

1 **A.29 LESSER SALTSCALE (*ATRIPLEX*** 2 ***MINUSCULA*)**

3 **A.29.1 Legal and Other Status**

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



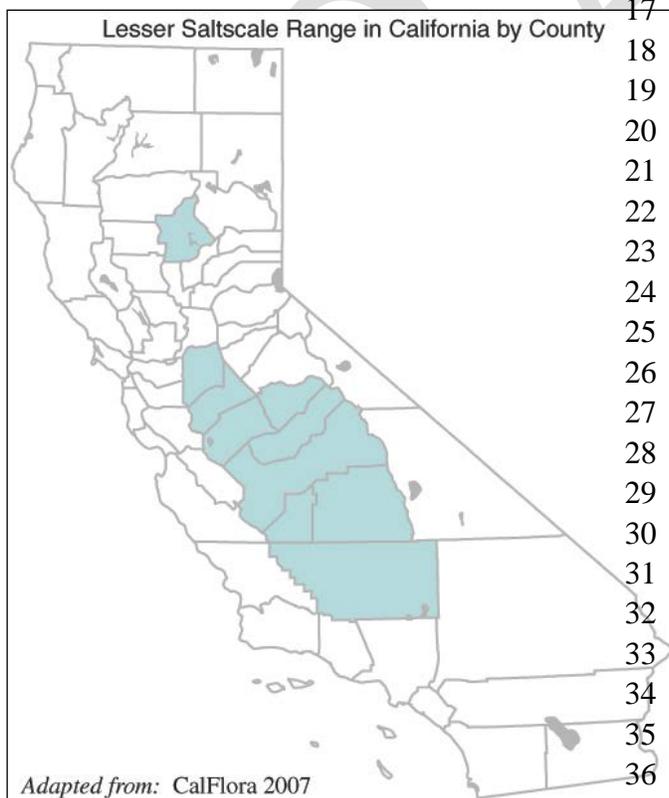
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10 The California Native Plant Society (CNPS) includes lesser saltscale on list 1B.1, its highest
 11 endangerment rating; the taxon is considered rare, threatened, or endangered throughout its
 12 range, and seriously endangered in California (CNPS 2009).

13 **A.29.2 Species Distribution and Status**

14 **A.29.2.1 Range and Status**

15 Lesser saltscale, a California endemic, is known from 27 documented occurrences, primarily in
 16 the southern San Joaquin Valley. Five occurrences have been documented in Fresno County,



17 two in Stanislaus County, nine in Madera
 18 County, six in Tulare County, two in
 19 Merced County, one in Kern County, and
 20 two in Butte County (CNDDDB 2009).
 21 The Kern County occurrence is the
 22 southernmost population. The
 23 occurrences in the Butte County Plan
 24 Area are the most northern, and are 100
 25 air miles from the next most northern
 26 documented occurrence in Stanislaus
 27 County. Many of the documented
 28 occurrences have not been visited since
 29 the 1930s or 1950s; a number were
 30 reclassified from brittlescale (*Atriplex*
 31 *depressa*) or heartscale (*A. cordulata*) and
 32 have not been revisited since. The taxon
 33 was first described in the botanical
 34 literature as unique until the publication
 35 of the Jepson Manual (Hickman 1993,
 36 USFWS 1998).

1 **A.29.2.2 Distribution and Status in the Plan Area**

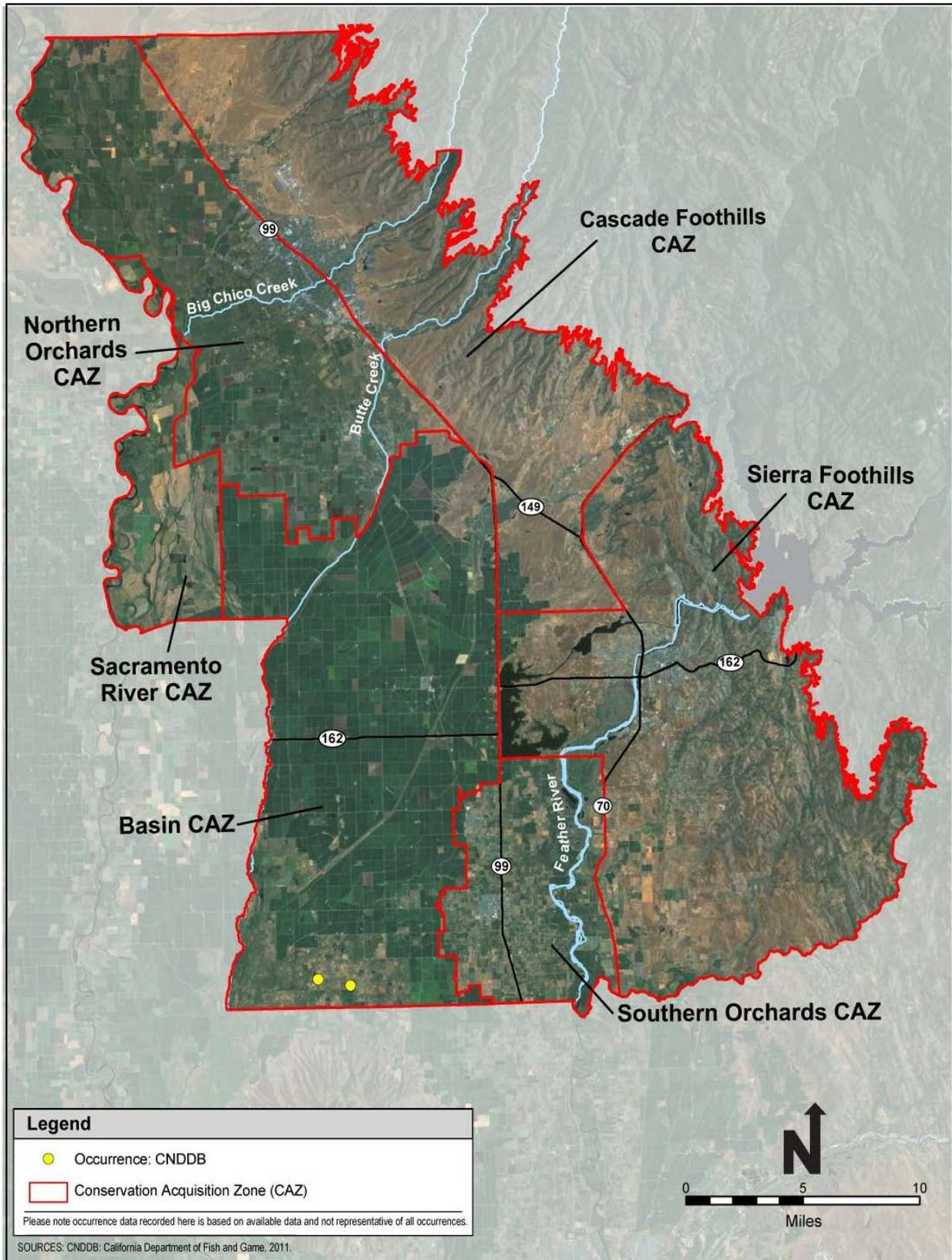
2 Lesser saltscale is found in two occurrences in the Plan Area (see Figure A-29). Both are located
3 in the Gray Lodge Wildlife Area, public lands, which are managed by the California Department
4 of Fish and Game for waterfowl and upland game hunting. One is located just east of the
5 headquarters buildings, and the other near Rutherford and Levee roads. The former was visited
6 in 1993 and the habitat was reported in good condition (no census data was reported) during a
7 survey for brittle scale, also a rare species; the occurrence was later reclassified as lesser saltscale.
8 The latter occurrence was visited in 1993 and 1998; habitat was reported to be in good condition
9 but there were only 20 plants seen in 1993 (unreported in 1998).

10 **A.29.3 Habitat Requirements and Special Considerations**

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

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

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Figure A-29. Lesser Saltsscale Recorded Occurrences

1 **A.29.4 Life History**

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

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

12 **A.29.5 Threats**

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

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

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

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

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

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

6 **A.29.6 Relevant Conservation Efforts**

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

12 **A.29.7 Species Habitat Suitability Model**

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

18 **A.29.8 Recovery Goals**

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

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

3 **A.29.9 References**

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