneatus Gray

Shrub; known only from protected granitic outcrops of the Newberry Mountains. September–November.

Mohave Co: none. Clark Co: Holland 1606, 1 mile southeast of Christmas Tree Pass, Newberry Mountains, 3400 ft; Nickell 495, western slope of Spirit Mountain, Newberry Mountains, 4400 ft.

Haplopappus gooddingii (A. Nels.) M. & J.

Perennial herb; common on rocky outcrops throughout the lower elevations of the recreation area. February–May.

Mohave Co: Phillips (MNA), at all locations within the Grand Canyon below the rims except seeps; Grater (LM), Willow Beach, 600 ft; Clover (MO), Lake Mead, above Pierce Ferry; Clover (MO), 2 miles above Emory Falls on Lake Mead. Clark Co: Leary 1702, on north-facing limestone slope northeast of Hamblin Mountain, Black Mountains, 2400 ft; Holland 1053, in rocky outcrops at the junction of the Christmas Tree Pass road and state highway 77, Newberry Mountains, 1800 ft; Holland 98, 1 1/2 miles south

of the 3-Kids Mine in large wash, River Mountains, 2400 ft; Bostick 3270, 2.5 miles west of Rogers Spring, Muddy Mountains, 2000 ft; Bostick 3327, Black Mountain, west of Cottonwood Cove along Lake Mohave, Eldorado Mountains, 1800 ft; Nickell 468, in Bridge Canyon, 1 1/2 miles west of state highway 77, Newberry Mountains, 2400 ft; Fisher 450, end of road at Duck Rock, Valley of Fire State Park, 2500 ft; Grater (LM), canyon above Hemenway Wash, 1800 ft; Baggle (LM), Quarry Canyon, 1/2 mile northeast of Boulder Beach.

Haplopappus gracilis (Nutt.) Gray

Annual; widespread, mostly at higher elevations of the recreation area. April-October.

Mohave Co: Leary (UNLV), in overgrazed meadow at boundary of LMNRA in Whitmore Canyon, 4000 ft; Holland 256, in wash of red sand 2 miles north of the recreation area boundary, Whitmore Canyon, 4800 ft; Holland, common in roadside gravels at the junction of U. S. highway 93 and the road to Pierce Ferry, 3000 ft. Clark Co: none.

Haplopappus laricifolius Gray

(turpentine-brush)

Shrub; uncommon, found in the low mountains of the southern portion of the recreation area. September-October.

Mohave Co: none. Clark Co: Holland 1598, locally abundant on granitic outcrop, 1/2 mile west of Grapevine Canyon along the Christmas Tree Pass road, Newberry Mountains, 4000 ft; Holland 1594, with Baccharis brachyphylla, at the intersection of Sacatone Wash and the Christmas Tree Pass road, Newberry Mountains, 2300 ft; Holland (UNLV), roadside along U. S. highway 93, 2 miles west of Boulder City, southern exposure of the River Mountains, 2400 ft.

Haplopappus linearifolius DC.

Shrub; locally common in granitic outcrops in the Newberry Mountains and in limestone of the Grand Wash Cliffs. April-May.

Mohave Co: Holland (UNLV), vicinity of the Diamond Bar Ranch in Grapevine Canyon, Grand Wash Cliffs, 3500 ft; VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), north rim of the Grand Canyon on the Sanup Plateau, 1475 m. Clark Co: Holland 892, 1/2 mile east of Christmas Tree Pass in Sacatone Wash, Newberry Mountains, 3400 ft; Nickell 509, eastern exposure of the Newberry Mountains, 2 miles east of Christmas Tree Pass, 4000 ft; Gullion (LM), 7 miles northeast of Searchlight near the Davis Dam powerline tower 30/3, 3400 ft.

Helianthus annuus L. (sunflower)

Annual; common in agricultural areas. July-October.

Mohave Co: none. Clark Co: Holland (UNLV), along the Moapa River, 1000 ft.

Helianthus ciliaris DC. (sunflower)

Annual; occasional, known from a few localities, but probably more common. June-November.

Mohave Co: Holland 704, in the open meadow north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Holland (UNLV), base of the River Mountains, 1 mile west of Boulder Beach, 1500 ft.

Heterotheca subaxillaris (Lam.) Britt. & Rusby (telegraph weed)

Annual; known from a single locality just west of the recreation area boundary. June-July.

Mohave Co: none. Clark Co: Holland 1430, in roadside gravels 5 miles east of U. S. highway 95, on state highway 77, Newberry Mountains, 2800 ft; Nickell 472, east of U. S. highway 95 on state highway 77, Newberry Mountains, 2800 ft.

Hymenoclea salsola T. & G. (burrow-brush)  
var. pentalepis (Rydb.) L. Benson

Shrub; uncommon, known only from Mohave County. February-April.

Mohave Co: Phillips (MNA), 3 miles south of Temple Bar. Clark Co: none.

Hymenoclea salsola T. & G. (burrow-brush)  
var. salsola

Shrub; abundant in desert wash systems throughout the low elevations of the recreation area. March-June.

Mohave Co: Holland 381, in large gravel wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft; Phillips (MNA), near the lakeshore at Pierce Ferry, not found within the Grand Canyon; Baggle (LM), abundant in wash to Willow Beach. Clark Co: Holland 83, in Bootleg Canyon, 2 miles northwest of Boulder City, River Mountains, 2800 ft; Nickell 512, 1/2 mile west of Juniper Mine, western foothills of the Newberry Mountains, 3600 ft; Gullion (LM), in full sunlight, Hemenway Wash, Lake Mead; Ives (US), Black Canyon.

Hymenopappus lugens Greene

Perennial herb; common and widespread on the Shivwits Plateau.  
May-September.

Mohave Co: Leary 2201, near the summit of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft; Holland 656, with Pinus ponderosa in clay-rich soils at the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft; Holland 636, with Artemisia in open areas north of the fire camp, Shivwits Plateau, 6200 ft; Long (LM), near Twin Point, Shivwits Plateau, 6000 ft. Clark Co: none.

Hymenoxys acaulis (Pursh)  
var. arizonica (Greene) Parker

Perennial herb; known from a single locality on the Shivwits Plateau, but probably more widespread. April-October.

Mohave Co: Holland 1239, in pinyon-juniper 1 mile north of Twin Point near trail to Sanup Plateau, Shivwits Plateau, 6000 ft. Clark Co: none.

Hymenoxys cooperi (Gray) Cockerell

Biennial; common in pinyon-juniper association on the Shivwits Plateau.  
May-June.

Mohave Co: Leary 2202, with Quercus near the summit of Mt. Dellenbaugh, Shivwits Plateau, 6900 ft; Holland 1266, in limestone soils with Eriogonum simpsonii and Polygala subspinoso, 1 mile north of Twin Point, Shivwits Plateau, 6000 ft. Clark Co: none.

Hymenoxys richardsonii (Hook.) Cockerell  
var. floribunda (Gray) Parker

Perennial herb; common in pinyon-juniper-sagebrush associations on the Shivwits Plateau. June-September.

Mohave Co: Leary 2148, in Mokaac Wash, north of Segmiller Mountain, 20 miles south of St. George, Utah, 4200 ft; Holland 598, 4 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: none.

Lactuca serriola L.

(wild lettuce)

Annual; a common weed in agricultural areas and in lawns. May-September.

Mohave Co: Grater (LM), open wash near the rim of Quartermaster Canyon; Holland, in irrigated areas at Willow Beach, 800 ft. Clark Co: Holland (UNLV), along the agricultural areas in Overton, 1000 ft.

Laphamia congesta Jones

Perennial herb; common, mostly in limestone outcrops on the Shivwits Plateau, especially along the rim. June-October.

Mohave Co: Leary 1809, in sandstone cliff with Cheilanthes feei at Paw's Pocket, east of Whitmore Canyon, 3900 ft; Holland 678, in Grapevine Canyon, Grand Wash Cliffs, 5 miles northeast of the Diamond Bar Ranch, 4700 ft; Holland 612, with Quercus at the summit of Mt. Dellenbaugh, Shivwits Plateau, 6750 ft. Clark Co: none.

Layia glandulosa (Hook.) Hook. & Arn.

Annual; uncommon in scattered localities within the recreation area. March-June.

Mohave Co: Grater (LM), Twin Canyon. Clark Co: Blake (UNLV), in pinyon-juniper 1 mile west of Christmas Tree Pass, Newberry Mountains, 4000 ft; Gullion (LM), junction of state highway 60 with U. S. highway 95, north of Searchlight, 2900 ft.

Leucelene ericoides (Torr.) Greene

Perennial herb; common in limestone with Artemisia on the Shivwits Plateau. April-June.

Mohave Co: Leary 1587, on east-facing slope south of Cupe Spring, Grassy Point, Shivwits Plateau, 5500 ft; Holland 1243, Twin Point, 14 miles southwest of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Lygodesmia exigua Gray

Annual; widely distributed but never abundant. March-May.

Mohave Co: Holland (UNLV), 5 miles north of Katherine Landing, in coarse gravels, 800 ft. Clark Co: Leary 1768, on north slope of limestone ridge, northeast of junction of North Shore road and West End Wash, Muddy



Mountains, 2500 ft; Leary 1700, on ridge northeast of Hamblin Mountain, Black Mountains, 3200 ft; Holland 981, 1 mile west of Lake Mohave in Empire Wash, Newberry Mountains, 800 ft; Holland (UNLV), at the water pumping station 1 1/2 miles northwest of the Lake Mead marina, River Mountains, 2000 ft.

Machaeranthera canescens (Pursh) Gray

Biennial; uncommon in pinyon-juniper on the Shivwits Plateau. July-October.

Mohave Co: Holland 717, in clay soils at Mt. Dellenbaugh, Shivwits Plateau, 6200 ft. Clark Co: Coville (US), near St. Thomas (the type locality).

Machaeranthera leucanthemifolia (Greene) Greene

Annual; occasional in the River Mountains and generally in washes at lower elevations. April-June.

Mohave Co: none. Clark Co: Schreiweis (UNLV), in deep gully in red sand along state highway 41 near turn-off to Lake Mead marina, River Mountains, 2000 ft; Holland (UNLV), on disturbed gravels at the water pumping station, 1 mile northwest of the Lake Mead marina, 2000 ft.

Machaeranthera tephrodes (Gray) Greene

Biennial; reported from a single locality on the Plateau, but probably more widespread. September-December.

Mohave Co: Holland 1412, floor of Green Spring Canyon, 5 miles east of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Machaeranthera tortifolia (Gray) Cronq. & Keck

Perennial herb; common throughout the low elevations of the Lake Mead region. March-May.

Mohave Co: Phillips (MNA), in dry side canyon bottoms within the Grand Canyon; Baggley (LM), Temple Bar. Clark Co: Leary 1545, entrance to the Valley of Fire State Park, 2000 ft; Holland 986, with Acamptopappus at the confluence of Roman and Empire Washes, Newberry Mountains, 2800 ft; Holland 834, in roadside gravels along state highway 77 between Bridge Canyon and Hiko Spring, Newberry Mountains, 2800 ft; Nickell 107, junction of state highway 77 and Bridge Canyon, Newberry Mountains, 2300 ft.

Malacothrix coulteri Gray

(snake's-head)

Annual; rare in wash gravels at the low elevations along the southern portion of the recreation area. March-May.

Mohave Co: none. Clark Co: Holland 987, with Coleogyne and Acamptopappus, 5 miles east of U. S. highway 95 on the Empire Wash road, Newberry Mountains, 3200 ft; Holland 134, in wash gravels in areas of southern exposure in Bootleg Canyon, River Mountains, 3000 ft; Niles 1070, 1 plant on the bottom of Bridge Canyon, Newberry Mountains, 2500 ft.

Malacothrix glabrata Gray

(desert-dandelion)

Annual; common and widespread throughout the lower elevations of the recreation area. March-June.

Mohave Co: Phillips (MNA), in sandy washes at Pierce Ferry, not found within the Grand Canyon. Clark Co: Leary 1566, in Larrea-Ambrosia community near the water pumping station, River Mountains, 2000 ft; Holland 1093, 5 miles east of U. S. highway 95 along the Empire Wash road, Newberry Mountains, 3200 ft; Holland 821, in granitic soils along the powerline road paralleling Bridge Canyon, 2 miles east of state highway 77, Newberry Mountains, 1600 ft; Nickell 505, 3 miles north of state highway 77 on the Christmas Tree Pass road, Newberry Mountains, 2600 ft; Brown 11, Railroad Pass, 2400 ft.

Malacothrix sonchoides (Nutt.) T. & G.

Annual; collected at a single locality, but should be expected elsewhere in sandy soils. April-June.

Mohave Co: none. Clark Co: Leary 1576, in sandy soils southwest of Boulder City, 2300 ft; Holland 92, in areas of blow sand, 2 miles southwest of Boulder City, 2200 ft; Fey 31, 5.4 miles south of Railroad Pass on U. S. highway 95.

Melampodium leucanthum T. & G.

Perennial herb; occasional in the Whitmore Canyon area of the recreation area. March-November.

Mohave Co: Leary 1816, in wash at Paw's Pocket, Whitmore Canyon, 3900 ft; VanDevender (ARIZ), Peach Springs Wash; Holland 670, with Mortonia and Agave in weathered sandstone outcrops at the Exxon Lease Site, 1 mile northwest of the trail head in Whitmore Canyon, 3500 ft; Clover (MO), near mouth of Separation Canyon. Clark Co: none.

Microseris linearifolia (DC.) Sch.-Bip.

Annual; reported from the Newberry Mountains, but probably more widespread. April-June.

Mohave Co: none. Clark Co: Holland 1113, with Quercus turbinella and Rhamnus ilicifolia in Sacatone Wash granites, 1/4 mile southeast of Christmas Tree Pass, 3400 ft; Holland 973, in pinyon-juniper association, 1/2 mile west of Christmas Tree Pass on steep northern exposure, Newberry Mountains, 4000 ft.

Monoptilon bellidiforme T. & G. ex Gray (desert-star)

Annual; common in coarse wash gravels throughout the lower elevations of the recreation area. March-June.

Mohave Co: Trelease 20, Willow Beach, 800 ft; Grater (IM), wash at Pierce Ferry. Clark Co: Holland 1577, in compact clay soils, 1 mile southwest of Davis Dam along state highway 77, 800 ft; Holland 236, in disturbed gravels 2 1/2 miles northeast of Railroad Pass, River Mountains, 2000 ft; Bostick 3320, Eldorado Valley, 2500 ft.

Monoptilon bellioides (Gray) Hall (desert-star)

Annual; common in wash gravels throughout the lower elevations of the recreation area. February-May.

Mohave Co: Holland 404, in large wash, 5 miles north of Katherine Landing, 1/4 mile east of Lake Mohave, 750 ft. Clark Co: Holland 978, in coarse gravels with Baccharis brachyphylla and Eriogonum wrightii in Empire Wash, 1/2 mile east of the LMNRA boundary, 2600 ft.

Palafoxia linearis (Cav.) Lag.  
var. linearis

Annual; abundant in sandy areas throughout the lower elevations of the recreation area. March-May.

Mohave Co: Holland 409, with Androstephium and Hesperocallis in deep sand just north of the Katherine Landing Ranger Station, 700 ft; Grater (IM), Willow Beach, 600 ft. Clark Co: Leary 1673, with Larrea, Ambrosia, and Hilaria in sand 3 miles south of Overton, 1500 ft; Wagner 14, in flat sandy area, creosotebush community, south of Boulder City, 2400 ft; Niles 865, in red sand, Atlatl Rock, Valley of Fire State Park, 2000 ft; Leary 264, in gypsum wash just south of the North Shore road, 1280 ft.

Parthenium incanum HBK.

(mariola)

Shrub; not known from LMNRA, but reported from the lower Grand Canyon. June-October.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash. Clark Co: none.

Pectis papposa Harv. & Gray ex Gray

(chinchweed)

Annual; abundant following summer rains throughout the lower elevations of the recreation area. September-October.

Mohave Co: Holland 278, with Larrea, Ambrosia and Fouquieria on lava flows at the rim of Whitmore Canyon, 2600 ft; Holland (UNLV), Willow Beach in coarse gravels, 800 ft. Clark Co: Nickell 474, 5 miles east of U. S. highway 95 on state highway 77, Newberry Mountains, 2800 ft; Grater (LM), open flats of Hemenway Wash, 1200 ft.

Perezia wrightii Gray

Perennial herb; scattered populations throughout the recreation area. May-June.

Mohave Co: Leary 1806, base of sandstone boulder in a Gutierrezia-Larrea association, west-facing slope of Paw's Pocket, Whitmore Canyon, 3900 ft; Holland 680, 5 miles northeast of the Diamond Bar Ranch in Grapevine Canyon in the Grand Wash Cliffs, 4700 ft; Phillips (MNA), in shady, protected habitats in the Grand Canyon; Phillips (MNA), north rim of the Grand Canyon. Clark Co: Leary 1904, in granitic boulder pile, 1.2 miles southwest of the junction of the Scanlon Ferry and Gold Butte roads, 3700 ft; Holland 524, 1 mile southeast of Christmas Tree Pass, Newberry Mountains, 3900 ft.

Peritlye emoryi Torr. in Emory

(rock-daisy)

Annual; abundant on rocky slope throughout the lower elevations of the recreation area. February-June.

Mohave Co: Phillips (MNA), dry side canyons on both sides of the Grand Canyon, often in rocky areas; Holland 391, under boulders in large wash, 5 miles north of Katherine Landing, 750 ft. Clark Co: Leary 1472, along washes and benches west of the water treatment plant, River Mountains, 1800 ft; Holland 1179, in loose talus in Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 2400 ft; Holland 289, in moist soils of a narrow canyon, 1/2 mile south of Hoover Dam, Eldorado Mountains, 700 ft; Holland 55, in washes, 1 mile north of Boulder City, 2200 ft;

Naegle 16, 2 miles south of Hemenway Harbor, Lake Mead, 1500 ft; Niles 1075, in moist soils, bottom of the upper portion of Bridge Canyon, Newberry Mountains, 2500 ft; Bostick 3325, in coarse gravel, 2 miles west of Cottonwood Cove on Lake Mohave, 1800 ft; Grater (LM), island near boat landing, Hemenway Wash, 1200 ft.

Peucephyllum schottii (Gray) Gray (pigmy-cedar)

Shrub; common in the desert riparian community and on rocky canyon walls throughout the lower elevations of the recreation area. February-May.

Mohave Co: VanDevender (ARIZ), low elevations in Peach Springs Wash; Phillips (MNA), on slope above side canyons and in rocks along formerly flooded shoreline in the Grand Canyon; Holland 406, in large gravel wash, 5 miles north of Katherine Landing, 750 ft; Grater (LM), rocky slopes at the base of Fortification Hill, 1300 ft; Clover (MO), between Spencer Canyon and Emory Falls. Clark Co: Leary 1521, in gypsum soils near junction of Lake Mead Boulevard and road to gypsum plant, east of Frenchman Mountain, 2000 ft; Holland 506, in Empire Wash, 3 miles west of Lake Mohave, Newberry Mountains, 1800 ft; Holland 132, 7 miles east of Henderson on state highway 41, River Mountains, 1400 ft; Bostick 3328, Black Mountain west of Cottonwood Cove on Lake Mohave, 1800 ft; O'Farrell (UNLV), rock crevices at Boulder Dam, 1000 ft.

Pleurocoronis pluriseta (Gray) King & Rob.

Shrub; common in rock outcrops in areas of limited exposure throughout the low elevations of the recreation area. March-May.

Mohave Co: VanDevender (ARIZ), lower elevations in Peach Springs Wash; Phillips (MNA), on rock faces, steep rock slopes, and in dry side canyons in the Grand Canyon; Clover (MO), Separation Rapids. Clark Co: Holland 1185, Bridge Canyon, 1/2 mile west of state highway 77, Newberry Mountains, 1800 ft; Holland 185, Quarry Canyon, opposite the Lake Mead marina, River Mountains, 1800 ft; Nickell 564, near petroglyphs, Grapevine Canyon, Newberry Mountains, 2500 ft; Bostick 3214, Atlatl Rock, Valley of Fire State Park, 2400 ft; Bostick 3183, Keyhole Canyon, Eldorado Mountains, 4500 ft.

Pluchea purpurascens (Sw.) DC. (marsh-fleabane)

Perennial herb; common in the narrow moist side canyons below Hoover Dam. July-November.

Mohave Co: Holland (UNLV), along the edge of the Colorado River just below Hoover Dam, 650 ft. Clark Co: Holland (UNLV), in Boy-Scout Canyon, 1/2 mile below Hoover Dam, 650 ft.

Pluchea sericea (Nutt.) Cov.

(arrow-weed)

Shrub; common and widespread at seeps and along the shoreline of Lakes Mead and Mohave. March-July.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), on Lake Mead mud flats and in moist side canyons in the Grand Canyon; Phillips (MNA), prevelant along the shoreline at Pierce Ferry; Baggley (LM), Willow Beach, 600 ft. Clark Co: Leary 1860, in sandy mud along the Virgin River with Tamarix, Baccharis and Salix, 1450 ft; Holland 1218, with Salix, Baccharis and Tamarix, 1/2 mile west of state highway 77, in Bridge Canyon, Newberry Mountains, 2400 ft; Holland 288, in narrow canyon opening to the Colorado River, 1/2 mile below Hoover Dam, 650 ft.

Porophyllum gracile Benth.

Perennial herb; common and widespread throughout the lower elevations of the Lake Mead region. October-June.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), on rocky slopes within the Grand Canyon; Grater (LM), Twin Canyon, below the Shivwits Plateau. Clark Co: Leary 1697, on a north-facing limestone ridge, northeast of Hamblin Mountain, Black Mountains, 2300 ft; Leary 1543, among sandstone boulders, east of Mouse's Tank, Valley of Fire State Park, 2000 ft; Holland 1117, in granitic outcrop, 1/2 mile east of Christmas Tree Pass in Sacatone Wash, Newberry Mountains, 3400 ft; Holland 357, 1 mile east of the 3-Kids Mine on state highway 41, River Mountains, 1800 ft; Holland 157, in gravels at Railroad Pass, River Mountains, 2400 ft; Nickell 473, 5.2 miles east of U. S. highway 95 on state highway 77, Newberry Mountains, 2600 ft; Bostick 3329, Black Mountain west of Cottonwood Cove, 1800 ft.

Psathyrotes pilifera Gray

Annual; locally common only in one general area. August-September.

Mohave Co: none. Clark Co: Holland 1536, on road cuts along the North Shore road, 2 miles east of the junction with Lake Mead Boulevard, 1400 ft.

Psathyrotes ramosissima (Torr.) Gray

Annual; common throughout the low elevations of the recreation area, in clay soils or roadside gravels. March-June.

Mohave Co: Holland (UNLV), in roadside gravels at Willow Beach, 800 ft. Clark Co: Holland 898, in coarse roadside gravels along the western edge

of Davis Dam along state highway 77, Newberry Mountains, 700 ft; Holland 131, 3 miles east of the 3-Kids Mine on state highway 41, River Mountains, 1300 ft; Coville (US), in Las Vegas Wash.

Psilostrophe cooperi (Gray) Greene (paperflower)

Perennial herb; occasional to common throughout the low mountain ranges of the Lake Mead region. April-June.

Mohave Co: none. Clark Co: Leary 1899, on east-facing limestone ridge at Paradise Gap, south of Tramp Ridge, Gold Butte area, 4000 ft; Holland 1046, 2 miles east of the recreation area boundary along the powerline road paralleling state highway 77, Newberry Mountains, 2600 ft; Grater (LM), Valley of Fire State Park, 6 miles south of Overton.

Psilostrophe sparsiflorus (Gray) Nels. (paperflower)

Perennial herb; common at the higher elevations of Lake Mead along the Shivwits Plateau. May-November.

Mohave Co: Leary 1660, in limestone talus, 2 miles south of Crepe Spring on Grassy Point, Shivwits Plateau, 4300 ft; Holland 1306, in limestone soils, 55 miles south of St. George in Main Street Valley, 5500 ft; Holland 261, in rocky area 2 miles north of the recreation area boundary in Whitmore Canyon, 4800 ft; Grater (LM), Rampart Point, Grand Wash Cliffs, 5500 ft. Clark Co: none.

Rafinesquia californica Nutt.

Annual; reported from a single locality within the recreation area. May.

Mohave Co: none. Clark Co: Holland 1222, with Pinus monophylla, on steep north-facing slope, 1 mile south of the Yellow Stone Mine, Newberry Mountains, 4000 ft.

Rafinesquia neomexicana Gray

Annual; common and widespread throughout the lower elevations of the Lake Mead region. February-May.

Mohave Co: Phillips (MNA), on the lower slopes in the Grand Canyon and at Pierce Ferry under 400 m; Grater (LM), in wash gravels at Willow Beach. Clark Co: Leary 1755, in red shale with gypsum, base of ridge northeast of junction of West End Wash and the North Shore road, 1700 ft; Leary 1561, with Larrea and Ambrosia on an east-facing alluvial fan composed of volcanic

rock, near pumping station, River Mountains, 2000 ft; Holland 1141, in areas of limited exposure along the Christmas Tree Pass road at the head of Sacatone Wash, Newberry Mountains, 2200 ft; Holland 787, in Empire Wash, 1/2 mile east of the recreation area boundary, Newberry Mountains, 2800 ft; Baggley (LM), roadside between Boulder City and Lake Mead.

Sanvitalia abertii Gray

Annual; occasional in clay soils at the higher elevations of the Shivwits Plateau. July-September.

Mohave Co: Holland 725, with Pinus ponderosa and Artemisia tridentata in the open areas just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Senecio douglasii DC.  
var. douglasii

(groundsel)

Perennial herb; occasional throughout the recreation area below 5000 ft. April-October.

Mohave Co: Holland 264, with Nicotiana, Psilostrophe and Gutierrezia, 2 miles north of the LMNRA boundary, Whitmore Canyon, 4800 ft. Clark Co: Holland 1077, 2 miles east of Juniper Mine, western exposure of the Newberry Mountains, 3500 ft.

Senecio douglasii DC.  
var. monoensis (Greene) Jeps.

Herbaceous perennial; scattered throughout most of the recreation area. March-May.

Mohave Co: Holland 264, in red clay soils, 1/2 mile south of the Lake Mead boundary in Whitmore Canyon, 3900 ft. Clark Co: Holland 1536, in rocky soils on the northern exposure of Red Mountain, River Mountains, 3000 ft; Holland 1176, in coarse gravels, 1/2 mile west of state highway 77, in Bridge Canyon, Newberry Mountains, 2400 ft; Holland 502, in Empire Wash, 10 miles east of U. S. highway 95, Newberry Mountains, 3300 ft; Holland 303, in Bootleg Canyon, 2 miles northwest of Boulder City, River Mountains, 2600 ft.



Senecio longilobus Benth

(groundsel)

Perennial herb; restricted to areas of sparse vegetation on the Shivwits Plateau. June-August.

Mohave Co: Holland 749, in clay soils with weedy species of Cleome and Verbesina, 35 miles north of Mt. Dellenbaugh, 4500 ft. Clark Co: none.

Senecio mohavensis Gray

(groundsel)

Annual; occasional along the southern extension of the recreation area; records indicate it extends as far north as the River Mountains. March-May.

Mohave Co: Holland 1646, with Encelia, Acacia and Chilopsis in large wash, 1/4 mile south of the Willow Beach fish hatchery, 900 ft. Clark Co: Holland (UNLV), in areas of limited exposure in Grapevine Canyon, 1/4 mile west of the Christmas Tree Pass road, 2400 ft; Niles 1192, in isolated pocket at the mouth of Eldorado canyon.

Senecio multilobatus Torr. & Gray

(groundsel)

Perennial herb; common at the higher elevations throughout the recreation area. May-July.

Mohave Co: Leary 2198, in large open field with Agropyron and Chrysothamnus near the fire camp, north of Mt. Dellenbaugh, Shivwits Plateau, 6200 ft; Holland 606, with Marrubium, Acer and Robinia in Green Spring Canyon, 5 miles east of the fire camp, Shivwits Plateau, 6000 ft. Clark Co: Holland 1194, with Pinus, Quercus and Coleogyne on steep, north-facing slopes, 1 mile south of Yellow Stone Mine, Newberry Mountains, 4000 ft; Leary 1948, in pinyon-juniper woodland with Quercus, in granitic sandy soil, near the semi-perennial creek of Grapevine Spring north of Jumbo Peak, Gold Butte area, 4200 ft.

Solidago confinis Gray

(goldenrod)

Perennial herb; reported from a single locality, but probably more widespread. July-October.

Mohave Co: none. Clark Co: Lockhart (UNLV), in moist soils at Blue Point Spring, along the eastern edge of the Muddy Mountains, 1400 ft.

Solidago sparsiflora Gray

(goldenrod)

Herbaceous perennial; local populations on the Shivwits Plateau.  
June-September.

Mohave Co: Holland 720, with Pinus ponderosa in shaded areas at the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Sonchus asper (L.) Hill

(sow-thistle)

Annual; common in irrigated soils around springs and seeps throughout the recreation area. April-July.

Mohave Co: Phillips (MNA), on Lake Mead mud flats, at seeps at low elevations in the canyon; Grater (LM), Emory Falls (Columbine Falls), lower Grand Canyon, 1200 ft. Clark Co: Holland 1122, near areas of standing water in the bottom of Bridge Canyon, 1 1/2 miles west of state highway 77, Newberry Mountains, 2600 ft; Nickell 559, 3 miles north of state highway 77 on the Christmas Tree Pass road, Newberry Mountains, 2600 ft.

Sonchus oleraceus L.

(sow-thistle)

Annual; occurring in our region as a weed, mostly in lawns. Flowering throughout the year.

Mohave Co: none. Clark Co: Gullion (LM), in lawns in Boulder City, 2400 ft.

Stephanomeria exigua Nutt.

Annual; common in sandy soils throughout the lower elevations of the recreation area. April-September.

Mohave Co: Phillips (MNA), on lower slopes and in side canyons in the Grand Canyon. Clark Co: Leary 1893, in sandy soil, 1/4 mile north of Devil's Throat off Gold Butte road, 2300 ft; Holland 1204, with Haplopappus cooperi and Krameria parvifolia, 1/2 mile east of U. S. highway 95 on the Christmas Tree Pass road, 2800 ft; Holland 1191, in granitic soils, 1 mile east of Christmas Tree Pass, Newberry Mountains, 3200 ft; Holland 113, in sandy soils, 1 mile southwest of Boulder City, 2200 ft.

Stephanomeria pauciflora (Torr.) Nutt.

Perennial herb; common and widespread throughout the low mountain ranges of the Lake Mead area. May-September.

Mohave Co: Phillips (MNA), on lower slopes and in side canyons in the Grand Canyon. Clark Co: Leary 1684, 2 miles north of the junctions of state highways 40 and 12, near the Valley of Fire State Park, 1600 ft; Holland 1523, in roadside gravels, 1 mile north of Railroad Pass, River Mountains, 2700 ft; Holland 1322, 3 miles west of Christmas Tree Pass, Newberry Mountains, 3300 ft; Holland 1065, in rocky outcrops, just west of Davis Dam along state highway 77, 750 ft; Nickell 607, 1/2 mile north of Grapevine Canyon, on the Christmas Tree Pass road, Newberry Mountains, 2600 ft.

Stylocline micropoides Gray

Annual; common in the southern, low elevation areas. February-May.

Mohave Co: none. Clark Co: Leary 1721, with Larrea and Ambrosia on ridge northeast of Hamblin Mountain, Black Mountains, 2700 ft; Holland 1559, in coarse gravels, 1 mile north of Hiko Spring, along state highway 77, Newberry Mountains, 2600 ft; Holland 1031, in small wash, 1/2 mile east of U. S. highway 95, on the Empire Wash road, Newberry Mountains, 2600 ft; Holland 472, with Eurotia, Yucca and Castilleja at the summit of Red Mountain, River Mountains, 2900 ft; Nickell 638, 1 plant found, 1/2 mile west of Hiko Spring, Newberry Mountains, 2500 ft.

Taraxacum officinale Wiggers

(dandelion)

Perennial herb; common in meadows on the Shivwits Plateau. May-August.

Mohave Co: Holland 1301, in clay soils with Hymenoxys richardsonii, Convolvulus arvensis and Corydalis aurea, in the large meadow just north of the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: Holland (UNLV), in lawns at the park housing area northwest of Boulder Beach, 1300 ft.

Tetradymia canescens DC.

Shrub; occasional north of the recreation area and probably within the boundary on the Plateau. July-August.

Mohave Co: Holland 695, with Cleome lutea and Asclepias subverticillata in Mainstreet Valley, 49 miles south of St. George, Utah, 4500 ft.  
Clark Co: none.

Tetradymia stenolepis Greene

Shrub; known within the recreation area only from the Newberry Mountains. May-August.

Mohave Co: none. Clark Co: Holland 1432, in granitic soils with Larrea, Yucca, Krameria and Acamptopappus in Sacatone Wash, 3 miles east of Christmas Tree Pass, Newberry Mountains, 3000 ft; Gullion (LM), guzzler S-2, 9 miles west-southwest of Davis Dam, Newberry Mountains, 2680 ft; Littlefield 46, Dead Mountains, south of Christmas Tree Pass, 5000 ft.

Thelesperma subnudum Gray

Perennial herb; locally common north of the recreation area and to be expected within our area. May-September.

Mohave Co: Holland 1302, with Eriogonum ovalifolium and Juniperus osteosperma in limestone soils, on road to Mt. Dellenbaugh, 55 miles south of St. George, Utah, 5000 ft; Holland 688, with Pinus ponderosa and Artemisia tridentata, 4 miles northwest of Mt. Dellenbaugh, Shivwits Plateau, 6000 ft. Clark Co: none.

Townsendia exscapa (Richards) Porter

Perennial herb; known from a single locality on the Shivwits Plateau but probably more widespread. April-June.

Mohave Co: Holland 1264, in limestone soils with Rhus trilobata, Menodora scabra and Viola nuttallii, at the junction of the Twin Point and Mt. Dellenbaugh roads, Shivwits Plateau, 6000 ft. Clark Co: none.

Tragopogon dubius Scop.

(goats-beard)

Perennial herb; common in ponderosa pine forests throughout the Shivwits Plateau. May-September.

Mohave Co: Holland 1413, with Pinus ponderosa, Geranium richardsonii and Hymenopappus lugens at the Mt. Dellenbaugh fire camp, Shivwits Plateau, 6200 ft. Clark Co: none.

Trichoptilium incisum (Gray) Gray

Perennial herb; occasional in areas of desert pavement at the lower elevations of Lake Mead. February-May, October-November.

Mohave Co: Holland 397, on rolling hills of desert pavement 5 miles north of Katherine Landing, 750 ft; Holland, in talus on the southern exposure of Fortification Hill, 1200 ft. Clark Co: Leary 1801, wash at the east end of Sandstone Spring, Pinto Valley, Black Mountains, 2000 ft; Holland 1605, with Larrea, Encelia, and Opuntia basilaris on desert pavement in Empire Wash, 2 miles west of Lake Mohave, 800 ft; Holland (UNLV), on desert pavement at the Fire Mountain launch site, 1 mile south of the mouth of Eldorado Canyon, 700 ft.

Trixis californica Kellogg

Shrub; known only from the lower Grand Canyon, not yet found in Nevada. February-April.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), on steep rocky slopes within the Grand Canyon (450 m), but not seen at Pierce Ferry or on the rims; Ives (US), Diamond River Canyon. Clark Co: none.

Verbesina encelioides (Cav.) Benth. & Hook. (crown-beard)

Annual; known only from north of the recreation area. May-December.

Mohave Co: Holland 693, with Cleome lutea, Tetradymia canescens and Asclepias subverticillata in Wolfhole Valley, 37 miles south of St. George, Utah, 5000 ft. Clark Co: none.

Viguiera deltoidea Gray  
var. parishii (Greene) Vasey & Rose

Shrub; common in rocky outcrops along the southern extension of the recreation area and in the lower Grand Canyon. February-June, September-October.

Mohave Co: VanDevender (ARIZ), Peach Springs Wash; Phillips (MNA), on rocky slopes and in dry side canyons in the Grand Canyon; Grater (LM), open flats at the rim of Quartermaster Canyon, 5500 ft. Clark Co: Holland 1532, with Eriogonum fasciculatum and Hyptis emoryi at the junction of Christmas Tree Pass road and state highway 77, Newberry Mountains, 2000 ft; Holland 918, in granitic outcrops, in Sacatone Wash, 1/2 mile east of Christmas Tree Pass, Newberry Mountains, 3600 ft; Bostick 3184, granitic cliffs at Keyhole Canyon with Haplopappus cuneatus, Eldorado Mountains.

Viguiera multiflora (Nutt.) Blake

Perennial herb; common in all habitats on the Shivwits Plateau. May-September.

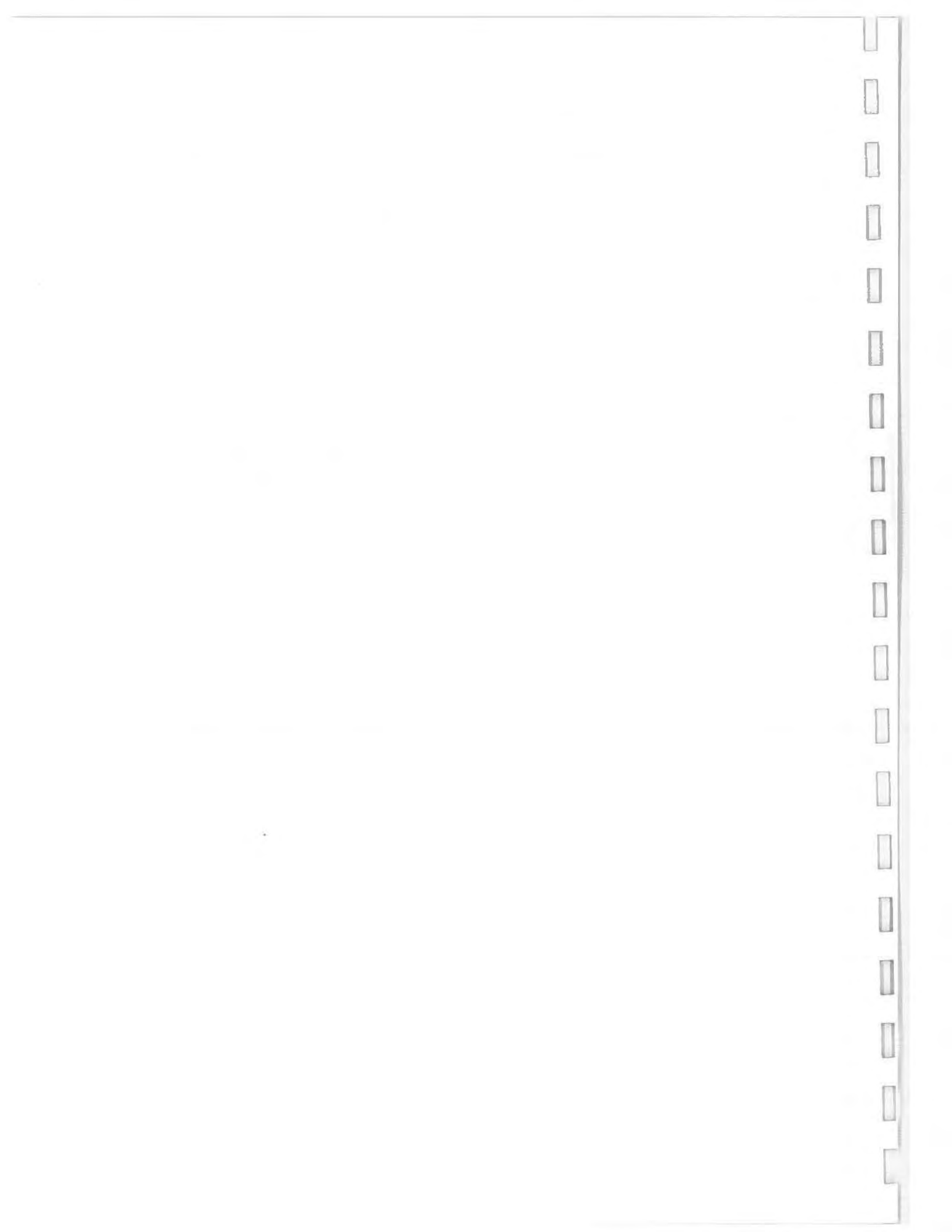
Mohave Co: Holland 1421, with Desmanthus cooleyi, Psoralea tenuiflora and Pinus ponderosa, along road to Mt. Dellenbaugh, 2 miles northwest of the fire camp, Shivwits Plateau, 6000 ft; Holland 718, in the large open meadow just north of the fire camp, Shivwits Plateau, 6200 ft; Grater (LM), Rampart Point, Grand Wash Cliffs, 5500 ft. Clark Co: none.

Xanthium saccharatum Wallr.

(cocklebur)

Annual; common along river channels throughout the recreation area. February-October.

Mohave Co: Holland (UNLV), on sandy shelves along the Colorado River below Hoover Dam, 650 ft. Clark Co: Leary 1861, along drainage ditch, near cultivated fields, 0.6 mile from the Riverside bridge, 1500 ft.



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