Population Status and Management Analysis of Clarkia springvillensis, Fritillaria striata and Pseudobahia peirsonii in the San Joaquin Valley, California

Prepared by: John C. Stebbins

Prepared for: Ann M. Howald California Department of Fish and Game Endangered Plant Program Sacramento, California

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TABLE OF CONTENTS

J

1

LIST OF APPENDICES	iii iv v vi
INTRODUCTION Study Purposes Sector Study Purposes Sector S	1 1 2 2 2
METHODS	3 3 3
RESULTS . Section 1. Clarkia springvillensis	4 4 10 14
ANALYSIS OF RESULTS, CONCLUSIONS, RECOMMENDATIONS.	20
REFERENCES	24
APPENDICES	27

ü

LIST OF APPENDICES

I. 1990 Location and Population Data for Clarkia springvillensis

II. Educational Awareness Guide for Springville Clarkia Ecological Reserve

III. 1990 Location and Population Data for Fritillaria striata

IV. 1990 Location and Population Data for Pseudobahia peirsonii

LIST OF TABLES

Table	Page
1. List of California herbaria visited	. 3
2. Population Status Analysis for Clarkia springvillensis	20
3. Population Status Analysis for Fritillaria striata	21
4. Population Status Analysis for Pseudobahia peirsonii.	22

ţ.

LIST OF FIGURES

Figure	Page
1. Line Drawing - Clarkia springvillensis	5
2. Population Site Locations - Clarkia springvillensis	7
3. Springville Clarkia Ecological Reserve Location Map	8
4. Line Drawing - Fritillaria striata	11
5. Population Site Locations - Fritillaria striata	13
6. Line Drawing - Pseudobahia peirsonii	15
7. Population Site Locations - Pseudobahia peirsonii	17

v

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ACKNOWLEDGMENTS

A botanical analysis of three species in such a vast area as the eastern San Joaquin Valley is a challenging task. Information provided by several individuals and agencies was very helpful in completing this endeavor. Ann Howald provided the initial request and funding that enabled the work to proceed. The staff of the California Natural Diversity Data Base compiled many of the records that formed the basis of the study. Field information and personal observations made by Robert Hansen, Jack Zaninovich, Jim Shevock, and Rick Mitchell proved to be especially helpful.

Field effort and data analysis for this project was aided by Karen Kirkpatrick of Visalia. Her assistance in documenting many of the population sites enabled the project to be completed within a very short growing season.

INTRODUCTION

Study Purposes

Springville clarkia (*Clarkia springvillensis*) is designated by the State of California as an endangered plant species (Smith and Berg 1988). It is a localized endemic, known to occur in the vicinity of Springville, Tulare County.

Striped adobe lily (*Fritillaria striata*) is designated by the State as a threatened plant species (Smith and Berg 1988). It is known to occur only in the southeastern San Joaquin Valley and in the foothills of Tulare and Kern Counties.

Tulare pseudobahia (*Pseudobahia peirsonii*) is designated by the State as an endangered plant species (Smith and Berg 1988). It is known to occur in the eastern San Joaquin Valley grassland in Fresno, Tulare and Kern Counties.

All three species have been severely impacted by agricultural land conversions, urban development, competition from non-native "weedy" plant species, and heavy livestock grazing. Very few "high quality" population sites remain for the species. Most of the remaining sites are currently threatened by ongoing real and potential impacts.

Research and data analysis by Stebbins (1988), Stebbins (1991), Hansen (1988), and Jones and Stokes (1990), have documented the decline in status of all three species.

The California Department of Fish and Game, Endangered Plant Project, has contracted this effort to enhance the protection and management of these species. In addition, the Department has contracted to develop an educational guide for *Clarkia springvillensis* to be used at the Springville Clarkia Ecological Reserve. This guide is a desirable tool to publicize and enhance the appreciation of the species and highlight the protection activities of the reserve in Tulare County. This report documents these efforts and also provides an analysis of the overall success toward achieving the described objectives.

Field Searches

Most of the known historical localities of the three species were visited during the 1990 growing season. Field work was planned to coincide with the appropriate phenological conditions necessary for species identification. All field work was conducted between 14 March and 10 May, 1990.

Because of absent or vague location information, some of the historical collection sites could not be located with precision. In those cases, generalized searches were performed in a geographic region, with an emphasis placed on the areas with potentially suitable habitat capable of supporting the species. The field survey covered the known geographic ranges of the three survey species, from Fresno County south to Kern County.

In most cases, efforts to visit the sites were successful, but in a few cases, access was denied on lands under private ownership. It is important to note that almost all of the remaining habitat for all three species is located on private lands.

At each historical or previously undocumented site, data was collected on current habitat conditions and population status, as well as any observed disturbances or threats to population survival. Data relating to physical site characteristics, physiographic and topographic characteristics, edaphic factors, erosion, biological characteristics, vegetation type, associated species, and number and size class distribution of the individual plants was collected. In addition to observed threats, long range or potential threats (where known) were noted for each population site. CNDDB field forms were completed for each site visited and are included in the appendices of this report.

Data obtained from the observations at known sites were used to identify suitable habitat areas to search for undocumented populations of the three survey species. Areas within and adjacent to the population concentrations within the ranges for the species were systematically explored, subject to access and time constraints.

Protection

In numerous cases involving *Fritillaria striata* and *Pseudobahia peirsonii*, efforts were made to either directly protect or facilitate the protection of the species. These efforts involved several different avenues such as owner education (see below), or working as the "technical intermediary" between the landowner/manager and some other agency/organization. In most of the successful cases, it involved supplying the technical botanical data to either the California Department of Fish and Game or The Nature Conservancy. Those agencies then were able to move forward with the protection agreements described in this report.

Owner Education

In many cases, contact was made with the owners of the lands containing the described populations. In the cases where a "positive" response from the landowners was the result, an attempt was made to educate them on species protection methods that were compatible with the current land uses (see Appendices for detailed descriptions).

Report Format

Reporting of results for this study generally follows the format of Henifin et al. (1981).

METHODS

Herbarium and Data Base Searches

The effort to obtain information on the historical distribution for the three survey species utilized two main sources: 1) direct surveys of major and regional California herbaria likely to contain collections from the species, and 2) from computerized records maintained by the Natural Diversity Data Base, California Department of Fish and Game (CNDDB).

Visits to major and regional herbaria were conducted prior to the 1990 field season. Table 1 lists the herbaria surveyed during this study. At each institution, all collections of the three species were inspected for relevant taxonomic, morphologic, and ecological information pertaining to this study. The correct determination of each specimen was confirmed (a relatively easy task based upon the distinct morphological characteristics unique to each species).

Table 1.	List of California herbaria visited during the historical records search of <i>Clarkia</i>
	springvillensis, Fritillaria striata and Pseudobahia peirsonii.
	(abbreviations follow Index Herbariorum)

Institution and Location
California Academy of Sciences, San Francisco
University of Pacific, Stockton
California State University, Los Angeles
Botany Dept., University of California, Davis
Dudley Stanford Herbarium (housed at CAS)
California State University, Fresno
Jepson Herbarium, University of California, Berkeley
University of California, Los Angeles
California State University, San Luis Obispo
Pomona College, Claremont (housed at RSA)
Rancho Santa Ana Botanical Garden, Claremont
California State University, Sacramento
Santa Barbara Botanical Garden
University of California, Berkeley
University of California, Santa Barbara

Literature Review and Consultations

A review of both published and unpublished literature on the survey species was conducted using bibliographic methods. A significant source of unpublished information on the survey species was obtained from the files of The California Native Plant Society, The California Nature Conservancy, and Pacific Gas and Electric Company. Also, personal communications with botanists knowledgeable about the species proved to be quite valuable. The most notable included Robert Hansen of Visalia, Rick Mitchell of Springville, Jim Shevock of San Francisco (formerly of Porterville), and Jack Zaninovich of Delano.

RESULTS

Section 1. Springville clarkia (*Clarkia springvillensis*)

Clarkia springvillensis (Vasek 1964) is an endemic herbaceous annual species with a very restricted distribution in the lower foothill woodland habitats of the Tule River drainage, Tulare County, California. The species was probably once much more widespread in the region and ranged throughout the lower foothill woodland on the eastern edges of Frazier and Pleasant valleys, north and east of Lake Success (Shevock 1985). As habitat was rapidly lost in these areas in the last 30 years, the species became more restricted to fewer enclaves in the North and Middle Fork Tule River canyons. C. springvillensis was designated an Endangered Species by the State of California in 1979.

Taxonomic Relationships

Vasek (1964) placed Clarkia springvillensis in section Phaeistoma, comprised also of C. unguiculata, C. exilis, and C. temblorensis. The species description was based on flowers from plants collected at the type locality in 1958, along Balch Park Road 1.8 miles north of Springville [Vasek 630522 (LA)]. Vasek (1964) proposed that C. springvillensis is an evolutionary derivative of C. unguiculata, the latter being an extremely widespread species occurring in the western Sierran foothills from Kern to Butte Counties and in the Coast Ranges from Mendocino to San Diego Counties (Lewis and Lewis 1955). Vasek (1964) reported that the nearest populations of C. springvillensis and C. unguiculata were separated by 8 km and implied that geographic isolation may not have been a factor in the evolution of C. springvillensis.

Species Description

Clarkia springvillensis (Figure 1) is an erect herbaceous annual with branched glabrous, glaucous stems up to 0.8 m tall. The leaf blades are 2-9 cm long and 5-20 mm broad. The dark red puberulent sepals are 12-16 mm long and 3-4 mm wide. The petals are 13-16 mm long and usually exceed the sepals. The lavender-pink petal limbs, 6-8 mm long and 7-10 mm broad, have a dark purplish spot at the base and terminate in a narrow red claw 7-9 mm long. The eight unequal stamens, four exserted and four included, have purple-red filaments and anthers. The glabrous inferior ovary is 10-17 mm long and the 14-20 mm long style exceeds the stamens at anthesis. Chromosome number is 2n = 18 (Vasek 1964). The plants bloom during May or June depending on seasonal conditions.

Cyclical germination patterns are quite common among species in the genus *Clarkia* (Lewis and Lewis 1955). The ability to postpone germination for one or more seasons confers an obvious evolutionary advantage to an annual species occurring in a range climactically subjected to periods of drought. Shevock (pers. comm. 1990) observed very cyclical germination patterns for *Clarkia springvillensis* in any given season and speculated that the timing of spring rainfall is critical in the germination and development of this species.



Illustration by Shannon Bickford



Regional Distribution

Distributional data from field studies indicate that *Clarkia springvillensis* is a rare species known only from populations within the Tule River drainage (Figure 2). The known vegetation associations and habitat characteristics for this species are extremely widespread in the region, yet distribution of *C. springvillensis* is very restricted. Visits to sites of extinct populations and habitat data obtained at locations of extant populations support speculation that *C. springvillensis* has been severely impacted by livestock grazing, roadside vegetation control and habitat loss from development. This species is currently restricted to small islands of habitat unaffected by these impacts. Without site protection, an encroachment of one or more of these activities will certainly degrade its habitat and possibly cause extinction of the species. (Refer to Appendix for detailed information).

Habitat Characteristics

Vegetation structure and composition of the habitat reveal that Clarkia springvillensis is found at elevations between 305 m to 915 m, on south or west facing slopes and openings in Blue Oak Woodland. It is usually associated with Quercus douglasii, Q. wislizenii, Adenostoma fasciculatum, Ceanothus cuneatus, and Toxicodendron diversilobum, in habitat with less than 10 percent canopy closure.

Soils analysis of the population sites reveals that gravel comprises approximately 9 percent of the substrate, fine gravel about 28 percent, coarse sand 20 percent, fine sand 25 percent; silt and clay comprised approximately 18 percent of the substrate at all sites and exhibited the greatest range (+9 percent) in substrate composition. No clear relationship is evident between soil structure and *Clarkia springvillensis* population size at a given site. Clearly the size of a population and distribution of the species is not determined by edaphic factors, since decomposed granitic soils are quite common in this region.

Species Endangerment and Protection Status

Based upon the available data, the California Department of Fish and Game (CDFG) determined that the continued viability of the species was indeed threatened and that habitat preservation was necessary to provide long-term protection. Fortunately, the land parcel containing some of the largest known population (CNDDB Occ. #5) was offered for sale in 1986 and was purchased by CDFG and named the "Springville Clarkia Ecological Reserve" (Figure 3). In 1989 fencing and posting was installed at the reserve to minimize the threat of accidental impacts, primarily from grazing. The State has funded an evaluation study by the College of Sequoias to determine trends in growth of the population. Current density and cover data was gathered to provide baseline values for future studies (Wise 1987 and Martin 1989). Unfortunately, it has recently been determined that a significant portion of this population is actually not on the State property, due to the erroneous placement of a fence (Ashford 1989). Consequently, the neighboring landowner could impact approximately half of the Springville clarkia population present at the site! CDFG will hopefully correct this situation by acquiring the described parcel.

Some of the recently discovered populations of *Clarkia springvillensis* are present on lands owned by the Tulare County Department of Education (Mitchell, pers. comm. 1990). This property is used for environmental education purposes related to SCICON, an elementary school conservation and education field campus. Unfortunately, most of the SCICON lands are open to cattle grazing (see Appendix I). It is strongly suggested that CDFG attempt to "educate" SCICON management on the detrimental effects of grazing, especially during the flowering period. This will better protect the species on the property.



Figure 2. Site Locations for populations of Clarkia springvillensis



Figure 3. Springville Clarkia Ecological Reserve Location Map (Reference: Springville Quadrangle)

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As a result of the "urging" by the author of this report, three of the other extant populations were also afforded varying degrees of protection. The Wishon Fork Canyon population (CNDDB Occ. #3) is being protected by a joint agreement between Sequoia National Forest and PGandE. This population was fenced on both sides of the aqueduct access road with barbed wire to exclude livestock grazing. Signs were posted at the site to warn utility and forest service personnel of the sensitive nature of the habitat. Funding for the materials and installation was provided by PGandE.

The two populations in the Middle Fork Canyon (CNDDB Occ. #6a and #6b) are being protected by a joint agreement between PGandE, SCE, and Sequoia National Forest. Since these two sites are inaccessible to livestock, fencing was not a necessary component of protection. The population under the hydroelectric transmission line (CNDDB Occ. #6a) was staked around its perimeter and signs were installed to warn operations personnel that it is a sensitive area and to contact PGandE biologists prior to any maintenance activities. The population adjacent to the flume (CNDDB Occ. #6b) was staked and signed in a similar manner with instructions to contact SCE biologists.

It is recommended that CDFG encourage PGandE, SCE, and the USFS to monitor these populations on an annual basis and report their findings to the CNDDB. By doing so, the relative success of these protection efforts can be evaluated.

Educational Awareness Guide

A field survey and analysis of the Springville Clarkia Ecological Reserve was made on April 27, 1990. The survey was made in the company of Lee Ashford, habitat supervisor from the Fresno regional office of CDFG. During the survey, extensive data on habitat conditions and floristic composition of the reserve were collected. This data was incorporated with other information derived from the described research and consultations to provide a basis for an educational awareness guide (refer to Appendix II).

Fritillaria striata (Eastwood 1931) is a localized endemic perennial species of the southern Sierra Nevada and Tehachapi range foothills (Figure 4). Historically, the striped adobe lily was known from several locations in the San Joaquin Valley in Kern and Tulare Counties. Most of the historic valley populations have been extirpated due to urban development and agricultural land conversions. Approximately twelve extant populations are currently known.

Although the species apparently was never common, based upon the available herbaria records, it was much more widespread than it currently is. Most of the existing populations are only mere fragments of much larger historic occurrences.

Taxonomic Relationships

Fritillaria is a genus of slender, herbaceous perennials with simple leaves, an unbranched stem developing from an underground bulb, a terminal inflorescence, six tepals (three sepals and three petals that are not significantly different), six stamens, a noncapitate style, and usually a prominent nectary. All North American species have a single leafy bract subtending each flower. Worldwide, there are about 100 species included in the genus, some of them prized for their horticultural value.

Fritillaria striata was first described as a distinct species by Alice Eastwood (1931). The description was based upon the type specimens that were collected by E. Roy Weston, May 1927, on Rattlesnake Grade in the Greenhorn Mountains of Kern County and deposited in the California Academy of Sciences Herbarium (CAS #145549). The species was also represented by collections made in 1928 near Lindsay and 1929 from Frazier Valley, both in Tulare County. In the description, Eastwood noted that the species was related to the adobe lily (*Fritillaria pluriflora* Torr.) which occurs in the northern Sacramento Valley foothills. *F. striata* differed, however, in the shape, size, and the coloring of the flowers, the conspicuous nectaries, and the connivent stigmas.

Species Description

Fritillaria striata has a deep-seated (ca. 20-35 cm underground) approximately spherical bulb 15-20 mm in diameter of three thick ovoid scales; stems 5-10 cm tall above ground; leaves predominately basal, ascending, the lowest oblong-lanceolate, 1-2 cm wide, 6-10 cm long, glabrous, opposite to alternate; the upper narrower and somewhat undulate, alternate; flowers, 1-4 (9), campanulate, nodding on abruptly recurving pedicels, pink or sometimes white or burgundy, fragrant; tepals 6-10 mm wide, 2-3 cm long, recurved at tips, inside of tepals with prominent red striations usually in pairs 0.2-0.5 mm apart; nectary elliptical to ovate, ca 3 mm x 2 mm, green, concave, at base of tepals; stamens approximating or exceeding the pistil; style linear, 9-15 mm long, barely triparted at the apex. Capsule quadrate, 2 cm long, not winged. Chromosome number 2n = 24 (Cave 1970).

Regional Distribution and Sensitivity

Distributional data from historical and recent field studies indicate that striped adobe lily is a rare species known only from the foothills of Kern and Tulare Counties (Figure 5). Most of the populations recorded from the flatter sites near the valley floor have been extirpated.



Figure 4. Striped adobe lily (Fritillaria striata)

Some new locations, including one very extensive population in the Kern County foothills, have been documented during the field surveys associated with this study (refer to Appendix III for detailed population information).

Habitat Characteristics

From all available data, this species appears to be restricted to some of the heavy clay (adobe) soils that are found along the eastern side of the San Joaquin Valley and in some of the foothills.

The striped adobe lily is apparently an edaphically restricted species. All of the known extinct and extant population sites occur on adobe clay soils. At lower elevations on the valley floor the species has been found on Porterville clay, Mt. Olive clay, and Cibo clay. It has also been found on various other minor series clay-rich soils in the foothills bordering the valley. The physiological-ecological basis for this restriction to heavy clay soils is not known.

It has been noted that the remaining populations generally occur on the lower portions of north-facing slopes (Hansen 1988, Stebbins 1989). The seeming partiality of north-facing slopes is probably a result of its preference for the more desirable soil moisture and the cooler, more mesic conditions present there.

Fritillaria striata is known to occur in both non-native grassland and blue oak woodland (Holland 1986). The common species found associated with F. striata in these communities include wild oat (Avena fatua), purple brodiaea (Dichelostemma pulchellum), fiddleneck (Amsinckia intermedia), and blow wives (Achyrachaena mollis). In the higher elevation occurrences in the foothills the species is associated with widely scattered blue oak trees (Quercus douglasii). Common herbaceous associates in this setting include popcorn flower (Plagiobothrys nothofulvus), soap plant (Chlorogalum pomeridianum), lomatium (L. utriculatum), and red brome (Bromus rubens).

It is significant to note that *Fritillaria striata* has been observed growing sympatrically with the Tulare pseudobahia (*P. peirsonii*), a state-listed endangered plant species. The two species occur together at two locations: Lewis Hill in Tulare County and Pyramid Hill in Kern County (Stebbins 1989).

Species Endangerment and Protection Measures

Several factors are known to threaten the existence of *Fritillaria striata* at many of the existing populations. The most obvious cause of adverse impacts, agricultural land conversion, has resulted in direct and irreversible extirpation of many populations (Stebbins 1988). With the advent of drip irrigation, orchards can be planted more successfully on much steeper slopes and the potential therefore exists for further impacts to the remaining populations in both counties.

Virtually all of the known extant populations of *Fritillaria striata* are being subjected to various degrees of livestock grazing. It is common practice in the region to graze virtually all accessible rangeland that is not agriculturally developed. Most of the grazing impacts are from cattle.

Because no organized protection or conservation activities were known to be in place, a major effort was made to facilitate a protection agreement for one or more striped adobe lily populations. This was accomplished with the protection of the Lewis Hill population in Tulare County through a permanent easement with the Nature Conservancy (see Table 3). In addition, an emphasis was made to document any previously unknown populations, especially those that might occur on public lands. Refer to Appendix III in this report for specific population data. Refer to the conclusions section for an analysis of the protection measures achieved for the species. The populations located on Pyramid Hill in Kern County are subject to pending permanent protection measures.



Figure 5. Site Locations for populations of Fritillaria striata

Section 3. Tulare pseudobahia, San Joaquin Adobe Sunflower (Pseudobahia peirsonii)

Pseudobahia peirsonii (Munz 1949) is an herbaceous annual species with a restricted distribution in the grasslands of the San Joaquin Valley. Although never common, the species was once known from several locations in Fresno, Tulare and Kern Counties. Approximately 17 extant populations are currently known.

Taxonomic Relationships

Pseudobahia peirsonii was first described as a distinct species by Dr. P.A. Munz in 1949. The type (Munz # 9038, RSA) specimens were collected in 1925 in the company of Frank W. Peirson of Altadena, California.. Munz based his species description on the larger flowers, coarser stems, longer leaves, and the fact that the largest leaves are bipinnatifid. Also, the phyllaries are united only at the base as opposed to half their length in *P. heermannii*. This taxonomic separation was later supported with additional morphological and cytological evidence by Carlquist (1956) and Johnson (1978). Munz named the species in honor of his friend, Peirson.

Earlier collected specimens had been variously included in *Pseudobahia heermannii* (Durand) Rydb., or *Monolopia heermannii* (Durand) or *Eriophyllum heermannii* (Durand) Greene, depending on the generic position given that species.

Common Names: "Tulare pseudobahia" (Smith and Berg 1988, Abrams 1960). In keeping with the more widely accepted practice of not using the genus in a common name, it has recently been recommended that "San Joaquin adobe sunburst" be utilized (Stebbins 1991). This name is descriptive of the bright yellow flower color of the species as well as the geographic and edaphic distribution.

Species Description (refer to Figure 6)

Annual somewhat woolly, divaricately branched above, 1-6 dm tall. Stenis erect; 1.5-4.2 mm thick, the branched green to somewhat reddish, often becoming glabrate. Leaves alternate, triangular ovate, reduced up to the stem. The petioles are 0.5-4.0 cm long and somewhat flattened. The blades are 1-4 cm long and almost as wide, grayish-tomentose or floccose, sometimes glabrate above. Blades are usually bipinnatifid into linear-oblong obtuse segments 1-5 mm wide, except in depauperate specimens. Heads solitary, on peduncles 2-10 cm long. Involucres hemispheric, 6-9 mm high, 10-22 mm wide, tomentose. Phyllaries about 8, lance-ovate and free essentially to the base. Ray-flowers about 8, the tube slender, the ligule 8-14 mm long, almost as wide, yellow, broadly ovate, entire or notched at the apex. Disk-flowers orange-yellow, about 3 mm long, with a hairy slender corolla tube. Achenes black, about 3 mm long, obovoid, somewhat compressed. Pappus none. Chromosome number 2n = 16.

Morphologically, *Pseudobahia peirsonii* is similar to the two other species within the genus and to two other genera; *Eriophyllum* and *Lasthenia*. *Pseudobahia* is separated from *Eriophyllum* by lacking a pappus and by having compressed achenes. It is easily distinguished from *Lasthenia* by the presence of alternate leaves.



Figure 6. Tulare pseudobahia, San Joaquin adobe sunburst (Pseudobahia peirsonii)

Regional Distribution and Sensitivity

Distributional data from historical and recent field surveys indicate that *Pseudobahia peirsonii* is a rare species whose occurrences are localized in the southeastern San Joaquin Valley in Fresno, Tulare and Kern Counties. The plant is extirpated at the type locality of Ducor in Tulare County (Figure 7). Field inspections made during 1990 at each of the 30 reported localities indicates that the species is extant or presumed extant at 17 (56 percent) of the sites. Detailed location and habitat data from each population site is presented in Appendix IV.

Habitat Characteristics

Prior to accurate mapping of the soils of the San Joaquin Valley, the earliest collections of the species often referred to "heavy clay" or "dark adobe" soils. Based upon the current available soil data it can be stated that *Pseudobahia peirsonii* is an edaphically restricted species. All of the known extinct and extant populations that can be accurately mapped occur on heavy adobe clay soils. The species is most often associated with Porterville clay, Centerville clay, Cibo clay, and Mt. Olive clay (Stebbins 1989). No published detailed soil data are available for eastern Kern County at this time, but all of the observed populations in that county are located on similar heavy clay soils. The physiological-ecological basis for this natural restriction to these soils is not known. It is known from personal observations that the species can be successfully germinated and cultivated on non-clay soils in the artificial growing regime of a greenhouse as long as basic nutritional needs are met. Johnson (1978) also grew the species under artificial conditions at U.C. Berkeley. This information leads the author of this report to speculate that the edaphic restriction is possibly at least partially related to the water retention properties associated with these heavy clay soils. Perhaps seed germination and early plant growth in nature can occur only above a certain moisture threshold and these unique soils retain this moisture level longer in an area where the average annual precipitation is less than 10 inches. Tests performed at California State University, Fresno have documented the average percent moisture by weight of these four soils to be 34.1 percent.

Pseudobahia peirsonii occurs almost entirely in non-native grassland (Holland 1986). At some of the sites in the southern part of the range, the grassland habitat intergrades into the blue oak woodland. This is especially true in the Greenhorn Range in Kern County where some of the populations occur above 610 meters (2,000 feet). All of the sites are characterized by a moderate to dense cover of annual grasses as well as native and non-native annual and perennial forbs. The most common plant associates of *P. peirsonii* recorded and observed are (in decreasing order of frequency): Erodium cicutarium, Lepidium nitidum, Bromus rubens, Avena fatua, Amsinckia intermedia, Achyrachaena mollis, Brassica kaber, Dichelostemma pulchellum, Gilia tricolor, Bromus mollis, Avena barbata, Hordeum geniculatum, H. leporinum, Senecio vulgaris, Vulpia myuros, Stellaria media, Agoseris heterophylla, Hypochoeris glabra, Sisymbrium altissimum, and Lactuca serriola.

Species Endangerment and Protection Measures

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The decline of the status of *Pseudobahia peirsonii* can generally be attributed to agriculture, overgrazing, and development. Any assessment of the historical range of the species is complicated by the fact that most of the records from the major population concentrations in the three counties were preceded by widespread agricultural development. Indeed, the species was undoubtedly already rare when Munz described it in 1949 from specimens collected in 1925!

- Specific, Extant
 Specific, Presumed Extirpated
 General, Presumed Extirpated
 A Nonspecific, Presumed Extirpated



Figure 7. Site Locations for populations of Pseudobahia peirsonii

The most obvious impact that has resulted in direct and irreversible population extirpation is agricultural land conversions. Many of the historic occurrences including the type locality have been lost due to agriculture. The heavy clay soils preferred by the species are often distributed in the valleys and flats near the foothills on the east side of the southern San Joaquin Valley. These areas are also considered excellent sites for growing citrus, grapes, olives, wheat, barley, oats, and other crops. With the advent of drip irrigation, even the slopes of the foothills have become cultivated. Therefore, at many of the known extant populations, direct and indirect threats are present from adjacent agricultural operations.

Virtually all of the known extant occurrences are being impacted by various degrees of livestock grazing (primarily cattle). It is a widespread practice to graze virtually all of the accessible rangelands that are not agriculturally developed within the range occupied by the species. As a result, some population sites have become essentially "cattle pastures". At these sites, the grazing pressures are so severe that many native species, including *Pseudobahia peirsonii*, have been significantly reduced and replaced by ruderal non-native taxa such as *Brassica*, *Sisymbrium*, *Avena*, and *Silybum*. These aggressive plants have become established on the sites that were disturbed by overgrazing and literally outcompete the *P. peirsonii* plants in successive growing seasons.

Other threats to the species include the rapid urban development of Fresno and Tulare Counties. The major population centers of Fresno-Clovis, and Porterville-Visalia are rapidly expanding to the east. These cities and many other San Joaquin Valley communities are actively encouraging residential development on the east side rangelands in an attempt to preserve "prime agricultural lands".

Since some of the occurrences are represented by small roadside populations, potential road widening and alignment projects threaten the populations present. Caltrans has "stabilized" the sloping clay soils and sprayed herbicides at some of the occurrences in the past.

Several of the remaining extant occurrences in Tulare County are centered around Lake Success east of Porterville. These populations are subject to various threats associated with the use and management of the reservoir. They also are threatened by a proposal by the Army Corps of Engineers to raise the current level of Lake Success for additional water storage. The Corps personnel are aware of the significance of the species and are attempting to incorporate it into their management plans. They are also attempting to locate the species on other Corps property in the vicinity. A proposed flood control project near Round Mountain in Fresno County threatens a population that is considered "high quality". A portion of this population (number 16) will be "protected" under a management plan currently being developed by the Fresno Flood Control District (M. Marks, pers. comm. 1990). The population on Pyramid Hill in Kern County will also likely be protected under this same plan.

Based upon current population projections, all of these described threats are likely to be intensified over the decade. Increased pressures for land use changes in the eastside grassland habitat could negatively impact the overall status of *Pseudobahia peirsonii*.

With the exception of two sites of *Pseudobahia peirsonii*, (Numbers 9 and 16), the populations of the species are located on lands under private ownership and management (see Appendix IV). As a result, existing state and federal laws are quite limited in their ability to regulate potentially detrimental human activities (Clausen 1989). Occurrences on private property are also threatened as well by local government zoning regulations, under which conversion of open rangeland to agriculture and development is often permitted as a right, and is in many cases encouraged.

Population number 9 is under the management of the Army Corps of Engineers at Lake Success. Significant negative impacts have occurred to this population (see Appendix II). Population number 16 is under the management of the Fresno Flood Control District. A portion of this population will be impacted by a flood control reservoir that is currently under construction at the site. A mitigation plan which "compensates" for these impacts involves a proposal to acquire Population number 18 at Pyramid Hill along Rancheria Road in Kern County. If it is acquired by the District it will be turned over to the California Department of Fish and Game for management. If this is accomplished, *Fritillaria striata* will be protected as well, as it also occurs on the site. However, this plan has <u>not</u> been finalized by all of the agencies involved or the landowner (M. Marks, pers. comm. 1991).

Population number 15 near Academy in Fresno County has been recently protected under a landowner protection agreement with The Nature Conservancy. Input from the author of this report to Lynn Lozier of TNC was instrumental in providing a basis for the agreement.

Refer to the conclusions section for further analysis of the protection measures achieved for this species.

ANALYSIS OF RESULTS, CONCLUSIONS & RECOMMENDATIONS

Based upon efforts associated with this and related efforts or concurrent studies, an analysis of the various protection measures achieved or initiated is hereby described. The protection measures for the known populations are itemized on a per species basis (also refer to Appendices for specific data).

CNDDB Occ. No.	Location	Status/Protection Measure(s)
3	PGandE Penstock Road	Fenced, Signs, USFS Land
4	Middle Fork Tule River	Fenced
5	CDFG Ecological Reserve	Fenced/Managed
6	PGandE Transmission Line	Fenced, Signs, USFS Land
-(new)	Road to Bear Creek, Scicon	USFS Land
- (new)	Scicon-Road Embankment	Owner Awareness/Education
- (new)	Scicon- "McDonald Hill"	Owner Awareness/Education
- (new)	Scicon- "Listening Hill"	Owner Awareness/Education
- (new)	Dillon Ranch Road	Tulare Co.(Owner) Awareness

Table 2. Springville clarkia (Clarkia springvillensis) Population Status Analysis.*

* It is recommended that all of the owners/land managers of these populations be contacted by CDFG to provide annual monitoring data so that the various protection measures can be evaluated.

CNDDB Occ. No.	Location	Status/Protection Measure(s)	
1	Rancheria Road	Erroneous	
2	Rancheria Road	Not Documented in 1990	
3	Rancheria Road	Not Documented in 1990	
4	Near Long Tom Mine	Extensive Pop., Owner Aware, Well Managed, Remote Location	
5	"Shirley Meadow, Foothills"	Not Documented in 1990	
6	"Wiseman Field"	Owner Aware, Well Managed	
7	"Horseshoe Ranch"	Access Refused, Habitat Present	
8	"Porterville"	Extirpated	
9	Frazier Valley	Extirpated	
10	Rancheria Rd. near Kern Canyon	Extirpated	
11	5 mi. E. of Lindsay	Extirpated	
12	Rancheria Road	Overgrazed	
13	Rancheria Road	Owner Aware, Not Overgrazed	
14	Rancheria Road	1 plant in 1990	
15	Pyramid Hill	Potential Ecological Reserve Pending w/ Fresno Flood Control District (see Appendix)	
-(new)	1/4 mi. S. Rancheria Rd.	Remote Location/Afford Protection	
16	Rancheria Road	Grazed/ None, Large Pop.	
-(new)	Rancheria Road	Across from #16, Grazed/None	
17	Granite Station	Probably same as #6	
-(new)	Sycamore Canyon	Overgrazed/Owner Aware	
-(new)	Lewis Hill (Tulare Co.)	TNC Easement Established 1991	
-(new)	Rocky Hill (Tulare Co.)	Partially on Army Corps. Land Aware/Grazing Mgmt. Also, partially on lands that may be acquired by CDFG	

Table 3. Striped Adobe Lily (Fritillaria striata) Population Status Analysis.

Note: Several of the Rancheria Road populations are potentially threatened by road construction. Caltrans has designated this route as a study corridor for the new Highway 178 to bypass the Kern River Canyon. Although no immediate plans are in progress to pursue this option, the potential exists if Kern County voters approve a forthcoming road construction ballot measure (B. Valentine, pers. comm. 1990). Refer to Appendix for specific population and location data.

CNDDB Occ. No.	Location	Status/Protection Measure(s)	
1	Adobe Canyon	Stable/ Remote Location	
2	Long Tom Gulch	Not Doc./Habitat Present, Remote Location	
3	Woody	Erroneous or Extirpated	
4	9.5 mi. W. of Woody	Caltrans Protection	
5	E. of Highway 65	Extirpated	
6	Vestal	Extirpated	
7	Ducor	Extirpated	
8	4 mi. S. of Porterville	Extirpated	
9	6 mi. E. of Porterville	Extirpated	
10	Near Success Dam	Present/None	
11	"Tulare"	Extirpated	
12	"Exeter"	Extirpated	
13	Dinuba	Extirpated	
14	Campbell Mountain	Present/None	
15	Academy	Owners Aware/Potential TNC Agreement	
16	Round Mountain	Partial Protection	
17	E. of Ducor	Extirpated	
18.	Pyramid Hill	Potential Reserve Pending w/ Fresno Flood Control District (see Appendix)	

Table 4.	Tulare Pseudobahia,	San Joaquin	Adobe	Sunburst	(Pseudobahia	peirsonii)
	Population Status A	nalvsis.				-

continued next page

C

19	Success Reservoir	Army Corps Aware/Grazing Managed	
20	South Fork Success Reservoir	Presumed Extirpated	
21	Rancheria Road	Not Documented	
22	S. of Fountain Springs	Present/None	
23	N. of Fountain Springs	Present/ None	
24	Rag Gulch	Remote Location	
25	N. of Round Mountain	Owner Aware/Heavy Grazing	
26	N. of Rocky Hill	Present/None	
27	W. of Rocky Hill	Owner Aware/Potential TNC Agreement	
28 .	Lewis Hill	Present/None, Heavy Grazing	
29	Lindsay	Extirpated	
30 (new)	E. of Clovis	Potential CDFG Protection Pending with Developer	

In Summary, it can be stated that the 1990 field work, research and consultations have resulted in some very definite and positive protection measures either being implemented or initiated for all three species. One or more sites of each species is now under some type of permanent protection. Several other sites are considered to be "safe" from any immediate threats through a combination of owner education/awareness, remote locations or pending protection activities that are in progress. While an effort of this type is never "really completed", this project has yielded significant and valuable data for resource managers and conservation organizations to utilize for future protection efforts. It is recommended that the endangered plant program continue to focus the attention of management personnel on the species.

In addition, the educational awareness guide produced for the Springville Clarkia Ecological Reserve will likely prove to be a powerful public relations tool for the California Department of Fish and Game. It is probable that additional protection measures will result from the interest and awareness generated from the utilization of the guide by the other local landowners.

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APPENDIX I

1990 Location and Population Data for Clarkia springvillensis

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CALIFURNIA NATIVE SPECIES FI	
	OFFICE USE ONLY
PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU	Document Code Quad Code
USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
Scientific name (no codes): Clarkia Soring will en	
Reporter:STEWLINS	Phone: (20) _278-2179
Address:	
Date of Field Work: 27-04-19 90 County: Tulave co	Mus./
Location: UPWill SUPY UF ALT ALIES	mand between Bear Creek
and poved road to Sciem and	ministration Affices. Population
- 15 located oil miles with	"E 11 SES BATE (SEC MAD)
Social Spring 110 - 2.5	ZOE SELL NE 17
Quad Name: T T	R <u>30C</u> <u>3C</u> ¼ of <u>AC</u> ¼ Sec <u>7</u>
7½'15′ Elevation: <u>220ℓ</u> ft(m) T	_ R ¼ of ¼ Sec
Landowner/Manager USFS (Sequeia N	(. <i>F.</i>)
Species found?YesNo If not, reason:	
Is this a new location record? Yes No Unknown (F	melin 1952)
Total # of Individuals = Is this a subsequent visit?Yes No Co	mpared to your last visit: more same fewer
Phenology (plants):# vegetative# flowering#	fruiting .
Population Age Structure (animals): # adults # juveniles	# others
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare	spp., substrate/soils, aspect/slope)
422 6 40 - all part Facine chas in	blue nex uselland Decus and
and the cost of the stope ho	The one working, becomposed
grannic son Assoc w/ Cear	comus caneutus, Plagiobothrys sp.
Current Land Use/Visible Disturbances/Possible Threats	
Grazing in viemity, Nearby	Scien Comp and pitentel
read mentance	
in the chance	
Overall Site Quality: Excellent Good Fair F	Poor
Comments:	
Should/Could this site be protected? How?	
FRAIR to Protect From pot	ential arrange or Dicking b.
	dist had
stream students	·
Other comments:	
Van Brown (USFS) male aware	of Riscovery
Keyed in a site reference:	PHUTUGHAPHS (Uneck one or more) Subject Type
Compared with specimen housed at:	Plant/Animal Slide
Compared with photo/drawing in: By another person (name):	Habitat Print
Other	Other
UTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	May we obtain duplicaterat our cost?



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CALIFURNIA NATIVE SPECIES F	IELD SURVEY FORM
	OFFICE USE ONLY
DI FASE ENTER ALL INFORMATION AVAILABLE TO YOU	Document Code Qued Code
USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
Scientific name (no codes): <u>Clarkik Spring villen</u> .	5/5
Reporter: John Stebbinis	Phone: (21) _228-2179
Address:	
Date of Field Work: 20_ 05_19 90 County: Tulare Co	Dilection? If yes, # Herb
Location: <u>Along access rule to P6</u>	AE Tule River PENSTUCK
Due south of mistion F	FIRK TULE RIVER (CNOOB#3)
(see mip)	
Quad Name: Camp Nelson T 20	SB 30E W 14 of NE 14 Sec 23
7 ¹ / ₂ '15' Elevation: _3.300 (Film) T	B 14 of 14 Sec
Landowner/Manager U.S. Furest Service (Sequera National Forest
Species found? Yes No If not reason:	0
Is this a new location record? Yes No. Unknown	
Total#ofindividuals= 150 Is this a subsequent visit? Yes No. Co	nomnared to vour last visit: Smore vere fewer
Phenology (plants): # vegetative /28# flowering Sc #	
Population Age Structure (animals): # adults # invenile	e # others
Site Function for Species (animals): breeding foraging	wintering reacting densing other
Habitat Description: (plant communities, dominants, according	wintering foosting defining other
Clearings on both sides of	- read, Vense live cak
toothill woodland.	
· ·	
Current Land Use/Visible Disturbances/Possible Threats	2
Access to penstock. Fire	road.
. /	
Overall Site Quality: Excellent Good Fair	Poor
Comments: Providention is the disculat The	ssire.
i cy contra - g contra a i con	
Should /Could this site be protected? How?	
Site has been fearled an	I posted for protection.
factor the former of the	
contracte agreement beti	veen USFS + Port.
Other comments:	
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more) Subject Type
Compared with specimen housed at:	Plant/Animal Slide
By another person (name):	Diagnostic Feature
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	May we obtain duplicates at our cost?
Jim Sheveck	

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE ATTACH OR DRAW A MAP ON BACK.	Document Code Qued Code Index Code Copy Sent To	
Scientific name (no codes):CCCCAIR_Spring villens	5/5	
Reporter:	Phone: (201)779	
Address:		
Date of Field Work: 20 - 05-19 10 County: Tulere Co	Ilection? If yes, # Herb	
Location: Tule Quer Cango - up	slope from Phade Tule	
- River Pryect Transmission L	me and adjacent to Flume	
- For SCE hydro Preject. Th	o sep. Sub-populations.	
CNODB # 64 + 6B.		
Quad Name: Camp Nelson NW T 205	R BOE SEX of NW 4 Sec 27	
7½'15' Elevation:600 ft(m) T	_ R ¼ of ¼ Sec	
Landowner/Manager US Forest Service	(Sequoia N.F.)	
Species found? Yes No If not, reason:		
Is this a new location record? Yes No Unknown		
Total #of Individuals = Is this a subsequent visit?Yes No Co	mpared to your last visit: more same fewer	
Phenology (plants): # vegetative # flowering #	fruiting	
Population Age Structure (animals): # adults # juveniles	# others	
Site Function for Species (animals): breeding foraging	wintering roosting denning other	
Habitat Description: (plant communities, dominants, associates, other rare	spp., substrate/soils, aspect/slope)	
Opening in INE Oak/ blue	oak wood land, Loose	
Recomposed granitic soils.	Assoc. with Lypinus albitrons	

Current Land Use/Visible Disturbances/Possible Threats

Described project facilties

Overall Site Quality: _____ Excellent _____ Good _____ Fair _____ Poor Comments:

USFS, PEOE and SCE all aware of sires.

Should/Could this site be protected? How?

Other comments:

Sites have been fenced and posted for protection.

DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more)	
Keyed in a site reference:	Subject Type	
Compared with specimen housed at:	Plant/Animal Slide	
Compared with photo/drawing in:	Habitat Print	
By another person (name):	Diagnostic Feature	
Other	Other	
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	May we obtain duplicates at our cost?	

Yes



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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE ATTACH OR DRAW A MAP ON BACK.	Document Code Quad Code Index Code Occurrence # Copy Sent To
Scientific name (no codes): Clarkia spring vi	11 onsis
Reporter: J. STEBBINS	Phone: (24)278-2179
Address:	· · · · · · · · · · · · · · · · · · ·
Date of Field Work: 27-04-19 90 County: Tulare	Collection? If yes, # Herb
Location:	Paris Revelopment
mil education earing IN D	tor Creek Cons in iste map)
Quad Name: <u>Springuille</u> T <u>20</u> 	$\frac{\mathcal{E}_{\text{B}}}{\mathcal{E}_{\text{B}}} \xrightarrow{\mathcal{E}_{\text{B}}} \frac{\mathcal{E}_{\text{B}}}{\mathcal{E}_{\text{B}}} \xrightarrow{\mathcal{E}_{\text{B}}} \xrightarrow{\mathcal{E}_{\text{B}}} \frac{\mathcal{E}_{\text{B}}}{\mathcal{E}_{\text{B}}} \xrightarrow{\mathcal{E}_{\text{B}}} $
Landowner/Manager Tulare Comts Prot.	of Education / Friends of Scicon.
Species found? Yes No If not reason:	
Is this a new location record? Yes No. 110known	
	Companyation and the second favore
Phenology (plants): # vegetative # flowering	
Population Age Structure (animals): # adults # juven	iles # others
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other re Mgrazed Sites (road Cats guility albifrons, Ceanothus currentus, A	ere spp., substrate/soils, aspect/slope) es, erc.). Assoc. w/ Lupinus Arctustaphylos uiscida.
Current Land Use/Visible Disturbances/Possible Threats	
Lunds are all open to c Subject to "Incidential Imparts"	Connected with scien approxime

Overall Site Quality: _____ Excellent ____ Good _ Poor Fair _ Comments:

would probebly expend if grazing Populations

Should/Could this site be protected? How?

Rick mitchell

Fence and Post.

Other comments;

MAIL TO: NATURAL DIVERSITY DATA BASE, CALIFORNIA DEPARTMENT OF FISH AND GAME, 1416 NINTH ST., SACRAMENTO, CA 95814

These sites were originally discovered by Rick Mitchell (Scien) PHOTOGRAPHS (Check one or more)

Туре

cont?

Slide Print

Subject Plant/Animal

Habitat **Diagnostic Feature**

Other

May we obtain dupli

DETERMINATION (Check one or more, fill in blanks)	•
Keyed in a site reference:	
Compared with specimen housed at:	
Compared with photo/drawing in:	
By another person (name):	
Other	· · · ·

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OTHER KNOWLEDGEABLE INDIVIDUALS (Neme/Address/Phone)

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CALIFORNIA NATIVE SPECIES F	
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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU.	Document Code Qued Code
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Scientific name (no codes): Clarkie Spring vill co	المعالم المعالم المعالم المعالم
Reporter: John Stebbins	Phone: (24) 578-2179
Address:	
Date of Field Work: 27 04-18 90 courses Tulars	Mus./
Lassiani Dillon Parch Rach (425)	About not miles west
of Balala Park Pag A MAY P	Condi un mires presi
DE DAICH TRUE FOR ON B	orh sides of Villon Ranch
<u> </u>	· · · · · · · · · · · · · · · · · · ·
6 Paint 110	
Quad Name:	P R 24E NE 14 of NE 14 Sec 25
<u> </u>	R ¼ of ¼ Sec
Landowner/Manager	
Species found? X Yes No If not, reason:	
Is this a new location record? Yes No Unknown	
Total #of Individuals $= 300$ Is this a subsequent visit? Yes No C	ompared to your last visit: more same fewer
Phenology (plants): # vegetative# flowering#	# fruiting
Population Age Structure (animals):# adults# juvenile	8 # others
Site Function for Species (animals): breeding foraging	_ wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare	BDD., Substrate/soils, aspect/slope)
Blue Vak woodland. Plants	are on reach cuts and
clearing where area	ie to in a floor in a
A can accord in the	- 13 nomited due to alless
11-50C, Species Indian	Trifolium variegatum, Amsineaia
Current Land Use/Visible Disturbances/Possible Threats	-
Numerous Privett ves	idences rearby grizm
Read maintenance	7 · 0 · - 7.
Overall Site Quality: Excellent Good Fair	Poor
Comments:	
Should/Could this site be protected? How?	
Restrict Road Maintenand	e/he-licides
Other comments:	
E. ±1/1 + 1 + 1	
Fresmenter >ub-population	s on cuts.
DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference:	PHOTOGRAPHS (Check one or more) Subject Type
Compared with specimen housed at:	Plant/Animal Slide
By Englise person (papel)	Distance Eastern

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APPENDIX II

Educational Awareness Guide for Springville Clarkia Ecological Reserve

APPENDIX III

1990 Location and Population Data for Fritillaria striata

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DI FASE ENTED ALL INFORMATION AVAILABLE TO YOU	Document Code Qued Code
USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
Scientific name (no codes):	
Reporter: <u>Karen Russell (Kirkpatrick)</u>	Phone: (209) _739-0319
Address: _2406 Pecan Court, Visalia, CA 9	3277
Date of Field Work: 18-3-1990 County: Kern Co	Mus./ Ilection? If yes, # Herb
Location:	
(see attached map) FRST. OCC. 2	
on Rancheria Rd. 1.0 air mile NE of Can	ary Spring, Greenhorn Mtns.
Quad Name: Democrat Hot Springs T 275	R 31E NW Wor SE WSec 19
7½' 15' Elevation: 4700 ft(m) T	R ¼ of ¼ Sec
Landowner/Manager Glenn Record Inc. / Box 37 Granite	station, Bakersfield CA 93301
Species found? Yes No If not reason; too early?	Theavy trampling in area
Is this a new location record?	, , , , , , , , , , , , , , , , , , ,
	maradiovauriativisit more same jewe
Phenology (plants): # vegetative # nowering #	fruiting # other
Population Age Structure (animals): # adults # juveniles	
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare	spp., substrate/soils, aspect/slope)
	· · ·
· · ·	
Current Land Use/Visible Disturbances/Possible Threats	
Quarall Site Quality Sycallant Good Fair	Poor
Comments:	
unfortunately - no subsequent visit was	mode this year.
J 1	
Should/Could this site be protected? How?	,
Other comments:	
· .	APN# 075-040-10
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more)
Keyed in a site reference: Compared with specimen housed at:	Bubject Type Side
Compared with photo/ drawing in:	Habitat Print

Diagnostic Feature

May we obtain duplicates at our cost?

_____ Yes ____

___ No

Other

.*

MAIL TO: NATURAL DIVERSITY DATA BASE, CALIFORNIA DEPARTMENT OF FISH AND GAME, 1416 NINTH ST., SACRAMENTO, CA 95814

....

	AM LIT & SIZE LALALALAN		
Con	pared with specimen housed at:		
Con	npared with photo/drawing in:	· · · · · · · · · · · · · · · · · · ·	
	nother person (name):		
Oin	er		

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i> ATTACH OR DRAW A MAP ON BACK.	Document Code Qued Code Index Code Occurrence # Copy Sent To
Scientific name (no codes): _ Fritillaria striata	······································
Reporter: Karen Russell (Kirkpatnck)	Phone: (209) 739-0319
Address: 2406 Pecan Court, Visalia CA 93:	277
Date of Field Work: 25-3-1990 County: Kern c	collection? If yes, # $90-11$ Mus. CSUF Herb
	1
(see attached map) FRST OCC.	4
~ 1.0 airmile NE of Longtom Mine	
Quad Name: Pine MountainT 275	A 29E SW 4 of SW 4 Sec 24
	R ¼ of ¼ Sec
Landowner Manager Glenn Record Inc. P.O. Box 37 Grani	ite station, Bakersfield CA 93301
Species found? Yes No If not, reason:	
Is this a new location record? Yes No Unknown	
Total # of Individuals= 00,000 is this a subsequent visit? Yes No _C	compared to your last visit: more same fewer
Previously (plants): vegetative whowening	# moting
Population Age Structure (animals):# adults# juvenile	
Site Function for Species (animals): breading foraging	wintering costing denning other
Habitat Description: (plant communities, dominants, associates, other rar	e spp., substrate/soils, aspect/slope)
Assoc: Erodium sp. Dichelostoma pulchella Lomatium V. Montia	Some large granitic rocks scatte throughout
Lepidium sp. Ranunculus sp.	Time dominates.
Current Land Use/Visible Disturbances/Possible Threats	In a secold have whether have
Grazing- current owners are obviously a robust plants w/ multiple flower	rs-good variation of color
Overall Site Quality: Excellent Good Fair	Poor
(Fritillariz is growing around oaks k	out not directly underneath.)
Should (Could this size he accessed? How?	
TH was difficult for me to 1	
estimate this enormous # of plants;	
Other comments: (another species observed ther	e either Delphinium or Gersnium.
DETERMINATION (Check one or more, fill in blanks)	PHOTOGBAPHS (Check ane or more)
Keyed in a site reference: Compared with specimen housed at:	Subject Type
Compared with photo/drawing in:	Habitst Print
	Other
WITCH KNUWLEUGEABLE INUIVIUUALS (NAMA/Addiess/Phone)	May we dolain dupricates at our costr

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USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
Scientific name (no codes): _ Fritillaria striata	
Reporter: Kaven Russell	Phone: (209) 739-0319
Address: 2406 Pecan Ct.	
Date of Field Work: 17-3-1990 County: Kern Co	bliection? If yes, # 90-01 Herb CSUF
(See attached map) FRST OC	LC. 6
150 yords SW of windmill / 50 yords S of	- rock outcrop w suddays tree
Quad Namp: Pine Mountain T 275	_ R _ 29 E NW 14 of NW 14 Sec 10
7½'15' Elevation: <u>2080</u> ft(m) T	_ R ¼ of ¼ Sec
Landowner/Manager Frances W. Stockton P.O. Box 75 Gr	anite station, Bakersfield CA 93301
Species found? Yes No If not, reason:	
Is this a new tocation record? Yes No Unknown	
Total #of Individuals= 200 ⁺ Is this a subsequent visit? Yes No. C	ompared to your last visit: more same fewe
$\frac{1}{25} \frac{1}{25} \frac$	
Phenology (plants):# vegetative# flowering#	, multing
Population Age Structure (animals): # adults # juvanile	s
Site Function for Species (animals): breeding foraging	_ wintering roosting denning othe
Habitat Description: (plant communities, dominants, associates, other rare Furthill grassland - rocky outcrop in adobe	a spp., substrate/soils, aspect/slope) clay Soil
	1
Associ Avens Sp. Erodium sp.	7 .
Chlorenslyin D. Amsinckia	
Current Land Use/Visible Disturbances/Possible Threats	
Grazing	
Overgrazing or trampling not evident	there
Overall Site Quality: Excellent Good Fair	Poor
Comments:	
	· · ·
Should/Could this site be protected? How?	·
Other comments:	
	· · · ·
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more)
Keyed in a site reference: Compared with specimen housed at:	Sugert Slide
Compared with photo/ drawing in:	Habitat Print
By another person (name).	Diagnostic Feature Other
OTHER KNOWLEDGEABLE INDIVIDUALS (Name / Address / Phone)	May we obtain duplicates at our cost?
	Yes No

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i>	Document Code Quad Code Index Code Occurrence # Copy Sent To
Fritillaria Striata	
Karen Russell	2~9. 739-0319
Reporter: 24/0/ Pachia Ch. Michilia CA. 93-1	Phone: (20°() <u></u>
Address:AUG FECONICA. UISalla, CA 754	
Date of Field Work: 17-3-1990 County: Kern Col	lection? If yes, # 90-07 Herb CSUF
Location: (See attached map)	· · · · · ·
Nu) slopp of barshy poly putrions know	······································
NW STOPE OF DRUSTING POLE DUTEROOP FILOT	1
Quad Name: Pine Mountain T 275	R 29E SE 14 of SE 14 Sec 3
7½'15' Elevation: <u>2200</u> ft(m) T	. R ¼ of ¼ Sec
Landowner/Manager, David & Will ai Lavers / St. Rt. Box 1, G	lennville CA 93226
Species found? Yes No If not, reason:	·
Is this a new location record? Yes No Unknown	
Total #of Individuals = <u>90</u> Is this a subsequent visit? Yes No Cor	npared to your last visit: more same fewe
Phenology (plants): 50 # vegetative 40 # flowering # #	
Population Age Structure (animals):# adults# inveniles	# others
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare i	son, substrate/soils, aspect/slope)
Assoc: Lometium V. N fa	cing - gentle slope
Avena sp.	very few rocks
Dichelostona pulchella	J
Eralism sp. Ansuchia	
Current Land Use/Visible Disturbances/Possible Threats	
Grazing	
Overall Site Quality: Excellent Good Fair F	Poor .
Comments:	
·	
Should/Could this site be protected? How?	
• Other comments	
	APN # 074-140-02
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one of more)
Compared with specifier housed at:	Pland Animat Slide
Compared with photo/drawing in: By another person (name)	Diagnostic Festure
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	Other May we obtain dup/cates at our cost?
	Yes No

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i> ATTACH OR DRAW A MAP ON BACK.	Document Code Quad Code Index Code Occurrence # Copy Sent To
Scientific name (no codes): Fritillaria striata	
Benneter: Karen Russell (Kirkpatnck)	Phone: (209) 739-0319
Address: 2406 Pecan Ct. Visalia CA 93277	
Date of Field Work: 18-3-1990 County: Kern Coll	Mus./ lection? If yes, # Herb
	·
(see attached map) FRST. OCC. 7	
~ I mile E. NE of Horseshoe Ranch	1/2 mile N. of Five Dog Creek
Quad Name: Sand Canyon T 265	R 29E 4 of NW 4 Sec 30
7½'15' Elevation: 1,000ft(m) T	R ¼ of ¼ Sec
Landowner/Manager Rolling Oaks Ranch Ptn, Gravite station,	Star Route 3, Box 19, Bakersfield CA 93301
Species found? Yes No If not, reason: not allower	d access to site
Is this a new location record? Yes No Unknown	
Total # of Individuals = Is this a subsequent visit? Yes No Cor	npared to your last visit: more same fewer
Phenology (plants): # vegetative # flowering # f	Iruiting
Population Age Structure (animals): # adults # juveniles	# others
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare a	spp., substrate/soils, aspect/slope)
	•
Current Land Use/Visible Disturbances/Possible Threats	
	•
Overall Site Quality: Excellent Good Fair F	°oor
veninanta.	·

Should/Could this site be protected? How?

Other comments:

DETERMIN	ATION (Check one or more, fill in blanks)
	Keyed in a site reference.
	Compared with specimen housed at:
<u> </u>	Compared with photo/drawing in:
	By another person (name)
	. Other

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

HOTOGRAPHS	(Check one	or more)	
Subject		Туре	
Plant/	Animal		Slide
Habita	it .		Print
Diagni	ostic Feature		
Other			
May we obtain	duplicates at	our cost?	
•	Maa	Na	

_____ Yes



DN, VIRGINIA 22092

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BLEASE ENTER ALL INCORMANTION ANALY AND STO YOU	Document Code Qued Code
USE THE BACK FOR COMMENTS IF NECESSARY PLEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
similiano Fritillaria striata	
Karen Rucsell	7-7 729-0319
Reporter:	Phone: (201) _ <u>731-0311</u>
Address:2406 Pecan Court, Visalia, CA	93277
Date of Field Work: 17-3-1990 County: Kern (Collection? If yes, # 90-07 Mus. CSUF
Location:	•
(See map) FRST OCC. 12 correc	thy mapped
	· · · · · · · · · · · · · · · · · · ·
Quad Name: KIO Bravo Kanch T 28	DR <u>JOE NW</u> 4 of <u>NE</u> 4 Sec 18
7½'15' Elevation: <u>2040</u> ft(m) T	R ¼ of ¼ Sec
Landowner/Manager Kenneth Mcbane Ranches / P.O. Box 800	55 Bakursfield CA 93380
species found? Yes No If not, reason:	
s this a new location record? YesV No Unknown	
Fotal # of Individuals = 1.500 ⁺ Is this a subsequent visit? Yes No (Compared to your last visit: more same few
henology (plants): <u>30%</u> # vegetative <u>70%</u> # flowering	# fruiting
opulation Age Structure (animals): # adults # juvenil	es # othe
ite Function for Species (animats) breeding foraging	wintering
Tissue: Vichelustoma pulchella JE	tacing slope
Eroainm sp. Avena sp.	(
represented of	
Chloreseduini R.	
Chloroactum p. Bromus rubens	
Chlorogetum P. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats	wast
Chlorogetum p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th	ireat
Chlorogeturi p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th	ireat
Chlorogeturi p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th	reat
CHlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments:	- Poor
CHlorogitum p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent _K Good Fair Somments:	- Poor
CHlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments:	reat - Poor
Chlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments:	reat - Poor
CHlorogitum p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Somments:	ireat - Poor
CHlorogitum p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Somments:	reat - Poor
CHlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments:	ireat - Poor
CHlorogeturin p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Somments:	ireat - Poor
CHlorogeturin p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Somments:	reat - Poor
CHlorogeturin p. Bromus rubens Surrent Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Somments:	- Poor ADN# AQ4- AT
CHlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments: Should/Could this site be protected? How?	APN# 094-050-01
CHlorogetum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments: Comments: Chlorogetum a site be protected? How? Chlorogetum a site reference:	APN# 094-050-01 PHOTOGRAPHS (Check one or more) Subject Type
Chlorogelum p. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality: Excellent Good Fair Comments: Should/Could this site be protected? How? Other comments: Deter Comments: Deter Comments: Keyed in a site reference: Compared with specimen housed at:	APN# 094-050-01 PNOTOGRAPHS (Check one or more) Subjert Print Print
CHlor og Lunin P. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — overgrazing a possible th Overall Site Quality:ExcellentGoodFair Comments: ihould/Could this site be protected? How? ihould/Could this site be protected? How?	APN # 094-050-01 PHOTOGRAPHS (Check one or more) Subject Habitat Disgnostic Feature Disgnostic Feature
CHIOrogeturin P. Bromus rubens Current Land Use/Visible Disturbances/Possible Threats Grazing — Overgrazing a possible th Overall Site Quality:ExcellentGoodFair Comments: Should/Could this site be protected? How? Other comments: Should/Could this site be protected? How?	APN # 094-050-01 PHOTOGRAPHS (Check one or more) Subject Fland Animal Type Slide PHOTOGRAPHS (Check one or more) Subject Fland Animal Slide Print Diagnostic Feature Diagnostic Feature Other May we obtain dug/cates at our cost?

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MAIL TO: NATURAL DIVERSITY DATA BASE, CALIFORNIA DEPARTMENT OF FISH AND GAME, 1416 NINTH ST., SACRAMENTO, CA 95814

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i>	Document Code Quad Code Index Code Occurrence #		
ATTACH UR DRAW A MAP UN BACK. Fritillaria striata			
Scientific name (no codes):	2-0 329-0319		
Reporter: <u>Averi Russell</u>	Phone: (209) D. 5/ 0.5/1		
Address: 2406 Pecan Ot., Visalia, CA 932			
Date of Field Work: 17-3-1990 County: Kern Col	lection? If yes, # $\pm 90-09$ Mus./ CSUF		
Location:			
<u>See attached map / FRST OCC. [</u>	6		
Quad Name: Rio Bravo Ronch / Pine Mountain T 285	R BOE NE WOT NE WSOC 18 (Rio Bri-		
$-\sqrt{72'}$ 15' Elevation: <u>2100</u> ft(m) T <u>"</u>	R <u>SE</u> 4 of <u>SE</u> 4 Sec / (Pint		
Landowner/Manager Kenneth Mcbane Ranches, P.O. Box 80	055, Bakersfred CA 93380		
Species found? Yes No If not, reason:			
Is this a new location record? Yes No Unknown			
Total # of locividuals = 3,000 + Is this a subsequent visit? Ves V No. Cor	nnarad to your last visit: more same		
$\frac{30\%}{30\%}$			
Phenology (plants): vegetative # nowering # 1	iruiting		
Population Age Structure (animals): # adults # juveniles			
Site Function for Species (animals): breeding foraging	wintering roosting denning other		
Habitat Description: (plant communities, dominants, associates, other rare : Assoc: Chlorogshum pomeridianum Erodium sp. Lonathum viriculatum Amsinckia Lepidium sp. Calendrinia Dichelostoma pulchella	spp., substrate/soils, aspect/slope) 15% NW to N facting slope		
Current Land Use/Visible Disturbances/Possible Infeats	bed in 1983 (shevok)		
Grazing not much nompting as the			
Overall Site Quality: Excellent Good Fair F	Poor		
Enormous and widespread population-cov	ering over 245 acre area		
Should/Could this site be protected? How?			
	•		
Other comments:	· · · · ·		
	APN* 094-050-01/31		
DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference:	Subject Type		
Compared with specimen housed at:			
By another person (name)			
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	Uther May we obtain duplicates at our cost?		

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ATTACH OR DRAW A MAP ON BACK.	
Scientific name (no codes):	
Reporter: Karen Kussell	Phone: (209) 739-0319
Address: 2406 Pecan Ct. , Visalia, CA 932	77
Date of Field Work: 17-3-19 90 County: Kern co	llaction? If yes, # 90-08 Mus./ CSUF
Location:	
See attached map	
- across Rancheria Road from Occ. 16-	
	· · · · · · · · · · · · · · · · · · ·
Quad Name Pine Mountain T 285	R 30E SW K of SE K Sec 7
714: 15: Elevation: 2100 film) T	B 14 of
Keinneth Mekane Bauches PD Box B	DOSS Rakersfreid (A 9338D
Landowner/Manager	
Species found? Yes No If not, reason:	
Is this a new location record? Yes No Unknown	
Total # of Individuals = $\frac{300^{T}}{100^{T}}$ is this a subsequent visit? Yes No Co	mpared to your last visit: more same fewer
Phenology (plants): 35 1/6 # vegetative 65% # flowering #	fruiting
Population Age Structure (animals): # adults # iuveniles	# others
Site Function for Species (animale) breeding foreging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other fare Oak Woodland/Grassland ~35	5% directly N facing slope
Assoc. Lomatium V. Montra	
Chlorogaum P. Amsinckia	· · ·
Avena so. Bromus rubens	
Current Land Use/Visible Disturbances/Possible Threats	
Grazing - no visible disturbances	
Overall Site Overlage Excellent Good Fair	Poor
Comments:	
Site is wetter than OCC. 12,10	
-> possibly correct location of FRST	occ. 1 (oak woodland)
Should/Could this site be protected? How?	
· · · · · · · · · · · · · · · · · · ·	
Other comments:	
DETERMINATION (Check one or more full in blanks)	MYN 094 - 050 - 21 PHOTOGRAPHS (Check one or more)
Keyed in a site reference:	Subject Type
Compared with specimen housed at:	
	Habitat
By another person (name)	

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ATTACH OD DDAW A MAD ON BACK	Copy Sent To
Britillaria charta	
Scientific name (no codes):	
Reporter: Karen Russell	Phone: (209) 739-0319
Address: 2406 Pecan Ct. Visalia, CA 93277	
Date of Field Work: 17-3-1990 County: Kern Coll	ection? If yes, # MOLANDY Mus./ Mus./
Location:	
See attached made - FRST mc. 1	42
	·
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
august Name Rip Bravic Ranch + 285	= 30E Kar NW KSar 18
	R ¼ of ¼ Sec
Landowner/Manager Kenneth Mebone Ranches, P.O. Box	SOUSS, Bakersfred CA 93380
Species found? Yes V No H not research ERRONED	DUS LOCATION
Is this a new location record? Yes No Unknown	
Total #of Individuals= is this a subsequent visit? Yes No Con	npared to your last visit: more same fewer
Phenology (plants): # vegetative # flowering # f	ruiting
Population Age Structure (animals): # adults # juveniles	
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare i Oak Woodland	app., substrate/soils, aspect/slope}
1	
•	
Current Land Use/Visible Disturbances/Possible Threats	
Overall Site Overline - Eventlant - Coord - Fair - B	
Commente:	Cor
· · ·	
Should/Could this site be protected? How?	
,	
Other comments.	
· · ·	ADN# 094-050-01
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more)
Keyed in a site reference	Subject Type Slide
Compared with photo/ drawing (n:	Hebitet Print
By another person (name) Other	Diagnostic Feature
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	May we obtain duplicates at our cost?
· · ·	Yes No

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CALIFORNIA NATIVE SPECIES I	FIELD SURVEY FORM	
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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i> ATTACH OR DRAW A MAP ON BACK.	Document Code Quad Code Index Code Occurrence # Copy Sent To	
Scientific name (no codes): _ Fritillaria striata		
Reporter: Kaven Russell (Kirkpatrick)	Phone: (209) 739-0319	

Pecan Court . Visalia CA 93277 2406 Address:

Kern 90 Date of Field Work: 42 19 County: . Location: attached See map

Pine Mountain _ 14 Sec _21 T_275 R 29E SE 14 of SE Quad Name: Elevation: 1520 7% ____ 15' ft(m) т_____ R 14 of 14 Sec . Landowner/Manager Timothy Lemnechi / 1128 Truxtun Ave. Bakersfreld CA 93301 Species found? _ No If not, reason: V Yes ___ Is this a new location record? ... ___ No ____ Unknown Total #of Individuals= 260 Is this a subsequent visit? ____ Yes ___ No Compared to your last visit; ____ more __ _ same _ . fewe Phenology (plants): <u>58</u> # vegetative <u>2</u> __#flowering ___ _____# fruiting Population Age Structure (animals): _____ # adults _____ # juveniles . # others _ breeding ____ foraging ____ Site Function for Species (animals): ____ wintering roosting denning ... , other Habitat Description: (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope) NENE facing slope/15-30 Corrugated Grassland Hillside Chlorogalum p. Thysanocarpus sp.

Assoc: Eradium sp. Lepidium sp. Montia Dichelostoma p. Amsinckia Lomatium v. Current Land Use/Visible Disturbances/Possible Threats

Overgrazing and Trampling are serious threats. Grazed -

Overall Site Quality	Excellent	Good	Fair	Poor
Comments:				

Should/Could this site be protected? How?

Other comments:

Other

DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference: Compared with specimen housed at: Compared with photo- drawing in: By another person (name).

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

90-10

Collection? If yes, # _

Mus./

Herb

CSUF

May we obtain dupjicates at our cost?



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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU	Document Code Qued Code
USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	Index Code Occurrence # /
ATTACH OR DRAW A MAP ON BACK.	Copy Sent To
Scientific name (no codes): Fritillaria striata	
Banner Karen Russell (Kirkpatrick)	779, 739-0319
2401 Person Ct Vicalia CA 022	27 Phone: (WI)
Address:OG FECAN OT. VISOII3 CA 932	
Date of Field Work: 18-3-19 90 County: Kern c	Collection? If yes, # 40-05 Herb CSUF
Location:	
(see attached map) FRST occ 13	3
$\frac{1}{5} \int \frac{\partial c}{\partial t} dt = \frac{1}{5} \frac{\partial c}{\partial t} \partial c$	
<u>Oo. of Rancheria Road W. of privale r</u>	102.d
	·
Quad Name: Rio Bravo Ranch 7285	B 29E S 14 of SE 14 Sec 13
714: 15: 510,000, 1960 4101 -	
$\frac{1}{10} \frac{1}{10} \frac$	
Landowner/Manager, <u>Denneth Mebane Ranches [P.U. Box 8]</u>	1055, Bakershield CA 93380
Species found? Yes No If not, reason:	
Is this a new location record? Yes No Unknown	
Total #of Individuals=5,000 t Is this a subsequent visit? Yes V No. C	ampared to your last visit more same fauge
Phenology (plants): $(0^{\circ})^{\circ}$ # vegetative 40° # flowering	n feuiting
Previously (plants).	a truiting
Population Age Structure (animals):# adults# juvenile	es # others
Site Function for Species (animals): breeding foraging	wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare	e spp., substrate/soils, aspect/slope)
Assoc: Lomatium V. NN	W facing slope
Chlorogalum p.	
Amsinckia Dichologiana pulchella	
Frendrice Frendrice	
Current Land Use/Visible Disturbances/Possible Threats	
(orazing - net avaraged	
Greening not over grocea	
Overall Site Quality: Freellent Good Fair	Poor
Comments:	-
- · · · ·	
Should/Could this site be protected? How?	
Other comments:	
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DETERMINATION (Check one or more fill in blanks)	PHOTOGPADHE (Chart one of more)
Keyed in a site reference:	Subject Type
Compared with specimen housed at:	Animal Slide
By another person (name):	Diagnostic Feature
OTHER KNOWLEDGEABLE INDIVIDUALS IName / Address (Deces)	Other
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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE	ode Qued Code Occurrence #
ATTACH OR DRAW A MAP ON BACK.	
Scientific name (no codes): tritillaria Striata	
Reporter: Karen Russell (Kirkpatrick)	Phone: (209) 739-0319
Address: 2406 Pecan Ct. Visalia CA 93277	
Date of Field Work: 18-3-1990 County: Kern Collection? If y	es, # 90-03 Mus. / CSUF
dany meta yr. Location:	
(see attached map) FRST OCC. 14	
N facing embankment on N. side of Rancher	ia road - facing water tank
<u> </u>	
Quad Name: Rio Bravo Ranch T 285 R 29E	E 14 of SW 14 Sec 13
7%' 15' Elevation: 1550 ft(m) T B	14 of 14 Sec
localize Howilly at at lab ET clare 1100 E	Lange Drive Raker field CA 9230
Landowner/Manager/1056/11/16 Flomi Iton Ft 31 (16 E J Libre, 1100 Fd	arway Universate sileta en 1350
Species found? Yes No If not, reason:	
Is this a new location record? Yes No Unknown	•
Total # of Individuals = 55 Is this a subsequent visit? Yes No Compared to yo	urlastvisit: more same fewer
Phenology (plants): 80% # vegetative 20% # flowering # fruiting	
Population Age Structure (animals): # adults # juveniles	# others
Site Function for Species (animals): breeding foraging wintering	roosting denning other
Habitat Description: Inlant communities, dominants, associates, other rare and, subst	
Assoc: Chlorogalum p. Lomztum V. Erodium sp. Amsinckia Lepidium sp. Montia	lay soil 30% slope
Current Land Use/Visible Disturbances/Possible Threats	
badside-public right of way adjacent to grazed prop Firebreak is a visible disturbance Constr	uction of new Hury 178 a possible threat.
Overall Site Quality: Excellent Good Fair Poor	C possil in
one individual found on so. side of Rancheria Road.	
Should/Could this site be protected? How?	
Other comments:	
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Other comments: DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference:	PHOTOGRAPHS (Check one or more) Subject Type
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Other comments: DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference: Compared with specimen housed at: Compared with photo/drawing in: By enother person (name);	PHOTOGRAPHS (Check one or more) Subject Type Tiany Animel Slide Hebitat Print Disgnostic Feature

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PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. <i>PLEASE</i> ATTACH OF DRAWA MAP ON BACK.	Document Code Quad Code Index Code Occurrence # Copy Sent To Occurrence #
Fritillaria striata	<u> </u>
Banantari Karen Russell (Kirkpatrick)	Phone: 1209, 739-0319
2401 Pecan Ct. Visalia CA 932	273
Address: 0100 10011 011 015010 1001 01	an of Mus/ court
Date of Field Work: 18 - 3 - 1990 County: Kern Col	lection? If yes, #HerbHerb
Location:	
(see attached map)	
~ 1/3 mile SSE of FRST OCC. 14 and	13 mile SW of FRST. OCC. 13
Quad Name: Rio Bravo Ranch T 285	R 29E NW W of NE W Sec 24
7% 15' Elevation: 1940 ft(m) T	R ¼ of ¼ Sec
Landonne Kenneth Mebore Bauches, P.O. Box 8005	5. Bakunsfield CA 93380
Species found? Yes No If hot, reason:	
Is this a new location record? Yes No Unknown	
Total # of Individuals= 000° Is this a subsequent visit? Yes No Co	mpared to your last visit: more same fewe
Phenology (plants): <u>50%</u> # vegetative, <u>50%</u> # flowering #	fruiting
Population Age Structure (animals): # adults # juveniles	# other
Site Function for Species (animals): breeding foraging	wintering consting othe
	. wintering roosting denning on a
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Habitat Description: (plant communities, dominants, associates, other rare Assoc: Chlorogalum P. Lepidrum spi Dichelostoma pulchella Avena sp. Current Land Use/Visible Disturbances/Possible Threats Grazing - grazing is evident trampting is not evident - ou Overall Site Quality: Excellent Good Fair Comments: Should/Could this site be protected? How?	spp., substrate/soils, aspect/slope) e most edge of this population a quartzy granitic outcrop icrograzing & trampling are possible threats Poor
Habitat Description: (plant communities, dominants, associates, other rare Assoc: NW facing slop Chlorogalum P. So. & Western Dichelostoma pulchella Occurs in a Avena Sp. Current Land User/Visible Disturbances/Possible Threats Grazing - grazing is evidentt trampting is not evident - ov Overall Site Quality: Excellent Good Fair Comments: Should/Could this site be protected? How? Other comments: DETERMINATION (Check one or more, fill in blanks) Keyed in a site reference:	PHOTOGRAPHS (Check one or more) Subject Photographic (Check one or more) Subject Photographic (Check one or more) Subject Type
Habitat Description: (plant communities, dominants, associates, other rare Assoc : NW facing slop Chlorogalum p. So. & Western Lepidrum sp. Occurs in a Dichelostoma pulchella Occurs in a Avena sp. Occurs in a Current Land Use/Visible Disturbances/Possible Threats Grazing - grazing is evident Grazing - grazing is not evident - ov Trampting is not evident - ov Overall Site Quality: Excellent Good Should/Could this site be protected? How? Should/Could this site reference: Compared with specimen housed at:	PHOTOGRAPHS (Check one or more) Subject Plant Animat Habitat Print
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USE THE BACK FOR COMMENTS IS NECESSARY BIEASE	Index Code Occurrence #
ATTACH OR DRAW A MAP ON RACK	Copy Sent To
Fritillauin stricto	
Scientific name (no codes): <u>Tritilaria Striata</u>	
Reporter:KUSSELI (Kirkpatrick)	Phone: (209) _739-0319
Address: 2406 Pecan Ct.	
Date of Field Work: 18-3-1990 County: Kern Co	Dilection? If yes, # $90-06$ Herb CSUF
Location:	
(see attached map) FRST occ.	#15
So slope of draw	
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Quad Name: KIO Dravo Kanch T 285	R 29E SE 4 of SE 4 Sec 4
7½'15' Elevation:60_ft(m) T	_ R ¼ of ¼ Sec
Landowner/Manager Kenneth Mebane Ranches, P.O. Bo	x 80055, Bakersfield CA 93380
Species found? Yes No If not, reason:	· · · · · · · · · · · · · · · · · · ·
Is this a new location record? Yes No. Unknown	
Phenology (plants): 80% # venetative 20% # flowering #	mpared to your last visit: more same fewer
Population Age Structure (apimale):	
City E # Juveniles	3 # others
Site Function for Species (animals): breeding foraging	_ wintering roosting denning other
Habitat Description: (plant communities, dominants, associates, other rare	spp., substrate/soils, aspect/slope)
Associates: Chlorogalum Amsinckia Hen	vy clavadobe soil
Avena sp.	
Dichelostoma Dulchel	20-50% NW facing slope
Dichelosionia palatei	some plants found on
Lupinus sp.	share alichapped and (a Ford)
Current Land Use/Visible Disturbances/Possible Threats	sides of steep araw ["solo,
Grazing-some evidence of trampling here	
Overall Site Quality: Excellent Good Fair I	Poor
Commonte.	
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Should/Could this site be protected? How?	
Could be a good site if anazing	
reaime were altered.	
Other comments:	
DETERMINATION (Check one or more, fill in blanks)	PHOTOGRAPHS (Check one or more)
Compared with specimen housed at:	Slide
Compared with photo/drawing in:	Habitat Print
By another person (nama):	Diagnostic Feature
OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)	May we obtain duplicates at our cost?
	YesNo

MAIL TO: NATURAL DIVERSITY DATA BASE, CALIFORNIA DEPARTMENT OF FISH AND GAME, 1416 NINTH ST., SACRAMENTO, CA 95814

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APPENDIX IV

1990 Location and Population Data for *Pseudobahia peirsonii*

(Stebbins 1991)

Note- Maps in the appendices of this report follow CNDDB conventions as to the accuracy with which a particular record can be mapped. For each degree of mapping precision, the presumed accuracy is given in degrees of latitude (or fractions thereof) and in area, as follows:

EXTANT POPULATIONS

• Specific (second, 80 acres)

▲ Non-specific (minute, 1 mile)

■ General (5 mile radius)

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EXTIRPATED POPULATIONS • Specific (second, 80 acres)

▲ Non-specific (minute, 1 mile) □ General (5 mile radius)

For all known records for each species, the correct map locality was determined independent of CNDDB mapped data. In some cases, locations shown in CNDDB records were incorrect, and in some cases of vague geographic information, our presumption of the locality differs from that of the CNDDB. Taxon: Pseudobahia peirsonii Population Number: 1 NDDB E.O. Number: 1 Documentation: "Kern County,on hill referred to as dry bog knoll at head of Adobe Canyon near road to old Granite Schoolhouse, 1650 feet" C.N.Smith 1080, 28 April, 1962 (JEPS); "Adobe knoll at head of Adobe Canyon, grassland at 1650 feet, heavy clay, full sun" Ernest Twisselmann 10606, 26 April, 1990 (CAS,JEPS); "Dry bog knoll, 2.5 miles west of Granite School", Dale E. Johnson 40, 3 April, 1975 (UC). Other Documentation: CNDDB records report an observation of 50 plants by C. Chamberlain in 1981; Karen Kirkpatrick 90-04, 25 March, 1990 (FSC,CAS,UC).

Mapping Precision: Specific

Status: Extant, approximately 1000 plants were observed on the survey date by Karen Kirkpatrick.

Habitat Conditions: Population is situated on a south-facing "knoll" north of a dry creekbed between two unimproved dirt ranch roads. The soils are a heavy cracked "adobe" clay. Some grazing and trampling impacts by cattle were evident but not excessive. The non-native grassland at the site was dominated by *Gilia tricolor*, *Dichelostemma pulchellum*, *Bromus rubens*, *Erodium cicutarium*, and *Lepidium nitidum*..

Land Ownership: John Wofford Star Route 1, Box 18 Kernville, CA 93238

Land Uses: Cattle grazing, ranching.

Threats: Potential changes in grazing regime; erosion; potential road improvement or maintenanance. Population appears stable at present time under current management patterns observed.



Taxon: Pseudobahia peirsonii

Population Number: 2 NDDB E.O. Number: 2

Documentation: "Kern County, Hugh Smiths field, northerly from Long Tom Gulch, foothills of Greenhorn Range", Charlotte Smith 303, 15 April, 1941 (JEPS); "Kern County, Hugh Smiths field 1.5 miles east of Long Tom Mine", C. Smith 1074, 22 April, 1962 (DS); "Hugh Smith Ranch near head of Pine Mtn.Creek, Douglas Oak Woodland", Ernest Twisselmann 8106, 26 April, 1963 (DS).

Mapping Precision: Non- specific.

Status: Presumed extant but could not locate or confirm population site. Suitable habitat is present in the area of most likely occurrence (see map). The site was surveyed by Karen and Greg Kirkpatrick on 25 March, 1990 but they were denied entry access when they attempted to revisit the site two weeks later.

Habitat Conditions: Gentle slope of non-native grassland in opening of blue oak woodland. Soils appeared claylike but no *P. peirsonii* plants were observed. The survey date was perhaps too early for this elevation (2600 feet), especially considering the collection dates recorded. Most of the annual flora was comparitively depauperate due to the extremely dry conditions.

Land Ownership: Glenn Record, Inc. Box 37, Granite Station Land Uses: Cattle grazing

Threats: Grazing levels are fairly heavy but no other impacts or threats were observed.

Bakersfield, CA 93301



Taxon: Pseudobahia peirsonii

Documentation: "Kern County, near Woody", CNDDB record based upon a reported 1974 observation by B. and R. Van Kirk; no herbarium collection was made.

Mapping Precision: General

Status: Presumed extinct or erroneous. The readily accessible area around Woody was surveyed by John Stebbins and Karen Kirkpatrick on 7 April, 1990 without success.

Habitat Conditions: The area "near Woody" consists of numerous small ranches and rural dilapidated dwellings. The heavily grazed blue oak woodland has an understory dominated by aggressive ruderal species. The soils did not appear suitable for *P. peirsonii*. The record from this general location most likely applied to the area located along the road (Highway 155) to Woody six to nine miles to the west where numerous historic records were documented and the adobe clay soils are widespread (see data relating to population number 4).

Land Ownership: All lands in the area are private.

Threats: Not applicable

Land Uses: Grazing, domestic animals, dwellings.



Taxon: Pseudobahia peirsonii Population Number: 4 NDDB E.O. Number: 4 Documentation: "Kern County, 9.5 miles west of Woody on Delano Road. Rolling hills of black adobe, Annual 1 to 2 ft., common in lower sonoran", Carl B. Wolf 405, 16 April, 1935 (CAS, RSA,UC,UCLA); Other Documentation: "Delano Road, 9.5 miles west of Woody, 1100 feet", Ernest Twisselmann 4244, 12 April, 1958 (CAS,JEPS); "Kern county, 8.7 miles west of Woody, top of embankment, Dale Johnson 21, 14 April, 1973 (UC); "Kern County, 8.6 miles west of Woody on Highway 155; 300 plants on loose soil" Dale Johnson 40, 1974 (UC); "Kern County, 8.7 miles west of Woody on embankment on south side of Highway 155", John C. Stebbins and Karen Kirkpatrick 90-06, 7 April, 1990 (FSC,UC).

Mapping Precision: Specific

Status: Extant, 250 plants observed on survey date. Habitat is precarious due to slope subsidence and close proximity to maintained State Highway 155. It is located 8.7 miles west of Woody. Habitat Conditions: Most plants were growing on top of an embankment between the road bed and the fenceline. A few were established on the lower slopes of the embankment near the road on the looser soil. No plants were observed anywhere in the vicinity inside the very heavily grazed rangeland, although the adobe clay soils are very common throughout the immediate area. The common associates in the non-native grassland included *Phacelia ciliata, Avena fatua, Dichelostemma pulchellum*, and *Erodium cicutarium*.

Land Ownership: Jules Villard Estate 1805 Val Verde

Land Uses: Road easement, cattle grazing.

Delano, CA 93215

Threats: Continued slope subsidence agravated by cattle trampling and grazing during spring herd roundup period. Roadway maintenance activities. Herbicide spraying will be restricted by CalTrans and consideration will be given to fencing the population to minimize impacts from cattle (B.Valentine, pers. comm. 1990).



Taxon: Pseudobahia peirsonii

Population Number: 5 NDDB E.O. Number: 5

Documentation: "Tulare County, 0.8 miles north of Kern County line on east side of Highway 65, associated with *Brodiaea*, *Amsinkia*, and *Phacelia ciliata* ", Sherwin Carlquist 287, 28 March, 1952 (CAS,UC).

Mapping Precision: Specific

Status: Extirpated, all lands in the vicinity are converted to intensive agriculture (wheat, oats, citrus).

Habitat Conditions: The location was visited by John C. Stebbins and Karen Kirkpatrick on 7 April, 1990. Virtually no viable habitat remains in the vicinity.

Land Ownership: Private

Land Uses: Agriculture

Threats: Not applicable.


Population Number: 6 NDDB E.O. Number: 6

Documentation: "Tulare County, Vestal Substation by railroad tracks", Ernest C. Twisselmann 76-68, 7 March, 1965 (CAS); "Tulare County, between Richgrove and Ducor", Robert F. Hoover 455, 20 March, 1935 (UC). Note: CNDDB records state that Jack Zaninovich reported the population as extirpated in 1974.

Mapping Precision: Specific

Status: Exirpated, all lands in the vicinity have been converted to intensive agriculture. The entire site and surrounding lands site were surveyed on 7 April, 1990 by John C. Stebbins and Karen Kirkpatrick.

Habitat Conditions: The lands immediately north and south of the Southern California Edison Vestal Substation have all been recently plowed to ready for new plantings. The lands to the west were planted to grapes. The lands east of the substation (and east of the railroad) were planted to wheat on the survey date.

Land Ownership: Private

Land Uses: Agriculture, utilities, railroad.

Threats: Not applicable



Population Number: 7 NDDB E.O. Number: 7

Documentation: "Tulare County, grassy flat, Ducor", P.A. Munz 9038, 20 March, 1925 (POM, UC), Type Specimen; Other Documentation: "Ducor to Terra Bella, Tulare County", F.W. Peirson 5550, 20 March, 1920 (CAS), Holotype; "Tulare, County, Ducor", Mr. and Mrs. Henry Ramsey 2681, 14 April, 1938 (RSA); "Tulare County, near Terra Bella", L.R. Abrams 10848, 28 March, 1952 (CAS). Mapping Precision: General

Status: Extirpated, virtually all of the lands in the vicinity of Ducor north to Terra Bella have been converted to intensive agriculture. The area was surveyed by John Stebbins and Karen Kirkpatrick on 7 April, 1990.

Habitat Conditions: The immediate Ducor area is heavily agricultural except for the vacant ruderal lands within or near to the town. The most likely site for the collections, based upon the described soils (see map) is intensively farmed (USDA,1981). Virtually no habitat exists along Road 236 between Ducor and Terra Bella. The Terra Bella area contains no suitable habitat either, as all lands are agricultural.

Land Ownership: Private. Land Uses: Agriculture (grains, row crops, citrus).

Threats: Not applicable.

1



Documentation: "Tulare County, 4 miles southeast of Porterville", W.B. Richardson 84, 28 March, 1935 (UC).

Mapping Precision: General

Status: Extirpated, most lands in the vicinity have been converted to irrigated agriculture (citrus, olives).

Habitat Conditions: The lands where the collection most likely was made (Deer Creek Valley) are currently being intensively farmed. John Stebbins and Karen Kirkpatrick surveyed the general area on 8 April, 1990 and were unable to find any *P. peirsonii* plants. Based upon the available published soil maps, the west slope of Tennessee Knob was also surveyed without success, although access was denied on some of the lands. Some suitable habitat exists also on the southeast slope, but access was denied on the survey date.

Land Ownership: Private

Land Uses: Agriculture (orchards).

Threats: Not applicable



Documentation: "Tulare County, 6 miles east of Porterville on road to Springville", Rimo Bacigalupi and J. Macbride 3559, 28 March, 1952 (FSC, JEPS, UC).

Mapping Precision: Nonspecific.

Status: Extirpated, this site is now covered by Lake Success which was built in 1962. The collection was probably made along the road to Springville, which went through the large valley flooded by the reservoir.

Habitat Conditions: Reservoir, the area was extensively surveyed on 22 March, 1990 by John Stebbins. Undoubtedly, the collection was made from the heavy Porterville clay soils that are widespread in the valley. This general surrounding area has also been surveyed several times within the past six years to document any nearby populations that still exist in the vicinity (see populations 10, 19, and 20).

Land Ownership: US Army Corps of Engineers P.O. Box 1072 Porterville, CA 93258

Threats: Not applicable.



Documentation: "Tulare County, along road to Success Dam, 0.15 miles north of Bartlett Park and 0.35 miles below the spillway", CNDDB Report by Jim Shevock based upon an observation made on 23 March, 1985. No herbarium collection was made. The site was later surveyed and approximately 100 plants were verified, John C. Stebbins and Charles Kronberg 85030, 6 April, 1985 (FSC); Other Documentation: John C. Stebbins 90-020, 22 March, 1990, (FSC). Mapping Precision: Specific

Status: Extant, a small population of 45 plants was observed on the survey date. Habitat Conditions: The population is located in a very narrow strip on the north side of the road between the upper roadside "spray zone" and the fenceline. The individual plants were very depauperate and each had only one or two small flowers. The dry season and aggresssive competition from the numerous ungrazed "weedy" associates was obviously a factor contributing to the poor overall condition of the population. No plants were observed on the inside of the fenceline in the extremely overgrazed grassland. The common associates in the ruderal non-native grassland included Amsinckia intermedia, Avena barbata, Bromus diandrus, and B. rubens. The soil is classified as Porterville clay (USDA, 1981).

Land Ownership: Donald Callison

Land Uses: Roadside right of way.

354 W. Morton Porterville, CA 93257

Threats: Roadside maintenance, including spraying, slope stabilization, and scraping.



Population Number: 11 NDDB E.O. Number: 11

Documentation: "Tulare County, Tulare", J. Burtt Davy s.n., April, 1897 (UC), paratype.

Mapping Precision: General

Status: Extirpated, no habitat remains in the vicinity of Tulare, all lands have been converted over to intensive agriculture.

Habitat Conditions: Ruderal and agricultural lands dominate the landscape in the vicinity of Tulare. Based upon the soil conditions and the historic date of the collection it seems likely that the actual location was probably further east in the vicinity of Porterville or southeast near Ducor-Terra Bella.

Land Ownership: Private

Land Uses: Agriculture, housing.

Threats: Not applicable



Population Number: 12 NDDB E.O. Number: 12

Documentation: "Tulare County, Exeter on Rocky Hill", H.E.and S.T. Parks 0435, 12 April, 1930 (DS).

Mapping Precision: General

Status:Presumed extirpated, all of the area in the immediate vicinity of Exeter has been converted to agriculture, primarily citrus and olives.

Habitat Conditions: The reference to Rocky Hill indicates that the collection perhaps was made in the Yokohl Valley area. Suitable heavy clay soils are widespread in that valley. Extensive surveys made in April, 1990 by Karen and Greg Kirkpatrick in Sections 1, 12, 5, 6, and 7 failed to locate the species. Significant expanses of non-native grassland habitat are still present in the valley but it is rapidly being converted to smaller acreage "ranch type" uses. No other collections or observations since the 1930 record are available.

Land Ownership: Private

Land Uses: Agriculture

Threats: Not applicable



Population Number: 13 NDDB E.O. Number: 13

Documentation: "Tulare County, Dinuba", A.B. Bevans s.n., 11 April, 1927 (CAS).

Mapping Precision: General

Status: Extirpated, all lands in the vicinity of Dinuba have been converted to intensive agriculture. Reconnaissance level surveys were performed in the area by John Stebbins on 8 April, 1990.

Habitat Conditions: Irrigated agricultural lands completely dominate the region. Virtually no natural habitat remains in the area. The most likely site of the collection, about 0.5 miles southeast of Dinuba, is given over to vineyards and citrus orchards.

Land Ownership: Private.

Land Uses: Agriculture.

Threats: Not applicable.



Taxon: Pseudobahia peirsoniiPopulation Number: 14NDDB E.O. Number: 14Documentation: "Fresno County, heavy soil near mouth of Kings River', Charles Quibell4158, 28 March, 1932 (FSC); Other Documentation: "Fresno County, Near Campbell Mountain",Elroy Robinson s.n., 21 April, 1935 (FSC); "Saddle between Campbell and Jesse MorrowMountains, 500 feet", John Weiler 65018, 6 April, 1965 (FSC,UC); "2.5 miles east of Minkleralong Highway 180", Karen Stone s.n., 21 April, 1978; "Fresno County, along Highway 180between Friant-Kern Canal and Alta Main Canal in heavy dark clay soil", Dean Taylor, DanPearson, and John C. Stebbins 8770, 8 April, 1986 (UC).

Mapping Precision: Specific

Status: Extant, plants present on north and south side of Highway 180. The entire site and surrounding areas were surveyed on 27 March, 1990 by John Stebbins and Brad Valentine (CalTrans biologist).

Habitat Conditions: Population A contains approximately 350 plants growing mostly on the flat above the embankment. The habitat is a heavily disturbed non-native grassland dominated by *Avena fatua, Brassica kaber, Silybum marianum,* and *Matricaria matricarioides.* Some plants are located on the Highway 180 easement. Population B contains approximately 300 plants growing on a gentle slope dominated by *B. kaber, Amsinckia intermedia, Avena fatua,* and *Erodium cicutarium.* Both populations have been impacted by very heavy grazing, soil disturbance related to road stabilization work, and cattle pasturing. The soil at the site is Porterville clay (Huntington, 1971). Runoff from Highway 180 is flowing downslope into population B.

Land Ownership: Don Ketscher 22555 E. Jensen Land Uses: Cattle grazing, highway right of way.

Fresno, CA 93654

Threats: Cattle pasturing. The landowner is reportedly "hostile" toward the presence of the species on his property, and has threatened to grade the entire area (D. Mitchell, pers. comm. 1990). CalTrans is currently working on plans to widen and upgrade Highway 180, which would impact both populations.



Taxon: Pseudobahia peirsoniiPopulation Number: 15NDDB E.O. Number: 15Documentation: "Fresno County, west of Academy, in a grain field", R. Bangsberg 1085, 2May, 1929 (FSC);Fresno County, Academy Avenue, 3.4 miles north of Shaw and 0.5 milessouth of junction with Highway 168, 500 feet", John Weiler 65018, 6 April, 1965 (UC); OtherDocumentation: "East side of Academy Avenue, 0.8 miles south of Shepherd Avenue and 0.013miles north of the Friant Kern Canal in pasture between a house and the road", John C. Stebbinsand Barbara M.Leitner 90-011, 30 March, 1990 (FSC,UC).

Mapping Precision: Specific

Status:Extant, 350 plants in a population covering two acres were observed on the survey date. Habitat Conditions: Non-native grassland that is being used as a cattle pasture. Only a few calves were present on the survey date. The soil at the site is classified as Centerville Clay (Huntington, 1971). The most common associated species were Avena fatua, Brassica kaber, Lupinus bicolor, Achyrachaena mollis, Amsinckia intermedia, and Erodium cicutarium. Many of the plants were in the center of the field near the well that supplies water for the owners nearby home. This population likely represents a relictual remnant of what historically was a large population on the heavy clay soils extending over a mile north to near Highway 168. Most all of the habitat on the east side of Academy Avenue has been farmed (oats and barley), and more recently subdivided into several small ranch type homes. The owners are aware of the significance of the species and may be receptive to personally "protecting" it at the site. They are elderly however, and may be unable to live on the site for too much longer.

Land Ownership: Mr. and Mrs. Phillip Smith 8290 N. Academy

Clovis, CA 93612

Threats: The population is threatened by agricultural and home development, road widening, any maintenanance related to the well. Incremental degradation due to competition from aggressive ruderal species is a potential problem. All of these threats, especially development, would be greatly exacerbated if the nearby Academy area (1.2 miles north) is selected as the site for a new UC campus.



Taxon: Pseudobahia peirsoniiPopulation Number: 16NDDB E.O. Number: 16Documentation: "Fresno County, about 1.0 miles west of Round Mountain and 0.5 miles east
of Friant -Kern Canal", observation by John Weiler in 1974 according to CNDDB records; "Fresno County, 0.5 miles north of intersection of Shaw and Zediker Avenues", L. Honeysett
s.n., 17 March, 1977 (UC); "Fresno County, 0.5 miles northwest of Round Mountain, south of
Hog Creek. On dark heavy clay soil at 475 feet", John C. Stebbins, Dean W. Taylor, and Dan
Pearson 8770, 8 April, 1986 (UC). The site was surveyed on 4 April, 1990 by John Stebbins and
Rosalie Faubion (Biologist for U.S. Bureau of Reclamation).

Mapping Precision: Specific

Status: Extant, about 4,500 plants scattered over 42 acres were observed on the survey date. Habitat Conditions: Non-native valley grassland dominated by Achyrachaena mollis, Brassica kaber, Hordeum geniculatum, Lepidium nitidum, Bromus rubens, and Amsinckia intermedia. The area has been routinely grazed at relatively moderate levels during the past five years (pers. obs. by John Stebbins). The entire population is located on very heavy Porterville clay soils (Huntington, 1971).

Land Ownership: Fresno Flood Control District Land Uses: Proposed flood reservoir 5469 E. Olive and associated facilities.

Fresno, CA 93727

Threats: The entire site was recently purchased for the development of the Fancher Creek Reservoir Project. This proposed flood control project will potentially impact up to approximately 40% of this population by temporary inundation during flood periods (Jones and Stokes, 1990). The District is currently in the process of implementing a mitigation plan in conjunction with the California Department of Fish and Game to protect the remaining portion of the population onsite. Also, the District is negotiating to purchase another *Pseudobahia peirsonii* population (refer to population # 18) in Kern County to provide off-site mitigation to compensate for the impacted portion of this population (M. Marks, pers. comm.1990).



Population Number: 17 NDDB E.O. Number: 17

Documentation: "Tulare County, five miles east of Ducor", Note: This location is based upon a CNDDB record of an observation at the site, however, no specifics about the reference are available. No herbaria records canvassed during this study cited the location. The general area is fairly close to the type locatility, and the heavy clay soils required by the species are present. It is reasonable to assume that the observation was valid. The entire area was surveyed by John Stebbins and Karen Kirkpatrick on 7 April, 1990.

Mapping Precision: Non-specific.

Status: Extirpated, most lands in the vicinity have been converted to intensive agriculture (oats, barley, wheat).

Habitat Conditions: Almost all lands in the general area are currently under agriculture. Approximately ten acres in section 28, (see map), are uncultivated but the species was not observed on the survey date. The general area was also searched at a reconnaissance level in 1986 / without success (D.Taylor, pers. comm. 1990).

Land Ownership: Private.

Land Uses: Intensive agriculture (wheat).

Threats: Not applicable.



Taxon: Pseudobahia peirsoniiPopulation Number: 18NDDB E.O. Number: 18Documentation: "Kern County, south-facing lower slope of Pyramid Hill due north of
Rancheria Road", James R. Shevock (with Jack Zaninovich) 10149, 25 February, 1983 (CAS).
Other Documentation: Karen Kirkpatrick 90-01, 18 March, 1990 (FSC,UC). The site was
visited again on 7 April, 1990 by Karen Kirkpatrick and John Stebbins.
Mapping Precision: Specific

Status: Extant, a population consisting of 3,500 plants spread over 35 acres was observed. Habitat Conditions: Non-native grassland dominated by *Dichelostemma pulchella*, *Lepidium nitidum*, *Erodium cicutarium*, *Amsinckia intermedia*, and *Bromus rubens*. All of the plants were observed on south-facing gentle slopes in an area of heavy cracked clay soils. The rare species, *Fritillaria striata*, was also observed at the site growing on the same soils at the site but generally on the lowest portions of the slopes. The area has been routinely grazed and some trampling damage from cattle was noted. The overall site quality was rated as good. Land Ownership: Kenneth Mebane Ranches

P.O. Box 80055

Bakersfield, CA 93380

Threats: Major threats include any potential changes in current grazing regime and incidental impacts from a new road alignment project downslope from the population (see map). This population may be acquired as part of a mitigation plan currently being developed as "compensation" for the identified impacts to population number 16 in Fresno County. The Fresno Metropolitan Flood District intends to purchase about 60 acres and turn it over to the department of Fish and Game for management (M. Marks, pers. comm.1990). The proposal, however, has not yet been finalized by all of the concerned agencies and the current landowner.

COUNTY: Kern Quadranale: Rio Bravo Ranch Coordinates: T.285,R.29E,S1/2-SE1/4 S.14



Taxon: *Pseudobahia peirsonii* **Population Number:** 19 **NDDB E.O. Number:** 19 & 20 **Documentation:** "Tulare County, Success near Tule River ", Mr. and Mrs. Henry Ramsey 2681 and 2682, 14 April, 1938 (RSA); "Tulare County, near overflow camping area for north shore of Lake Success. Growing on dark clay soil in heavily grazed grassland at 750 feet", John C. Stebbins 85029, 6 April, 1985 (FSC); " one mile northwest of Success Dam in Section 26", Dean Taylor, John Stebbins, and Dan Pearson 8768, 8 April, 1986 (JEPS, UC); Two reports of species observations at this location by Jim Shevock to the CNDDB in 1983 and 1985 were mapped separately and they are combined in this report. A field survey of this location was made on 22 March, 1990 By John Stebbins and Ann Howald of the California Department of Fish and Game. Other Documentation : John C. Stebbins 90-018, 22 March, 1990 (FSC, UC). This site is likely a small relictual remnant of the large historical concentrations of *P. peirsonii* that existed on the heavy clay soils in Success Valley before the contruction of the reservoir (see populations 9, 10, and 20).

Mapping Precision: Specific

Status: Extant, about 200 plants spread over three acres were observed on the survey date. Habitat Conditions: This site is a degraded non-native grassland habitat. The dominant associates included *Brassica nigra*, *Avena fatua*, *Capsella bursa-pastoris*, *Amsinckia intermedia*, and *Silybum marianum*. The soils are classified as Porterville clay (USDA, 1981). The site has been heavily impacted by excessive cattle grazing, vehicular traffic, and erosion trenches dug into the slope. Competition from the aggressive ruderal taxa has been noted in the past (J. Shevock, pers. comm. 1990). Incidental impacts such as trash dumping, bicycle riding, and other recreational activities associated with the occupants of the nearby overflow campground were observed during earlier surveys, but this facility was closed in 1990.

Land Ownership: U.S. Army Corps of Engineers Land Uses: Grazing, recreation.

P.O Box 1072

Porterville, CA 93258

Threats: Overgrazing, competition from ruderal species, and recreational impacts. A major threat includes the possibility that the level of Lake Success could be raised for increased water storage (P. Landis, pers. comm. 1990). In that event, the population could be inundated or the recreational impacts would be expected to be intensified.



Taxon: *Pseudobahia peirsonii* **Population Number:** 20 **NDDB E.O. Number:** 21 **Documentation:** "Tulare County, Lake Success south fork Tule River arm, one mile northeast of Mine Hill summit", Note: This record is based upon an observation of 31 depauperate plants made in 1985 by John Stebbins. No specimens were taken at the time due to the small size and poor status of the population. A follow-up survey made in 1986 failed to locate any plants at the site. Another field survey was performed on 22 March, 1990 by John Stebbins and no plants were observed. The small observed population was likely a fragmented remnant of the once extensive populations of *P. peirsonii* that historically existed in Success Valley (see populations 9, 10, and 19)

Mapping Precision: Specific

Status: Presumed extirpated, the site has become very degraded compared to earlier observations.

Habitat Conditions: The site is located just upslope from the high water level. The non-native grassland was severly impacted by excessive cattle grazing, erosion, and the recreational activities associated with Lake Success. The dominant species observed in the latest survey were *Amsinckia intermedia, Bromus rubens*, and *Erodium cicutarium*.. The soils are classified as Porterville clay (USDA, 1981).

Land Ownership: U.S Army Corps of Engineers P.O. Box 1072 Determine CA 02258

Porterville, CA 93258

Threats: Grazing and recreational degradation continue to impact the site. If the current plans to raise the level of Lake Success are implemented, the site will be inundated.



Taxon: Pseudobahia peirsoniiPopulation Number: 21NDDB E.O. Number: 22Documentation: "Kern County, along east side of Rancheria Road, 6.2 miles north of Junctionwith Highway 178, forty plants on black clay soil", Debbie Martin s.n., 4 April, 1986 (FSC).The site was surveyed on 17 March, 1990 by Karen Kirkpatrick and again on 4 April, 1990 byKaren Kirkpatrick and John Stebbins.

Mapping Precision: Specific

Status:Presumed extirtpated, but

inconclusive.

Habitat Conditions: The area has been scraped, probably for fire control related to the road. Many "weedy" species dominated by *Grindelia camporum*, *Lactuca serriola* and *Centaurea melitensis* were established at the disturbed site. The surrounding non-native grassland has also been excessively grazed and trampled by cattle. Extensive field work performed on both survey dates this season failed to locate the species, although the soils are suitable. Extremely dry conditions in 1990 may have contributed to the absence of the species in some of the smallest populations in the southern part of it's range. This population may be present in a future more favorable growing season.

Land Ownership: Kenneth Mebane Ranches Land Uses: Cattle grazing, road maintenance P.O. Box 80055

Bakersfield, CA 93380

Threats: (If applicable) Road maintenance, grazing, trampling. This route is designated as the right of way for the future Highway 178 to bypass the Kern River Canyon, pending approval of funding (B. Valentine, pers. comm. 1990).



Taxon: Pseudobahia peirsoniiPopulation Number: 22NDDB E.O. Number: 23Documentation: "Tulare County, 0.7 miles south of Fountain Springs along SouthernCalifornia Edison Transmission Line, 800 feet", Dean Taylor 8778, 9 April, 1986 (JEPS, UC);Other Documentation: Karen Kirkpatrick 90-05, 29 March, 1990 (FSC,UC).Mapping Precision: Specific

Status: Extant, approximately 1,000 plants were observed on the survey date (29 March, 1990). This was significantly less than the 3,000 plants reported by Taylor during his 1986 SCE transmission line survey.

Habitat Conditions: Non-native grassland dominated by Avena barbata, Achyrachaena mollis, Amsinckia intermedia, Bromus mollis, and Lepidium nitidum. Most of the plants are concentrated on the gentle (10%) northeast-facing slopes. The dark heavy soils are classified as Cibo clay (USDA, 1981). Most of the plants are located east of tower number 96. The entire area was being grazed but the levels appeared moderate, and it probably serves to limit competition with the annual grasses. The overall habitat quality was rated as good.

Land Ownership: Fountain Springs Acres 23760 Avenue 224 Land Uses: Cattle grazing, powerline ROW.

Lindsay, CA 93247

Threats: Potential changes in grazing regime could lead to excessive damge from trampling and slope erosion. Maintenance and or repair of SCE transmission lines or towers could impact the population.



Taxon: Pseudobahia peirsoniiPopulation Number: 23NDDB E.O. Number: 24Documentation: "Tulare County, 0.4 miles north of Fountain Springs along SouthernCalifornia Edison Transmission Line, 860 feet ", Dean Taylor 8780, 9 April, 1986 (UC, JEPS).The population site was visited on 29 March, 1990 by Karen and Greg Kirkpatrick. No herbariaspecimens were collected.

Mapping Precision: Specific

Status: Extant, but only 15 plants were observed on the survey date. This figure represents a drastic decline from the 500 plants observed by Taylor in 1986.

Habitat Conditions: Non-native grassland dominated by Hordeum leporinum, Sisymbrium altissimum, Amsinckia intermedia, Achyrachaena mollis, and Erodium cicutarium. The few plants were located directly under the SCE transmission lines on a gentle north-facing slope. The extremely dry conditions and aggressive competition from "weedy" taxa (primarily Sisymbrium) have overgrown and impacted this population. Very little exposed soil was evident. Cattle were present, but very little grazing had occurred in the vicinity of the observed plants. The soil is classified as Cibo clay, and it is much more widespread than the actual observed population. Overall habitat conditions were rated as poor.

Land Ownership: Darrel Boland

Land Uses: Grazing, transmission line ROW.

32286 Rd. 138 Visalia, CA 93291

Threats: Competition from ruderal weedy species. Potential transmission line maintatenance or repair.



Taxon: *Pseudobahia peirsonii* **Population Number:** 24 **NDDB E.O. Number:** 25 **Documentation:** "Kern County, Rag Gulch 3 air miles southeast of Villard Ranch. About 200 plants at base of north-facing slope, east of Southern California Edison transmission lines, 900 feet", Dean Taylor 8775, 9 April, 1986 (UC, JEPS). A field survey was attempted on 7 April, 1990 by John Stebbins and Karen Kirkpatrick but permission to access the land was denied by a ranch manager.

Mapping Precision: Specific

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Presumed Status: Extant, no land use changes have occurred in the area (according to Villard ranch manager). It is assumed that the population still exists at the reported site. It is reasonable to assume that the number of plants was down this season from the 500 plants reported in 1986. **Habitat Conditions:** All of the lands on the Villard Ranch south of Highway 155 were observed to be heavily grazed non-native grassland on the survey date. Obviously this condition was aggravated by the dry season. The site where the plants were observed was also colonized by *Triteleia laxa* (D. Taylor, pers. comm. 1990). During the 1986 survey he performed for SCE he noted that the grazing levels were very heavy. He also stated that the plants were growing on "dark heavy clay soil allied to the Porterville series".

Land Ownership: Jule Villard Estate

Land Uses: Cattle grazing

1805 Val Verde Delano, CA 93215

Threats: Excessive grazing, trampling, erosion. Potential impacts from nearby ranch road.



Taxon: Pseudobahia peirsonii Population Number: 25 NDDB E.O. Number: None

Documentation: "Fresno County, 0.7 miles northeast of Round Mountain, about 1.6 miles east of the Friant-Kern Canal"; an observation of 50 plants was made in 1987 by John Stebbins. The site was surveyed again on 4 April, 1990 by John Stebbins. No herbaria collections were made due to the small size of the population.

Mapping Precision: Specific

Status: Extant, a small population of 26 plants was observed on the survey date.

Habitat Conditions: Non-native grassland dominatedby Hordeum leporinum, Amsinckia intermedia, Erodium cicutarium, Lamium amplexicaule, Evax caulescens, Bromus rubens, and Senecio vulgaris. The soil is classified as Porterville clay (Huntington, 1971). The P. peirsonii plants were smaller than they were during the last visit made in 1987, probably as a result of the dry season. The entire area was grazed very heavily by cattle during both surveys. The overall site quality was rated as fair.

Land Ownership: Gladys Pollard 1590 Wrenwood Ave.

Land Uses: Cattle grazing.

Fresno, CA 9371

Threats: Excessive grazing and trampling. Longer term threats include potential incremental land use changes related to the Fancher Creek flood control project under construction west of the site. Also, subdivision of the land in a manner similar to that which has occurred near the intersection of Herndon and Madsen Avenues is a possibility.



Taxon: Pseudobahia peirsoniiPopulation Number: 26NDDB E.O. Number: NoneDocumentation: "Tulare County, west and southwest of Road 276, northeast of Porterville,1.5 - 2.1 miles north of Rocky Hill", Robert Hansen s.n., 9 April, 1988 (FSC); OtherDocumentation: Karen Kirkpatrick 90-07, 12 April, 1990 (FSC,UC).

Mapping Precision: Specific

Status: Extant, approximately 650 plants were observed on the survey date. Population A had 500 plants, and population B had 150 plants on 9 April, 1990.

Habitat Conditions: Non-native grassland, dominated by Hordeum leporinum, Vulpia myuros, Avena barbata, Agoseris heterophylla, Erodium moschatum, Bromus mollis, and B. rubens. Most of the plants were growing on north-facing slopes. A small population of the rare Fritillaria striata was also observed in the southwest quarter of Section 8. The soils are classified as Porterville cobbly clay and Cibo clay (USDA, 1981). The entire area has been routinely grazed for a very long period (Hansen, 1988). It appeared to be grazed at moderate to heavy levels on the survey date.

Land Ownerships: Glenfed Financial Corp. (Sec.7, 8) & Colpien Feed Yards (Sec. 17) 12720 Hillcrest Rd. # 700 4353 Colpien Rd.

Dallas, TX 75230

Tulare, ČA 93724

Threats: Increased or excessive grazing would cause trampling and soil erosion. Potential conversion to agriculture is a real threat as it has already occurred on the lower slopes and on the flats near Road 276. The possible new UC campus site in nearby Frazier Valley would accelerate the potential for development.





Population Number: 27 NDDB E.O. Number: None

Documentation: "Tulare County, 1.5 miles west of Rocky Hill, east of Porterville", observation of 3 plants by Hansen (1988); Other Documentation: A field survey of the site was performed by John Stebbins on 22 March, 1990.

Mapping Precision: Specific Status: Extant, 12 plants were observed on the survey date.

Habitat Conditions: Heavily grazed non-native grassland. Dominant species associated with *P. peirsonii* included *Brassica nigra*, *Stellaria media*, *Medicago polymorpha*, *Vulpia myuros*, and *Amsinckia intermedia*. The soils are classified as Cibo clay (USDA, 1981). The plants observed were very colonial on a north-facing slope. It is significant to note that Hansen reported only 3 plants in 1988. This figure, along with the 1990 observation indicates that the population at this site is marginal in terms of viability. No herbaria collections were made due to the small size of the population.

Land Ownership: Edward Cornell P.O.Box 11 Porterville, CA 93258 Land Uses: Cattle grazing, ranching.

Threats: Excessive grazing and urban expansion of the Porterville area leading to land conversion. Potential UC campus in nearby Frazier Valley would accelerate urban development.



Taxon: Pseudobahia peirsonii Population Number: 28 NDDB E.O. Number: None

Documentation: "Tulare County, south side of Lewis Hill, west of Plano Rd., 0.5 miles north of Reid Road, north of Porterville", Robert Hansen s.n., 19 March, 1988 (FSC). The site was surveyed by Karen Kirkpatrick on 12 April, 1990.

Mapping Precision: Specific

Status: Presumed extant, no plants were observed on the rather late survey date, but no change in habitat conditions have occurred since the 1988 observations. The species may not have been present due to the extremely dry season and heavy grazing. About 300 plants were observed two years ago at the site (Hansen, 1988). The collected specimens were verified by John Stebbins in 1988.

Habitat Conditions: Very dry, heavily grazed non-native grassland dominated by Avena barbata, Dichelostemma pulchellum, Lactuca seriola, Erodium cicutarium, and Chlorogalum pomeridianum.. The south - facing slope was about a 45% gradient, and has been used as a horse and mule "pasture". The soils are classified as Cibo clay (USDA, 1981).

Land Ownership: Robert Gauger 1910 N. Plano Ave.

Land Uses: Horse and mule pasture.

Porterville, CA 93257

Threats: Heavy grazing, trampling, competition from aggressive non-native annuals.



Documentation: "Tulare County, Lindsay", Mildred E. Hather s.n., March, 1928 (CAS); "Tulare County, 5 miles northwest of Lindsay", Lyman Benson 7577, 28 March, 1936 (RSA). The general area was surveyed by John Stebbins on 8 April, 1990.

Mapping Precision: General

Status: Extirpated

Habitat Conditions: Virtually no habitat remains in the vicinity of Lindsay. All lands have been converted to either residential or agricultural uses. Most of the areas containing the preferred heavy clay soils have been converted to either citrus or olive orchards. The 1936 collection by Benson may have been from the Yohohl Valley area (refer to population report number 12 for discussion of field surveys performed in that region).

Land Ownership: Private ruderal.

Land Uses: Agriculture, residential,

Threats: Not applicable.



Taxon: *Pseudobahia peirsoni* **Population Number:** 30 **NDDB E.O. Number:** None **Documentation:** "Fresno County, 0.6 miles south of Shaw Avenue and 1.0 miles west of Redbank Cemetery, east of Clovis", Adrian Juncosa s.n., 23 April, 1990 (DAV). The plants were "discovered" by Mr.Juncosa of EIP Associates during a survey for a proposed development project. Other Documentation: The collected specimens were verified and the site was surveyed on 7 July, 1990 by John Stebbins.

Mapping Precision: Specific

Status: Extant, a large (up to 5,000 plants based upon density estimates made by EIP in July from field data obtained in April), spread over about 3 acres.

Habitat Conditions: Non-native grassland that is a part of a relictual 90 acre parcel of undeveloped land surrounded by intensive agriculture, rural residential, and recreational development. This parcel was apparently intended as an expansion area for a now defunct golf course that is located immediately to the north. It had never been "botanized" because of the inablity to access it across private lands, and the reasonable assumption that most lands in the area had been converted to agriculture long ago. The population site is dominated by *Bromus mollis*, *Vulpia myuros*, *Hypochoeris glabra*, *Evax caulescens*, *Centaurea melitensis*, and *Scandex pectenveneris*. The soils are classifed as Centerville clay (Huntington, 1971). The entire parcel has been grazed at moderate levels based upon observations made on 7 July, 1990. A firebreak had been disced along the fencelines.

Land Ownership: Vintage Associates

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Land Uses: Grazing, investment.

1400 Fashion Is. Blvd. #810 San Mateo, CA 94404

Threats: This parcel is part of a very large development project (Quail Lakes) that is proposed for the site. The project plans consist of a golf course, lakes, and about 400 housing units spread over 300 acres (A. Juncosa, pers. comm. 1990). The *P. peirsonii* population is located near the proposed golf course. The developers have contracted with EIP and Harding Lawson Associates to formulate a mitigation plan to deal with the species presence (M. Zander, pers. comm. 1990). The California Department of Fish and Game is assisting the consultants in preparing a plan that will be acceptable. In addition to this immediate threat, it is important to note that the population is completely surrounded by numerous other potential threats. These include agriculture, an adjacent recreational water park (Clovis Lakes), ranches, and residences.

