ADDENDUM

to

COO-2307-11 and COO-2307-12

(ENDANGERED AND THREATENED PLANT SPECIES
OF THE NEVADA TEST SITE, ASH MEADOWS,
AND CENTRAL-SOUTHERN NEVADA)

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ADDENDUM

Three plant species included among the Nevada "Threatened or Endangered Flora" of the Federal Register list of July 1, 1975, were omitted from the recent reports dealing with these groups of plants in central-southern Nevada (Beatley, J. C. ERDA. COO-2307-11 and COO-2307-12. February and April, 1977). Two of the species, Ephedra funerea and Mirabilis pudica, were not included because they are "both widely distributed and locally common in southern Nevada" and were understood (unofficially) to be no longer considered candidates for either an Endangered or Threatened status. The third species, Machaeranthera ammophila, is now included with M. arida, an uncommon species of central and eastern Mojave Desert of southern California (to southern Nevada, Arizona, and Sonora), and is therefore no longer a candidate for the status of Threatened Species.

It now seems advisable that the collection records and known distributions of Ephedra funerea and Mirabilis pudica in central-southern Nevada be recorded for the eventual official evaluation of the species' status throughout their ranges, and the information, and that relevant to the "critical habitat", is therefore here recorded for this purpose.

This Addendum completes the record for all of the 41 Threatened and Endangered Plant Species that occur within the region covered in Beatley (Vascular plants of the Nevada Test Site and central-southern Nevada. TID-26881. ERDA. 1976) and that appear in the Federal Register lists of July 1, 1975, and June 16, 1976. Additional species, to be considered for an endangered or threatened status in the State of Nevada, will be dealt with in a later report.

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EPHEDRA FUNEREA Coville & Morton

Fig. 1

Ephedra funerea Cov. & Mort. F. V. Coville and C. V. Morton. Wash. Acad. Sci. Jour. 25: 307. 1935.

Ephedra californica S. Wats. var. funerea (Cov. & Mort.) Benson. L. Benson. Amer. J. Bot. 30: 231. 1943.

TYPE (US): Coville & Gilman 447, 26 Apr 1932. Furnace Creek Canyon, on road from Ryan to Shoshone, Inyo Co., Calif.; 980 m.

COLLECTIONS: All from s. Nye County, Nevada.

- 1793 - Beatley, 24 Jan 1959. W. Frenchman Flat, Nevada Test Site; ca 4000 ft. (NTS)
- 1794 - Beatley, 7 Apr 1959. W. Mercury Valley, Nevada Test Site; ca 3500 ft. (NTS)
- 1795 - Beatley, 16 Mar 1959. W. Mercury Valley, Nevada Test Site; ca 3500 ft. (NTS)
- 1797 - Beatley, 5 Mar 1959. W. Mercury Valley, Nevada Test Site; ca 3500 ft. (NTS)
- 1798 - Beatley, 24 Jan 1959. W. Frenchman Flat, Nevada Test Site; ca 4000 ft. (NTS)
- 1799 - Beatley, 20 Feb 1959. Mercury Valley, Nevada Test Site; ca 3500 ft. (NTS)
- 1800 - Beatley, Hill & Tagami, 18 Apr 1962. Staminate plant, below Red Mtn, sw. Frenchman Flat, Nevada Test Site; ca 3400 ft. (NTS)
- 1801 - Beatley, Hill & Tagami, 18 Apr 1962. Ovulate plant, same coll. site as 1800. (NTS, RENO(2))
- 1802 - Wells, 18 Jan 1961. Frenchman Flat, Nevada Test Site; ca 4000 ft. (NTS, NY, UNLV, UTC)
- 4071 - Beatley, 2 June 1967. Common on lower slope and hills, and washes, N side of cent. Specter Range, near barricade, Rock Valley drainage, in Larrea-Ambrosia-Lycium; 3700 ft. (NTS)
- 4308 - Beatley, 22 Apr 1967. Upper bajada below Yucca Mtn, w. Jackass Flats drainage W of Forty-Mile Cyn Wash, in Larrea-Ambrosia; 3500 ft. (NTS, RENO)
- 4408 - Beatley & Bostick, 3 Apr 1967. Bajada below Red Mtn, n. Mercury Valley drainage, in Larrea-Ambrosia; 4000 ft. (DS(3), *NTS, NY, RENO)
- 8367 - Beatley, 14 May 1969. E. Ash Meadows, low dunes between homestead area and Rancho, Ash Meadows Rd, e. Amargosa Valley drainage, in Atriplex-Haplopappus-Suaeda; 2200 ft. (DS, *NTS, RENO, RSA)

- 10043 - Beatley, 16 Apr 1970. Sandy soils, S of Spring Meadows Farm, Fairbanks Spg area, n. Ash Meadows, in Larrea-Prosopis pubescens; 2200 ft. (*NTS, UNLV, RSA)
- 11287 - Beatley & Reveal, 18 June 1970. The Ephedra of lower S face of unnamed mtns at N end of Pahrump Valley, S of Rt 16, in Atriplex hymenelytra-Ambrosia, on reddish limestone; 3500 ft. (*NTS)
- 11327 - Beatley, 8 July 1970. Uncommon, s. Stewart Valley, coll. from edge of Mesquite thicket in shallow wash, in Mesquite/Atriplex; 2500 ft. (*NTS, RENO)
- 13313 - Beatley, 7 Apr 1972. Common, bajadas S and SW of Devils Hole, n. Ash Meadows, in Larrea-Atriplex; 2300 ft. (*NTS)
- 15607 - Beatley, 26 Apr 1975. Occasional in vegetation NE of large playa, e. Amargosa Valley NE of Ash Meadows, along Rt 16, in Larrea-Atriplex and Larrea-Ambrosia; 2300 ft. (NTS, *NTS)
- 15619 - Beatley & Mispagel, 3 May 1975. The Ephedra of sandy soils of middle Scarp Cyn, Halfpint Range, between N and S barricades, n. Frenchman Flat drainage, in Larrea vegetation; 4000 ft. (NTS, *NTS)

OTHER COLLECTIONS:

Clokey 8225. "Gravelly hills, in the Larrea belt, at 1100 m: Arden to Mountain Springs; the only collection known from Nevada..." (Clokey, I. W. Flora of the Charleston Mountains, Nevada. Univ. Calif. Press. 1951. p. 31)

CRITICAL HABITAT:

Benson (ibid, p. 231) described this species in 1943 as occurring in "washes and mountainsides in the desert at 2000 to 3000 ft. elevation. From the Funeral Mountains on the east side of Death Valley, California, to the south end of the Charleston Mountains in adjacent Nevada." Clokey (ibid, p. 31) stated in 1951 that, although there was only his collection (cited above) from southern Nevada at that time, "this shrub should be expected between Death Valley and the Charleston (Spring) Mountains". To these can be added the southern Nye County collections cited above, which extend the range of the species to the northern edge of the Mojave Desert on the Nevada Test Site.

Since the species is now known to be rather widely distributed, though sporadic in its occurrence in central-southern Nevada and the Death Valley region of Inyo County, California -- occurring only in or below certain parts of limestone mountain ranges or on calcareous soils elsewhere -- its status as a Threatened Species does not seem justified. Its local distribution, however, ordinarily does not overlap that of any other Ephedra, and its distribution in the Nye-Clark County, Nevada, and Inyo County, California, areas merits continuing documentation.

Fig. 1. Areas of collections of Ephedra funerea, s. Nye County, Nevada

MIRABILIS PUDICA Barneby

Fig. 2, 3

Barneby, R. C. Leaflet West. Bot. 3: 175. 1942.Densely puberulent form (from n. Frenchman Flat) described in: Beatley, J. C. Leaflet West. Bot. 10: 294. 1966.TYPES (CAS): Ripley & Barneby 4403 (flor.), 10 May 1942, and Ripley & Barneby 4974 (fruct.), 12 June 1942; sandy playa 3 mi W of Crystal Springs, Lincoln Co., Nevada; 4200 ft.

COLLECTIONS: From extreme se. Nye Co., nw. Clark Co., and w. Lincoln Cos., Nevada.

2116 - Beatley, 6 May 1962. Sandy soil, 2 mi N of Frenchman Flat playa (Plot 28), in Larrea-Ambrosia; 3200 ft. Densely pubescent form. (*NTS, NY)2117 - Beatley, 25 May 1962. S. Frenchman Flat, Nevada Test Site; 3100 ft. (NTS, NY(2))2166 - Wells, 18 Apr 1961. Yucca Flat, Nevada Test Site; 4200 ft. (NTS)2167 - Beatley, 20 Apr 1959. S. Frenchman Flat, Nevada Test Site; 3100 ft. (NTS)2168 - Beatley & Rickard, 2 May 1959. E of Frenchman Flat playa, Nevada Test Site; 3100 ft. Densely pubescent form (NTS)2692 - Beatley, 23 May 1964. S. Frenchman Flat, Nevada Test Site; 3100 ft. (NTS, RENO)3224 - Beatley, 15 Nov 1963. Same site as 2116. (NTS)3225 - Beatley, 30 Oct 1963. Sw. Frenchman Flat (Plot 20), sandy soils below N side of Red Mtn, in Larrea-Grayia-Lycium; 3300 ft. (NTS)3275 - Beatley, 28 June 1965. N. Frenchman Flat, S of Plot 28 and N of playa, in Larrea-Ambrosia vegetation; 3200 ft. (CAS, DS, NTS, RENO)3276 - Beatley, 23 May 1965. Abundant in cent.-w. Yucca Flat, S of BREN Tower (Plot 49), in Larrea-Grayia-Lycium; 4200 ft. (*NTS, RENO, UNLV)3279 - Beatley, 28 June 1965. N. Frenchman Flat, ca 1½ mi N of playa near Plot 28, in Larrea-Ambrosia; 3200 ft. Densely pubescent form. (DS, *NTS, RENO)3280 - Beatley, 28 June 1965. Same coll. site as 3279. Densely pubescent form. (CAS, DS, *NTS)3281 - Beatley, 28 June 1965. Same coll. area as 3279, 3280. Densely pubescent form. (CAS, DS, NTS, RENO)

- 3343 - Beatley & Carl, 10 June 1965. Along Orange Rd, nw. Yucca Flat, disturbed Grayia-Lycium; abundant in most parts of Yucca Flat, following 3-5 in. of rain in late March and early April; 4200 ft. (CAS, DS, NTS, *NTS, NY, RENO, US(4), UTC)
- 3610 - Beatley, 27 Apr 1966. N. Frenchman Flat, sandy soil 2 mi N of playa, near Plot 28, in Larrea-Ambrosia; pubescent plants scattered among population of glabrous plants; 3225 ft. Densely pubescent form. (BRY, CAS, DS, NTS, *NTS, NY, RENO, RSA, UNLV, UTC)
- 3616 - Beatley, 27 Apr 1966. Same coll. site as 3610. Glabrous form. (BRY, CAS, DS, NTS, *NTS, NY, RENO, RSA, UNLV, UTC)
- 4537 - Beatley & Rhoads, 12 July 1967. Common along roadsides, Valley Rd, cent.-s. Groom Lake basin, in Grayia-Lycium; 4700 ft. (NTS, RENO)
- 5918 - Beatley, 25 June 1968. Wash, ca 3 mi S of Papoose Lake (playa), Nye Cyn Rd, s. Emigrant Valley, Lincoln Co., in Atriplex-Ceratoides; 4600 ft. (NTS)
- 5929 - Beatley, 26 June 1968. Roadsides, W side of Plutonium Valley, se. Yucca Flat drainage, in Atriplex; 4100 ft. (NTS)
- 6633 - Reveal & Beatley 1543, 14 July 1968. Common in sandy soil near barricade, Sec. 10, T4S, R54E, s. Penoyer Valley, in Atriplex; 5075 ft. (NTS)
- 8000 - Beatley, 20 Apr 1969. Bank of wash along old Indian Springs Rd, below n.-cent. Spotted Range, Nellis Air Force Range, Clark Co., Larrea-Ambrosia-Atriplex nearby; 4000 ft. (NTS)
- 8211 - Beatley, 3 May 1969. Common, wash above barricade, Scarp Cyn SE of French Peak, n. Frenchman Flat, in Larrea-Ambrosia; 3800 ft. (*NTS, RSA)
- 8794 - Beatley, 1 June 1969. Abundant in loose sands near Groom barricade, and common in sandy soils of sw. Penoyer Valley in Atriplex-Grayia-Tetradymia vegetation; 5100 ft. (DS, *NTS, RENO, RSA)
- 9222 - Beatley, 28 June 1969. Common in vegetation of w. Penoyer Valley, coll. from along Rt 25 in Grayia-Lycium vegetation; 5500 ft. (*NTS, RENO)
- 10688 - Beatley, 25 May 1970. Common, Cane Spring Wash, Cane Spring Rd, w. Frenchman Flat, in Grayia-Lycium; 4000 ft. (DS, *NTS, NY, RENO, RSA, UNLV, US(2))
- 12359 - Beatley & Reveal, 29 Apr 1971. Occasional plant on disturbed site, Area 5, n. Frenchman Flat, in disturbed Larrea-Ambrosia; 3300 ft. Chromosome voucher. (*NTS, US)
- 13461 - Beatley, 20 June 1973. Deep volcanic sands below sw. end of Buried Hills range, ne. Frenchman Flat, Lincoln Co., in Larrea-Ambrosia; 3800 ft. Plants scattered, all densely pubescent. (*NTS)

- 15642 - Beatley & Mispagel, 16 May 1975. Common in sw. Plutonium Valley, se. Yucca Flat drainage, in Grayia-Lycium-Tetradymia vegetation; 4100 ft. (NTS)
- 15696 - Beatley, 14 June 1975. Common, esp. on disturbed sites, lowlands below NW slope of Papoose Range, Lincoln Co., s. Groom Lake drainage; coll. from disturbed Grayia-Lycium-Tetradymia; 4600 ft. (NTS, *NTS(2))
- Beatley, 1962-1968. Permanent study plot vouchers (unmounted), Nevada Test Site: Mercury Valley (Plot 2); Frenchman Flat (Plots 20, 21, 23, 26, 28, 29, 30, 31, 34); Yucca Flat (Plots 49, 50, 58, 60).

OTHER COLLECTIONS:

As cited in Barneby (ibid):

Ripley & Barneby 4399. E of Crystal Springs, Lincoln Co., Nevada.

Ripley & Barneby 3478. Near Hiko, Lincoln Co., Nevada.

Ripley & Barneby 3428. Alkaline flats near south end of the Spotted Range, Nye Co., Nevada.

"Also observed in some quantity on alkaline flats at the foot of the Desert Range in both Clark and Lincoln counties and about the Pahranaagat Lakes.... That so remarkable and distinct a species, and one, moreover, that is abundant over quite a large area in southern Nevada, could have been overlooked until the present, can be explained only, it seems, by its quite considerable resemblance to the monotypic Hermidium (alipes).... Mirabilis pudica was first encountered in a low, sink-like valley at the foot of the Spotted Range in southeastern Nye County, and here, as at the base of the Sheep Mts., the plants occur in dense colonies on gentle slopes or flats of white alkaline clay, where, over small areas, it is the dominant species in a strongly saline association of chenopodiaceous shrubs... It appears to be equally at home on the calcareous gravel foothills of the Hiko Range as in the sandy valleys and playas between Crystal Springs and the Pahranaagat Lakes."

Pers. comm., James L. Reveal: Reveal (US), below N end of Quinn Canyon Range.

CRITICAL HABITAT:

Mirabilis pudica, so far as is known, is a strict endemic of extreme e. Nye County, and nw. Clark and w. Lincoln counties, Nevada; it is not known from Utah, Arizona, or California. From south to north, it occurs in the Mercury (locally)-Frenchman Flat-Yucca Flat-Groom Lake-Penoyer Valley series of drainage basins, and to the east perhaps only in the next two series of basins (Desert and Pahranaagat valleys); it is unknown west or south of the distribution shown in Figures 2 and 3. All of these areas are in the broad Mojave/Great Basin Desert transition, and the species is particularly identified with Grayia-Lycium vegetation, a shrub type characteristic of and known only from the desert transition of southern Nevada.

In the Frenchman and Yucca Flat drainage basins of the Nevada Test Site, this short-lived perennial herb is widely distributed and readily invades disturbed soils, where it occurs as a "weed species" in certain areas; to the north and south of these basins, however, the populations are usually only scattered and local. Its position in the Nyctaginaceae is of unusual interest, and it is interpreted to be an evolutionarily young taxon (Barneby, ibid); the occurrence of densely puberulent plants (stems and leaves) in the northeastern Frenchman Flat populations (in contrast with the usual glabrous and glaucous plants) makes the species of additional interest taxonomically and evolutionarily.

Consideration of its status must include its narrow endemism, as well as its relative abundance within its small geographic range, and its ability to survive disturbance on at least some soils, as on the disturbed sites of Yucca Flat on the Test Site. The physical environments of n. Frenchman Flat and s. Yucca Flat appear to be optimum for this species. Although at present its status as a Threatened Species does not seem justified, it is a species that could become Threatened or Endangered with changing land use.

Fig. 2. Areas of collections of *Mirabilis pudica* on and near the Nevada Test Site, se. Nye County, Nevada

Fig. 3. Areas of collections of *Mirabilis pudica* on the Nellis Air Force Range, se. Nye, w. Lincoln, and nw. Clark counties, Nevada