

## A.26 LESSER SALTSCALE (*ATRIPLEX MINUSCULA*)

### A.26.1 Legal and Other Status

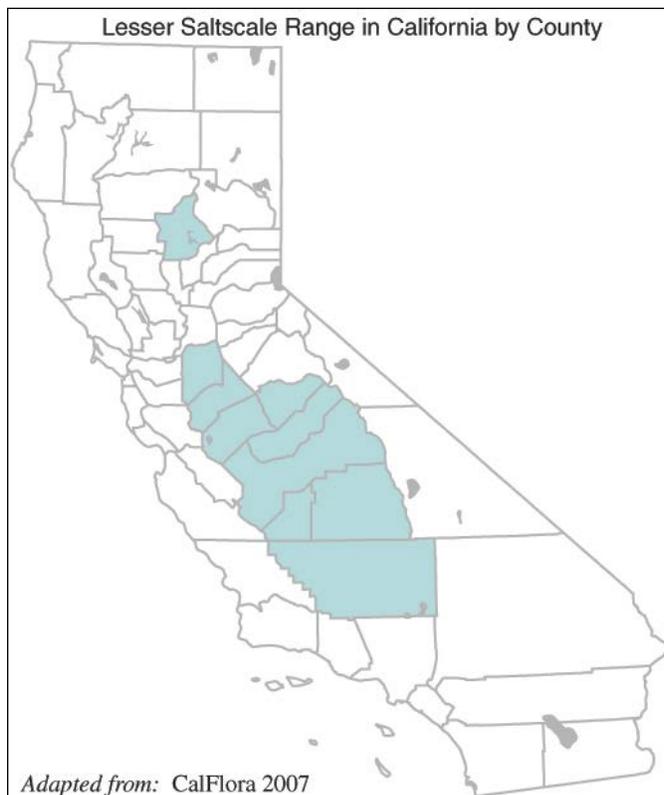
Lesser saltscale currently has no status under the federal Endangered Species Act; however, it is included in the *Recovery Plan for Upland Species of the San Joaquin Valley, California*, hereafter “Recovery Plan” (USFWS 1998). The species has no current status under the California Endangered Species Act (DFG 2011).

The California Native Plant Society (CNPS) includes lesser saltscale on California Rare Plant Rank 1B.1 (formerly List 1B.1): Plants Rare, Threatened, or Endangered in California and Elsewhere (CNPS 2010), its highest endangerment rating; the taxon is considered rare, threatened, or endangered throughout its range, and seriously endangered in California (CNPS 2009).



### A.26.2 Species Distribution and Status

#### A.26.2.1 Range and Status



Lesser saltscale, a California endemic, is known from 27 documented occurrences, primarily in the southern San Joaquin Valley. Five occurrences have been documented in Fresno County, two in Stanislaus County, nine in Madera County, six in Tulare County, two in Merced County, one in Kern County, and two in Butte County (CNDDDB 2009). The Kern County occurrence is the southernmost population. The occurrences in the Butte County Plan Area are the most northern, and are 100 air miles from the next most northern documented occurrence in Stanislaus County. Many of the documented occurrences have not been visited since the 1930s or 1950s; a number were reclassified from brittle scale (*Atriplex depressa*) or heart scale (*A. cordulata*) and have not been revisited since. The taxon

was first described in the botanical literature as unique until the publication of the Jepson Manual (Hickman 1993, USFWS 1998).

### **A.26.2.2 Distribution and Status in the Plan Area**

Lesser saltscale is found in two occurrences in the Plan Area (see Figure A.26-1, *Lesser Saltscale Recorded Occurrences*). Both are located in the Gray Lodge Wildlife Area, public lands, which are managed by the California Department of Fish and Game for waterfowl and upland game hunting. One is located just east of the headquarters buildings, and the other near Rutherford and Levee roads. The former was visited in 1993 and the habitat was reported in good condition (no census data was reported) during a survey for brittlescale, also a rare species; the occurrence was later reclassified as lesser saltscale. The latter occurrence was visited in 1993 and 1998; habitat was reported to be in good condition but there were only 20 plants seen in 1993 (unreported in 1998).

### **A.26.3 Habitat Requirements and Special Considerations**

Little has been reported on specific habitat requirements for lesser saltscale. It is found in intermittently inundated, alkaline soils at low elevations (less than 100 meters), typically in slough systems and river floodplains, occasionally bordering vernal pools (USFWS 1998). Vegetation communities associated with the species include Valley Sink Scrub, Valley Sacaton Grassland, and Nonnative Annual Grassland (USFWS 1998). Parent material information is not readily available; soils are described in the CNDDDB more often as clay, in some places as sandy.

Plants associated with lesser saltscale include other halophytes (salt-tolerant species) and a variety of native and nonnative graminoids, non-woody perennials, and perennial sub-shrubs. Halophytes include alkali sacaton (*Sporobolus airoides*, native perennial herb), brittlescale (rare, native annual herb), heartscale (rare, native annual), poor oracle (*A. persistens*, rare annual herb), erectstem saltbush (*A. erecticaulis*, rare annual herb) and seepweed (*Suaeda moquini* or *S. fruticosa*, new name *S. nigra*, native perennial herb). Other reported associates include alkali weed (*Cressa truxillensis*, native perennial herb), western nitrophila (*Nitroplila occidentalis*, native perennial herb), “*Trichostoma ovatum*” (not found in California), smooth tarplant (*Centromadia*, or *Hemizonia pungens*, a rare annual herb), five hook bassia (*Bassia hyssopifolia*, invasive annual herb), California dodder (*Cuscuta californica*, native annual parasitic herb/vine), Italian wild rye (*Lolium multiflorum*, nonnative annual grass), barley (*Hordeum marinum* var. *gussoneanum*, nonnative annual grass), Chinese parsley (*Heliotropium curassavicum*, native perennial herb), saltgrass (*Distichlus spicata*, native perennial grass), sheperd’s purse (*Capsella bursa-pastoris*, nonnative annual herb), rough cocklebur (*Xanthium strumarium*, native annual herb), curly dock (*Rumex crispus*, invasive perennial herb), sand spurry (*Spergularia macrotheca*, native perennial herb), Byron larkspur (*Delphinium recurvatum*, rare perennial herb), Mojave red sage (*Kochia californica*, native perennial herb), and Colusagrass (*Neostapfia colusana*, endangered native grass) (California 2007).

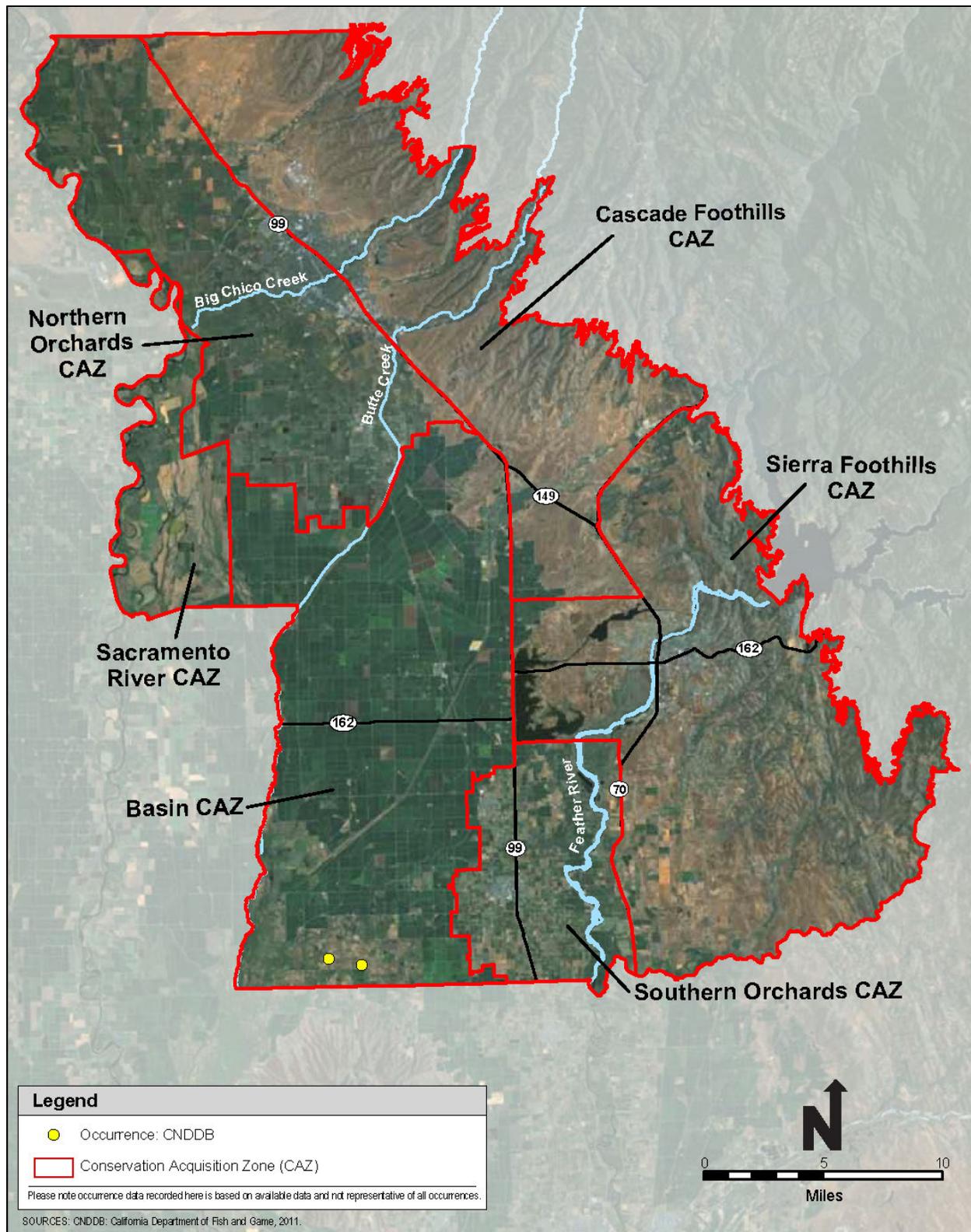


Figure A.26-1. Lesser Saltscale Recorded Occurrences

### A.26.4 Life History

The life history of lesser saltscale has not been studied in detail. The plant is annual and flowering occurs in late spring through fall (May–October) (USFWS 1998). Demographics and population dynamics are unknown. Some members of the genus *Atriplex* accumulate selenium.

The plants are reported variably as monoecious or dioecious. The Recovery Plan reports that inflorescences occur in the leaf axils with the male flowers on the upper part of the stem and the females near the base of the same plant. The reddish fruits are found singly, enclosed by two ovate- or diamond-shaped bracts that are covered with tubercles. The most closely related species are probably brittlescale (*Atriplex depressa*) and Parish's brittlescale. These species are lower growing than lesser saltscale, with stems and branches that lie close to the ground, and also differ in bract characters (Hickman 1993, USFWS 1998).

### A.26.5 Threats

The lack of biological and historical data about lesser saltscale prevents a detailed understanding of its decline; however, a number of threats to its continued existence are known. The conversion of alkali sinks to agriculture has extirpated many historical occurrences of lesser saltscale (CNDDDB 2009, CNPS 2009). It is highly likely that widespread conversion of natural alkali sink habitat in California has negatively impacted lesser saltscale, directly and indirectly, through habitat loss, toxicity from agricultural chemicals, hydrologic changes consequent to farming practices, and inappropriate grazing regimes.

Active wetland management for waterfowl is reported to have altered the hydrology of the lesser saltscale occurrence sites in Butte County (USFWS 1998). Changes in hydrology cause changes in the timing, frequency, and duration of water availability to plants. Construction of flood control structures, such as levees and other water barriers, and changes in runoff, such as irrigation or construction of roads and culverts, may have ongoing serious consequences for these populations.

Competition from invasive species also directly threatens the Butte County lesser saltscale populations. The occurrences in the Plan Area are reported from weedy fields (CNDDDB 2009). Invasive annual grasses are likely to compete well with lesser saltscale for both moisture and light in mesic habitat, with consequent negative impacts on the rare plants' germination, growth, and fecundity.

An additional threat to the species is its few, geographically restricted, small populations. One of the Butte County populations (CNDDDB No. 7) contained fewer than 20 plants during the most recent census, in 1998 (CNDDDB 2009). Genetic drift, inbreeding, and reduced gene flow may result from small numbers of populations, geographic isolation, or low number of individuals per occurrence (Elam 1998). Additionally, small populations are not resistant to extirpation from random events, such as extreme weather and lack of genetic diversity. Small and/or less

genetically diverse populations are less adaptable to environmental changes as well, such as global warming and the consequent changes in precipitation patterns and atmospheric conditions.

Finally, fire and associated management activities could threaten lesser saltscare. Plowed fire breaks would harm individuals and habitat. The impacts of fire on this species are unknown. It probably did not evolve with frequent burning so repeated prescribed burns could be detrimental.

### **A.26.6 Relevant Conservation Efforts**

Lesser saltscare is included in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). Undocumented occurrences may be on protected or public lands in the San Joaquin Valley. In Butte County, the known occurrences are protected from development because they are within a Wildlife Management Area; however, the management in the Gray Lodge Reserve is not currently directed towards conserving this species.

### **A.26.7 Species Habitat Suitability Model**

A habitat suitability model has not been developed for lesser saltscare, because there is insufficient information regarding its habitat requirements and the distribution of the physical attributes that support its habitat in the Plan Area. Additionally, it appears to be a waif in the Plan Area arising from seed dispersed by water fowl migrating northward from the San Joaquin Valley.

### **A.26.8 Recovery Goals**

A statement for recovery of lesser saltscare is presented in the Recovery Plan as follows: “The strategy is to protect at least five populations representing the full geographic range of the species. Protected areas should be natural land in blocks of at least 65 hectares (160 acres) and should contain a minimum of 1,000 individuals to reduce the likelihood of extinction from intrinsic or random processes. The highest-priority tasks for lesser saltscare are to survey historical sites and suitable habitat and to protect extant populations from development and other threats. All remaining unconverted alkali sinks in the Central Valley should be surveyed, and threats to any populations that are found must be evaluated. Surveys for lesser saltscare can be conducted concurrently with those for other rare plants that occur in alkali sinks, particularly palmate-bracted birds-beak. Landowner cooperation is necessary to ensure protection on private lands, and the cooperation of public agencies is crucial on lands under their control. Moreover, threats must be alleviated in protected areas to ensure the continued survival of the species, and monitoring will be required to verify that populations are remaining stable. Seeds should be salvaged from any populations that are scheduled to be destroyed by development. When surveys have been completed, or at a maximum within 5 years of recovery plan approval, the status of lesser saltscare should be reevaluated (USFWS 1998).”

Due to their geographic isolation and unique management setting, the Butte County occurrences may require different conservation actions than the Central Valley occurrences.

## A.26.9 References

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