

**BEFORE THE SECRETARY OF THE INTERIOR**

**PETITION TO LIST SILVERY PHACELIA (*PHACELIA ARGENTEA*) AS  
THREATENED OR ENDANGERED UNDER THE ENDANGERED  
SPECIES ACT**



**Silvery Phacelia © Oregon Wild**

**March 7, 2014**

## **Notice of Petition**

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## **PETITIONERS**

**The Center for Biological Diversity** is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center is supported by more than 675,000 members and activists including members in Oregon and California. The Center and its members are concerned with the conservation of endangered species and the effective implementation of the Endangered Species Act.

**Oregon Wild**, founded in 1974, (formerly the Oregon Natural Resources Council or ONRC) is a nonprofit organization that has been instrumental in securing permanent legislative protection for some of Oregon's most precious landscapes. Oregon Wild works to maintain environmental laws, while building broad community support for our campaigns.

**Friends of Del Norte** was founded in 1973 as a local non-profit environmental activist group, dedicated to the long-term protection and enhancement of all natural resources of Del Norte County and its surrounding bioregion. We have forty years of success in the resolution of numerous environmental issues.

**Oregon Coast Alliance (ORCA)** is a non-profit corporation with many members, ranging from people who care about the coast in the northern Willamette Valley and the Portland metro area, to residents of the coast from Astoria to Brookings. On behalf of its members, ORCA advocates for protection of the Oregon coast and its natural and scenic resources; works with coastal residents for protection and restoration of the coast; and aids residents in participation of local land use proceedings to oppose ill-considered development and maintain livable communities.

**The Native Plant Society of Oregon** is dedicated to the enjoyment, conservation, and study of Oregon's native plants and habitats. Founded in Portland in 1961, NPSO has grown to a statewide network of 13 chapters with nearly 1000 members. For nearly 50 years, members of the Native Plant Society of Oregon have been visiting the wild places of Oregon to enjoy, conserve, and study its natural vegetation.

The **California Native Plant Society** was formed in 1965 and is a statewide non-profit organization of amateurs and professionals with a common interest in California's native plants. Our nearly 10,000 members work to promote native plant appreciation, research, education, and conservation through our five statewide programs and 34 regional chapters in California. Through membership in CNPS, Californians of all walks of life are able to support and engage in opportunities to experience and learn about native plants and their habitats, gardening and landscaping with native plants, restoration of habitat areas, and conservation issues throughout the state.

The **Environmental Protection Information Center (EPIC)** is a community based, non-profit organization that works to protect and restore forests, watersheds, coastal estuaries, and native species in Northern California. EPIC was founded in 1977 when local residents came together to successfully end aerial applications of herbicides by industrial logging companies in Humboldt County. For more than 30 years, the organization has been at the forefront of environmental protection, ensuring that state and federal agencies follow their mandate to uphold environmental laws and protect endangered species.

**Klamath-Siskiyou Wildlands Center (KS Wild)** is an advocate for the forests, wildlife and waters of the Klamath and Rogue River Basins of southwest Oregon and northwest California. Formed in 1997, KS Wild fights for protection and restoration of the incomparable ecological riches of southwest Oregon and northwest California.

Submitted this 7th day of March, 2014

Pursuant to Section 4(b) of the Endangered Species Act (“ESA”), 16 U.S.C. § 1533(b); Section 553(e) of the Administrative Procedure Act, 5 U.S.C. § 553(e); and 50 C.F.R. § 424.14(a), the Center for Biological Diversity, Oregon Wild, Friends of Del Norte, Oregon Coast Alliance, the Native Plant Society of Oregon, the California Native Plant Society, the Environmental Protection Information Center, and Klamath-Siskiyou Wildlands Center hereby petition the Secretary of the Interior, through the United States Fish and Wildlife Service (“FWS,” “Service”), to protect Silvery Phacelia (*Phacelia argentea*) as a threatened or endangered species.

FWS has jurisdiction over this petition. This petition sets in motion a specific process, placing definite response requirements on the Service. Specifically, the Service must issue an initial finding as to whether the petition “presents substantial scientific or commercial information indicating that the petitioned action may be warranted.” 16 U.S.C. § 1533(b)(3)(A). FWS must make this initial finding “[t]o the maximum extent practicable, within 90 days after receiving the petition.” *Id.*

## TABLE OF CONTENTS

EXECUTIVE SUMMARY	6
INTRODUCTION	6
RANGE	7
LAND MANAGEMENT/OWNERSHIP	7
STATUS	7
TAXONOMY	8
DESCRIPTION	9
HABITAT	9
LIFE HISTORY	10
ESA PROTECTION IS WARRANTED	10
THREATS	11
Habitat Loss and Degradation	11
Overutilization	14
Disease and Predation	15
Existing Regulatory Mechanisms	15
Other Factors	16
REQUEST FOR CRITICAL HABITAT	16
WORKS CITED	18

## **EXECUTIVE SUMMARY**

Silvery Phacelia (*Phacelia argentea*) is a perennial flowering herb that grows only on coastal sand dunes and sandy bluffs from Coos and Curry counties in southern Oregon to Del Norte County in northern California. Silvery Phacelia has white flowers and reaches 18 inches in height (10-45 cm). Its common names, Silvery Phacelia or Sand-dune Phacelia, are derived from its silvery-looking leaves and stems and its restriction to sandy habitats. Its total global range is restricted to approximately 130 miles of the immediate coast, within which it is patchily distributed and confined to areas of appropriate habitat. Only 36 occurrences of Silvery Phacelia have been documented since the species was formally described in 1916, with 32 being in Oregon and four in California. Seven of these populations appear to have already been extirpated; 22 are presumed to survive, but only 14 are known to be extant. Only four occurrences are considered to have excellent or good viability. Populations are typically small and highly fragmented, and most appear to be declining.

The Endangered Species Act states that a species shall be determined to be endangered or threatened based on any one of five factors (16 U.S.C. § 1533 (a)(1)). Silvery Phacelia is threatened by at least two of these factors and thus warrants federal protection. Phacelia is threatened by habitat loss and degradation due to invasive plants, off-road vehicles, and coastal development. Phacelia is listed as a threatened species by the State of Oregon, but this designation provides no protection for the plant's habitat. The California Natural Diversity Database ranks Silvery Phacelia as endangered in California, but it is not protected by the state as an endangered species. There are no existing regulatory mechanisms which are adequate to safeguard the species, and without Endangered Species Act protection, it is in danger of extinction in the foreseeable future.

## **INTRODUCTION**

Silvery Phacelia, also known as Sand-dune Phacelia, is a fleshy, perennial herb in the Forget-Me-Not family of flowering plants. It has white or cream flowers and its leaves are thick and coated in long, straight, silvery hairs. The hairs may help to keep salt off the surface of the leaves, decrease water loss in the harsh environment, or reflect excess light (Center for Plant Conservation 2010). It grows along the coast of southwestern Oregon and far northwestern California and nowhere else on Earth.

Silvery Phacelia plays an important role in the environment because its flowers provide a rich source of nectar and pollen for native bees. The number of bees and number of different kinds of bee species in dune vegetation is higher in places where Silvery Phacelia is present (Julian 2012, p. 8, 65).

Unfortunately, Silvery Phacelia is threatened with extinction, and this unique piece of the Northwest's natural heritage is in danger of being erased. There are only around 30 total populations of this plant, and most are small and declining. The plant is threatened by the spread of invasive plants which crowd out its habitat. It is also threatened by off-road vehicle use and coastal development.

This petition presents the available information on the natural history of Silvery Phacelia and then outlines, in the context of the statutory listing factors of the Endangered Species Act, why the plant warrants federal protection with critical habitat designation.

Protecting Silvery Phacelia would help safeguard native bees and other plants and animals that rely on sand-dune habitats. It would also provide additional protections for imperiled coastal species including the Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*) and the Western Snowy Plover (*Charadrius nivosus*).

## **RANGE**

Silvery Phacelia is found only in appropriate habitat patches along 130 miles of the immediate coastline from Coos County, Oregon to Del Norte County, California. This species is not known in California south of Crescent City (Kalt 2008).

Kalt (2008, Table 1 and Appendix A) provides a complete list of populations. Occurrence reports from the California Natural Diversity Database are provided on the cd accompanying this petition (CDFW 2013). A new report identifying six previously unrecorded populations of Phacelia from southern Oregon is also included (Bilderback and Bilderback 2013).

## **LAND MANAGEMENT/OWNERSHIP**

Silvery Phacelia grows on federal land managed by the Bureau of Land Management (BLM) including the New River Area of Critical Environmental Concern, Floras Lake, Four Mile Creek, Lost Lake, and Ophir Dunes in Oregon. It is found on state lands including Lone Ranch State Beach, Bandon State Natural Area, Pistol River State Park, Humbug Mountain State Park, and Cape Blanco State Park in Oregon, and at Tolowa Dunes State Park in California. It also occurs on private lands.

## **CONSERVATION STATUS**

Silvery Phacelia is ranked as a Threatened species by the State of Oregon (Oregon Department of Agriculture 2013, Oregon Biodiversity Information Center 2010). It is a List 1 species in Oregon, meaning it is threatened with extinction throughout its range.

In California, Silvery Phacelia is a California Natural Diversity Database and California Native Plant Society Inventory List 1B.1 species, meaning that it is rare, threatened, or endangered, with a threat code of .1, meaning that it is seriously endangered in California (California Native Plant Society 2013). It is considered a sensitive species as described in the California Environmental Quality Act (14 Cal. Code Reg. §15380). It is not state listed under the California Endangered Species Act (CESA).

Silvery Phacelia was proposed as a Category 2 Candidate for federal listing in 1990, but was dropped from the Candidate list in 1996 when the list was reorganized. At this time it is a

Federal Species of Concern. It is considered to be a Sensitive Species by the Bureau of Land Management.

NatureServe (2013) ranks Silvery Phacelia as globally imperiled (G2) and as imperiled in Oregon (S2) and critically imperiled (S1.1) in California. Its ranking is based on relatively low number of occurrences (27), fairly low number of plants (15,000) over a limited range (less than 2,000 acres), and threats from coastal development, recreation in the form of off-road vehicles and foot traffic, and competition from exotic species such as European Beach Grass (*Ammophila arenaria*). Only four occurrences are considered to have excellent or good viability.

*Phacelia argentea* has not been assessed by the International Union for Conservation of Nature (IUCN 2013).

## **POPULATION STATUS**

New comprehensive population surveys for Silvery Phacelia are needed.

There are four to five known sites of Silvery Phacelia in California (Rittenhouse 1995, Brian 2006). The number of individual plants in these populations ranges from 15 to an estimated 10,000. At least one of these sites may be extirpated.

There are 34 known sites in Oregon—28 that were reported in Rittenhouse (1995) and six new sites reported in Bilderback and Bilderback (2013). The population sizes of the original Oregon sites range from three individual plants to more than 2,000 plants, but most are under 100 plants. The species is presumed extirpated from its type locality at Chetco, Oregon (Kalt 2008).

Kalt (2008) reports that seven sites are historic or presumed historic, and only 8 are known to be extant, though 22 are presumed to be extant. Combining the 22 presumed extant sites with the 6 new sites (Bilderback and Bilderback 2013) would indicate that there are perhaps 28 surviving *Phacelia* sites, with 14 sites confirmed as extant. It is unclear if the six new populations reported in Bilderback and Bilderback (2013) represent distinct occurrences or should potentially be combined.

Only four occurrences are considered to have excellent or good viability (NatureServe 2013). Kalt (2008) reports that populations are typically small and highly fragmented, and most appear to be declining (see Kalt 2008, Appendix A for the most recent information available on status).

## **NATURAL HISTORY**

### **Taxonomy**

*Phacelia argentea* (A. Nels. & J.F. Macbr) is known as Silvery Phacelia or Sand-dune Phacelia. Its taxonomic status is accepted (Kartesz 1994) and its Integrated Taxonomic Information System (ITIS) Taxonomic Serial Number (TSN) is 31454. It is in Phylum Anthophyta, Class



Dicotyledoneae, Order Solanales, and Family Boraginaceae (formerly in Hydrophyllaceae). It is also known by the synonym *Phacelia heterophylla* var. *rotundata*.

The genus *Phacelia* is derived from the Greek word for cluster (*phakelos*), based on the dense, congested inflorescence typical of the genus. The species epithet, *argentea*, means silvery, referring to the hairs on the leaves of the plant. Phacelias are also commonly called scorpion weeds, due to the fact that the hairs on some members of the genus can cause severe dermatitis (Oregon Department of Agriculture 2013).

## Description

*Phacelia argentea* is a fleshy perennial herb that is 10-45 cm tall. The technical description is as follows (see Jepson Flora Project 2013):

Perennial herb 10–45 cm, ± fleshy. **Stem:** prostrate to ascending, ± stiff-hairy, not glandular. **Leaf:** thick; blade 20–120 mm, generally > petiole, elliptic to obovate to ± round, lobes 0(2 at base), veins deeply impressed. **Flower:** calyx lobes 3–4 mm, 6–7 mm in fruit, ± not alike, narrowly oblong to ovate; corolla 5–7 mm, bell-shaped, white to cream, limb 4–6 mm diam, scales fused to filament bases, ovate; stamens 6–9 mm, hairy; style 6–10 mm, cleft 1/2. **Fruit:** 3–4 mm, ovoid, stiff-hairy. **Seed:** 1–3, 1.5–3 mm, pitted in ± longitudinal rows.

Several other species of *Phacelia* occur within or near the range of silvery phacelia: *P. nemoralis* ssp. *oregonensis*, *P. bolanderi*, *P. corymbosa*, *P. egea*, and *P. malvifolia*. *Phacelia nemoralis* ssp. *oregonensis* is distinguished from silvery phacelia by its erect stems (versus decumbent to ascending stems) and leaves with two or more pairs of leaflets (versus leaves entire or with a single pair of basal leaflets); *P. bolanderi* has corollas lavender to bluish or purplish in color (versus white to ivory corollas) and glandular-hairy stems (versus stems eglandular); *P. corymbosa* has glandular, erect or ascending stems (versus eglandular, decumbent to ascending stems), lanceolate to oblanceolate leaves (versus elliptic to orbicular or obovate leaves), and is found only on serpentine soils; *P. egea* has lanceolate to oblanceolate leaves 10-25 cm long, the basal leaves dissected with 7-11 (15) segments (versus elliptic to orbicular or obovate leaves, 5-12 cm long, entire or with a pair of basal leaflets); and *P. malvifolia* has erect stems 20-80 cm long (versus decumbent to ascending stems 10-45 cm long), and leaves with dentate lobes (versus leaves entire or with a pair of basal leaflets) (Oregon Department of Agriculture 2013).

Intergrades between silvery phacelia and *P. nemoralis* ssp. *oregonensis* occur in the ocean bluff habitat of *P. nemoralis*, but differ from the latter taxon by exhibiting a decumbent to procumbent habit, smaller stature, less coarse hairiness with greater silky leaf vestiture, and softer but more dense hairs on the calyx lobes (Oregon Department of Agriculture 2013).

## Habitat Requirements

*Phacelia argentea* grows on unstabilized or semi-stabilized sand dunes, bluffs, and bases of coastal headlands along the northern California and southern Oregon coast (Kalt 2008). Plants are found above the high tide level but below 65 ft (20 m) in elevation (Center for Plant

Conservation 2010). Silvery Phacelia is the only known Phacelia to grow on coastal sand dunes (Rittenhouse 1995). Most of its 130-mile range is unsuitable habitat, resulting in patchy distribution (Rittenhouse 1995). Its distribution is further limited by encroachment of non-native European Beachgrass (*Ammophila arenaria*) which was intentionally introduced in the late 1800's to stabilize sand, but which outcompetes native vegetation. European Beachgrass has altered the structure of sand-dune communities by shifting the historical structure of perpendicular dunes with no fore-dunes to the present configuration of steep, parallel-oriented foredunes that favor non-native plants (Russo et al. 2010). In areas where European Beachgrass is dominant, Silvery Phacelia populations are either small and fragmented or totally nonexistent (Rittenhouse 1995).

Bilderback and Bilderback (2013) found previously unrecorded populations of Silvery Phacelia growing on rocky roadcuts, rocky bluffs, and isolated rocks. They speculate that these habitats are supporting refuge populations because the areas are free of invasive beach grasses and do not have recreational impacts from off-road vehicles and foot traffic (p. 4).

### **Life History**

Silvery Phacelia reproduces primarily via seeds and short rhizomes, and spreads by a branched caudex (Rittenhouse 1995). It appears to require insects for pollination (Rittenhouse and Kiffe 1993), although whether it is self-compatible or requires outcrossing is unknown (Kalt 2008). The primary pollinators appear to be leafcutter bees (*Anthidium palliventre*), bumblebees (*Bombus* sp.), and honeybees (*Apis mellifera*), including endemic bee species of conservation concern (Center for Plant Conservation 2010). The bees spread pollen from flower to flower as they collect it to line burrows and feed developing larvae (Rittenhouse 1993). Julian (2012) found that the number of bees and number of different kinds of bee species in dune vegetation is higher in places where Silvery Phacelia is present (Julian 2012, p. 8, 65).

Germination trials conducted at the The Berry Botanic Garden indicate that seeds germinate readily (between 80 and 100 percent) when subjected to alternating 50°/68° F (10°/20° C) temperatures, whether cold stratified or not. When subjected to constant 68°F (20°C) temperatures, no seeds germinated (Center for Plant Conservation 2010).

### **SILVERY PHACELIA WARRANTS ENDANGERED SPECIES ACT PROTECTION**

The Endangered Species Act states that a species shall be determined to be endangered or threatened based on any one of five factors (16 U.S.C. § 1533 (a)(1)). *Phacelia argentea* is threatened by at least two of these factors and thus warrants federal protection. The plant's range has been curtailed and its habitat continues to be threatened by invasive beachgrass, off-road vehicle use, and recreation. There are no existing regulatory mechanisms which are adequate to ensure its long-term survival. The plant is both rare and threatened, and of approximately 30 potentially extant occurrences, only four are considered to have excellent or good viability (NatureServe 2013). Populations are typically small and highly fragmented, and most appear to be declining (Kalt 2008).

## THREATS

### MODIFICATION OR CURTAILMENT OF HABITAT OR RANGE

Silvery Phacelia is threatened with extinction due to habitat loss and degradation from non-native plants, recreation including off-road vehicle use, and development (Meinke 1982, Kalt 2008, Oregon Department of Agriculture 2013).

#### Non-Native Plants

The Oregon Department of Agriculture (2013) and Kalt (2008) cite invasion by non-native plant species as the primary threat to Silvery Phacelia. Invasive plants, including European Beachgrass (*Ammophila arenaria*) and Gorse (*Ulex europaea*), outcompete Silvery Phacelia and render its habitat unsuitable.

Kalt (2008) reports that *all* of the plant's populations are threatened by invasion from European Beachgrass (p. 1). It is clear that European Beachgrass outcompetes Silvery Phacelia because in areas where volunteers have manually removed Beachgrass, Phacelia populations have responded positively (Brian 2006, Kalt 2008, Tolowa Dunes Stewards 2013). Seedling establishment has been observed following manual grass removal and also following an accidental fire at Tolowa Dunes State Park that removed Beachgrass (Nyoka 2003).

Beachgrass, which was planted intentionally to protect roadways, alters dune habitat by accumulating sand at rates that choke out native plants, whereas Beachgrass tolerates deep sand accumulation (Hilton 2005). Under certain conditions, Phacelia can persist for some time beneath a canopy of Beachgrass. At China Creek in Bandon State Park in Oregon, Phacelia persists despite a dense cover of competing grasses and forbs. Kalt (2008) speculates that the population is able to persist because it has access to light since it occurs on the edge of a paved opening on an eroding cliff. It is important to note that at the BLM New River Area of Critical Environmental Concern, removal of Beachgrass with heavy equipment to foster bird nesting habitat has not increased Phacelia populations as has the manual removal of the grass by volunteers at other sites (Kalt 2008).

In the northern part of its range, particularly near Bandon, Oregon, Gorse is a predominant threat. Gorse is an especially aggressive and problematic spreading evergreen shrub that is covered in spines that complicate manual removal. Once it becomes established in an area, it becomes the dominant plant forming monotypic stands that then promote other non-natives by nitrifying soils through microbial nitrogen fixation (Bossard et al. 2000). Kalt (2008) reports that preventing the spread of Gorse into Silvery Phacelia habitat is crucial to the conservation and recovery of Phacelia in Oregon.

Additional non-native and native plant species also threaten Phacelia habitat. Some sites, including Lone Ranch State Beach in Oregon, are threatened by Iceplant (*Carpobrotus edulis*) (Kalt 2008). Encroachment of native plants, likely due to altered sand movement, can also render habitat unsuitable for Phacelia. Christy (2007) reports that expansion of Shore Pine (*Pinus*

*contorta*), Sitka Spruce (*Picea sitchensis*) scrub, Beachgrass, and Gorse likely eliminated two historical occurrences of Silvery Phacelia at Bandon State Natural Area (p. 15). These populations were last documented in 1984 and 2001, in areas which today are covered by dense growth of Shore Pine and Sitka Spruce.

## **Development**

Coastal development threatens Silvery Phacelia and its habitat. The Oregon Department of Agriculture (2013) states that residential and recreational development is a serious threat to Phacelia that can cause fragmentation or extirpation of populations. Kalt (2008) reports that Phacelia plants known to occur on coastal bluffs have been fragmented and partially extirpated by residential and recreational development, and that development threatens all Phacelia populations on privately-owned lands in Oregon (Appendix A). One example of a development project that threatens Silvery Phacelia is a proposed land exchange that would remove 280 acres of conservation land at Bandon State Natural Area to create a golf course (see <http://www.oregon.gov/oprd/pages/commission-bandon.aspx>).

Development appears to pose less of a threat in California where most populations are on lands managed by public agencies. There is evidence, however, that development threatens some populations in California. For example, letters from the California Coastal Commission Statewide Enforcement Program to the Del Norte County Development Department document unpermitted road changes in support of a subdivision without proper permitting (Cave 2010, 2013).

## **Off-road Vehicles and Recreation**

The Oregon Department of Agriculture (2013) cites off-road vehicle (ORV) use, equestrian and pedestrian use, and trampling by livestock as threats to Silvery Phacelia.

Off-road vehicle use has long been known to threaten Phacelia populations. Meinke (1982) recommended that Phacelia sites be protected from excessive recreational use and off-road vehicles. Vehicles both directly crush Phacelia plants and change the structure of the sand which can render habitat unsuitable.

Although Silvery Phacelia primarily occurs where ORV use is not specifically allowed, trespass by ORV users is a common occurrence in most of its presently known locations (Kalt 2008). ORV damage to Silvery Phacelia is of particular concern at Tolowa Dunes State Park in California, Pistol River State Park in Oregon, and on other state-managed lands where enforcement is generally lacking and Silvery Phacelia habitat is easily accessible immediately off public roads. It is also similarly threatened on some private lands, notably Two Mile Creek south of Bandon, Oregon (Kalt 2008).

A report from Tolowa Dunes Stewards (2013) provides photo documentation of Silvery Phacelia populations at Tolowa Dunes State Park that have been crushed and bisected by off-road vehicles

(p. 1). The report documents ORVs repeatedly traversing and damaging established mounds of Phacelia. Figures 1 and 2 below show ORV tracks in Phacelia and additional photo documentation of ORV damage to Phacelia at the park is provided with the cd of reference materials accompanying this petition.



**Figure 1. ORV Tracks in Silvery Phacelia at Tolowa Dunes State Park. Photo by Tolowa Dunes Stewards 2011.**



**Figure 2. ORV Tracks Bisecting Silvery Phacelia at Tolowa Dunes State Park.** Photo by Tolowa Dunes Stewards 2011.

The problems with ORV use crushing Phacelia at Tolowa Dunes have been exacerbated by Del Norte County authorizing ORV trails in Phacelia habitat in defiance of state planning requirements (see Cave 2010, 2013).

## **OVERUTILIZATION**

Illegal removal for horticultural purposes has been cited as a threat to Silvery Phacelia (Brian 2002, Kalt 2008, Oregon Department of Agriculture 2013).

## **DISEASE AND PREDATION**

*Phacelia argentea* is not known to be threatened by disease or predation at this time.

## **INADEQUACY OF EXISTING REGULATORY MECHANISMS**

Silvery Phacelia is threatened with extinction due primarily to habitat loss and degradation, and existing regulatory mechanisms are not adequate to ensure its continued existence.

One of the primary threats to Phacelia is competition from non-native plants such as European Beachgrass and Gorse. There are no programs in place to prevent the spread of these plants into Phacelia habitat. Volunteer efforts have manually pulled Beachgrass with some success in small areas, but these endeavors have been small and limited in scope and lack funding.

Because some Phacelia populations occur in areas that are occupied by or adjacent to habitat that supports other federally listed species such as the Silver-Spot Butterfly and Snowy Plover, the plant could theoretically benefit from protections in place for these species. Due to documented threats from invasive plants, ORVs, and development, however, Phacelia needs mechanisms in place that will specifically safeguard the plant and its habitat.

Phacelia is a Federal Species of Concern but this designation provides no regulatory protection. It is considered to be a Sensitive Species by the Bureau of Land Management, but mitigation measures provided to Sensitive Species are discretionary. Phacelia is ranked as a Threatened species by the State of Oregon, but this designation provides no protection for the plant's habitat. Although Phacelia is considered to be Endangered by the California Natural Diversity Database, and as Sensitive under the California Environmental Quality Act, it is not protected as a listed species under the California Endangered Species Act.

Phacelia derives habitat protection from development on State and BLM lands, but populations in these places are threatened by invasive plants and by ORV use. Unauthorized ORV use and lack of enforcement threatens the plant in areas where riding is officially prohibited. Off-road vehicle use is currently permitted in certain areas at Tolowa Dunes State Park (see Cave 2010 July 8 letter) and this facilitates rider encroachment into theoretically closed areas (Tolowa Dunes Stewards 2013). There are no local regulations that are adequately protecting Phacelia from ORVs. In fact, the County of Del Norte has taken actions that exacerbate ORV riding in Phacelia mounds (see Cave 2010, 2013).

There are no existing regulatory mechanisms to ensure the survival of Phacelia in light of the multiple threats its habitat is facing.

## **OTHER FACTORS**

Because Silvery Phacelia is restricted to sandy habitats on the immediate coast, it is likely at risk from rising sea-levels and increased storm surge due to global climate change. The plant's narrow band of habitat is limited by development inland and by the ocean seaward, making it highly vulnerable to extirpation from coastal squeeze.

Most Phacelia populations are small and appear to be declining (Kalt 2008). It is well established in the scientific literature that small, isolated populations are at heightened risk of extinction.

The widespread decline of native pollinators could also threaten Silvery Phacelia (Oregon Department of Agriculture 2013).

## **CONCLUSION**

There are approximately 28 surviving sites of Silvery Phacelia, only a handful of which have good viability. The plant is documented to be threatened by invasive plants, ORV damage, and development. It may also be threatened by collection, coastal squeeze, decline of native pollinators, and limited range. There are no existing regulatory mechanisms which adequately safeguard the species. A 2008 Status Review and Field Inventory for Silvery Phacelia conducted for the Service concluded that without ongoing management to control invasive non-natives, impacts from uncontrolled ORV use, and conversion of habitat by development, Phacelia is in danger of extinction (Kalt 2008). The information provided in this petition indicates beyond question that Silvery Phacelia may warrant protection under the Endangered Species Act. Petitioners thus urge the Service to promptly issue a positive 90-day finding and commence a status review for this rare plant.

## **REQUEST FOR CRITICAL HABITAT DESIGNATION**

Petitioners urge the Service to designate critical habitat for Silvery Phacelia concurrently with listing. Critical habitat as defined by Section 3 of the ESA is: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the provisions of section 1533 of this title, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) the specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species. 16 U.S.C. § 1532(5).

Congress recognized that the protection of habitat is essential to the recovery and/or survival of listed species, stating that: classifying a species as endangered or threatened is only the first step in insuring its survival. Of equal or more importance is the determination of the habitat necessary for that species' continued existence... If the protection of endangered and threatened species depends in large measure on the preservation of the species' habitat, then the ultimate



effectiveness of the Endangered Species Act will depend on the designation of critical habitat. H. Rep. No. 94-887 at 3 (1976).

Critical habitat is an effective and important component of the ESA, without which Silvery Phacelia's chance for survival diminishes. The need to designate critical habitat for this rare plant is magnified by the threats the species is currently facing from off-road vehicle recreation (see Tolowa Dunes Stewards 2013) and from developments such as subdivisions (see Cave 2010, 2013) and the golf course that is planned to be carved out of Bandon State Natural Area (see <http://www.oregon.gov/oprd/pages/commission-bandon.aspx>). Petitioners thus request that the Service propose critical habitat for this rare plant concurrently with its proposed listing.

On behalf of all parties,



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## WORKS CITED

- Abrams, L. 1951. Geraniums to Figworts. 3: 866 pp. In L. Abrams III. Fl. Pacific States. Stanford University Press, Stanford.
- Bilderback, D. and D. Bilderback. 2013. Six new populations of *Phacelia argentea*, Silvery Phacelia, (Boraginaceae) on the Southern Oregon Coast. Unpublished White Paper. 8 pp.
- Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press, Berkeley and Los Angeles, California.
- Brian, N. 2006. Status Report: *Phacelia argentea* A. Nelson & J.F. McBride (Silvery Phacelia). Bureau of Land Management, Coos Bay District, North Bend, OR.
- California Department of Fish and Wildlife (CDFW). 2013. California Natural Diversity Database Occurrence Reports.
- California Native Plant Society. 2013. The California Rare Plant Ranking System. Available at: <http://www.cnps.org/cnps/rareplants/ranking.php>  
Accessed February 10, 2014.
- Cave, N.L. 2010. Vehicle Use on Beach at Tolowa Dunes State Park. July 8 Letter to Steve Horvitz, District Superintendent Department of Parks and Recreation North Coast Redwoods District. 6 pp.
- Cave, N.L. 2010. Coastal Act Violation File No. V-1-10-002 County of Del Norte. February 25 Letter to Kevin Hamblin AICP, Director County of Del Norte Community Development Department. 4 pp.
- Cave, N.L. 2013. September 13, 2013 Letter to Heidi Kunstal, Deputy Director of Building and Planning, Del Norte County. 8 pp.
- Center for Plant Conservation. 2010. CPC National Collection Plant Profile *Phacelia argentea*. Available at:  
[http://www.centerforplantconservation.org/collection/cpc\\_viewprofile.asp?CPCNum=3339](http://www.centerforplantconservation.org/collection/cpc_viewprofile.asp?CPCNum=3339)  
Accessed February 10, 2014.
- Christy, J.A. 2007. Biological Assessment Two Mile Creek property and southern Bandon State Natural Area, Coos County, Oregon. Report to Michael Keiser. 44 pp.
- Hickman, J. C. 1993. Jepson Manual.: Higher Plants of California i–xvii, 1–1400. University of California Press, Berkeley.
- Hilton, M., M. Duncan, and A. Jul. 2005. Processes of *Ammophila arenaria* (marram grass) invasion and indigenous species displacement, Stewart Island, New Zealand. Journal of Coastal Research, 21(1): 175–185.

Integrated Taxonomic Information System (ITIS). *Phacelia argentea* account. Available at: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=31454](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=31454) Accessed February 19, 2014.

International Union for Conservation of Nature (IUCN). 2013. IUCN Red List of Threatened Species. Version 2013.2. Available at: [www.iucnredlist.org](http://www.iucnredlist.org) Accessed February 19, 2014.

Jepson Flora Project (eds.). 2013. *Phacelia*, Revision 1. Jepson eFlora, Jepson Herbarium, University of California, Berkeley. Available at: [http://ucjeps.berkeley.edu/cgi-bin/get\\_IJM.pl?tid=37410](http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=37410) Accessed March 5, 2014.

Julian, L.S. 2012. A comparison of bee fauna in two northern California coastal dune systems. Humboldt State University Master's Thesis. 89 pp.

Kalt, J. 2008. Status review and field inventory for Silvery Phacelia: *Phacelia argentea* (Hydrophyllaceae). Prepared for U.S. Fish and Wildlife Service, Arcata, CA. 13 pp.

Kartesz, J.T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. 2 vols. Timber Press, Portland, OR.

Meinke, R.J. 1982. Threatened and Endangered Vascular Plants of Oregon: An Illustrated Guide. Portland, Oregon: U.S. Fish & Wildlife Service, Region 1. 326 pp.

NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at: <http://www.natureserve.org/explorer>. Accessed February 10, 2014.

Nyoka, Susan. 2003. Annual report, Tolowa Dunes mapping project. Unpublished report, Tolowa Dunes State Park, CA.

Oregon Biodiversity Information Center (ORBIC). 2010. Rare, threatened and endangered species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 105 pp. Available at: <http://orbic.pdx.edu/documents/2010-rte-book.pdf>

Oregon Department of Agriculture. 2013. Silvery Phacelia (*Phacelia argentea*) profile, Oregon Plant Programs, Plant Conservation Website. Available at: [http://www.oregon.gov/ODA/PLANT/CONSERVATION/pages/profile\\_phar.aspx](http://www.oregon.gov/ODA/PLANT/CONSERVATION/pages/profile_phar.aspx) Accessed February 10, 2014.

Oregon Flora Project. 2007. *Phacelia argentea* Species Account. 2 pp. Available at: <http://www.oregonflora.org>

Rittenhouse, B. 1995. Conservation Strategy for Silvery Phacelia (*Phacelia argentea* A. Nels. & J.F. Macbr.). Bureau of Land Management, Coos Bay District. 13 pp.

Rittenhouse, B and B. Kiffe. 1993. Observation on the pollination of Silvery Phacelia. Bulletin of the Native Plant Society of Oregon 26(10): 90.

Russo, M., A. Pickart, L. Morse, and R. Young. 1988. Element stewardship abstract for *Ammophila arenaria* European Beachgrass. Available at: [http://www.discoverlife.org/mp/20q?search=Ammophila+arenaria&guide=North\\_American\\_Invasives&show\\_images=off&flags=HAS](http://www.discoverlife.org/mp/20q?search=Ammophila+arenaria&guide=North_American_Invasives&show_images=off&flags=HAS): Accessed February 19, 2014.

Tolowa Dunes Stewards. 2013. Tolowa Coast Beach Use Study 2009-2011 Results. Report Prepared by Pacific Eco Logic for Tolowa Dunes Stewards, a project of Smith River Alliance. 33 pp.