UPDATED PETITION
TO REMOVE THE PEIRSON'S MILK-VETCH
(*Astragalus magdalenae* var. *peirsonii*)
FROM THE FEDERAL LIST
OF THREATENED AND ENDANGERED SPECIES

Submitted to the United States Secretary of the Interior by
The American Sand Association, the San Diego Off-Road Coalition,
The Off-Road Business Association, the California Off-Road
Vehicle Association and the American Motorcycle
Association District 37

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EXECUTIVE SUMMARY

The Peirsons' Milk-Vetch (*Astragalus Magdalanae* var. *peirsonii*) is a short-lived perennial plant that is indigenous to the Imperial Sand Dunes of southern California.[1] As a desert plant, it has developed adaptations allowing it to survive and reproduce in the hot, dry, windswept dunes where it lives. Due to perceived declines in the plant's population, in 1998, the Department of Interior ("DOI") listed the Peirson's milk-vetch as a threatened species.

Unfortunately, DOI based its decision to list the Peirson's milk-vetch on a limited number of plant studies, none of which were comprehensive or provided population trend data. For the most part, the studies were small "snapshots" of the Peirson's milk-vetch's status within certain portions of the sand dunes. No overall census of the plant had been performed; and no one replicated or peer reviewed the few studies that had been conducted.

This "data gap" has now been filled. Recent, multi-year studies conducted by the Bureau of Land Management ("BLM") and Arthur M. Phillips III, Ph.D. establish that the Imperial Sand Dunes support hundreds of thousands of Peirson's milk-vetch, and that the plant's seed bank is well-stocked and constantly being replenished. For example, in March 2005, Dr. Phillips counted 77,922 live Peirson's milk-vetch plants at 25 study sites.[2] Using conservative extrapolation assumptions, he concluded that the dunes supported approximately 173,328 Peirson's milk-vetch (above-ground). Many of these

[1] The Imperial Sand Dunes are also known as the "Algodones Dunes."

[2] Dr. Phillips identified these 25 study sites during a survey conducted in 2001. He has returned to them each year since that time to count plants and thereby develop multi-year, repetitive data on the Peirson's milk-vetch. See, Phillips and Kennedy, "The Life History of Peirson's Milkvetch (*Astragalus magdalenae*

plants had actually germinated in the fall of 2004 in response to heavy rains in October and November. As a result, these "fall germinants" were already flowering by spring 2005, preparing to drop seed and contribute to the seed bank.

It is important to note that the 25 study plots that Dr. Phillips surveyed in March 2005 lie within those portions of the dunes that are open to off-highway vehicles ("OHVs"). Dr. Phillips not only determined that the Peirson's milk-vetch exists in great numbers in these areas, but that OHVs rare come in contact with the plant. This finding dispels one of the key myths surrounding the Peirson's milk-vetch and its status as a "threatened" species.

When DOI issued its listing decision, it indicated that Off-Highway Vehicles ("OHVs") were the biggest threat to the Peirson's milk-vetch. This assertion was based primarily on a 1990 study prepared by ECOS at the request of BLM, which has regulatory jurisdiction over the Imperial Sand Dunes. Two years after the listing decision became official, however, BLM abandoned the ECOS Study, finding its methodology unreasonably biased in terms of sampling locations. According to BLM, the ECOS Study inflated the effects of OHV recreation on the Peirson's milk-vetch population.

BLM's dissatisfaction with the ECOS Study, however, did not cause DOI to reverse or revisit its decision to list the Peirson's milk-vetch as a threatened species. As a result, the Peirson's milk-vetch has retained its status as a listed species and continues to drive BLM's land use decisions in the Imperial Sand Dunes.[3]

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var. *peirsonii*) in the Algodones Dunes, California, 2004-2005," June 2005, (the "Phillips 2005 Report"). A copy of this report is attached hereto as Exhibit 2.

[3] In March 2000, the Center for Biological Diversity ("CBD") filed suit against BLM alleging, among other things, that BLM had failed to consult with the United States Fish and Wildlife Service ("USFWS") regarding activities in the Imperial Sand Dunes Recreation Area ("ISDRA") and their potential impacts on the Peirson's milk-vetch, as required under Section 7 of the Endangered Species Act ("ESA"). To settle this aspect of the lawsuit, BLM agreed to close approximately 49,000 acres of the ISDRA to vehicle use

In November 2000, BLM issued a monitoring report on the status of six sensitive plant species, including the Peirson's milk-vetch, which reside in the Imperial Sand Dunes. This study concluded that the Peirson's milk-vetch had "increased significantly" in both abundance and frequency between 1977 and 1998, and that the plant actually fared better in the OHV-open areas than it did in the Wilderness Area that has long been closed to vehicle use. The November 2000 study explained these findings as follows:

> Although all 6 species [including the Peirson's milk-vetch] appear to be at least as widespread and abundant in the entire open area in 1998 as they were in 1977, this likely results from the fact that OHV use in the open areas does not encroach – at least very intensively – on much of the habitat of the plants in relatively large portions of the open area away from OHV staging areas.[4]

The 2000 Monitoring Report, however, did not include actual plant counts, so it could not provide reliably precise population trend data. This shortcoming prompted the American Sand Association ("ASA") to fund an independent census of the Peirson's milk-vetch. The point of this effort was to determine with precision how many Peirson's milk-vetch plants reside in the Imperial Sand Dunes. Actual plant counts, not random sampling and transect runs, would be used to answer this question.

To perform the Peirson's milk-vetch census, ASA hired Dr. Phillips and Debra Kennedy, both consultants with Thomas Olsen Associates ("TOA"). In March and April

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until (1) it completed a proper consultation with USFWS, and (2) adopted a new management plan for the ISDRA, including the interim closure area. The settlement agreement and the interim closure went into effect on November 3, 2000.

[4] BLM November 2000 Monitoring Study, at 35-36. A copy of the November 2000 Monitoring Study is attached to this Petition as Exhibit 3.

of 2001, Dr. Phillips and Ms. Kennedy, along with a team of assistants, counted 71,926 Peirson's milk-vetch plants *in the open-riding areas alone.*[5]

Dr. Phillips compiled his data in a report dated July 2001 (the "TOA Report"), which ASA submitted to USFWS and BLM that same month. The TOA Report did more than just confirm the basic conclusions of BLM's November 2000 Monitoring Study – *i.e.,* that the Peirson's milk-vetch is more abundant now than it was in 1977 and is not significantly affected by OHV use. The report showed that the Peirson's milk-vetch is *so* abundant that it no longer qualifies as "threatened" under the ESA.

On October 24, 2001, ASA, along with the Off-Road Business Association ("ORBA") and the San Diego Off-Road Coalition ("SDORC"), submitted to the Secretary of the Interior a *Petition to Remove the Peirson's milk-vetch from the Federal List of Threatened and Endangered Species* (the "Delisting Petition"). On the strength of BLM's 2000 Monitoring Report and the 2001 TOA Report, the Delisting Petition argued that the original decision to list the Peirson's milk-vetch in 1998 was in error, and that recently developed data show that the plant is abundant, thriving, not seriously threatened by OHV use or other human activities, and no longer requires the protections afforded by the ESA.

On September 5, 2003, USFWS published its "90-day" preliminary finding on the Delisting Petition, stating that it presented sufficient evidence to warrant further review. [6]But on May 28, 2004, USFWS issued a final decision formally denying the petition on

[5] The TOA team was not permitted to enter or perform plant counts in the areas closed to OHV use. However, Dr. Phillips and Ms. Kennedy conducted helicopter "fly-overs" of these areas and found that they, too, support a large number of Peirson's milk-vetch colonies. Dr. Phillips noted the GPS coordinates of each colony observed during the fly-overs.

[6] See Exhibit 6 to this petition.

grounds that the Peirson's milk-vetch still needed protection and "should remain classified as a threatened species."[7]

As will be discussed below, we believe the data presented in the original petition showed clearly that the Peirson's milk-vetch is not a threatened species; and for this reason we believe that USFWS erred when it denied the delisting petition. The point of this "revised" petition, however, is not to challenge USFWS's decision, but to demonstrate, through four years of additional data collection, that the Peirson's milk-vetch is even more abundant than was reported in ASA, *et al.'s* original petition, and that the plant's population and reproductive capacity are so stable and strong as to warrant delisting.

Simply put, if USFWS, in 1998, had had sufficient data on the Peirson's milk-vetch life-cycle and reproductive strategies, it likely would have determined that the listing was unnecessary in the first place. However, even if one assumes the original listing decision was valid, the data now show that the Peirson's milk-vetch has recovered sufficiently and may now safely be removed from the federal list.

The data presented in this new petition represent seven years of plant monitoring by BLM (1998-2004) and five years of repetitive studies of Peirson's milk-vetch colonies by Dr. Phillips (2001-2005). In addition, Dr. Phillips has supplemented the plant data with a quantitative assessment of the Peirson's milk-vetch seed bank. Not only has he counted the seeds, he has analyzed the manner in which the seed bank is replenished over successive growing seasons. In short, the Peirson's milk-vetch studies conducted by Dr. Phillips between 2001 and 2005 represent the most comprehensive and focused

[7] USFWS 12-Month Finding on Petition to Delist Peirson's milk-vetch, May 28, 2004, at p.35. A copy of this document is attached to this petition as Exhibit 4.

evaluations of the Peirson's milk-vetch ever undertaken. In terms of analytical depth they even surpass the plant monitoring studies BLM conducted between 1998 and 2004.

Not surprisingly, the data gathered by Dr. Phillips largely coheres with the data gathered by BLM. Though obtained through different methods, the Phillips data and the BLM data tell the same story: The above-ground expression of Peirson's milk-vetch plants in the Imperial Sand Dunes fluctuates radically in response to rainfall and changes in temperature, but the plant population remains large and stable – a function of the enormous size of the Peirson's milk-vetch seed bank (conservatively estimated at 2.5 million seeds).

When climate conditions are favorable, as they were in the 2004-2005 growing season for example, more than 173,000 individual plants may sprout and push through the light crust of sand.[8] During periods of drought, or when winter temperatures are higher than normal, fewer Peirson's milk-vetch seeds germinate, reducing significantly the number of plants that can be seen growing on the surface of the dunes. These fluctuations are normal, however, and do not disrupt or damage the reproductive capacity of the species. The Peirson's milk-vetch's seed bank remains robust and full of potential, as the seeds themselves can lie dormant (but viable) for years, waiting for climate conditions to become ideal.

Dr. Phillips also confirmed that the Peirson's milk-vetch, in years when there is adequate rainfall in October/November, experiences *two* germination seasons, one in the fall and one in the late winter. The "fall" germinants actually mature quickly enough to

[8] In its March 2005 Monitoring Study, BLM estimated that approximately 280,000 Peirson's milk-vetch plants were growing in the Imperial Sand Dunes in the spring of 2004. This estimate includes the Wilderness Area and the interim closure area. Dr. Phillips' estimate of 173,000 plants is for the spring of 2005. Still, 173,000 plants is an extremely large number.

set seed by the end of April, before the intense summer heat kills most of the plants. As a result, these "precocious" first-year plants contribute significantly to the seed bank in their first few months of life. This is critical to the reproductive success of the Peirson's milk-vetch, because the vast majority of first-year plants (whether they germinated in October or March) do not make it through the hot, dry summer into the next winter's growing season. The few second-year plants that *do* survive certainly produce a great many seeds when considered on a per-plant basis but, year-to-year, there may not be enough of them to keep the seed bank adequately stocked (or to explain why the seed bank is so robust in terms of numbers). Fortunately, the Peirson's milk-vetch's reproductive strategy does not depend entirely on this small cohort of fecund second-year survivors. The "fall" first-year plants also contribute significantly to the reproductive success of the species – albeit on a fewer seed-per-plant basis.

Dr. Phillips first advanced this theory of "dual" germination events in the TOA Report (2001). USFWS, however, was not persuaded; and it its 50-page decision denying the Delisting Petition (May 28, 2004), USFWS repeatedly criticized Dr. Phillips on this point, arguing that he had mistakenly identified the seed-bearing plants as first-years when in fact they were second-years.[9] The data Dr. Phillips has compiled since 2001, especially the 2004-2005 growing season data, more than answer this criticism and establish that large numbers of Peirson's milk-vetch do indeed germinate in the fall if conditions are favorable, and that these early germinants set seed before summer.

Dr. Phillips was also able to confirm in his later surveys that OHV use does not pose a serious threat to the Peirson's milk-vetch or its continued viability in the dunes – a view supported by BLM's most recent monitoring report ("There is no evidence of any

OHV effect on either Peirson's milk-vetch or Algodones Dunes sunflower." BLM March 2005.)

Ultimately, the data compiled by BLM and Dr. Phillips compel the following four conclusions: (1) the Peirson's milk-vetch is remarkably well-adapted to its environment; (2) when weather conditions permit, the plant will express itself above-ground in profound numbers (*i.e.,* more than 280,000 individuals); (3) the Peirson's milk-vetch seed bank contains, by conservative estimate, more than 2.5 million seeds buried just below the surface of the sand, and is replenished in the course of two or three growing seasons; and (4) neither OHV use nor any other human activity significantly interferes with any aspect of the Peirson's milk-vetch life-cycle. In short, the Peirson's milk-vetch is not threatened.

[9] See Exhibit 4, at pp. 8-9.

I. INTRODUCTION

Pursuant to Section 4(b)(3) of the Endangered Species Act[10] and Title 5, Section 553(e) of Administrative Procedures Act,[11] the American Sand Association, San Diego Off-Road Coalition, the Off-Road Business Association, the California Off-Road Vehicle Association, and the American Motorcycle Association District 37 ("ASA, *et al.*") hereby submit this petition to remove the Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) from the federal list of threatened and endangered species. The Peirson's milk-vetch is a perennial desert plant that resides in the Imperial Sand Dunes of southeastern California, on lands under the control of BLM, an agency within the Department of the Interior ("DOI").

On October 6, 1998, the DOI listed Peirson's milk-vetch as a "threatened" plant species and identified OHV use in the Imperial Sand Dunes as the primary threat to the Peirson's milk-vetch's survival. However, data developed since the 1998 listing decision indicate that: (1) the Peirson's milk-vetch population is thriving in its traditional range, despite continued OHV use; (2) the Peirson's milk-vetch population consists of more than 173,000 individual plants (appx. 280,000 according to BLM's 2004 study survey)[12] and a seed bank estimated to contain more than 2.5 million seeds; (3) the original listing was in error; and (4) even if the original listing was valid given the limited data available at the time (1998), the plant has sufficiently "recovered" in the meantime. These recent findings – *which were generated as a result of the first multi-year, repetitive plant*

[10] 16 U.S.C. § 1533(b)(3).
[11] 5 U.S.C. § 553(e).

surveys ever conducted in the Imperial Sand Dunes – demonstrate that the Peirson's milk-vetch is not threatened and should be removed from the Federal list of threatened and endangered species.

II. SUMMARY OF ARGUMENT

Petitioners' argument in support of this request to remove the Peirson's milk-vetch from the list of "threatened" species can be summarized as follows:

A. The Original Listing Was Made Without an Actual Plant Count

When the DOI adopted the Final Rule listing the Peirson's milk-vetch as threatened, it did so without benefit of "abundance data" showing how many Peirson's milk-vetch plants actually exist. In various letters and memoranda, staff from both BLM and USFWS expressed concern over this critical shortcoming and stressed the need for abundance data when making a listing decision.

B. The Original Listing Relied On Field Studies That the BLM Has Since Determined Were Biased and Scientifically Unsound

Of the technical material used in the Peirson's milk-vetch listing decision, DOI relied most heavily on a 1990 study by ECOS, Inc. (the "1990 ECOS Study"), which concluded that the Peirson's milk-vetch was in sharp decline as a result of OHV use in the Imperial Sand Dunes.[13] However, in a report published in November 2000, the BLM determined that the 1990 ECOS Study (which BLM had commissioned and paid for) was biased in its methodology and tended to inflate the impacts of OHV use on Peirson's milk-vetch.[14] For this reason, BLM abandoned the 1990 ECOS Study and the monitoring

[12] The results of this survey were published in a report issued in March 2005.
[13] A copy of the 1990 ECOS Study is attached to this petition as Exhibit 5.
[14] A copy of BLM's November 2000 Monitoring Report is attached to this petition as Exhibit 3.

protocol it had recommended. BLM's decision in this regard demonstrates that the 1990 ECOS Study provided an insufficient basis for listing the Peirson's milk-vetch as a threatened species.

C. Monitoring Studies Published by BLM (2000 through 2005) Indicate that the Peirson's Milk-vetch Is Abundant and Thriving, But Becomes Dormant During Periods of Drought

After discarding the 1990 ECOS Study, BLM in 1998 embarked on a new survey protocol for the Peirson's milk-vetch and other special status plants in the Imperial Sand Dunes. The first set of survey results were published in November 2000. Additional survey data were compiled and published in reports dated June 2001, October 2004, and March 2005. On the basis of this multi-year plant monitoring effort, BLM concluded that the Peirson's milk-vetch is (1) at least as abundant and widespread as it was in 1977; (2) at least as abundant in the areas open to OHV use as in the areas closed to OHV use; (3) capable of lying dormant for years in "seed-state" until sufficient rainfall triggers germination; and (4) affected more by climatic fluctuations than by human activities. Indeed, BLM's March 2005 Monitoring Study reported that the dunes supported 286,374 individual Peirson's milk-vetch plants.

D. Plant and Seed Counts Conducted By Arthur Phillips, Ph.D. (2001—2005) Confirm that the Imperial Sand Dunes Support More Than 173,000 Individual Peirson's Milk-vetch Plants and a Healthy Seed Bank

In the spring of 2001, Dr. Phillips conducted a comprehensive census of all Peirson's milk-vetch in the "OHV-open" areas of the Imperial Sand Dunes and counted more than 71,000 individual plants. TOA also conducted low-altitude helicopter surveys of the areas closed to vehicles and found that they supported significant Peirson's milk-

vetch colonies as well. Peirson's milk-vetch seed counts conducted by Dr. Phillips in 2002 showed that the plant's seed bank contained between 2.5 million and 5.6 million seeds, depending on the extrapolation assumptions used. Additional plant surveys in 2003, 2004, and 2005 confirm that the Peirson's milk-vetch, in response to favorable climate conditions (adequate rainfall and moderate temperatures) will germinate in profound numbers. The 2005 data were especially impressive. At 25 study plots within the "OHV open" areas of the dunes, Dr. Phillips counted 77,922 live Peirson's milk-vetch in March 2005. Based on these data, and using very conservative extrapolation assumptions, Dr. Phillips concluded that the dunes support, at a minimum, 173,328 Peirson's milk-vetch plants. Through his multi-year, repetitive surveys, Dr. Phillips has also established that some Peirson's milk-vetch actually sprout in the fall if the dunes receive sufficient precipitation in October and November. These early germinants, though destined to die in great numbers during the summer, will set seed by April, thus contributing to the seed bank in the first seven months of their life.

E. The Peirson's Milk-vetch No Longer Meets Listing Criteria

To be placed on the federal list of protected species — and to remain on that list — an animal or plant must be threatened by (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization 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. In this case, the Peirson's milk-vetch no longer meets any of these five listing criteria. It thrives in sufficient number (173,000—280,000 above-ground; 2.5—5.6 million in seed bank) throughout its range and, despite misinformation

to the contrary, is not significantly threatened by OHV use or alleged habitat alteration. Nor is it threatened by overutilization for recreational purposes or by disease. Further, the regulatory mechanisms in place since 1977 clearly have been adequate to protect the species. Finally, no other manmade or natural factor threatens the continued existence of the Peirson's milk-vetch.

III. FACTUAL BACKGROUND

A. The Peirson's Milk-vetch and Its Habitat

The Peirson's milk-vetch is a "stout, short-lived perennial reaching 20 to 70 cm (8 to 27 inches) high.[15] Its stems and leaves are covered with fine silky hairs, and the leaves themselves are 5 to 15 cm (2 to 6 inches) long, with 8 to 12 oblong leaflets.[16] When the Peirson's milk-vetch blooms, its flowers are a dull purple, arranged in 10 to 17-flowered racemes.[17] The seed pods of the Peirson's milk-vetch are 2 to 3.5 cm (0.8 to 1.4 inches) long, inflated, with a triangular beak.[18] Among the various *Astragalus* species that inhabit the deserts of the southwest United States, the Peirson's milk-vetch has the largest seeds, each measuring 4.5 to 5.5 mm in length.[19]

The Peirson's milk-vetch occurs on slopes and hollows of windblown dunes in the Sonoran Desert, which includes the Imperial Sand Dunes of southeastern California, also known as the Algodones Dunes.[20] The Imperial Sand Dunes form a dune "belt" some 40

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[15] Final Rule, October 6, 1998, *Federal Register*, Vo. 63, No. 193, at p. 53599. A copy of the Final Rule is attached as Exhibit 1 to this Petition.
[16] *Ibid*.
[17] *Ibid.*
[18] *Ibid.*
[19] *Ibid.*
[20] Thomas Olsen Associates, *Biology, Distribution, and Abundance of Peirson 's Milkvetch and Other Special Status Plants of the Algodones Dunes, California*, 2 July 2001 (the "TOA Report"), at p. 1. A copy of the TOA Report is attached as Exhibit 7 to this Petition.

miles long and 3 to 6 miles wide.[21] The same winds that rake the dunes and create the habitat necessary for the Peirson's milk-vetch also scatter the plant's seed pods and seeds, depositing them in the sand, where they will lie dormant until sufficient precipitation causes them to germinate.[22] Although no one has determined how long a Peirson's milk-vetch seed can remain dormant and still germinate when favorable conditions arise, circumstantial evidence — e.g., an explosive germination event following years of drought — suggest that the plant's seeds can remain dormant and viable for three to ten seasons without loss of reproductive potential.[23]

The Peirson's milk-vetch is a so-called "short-lived" perennial that germinates and flowers in the spring and then largely dies off by the beginning of the hot summer months.[24] In a given year, tens of thousands of plants may be visible during April and May, but nearly all of them will be gone by July.[25] However, the "first-years" that germinated during the previous fall will produce and drop seeds before the plants desiccate and die in the summer heat, thus guaranteeing another generational cycle for the Peirson's milk-vetch.[26] Those plants that survive the summer, though often few in number, produce large numbers of seeds their second season.

In the Imperial Sand Dunes, the Peirson's milk-vetch shares vast tracts of land with OHV users. However, some of the densest Peirson's milk-vetch colonies in the Imperial Sand Dunes are found in the designated Wilderness Area north of State

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[21] *Ibid.*
[22] *Id.*, at pp. 10-11.
[23] *Ibid.*
[24] *Ibid.*
[25] *Ibid.*
[26] *Ibid.*

Highway 78 ("SR-78"), where all mechanized vehicles are prohibited.[27] As to the open dune areas, OHV travel patterns rarely intrude into Peirson's milk-vetch colonies. The BLM acknowledged this fact in a November 2000 report entitled, Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California (the "BLM November 2000 Monitoring Study"):

> Although all 6 species [including the Peirson's milk-vetch] appear to be at least as widespread and abundant in the entire open area in 1998 as they were in 1977, *this likely results from the fact that OHV use in the open areas does not encroach — at least very intensively .— on much of the habitat of the plants in relatively large portions of the open area away from OHV staging areas*. (BLM November 2000 Monitoring Study, at p. v.) (*Emphasis added.)*

In its March 2005 Monitoring Study, BLM confirmed this point, stating that OHVs had damaged only 0.3% of the Peirson's milk-vetch plants observed during the spring 2004 surveys.[28] Dr. Phillips drew the same conclusion in the 2001 TOA report, which indicated that OHVs damaged less than 1% of the 71,926 Peirson's milk-vetch observed.[29]

Note that the Peirson's milk-vetch, while widespread throughout the dune system, is highly habitat-specific and grows in identifiable colonies where conditions are suitable.[30] The plant is not randomly distributed, except to the extent that appropriate habitat for Peirson's milk-vetch colonies occurs in a large number of areas in both the open and closed portions of the dunes.[31]

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[27] Memorandum from BLM State Director to USFWS Field Supervisor, dated November 1, 1996, at p. 1. A copy of this memorandum is attached as Exhibit 8 to this Petition.
[28] BLM March 2005 Monitoring Study, at pp. v-vi. A copy of the March 2005 Monitoring Study is attached as Exhibit 9 to this Petition.
[29] Exhibit 7, at p. 12.
[30] TOA Report, at pp. 3-5. See also, BLM March 2005 Monitoring Report, at p. 10.
[31] *Ibid.*

B. Attempts to List the Peirson's Milk-vetch as "Threatened"

1. Proposed Listing in 1992

On May 8, 1992, the USFWS issued a proposed rule for listing seven desert plants of the taxa *Astragalus* — including the Peirson's milk-vetch — as either threatened or endangered. In the proposed rule, USFWS asserted that the Peirson's milk-vetch is "[threatened by] the alteration of habitat from off-road vehicle activity."[32] The proposed rule also concluded that the plant is "threatened with stochastic extinction due to the limited size of its population."[33] However, the proposed rule did not indicate how many Peirson's milk-vetch plants existed in the Imperial Sand Dunes or elsewhere in the Sonoran Desert.[34] Nor did the proposed rule refer to a plant census or any other study that could provide plant abundance data. This is likely because, at that time, no census of the Peirson's milk-vetch had been conducted. Before the proposed listing became final, however, the Federal government issued a moratorium on all species listings, halting efforts to designate the Peirson's milk-vetch as threatened. This moratorium remained in effect until approximately 1996.

2. Final Approved Listing in 1998

When the moratorium was lifted, USFWS restarted its efforts to list the Peirson's milk-vetch and four other milk-vetch plants as threatened or endangered. As in 1992, the USFWS had no actual plant counts for the Peirson's milk-vetch. Despite

[32] Proposed Rule, May 8, 1992, Federal Register, Vol. 57, No. 90, at p. 19846. A copy of the Proposed Rule is attached as Exhibit 108 to this Petition.
[33] *Ibid.*

requests to BLM and others for "abundance data," neither BLM nor any other source had the kind of information USFWS was looking for. Nevertheless, on October 6, 1998, USFWS issued a Final Rule designating the Peirson's milk-vetch as threatened, and identifying OHV use as the primary cause of Peirson's milk-vetch population declines.[35]

C. The Center For Biological Diversity v. BLM Lawsuit — March 2000

In March 2000, the Center for Biological Diversity ("CBD") filed suit against BLM for failing to consult with USFWS regarding the effects of the California Desert Conservation Area Plan ("CDCA Plan") on species that have been listed as threatened or endangered since the plan's adoption in 1980. According to CBD, this failure to consult constituted a violation of Section 7 of the ESA. The lawsuit involved nearly all lands in the California desert under BLM control, including the Imperial Sand Dunes. To resolve the litigation, BLM entered into five separate stipulations, one of which related to the Peirson' milk-vetch and the dunes. Specifically, on November 3, 2000, BLM agreed to (1) initiate formal Section 7 consultation with USFWS regarding impacts on the Peirson's milk-vetch, and (2) temporarily close more than 49,000 acres of the dunes to OHV use until the Section 7 process was concluded. The new "interim" closure zones were in addition to the North Algodones Wilderness Area, where motor vehicles are strictly prohibited. The Wilderness Area consists of approximately 32,000 acres and was established in 1994 as part of the CDPA. It is located immediately north of SR-78 and supports approximately 25% of all Peirson's milk-vetch stands known to exist in BLM's

[34] The Peirson's milk-vetch also grows in great numbers in the Gran Desierto of Mexico. (Personal communication, Dr. Arthur Phillips, June 2005.)
[35] Final Rule, October 6, 1998, *Federal Register*, vol. 63, No. 193, at p. 53606.

jurisdiction.[36] Combined, the "interim" closure area and the Wilderness Area constitute approximately 81,000 acres of dune habitat.

It is important to note, however, that neither BLM nor CBD submitted evidence to the court showing that the Peirson's milk-vetch was in jeopardy and required an "emergency" closure.[37] On the contrary, just when BLM and CBD were executing the "closure and consultation" stipulation regarding the Peirson's milk-vetch, BLM was poised to publish its November 2000 Monitoring Study, which concluded that the Peirson's milk-vetch had "increased significantly" in both abundance and frequency between 1977 and 1998, and that the plant actually fared better in the OHV-open area than it did in the Wilderness Area that has been closed to all OHV use for many years.[38] As explained below, the November 2000 Monitoring Study – along with BLM's subsequent plant monitoring studies published in 2001, 2004, and 2005 – dismantles the key assumptions and findings set forth in the October 6, 1998 Final Rule listing the Peirson's milk-vetch as threatened.

D. BLM Plant Monitoring Studies in the Imperial Sand Dunes (1998-2002)

In 1998, as USFWS was preparing to add the Peirson's milk-vetch to the list of threatened species, BLM was embarking on a multi-year plant monitoring effort in the Imperial Sand Dunes. BLM had determined that the survey methodology employed in the 1990 ECOS was fatally biased and had to be replaced with one that would allow one

[36] *See*, BLM Memorandum, November 1, 1996.
[37] *See*, "Order Approving Final Consent Decrees Re Bighorn Sheep and Re All Further Injunctive Relief," March 20, 2001, at p. 13. *See also*, "Amendment to Final Judgment," April 20, 2001. Copies of both court documents are attached as Exhibits 11 and 12, respectively, to this Petition.
[38] November 2000 Monitoring Study, at pp. v., 14, 30-31, 35-36.

to draw reasonably accurate conclusions regarding "plant abundance" throughout the dune system. Survey data from 1998 indicated that most of the sensitive plant species in the Imperial Sand Dunes – especially the Peirson's milk-vetch – "increased significantly" in terms of abundance and frequency when compared with data gathered in 1977 by WESTEC. BLM also determined that OHV travel patterns rarely intruded into Peirson's milk-vetch colonies.

These findings were published in a report issued in November 2000 (the BLM November 2000 Monitoring Study). The following June, BLM published another monitoring report.[39] This one discussed plant data obtained during 1999 and built upon the conclusions reached in the November 2000 study. While the number of plants observed in 1999 was less than that observed in 1998, this was explained by sharp differences in rainfall. 1998 was an unusually wet year, while 1999 was a return to drought conditions. Nevertheless, Peirson's milk-vetch abundance and frequency in 1999, as reported in the June 2001 Monitoring Study, still showed significant increases over the 1977 figures.

BLM continued to gather plant data in 2000, 2001 and 2002; and in October 2004, BLM issued yet another monitoring study (the "October 2004 Monitoring Study") discussing these data.[40] The following statement from that report's Executive Summary reflects the ultimate conclusion of this round of surveys:

> Healthy populations of all three species [Peirson's milk-vetch, Algodones Dunes sunflower, and sand food] remain in the open area, though the above-ground expression of populations of Peirson's milk-vetch fluctuates dramatically with precipitation. There is no evidence of any OHV effect on either Peirson's milk-vetch or Algodones Dunes sunflower. An increase in sand food in

[39] A copy of BLM's June 2001 Monitoring Report is attached to this petition as Exhibit 14.
[40] A copy of the October 2004 Monitoring Study is attached as Exhibit 13 to this Petition.

> the open area between 2001 and 2002 may result from a release in pressure from OHV use in the interim closures, but this is inconclusive and may be at least partially an artifact of sampling.[41]

Upon issuing the October 2004 Monitoring Study, BLM determined that the sampling methodology it was using, while an improvement over that used by WESTEC in 1977 and ECOS in 1990, still did not yield actually plant counts or reasonable estimates of plant populations. Therefore, in 2004, BLM developed a new survey protocol for the Peirson's milk-vetch, Algodones sunflower, and sand food – one that would provide the kind of population data BLM needed.

E. BLM's March 2005 Monitoring Study

On March 24, 2005, BLM issued its latest monitoring report on special status plants in the Imperial Sand Dunes (the "March 2005 Monitoring Study").[42] This one included survey data from the 2004 growing season and, for the first time, employed the new "plant count" methodology. BLM ran 135 belt transects in 12 sampling locations that had been selected to cover as much Peirson's milk-vetch habitat as possible.[43] The census takers counted the total number of plants for each of the three species and, with respect to the Peirson's milk-vetch, also kept track of "stage-classes" (*i.e.*, whether the plant was a first-year or second-year.)[44] Whenever a plant showed damage from an OHV or some other source, this was noted as well.[45]

As a result of heavy winter rains in the dunes, the above-ground expression of plants – the Peirson's milk-vetch especially – was profuse.[46] Based on plant counts in the 12 sampling locations, BLM estimated that in 2004 there were 286,374 Peirson's milk-

[41] October 2004 Monitoring Study, at p. v.
[42] A copy of the March 2005 Monitoring Study is attached as Exhibit 9 to this Petition.
[43] March 2005 Monitoring Study, at p. v.
[44] *Ibid.*

vetch growing in the seven management areas of the Imperial Sand Dunes.[47] In addition, only 0.3% of the observed plants exhibited damage from contact with OHVs.[48] The vast majority of the 286,374 Peirson's milk-vetch plants (94%) were seedlings and juvenile, non-flowering plants, most of which did not survive the summer to produce seeds the following winter.[49]

The germination of nearly 300,000 Peirson's milk-vetch in one season demonstrates the explosive reproductive potential of the species and shows that the plant inhabits the dunes in great numbers. That so many juveniles failed to reproduce might be cause for concern, as it suggests a sizeable "draw" on the seed bank. This concern, however, must be tempered three key observations.

First, the Peirson's milk-vetch seed bank is extremely large, containing between 2.5 million and 5.6 million seeds (est.).[50] Even assuming all the first-year plants died, the loss of 286,000 seeds, even if not immediately replenished, can certainly be absorbed without creating serious impacts on the reproductive viability of the species.

Second, the mature plants (second and third-years) that *do* survive into successive growing seasons are incredibly fecund, producing approximately 2,400 seeds per plant; these are deposited directly into the seed bank.[51] This enables relatively few plants to replenish the seeds lost during an explosive germination event that produces more than a quarter-million new juveniles. For example, in 2004, BLM determined that 16,324 of the estimated 286,374 Peirson's milk-vetch plants were reproductive. Of these, 9,775 were

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[45] *Ibid.*
[46] *Id.*, at p. 10.
[47] *Id.*, at pp. v, 10.
[48] *Id.*, at pp. v-vi.
[49] *Id.*, at p. v.
[50] See, Phillips, "The Ecology of *Astragalus magdalenae* var. *peirsonii*: Distribution, Reproduction and Seed Bank" (August 2002). See Exhibit 15, at 27-28.

more than one-year old and capable of producing a full complement of seeds. At 2,400 seeds per plant, the 9,775 older, reproductive Peirson's milk-vetch could potentially redeposit more than 23,460,000 seeds into the existing seed bank.[52]

Third, the same wet conditions that produce hundreds of thousands of new plants in February and March often begin the preceding fall, sparking an "early" germination event in October—December. These "fall" germinants often number in the tens of thousands and have the ability to produce and drop seed by April – *i.e.*, before the devastating heat of summer. As a result, these "precocious" plants contribute to the seed bank in their first 5-7 months of life. Note that the fall germination events recorded by Dr. Phillips are not anomalies, but instead occur predictably if sufficient rain falls in the dunes during the autumn months.

The March 2005 Monitoring Study does not discuss this "early germination" phenomenon because the BLM monitoring team did not visit the dunes during the October—December timeframe (2004 or 2005), but instead limited its surveys to the late winter and spring.[53] Only the Phillips study published in June 2005, discussed below, provides a full explanation of this key aspect of the Peirson's milk-vetch reproductive strategy.

D. Dr. Phillips' Peirson's Milk-vetch Plant Counts and Seed Bank Surveys (2001—2005)

While BLM was conducting its multi-year monitoring of sensitive plants in the Imperial Sand Dunes (1998—2004), another long-term plant survey in the dunes was also

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[51] *Id.*, at 27.
[52] *Ibid.*
[53] March 2005 Monitoring Study, at pp. 3-4.

underway. In response to the BLM's decision to "temporarily" close 49,000 acres of formerly "OHV-open" dunes, the ASA retained Thomas Olsen Associates ("TOA"), a biological consulting firm, and Arthur Phillips III, Ph.D., a botanist specializing in desert plants, to conduct a census of the Peirson's milk-vetch in both the open and closed areas of the dunes. Dr. Phillips and TOA prepared a report, issued on July 2, 2001, under the title *Biology, Distribution and Abundance of Peirson 's Milk-Vetch and Other Special Status Plants of the Algodones Dunes, California* (the "TOA Report"). The report indicated that 71,926 individual Peirson's milk-vetch plants had been observed in the OHV-open area alone.[54] And although Dr. Phillips and TOA could not perform actual ground counts in the closed areas, they did conduct low-altitude fly-overs in a helicopter to identify Peirson's milk-vetch colonies in these portions of the dunes.[55] According to the TOA Report, the Peirson's milk-vetch colonies in the closed areas — as observed from the air — were similar in size, number and density to the Peirson's milk-vetch colonies in the open areas.[56]

Between November 2001 and February 2002, Dr. Phillips collected data on the Peirson's milk-vetch cohort from October 2000 to see how many of them had survived the summer and reproduced. He and his team also conducted a seed bank study to (1) estimate the number of seeds and thereby assess the potential status of the plant's populations, and (2) determine patterns of spatial and temporal seed distribution.[57]

In August 2002, Dr. Phillips and Debra Kennedy published their new data in a report entitled "The Ecology of *Astragalus magdalenae* var. *peirsonii*: Distribution,

[54] TOA Report, at p. 6.
[55] *Ibid.*
[56] *Id.*, at 13.
[57] "Phillips 2002 Seed Bank Study," at p. 1-2.

Reproduction and Seed Bank." (the "Phillips 2002 Seed Bank Study").[58] Both seed and 2000 cohort survivor population estimates were based on actual counts at each sample site per location, then extrapolated to all the sites known to contain plants.[59] Using very conservative assumptions regarding the number of seeds a typical plant will produce, Dr. Phillips determined that the Peirson's milk-vetch seed banks contained between 2.5 million and 5.6 million seeds.[60] He also found that approximately 21% of the 2000 cohort survived into the winter 2001—2002 growing season. [61]

In March 2003, Dr. Phillips and his team returned to the Imperial Sand Dunes for another round of plant surveys. The data from this effort are discussed in a report published in July 2003, entitled "The Ecology of *Astragalus magdalenae* var. *peirsonii:* Germination and Survival" (the "2003 Phillips Report").[62] The following fall, the survey team visited the dunes a fourth time and conducted four separate studies from October 2003 to April 2004. During this time, Dr. Phillips *et al.* were able to (1) document two specific germination events, one in November 2003 and one in February 2004; (2) gather data on perennial survivors at 25 selected sample sites; (3) observe document, and compare the viability of two groups of germinant cohorts through a single growing season. The resulting report, issued in August 2004, is entitled "Ecology and Life History of Peirson's Milkvetch in the Algodones Dunes, 2003—2004" (the "2004 Phillips Report").[63] In this report, Phillips indicates that the fall germinants not only set

[58] See, Exhibit 15 to petition.
[59] These sites were first identified in the original TOA Report from 2001.
[60] *Id.*, at pp. 1, 27-28.
[61] *Id.*, at pp. 1, 19. Originally, Dr. Phillips indicated that 26% of the 2000 cohort survived. This number was later adjusted to 21% in the 2002 Phillips report.
[62] A copy of the 2003 Phillips Report is attached as Exhibit 16 to this Petition.
[63] A copy of the 2004 Phillips Report is attached as Exhibit 17 to this Petition.

seed in the spring, they are much more likely to survive the summer than are the late winter and spring germinants.[64]

The 2004-2005 growing season marked the fifth year that Dr. Phillips conducted Peirson's milk-vetch surveys in the Imperial Sand Dunes. Heavy rains in the fall and winter of 2004—2005 resulted in the largest germination event yet documented. In this regard, Dr. Phillips' work, set forth in a report entitled "The Life History of Peirson's Milkvetch in the Algodones Dunes, California, 2004—2005" (the "June 2005 Phillips Report"), corroborates the findings in BLM's March 2005 Monitoring Study.[65] Whereas BLM extrapolated its plant counts to arrive at dune-wide population figure of 286,374, Phillips limited his census to the 25 sample sites he has returned to each year following his original survey in 2001. But even in this more limited survey, Phillips observed 77,922 live Peirson's milk-vetch plants in March 2005 and 66,931 plants in April 2005.[66] Using very conservative extrapolation assumptions, Dr. Phillips concluded that the 56 hectares of Peirson's milk-vetch habitat in the dunes support, at a minimum, 173,328 Peirson's milk-vetch individuals. Just as important, he was able to confirm that fall germinants do, in fact, set fruit the following spring (*i.e.*, before their first summer) thereby contributing to the seed bank.[67]

> Therefore, the most conservative figure for first-year plants that reproduced successfully among our 25 sample sites in 2005 is 19,945. As stated above, the number of perennial survivors to spring 2005 was 1,168. Assuming that all of the survivors successfully reproduced, we concluded that there were at least 17

[64] 2004 Phillips Report, at pp. 10-11, 13.
[65] Although the BLM study and the Phillips study were both issued in 2005, each collected data from different growing seasons. BLM's data come from the spring 2004 growing season, whereas Dr. Phillips data come from the fall/winter 2004 and spring 2005 growing seasons.
[66] 2005 Phillips Report, at p. 10, 15.
[67] 2005 Phillips Report, at pp. 13-15. Dr. Phillips estimated the number of reproductive "first-years" to be 19,945. Second-year "survivors" accounted for only 1,168 of the observed plants. *Id.*, at 15.

> times as many first-year as second-year plants that reproduced in the spring 2005.
>
> These data establish conclusively that first-year plants are able to reproduce during their initial growing season *if they germinate in the fall.* Our studies in 2002-03 and 2003-04 showed that late winter germination events of significant size can occur with rainfall between mid-February and mid-March, but these late season plants do not reproduce during their first year (Phillips and Kennedy 2003, 2004). The results of the 2004-05 study confirm that Peirson's milkvetch exhibits a dual reproductive strategy – plants that germinate in late fall are capable of reproducing in the spring of their first year, while plants that germinate in late winter remain sterile during the ensuing spring, and the survivors flower during the second year. (*Emphasis in the original*).[68]

With these data in hand, Dr. Phillips was able to dispel the myth that Peirson's milk-vetch only set seed their second year. He also was able to rebut the claim, oft-repeated by USFWS, that he could not adequately distinguish between first-year and second-year plants.[69] Actually, it was USFWS that had erred by mistakenly assuming that all seed-bearing plants, by definition, were second-years, when in fact the majority of them are first-years that had germinated the preceding fall.

The strength of the Phillips surveys is that they produced five year's worth of repetitive data that can be compared year-to-year and correlated with climate. Dr. Phillips returned to the same 25 sites season after season to conduct his plant counts. This is one of the fundamental differences between the Phillips studies and the BLM monitoring effort. The BLM surveys, while providing valuable information, were not conducted with consistent methodologies and therefore do not provide easily-compared plant data. Dr. Phillips work, by contrast, allows one to actually measure fluctuations in the Peirson's milk-vetch population over time.

[68] 2005 Phillips Report, at pp. 15-16.

IV. ARGUMENT: THE PEIRSON'S MILK-VETCH SHOULD BE REMOVED FROM THE LIST OF THREATENED SPECIES

A. Legal Standard and Procedure for Delisting

Under the Endangered Species Act and its implementing regulations, interested persons may petition the DOI to have plants and animals removed from the list of threatened and endangered species. 16 U.S.C. § 1533(b)(3)(A). Moreover, an individual's right to challenge a final rule by a federal agency — such as an endangered species listing by the DOI — is guaranteed under the Administrative Procedures Act. 5 U.S.C. § 553(e).

In most respects, DOI must process a petition to *remove* a species from the threatened and endangered list in the same way it processes a petition to *add* a species to that list. Within 90 days of receiving a petition to list or "delist" a particular species, the Secretary of the Interior (the "Secretary") "shall make a 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). If the Secretary determines that the petition does, in fact, present such information, "the Secretary shall promptly commence a review of the status of the species concerned." *Ibid.* Note that both findings by the Secretary must be published in the Federal Register. *Ibid.*

Within 12 months after the petition is filed, the Secretary must determine that either (1) the petitioned action is warranted, in which case she must publish a proposed rule designating the species for protection or, in the case of delisting, recommending removal of the species' protective designation; (2) the petition action is not warranted; or

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[69] *See*, 2005 Phillips Report, at p. 15.

(3) the petitioned action is warranted but immediate promulgation of a rule is precluded by other pending proposals. 16 U.S.C. § 1533(b)(3)(E); *Center for Biological Diversity v. Norton* (Sec. of Interior) 254 F.3d 833, 835 (9th Cir. 2001). If the Secretary finds that the action is "warranted but precluded," she must promptly publish that finding in the *Federal Register*, along with a "description and evaluation of the reasons and data on which the finding is based." 16 U.S.C. § 1533(b)(3)(E). A finding that a petitioned action is not warranted or is "warranted but precluded" is subject to judicial review. 16 U.S.C. § 1533(b)(3)(C)(ii).

Under 50 CFR Part 424.11, five factors must be considered before a species can be listed, reclassified, or delisted:

1. The present or threatened destruction, modification, or curtailment of its habitat or range.

2. Overutilization for commercial, recreational, scientific, or educational purposes.

3. Disease or predation.

4. The inadequacy of existing regulatory mechanisms.

5. Other natural or manmade factors affecting the continued existence of the species.

As with listing a species, the decision to delist a species must be "supported by the best scientific and commercial data available to the Secretary after conducting a review of the status of the species." 40 CFR Part 424.11(d). A species may be delisted "if such data substantiate that the species is neither endangered nor threatened" for one or more of the following three reasons: (1) the species is extinct; (2) the species has recovered to such a point that federal protection is no longer necessary to guarantee its survival; or (3) the

original listing was in error. *Ibid.* As ASA, *et al.* will demonstrate, the Peirson's milk-vetch qualifies for delisting on grounds (2) and (3).

B. The Original Decision to List the Peirson's Milk-vetch Was in Error

The Peirson' milk-vetch should be delisted for the simple reason that USFWS erred when it listed the species as threatened in 1998. Not only was the initial listing decision based on inadequate "plant abundance data" and defective technical studies, recent plant surveys demonstrate that the Peirson's milk-vetch was not threatened in 1998 and is not threatened now. Although the 1998 Final Rule claimed the Peirson's milk-vetch was declining in population due to OHV use in the dunes, data developed since the Final Rule was published prove this claim to be false. The fact is, the Peirson's milk-vetch is thriving. Its population is large and consistently replenished by a well-stocked seed bank. Moreover, the Peirson's milk-vetch colonies in the OHV-open areas are just as healthy as the Peirson's milk-vetch colonies in the OHV-closed areas. In short, the Peirson's milk-vetch does not meet — and has never met — the five "listing" criteria necessary to qualify as "threatened," and the plant should be removed from the federal list.

1. <u>The Original Listing Decision Was Made Without Adequate Plant "Abundance Data"</u>

The fundamental defect of the October 6, 1998 Final Rule listing the Peirson's milk-vetch as "threatened," is that it was issued without benefit of census data showing how many Peirson's milk-vetch plants actually exist in the Imperial Sand Dunes. The USFWS knew about this "data gap" in 1996, when the four-year moratorium on listings was lifted and efforts to list the Peirson's milk-vetch were reinitiated. For example, on September 3, 1996, USFWS officially reopened the public comment period

on the proposed rule by publishing a notice in the Federal Register.[70] The notice specifically requested updated information regarding threats to the Peirson's milk-vetch and other *Astragalus* taxa, as well as data on the size, number and distribution of each plant's respective population. According to the notice, this information was necessary to fill data gaps that had developed during the four-year moratorium on listings:

> Due to the length of time that has elapsed since the close of the initial comment period, changing procedural and biological circumstances and the need to review the best scientific and commercial information available during the decision-making process, the comment period is being reopened. The Service particularly seeks information that has become available in the last four years, concerning:
>
> (1) Biological, commercial or other relevant data on any threat (or lack thereof) to these species;
>
> (2) Additional information on the size, number or distributions of populations; and
>
> (3) Whether one or more of these plant species are subject to conservation agreements or other protection instruments, and their possible impacts to such species.[71]

With respect to the Peirson's milk-vetch, one of the "changed circumstances" bearing on the listing question was passage of the 1994 California Desert Protection Act ("CDPA"), which, among other things, designated the North Algodones Dunes (appx. 32,000 acres) as wilderness, forever making it "off-limits" to mechanized vehicles. BLM staff

[70] Proposed Rule, Reopening of Public Comment Period on Proposed Threatened and Endangered Status for Seven Desert Milk-Vetch Taxa from California and Nevada, September 3, 1996, Federal Register, Vol. 61, No. 171, at p. 46431. A true and correct copy of this Proposed Rule Reopening Public Comment Period is attached as Exhibit 18 to this Petition.

[71] *Ibid.*

estimated that some of the richest Peirson's milk-vetch habitat and the densest Peirson's milk-vetch colonies were (and are) located in the newly-designated Wilderness Area.[72]

Accounting for the protective benefits of the CDPA, however, was only a small part of USFWS's reevaluation process. The larger and more difficult task was obtaining updated, credible abundance data for the seven plants. This proved especially daunting with respect to the Peirson's milk-vetch, as evidenced by memoranda and correspondence from USFWS staff desperately searching for plant counts on the Peirson's milk-vetch. For example, in a memorandum to the BLM Area Manager in El Centro, dated November 14, 1996, USFWS Field Supervisor, Diane K. Noda, made the following statement:

> We have reviewed the information we have received on Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) following the proposed listing. There appears to be a lack of data on the abundance of this taxon in the Imperial Sand Dunes, an area managed by the Bureau of Land Management (BLM). Because a large part of the habitat of the milk-vetch is open to off-highway vehicles, population trend and abundance data is particularly important; *the lack of such data severely impairs the ability of the Fish and Wildlife Service (Service) to assess whether the milk-vetch warrants listing under the Endangered Species Act.* We request clarification on whether or not there exists additional information on the abundance of Peirson's milk-vetch on BLM lands. (*Emphasis added*.)[73]

In her memorandum, Ms. Noda went on to say that she and her staff had reviewed the 1977 WESTEC survey maps, the1990 ECOS report, and the 1993 survey performed by USFWS for the All-American Canal Project, but had found them inadequate to her purpose, which was to determine with some specificity the number of Peirson's milk-

[72] Memorandum from BLM State Director to USFWS Field Supervisor, dated November 1, 1996, at p. 1 ("Using results from the Survey of Sensitive Plants of the Algodones Dunes (WESTEC, 1977), we concluded that approximately 25% of the highest relative abundance patches of Peirson's milk-vetch occur in the Wilderness Area.") See, Exhibit 8 to this Petition.

[73] A copy of Ms. Noda's memorandum is attached to this Petition as Exhibit 19.

vetch plants inhabiting the Imperial Sand Dune system.[74] She then directed four questions to the BLM Area Manager in El Centro:

> (1) The key to the relative abundance symbols for the 1977 WESTEC map uses terms such as 'moderate numbers...' and "moderately high numbers...", without indicating what these numbers might be. Does the BLM have information that defines these terms more explicitly?
>
> (2) Did ECOS provide any field notes on population sizes or make any counts of plant numbers other than those that are included in their report?
>
> (3) The ECOS report contains a reference to a 1978-1979 report by Romspert and Burk titled 'Algodones Dunes Sensitive Plant Project.' Does this report provide data on abundance/population size for Peirson's milk-vetch?
>
> (4) Does BLM have documents, other than those cited above, that provide estimates of abundance for this species, either recently or in the past 30 years?[75]

The Peirson's milk-vetch listing file (maintained at the USFWS Field Office in Ventura, California) includes no written response from BLM to Ms. Noda's four questions. However, neither the 1977 WESTEC report, nor the 1990 ECOS report, nor the 1978-1979 Romspert and Burk article provides the kind of abundance data USFWS felt it needed to determine whether the Peirson's milk-vetch should or should not be listed as threatened.

This is easily shown.

With respect to question (1), regarding quantitative definitions of certain "relative abundance" terms used in the WESTEC study, no such definitions exist. WESTEC did not perform — or at least did not report — actual plant counts throughout

[74] Noda Memorandum.
[75] *Ibid.*

the dune system. Instead, WESTEC developed "relative abundance units" to distinguish dense plant colonies from sparse plant colonies; but no definitive plant numbers were given.[76]

With respect to question (2), regarding plant counts that may have been performed as part of the 1990 ECOS study, the answer again is that no such census data were compiled.[77] To make matters worse, the 1990 ECOS surveys were in no way comprehensive. The ECOS biologists only ran transects that were close to established roads so that observers could conduct the survey quickly and easily.[78] As a result, ECOS did not survey large areas of Peirson's milk-vetch habitat in the more remote regions of the open area.[79]

As to Ms. Noda's question (3), regarding the 1978-1979 Romspert/Burk report and its Peirson's milk-vetch abundance data, this study also did not involve dune-wide plant counts. Indeed, the Romspert and Burk report — in addition to being almost 20

[76] A copy of the 1977 WESTEC Study is attached as Exhibit 20 to this Petition. WESTEC performed its survey by running transects and then mapping the distribution and relative density of each plant species. (WESTEC 1977, at p. 1, 41-45.) Within each survey quadrant, WESTEC staff estimated the density of the particular taxa using a ranking system of 1 to 4. (Id., at 44.) According to WESTEC's report: "It should be emphasized that no absolute number is intended by this ranking system." (Id., at 44.) The four "abundance units" that corresponded to the "density ranking system" provided only the barest outline of the actual plant populations in the dunes. For example, the abundance units were broken down as follows:

- Abundance unit one: One to five inflorescences were observed, with most being dried up;
- Abundance unit two: Six to twenty inflorescence were observed, some still with flowers;
- Abundance unit three: Over twenty inflorescences in stand, but localized;
- Abundance unit four: Over thirty inflorescences in stand, many in flower state and well distributed in depression or vegetation habitat zone. (Id., at 45.)

[77] A copy of the 1990 ECOS Study is attached as Exhibit 5 to this Petition.
[78] BLM November 2000 Monitoring Study, at pp. 4-5.
[79] *Ibid.*

years old — appears to have been more limited in geographical scope than was the 1990 ECOS study.[80]

Finally, with respect to question (4), regarding additional BLM documents that might provide abundance data on the Peirson's milk-vetch, nothing in the Peirson's milk-vetch listing file suggests that such documents existed in 1996 or at any time prior to the October 1998 listing decision. It appears that BLM did not develop and publish new abundance data on the Peirson's milk-vetch until November 2000 — two years after adoption of the Final Rule listing the Peirson's milk-vetch as threatened.

The absence of abundance data did not, however, prevent BLM from taking a position on whether the Peirson's milk-vetch should be listed. In fact, BLM felt the creation of the North Algodones Dunes Wilderness Area, along with BLM's adaptive management strategies in the open dune area south of Highway 78, would adequately protect large tracts of high-grade Peirson's milk-vetch habitat. In a memorandum dated November 1, 1996, BLM's State Director stated that BLM had reversed its initial position regarding the Peirson's milk-vetch's status, and was now recommending that the plant ***not*** be listed at all:

> This responds to the subject proposed rule, published September 3, 1996, in the Federal Register. We commented previously on this listing package. Our previous comments still hold, ***except for Peirson's milk-vetch***, for which the comments below should be substituted...,
>
> With the North Algodones Dunes Wilderness Area, resulting in the protection of a substantial portion of the species distribution, and BLM's commitment to monitor the population of this species in the south dunes and respond accordingly to proposed projects, ***we***

[80] The copy of the Romspert/Burk report maintained in the USPWS listing file for the Peirson's milk-vetch is incomplete, so it has not been reproduced here or attached as an exhibit to this Petition.

> ***believe listing of the species is not necessary at this time***. (*Emphasis added*.)[81]

But then a curious thing happened. Despite the lack of data showing how many or how few Peirson's milk-vetch plants actually inhabit the dunes, despite having no seed bank data by which to judge the latent reproductive potential of the Peirson's milk-vetch, and despite BLM's recommendation that the species not be listed as threatened, USFWS decided to list the Peirson's milk-vetch anyway.

2. The 1998 Listing Decision Was Based on Studies Later Found to Be Biased and Technically Unsupportable

In making its 1998 listing decision, USFWS relied heavily on the 1990 ECOS study. For example, the Final Rule cites the 1990 ECOS study in support of the following assertions: (1) Peirson's milk-vetch populations have declined sharply since 1977; and (2) OHV use is the primary threat to the continued survival of the Peirson's milk-vetch.[82] Ultimately, these two critical findings formed the basis for USFWS's decision to list the Peirson's milk-vetch. However, BLM later concluded that the 1990 ECOS study was biased and scientifically unsound.

This key development requires some elaboration.

In the spring and summer of 1998, BLM embarked on a monitoring program for sensitive plant species in the Imperial Sand Dunes (Algodones). BLM staff ran transects throughout the open and closed areas of the dunes and gathered abundance and distribution data on six desert plants, including the Peirson's milk-vetch. The results of this monitoring effort were published in a November 2000 report entitled Monitoring of

[81] BLM Memorandum, November 1, 1996.
[82] Final Rule, FR Vol. 63, No. 193, at p. 53606.

Special Status Plants in the Algodones Dunes, Imperial County, California (the "November 2000 Monitoring Study").[83]

As the first technical report to provide dune-wide abundance data on the Peirson's milk-vetch since 1977, the November 2000 Monitoring Study allowed BLM to detect long-term trends in the population stability of the plant. Ironically, whereas the Final Rule listing the Peirson's milk-vetch as threatened stated the plant was in decline, the November 2000 Monitoring Study drew the opposite conclusion. For example, in the open areas, the number of Peirson's milk-vetch jumped sharply in the twenty years since the 1977 WESTEC surveys.[84] According to the November 2000 Study, "[m]ean transect abundance class values [in the open area] ***increased significantly*** between 1977 and 1998 for ***Astragalus magdalenae* var. *peirsonii***, *Croton wigginsii, Helianthus niveus ssp. Tephrodes*, and *Palofoxia arida* var. gigantea."[85] The report also determined that the Peirson's milk-vetch "frequency rating" in the open area had improved over the last twenty-one years.[86] However, the surveys also detected a decline — albeit statistically insignificant — in the Peirson's milk-vetch populations in the closed area.[87] In other words, the plant was doing better in the OHV-open areas than it was in the OHV-closed areas. This finding runs directly counter to the conclusions set forth in the 1998 Final Rule and the 1990 ECOS study on which it relied.[88]

What accounts for this remarkable discrepancy? The answer lies in the methodology employed by ECOS when it performed its plant survey in 1990. BLM, which had originally commissioned the ECOS study, later determined that ECOS's

[83] See Exhibit 3 to this Petition.
[84] November 2000 Monitoring Study, at pp. 14, 30-31.
[85] *Id.*, at p. 30.
[86] *Id.*, at p. 31.

analytical approach was technically unsound and incapable of producing credible data on the health of sensitive plants throughout the entire dune system. In the November 2000 Monitoring Study, BLM described the defects of the 1990 ECOS study as follows:

> In 1990 BLM contracted with the consulting firm ECOS to design a monitoring study that could be used to regularly monitor the effects of the OHVs on the special status plants in the dunes. The idea was for the contractor to design the study and collect the first year's data, which would then serve as a baseline. BLM personnel would then continue the monitoring in future years.
>
> The contractor designed and implemented the monitoring study and presented BLM with a report (ECOS 1990). Unfortunately, the study design was flawed in several ways. As a result it was not continued. ***The most serious flaw involved the selection of study sites. Study sites were subjectively located near roads to make them readily accessible by observers. This does not allow inferences to be made to the entire dune system. The study also did not adequately sample the open area.*** Although the study purported to make inferences to the entire open area, the four study sites chosen for this purpose were all within 1 mile of potential OHV access sites. Because these areas are close to potential staging areas for OHVs, ***results from these sites will be biased toward relatively heavy OHV use*** (as opposed to the situation if at least some of the sites had been located in the more interior portions of the open area).Moreover, there was very poor dispersion of study sites through out the open area: ***the entire southern and eastern portion of the open area were unsampled***.[89] (*Emphasis added*.)

As a result of the flaws discovered in the 1990 ECOS study, BLM abandoned the ECOS monitoring protocol and worked with USFWS and the California Native Plant Society to develop a new one. It was this new monitoring method that produced the results set forth in the November 2000 Monitoring Study and the monitoring studies BLM subsequently issued in 2001, 2004, and 2005.

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[87] *Id.*, at pp. 12, 14, 30.
[88] *See*, FR Vol. 63, No. 193, at 53606
[89] November 2000 Monitoring Study, at pp. 4-5.

3. BLM's November 2000 Monitoring Study Documents Healthy Peirson's Milk-vetch Populations Throughout Dune System

BLM's newly-developed survey method differed from the ECOS approach in two key respects. First, BLM did not limit its survey to areas near roads and trails where sampling could be conducted easily by the paid observer. Instead, BLM ran transects over wide areas of the dunes, including areas that are relatively remote. Second, BLM conducted its survey following a winter of average rainfall, whereas the 1990 ECOS study had been conducted following years of drought. The importance of this distinction was explained by BLM in the November 2000 Monitory Study:

> Another problem with the ECOS study was that it was conducted during a poor rainfall year. Precipitation at Gold Rock Ranch, just east of the southern half of the dunes (see Map 4), was 1.86 inches between July 1989 and June 1990, less than half of the average of 3.89 inches. Moreover, 1.3 inches of that total fell in July 1989; only 0.56 inches fell between August 1989 and June 1990. Six of the seven months between September 1989 and April 1990 were completely dry; only January, with 0.23 inches, had any effective precipitation (Figure 2). As a result, few of the target plant species [including the Peirson's milk-vetch] were found. Although all special status plants are perennials, few to no above-ground plants will be found if there has been no rainfall.[90]

That great numbers of Peirson's milk-vetch and other desert perennials will not germinate and grow above-ground during drought conditions should have been known to ECOS in 1990 and to USFWS in 1998. Yet neither group of professionals gave proper weight to this critical factor in the Peirson's milk-vetch's reproductive cycle.

By November 2000, however, it was clear to BLM and other specialists in desert botany that precipitation — more than any other factor — dictates how many Peirson's milk-vetch plants will germinate and break into flower in a given season. During drought conditions, the Peirson's milk-vetch seeds simply lie dormant beneath the sand, awaiting

the storms that periodically drop heavy rain on the dunes.[91] Only when there is adequate precipitation will the plants grow above the ground where they can be observed.[92]

However, the most startling finding in the November 2000 Monitoring Study is that OHV use does not pose a serious threat to the Peirson's milk-vetch or the other plants surveyed by BLM. Though the number of people engaged in OHV recreation during holiday weekends (when attendance is highest) increased from 15,000 in 1977 to 90,000 in 1998, the Peirson's milk-vetch nevertheless showed "significant" increases in both abundance and frequency during that 21-year period.[93] BLM explained this phenomenon as follows:

> Although all 6 species [including the Peirson's milk-vetch] appear to be at least as widespread and abundant in the entire open area in 1998 as they were in 1977, this likely results from the fact that OHV use in the open area does not encroach — at least very intensively — on much of the habitat of the plants in relatively large portions of the open area away from OHV staging areas.[94]

The November 2000 Monitoring Study also included a "vehicle track" map (Map 24) showing the OHV travel patterns in the Imperial Sand Dunes.[95] According to this vehicle track map, many of the interior portions of the open area — where there are impressive stands of Peirson's milk-vetch — receive very little OHV traffic.[96]

4. <u>BLM's June 2001 Monitoring Study Confirms that the Peirson's Milk-vetch is Abundant in the Algodones Dunes</u>

BLM's second monitoring study, published in June 2001 (the "June 2001 Monitoring Study"), built upon the November 2000 survey by including plant abundance

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[90] *Id.*, at p. 5.
[91] *Ibid.*
[92] *Ibid.*
[93] *Id.*, at pp. 2, 30-31.
[94] November 2000 Monitoring Study, at 35-36.
[95] *Id.*, at p. 36.
[96] *Id.*, at p. 36.

data gathered during the 1999 and 2000 growing seasons.[97] Although 1999 and 2000 were much drier than 1998 had been, the June 2001 Monitoring Study still concluded that most of the plant species under review, including the Peirson's milk-vetch, were at least as abundant in 1999 and 2000 as they were in l977.[98] The June 2001 Monitoring Study also reiterated BLM's earlier finding that OHVs rarely have contact with sensitive plants, as most of the plant colonies are located in areas where OHV use is quite light.[99] Ultimately, the June 2001 Monitoring Study concluded as follows:

> The response of *Astragalus magdalenae* var. *peirsonii*, a short-lived perennial, is closely tied to precipitation. It was most abundant in 1998, the highest rainfall year, and least abundant in 2000, the lowest rainfall year. Responses of the species were similar in both the closed and open areas across all four years of monitoring.[100]

In other words, fluctuations in the Peirson's milk-vetch population were driven by precipitation, not by alleged "habitat alteration" from OHV activity.

5. Spring 2001 Plant Counts Further Confirm That the Peirson's Milk-vetch is Abundant and Thriving Throughout the Imperial Sand Dunes

In the November 2000 Monitoring Study, BLM acknowledged that its 1998 surveys, while providing an important gauge for assessing general trends in plant populations, could not give a full accounting of actual plant numbers:

> One of the limitations of both the WESTEC study and the current study is that the results give only an index of abundance of the 6 species. Monitoring that results in estimates of actual population size would be better. Given current funding and personnel capabilities, however, the WESTEC methodology of using

[97] This study, entitled Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California, 1977, 1998, 1999, and 2000, is attached to this Petition as Exhibit 14.
[98] June 2001 Monitoring Study, at pp. v-vi, 20-27, 30.
[99] *Id.*, at p. 31.
[100] *Id.*, at p. 30.

> abundance classes was chosen for the current study because it allows more complete coverage of the dunes than would be possible if actual density estimation was attempted. (Emphasis added.)[101]

BLM's June 2001 Monitoring Study expressed the same opinion regarding the WESTEC methodology.[102]

Then, in the spring of 2001, the American Sand Association retained Arthur Phillips, Ph.D., and the consulting firm of Thomas Olsen Associates, Inc. ("TOA") to eliminate the "plant count" data gap identified by BLM in its two survey reports — at least with respect to the Peirson's milk-vetch.[103]

It is important to stress that Dr. Phillips and TOA purposely abandoned the "relative abundance" survey method used by WESTEC in 1977 and by BLM in 1998, 1999, and 2000. Instead, Dr. Phillips conducted a "multi-stage non-probabilistic survey" of the Peirson's milk-vetch, counting every plant they encountered.[104] This eliminated the need for a sampling methodology and statistical extrapolations: "Sampling methodology was not included in the survey design, since the purpose of the investigation was to locate as many occurrences of the subject plants as possible, and to completely census every area in which they were discovered."[105] This survey approach made sense because:

> Peirson's milk-vetch occurs in highly clustered, specialized habitats within the dunes, and a large portion of the Algodones Dunes does not contain habitat suitable for these plants. For the study of this type of population, many researchers (Redman 1974; Schiffer and House 1977; Schiffer et al. 1978; Plog et al. 1978;

[101] November 2000 Monitoring Study, at pp. 36-37.
[102] June 2001 Monitoring Study, at p. 28.
[103] A copy of the TOA Report is attached to this Petition as Exhibit 7.
[104] TOA Report, at p. 3.
[105] TOA Report, at p. 3.

> Wilson 1996) have determined that non-probabilistic research strategies are preferable to random or stratified random methods (which are generally more effective for the study of normally distributed populations). Schiffer et al. have argued that '[random] sampling techniques . . . do not facilitate . . . population estimation of rare or highly clustered elements.[106]

Dr. Phillips had hoped to conduct this on-the-ground plant census in both the open and closed areas of the dunes, but BLM twice denied his request for vehicle access into the five closed parcels.[107] As a result, Dr. Phillips and the TOA biologists surveyed the closed areas by helicopter, noting the GPS coordinates of each Peirson's milk-vetch colony they observed.[108]

The heavy rains in the fall of 2000, and cooler, wet weather in the winter of 2001, gave TOA the opportunity to survey the Peirson's milk-vetch during an especially productive germination period.[109] The number of Peirson's milk-vetch plants observed was startling. In the open areas, Dr. Phillips and TOA counted 71,926 Peirson's milk-vetch individuals, the vast majority of which had already produced seeds to be dropped or scattered in the dunes when the summer heat dries (and often kills) the plants.[110]

As for the closed areas, TOA determined from helicopter overflights that Peirson's milk-vetch colonies in the closed dunes also support large numbers of individual plants:

> A helicopter survey of the closed areas revealed many occurrences, especially within the southern portion of the large central closure. These sites could not be censused, but they appeared to be similar in number and abundance of plants to adjacent open areas.[111]

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[106] *Ibid.*
[107] *Id.*, at p. 4.
[108] *Id.*, at p. 4-5.
[109] *Id.*, at pp. 1, 10.
[110] *Id.*, at pp. 10-11.
[111] TOA Report, at p. 13.

Apart from the extremely large number of Peirson's milk-vetch individuals observed by Dr. Phillips and TOA — approximately 72,000 in the open area and numerous Peirson's milk-vetch colonies in the closed area — the TOA report includes three other important findings. First, Dr. Phillips confirmed what other researchers had suspected in the past — that the Peirson's milk-vetch, although technically a perennial, behaves more like an annual plant and is extremely susceptible to fluctuations in rainfall. According to TOA:

> The vast majority of Peirson's milkvetch plants observed were of a uniform age and in their first year. Peirson's milk-vetch is a short-lived perennial that explosively germinates when favorable moisture conditions occur (Barneby, 1964; Bowers, 1986), in this case an abundance of fall moisture in October 2000. Only five individuals were found that appeared to be older than the current growing season.[112]

The second finding, tied closely to the first, was that the Peirson's milk-vetch's reproductive success is not dependent on the longevity of individual plants, but on the size and health of the species' seed bank:

> Although the Peirson's milkvetch is potentially a perennial, most plants that germinated in October 2000 were flowering in March 2001 and setting fruit by May. This means that they contributed to the replenishment and enhancement of the seed bank during their initial growing season; many may not survive if dry conditions occur during the following winter, but their survival is not necessary for the preservation of the species since they have already reproduced . . . .
>
> The potential for a desert annual or short-lived perennial rests not in the plants that are actively growing at any particular time but in the seed bank, the dormant seeds resting in the soil awaiting the return of brief, favorable conditions for their germination (Pavlik and Barbour, 1988; Venable and Pake, 1999). Dormant seeds in the soil allow plants to survive long periods of unfavorable growing conditions, both seasonal and annual. The contribution of

[112] TOA Report, at p. 10. This finding is consistent with similar findings set forth in BLM's June 2001 Monitoring Study. (June 2001 Monitoring Study, at pp. v, 21, 30. Ex. 14 to this petition.)

> the 2000-2001 cohort of Peirson's milk-vetch to replenishing the seed bank is impressive.[113]

Ultimately, the Dr. Phillips concluded that, with respect to the Peirson's milk-vetch and other desert-dwelling perennials, "it is impossible to ascertain the status of such plants without either studying them during a rare germination event, or by analyzing the seed bank."[114] Dr. Phillips stated:

> The largest site censused in March 2001, before the secondary germination event, contained 3,738 plants, 90% of which were noted as reproductive. If each plant produced 5 pods, and each pod contained 14 seeds, the contribution to the seed bank at that site alone would be more than 235,000 seeds. The largest site counted was 3,994 plants in early April. The proportion of plants estimated to be reproductive when this site was censused was only 20%, reflecting the March germination event. Making the same assumptions as above, the 2001 seed bank contribution of this site would be nearly 56,000 seeds. By the time of our April trip, many plants had shed their pods, and seeds were plainly visible on the sand surface. The large, flat black seeds contrast strongly with the light-colored sand, and at several sites observers noted that seeds were 'all over the place.' In these cases the pods had not been dispersed far before they broke open and shed their seeds.[115]

The third finding, which relates directly to the "threats" identified in USFWS's 1998 listing decision, is that less than 1% of the 71,926 Peirson's milk-vetch plants observed in the open areas showed signs of contact with OHVs, and most of these plants suffered no permanent damage.

> "The total number of plants that showed any evidence of having been affected by OHVs was 667, or 0.93% of all Peirson's milkvetch plants counted. It was apparent that nearly all plants that were run over were resilient, and popped back up with no damage to the stems or the flowers. As soon as wind obliterated the tracks there was no sign of any effect. The proportion of plants that had been affected by OHVs was small primarily because drivers avoid

[113] TOA Report, at pp. 10-11.
[114] *Id.*, at p. 12.
[115] *Id.*, at p. 11.

> vegetated basins due to the potential tire damage from woody, stems of shrubs, and wood scattered on the ground from dead plants. Even though tire damage would not occur from running over a first-year milkvetch, they are protected by their location in general proximity with shrubs."[116]

Ultimately, Dr. Phillips determined that "[t]he occurrence of dune plants and heavy use areas for vehicles is to a large extent mutually exclusive."[117] This conclusion is consistent with similar statements in BLM's monitoring reports from November 2000 and June 2001:

> Although all 6 species [including the Peirson's milk-vetch] appear to be at least as widespread and abundant in the entire open area in 1998 as they were in 1977, this likely results from the fact that OHV use in the open area does not encroach — at least very intensively — on much of the habitat of the plants in relatively large portions of the open area away from OHV staging areas.[118]
> (BLM November 2000 Monitoring Report)

> Although all six species [including the Peirson's milk-vetch] . . . appear to be responding similarly in both the closed and open areas, this likely results from the fact that OHV use in the open areas does not encroach — at least very intensively — on much of the habitat of the plants in relatively large portions of the open area away from OHV staging areas.[119]
> (BLM June 2001 Monitoring Report)

When read together, the BLM monitoring studies (2000 and 2001) and the TOA Report demonstrate that, at least in the 1998—2001 time-frame, the Peirson's milk-vetch was thriving in the open and closed portions of the Imperial Sand Dunes. The question, then, was whether the data developed in 1998—2001 provided an accurate reflection of the status of the Peirson's milk-vetch or was instead an aberration. The only way to answer

[116] *Id.*, at p. 12.
[117] *Ibid.*
[118] November 2000 Monitoring Report, at p. v.
[119] June 2001 Monitoring Report, at p. vii.

this question was to conduct repetitive surveys over successive years, which is exactly what BLM and Dr. Phillips did, albeit on separate tracks.

6. Plant and Seed Data Developed Since 2001 Confirm the Peirson's Milk-vetch is Thriving in the Dunes

As shown by BLM's monitoring studies from 2000-2005 and Dr. Phillips' analytical surveys from 2001 through 2005, the Peirson's milk-vetch is abundant throughout its range and, given the proper climatic conditions, will express itself above-ground in a profusion of plants (173,000 to 280,000 individuals). These studies also show that the Peirson's milk-vetch seed bank is stocked with a minimum of 2.5 million seeds. When it denied the original delisting petition submitted in October 2001 by ASA, *et al.*, USFWS did not have the benefit of this multi-year monitoring data, and this may account for its reluctance to remove the plant from the list of threatened species. But now that these data are in, they cannot be ignored. The BLM and Phillips reports establish – not by a "snapshot" in time, but by repetitive "year-after-year" analyses – that the Peirson's milk-vetch has a large and stable population which seems to be growing.

Both BLM and Dr. Phillips have learned a great deal about the ecology and reproductive strategies of the Peirson's milk-vetch – knowledge that no one possessed in 1998 or even in late 2001 when the original delisting petition was submitted. Now, however, we know a great deal more about the Peirson's milk-vetch reproductive cycle. Weather permitting, the species will have two germination events in a season – one in the late fall, another in the late winter/early spring. Many of the fall germinants will drop seed by the following April, while nearly all of the spring germinants will remain infertile until the next growing season, which means they must survive the harsh summer if they are to reproduce. Most don't make it. Those that do – the so-called

"second-years" – tend to produce a very high number of seeds per plant. Between the seed-bearing first years and the surviving second years, the Peirson's milk-vetch seed bank remains well-stocked, even when depleted by a large germination of infertile (and for the most part doomed) juvenile plants in the spring. The fecundity of the fertile plants is so great as to replenish this loss within the next growing season or two.

7. The Peirson's Milk-vetch No Longer Satisfies Listing Criteria

When reviewing this delisting Petition, the Secretary of the Interior must evaluate the "best scientific and commercial data available" on the Peirson's milk-vetch.[120] In doing so, the Secretary must then consider whether the Peirson's milk-vetch is still vulnerable to the five "threats" identified by 16 U.S.C. § 1533 (a)(l) and 50 CFR Part 424.11:

> (1) the present or threatened destruction, modification, or curtailment of its habitat or range;
>
> (2) overutilization 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.

Given the results of the multi-year monitoring conducted by BLM and Dr. Phillips, respectively, it is clear that the anticipated threats to the Peirson's milk-vetch and its habitat have not materialized. The status of the Peirson's milk-vetch as a vigorous, thriving, healthy species shows no signs of

[120] 50 CFR Part 424.11

diminishing during the past 24 years. While varying tremendously in abundance on a year-to-year basis according to rainfall, it is able to respond rapidly with germination from its seed bank to produce tens of thousands of seedlings following any significant cool-season rainfall event, the most explosive response being the most recent, in the fall and winter of 2004-2005. Reproductive capacity remains commensurate with the number of potentially fertile plants.

While it is notoriously difficult to determine the status of annual or short-lived perennial desert plant, studies conducted over the past five years on both the seed bank and above above-ground elements of Peirson's milk-vetch abundance show indisputably that its population is healthy, its status stable, the threats to its continuous existence negligible, and the necessity of maintaining its protection under the ESA non-existent.

With respect to OHV use, the data consistently establish that OHVs are not a major threat to the Peirson's milk-vetch. Every study published since 2000 – whether issued by BLM or Dr. Phillips – has concluded that OHVs do not significantly affect Peirson's milk-vetch population trends or fluctuations. The following statement from BLM's October 2004 Monitoring Study bears repeating: *"There is no evidence of any OHV effect on either Peirson's milk-vetch or Algodones Dunes sunflower."*[121] In other words, OHV use does not threaten the Peirson's milk-vetch or its habitat.

There also is no evidence that the Peirson's milk-vetch is threatened with "overutilization" for commercial, recreational, or scientific purposes. The plant data set forth in the most recent study by BLM indicate that approximately 280,000 Peirson's

milk-vetch inhabited the Imperial Sand Dunes in the spring of 2004. The plant data from Dr. Phillips' 2005 study show that a germination event in the fall of 2004 and early winter of 2005, coupled with a second germination event in the spring of 2005, produced more than 173,000 plants in the dunes. The seed bank is also well-stocked and shows no sign of significant or chronic depletion. On the contrary, the plant's reproductive strategy seems to guarantee that the seed bank will be replenished on cyclical basis. Clearly, the plant is not being overutilized or over-consumed.

As for "disease and predation," the Peirson's milk-vetch is largely free of these threats. Although the Peirson's milk-vetch will lie dormant during drought years — thus giving the appearance of poor species health — this is, in fact, a normal part of the Peirson's milk-vetch's reproductive cycle. The plant's seeds will lie in a protective state below the sand, and then germinate when there is sufficient rainfall. Note also that OHV use apparently does not interfere with this process.

The data also suggest that the Peirson's milk-vetch has received adequate regulatory protection from BLM since 1977. BLM can only govern human activities, and these have not been a major factor in the reproductive success of the Peirson's milk-vetch. Precipitation is the primary determinant; and precipitation cannot be "regulated."

Finally, as to other "natural or manmade" threats to the Peirson's milk-vetch, there simply are none. Even drought is not so much a threat to the Peirson's milk-vetch's "continued existence" as it is a natural condition that is accommodated by the Peirson's milk-vetch's reproductive process. The plant's seeds are designed to conserve their reproductive potential during dry years and to release that potential when more favorable (i.e., wet) conditions arise. The number of Peirson's milk-vetch plants and

[121] BLM October 2004 Monitoring Study, at p. v.

seeds observed during the survey conducted between 1998 and 2005 demonstrate that no manmade or natural "agent" is interfering with the "continued existence" of the Peirson's milk-vetch. In any given year, hundreds of thousands of Peirson's milk-vetch will express themselves above-ground, while below the surface of the sand the seed-bank numbers in the millions. These favorable reproductive conditions have likely existed for millennia. They certainly have not been significantly affected by OHV use or any other human activity. There simply is not enough contact between humans and the Peirson's milk-vetch to create the kind of threat that the original listing was meant to address. Now that we better understand the Peirson's milk-vetch life-cycle and reproductive dynamics, we can see that the plant was never in danger and likely never will be. In short, the plant is not threatened and should be removed from the federal list.

V. CONCLUSION

For the foregoing reasons, the American Sand Association, the San Diego Off-Road Coalition, the Off-Road Business Association, the California Off-Road Vehicle Association, and the American Motorcycle Association District 37 request that the Secretary of the Interior publish findings in support of removing the Peirson's milk-vetch from the federal list of threatened and endangered species.

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