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Vascular Plants of the
Little Dry Creek Unit,
Upper Butte Basin
Wildlife Area

Vernon H. Oswald

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Vernon H. Oswald

Department of Biological Sciences
California State University, Chico
Chico, California 95929-0515

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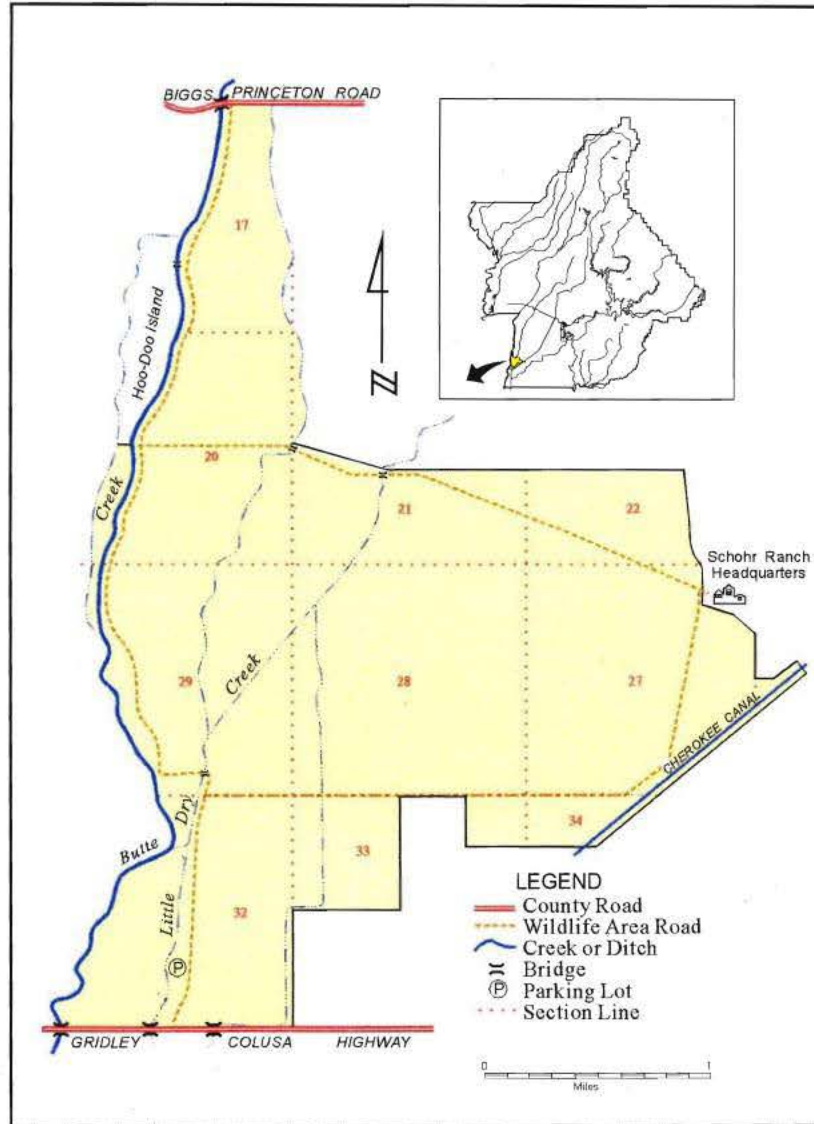


FIGURE 1. Map of the Little Dry Creek Unit of Upper Butte Basin Wildlife Area.

INTRODUCTION

A survey of the vascular flora of the Little Dry Creek Unit, Upper Butte Basin Wildlife Area, was carried out between February 28 and October 18, 1989. My interest in this project was two-fold: 1) to prepare an inventory of the plants which might be of use in the management of the area and serve as a base for future studies, and 2) to gather data for a continuing study of the vascular flora of Butte County, which has now been published (Oswald & Ahart, 1994).

The Little Dry Creek Unit consists of the 3700 acres bordering on Butte Creek along the southwest edge of Butte County, California, about seven miles west of Gridley (see Fig. 1). It is the west portion of the Schohr Ranch purchased by the California State Wildlife Conservation Board in 1988, and consists of all or portions of Sections 17, 20, 21, 22, 26, 27, 28, 29, 32, 33, and 34 in T18N R1E. The area is administered by the California Department of Fish and Game, and management will be similar to that of Gray Lodge State Wildlife Area, which is located about two miles to the southeast.

The land, which lies on the floor of the Sacramento Valley, is essentially flat, varying between 60 and 70 feet in elevation. In addition, the natural contours and drainages have been extensively modified by land leveling and the construction of levees and ditches for rice culture. Consequently, the pristine plant communities, which would probably have consisted of extensive areas of freshwater marsh interspersed with valley oak and riparian woodlands, were largely destroyed. However, narrow bands of essentially unmodified marsh and woodland border Butte Creek and Little Dry Creek in Sections 29 and 32. Also, the fields in the west half of the wildlife area have now been fallow for several years and, although still supporting mostly weedy, introduced species, are beginning to revert to marsh.

TABLE 1. Numerical analysis of the vascular flora of the Little Dry Creek unit, Upper Butte Basin Wildlife Area.

FAMILIES	GENERA	SPECIES	VARIETIES*	TOTAL	NON-NATIVE	CNPS LISTED
49	143	200	4	204	91 (44.6%)	2

*Includes both varieties and subspecies.

A total of 204 plant taxa in 49 families and 143 genera was recorded during this survey (see Table 1). No study of this kind is ever complete, particularly so in this case. The area is simply too large to cover thoroughly in the time that was allotted to the project. Furthermore, most of the field work was carried out in the relatively undisturbed area along Butte and Little Dry creeks, with essentially no observations in the more recently farmed rice land east of Sections 20, 29, and 32.

Non-native species comprise about 45 percent of the flora of the Little Dry Creek Unit. In other recent surveys, 23 percent of the total Butte County flora, 30 percent of the plants in Upper Bidwell Park, 42 percent of the plants at Harter's Cherokee Ranch in central Butte County, and 45 percent of the plants in the Butte Creek Can-

yon Ecological Reserve were non-native species. The large proportion of non-native plants at Little Dry Creek is correlated to the highly disturbed nature of the area, together with the extensive farming operations that were carried out there for many years.

Only two of the plants at the Little Dry Creek Unit are listed in the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (Skinner & Pavlik, 1994). Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*) is in List 1B (rare, threatened, or endangered in California and elsewhere), and California hibiscus (*Hibiscus lasiocarpus*) is in List 2 (rare, threatened, or endangered in California but more common elsewhere). The populations of hibiscus are certainly among the largest remaining in Butte County.

Five additional plants found at Little Dry Creek are also of interest to the Butte County flora. Dwarf pepper-grass (*Lepidium latipes* var. *latipes*), sharp-toothed pepper-grass (*L. dictyotum* var. *acutidens*), Parry's spikeweed (*Hemizonia parryi* ssp. *rudis*), yellow-rayed goldfields (*Lasthenia glabrata* ssp. *glabrata*), and California summer-cypress (*Kochia californica*) were all new records for Butte County. Parry's spikeweed and sharp-toothed pepper-grass were subsequently found also at Gray Lodge State Wildlife Area.

Nomenclature in the plant list is based upon *The Jepson Manual* (Hickman, 1993), although author abbreviations follow Brummitt and Powell. Some synonyms used in *A California Flora* (Munz, 1973) are included in brackets. Common names are mostly those of Abrams (1923-1960). The date(s) associated with each plant indicate the flowering interval for the plant at the study site, in so far as it could be determined from limited observations. *Early* is applied to days 1 through 10, *mid* to days 11 through 20, and *late* to days 21 through the end of the month. The flowering intervals, together with locations and habitats in which the plants were found, should be considered to be positive but not inclusive statements. Thus, a particular plant might be found at some location other than the ones mentioned in the plant list, or the plant might be found blooming before or after the date or interval indicated. Words such as rare, common, abundant, etc., are entirely subjective.

Some voucher specimens have been collected. They are indicated by collection number and are deposited in the herbarium at California State University, Chico (CHSC).

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Names printed in **boldface** are plants listed in the CNPS *Inventory*. Names in a non-serif typeface, e.g., *Taraxacum officinale*, are not native to the California flora.

THE PLANT LIST

FERN ALLIES

AZOLLACEAE – AZOLLA FAMILY

[Included in *Salviniaceae* in some floras]

Azolla sp. – DUCKWEED FERN. Locally abundant during May in quiet water of a ditch that crosses the road at the boundary of Sections 29 and 32. The population was dispersed by increased water flow during the summer, and mature plants, which are needed for a reliable species determination, were not found.

ANTHOPHYTA – FLOWERING PLANT DIVISION

DICOTYLEDONES – DICOT CLASS

ACERACEAE – MAPLE FAMILY

Acer negundo L. var. *californicum* (Torr. & A.Gray) A.Gray – BOX-ELDER. Locally common small tree along Butte and Little Dry creeks in the south half of the area. Late Mar.

Acer saccharinum L. – SILVER MAPLE. Seedlings to small trees have volunteered in a number of places along Butte Creek from near the north gate to the Gridley-Colusa Hwy. No flowers or fruits observed.

AMARANTHACEAE – AMARANTH FAMILY

Amaranthus albus L. – TUMBLEWEED. Common weed on and along levee roads. Early Jun.

Amaranthus blitoides S.Watson – PROSTRATE AMARANTH. Common weed on and along levee roads. Early Jun. [*A. graecizans* L. misapplied]

Amaranthus retroflexus L. – RED-ROOTED AMARANTH. A small group of plants was observed in a dry drainage along the north side of Section 29. Early Jul.

ANACARDIACEAE – SUMAC FAMILY

Toxicodendron diversilobum (Torr. & A.Gray) Greene – POISON-OAK. Scattered shrub along the creeks and in oak woodland. Early Apr. [*Rhus diversiloba* Torr. & A.Gray]

APIACEAE – CARROT FAMILY

[*Umbelliferae*]

Conium maculatum L. – POISON-HEMLOCK. Occasional biennial weed along canals and along Gridley-Colusa Hwy. Early May.

Eryngium vaseyi J.M.Coult. & Rose – COYOTE-THISTLE. Occasional herbaceous perennial in marshy places and on alkaline flats in Sections 29 and 32. Late Jun.

Foeniculum vulgare Mill. – FENNEL. Uncommon herbaceous perennial along the levee road paralleling Butte Creek and at the parking lot in Section 32. Early Jun.

Perideridia kelloggii (A.Gray) Math. – KELLOGG'S YAMPAH. Uncommon herbaceous perennial at the marshy area between the main road and Butte Creek in Section

29 and in the field between the main road and Little Dry Creek near the south gate. Late Jun–Jul.

APOCYNACEAE – DOGBANE FAMILY

Apocynum cannabinum L. – INDIAN-HEMP. Locally common herbaceous perennial on the bank of Butte Creek upstream from the Hoo-Doo Island bridge. The plants in this population have clasping stem leaves. Mid May. [*A. sibiricum* Jacq. var. *salignum* (Greene) Fern.]

ASCLEPIADACEAE – MILKWEED FAMILY

Asclepias fascicularis Decne. – NARROW-LEAVED MILKWEED. Fairly common herbaceous perennial along the edges of marshy places and near creeks. Early Jun.

Asclepias speciosa Torr. – SHOWY MILKWEED. Herbaceous perennial forming one localized colony on the west bank of Butte Creek downstream from the bridge to Hoo-Doo Island and another along a dry ditch just east of the south gate (*Oswald* 3813). Early Jun–Jul.

ASTERACEAE – SUNFLOWER FAMILY

[*Compositae*]

Achyraea mollis Schauer – BLOW-WIVES. Scattered but not abundant annual forb in a fallow field between Little Dry and Butte creeks on the north side of Gridley-Colusa Hwy. Mid Apr.

Ambrosia psilostachya DC. – WESTERN RAGWEED. Common herbaceous perennial along Butte Creek. Mid Jul. [Includes var. *californica* (Rydb.) S.F.Blake]

Anthemis cotula L. – MAYWEED. Locally common weedy annual forb in fallow fields and along Butte Creek. Early May.

Artemisia douglasiana Besser – MUGWORT. Common herbaceous perennial along creeks and drainages. Early Aug.

Aster subulatus Michx. var. *ligulatus* Shinnars – ANNUAL SALTMARSH ASTER. Common to abundant annual forb in first-year fallow fields and in older fields reverting to marsh. Early Sep–Oct. [*A. exilis* S.Elliott]

Baccharis pilularis DC. – COYOTE-BRUSH. Occasional shrubby perennial on the banks of Butte Creek. Plants vegetative during study interval. [ssp. *consanguinea* (DC.) C.B.Wolf]

Bidens frondosa L. – STICK-TIGHT. Common annual forb in marshy places. Mid Jun.

Centaurea solstitialis L. – YELLOW STAR-THISTLE. Abundant annual weed along roads and in dry fields. Early Jun–Oct.

Chamomilla occidentalis (Greene) Rydb. – VALLEY PINEAPPLE-WEED. Uncommon in the alkaline waste area north of the parking lot (*Oswald* 3799). Early Jun. [*Matricaria occidentalis* Greene]

Chamomilla suaveolens (Pursh) Rydb. – COMMON PINEAPPLE-WEED. Weedy annual forb in disturbed places. Mid Apr. [*Matricaria matricarioides* (Less.) Porter]

Cichorium intybus L. – CHICORY. Common perennial herb along roads and in fields. Late May–Oct.

Cirsium vulgare (Savi) Ten. – BULL THISTLE. Common biennial in fallow fields and waste places. Late Jun.

Euthamia occidentalis Nutt. – WESTERN GOLDENROD. Common herbaceous perennial along waterways and in marshy fields. Early Aug–Sep. [*Solidago occidentalis* (Nutt.) Torr. & A.Gray]

Gnaphalium luteo-album L. – WEEDY CUDWEED. Weedy annual forb in fallow fields. Early May.

Gnaphalium palustre Nutt. – WESTERN MARSH CUDWEED. Occasional annual forb in vernal wet depressions on the edge of the marsh along Butte Creek in Section 29. Mid May.

Grindelia camporum Greene var. *camporum*. – VALLEY GUMPLANT. Locally common herbaceous perennial on vernal wet but summer dry alkaline flats near Little Dry Creek in Section 32 (*Oswald 3980*). Late Jun–Sep.

Helianthus bolanderi A.Gray – BOLANDER'S SUNFLOWER. Abundant annual forb in marshes and marshy fallow fields. Late Jun–Oct.

Hemizonia fitchii A.Gray – FITCH'S SPIKEWEED. A single vegetative plant was observed in a waste area at the slough in the center of the east side of Section 20.

Hemizonia congesta DC. ssp. *luzulifolia* (DC.) Bab. & H.M.Hall – HAYFIELD TARWEED. Locally common annual forb in fallow fields and on alkaline flats. Mid Jul–Oct. [*H. luzulifolia* DC. including ssp. *rudis* (Benth.) D.D.Keck]

Hemizonia parryi Greene ssp. *rudis* (Greene) D.D.Keck – PARRY'S SPIKEWEED. Locally abundant annual forb on alkaline flats surrounding the parking lot in Section 32 (*Oswald 3812*). Late May–Oct.

Hemizonia pungens (Hook. & Arn.) Torr. & A.Gray ssp. *septentrionalis* D.D.Keck – COMMON SPIKEWEED. A localized population of this annual forb was found in a waste area at the drainage in the center of the east side of Section 20. Late Jun.

Hypochoeris glabra L. – SMOOTH CAT'S-EAR. Annual forb recorded at the waste area adjacent to the parking lot. Late Mar.

Lactuca saligna L. – WILLOW-LEAVED LETTUCE. Locally abundant annual forb in fallow fields. Late Jul.

Lactuca serriola L. – PRICKLY LETTUCE. Common weedy annual in fallow fields. Both var. *serriola* with pinnatifid leaves and var. *integrifolia* Gren. & Godr. with strap-shaped leaves are found. Mid Jul–Oct.

Lasthenia glabrata Lindl. ssp. *glabrata* – YELLOW-RAYED GOLDFIELDS. Localized populations of this annual forb grow on several alkaline flats on the east side of Little Dry Creek in Section 32 (*Oswald 3733*) and in fallow fields to the west between Butte and Little Dry creeks. These populations, together with extensive populations in an adjacent marsh just south of the Gridley-Colusa Hwy. (*Oswald & Jane-way 3737*), are the only known Butte County locations of a plant that was probably at one time widespread in the Butte Sink area before most of the land was leveled for rice farming. Early Apr–May.

Picris echioides L. – BRISTLY OX-TONGUE. Occasional annual or biennial forb in fallow, marshy fields. Mid Jul.

Psilocarphus brevissimus Nutt. var. *brevissimus* – DWARF WOOLLY-MARBLES. Scattered annual in marshy, fallow fields in Section 29. Early May.

Senecio vulgaris L. – OLD-MAN-IN-THE-SPRING. Occasional weedy annual along roads and in disturbed places along the creeks. Late Jan–May.

Silybum marianum (L.) Gaertn. – MILK-THISTLE. Abundant noxious annual or biennial weed along roads and on levees. Early May.

Sonchus asper (L.) Hill ssp. *asper* – SPINY-LEAVED SOW-THISTLE. Localized populations of this annual weed grow on high spots in fallow, marshy fields. Early Apr–May.

Xanthium strumarium L. – COCKLEBUR. Common and locally abundant annual forb, especially in marshy places. It often forms dense populations in the same type of habitat utilized by California Hibiscus. Early Jun. [Includes var. *canadense* (P. Mill.) Torr. & A.Gray]

BORAGINACEAE – BORAGE FAMILY

Amsinckia lycopsoides Lehm. – BUGLOSS FIDDLENECK. Common annual forb along roads and in waste places. Late Mar.

Plagiobothrys canescens Benth. – VALLEY POPCORN-FLOWER. Locally abundant annual along levee roads. Early Apr.

Plagiobothrys leptocladus (Greene) I.M.Johnst. – ALKALI POPCORN-FLOWER. Locally abundant prostrate annual growing along the road through the alkaline flat at the waste area just north of the parking lot (*Oswald 3749*). Early Apr.

Plagiobothrys stipitatus (Greene) I.M.Johnst. var. *stipitatus* – STALKED POPCORN-FLOWER. Annual forb growing in localized patches in vernal wet, fallow fields. This large-flowered variety is much less common than the var. *micranthus*, with which it grows. Late Mar.

Plagiobothrys stipitatus var. *micranthus* (Piper) I.M.Johnst. – STALKED POPCORN-FLOWER. A small-flowered variety of the previous plant and often growing with it. It is common to locally abundant in marshy fields. Late Mar.

BRASSICACEAE – MUSTARD FAMILY

[*Cruciferae*]

Brassica nigra (L.) W.D.J.Koch – BLACK MUSTARD. Abundant annual along levee roads. Mid Apr.

Capsella bursa-pastoris (L.) Medik. – SHEPHERD'S-PURSE. Common annual weed along roads and in waste places. Late Jan. – Apr.

Cardamine oligosperma Nutt. – WESTERN BITTERCRESS. Occasional annual forb in vernal moist fields and waste places. Late Jan–Apr.

Hirschfeldia incana (L.) Lagr.-Foss. – MEDITERRANEAN HOARY-MUSTARD. Common herbaceous perennial along roads and on levees. Mid Apr–May, blooming again in Oct. [*Brassica geniculata* (Desf.) Ball]

Lepidium dictyotum A.Gray var. *dictyotum* – ALKALI PEPPER-GRASS. Inconspicuous but locally abundant annual growing on a bare alkaline flat just south of the parking lot in Section 32 (*Oswald 3731*). Early Apr.

Lepidium dictyotum var. *acutidens* A.Gray – SHARP-TOOTHED PEPPER-GRASS. Growing with the previous variety but with distinctive sharply pointed and divergent teeth on the silicles (*Oswald 3732*, *Oswald & Janeway 3736*). This is the first record

for Butte County, although it was later found on alkaline flats at the main unit of Gray Lodge. Early Apr.

Lepidium latifolium L. – BROAD-LEAVED PEPPER-GRASS. Locally abundant weedy perennial in a waste area on the north side of the parking lot in Section 32 and in marshy fallow fields near the south gate. Early May–Sept.

Lepidium latipes Hook. var. *latipes* – DWARF PEPPER-GRASS. Prostrate annual growing with *L. dictyotum* on an alkaline flat south of the parking lot in Section 32 (Oswald 3730, Oswald & Janeway 3735). This is a new Butte County record. Early Apr.

Lepidium nitidum Nutt. var. *nitidum* – SHINING PEPPER-GRASS. A single plant was recorded from the waste area on the north side of the parking lot. Late Jan.

Lepidium strictum (S. Watson) Rattan – UPRIGHT PEPPER-GRASS. Occasional weed on the roadway at the north gate and also near the parking lot in Section 32. Mid Apr–Jun.

Raphanus raphanistrum L. – JOINTED CHARLOCK. Weedy annual recorded from along Gridley–Colusa Hwy adjacent to the wildlife area. Early May.

Rorippa curvisiliqua (Hook.) Besser ex Britton var. *orientalis* Stuckey – WESTERN YELLOWCRESS. Occasional annual forb in marshy fallow fields. Early May.

Rorippa palustris (L.) Besser ssp. *occidentalis* (S. Watson) Abrams – MARSH YELLOWCRESS. Scattered to locally abundant annual or biennial in vernal wet marshy fields, along ditches, and in first-year fallow rice fields. Late Mar–Jun. [*R. islandica* (Oeder) Borbás var. *occidentalis* (S. Watson) Butters & Abbe]

Sibara virginica (L.) Rollins – VIRGINIA WINGED-ROCKCRESS. Locally abundant annual in rice stubble in Section 20 and also in fallow fields in Section 32 between Butte and Little Dry creeks on the north side of Gridley–Colusa Hwy. (Oswald 3748). Mid Apr–May.

Sinapis arvensis L. – FIELD CHARLOCK. Annual forb in fields and along roads. Late Mar. [*Brassica kaber* (DC.) L.C. Wheeler var. *pinnatifida* (Stokes) L.C. Wheeler]

CAMPANULACEAE – BELLFLOWER FAMILY

Downingia insignis Greene – HARLEQUIN DOWNINGIA. Scattered but common annual in marshy fallow fields in Sections 29 and 32 (Oswald 3457). Early May.

CARYOPHYLLACEAE – PINK FAMILY

Cerastium glomeratum Thuill. – STICKY MOUSE-EARED CHICKWEED. Annual forb in fields and waste places. Late Mar.

Sagina apetala Ard. – DWARF PEARLWORT. Locally abundant inconspicuous annual on gravel in the center of the road near the south gate. Late Mar.

Spergularia bocconeii (Scheele) Foucaud ex Marino – BOCCONE'S SAND-SPURRY. Locally abundant annual forb in disturbed soils of the road bed between the south gate and the parking lot. Mid May.

Stellaria media (L.) Vill. – COMMON CHICKWEED. Occasional annual forb in disturbed places. Late Jan.

CERATOPHYLLACEAE – HORNWORT FAMILY

Ceratophyllum demersum L. – HORNWORT. Locally abundant submersed aquatic in Butte and Little Dry creeks (Oswald 3910). Early Aug.

CHENOPODIACEAE – GOOSEFOOT FAMILY

Atriplex triangularis Willd. – SPEARSCALE. Locally abundant annual in a marshy field on the east side of the road at the south gate. Early Sep.

Bassia hyssopifolia (Pall.) Kuntze – BASSIA. Occasional to locally abundant annual weed on roadbeds and in waste places in Section 32 (Oswald 3979). Early Aug–Sep.

Chenopodium album L. – LAMB’S-QUARTERS. Scattered annual forb in fallow fields and in waste places. Late Jun.

Chenopodium ambrosioides L. – MEXICAN-TEA. Common annual along marshes, ditches, and creeks. Mid Jul–Oct.

Kochia californica S. Watson – CALIFORNIA SUMMER-CYPRESS. Depauperate plants of this perennial were scattered for several hundred feet in alkaline soil of the roadbed south of the parking lot in Section 32 (Oswald 3468). These plants, which represent a new record for Butte County, are probably introduced waifs from the San Joaquin Valley. This Section of the road has now been resurfaced with gravel, and the population is probably extirpated. Mid May–Jun.

CONVOLVULACEAE – MORNING-GLORY FAMILY

Convolvulus arvensis L. – BINDWEED. Common herbaceous vine in fallow fields and marshy places. Early May.

CRASSULACEAE – STONECROP FAMILY

Crassula connata (Ruiz & Pav.) A. Berger – PIGMYWEED. Annual forb on bare flats in the waste area north of the parking lot. Late Mar. [*Tillaea erecta* Hook. & Arn.]

Crassula tillaea Lest.-Garl. – MOSSY PIGMYWEED. Locally abundant annual forb on bare, gravelly soils of roads and waste places. [*Tillaea muscosa* L.]

CUCURBITACEAE – GOURD FAMILY

Marah fabaceus (Naudin) Greene var. *agrestis* (Greene) Stocking – CALIFORNIA MANROOT. Perennial herbaceous vine represented by a single vegetative plant in the strip of oak woodland along Butte Creek in Section 29.

CUSCUTACEAE – DODDER FAMILY

Cuscuta pentagona Engelm. – FIELD DODDER. Locally abundant parasite of cocklebur (*Xanthium*) in the marsh between the road and Butte Creek in Section 29 and on *Polygonum* sp. in first-year fallow rice stubble in Section 20. Early Jun. [*C. campestris* Yunck.]

EUPHORBIACEAE – SPURGE FAMILY

Chamaesyce serpyllifolia (Pers.) Small ssp. *serpyllifolia* – THYME-LEAVED SPURGE. Annual forb on alkaline flats bordering Butte and Little Dry creeks. Mid May–Jun. [*Euphorbia serpyllifolia* Pers.]

Eremocarpus setigerus (Hook.) Benth. – TURKEY-MULLEIN. Common summer annual along roads, on levees, and in dry waste places. Early Jun.

FABACEAE – LEGUME FAMILY

[*Leguminosae*]

Astragalus tener A.Gray var. *ferrisiae* Liston – FERRIS' MILK-VETCH. A recently described taxon (*Brittonia* 42:100-104. 1990) from adobe clay soils of the northern Sacramento Valley that had formerly been included in *A. rattanii* var. *jepsonianus*, a plant of the foothills of the inner North Coast Ranges from Napa to Tehama counties. Ferris' milk-vetch was thought to be extinct when it was described from herbarium specimens in 1990, but a localized colony had actually been found during this survey (1989) on adobe soil of a fallow marshy field in Section 17 (*Oswald* 3753). Addition plants have since been found in a fallow rice field west of Biggs (*Ahart* 6770), several large colonies were located in Tract AB at Sacramento NWR in 1994 (*Oswald* 6005, 6113, 6114), and more than 200 plants were found in fallow pasture in Tract 7 at Llano Seco NWR, Sanctuary II, in 1996 (*Oswald* 7547). Early May. CNPS List 1B. [*A. rattanii* A.Gray var. *jepsonianus* Barneby, in part]

Glycyrrhiza lepidota Pursh – AMERICAN LICORICE. Common and locally abundant perennial on the banks of Butte Creek (*Oswald* 3783) and along adjacent marshes. Mid May–Jun. [Includes var. *glutinosa* (Nutt.) S.Watson]

Lathyrus jepsonii Greene var. *californicus* (S.Watson) Hoover – CALIFORNIA PEA. Herbaceous perennial along the edge of a marsh in oak woodland along Butte Creek in Section 29. Plants vegetative.

Lotus comiculatus L. – BIRD'S-FOOT TREFOIL. Common and locally abundant perennial forb in marshy and vernal wet places. Early Apr.

Lotus purshianus (Benth.) Clem. & E.G.Clem. var. *purshianus* – SPANISH LOTUS. Common annual forb in marshy fields. Mid Jul–Aug.

Lupinus polycarpus Greene – SMALL-FLOWERED LUPINE. Annual lupine on a grassy levee along Butte Creek in Section 29. Late Mar. [*L. micranthus* Douglas]

Lupinus succulentus Douglas ex W.D.J.Koch – SUCCULENT LUPINE. Annual forb scattered along the levee road paralleling Butte Creek. Early Apr.

Medicago polymorpha L. – COMMON BUR-CLOVER. Common annual forb in fallow fields. Late Mar. [*M. hispida* Gaertn., *M. hispida* var. *confinis* (W.D.J. Koch) Burnat, a form lacking spines on the pods]

Melilotus alba Medik. – WHITE SWEET-CLOVER. Common annual in fallow fields and along waterways. Early Jun–Oct.

Melilotus indica (L.) All. – INDIAN SWEET-CLOVER. Common annual forb in fallow fields. Early May.

Trifolium fragiferum L. – STRAWBERRY CLOVER. Herbaceous perennial forming an extensive colony in a waste area along the slough in the center of the east side of Section 20. Mid May.

Trifolium gracilentum Torr. & A.Gray var. *gracilentum* – PINPOINT CLOVER. A single plant of this annual clover was found in a fallow field in Section 17. Early May.

Trifolium hirtum All. – ROSE CLOVER. Common herbaceous annual along roads and in fallow fields. Early May.

Vicia sativa L. – GARDEN VETCH. Uncommon annual recorded from a single plant on the bank of a ditch bordering the levee road in Section 17. The plant was already in fruit, and the subspecies was not determined.

Vicia villosa Roth ssp. *villosa* – WINTER VETCH. Annual vetch recorded from a single plant in the waste area on the north side of the parking lot. Mid May.

Vicia villosa ssp. *varia* (Host) Corb. – WINTER VETCH. Fairly common annual along ditches and in fallow fields. Early May–Jun. [*V. villosa* var. *glabrescens* W.D.J. Koch, *V. dasycarpa* Ten.]

FAGACEAE – OAK FAMILY

Quercus lobata Née – VALLEY OAK. In addition to isolated trees scattered along the creeks, patches of valley oak woodland are located on the Glenn County side of Butte Creek in Sections 20 and 29 (this area not visited), together with a more narrow band between the road and Butte Creek in Section 29. The latter area is recovering from a burn, which killed a number of the trees.

GERANIACEAE – GERANIUM FAMILY

Erodium cicutarium (L.) L'Hér. – RED-STEMMED FILAREE. Common annual on weedy flats along the levee road. Late Feb.

Erodium moschatum (L.) L'Hér. – WHITE-STEMMED FILAREE. Common annual forb along the levee road. Late Mar.

Geranium dissectum L. – CUT-LEAVED GERANIUM. Locally common annual forb in moist fields and along the creeks. Late Mar–Apr.

JUGLANDACEAE – WALNUT FAMILY

Juglans californica S.Watson var. *hindsii* Jeps.. – NORTHERN CALIFORNIA BLACK WALNUT. One small tree was recorded from along Butte Creek north of Gridley-Colusa Hwy.

LAMIACEAE – MINT FAMILY

[Labiatae]

Lamium amplexicaule L. – GIRAFFEHEAD. Occasional annual weed of roadsides and waste places. Late Jan. – Apr.

Lycopus americanus Muhl. ex. W.P.C.Bart. – CUT-LEAVED BUGLEWEED. Locally abundant along the edge of sloughs and ditches. Mid Jul.

Mentha arvensis L. – AMERICAN WILD MINT. Occasional colonies on the banks of Butte and Little Dry creeks. Late Jul.

Pogogyne zizyphoroides Benth. – SACRAMENTO VALLEY POGOGYNE. Annual forb recorded from one small but dense population on a bare alkaline flat just south of the parking lot. Mid Apr.

Stachys ajugoides Benth. var. *rigida* (Nutt. ex Benth.) Jeps. & Hoover – RIGID HEDGE-NETTLE. Common herbaceous perennial along streams and marshes, and in wet places in fields. Mid May. [*S. rigida* Nutt. ex Benth., including the ssp. *rivularis* (A.Heller) Epling]

LYTHRACEAE – LOOSESTRIFE FAMILY

Lythrum hyssopifolia L. – HYSSOP LOOSESTRIFE. Common and locally abundant annual forb in fallow fields. Mid May.

MALVACEAE – MALLOW FAMILY

Hibiscus lasiocarpus Cav. – CALIFORNIA HIBISCUS. Scattered to locally abundant herbaceous perennial along creeks, sloughs, ditches, and marshes. The largest population is located in the strip of marsh between the road and Butte Creek in Section 29, where the plants have to compete with the introduced cocklebur (*Xanthium strumarium*) for living space. Early Jul–Sept. CNPS Inventory List 2. [*Hibiscus californicus* Kellogg]

Malva nicaeensis All. – BULL MALLOW. Common and locally abundant weedy annual on and along levee roads. Mid Apr–May.

Malva parviflora L. – LITTLE MALLOW. Common and locally abundant weedy annual on and along levee roads where it forms mixed populations with the previous species. Mid Apr–May.

Malvella leprosa (Ortega) Krapov. – ALKALI-MALLOW. Herbaceous perennial recorded from an alkaline, marshy waste area in the center of the east side of Section 20 but probably more widespread in the wildlife area. Mid May. [*Sida hederacea* (Douglas) Torr. & A.Gray]

MOLLUGINACEAE – CARPET-WEED FAMILY

[*Aizoaceae* of some floras, in part]

Mollugo verticillata L. – INDIAN-CHICKWEED. Occasional annual forb on mud bars and muddy banks along Butte Creek. Early Jun.

MORACEAE – MULBERRY FAMILY

Ficus carica L. – EDIBLE FIG. A number of small seedlings grow along sloughs and creeks. Plants vegetative.

Morus alba L. – WHITE MULBERRY. Occasional small tree along levees and ditches. Plants vegetative.

OLEACEAE – OLIVE FAMILY

Fraxinus latifolia Benth. – OREGON ASH. Common tree along creeks, sloughs, and marshes. Early Mar.

ONAGRACEAE – EVENING-PRIMROSE FAMILY

Epilobium brachycarpum C.Presl – TALL ANNUAL WILLOW-HERB. Common annual forb in fallow fields. Early Sept. [*Epilobium paniculatum* Nutt. ex Torr. & A.Gray]

Epilobium ciliatum Raf. ssp. *ciliatum* – FRINGED WILLOW-HERB. Herbaceous perennial found along a slough bordering Little Dry Creek near the north border of Section 32. Late Jul–Aug. [*E. adenocaulon* Hausskn.]

Epilobium densiflorum (Lindl.) P.Hoch & Raven – DENSE-FLOWERED SPIKE-PRIMROSE. Occasional annual forb along ditches. Late Jun. [*Boisduvalia densiflora* (Lindl.) S. Watson]

Epilobium pygmaeum (Eastw.) P.Hoch & Raven – SMOOTH SPIKE-PRIMROSE. Very common annual forb in marshy, fallow fields. Mid May. [*Boisduvalia glabella* (Nutt.) Walp.]

Ludwigia peploides (Humb., Bonpl. & Kunth) Raven ssp. *peploides* – YELLOW WATERWEED. Emergent perennial forming dense colonies in shallow water or on mud along creeks and ditches. Late Jun.

PLANTAGINACEAE – PLANTAIN FAMILY

Plantago coronopus L. – CUT-LEAVED PLANTAIN. Annual forb recorded on a clay flat near the south gate. Early Apr.

Plantago lanceolata L. – ENGLISH PLANTAIN. Weedy perennial along creeks and marshes. Early Apr–Jun.

POLYGONACEAE – BUCKWHEAT FAMILY

Polygonum arenastrum Jord. ex Boreau – COMMON KNOTWEED. Common annual forb on roads and in fallow fields. Early Jun. [Includes *P. aviculare* L. of Calif. authors]

Polygonum hydropiperoides Michx. – MILD WATER-PEPPER. Locally abundant perennial in shallow water or sometimes stranded in dry ditches. Early Jun–Sep.

Polygonum lapathifolium L. – WILLOW-WEED. Common annual in wet places. It is often abundant in stubble of fallow rice fields. Mid May–Sept.

Polygonum persicaria L. – LADY'S-THUMB. Locally abundant annual in marshy places and in stubble of first-year fallow rice fields. Mid May.

Polygonum punctatum Elliott – DOTTED SMARTWEED. Emergent perennial in shallow water of a ditch bordering the north edge of Section 32. Late May.

Rumex conglomeratus Murray – GREEN DOCK. Herbaceous perennial noted in the marshy strip between the road and Butte Creek in Section 29. Early Jun.

Rumex crispus L. – CURLY DOCK. Abundant herbaceous perennial in fallow, marshy fields. Early May.

Rumex dentatus L. – TOOTHED DOCK. Locally common annual forb in a fallow, marshy field in Section 20 (*Oswald 3454*). Early May. [Includes ssp. *klotzschianus* (Meisn.) Rech.f.]

PORTULACACEAE – PURSLANE FAMILY

Calandrinia ciliata (Ruiz & Pav.) DC. – REDMAIDS. Recorded from a single plant on a weedy flat north of the parking lot. Late Mar. [Includes var. *menziesii* (Hook.) J.F. Macbr.]

PRIMULACEAE – PRIMROSE FAMILY

Anagallis arvensis L. – SCARLET PIMPERNEL. Annual forb recorded from a grassy opening along Butte Creek in Section 29. Mid May.

RANUNCULACEAE – BUTTERCUP FAMILY

Myosurus minimus L. – COMMON MOUSETAIL. A group of depauperate individuals of this annual forb was noted on a clay flat near the south gate. Early Apr.

Ranunculus muricatus L. – PRICKLE-SEEDED BUTTERCUP. Annual or biennial forb found in a wet waste area bordering a slough at the center of the east side of Section 20. Mid May.

ROSACEAE – ROSE FAMILY

Rosa californica Cham. & Schldl. – CALIFORNIA ROSE. Occasional thickets of this pink-flowered rose grow on the banks of Butte Creek. Mid Apr–Jul.

Rosa canina L. – DOG ROSE. A fairly common rose with large, white flowers along ditches and marshes. Mid Apr.

Rubus discolor Weihe & Nees – HIMALAYAN BLACKBERRY. Occasional thickets of this weedy bramble are located on levees and along creeks. Early May. [*R. procerus* P.J.Müll.]

RUBIACEAE – MADDER FAMILY

Cephalanthus occidentalis L. var. *californicus* Benth. – CALIFORNIA BUTTON-WILLOW. Common shrub along the creeks. Late Jun.

SALICACEAE – WILLOW FAMILY

Populus fremontii S.Watson ssp. *fremontii* – FREMONT'S COTTONWOOD. Common tree along creeks and drainages. Late Mar.

Salix exigua Nutt. – SANDBAR WILLOW. Common small tree tending to form small thickets along the creeks. Late Mar. [*Salix hindsiana* Benth.]

Salix gooddingii C.R.Ball – GOODDING'S BLACK WILLOW. Common tree along the creeks. Early Apr.

Salix laevigata Bebb – RED WILLOW. This willow, which can become a large tree, is recorded from a small individual in a ditch along Gridley-Colusa Hwy near Butte Creek. Vegetative.

Salix lasiolepis Benth. – ARROYO WILLOW. Common shrubby willow forming thickets along creeks and sloughs. Late Feb.

SCROPHULARIACEAE – FIGWORT FAMILY

Mimulus tricolor Hartw. ex Lindl. – TRICOLORED MONKEY-FLOWER. A single plant of this vernal pool annual was found in a marshy field in Section 20. Mid May.

Verbascum blattaria L. – MOTH MULLEIN. Herbaceous biennial scattered in fields and along the creeks. Mid May–Oct.

Veronica peregrina L. ssp. *xalapensis* (Humb., Bonpl. & Kunth) Pennell – PURSLANE SPEEDWELL. Common annual forb forming dense populations on the floor of drying, marshy fields. Early Apr.

VERBENACEAE – VERVAIN FAMILY

Phyla nodiflora (L.) Greene var. *nodiflora* – CREEPING LIPPIA. Several patches of lippia with long petioles and peduncles were found in moist depressions in the marshy strip between the road and Butte Creek in Section 29. Early Jun. [*Lippia nodiflora* (L.) Michx. var. *reptans* (Spreng.) Kuntze]

Phyla nodiflora var. *rosea* (D. Don) Moldenke – ROSY LIPPIA. Common creeping perennial forming compact patches of ground cover in openings along creeks and marshy places. Mid May. [*Lippia nodiflora* var. *rosea* (D. Don) Munz]

Verbena litoralis Humb., Bonpl. & Kunth – SHORE VERVAIN. Very common tall, tufted perennial along creeks, ditches, and levees. Early May–Oct. [*Verbena brasiliensis* Vell.]

VITACEAE – GRAPE FAMILY

Vitis californica Benth. – CALIFORNIA WILD GRAPE. Uncommon woody vine along Butte Creek. Vegetative.

ANTHOPHYTA – FLOWERING PLANT DIVISION
MONOCOTYLEDONES – MONOCOT CLASS

ALISMATACEAE – WATER-PLANTAIN FAMILY

Alisma plantago-aquatica L. – COMMON WATER-PLANTAIN. Several plants were found in a ditch paralleling Gridley-Colusa Hwy east of the south gate. Vegetative in late Jun and not flowering in 1989. [Includes var. *americana* Schult. & Schult.f., *A. triviale* Pursh]

CYPERACEAE – SEDGE FAMILY

Carex barbarae Dewey – SANTA BARBARA SEDGE. Common rhizomatous perennial forming extensive colonies on the banks of Butte Creek (*Janeway & Oswald 3220*). Late Mar.

Carex densa (L.H. Bailey) L.H. Bailey – DENSE SEDGE. Occasional densely caespitose perennial on the edge of marshes and marshy fields in Sections 17 and 29 (*Janeway & Oswald 3219*). Late Mar.

Carex praegracilis W. Boott – CLUSTERED FIELD SEDGE. Locally abundant caespitose perennial on the margins of marshes in Sections 29 and 32 (*Janeway & Oswald 3221 & 3222*). Late Mar.

Cyperus eragrostis Lam. – TALL CYPERUS. Common perennial sedge in marshy fields, along ditches, and in other moist places. Early May.

Eleocharis macrostachya Britton ex Small – COMMON SPIKE-RUSH. Common perennial forming extensive colonies in marshy fields. Early May. [*E. palustris* (L.) Roem. & Schult.]

Scirpus acutus Muhl. ex Bigelow var. *occidentalis* (S. Watson) Beetle – HARD-STEMMED TULE. Tall perennial forming extensive colonies in marshes and marshy fields. Early Apr.

Scirpus fluviatilis (Torr.) A. Gray – RIVER BULRUSH. Perennial known only from a colony in a vernal wet depression in a strip of marsh along Butte Creek in Section

29 (*Oswald 3467*) and from another colony on the muddy edge of Butte Creek in Section 32. Mid May.

Scirpus maritimus L. – SALT MARSH BULRUSH. Perennial forming a colony in a marshy fallow field in Section 20 (*Oswald 3798*). Early Jun. [*S. maritimus* var. *paludosus* (A. Nelson) Kük., *S. robustus* Pursh misapplied]

Scirpus tuberosus Desf. – TUBEROUS BULRUSH. Common perennial forming colonies in marshy fields (*Janeway & Oswald 3223*). Early Apr. [*S. maritimus* L. var. *tuberosus* (Desf.) Roem. & Schult.]

IRIDACEAE – IRIS FAMILY

Sisyrinchium bellum S. Watson – BLUE-EYED GRASS. Common in grassy places along the edge of marshes bordering Butte Creek in Section 29 and Little Butte Creek in Section 32. Early May.

JUNCACEAE – RUSH FAMILY

Juncus balticus Willd. var. *mexicanus* (Willd.) Kuntze – MEXICAN RUSH. Occasional rush forming spreading colonies in marshy places. The presence of blades on the basal sheaths, which is often used as a diagnostic feature of this variety, is an uncommon and variable trait of plants within a single colony and even among plants attached to the same rhizome (*Oswald 3456*). Early May.

Juncus oxymeris Engelm. – POINTED RUSH. Uncommon rush forming colonies in the strip of marsh between the road and creek in Section 29. Early Jun.

LILIACEAE – LILY FAMILY

Chlorogalum pomeridianum (DC.) Kunth var. *pomeridianum* – COMMON SOAP-PLANT. Occasional in grassy and marshy places along the creeks. Early Jun.

POACEAE – GRASS FAMILY

[Gramineae]

Agrostis avenacea J.G. Gmel. – AVENS BENTGRASS. Common weedy perennial in fallow fields. Early May.

Alopecurus carolinianus Walter – CAROLINA FOXTAIL. Occasional weed in rice stubble in a first-year fallow field. Mid May.

Arundo donax L. – GIANT REED. Occasional tall tufted perennial in fallow, marshy fields. Plants vegetative.

Avena barbata Pott ex Link. – SLENDER WILD OAT. Annual grass along roads. Mid Apr.

Avena fatua L. – WILD OAT. Annual grass along roads and in fallow fields. Early Apr.

Bromus diandrus Roth – RIPGUT BROME. Coarse annual grass along roads and in fallow fields. Late Mar. [*Bromus rigidus* Roth]

Bromus hordeaceus L. – SOFT CHESS. Occasional weedy annual along roads. Late Mar. [*B. mollis* L.]

Bromus madritensis L. ssp. *rubens* (L.) Husn. – RED BROME. Annual grass recorded from disturbed places at the parking lot. Early Apr. [*B. rubens* L.]

Crypsis schoenoides (L.) Lam. – SWAMP PRICKLEGRASS. Locally abundant annual on the floor of fallow, marshy fields. Late Jun. [*Heleochloa schoenoides* (L.) Host]

Cynodon dactylon (L.) Pers. – BERMUDA-GRASS. Common perennial forming dense matted colonies in waste places and along creeks, ditches, and roads. Mid May.

Distichlis spicata (L.) Greene – SALTGRASS. Locally abundant on the margins of marshy places. Mid May. [Includes var. *nana* Beetle]

Echinochloa crus-galli (L.) P.Beauv. – BARNYARD GRASS. Common annual in stubble of fallow rice fields. Early Jun. [Includes var. *zelayensis* (Humb., Bonpl. & Kunth) Hitchc.]

Elymus trachycaulus (Link) Gould ex Shinners ssp. *trachycaulus* – SLENDER WHEATGRASS. Uncommon tufted perennial found along the bank of a branch of Little Dry Creek in the center of the east side of Section 20 (*Oswald 3782*) and along the edge of the strip of marsh between the road and Butte Creek in Section 29. Mid May. [*Agropyron trachycaulum* (Link) Malte ex H.F.Lewis]

Eragrostis pilosa (L.) P.Beauv. var. *pilosa* – TUFTED LOVEGRASS. Annual grass forming small tufts in the bed of a dry irrigation ditch in Section 17. Late Jun.

Festuca arundinacea Schreb. – REED FESCUE. Tufted perennial found on the bank of a branch of Little Dry Creek at the center of the east side of Section 20. Mid May.

Hordeum brachyantherum Nevski ssp. *brachyantherum* – MEADOW BARLEY. Tufted perennial on grassy borders of marshes (*Oswald 3455*). Mid Apr.

Hordeum marinum Huds. ssp. *gussoneanum* (Parl.) Thell. – MEDITERRANEAN BARLEY. Common annual along roads and in waste places. Early Apr. [*H. geniculatum* All.]

Hordeum murinum L. ssp. *leporinum* (Link) Arcang. – HARE BARLEY. Coarse annual in weedy places. Late Mar. [*H. leporinum* Link]

Koeleria phleoides (Vill.) Pers. – BRISTLY KOELER'S-GRASS. Uncommon weedy annual at the parking lot. Early May.

Leersia oryzoides (L.) Sw. – RICE CUTGRASS. Locally common in shallow water and on drying margins of creeks and ditches. Early Sep.

Leymus triticoides (Buckley) Pilg. – ALKALI RYEGRASS. Perennial with creeping rhizomes in grassy places along Butte Creek and along the strip of marsh bordering the creek in Section 29. Early Jun. [*Elymus triticoides* Buckley]

Lolium multiflorum Lam. – ANNUAL RYEGRASS. Common and widespread annual grass. Mid Apr.

Paspalum dilatatum Poir. – DALLISGRASS. Common perennial along creeks, ditches, and marshes. Mid May.

Phalaris aquatica L. – HARDING-GRASS. Common tufted perennial along levees. Early May. [*P. stenoptera* Hack.]

Phalaris brachystachys Link – SHORT-SPIKED CANARY-GRASS. Common annual grass that is often a dominant weed in fallow fields. Mid Apr.

Phalaris minor Retz. – MEDITERRANEAN CANARY-GRASS. Annual grass in fallow fields and waste places (*Oswald 3452*) but not nearly as common as *P. brachystachys*, which it resembles. Early May.

Phalaris paradoxa L. – PARADOX CANARY-GRASS. Common weed along roads and in fallow fields. Early May.

Poa annua L. – ANNUAL BLUEGRASS. Common annual along roads and in waste places. Late Mar.

Polypogon interruptus Humb., Bonpl. & Kunth – DITCH BEARDGRASS. Annual grass recorded from along a check in a marshy, fallow field. Early May.

Polypogon maritimus Willd. – MEDITERRANEAN BEARDGRASS. Abundant annual on the floor of fallow, marshy fields. Mid May.

Polypogon monspeliensis (L.) Desf. – ANNUAL BEARDGRASS. Common annual on the floor of fallow, marshy fields. Early May.

Sorghum halepense (L.) Pers. – JOHNSONGRASS. Common perennial grass along roads, levees, and in fields. Early in the season, most of the heads are infested with ergot, giving them a blackish appearance. Early May (heads with ergot); late May (heads mostly normal).

Vulpia myuros (L.) C.C.Gmel. var. *myuros* – RATTAIL FESCUE. Locally common annual along roads and in waste places. Late Mar. [*Festuca myuros* L.]

Vulpia myuros var. *hirsuta* (Hack.) Asch. & Graebn. – FOXTAIL FESCUE. Similar to but less common than the previous variety, from which it differs in having ciliate lemmas. A good stand was noted in a fallow field between Little Dry Creek and Butte Creek near the south boundary. Late Mar. [*Festuca megalura* Nutt.]

POTAMOGETONACEAE – PONDWEED FAMILY

Potamogeton sp. – PONDWEED. Some immature sprigs of pondweed of the *filiformis-pectinatus* type were collected among debris that had floated down a ditch along the north edge of Section 32. Better plants, preferably with akenes, are needed for a positive identification.

TYPHACEAE – CATTAIL FAMILY

Typha domingensis Pers. – NARROW-LEAVED CATTAIL. Locally abundant perennial in shallow water and later on the drying bottoms of marshes, sloughs, and ditches. Cattails with light-brown, interrupted spikes are referable to this species. Mid May.

Typha latifolia L. – BROAD-LEAVED CATTAIL. Cattails with large, dark-brown, non-interrupted spikes forming large colonies in marshes, sloughs, and ditches; often growing near the previous species. Early Jun.

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