PETITION TO LIST THE REFUGIO MANZANITA (*ARCTOSTAPHYLOS REFUGIOENSIS*) AS AN ENDANGERED SPECIES AND TO CONCURRENTLY DESIGNATE CRITICAL HABITAT

PREPARED BY LOS PADRES FORESTWATCH
AND CALIFORNIA CHAPARRAL INSTITUTE
NOVEMBER 2017

PETITIONERS:

Los Padres ForestWatch *is a local nonprofit 501(c)(3) organization working to protect and restore wild places and wildlife in the Los Padres National Forest, the Carrizo Plain National Monument, and other public lands along California's Central Coast. www.LPFW.org*

California Chaparral Institute *is a 501(c)(3) nonprofit, research, and educational organization dedicated to the preservation of native shrubland habitats throughout the world and supporting the creative spirit as inspired by nature. www.californiachaparral.com*

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EXECTUIVE SUMMARY

The Refugio manzanita, *Arctostaphylos refugioensis*, is a truly endemic species that, like other manzanitas, grows in uniquely-diverse chaparral ecosystems. A small number of scattered populations are only found along the ridges of the Santa Ynez Mountains in Santa Barbara County, CA. The Smithsonian Institution originally petitioned for Endangered Species Act (ESA) protection of *A. refugioensis* in 1975, but it was removed from consideration by the United States Fish and Wildlife Service (FWS) in 1993 due to lack of information. However, *A. refugioensis* is listed as a sensitive species by the United States Forest Service (USFS) and is ranked 1B.2 by the California Native Plant Society, which defines that ranking as "rare, threatened or endangered in California and elsewhere" and "fairly endangered in California" (CNPS 2016).

The USFS lists *A. refugioensis* as a sensitive species, which the Forest Service Manual states are

> Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:
>
> a. Significant current or predicted downward trends in population numbers or density.
> b. Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution
>
> USFS 2005a

Despite its own protections for this species, the USFS approved a large-scale fuel break project in September 2016 that would clear nearly all vegetation in an area six miles long and 300 feet wide directly through the center of the largest populations of *A. refugioensis*. While the plant has been shown to recover well from low-frequency fire, vegetation clearing in this area will likely diminish *A. refugioensis* populations permanently. In addition, several nearby populations of *A. refugioensis* have been reduced or destroyed from land clearing and development.

This petition seeks to designate *A. refugioensis* as an endangered species under the ESA due to the threat posed by land clearing in the Santa Ynez Mountains as well as the continued dangers of vegetation clearing during recent fire suppression activities, increased fire frequency, spread of invasive plant species, livestock grazing, climate change, and inadequacy of existing protections. The approval of a project that would destroy entire populations of this species by the USFS indicates that current protections by local, state, and federal entities are inadequate for ensuring the species' long-term viability. The ESA is renowned for its extensive recovery planning and management process and proven track record of preventing the extirpation and extinction of species across the country—reasons that the ESA must be invoked in order to fully avert the complete loss of *A. refugioensis* and preserve the natural heritage and biological integrity of the Gaviota Coast, a biodiversity hotspot in Santa Barbara County, California.

This petition reviews the biology, geography, and natural history of the *A. refugioensis* as well as the threats that this species and its already-limited habitat face. In accordance with the ESA, the FWS must consider the factors listed in this petition and list *A. refugioensis* as an endangered species. Additionally, this petition requests that the FWS concurrently designate critical habitat for *A. refugioensis*.

I. SYSTEMATICS

A. Taxonomy

The Refugio manzanita was discovered by Roman Gankin in 1966, who first named and described the species in 1967. The following is the accepted biological classification for *A. refugioensis*:

Kingdom **Plantae**
Subkingdom **Tracheobionta**
Superdivision **Spermatophyta**
Division **Magnoliophyta**
Class **Magnoliopsida**
Subclass **Dilleniidae**
Order **Ericales**
Family **Ericaceae**
Genus ***Arctostaphylos***
Species ***refugioensis***

Figure 1 *Refugio manzanita in bloom.* Courtesy California Chaparral Institute

B. Species Description

The Refugio manzanita is an erect, evergreen shrub that can grow up to 5 m tall and 2-3.5 m wide, often having several trunks. The leaves have entire margins and are 3-4.5 cm long and 2-3 cm wide, heart-shaped, sessile, strongly overlapping, and sometimes clasping at the stem. Like other manzanitas, *A. refugioensis* has 6-7mm long urn-shaped flowers with fused petals that are typically white to pink. Similar to the plant's youngest branches, the flower stalks have glandular hairs. The plant blooms from December to May—appearing as showy bunches 5-15 cm wide (Figure 1)—and it produces round berries 1-1.5 cm in diameter with a solid stone. The bark is dark red and smooth, although new spring growth can be flame red. Unlike some other manzanita species, *A. refugioensis* lacks a basal burl, meaning it cannot self-regenerate but rather generates only from seed that typically require infrequent fire cues provided by charred wood or smoke to successfully germinate.

II. ECOLOGY OF *A. REFUGIOENSIS*

A. Distribution

Arctostaphylos refugioensis occurs between 300-1000 m in the Santa Ynez mountains along the Gaviota Coast, a biodiversity hotspot in Santa Barbara County, California (County of Santa Barbara 2016). Specifically, *A. refugioensis* is found in scattered populations primarily along the ridge between Gaviota Peak and Santa Ynez Peak, including Refugio Pass (Figure 2). Many of these populations occur within the boundary of the Los Padres National Forest. While other observations have been made outside of this confined region, manzanita experts believe these are likely misidentifications, possibly of *Arctostaphylos purissima* subsp. *globosa* which also occurs in those areas (Parker and Vasey 2016).

B. Habitat

The Refugio manzanita can be found as part of the diverse chaparral or chaparral mixed with woodland

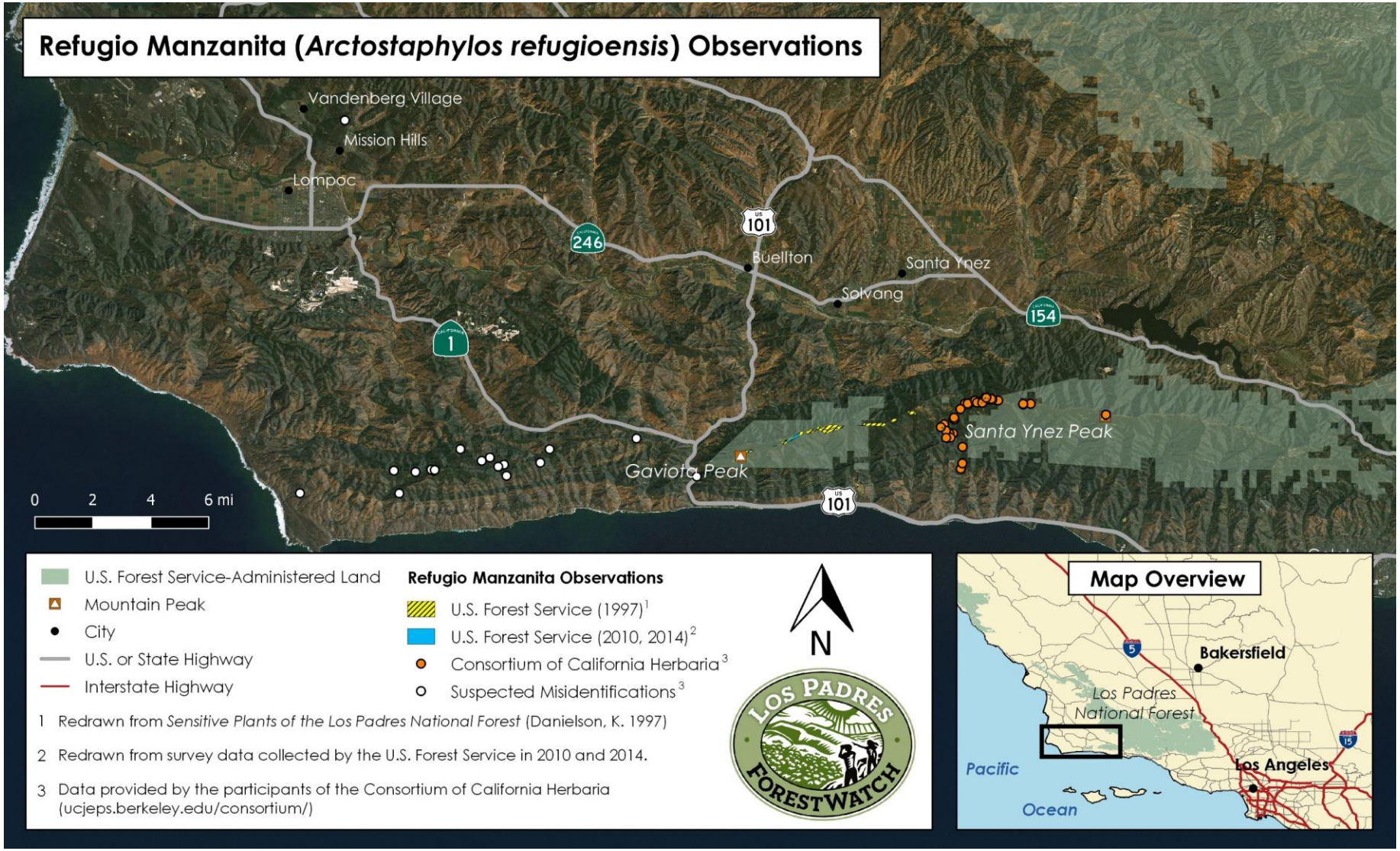


Figure 2 *Refugio manzanita range. White circles represent suspected observations listed by the Consortium of California Herbaria that were misidentified as* A. refugioensis. *Based on current expert opinion, those observations occurring west of Hwy 101 and at low elevation along Hwy 101 near Gaviota Peak are likely misidentifications of* A. purissima *subsp.* globosa *which primarily grows in those areas.*

ecosystems of the Santa Ynez Mountains' higher elevations (Figure 3). In its small range, *A. refugioensis* occurs primarily on south-facing slopes and ridgelines. It is often found with a variety of native shrubs, including bigpod ceanothus (*Ceanothus megacarpus*) and chamise (*Adenostoma fasciculatum*). The Refugio manzanita is adapted to a specific fire regime that includes high-intensity fire with a fire return interval of 30 to 150 years or more. It is an obligate seeder, meaning it recovers from fire by seeding, not resprouting from a basal burl. Its seeds, which can survive many decades in the soil, require either charred wood or smoke to stimulate germination.

Figure 3 *Refugio manzanita habitat on the ridge between Gaviota and Santa Ynez Peaks.* Courtesy California Chaparral Institute

III. CONSERVATION HISTORY

The species was first described in print by Roman Gankin in 1967, having discovered it the previous year. In his publication, Gankin noted the small locality of the Refugio manzanita, and the editor of that publication wrote that *A. refugioensis* was "…an outstanding addition to California's native plant horticulture" (Gankin 1967). The Refugio manzanita was included in the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* in 1974. In this publication, the CNPS listed *A. refugioensis* as having a Rarity-Endangerment-Vigor-General Distribution (R-E-V-D) score of 3-2-2-3 (where 1 indicates least cause for concern and 3 indicates highly critical concern except in General Distribution), defined as:

> Rarity (3): "Occurs in such small numbers that it is seldom reported; or occurs in one or very few highly restricted populations."
>
> Endangerment (2): "Endangered in part."
>
> Vigor (2): "Declining."
>
> General Distribution (3): "Endemic to California."

Because of the high scores in rarity, endangerment, and vigor, *A. refugioensis* was placed on the main list of 704 plants of highest priority by the CNPS (CNPS 1974).

One year later, the Smithsonian Institution included *A. refugioensis* in its *Report on Endangered and Threatened Plant Species of the United States* which it presented to Congress in 1975. The Refugio manzanita was listed as "threatened" in this document, but no supporting information was included (The Smithsonian Institution 1975). The FWS considered this report a petition to consider all of the listed plant species to be protected under the ESA.

The FWS sought additional information from the governors of the states in which these plants occurred as well as the general public. In 1980, the FWS again requested comments for a list of plant species to be reviewed for listing as endangered or threatened under the ESA. The Refugio manzanita was included in this list under Category 2, which was defined as:

> Taxa for which information now in the possession of the Service [FWS] indicates the probable appropriateness of listing as Endangered or threatened, but for which sufficient information is not presently available to biologically support a proposed rule. Further biological research and field study will usually be necessary to determine the status of the taxa included in this category. It is hoped that this notice will encourage such research. Some taxa included in this category are of doubtful taxonomic validity and require further taxonomic research before their status can be clarified.
>
> FWS 1980

The last mention of *A. refugioensis* by the FWS occurred in the 1993 Federal Register, "Review of Plant Taxa for Listing as Endangered or Threatened Species" in which the Refugio manzanita was classified as "Category 2, U" where:

> Category 2: Taxa for which information now in the possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which sufficient data on biological vulnerability and threat are not currently available to support proposed rules. The Service emphasizes that these taxa are not being proposed for listing by this notice, and that there are not current plans for such proposals unless additional supporting information becomes available. Further biological research and field study usually will be necessary to ascertain the status of taxa in this category. It is likely that many will be found not to warrant listing, either because they are not threatened or endangered or because they do not qualify as species under the definitions in the Act, while others will be found to be in greater danger of extinction than some taxa in Category 1. The Service hopes that this notice will encourage necessary research on vulnerability, taxonomy, and/or threats for these taxa.

and

> U: 'Unknown' denotes species for which additional survey work is required to determine current trends.

and

> The Service hereby requests that any further information on the vulnerable taxa named in this notice be submitted as soon as possible or whenever it becomes available. Especially sought are data:
>
> (1) indicating that a taxon should be assigned to a category other than the one in which it appears;
>
> (2) nominating a taxon not now included in the notice;
>
> (3) recommending an area as critical habitat for a candidate taxon, or indicating that a proposal of critical habitat would not be prudent for a taxon;
>
> (4) documenting threats to any of the included taxa;
>
> (5) informing the Service of the immediacy or magnitude of threats;

(6) pointing out taxonomic or nomenclatural changes for any of the taxa;

(7) suggesting appropriate common names; or

(8) noting any mistakes, such as errors in the indicated historical distributions.

The Service will consider all information received in response to this notice. Substantive changes will be announced by periodic supplemental or revised notices in the Federal Register.

FWS 1993

Presumably no information regarding *A. refugioensis* was submitted to the FWS during these reviews, as the species was never listed as endangered or threatened, and it does not appear in subsequent notices by the FWS.

Currently, *A. refugioensis* is ranked 1B.2 by the California Native Plant Society, which defines that ranking as "rare, threatened or endangered in California and elsewhere" and "fairly endangered in California." Additionally, the USFS lists *A. refugioensis* as a sensitive species, which the Forest Service Manual states are:

Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

a. Significant current or predicted downward trends in population numbers or density.

b. Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution

USFS 2005a

The USFS also describes *A. refugioensis* as one of the rarest plants in California (USFS 2005c).

IV. LISTING FACTORS

Section 4(a)(1) of the ESA and regulations at 50 CFR part 424 describe the criteria for adding a species to the federal list of endangered or threatened species. If a species' existence is imperiled by one or more of the following five factors, then pursuant to the ESA it must be listed as "threatened" or "endangered":

(1) The present or threatened destruction, modification, or curtailment of its habitat or range;

(2) Over utilization for commercial, recreational, scientific, or educational purposes;

(3) Disease or predation;

(4) The inadequacy of existing regulatory mechanisms; or

(5) Other natural or manmade factors affecting its continued existence.

ESA of 1973

This petition provides evidence showing that the existence of *A. refugioensis* is imperiled by at least

three of these five factors.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

1. The 2016 Fuel Break

Figure 4 *A similar fuel break project using the same clear-cutting technique.* Courtesy California Chaparral Institute

In September 2016, the USFS approved a six-mile-long, 300-foot-wide fuel break (hereby Gaviota Fuel Break) as part of the greater "Santa Barbara Mountain Communities Defense Zone Project" that would clear-cut up to 95% of native vegetation (see Figure 4 for an example), including *A. refugioensis*. The fuel break would bisect multiple *A. refugioensis* populations along a ridgeline between Gaviota Peak and Santa Ynez Peak as shown in Figure 5. Because the Refugio manzanita lacks a basal burl, the masticators that USFS would use to create the fuel break – which shred vegetation from the top-downward – would kill individual plants. Any regrowth of *A. refugioensis* would come from the seedbank, which is needed for regrowth post-fire in the future. The USFS stated that they would clear the Gaviota Fuel Break every 3 – 10 years into the foreseeable future. Such a disturbance interval would be detrimental to not only the current number of plants but also the future vigor of *A. refugioensis,* the seedlings of which cannot reach maturity in such a short period.

Despite being identified by the USFS as a sensitive species, the fuel break project did not include measures to protect *A. refugioensis* in the path of the proposed vegetation removal. However, the USFS did acknowledge that the project would indeed destroy *A. refugioensis* plants in its site-specific analysis of the project, *Biological Evaluation for Threatened, Endangered, Proposed, and Sensitive Plant Species, Santa Barbara Mountain Communities Defense Zone Project* (USFS 2016). The USFS also admitted in its response to public comments that the destruction of *A. refugioensis* plants would be "perceptible" to the species' population and "most unfortunate" due to the project bisecting the existing *A. refugioensis* population in the Gaviota area (USFS 2016). Indeed, the fuelbreak would cut through substantial populations identified by the USFS in past surveys (Figure 5).

This project was approved without following the normal requirement of preparing an Environmental Assessment or Environmental Impact Statement, wherein certain alternatives could be evaluated and mitigation measures imposed to reduce or avoid project impacts. Instead, the USFS relied on a categorical exclusion for timber stand or wildlife habitat improvement, even though the project does not "improve" wildlife habitat and there is no timber in the area. By approving this project under a categorical exclusion, the USFS impermissibly avoided any analysis of project alternatives and mitigation measures to reduce or avoid project impacts. However, due to a lawsuit filed against the USFS by the Petitioners, the Gaviota Fuel Break was withdrawn in March 2017 to be reevaluated for the necessity of environmental review. Because this project was not permanently withdrawn, it may be proposed again in the future and thus could still pose a significant threat to *A. refugioensis* populations along the crest of the Santa Ynez Mountains.

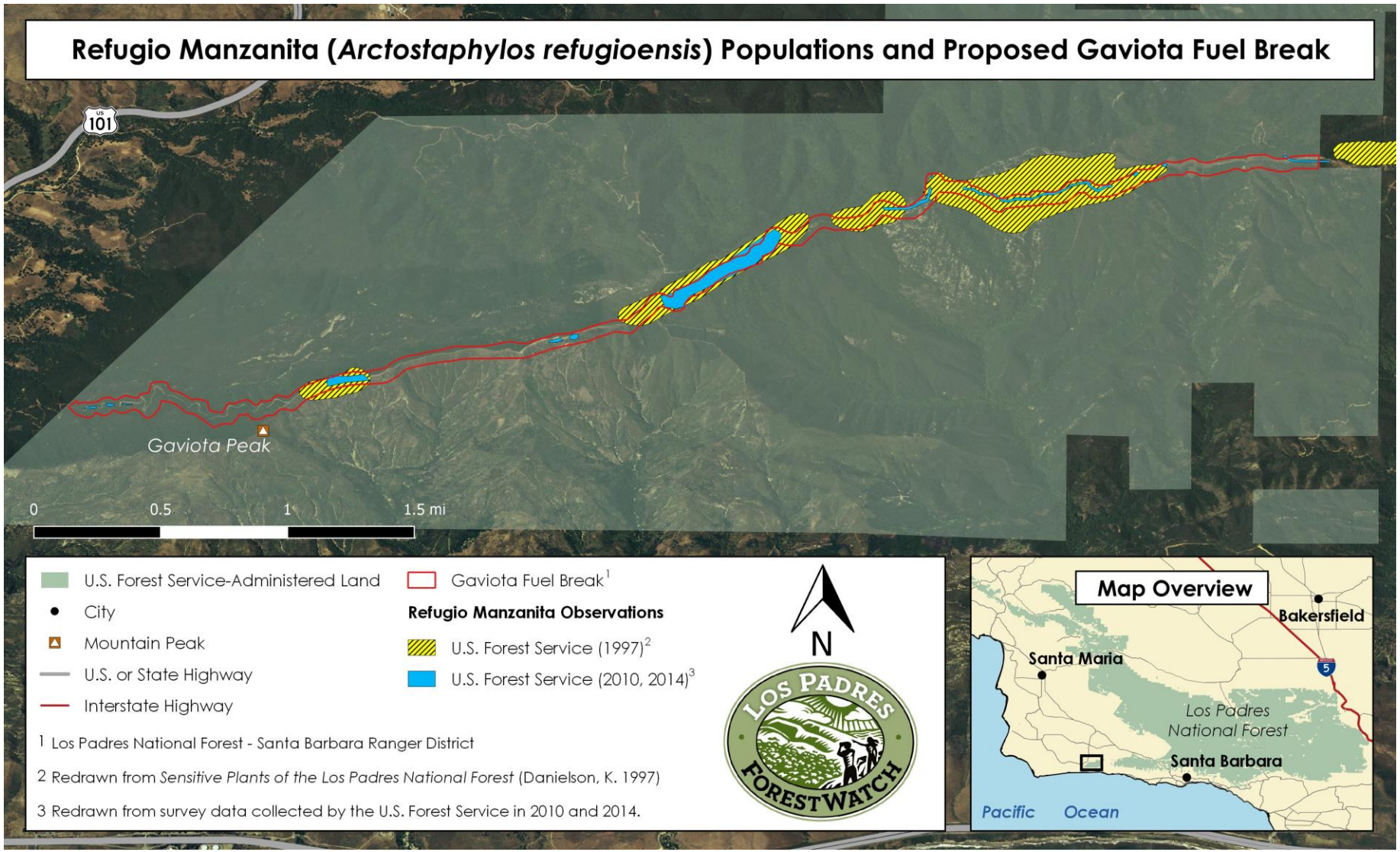


Figure 5 *Refugio manzanita observations and the Gaviota Fuel Break planned by the USFS.*

2. The 2002 Fuel Break and Other Vegetation Removal Projects

The Forest Service approved a similar project in 2002 authorizing the construction of a 300-foot-wide fuel break along 40 miles of the Santa Ynez Mountains, directly east of the previously-described fuel break approved in 2016. While also relying on the same categorical exclusion, the Forest Service did impose a mitigation measure to protect some *A. refugioensis* plants. Specifically, the Plants Evaluation for that 2002 project states that two occurrences of Refugio manzanita are found on the extreme western end of the fuel break, and that "All Refugio manzanita shrubs will be protected from direct application of fire, mechanical thinning, and crushing. No buffer is required." While this project does contain an avoidance measure, it allows vegetation removal right up to the stump of the plant, which would negatively impact the seed bank, soil crusts, and disrupt vital, underground mycorrhizal fungal networks while promoting the spread of invasive weeds – one of the primary threats facing this species.

The Forest Service updated this Plants Evaluation in 2009, stating in part:

> There would be few direct effects to *Arctostaphylos refugioensis.* Treating brush adjacent to individual *A. refugioensis* shrubs may alter the microclimate of the affected bush and temporarily expose it to greater impacts from the elements and from herbivores. The magnitude of this impact to the species would be very small since few *A. refugioensis* shrubs are in a position to be subject to proposed fuel treatments and those that are will be flagged for avoidance.
>
> Treating vegetation in the areas adjacent to *Arctostaphylos refugioensis* may increase the risk that the treated areas will become infested with invasive plant species. To reduce the risk, the noxious weed risk assessment identified noxious weed prevention practices that will be used as part of project implementation (see Appendix A).
>
> The primary threat to *Arctostaphylos refugioensis* is type conversion for road and home development. This project does not contribute to this cumulative effect.
>
> USFS 2009a

Therefore, even though there is an avoidance measure, the Forest Service still acknowledged that there would be impacts to the species from this 2002 fuel break.

The portions of West Camino Cielo Road traversing USFS-administered lands and along which *A. refugioensis* has been surveyed were also cleared of roadside brush in a project approved by the USFS in 2009. The project, *Roadside Clearing (Kern, Monterey, San Luis Obispo, Santa Barbara, Ventura Counties*) consisted of removal of "all vegetative material approximately 10 ft. from either side of the road using mechanical equipment…" along West Camino Cielo Road (USFS 2009b). While the USFS did use a categorical exclusion for repair and maintenance of roads, the project did contain an avoidance measure for sensitive species by requiring that *A. refugioensis* found in various areas affected by the project be flagged and avoided by masticators (USFS 2009c). While the 2002 fuel break and 2009 roadside brushing projects both incorporated avoidance measures, these same measures were not included in the 2016 fuel break and do not include buffers to fully protect *A. refugioensis*.

Additionally, a large fuel break was developed on the north side of West Camino Cielo Road (Figure 6)

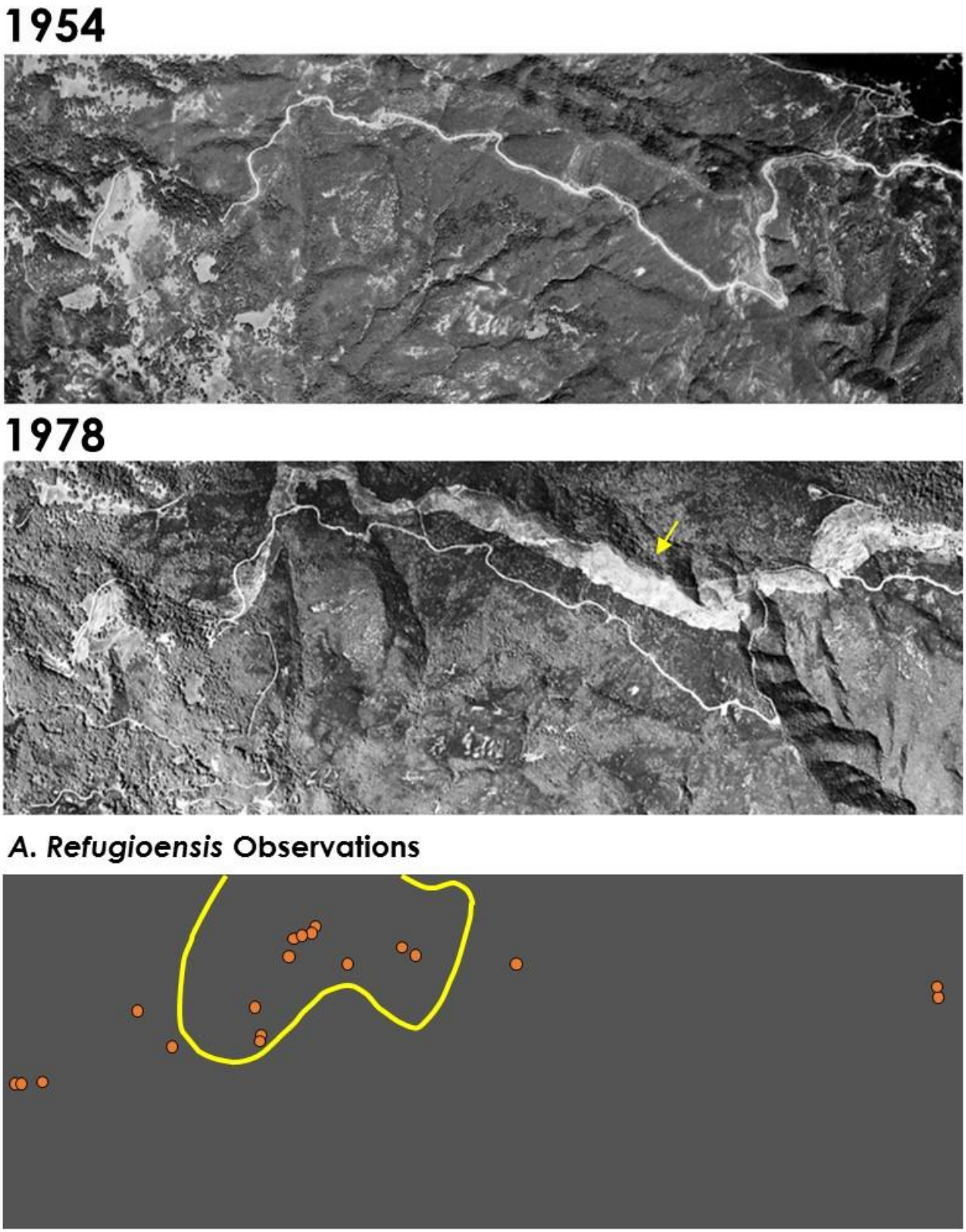


Figure 6 *Fuel break establishment north of West Camino Cielo Rd. (yellow arrow). Each panel shows the same view and scale, but were taken in different years. The bottom panel shows surveyed populations (yellow perimeter) and individual observations (orange circles) of* A. refugioensis *in the same area shown in the top panels and at the same scale*. Sources: Flight BTM-1954 (top) and Flight USDA-40-06083 (middle), acquired from the University of California Santa Barbara Map and Imagery Library; redrawn from USFS 1997 and California Consortium of Herbaria (bottom).

after the Refugio Fire of 1955 burned more than 70,000 acres of the Santa Ynez Mountains and the Gaviota Coast. This massive fuel break cleared *A. refugioensis* habitat along the crest of the Santa Ynez Mountains (Figure 6) and is still clear of most woody vegetation today.

3. Private Land Development

In addition to the planned fuel break, the Refugio manzanita is also threatened by development on private lands. While a majority of the few known occurrences of *A. refugioensis* are on USFS land, some populations occur on private land around Refugio Pass in Santa Barbara County (Figure 7). The populations found on private land in this area are at risk of being cleared or otherwise disturbed or entirely removed by development of roads or structures, brush-clearing, and other activities on these properties. Multi-acre swaths of private land have been cleared in and around the areas known to support *A. refugioensis* populations over the past several decades. Indeed, more than 8 ac of vegetation were cleared on private land parcels that support populations of *A. refugioensis* between 1994 and 2005, with some clearings occurring where *A. refugioensis* has been observed individually or as part of a larger population (Figure 8). These private land clearing activities are not subject to the same environmental analyses that are normally required on federal lands.

Additionally, at least one large tract of private land has over 70 acres designated as "development envelopes" in a conservation easement that was placed on the property in 2002. Two of these development envelopes cover a combined 47 acres, nearly all of which contain large surveyed populations of *A. refugioensis* (Figure 9). Future development of these areas could result in permanent removal of *A. refugioensis* directly adjacent to the proposed Gaviota Fuel Break despite existing on private land containing a perpetual conservation easement for wildlife habitat and open space resources.

4. Fire

As stated previously, *A. refugioensis* is adapted to grow in chaparral ecosystems that experience infrequent fire. Given enough time between fires, the Refugio manzanita can build up an adequate seedbank from which new plants can regrow after a fire. However, fire frequency in chaparral ecosystems found in the Los Padres National Forest has increased over the last century compared to pre-Euro American settlement (Keeley et al. 2011). Increasing fire frequency will be a continuing threat to *A. refugioensis*, as shorter intervals between fires may contribute to seedbank depletion. This problem is exacerbated by the species' lack of a basal burl from which to sprout following a fire. In fact, the USFS acknowledges that *A. refugioensis* requires long intervals between fires in order to maintain a seedbank:

> Fire appears to be needed for regeneration. California Natural Diversity Database (CNDDB) Occurrence #1 burned in the 1920s and again in 1955. CNDDB Occurrence #2 was affected by wildfire in 1916 and again in 1955 by the Refugio Fire. CNDDB Occurrence #3 was burned in 1926 and again in 1955. CNDDB Occurrences #4 and #5, and the six occurrences documented in Forest Service files were all affected by the 1955 Refugio Fire. This indicates that the species is resilient to the effects of wildfire provided fire does not occur too frequently. Time is needed for this obligate seeder to regenerate a new stand, otherwise the plant's seed bank may become depleted and insufficient in size to provide for the regeneration of the stand.
>
> USFS 2005d and USFS 2007a

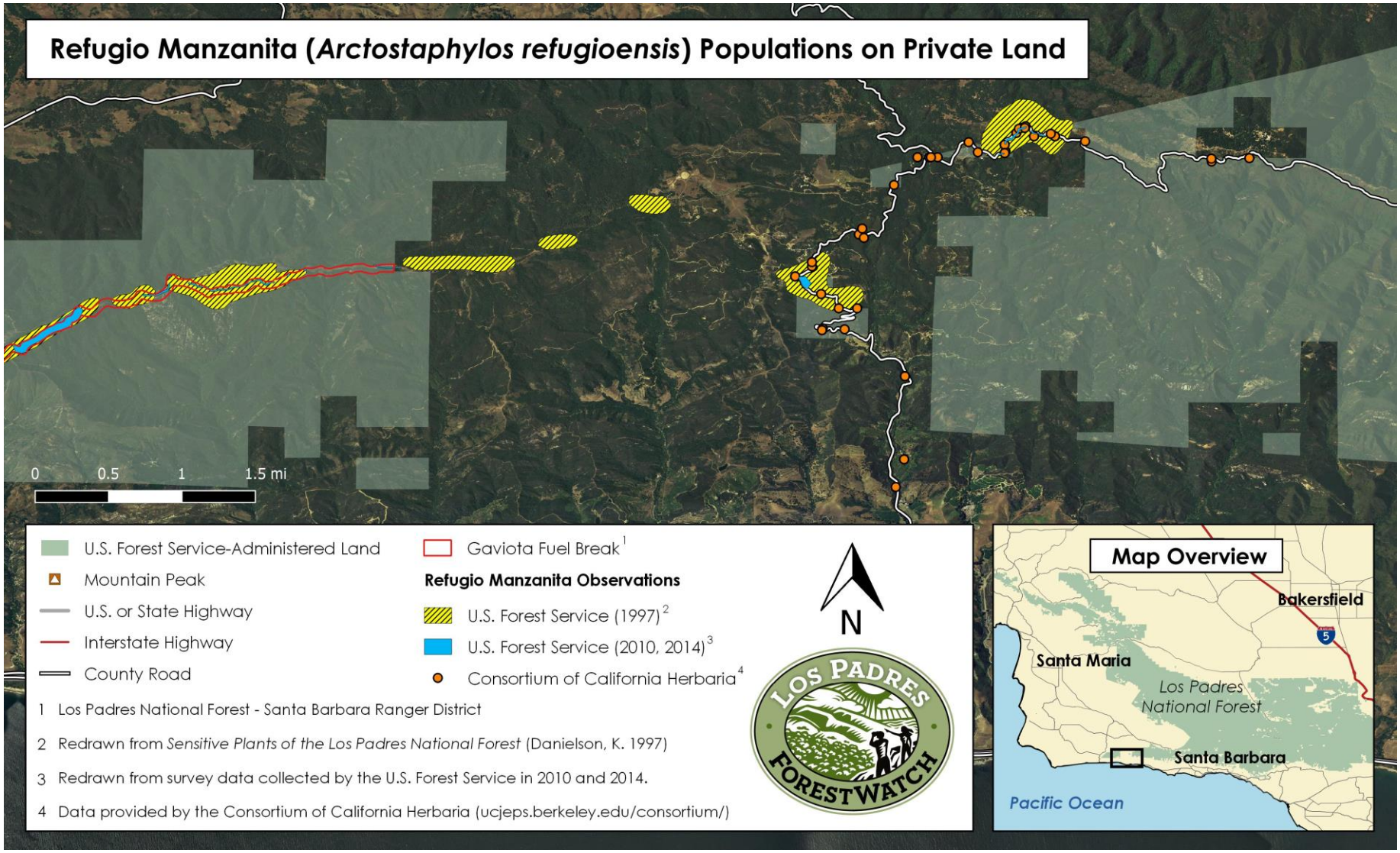


Figure 7 *The populations of* A. refugioensis *occurring on private land (not shaded) in the Refugio Pass area of the Santa Ynez Mountains.*

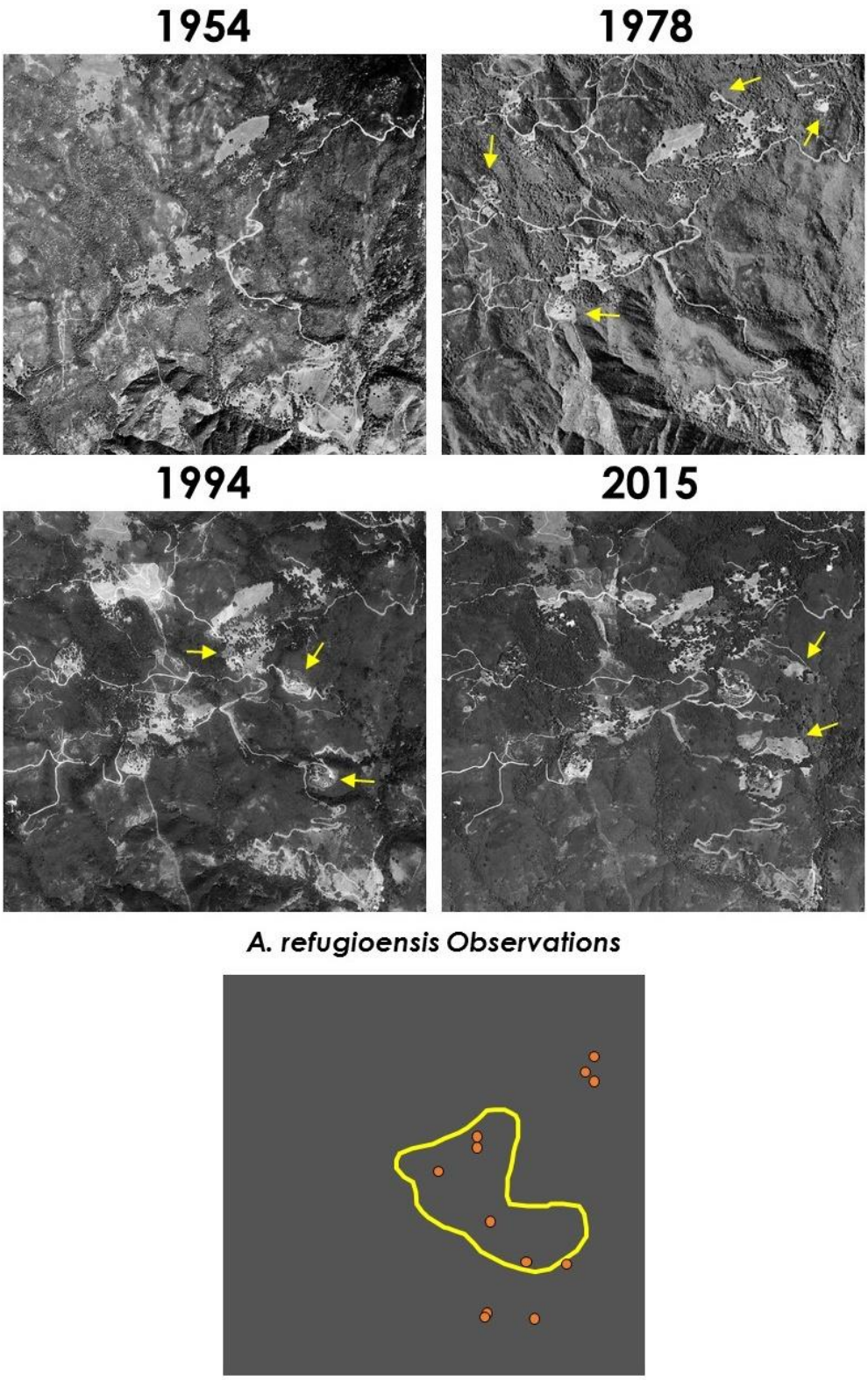


Figure 8 *Vegetation removal on private properties in the Refugio Pass area of the Santa Ynez Mountains. Yellow arrows indicate areas of vegetation removal. Each panel shows the same view and scale, but were taken in different years. The bottom panel shows surveyed populations (yellow perimeter) and individual observations (orange circles) of* A. refugioensis *in the same area shown in the top panels and at the same scale.* Sources: Flight BTM-1954 (top left) and Flight USDA-40-06083 (top right), acquired from the University of California Santa Barbara Map and Imagery Library; Google Earth (middle panels); redrawn from USFS 1997 and California Consortium of Herbaria (bottom).

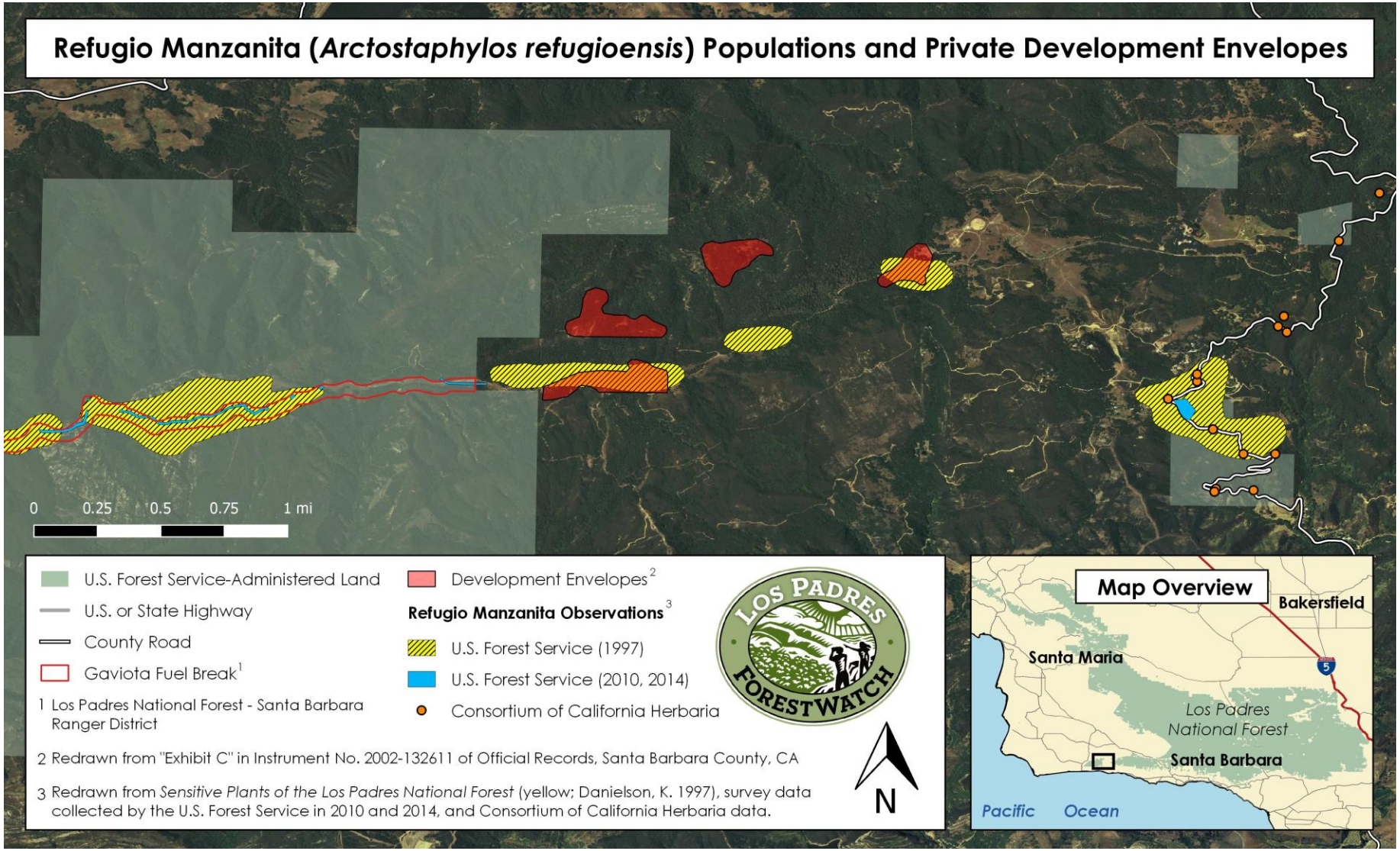


Figure 9 *Populations of* A. refugioensis *occurring on around private land (not shaded) with designated development envelopes.*

Indeed, two major fires have occurred in the species' range over the last two years: the Sherpa Fire of 2016 and the Whittier Fire of 2017. The Sherpa Fire burned nearly 7,500 acres east of Refugio Pass between the coastline and the crest of the Santa Ynez Mountains. Several observations of *A. refugioensis* have been reported along the perimeter of the Sherpa Fire scar. One year later, the Whittier Fire broke out approximately 5 miles from the location of the Sherpa Fire and eventually burned 18,500 acres on both the north and south side of the Santa Ynez Mountains between Refugio Pass and Winchester Canyon to the east. The Whittier Fire burned several areas where observations of *A. refugioensis* have been documented, particularly near Santa Ynez Peak and along W. Camino Cielo near Refugio Pass. Additionally, the Gaviota Fire of 2004 burned 7,500 acres south of the Santa Ynez Mountain Crest between the Gaviota Pass and Refugio Pass. This fire likely also burned several *A. refugioensis* individuals.

Both the Sherpa Fire and the Whittier Fire burned large areas that had not burned since the Refugio Fire of 1955. While this interval of 61 – 62 years between major fires may have allowed *A. refugioensis* to regenerate, there are still concerns about vegetation removal during fire suppression activities and future wildfires occurring more frequently. The Sherpa Fire resulted in the creation of 69 miles of dozer lines both within the fire perimeter and in the surrounding area. Dozer lines are simply fire breaks created by bulldozing all vegetation along a strip of land that can be several miles long and more than 50 ft wide. These dozer lines were established on both national forest and private land in and around the Sherpa Fire perimeter. The following year, more than 60 miles of dozer lines were established or re-opened during Whittier Fire suppression efforts, with many of these lines intersecting or overlapping the lines created during the Sherpa Fire suppression efforts due to the proximity of the fire. Moreover, these dozer lines directly impacted areas that supported *A. refugioensis*, particularly along the Santa Ynez Mountain crest just east of the Refugio Pass and north of W. Camino Cielo Road (Figure 10). Similar to the threats of other vegetation removal projects, the creation and re-establishment of dozer lines during fire suppression efforts can destroy populations of *A. refugioensis* on an interval that does not allow for maturation of new populations during regrowth and consequently seedbank depletion.

5. Spread of Invasive Weeds

Californian chaparral communities like those in which *A. refugioensis* occurs are relatively resistant to invasion by nonnative plant species. However, the risk of invasion by nonnative plants is increased significantly following a disturbance such as vegetation removal (e.g. fuel break establishment) or fire (Lambert et al. 2010). Particularly, nonnative invasive grasses have been spreading into disturbed chaparral communities and changing the fire regime by increasing ground-level fuels (Keeley et al. 2011). These same invasive grasses will likely be the first to invade a new fuel break after it is cleared. Any early successional nonnative vegetation growth in a cleared area that previously supported *A refugioensis* may interfere with *A. refugioensis* re-establishment by shading out emerging seedlings. Moreover, invasive plant species can thrive on the edges of chaparral communities adjacent to disturbances such as roads (Lambert et al. 2010), posing a risk of invasion of these species into native plant communities including those that support *A. refugioensis*.

The portion of West Camino Cielo Road that bisects most populations of *A. refugioensis* is closed to public motorized use. However, an adjacent property owner was recently found to be conducting unauthorized ATV tours along this road. Recent evidence of motorized use was observed on a recent visit to the area. Disturbances to lands that support *A. refugioensis* or are adjacent to such lands provide

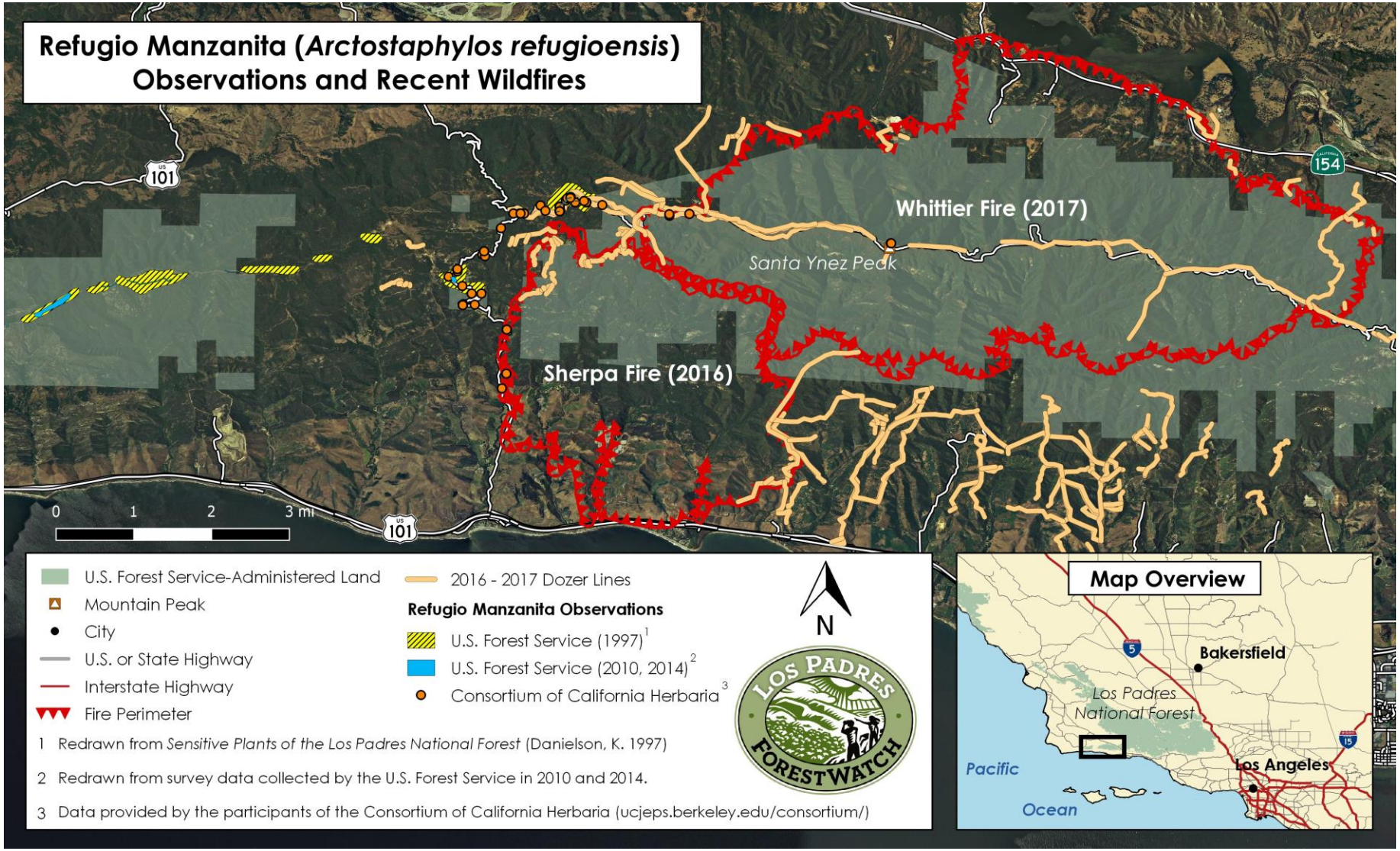


Figure 10 *Populations of* A. refugioensis *occurring in and around areas affected by recent wildfires and fire suppression efforts.*

opportunities for nonnative plant species invasions that can negatively impact the narrow habitat in which *A. refugioensis* occurs. In addition, motorized use provides a vector for the spread of invasive weeds in *A. refugioensis* habitat.

The eastern portion of West Camino Cielo Road is open to public motorized use, where a large population of *A. refugioensis* is found. In a 2006 survey of the area, Los Padres ForestWatch identified more than 14 miles of illegal off-road vehicle trespass trails along West Camino Cielo, including several trespass trails through a known stand of *A. refugioensis.* Using aerial images of the area in 2016, these illegal off-road vehicle trespass trails were still identifiable (Figure 11).

6. Livestock Grazing

The Gaviota Grazing Allotment is located on the south slopes of the Santa Ynez Mountains near Gaviota Peak and covers 1,643 acres of National Forest System (NFS) lands and approximately 849 acres of adjacent private land. A portion of the allotment overlaps with habitat for *A. refugioensis*. A decision by the Forest Service in 2007 kept this allotment vacant, but available for future use pending an application. Any future livestock grazing in this allotment could cause soil compaction, increased erosion (especially after a fire, and trampling of woody plant seedlings (USFS 2006), all of which would have a negative impact on the long-term viability of *A. refugioensis* growing in the allotment area. Additionally, when this grazing allotment previously supported cattle, browseways were cut through chaparral communities to connect areas of forage more palatable to livestock (USFS 2007b). These browseways could potentially be reopened with future grazing and may result in the removal of *A. refugioensis*.

B. Inadequacy of Existing Protections

As most of the known populations of *A. refugioensis* occur on USFS-administered lands within the Los Padres National Forest, its long-term viability is dependent upon any activities conducted by the USFS that may impact extant populations and the mitigation measures therein. A recurring fuel break project that would permanently destroy a large portion of existing *A. refugioensis* plants was approved by the USFS in 2016. The project was approved despite failing to adhere to the National Forest Management Act of 1976, which requires that all site-specific projects be consistent with applicable Forest Plans. The Forest Plan applicable to this project requires that the USFS adheres to sensitive species accounts, which mandate conservation of all existing populations of *A. refugioensis* to protect species viability in the Los Padres National Forest (USFS 2005d). However, the Decision Memo for the fuel break project does not mention or consider the mandatory requirement despite acknowledging that the implementation of the Gaviota Fuel Break would be “most unfortunate” for *A. refugioensis* populations (USFS 2016).

The Refugio manzanita is designated as a sensitive species by the USFS. The Forest Service Manual states the USFS objectives for designated sensitive species as:

1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions.
2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands.

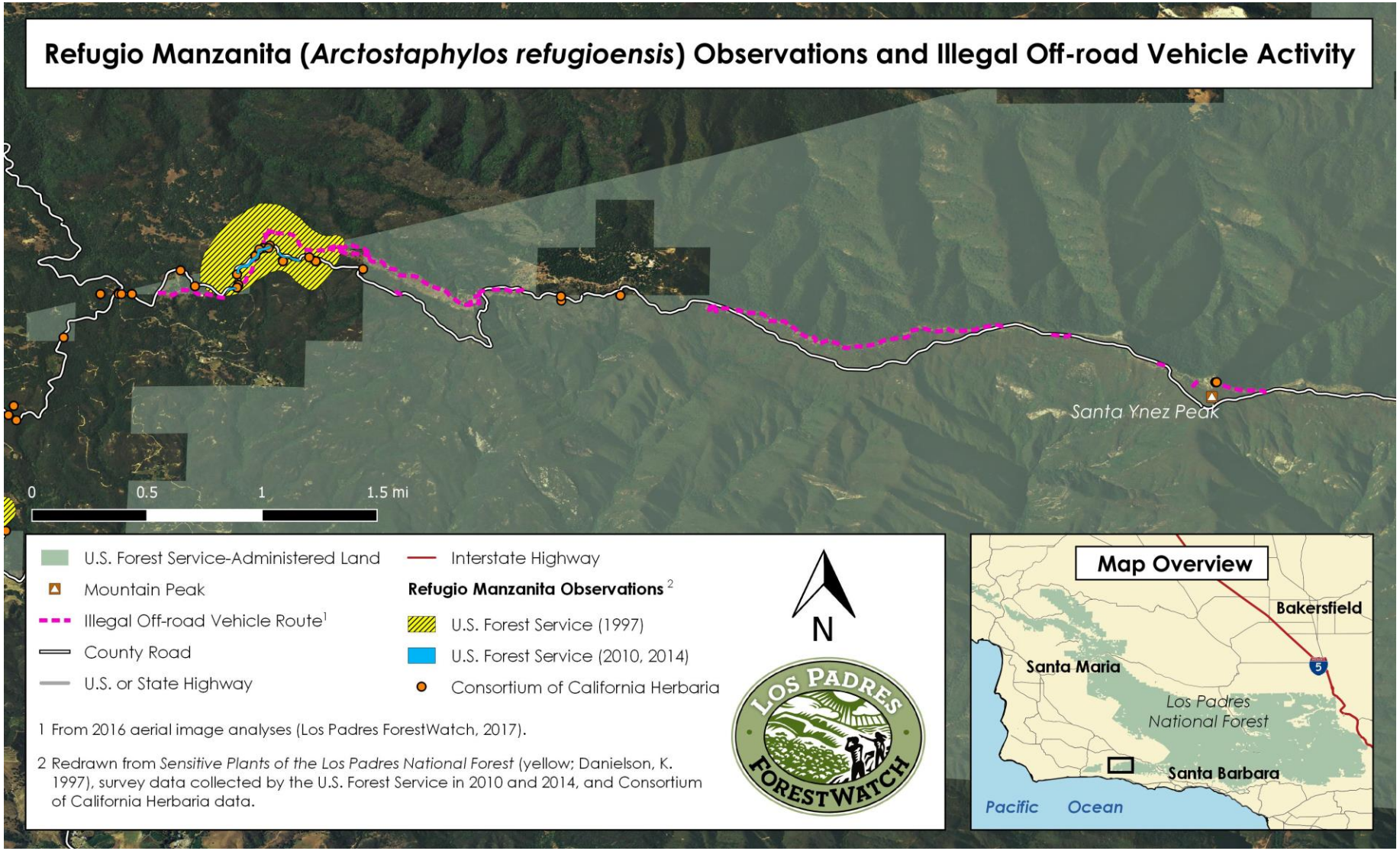


Figure 11 *Illegal off-road vehicle routes have been established along a fuel break north of West Camino Cielo Rd. as well as in other locations nearby.*

3. Develop and implement management objectives for populations and/or habitat of sensitive species.

USFS 2005a

The Forest Plan requires the USFS to use information found in species guidance documents to develop project-specific design criteria to avoid or at least mitigate impacts on sensitive species. Indeed, the USFS included mitigation measures to reduce or avoid harm to *A. refugioensis* for previous similar projects in order to comply with this mandatory Forest Plan requirement. However, for the 2016 Gaviota Fuel Break project, the USFS did not do so even though it acknowledged that the fuel break would directly impact habitat for *A. refugioensis*, among other sensitive species, and destroy individual *A. refugioensis* plants.

The USFS also describes "desired conditions" for the area where *A. refugioensis* occurs on the Los Padres National Forest (referred to as the Santa Barbara Front Place):

> Threatened, endangered, proposed, candidate, species habitat is maintained in its current condition and negative impacts to threatened, endangered, proposed, candidate, and sensitive species are minimized.

USFS 2005c

Despite these protections, the USFS approved a project that would establish a 6 mile-long, 300 ft-wide fuel break requiring all vegetation, including *A. refugioensis*, to be clear cut. This fuel break would tear through the center of the Refugio manzanita's largest populations (Figure 5). The USFS also approved the project without preparing an Environmental Assessment or Environmental Impact Statement as required by the National Environmental Policy Act and without proposing any measures to protect *A. refugioensis* as required by the National Forest Management Act of 1976, practices that are not in alignment with Goal 6.2 of the USFS Land Management Plan for the Southern California National Forests, which states:

> Habitats for sensitive species and other species of concern are managed to prevent downward trends in populations or habitat capability, and to prevent federal listing.

USFS 2005b

Additionally, there are even fewer protections afforded to *A. refugioensis* that occurs on private land. A substantial portion of the extant populations of *A. refugioensis* can be found on private land parcels within the Los Padres National Forest's administrative boundary in the Refugio Pass area. These land parcels already have several areas developed with homes, lawns, pastures, and roads. One tract of land has an estimated 41 miles of roads—most of which were not subject to any regulations when they were established—across areas where *A. refugioensis* has been surveyed. The most substantial protections for *A. refugioensis* on private lands are through the County of Santa Barbara's Gaviota Coast Plan, which was updated and approved by the County of Santa Barbara Board of Supervisors in November 2016. In regard to protections given to rare or sensitive species such as *A. refugioensis*, the Gaviota Coast Plan states in its Policy NS-2:

> Environmentally Sensitive Habitat (ESH) areas and important or sensitive biological and natural resources shall be protected to the maximum extent feasible. Where special-status plant and animal species are found pursuant to the review of a discretionary project, the habitat in which the sensitive species is located shall be preserved to the maximum extent feasible.

and in its Dev Std NS-3 (development standard):

> Where appropriate and feasible, as determined by County staff, if potentially suitable habitat exists for sensitive plant species, prior to approval of Coastal Development or Land Use Permits for any projects in the Gaviota Coast Plan Area, rare plant surveys focused on the area to be disturbed and/or affected by the project shall be conducted during the appropriate time of year to optimize detection of potentially occurring rare plants. Surveys shall be conducted in accordance with the County's Environmental Thresholds and Guidelines Manual and applicable resource agency survey protocols to determine the potential for impacts resulting from the project on these species.
>
> County of Santa Barbara 2016

These standards leave vague the exact measures that should be taken to avoid impacts on rare or sensitive species such as *A. refugioensis* and provide no criteria to determine whether protection of habitat and surveys are "feasible." Moreover, these policies only apply to discretionary projects, allowing smaller-scale vegetation clearing to occur without any protections or surveys.

It is therefore imperative that the Refugio manzanita be designated as an endangered species under the ESA in order to protect its susceptible populations from destruction by both the USFS on public lands and other entities on private lands.

C. Other Natural or Anthropogenic Factors

Climate change may affect the long-term viability of *A. refugioensis*. An increase of the average temperature in its small range may reduce the Refugio manzanita's suitable habitat at colder high elevations in the Santa Ynez Mountains. It is also conceivable that changes in annual moisture in this area due to climate change could have an impact on *A. refugioensis*. Climate change models indicate that chaparral communities may be replaced by nonnative grassland or canyon live oak-Coulter pine communities in the area of California that supports *A. refugioensis* (Lenihan et al. 2003, Thorne et al. 2016). Additionally, climate change may increase the fire frequency due to long-term changes in extreme weather patterns such as extended periods of drought.

V. CRITICAL HABITAT

This petition requests that the FWS designate critical habitat for *A. refugioensis* concurrent with the listing. Species with designated critical habitat are more likely to make a successful recovery (Taylor et al. 2005). Additionally, critical habitat designation would require that projects not adversely modify critical habitat or otherwise jeopardize the species.

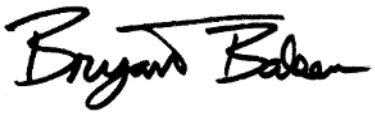
VI. PROCESSING OF THIS PETITION

This petition is submitted under the provisions of the ESA, 16 U.S.C. §§1531 et seq., 50 C.F.R. 424.14, and the APA, 5 U.S.C. §533. As a petition to list a species as endangered, FWS is required to process this petition within a predetermined time frame as defined by 50 CFR 424.14(h), to the maximum extent practicable. The regulations require FWS to make a finding within 90 days of receipt of this petition as to whether a finding of "endangered" may be warranted. The finding shall be promptly published in the Federal Register. 50 CFR 424.14(b)(1). Within 12 months of receiving this petition, FWS is required to find that this petition is not warranted, is warranted, or is warranted but precluded, and shall promptly publish notice of such intention in the Federal Register. 50 CFR 424.14(b)(3). Los Padres ForestWatch and California Chaparral Institute fully expect FWS to comply with these mandatory deadlines.

SIGNATURE PAGE

This PETITION TO LIST THE REFUGIO MANZANITA (*ARCTOSTAPHYLOS REFUGIOENSIS*) AS AN ENDANGERED SPECIES and to designate critical habitat concurrently therewith is hereby submitted to the Secretary of Interior.

Respectfully submitted this 30th day of November, 2017.



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