

Recovery Plan for El Segundo Blue Butterfly (*Euphilotes battoides allyni*)
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Original Approved: September 28, 1998
Original Prepared by: USFWS, Portland OR

DRAFT AMENDMENT

We have identified best available information that indicates the need to amend recovery criteria for El Segundo Blue Butterfly (*Euphilotes battoides allyni*; ESB) since the recovery plan was completed in 1998. In this proposed modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and describe the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an addendum that supplements the recovery plan, superseding all outdated applicable sections of the recovery plan (e.g. distribution maps and recovery criteria).

For
U.S. Fish and Wildlife Service
Region 8
Carlsbad, California

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

Because the current distribution of the species is in question (Figure 1; Service 1984), species status information and substantial portions of the recovery program may be outdated. Therefore we relied on information in the last approved 5-year Status Review (USFWS 2008), peer-reviewed publications, survey and monitoring reports, and expert personal communications (e.g. Longcore 2012, pers. comm.) to develop recovery criteria. The draft amendment was prepared in the Carlsbad Fish and Wildlife Office by Alison Williams-Anderson (Ph.D. Entomologist). It underwent subsequent internal review and editing by Carlsbad Fish and Wildlife Office management and the Region 8 Office prior to external review and preparation of the final amendment. We will invite external review by State agencies and other governmental and non-governmental partners, and it will be peer reviewed, prior to preparation of the final amendment.

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, “objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list.” Legal

challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) have also affirmed the need to frame recovery criteria in terms of threats assessed under the five threat factors (ESA 4(a)(1)).

Recovery Criteria

See previous version of downlisting criteria in recovery plan (USFWS 1998, pp. iii, iv, and 25; <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=I00C>).

Synthesis

Though habitat loss is no longer an ongoing threat to the subspecies today, suitable habitat is extremely limited due to historical loss of habitat from development. In addition, habitat modification resulting from invasive nonnative plant species is a rangewide threat. The lack of permanent conservation and long-term management assurances at significant occupied areas such as the Los Angeles (LAX) Airport Preserve, and the lack of protection of habitats such as Scattergood Dune (Figure 2) and privately owned lands in Santa Barbara County, still pose threats to subspecies' survival. In sum, The El Segundo blue butterfly remains in danger of extinction due to its limited range and a lack of adequate protections and management (habitat modification), although the probability of extinction has decreased significantly.

Several El Segundo blue butterfly recovery issues have been resolved, and a new one has arisen, because of relevant new information since approval of the recovery plan (USFWS 1998). We now understand more about the ability of the butterfly to disperse and colonize restored habitats. Here we discuss these new findings and how they inform or complicate assessing the adequacy of the current recovery criteria below.

The recovery plan (USFWS 1998 p. 2) stated, “The status of the population of the Bernardino blue butterfly on the Palos Verdes peninsula remains unresolved. Adults are morphologically similar to [ESB], but possess major differences, including different morphological characters in the larvae, different food plant species, and genetic differences in allozymes.” Therefore, when ESB were discovered at Point Vicente Bluff Cove on the Palos Verdes Peninsula (Figure 2), it was necessary to establish their distinctness from the very similar (now considered a different species) *Euphilotes bernardino* (Palos Verdes bernardino blue butterfly). In 2006 and 2014, Pratt (pers. comm.) discussed evidence of the taxonomic distinctness of blue butterflies in the Point Vicente area of the Palos Verdes Peninsula, based primarily on evidence presented in Pratt and Stouthammer 2008 (pp. 395–399, and 404). He stated “[El Segundo blue butterfly] only uses *Eriogonum parviflorium*. There is a population of *Euphilotes bernardino* [Palos Verdes bernardino blue butterfly] that looks very very similar...that uses *Eriogonum cinereum* [coastal buckwheat] on Palos Verdes Peninsula. When I compare the two species...at nearby locations on Palos Verdes Peninsula I get a Nei Distance [estimate of average genetic distance using allozymes] of 0.1, which positively demonstrates that they are acting like [distinct] species on the peninsula” (Pratt 2014, pers. comm.). “[They] ...differ by the distal shift in the centers of the row of spots proximal to the spots bordering the orange aurora in the El Segundo Blue...Larvae differ in branched setae around the first abdominal spiracle and the edges of the honey gland...The Bernardino larvae have lost these setae, which presumably are responsible for ant associations.” (Pratt 2006, pers. comm.). Therefore, we now consider individuals in the Palos Verdes Peninsula

occupied areas to be ESB, and included this consideration in developing amended recovery criteria.

At the time of recovery plan (USFWS 1998) publication, it was not clear how likely restored habitats were to be naturally recolonized by nearby populations. At the time of the 2008 5-year review, select dune habitats at Dockweiler State Beach (adjacent to LAX Airport Preserve) and Redondo and Torrance County Beaches (adjacent to Malaga Cove) had been recently restored. During subsequent surveys in 2008, Osborne (2010, p. 2) reported observing approximately 45 butterflies at Dockweiler State Beach, 275 at Redondo County Beach, 250 at Torrance County Beach, and 3 at Malaga Cove. Osborne (2010, p. 4) concluded that the ongoing coastal dune restoration efforts were providing opportunities for the El Segundo blue butterfly to expand its occupied area and recolonize portions of historical habitat. In 2011 ESB were observed for the first time since 1985 in the Ballona Wetlands (approximately 1 mile (1.6 km) north of LAX Airport Preserve), where habitat restoration had begun in 2004 (Dalkey 2011, p. 11; Longcore 2012, pers. comm.). ESB also colonized *Eriogonum parvifolium* on the Palos Verdes Peninsula that had been newly installed in planters at a visitor's center (Dalkey 2011, p. 10). All of this indicates that if restored habitat is within at least a mile of occupied habitat, it is likely to be naturally recolonized, a fact useful for developing geographic aspects of recovery criteria.

New populations of presumed ESB were also identified in seven areas of Santa Barbara County: northwest and northeast Vandenberg Airforce Base (VAFB); south VAFB; Burton Mesa Ecological Reserve; East Lompoc; Santa Rosa Park approximately 8 mi (13 km) southeast of the City of Lompoc; and in the vicinity of Drum Canyon approximately 8 mi (13 km) northeast of the City of Lompoc (MSRS and Arnold 2010, p. A-7; MSRS and Arnold 2011, Appendix A, Map A-4; Tetra Tech Inc. and Pratt 2012, p. 15; MSRS and Arnold 2013, Appendix A; Table 1; Figures 1 and 3). Surveys in apparently suitable habitats north of the known distribution in Santa Barbara County, and between the Santa Barbara and Los Angeles County distributions, including three areas in Ventura County, have all been negative (MSRS and Arnold 2011, pp. 7 and 8; G. Pratt pers. comm. 2012; Tetra Tech Inc. and Pratt 2012, pp. 11, 13, and 15; R. Arnold, pers. comm. 2014; Figure 1). The status of this new and disjunct distribution of *Euphilotes battoides* in Santa Barbara County is uncertain (Anderson 2014). Dr. Danielle Rubinoff at the University of Hawaii is currently conducting a genetic study using mtDNA and Cytochrome Oxidase I (COI) gene sequencing that should determine if the Santa Barbara populations are ESB or an undescribed subspecies of *E. battoides*. The Santa Barbara distribution comprises approximately half the subspecies' known range, therefore this data gap presented a particularly difficult challenge to developing recovery criteria for ESB.

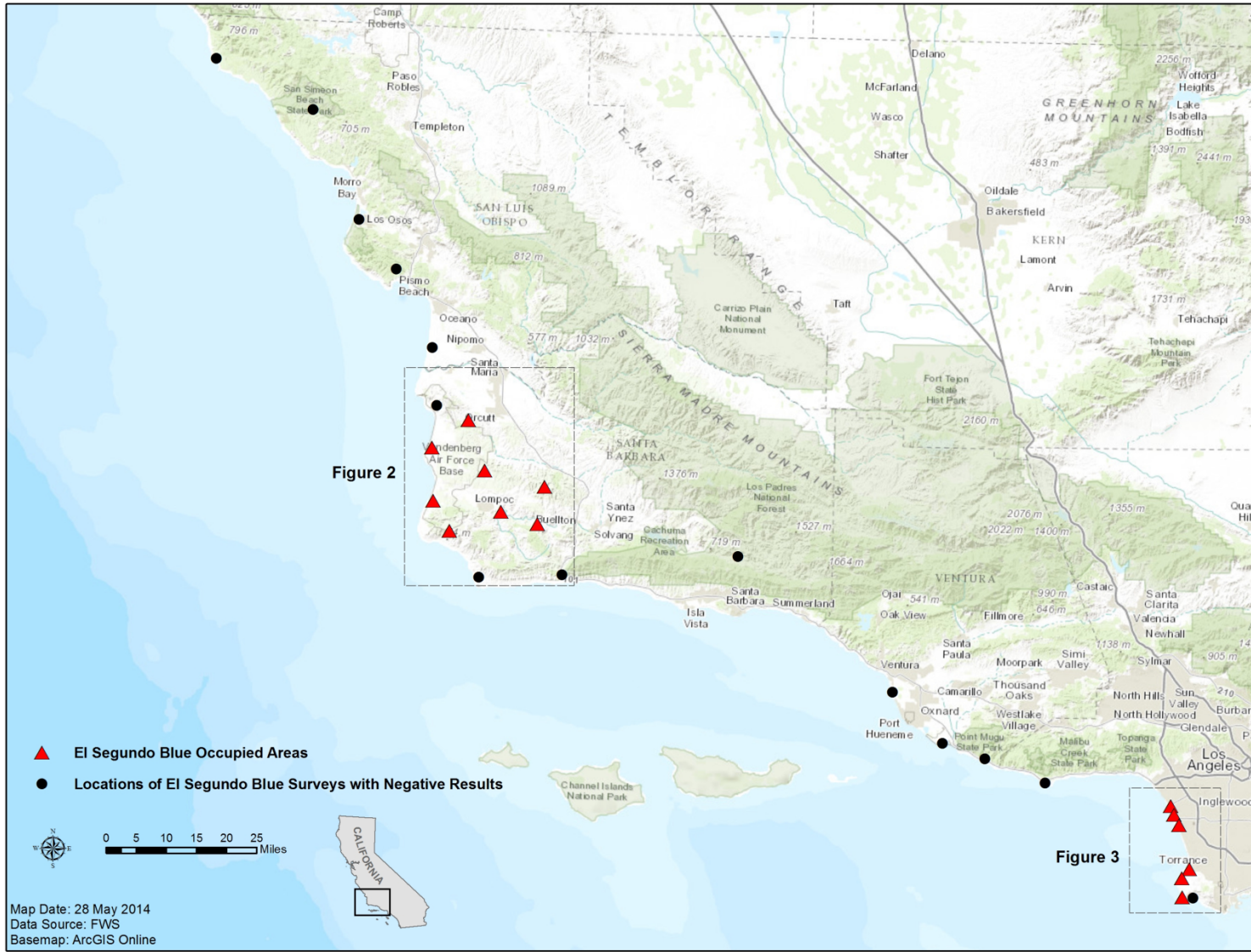


Figure 1. Known range of the El Segundo Blue Butterfly (*Euphilotes battoides allyni*) in 2017.

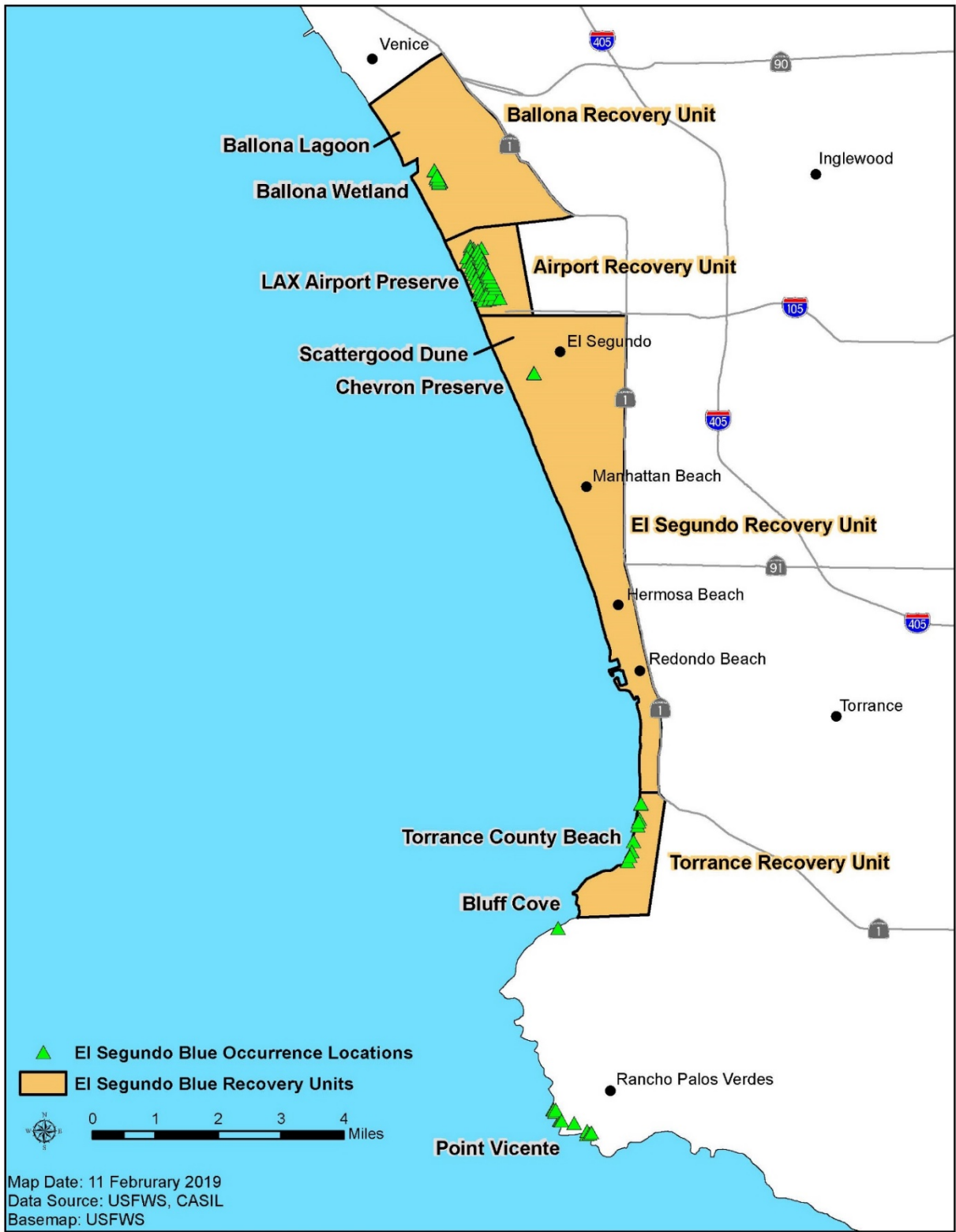


Figure 2. Known historical (and likely extant) distribution of El Segundo blue butterfly in Los Angeles County as of 2017.

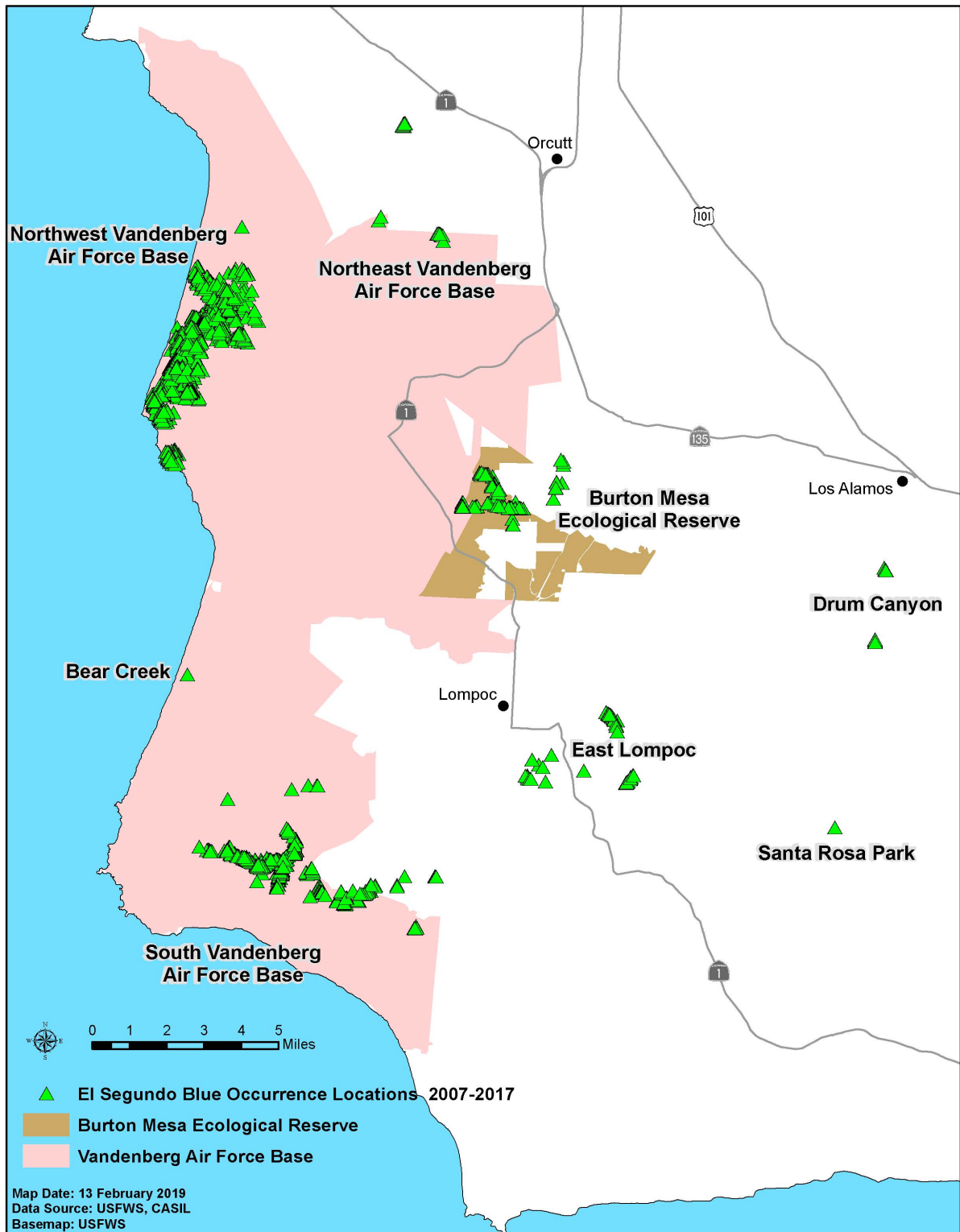


Figure 3. Known historical distribution of El Segundo blue butterfly in Santa Barbara County from 2007 to 2017.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the species may be delisted.

Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term “endangered species” means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term “threatened species” means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Thus, while recovery plans provide important guidance to the U.S. Fish and Wildlife Service (Service), States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species’ status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

We provide downlisting and delisting criteria for ESB, which will supersede those included in the El Segundo Blue Butterfly (*Euphilotes battoides allyni*) Recovery Plan, as follows:

Downlisting Recovery Criteria

Downlisting criteria are consistent with the El Segundo Blue Butterfly (*Euphilotes battoides allyni*) Recovery Plan (USFWS 1998, pp. iii, iv, and 25), with the exception of a minor edit to criterion 3.

- 1) At least one secure population in each of the four Recovery Units (RUs) – Ballona, Airport, El Segundo, and Torrance – are permanently protected to provide redundancy and maintain representation. The Airport Dunes (Napoleon Street and Waterview Street to the north, Vista del Mar to the west, Pershing Drive to the east, and Imperial Highway to the south) located in the Airport RU contains the largest population of the butterfly and is the population most likely to survive disease, predators, parasites, and other perturbations. The Airport Dunes must be one of the protected populations.

- 2) Each of the four populations are managed to maintain coastal dune habitat dominated by local native species including coast buckwheat.
- 3) As determined by a scientifically credible monitoring plan, each of the four populations exhibits a statistically significant stable or upward trend (based on transect counts) for at least 8 years (approximately eight butterfly generations). Population management in each Recovery Unit ensures that the average discrete population growth rate (λ) is at or above 1.0, indicating a stable or increasing population.
- 4) A program is initiated to inform the public about the El Segundo blue butterfly and its habitat.

Delisting Recovery Criteria

- 1) Four secure populations - in addition to those that met downlisting criteria - are permanently protected (total of eight). One population must be south of the Torrance Recovery Unit on the coast of the Palos Verdes Peninsula. At least three of the additional four of populations must be in Santa Barbara County. These additional populations increase viability of the species through increased redundancy and representation.
- 2) Each of the eight populations is managed in perpetuity to maintain coastal dune habitat dominated by local native species including coast buckwheat. This criterion assures population resiliency and amelioration of the threat of habitat modification resulting from invasive nonnative plant species (Factor A).
- 3) As determined by a scientifically credible monitoring plan, each of the eight populations exhibits a statistically significant stable or increasing trend (based on transect counts) for at least 8 years (approximately eight butterfly generations). Management in each population distribution ensures that the average discrete population growth rate (λ) is at or above 1.0, indicating a stable or increasing (resilient) population. λ is not below 1.0 for more than one year prior to delisting, indicating growth rate fluctuations are natural and not due to population decline and the population is resilient. This criterion assures population resiliency and amelioration of the threat of limited range (Factor A).

Rationale for Amended Recovery Criteria

Delisting criteria address the biodiversity principles of representation, resiliency, and redundancy (Schaffer and Stein 2000) as these concepts relate to abundance, distribution, diversity, etc. and are required to ensure species' viability. Representation involves conserving the breadth of the genetic makeup of the species to conserve its adaptive capabilities. Resiliency involves ensuring that each population is sufficiently large to withstand stochastic events. Redundancy involves ensuring a sufficient number of populations to provide a margin of safety for the species to withstand catastrophic events.

Based on past monitoring data (Arnold 2014, Table 8), 8 years is the amount of time needed to capture the maximum natural amount of variation observed at LAX prior to the recent drought. We would not want to delist in the middle of a drought-induced decline.

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