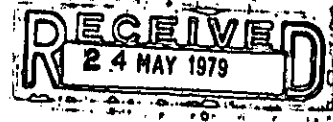


ENDANGERED PLANT PROGRAM
STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
1416 NINTH STREET, SACRAMENTO, CA 95814
(916-322-1262)



REPORT ON THE STATUS AND DISTRIBUTION
OF THE DEHESA NOLINA
Nolina interrata GENTRY (AGAVACEAE)

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INTRODUCTION

Nolina interrata Gentry, was discovered in the early 1940's by Mr. C.F. Harbison, then curator of entomology at the San Diego Natural History Museum, while collecting in the foothill region of San Diego County. Mr. Harbison brought the plants to the attention of Mrs. Ethel Bailey Higgins, then curator of botany at the museum. In 1945 she brought the collected material to the attention of Howard Scott Gentry, who subsequently described the plant as a new species (Gentry 1946).

From the time of its discovery until 1973, N. interrata was known only from the south-facing slopes west of Dehesa School, located east of the City of El Cajon, Section 14, R1E, T16S. A second locality was reported near Lawson Valley in 1973 by Dr. Paul H. Zedler and Dr. Jon E. Keeley, (then a graduate student) who were involved in investigations on the relationship of fire and chaparral vegetation regeneration characteristics (Zedler & Keeley 1973).

Subsequent to discovery by Zedler and Keeley of the populations of N. interrata, seven kilometers southeast (sic) of the type locality at Dehesa Valley, a third population was discovered by R. Mitchel Beauchamp in 1977 while involved in a biological assessment of the Singing Hills Ranch for development (RECON 1977). The population is located on a small ridge, roughly half-way between the type locality and the Zedler & Keeley population. During a casual look at other maps being prepared for the Singing Hills project, it was noted that a geology map of the project showed a high coincidence of known N. interrata populations at Dehesa. Examination of rock associated with this third population showed it to be peridotite, an ultra-mafic gabbro rock. Further investigations of other geology mapping (Strand 1962) showed the Zedler and Keeley population to also occur on the gabbro substrate, mapped as a mesozoic basic intrusive rock of Jurassic age. Soils mapped for this rock type (USDA 1973) are Las Posas.

Recently, Gentry (1978) summarized the knowledge of Nolina in western North America, but his information is general.

Study by T.A. Oberbauer since 1974 on peaks near his residence revealed additional populations of N. interrata. An attempt to determine the full range of the species and quantify somewhat the extent of the plants is the basis of this report. Further studies by Oberbauer (1979) indicated the unique role of gabbro-derived soils for not only N. interrata, but several other endemic plants.

DISTRIBUTION

Nolina interrata has thus far been found only in a small portion of south-central San Diego County, south and west of Dehesa School and on the peaks north of Jamul. Areas that have been examined for the presence of Nolina interrata include Viejas Mountain, (where N. parryi occurs) Dehesa Mountain, McGinty Mountain, Sequan Peak, Pat's Mountain, Barber Mountain, Jamul Butte and many of the unnamed ridges near Jamul. Nolina interrata occurs in only four major locations. The largest population with the greatest area is located on the northern peak, western slope and western ridge of McGinty Mountain.

Another large population exists on the southern slopes and eastern ridge of Dehesa Mountain and a third large population exists on the north slope of Sequan Peak. A relatively small population of about 150 individuals exists along the north side of the Skyline Truck Trail nearly a mile east of the turnoff to Lawson Valley Road (see accompanying Figures and Appendices).

POPULATION NUMBERS

The total number of individuals of this species is between 7,070 and 8,190. These estimates are imprecise. Though Nolina interrata is a bushy perennial monocot, it is difficult to estimate the actual numbers of individuals because several leaf rosettes may be attached to one common root system. The total numbers are thus counts of clumps of rosettes instead of individual rosette numbers. The number of clumps in each population is indicated on the Figures.

HABITAT

Nolina interrata has only been found on soils derived from mafic rocks, namely gabbro and peridotite. On these soils, other associated shrubs are stunted and form a sparse vegetative canopy. The peridotite imposes conditions severe enough that large patches of soil and rock are unvegetated. The majority of the Nolina is found on soil with medium to large-sized boulders and in many locations it grows out of rock piles. These locations normally have Nolina associated with chaparral shrubs. However, the populations of Nolina on the south slopes of Dehesa Mountain and a population on the west side of McGinty Mountain is growing in clay soils derived from gabbro in association with grasses. These grasses include some native Stipa as well as introduced Avena. A few small populations, including the type locality, are confined to small ravines and outwash areas.

The areas occupied by Nolina interrata receive between about 14 and 18 inches of precipitation annually, most falling between October and April. McGinty and Sequan Peak are both above 2000 feet in elevation and have been observed to have light snow and hail dustings for short periods during storms. However, Nolina interrata appears to be damaged by frosts. In January, 1979, Nolina appeared to be damaged by frost in the Skyline Truck Trail population. The associated Malosma laurina was also damaged by frost in this location. Summers in these areas are warm and dry with long periods of desiccating weather.

In most of the locations where it is found, Nolina interrata is not the only sensitive plant species present. Populations of Acanthomintha ilicifolia, Tetracoccus dioicus, Senecio ganderi, Chamaebatia australis, Monardella hypoleuca ssp. lanata, Fritillaria biflora and Salvia clevelandii have all been found adjacent to Nolina interrata plants. The plants most commonly associated with Nolina interrata are Tetracoccus dioicus, Adenostoma fasciculatum, Helianthemum scoparium and Salvia clevelandii (Oberbauer 1979).

Thus, Nolina interrata is confined to a narrow range of climatic and soil conditions. Like many species growing on restrictive soils, its presence is likely due to its ability to tolerate the soil conditions and thus compete with the stunted normal soil type shrubs.

Nolina interrata has thus far only been found in San Diego County (Reid Moran, personal communication) and on gabbro soils, but areas with similar climatic conditions exist in Baja California. There is a possibility, as suggested by Gentry (1946), that it exists in Baja California on gabbro soils or some other restrictive soil type.

THREATS

Major threats to this species are housing developments associated with the lot split process. A small portion of McGinty Mountain is publicly owned but the remaining populations of Nolina are in privately owned areas with buildable view sites. The McGinty Mountain population is illustrated in Weber (1963).

The Skyline Truck Trail population is located on land that is for sale at the time of this writing. The western ridge of McGinty Mountain has been divided up into parcels as small as three acres. Roads to house pads as well as a portion of a house pad have been cut into a Nolina population there.

The Dehesa Mountain population has recently been surveyed for a major large lot subdivision development. Such development trends would allow Nolina to be subdivided through the environmental process and left in small islands of habitat. Also, in the portion of San Diego County in which these plants exist, it is not uncommon for owners to bulldoze the vegetation upon discovering the presence of this or other sensitive plant species.

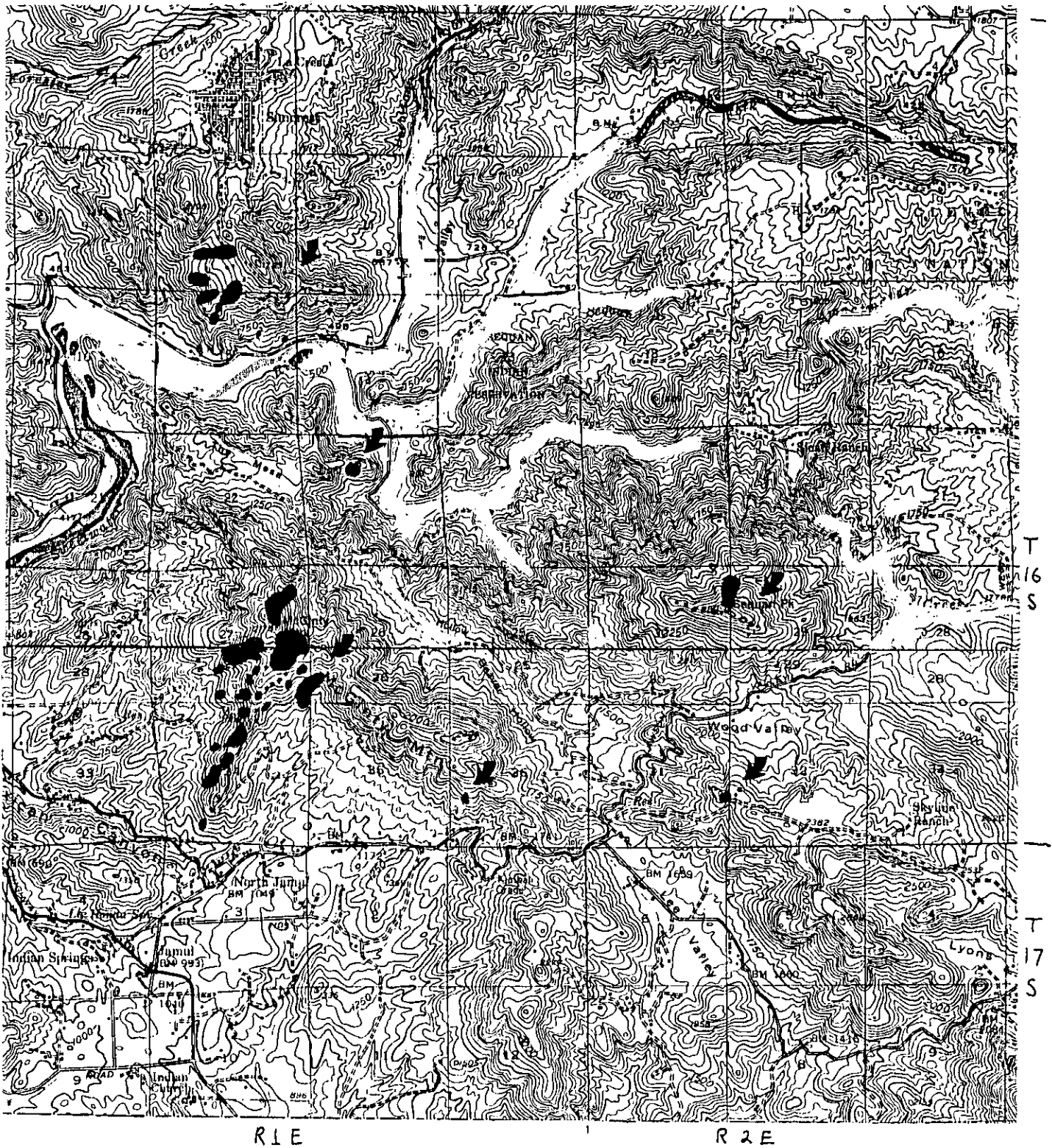
Some collections of N. interrata have been made for cultivation by cactus and succulent enthusiasts (Lyons 1976), however this activity seems to involve salvaged plants from eroding cuts or bulldozed areas.

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Figure 1. Known Range of Nolina interrata



APPENDIX I. Summary of Population Estimates of Nolina interrata Gentry.

<u>REGION</u>	<u>OWNERSHIP</u>	<u>MAP NUMBER</u>	<u>PLANTS PER PLAT MAP</u>	<u>SUB-REGIONAL TOTAL</u>
Dehesa	private	226-1809	1270-1470	
		222-1809	629-779	1899-2249
McGinty	23% BLM 77% private	210-1803	4	
		214-1809	800-1000	
		210-1809	2655-2915	
		206-1809	396-606	
		206-1815	30	
		202-1809	15	3900-4570
The Mesa	private	218-1809	50	50
Sequan	private	214-1827	981-1081	
		210-1827	117	1098-1198
Wood Valley	private	206-1827	123	123

Total Estimated Number of Plants of N. interrata - 7070-8190

APPENDIX II. Associated Sensitive Plant Taxa of Nolina interrata populations.

<u>REGION</u>	<u>ASSOCIATED SENSITIVE PLANT TAXA</u>	<u>STATUS</u>
Dehesa	<u>Tetracoccus dioicus</u>	(1-1-1-1)
	<u>Salvia clevelandii</u>	(0-1-1-1)
	<u>Fritillaria biflora</u>	(1- - -3)
	<u>Acalypha californica</u>	(1-1-1-1)
	<u>Dudleya variegata</u>	(1-2-2-2) [Threatened]
	<u>Viguiera laciniata</u>	(1-1-1-1)
	<u>Astragalus deanei</u>	(3-2-1-3) [Threatened]
McGinty	<u>Tetracoccus dioicus</u>	(1-1-1-1)
	<u>Monardella hypoleuca</u> ssp. <u>lanata</u>	(2-1-1-3) [Threatened]
	<u>Aconthomintha ilicifolia</u>	(3-2-2-2)
	<u>Fritillaria biflora</u>	(1- - -3)
	<u>Satureja chandleri</u>	(1-2-1-2) [Threatened]
	<u>Polygala cornuta</u> ssp. <u>fishiae</u>	
	<u>Senecio ganderi</u>	(2-1-1-3) [Threatened]
	<u>Chamaebatia australis</u>	(1- - -)
	<u>Cercocarpus minutiflorus</u>	(0- - -1)
	<u>Cneoridium dumosum</u>	(0- - -)
<u>Viguiera laciniata</u>	(1-1-1-1)	
The Mesa	<u>Tetracoccus dioicus</u>	(1-1-1-1)
	<u>Haplopappus junceus</u>	(1-1-1-1)
	<u>Caulanthus stenocarpus</u>	(2-1-1-3)
	<u>Viguiera laciniata</u>	(1-1-1-1)
Sequan	<u>Tetracoccus dioicus</u>	(1-1-1-1)
	<u>Salvia clevelandii</u>	(0-1-1-1)
	<u>Monardella hypoleuca</u> ssp. <u>lanata</u>	(2-1-1-3) [Threatened]
	<u>Polygala cornuta</u> ssp. <u>fishiae</u>	
Wood Valley	<u>Tetracoccus dioicus</u>	(1-1-1-1)
	<u>Salvia clevelandii</u>	(0-1-1-1)

(CNPS Status, Powell 1974) [Proposed Federal Status, Greenwalt 1975]