Photos by R. Mrowka

Before the U.S. Secretary of Interior

A petition to list the **Las Vegas buckwheat** (***Erigonun corymbosum* var. *nilesii***) as Threatened or Endangered under the U.S. Endangered Species Act.

Submitted by:
Center for Biological Diversity – Public Lands Program
Rob Mrowka, Nevada Conservation Advocate

April 22, 2008

Notice of Petition

The Honorable Dirk Kempthorne
Secretary of Interior
U.S. Interior Department
1849 C Street, NW
Washington, D.C. 20240

Mr. Steve Thompson
Regional Director
U.S. Fish & Wildlife Service
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Submitted this 22 day of April, 2008

Pursuant to Section 4(b) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1533(b), Section 553(3) of the Administrative Procedures Act, 5 U.S.C. § 553(e), and 50 C.F.R. § 424.14(a), the Center for Biological Diversity hereby petitions the Secretary of Interior, through the U.S. Fish and Wildlife Service ("FWS"), to list the Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) as a threatened or endangered species at a Priority level of **3** and to, at the same time, designate Critical Habitat to ensure its recovery.

The Center for Biological Diversity ("Center") is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through applying sound science, policy and environmental law. The Center has over 40,000 members throughout the United States. The Center and its members are concerned with the conservation of imperiled species, such as the Las Vegas buckwheat, and the effective implementation of the ESA.

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I. Executive Summary

The Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) is a recently identified, genetically unique subspecies of buckwheat located in southern Nevada. This beautiful flowering shrub grows only in Clark and Lincoln Counties, Nevada—it is found nowhere else on Earth.

Because of its rarity, the Las Vegas buckwheat faces imminent risks of extinction due to the privatization of public lands, private land commercial and residential development; unmanaged, and in some cases illegal, off-road vehicle use; mining; changes in the wildfire regime; and, global climate change.

Currently only nine populations of Las Vegas buckwheat at fifteen sites totaling about 1145 acres are known to exist. Over 95% of the historic range of the subspecies has already been lost to development. The vast majority of the remaining sites are imminently threatened and the Las Vegas buckwheat located there may disappear in the immediate future. On one quarter of the sites, the Las Vegas buckwheat faces imminent extirpation. Of the 15 sites containing Las Vegas buckwheat:

- Four sites totaling 286 acres have no protection; the Las Vegas buckwheat on these sites have been, or will soon be, extirpated;
- Ten sites totaling 809 acres are at risk of negative impacts or extirpation from human related causes; and
- Only on site—the Muddy Mountains—which covers only 50 acres, is secure and adequately protected.

Clark County has experienced unprecedented long term population growth, fueled in part by land acts passed by Congress to provide Las Vegas and other communities with lands for urban expansion. The direct impacts of this development, combined with the effects of increasing off-road vehicle use, threatens to eliminate the Las Vegas buckwheat from southern Nevada.

As such the Center for Biological Diversity petitions for the Las Vegas buckwheat to be listed as Threatened or Endangered, and assigned a Priority rating of 3, and that Critical Habitat be identified for this species concurrent with its listing.

II. Classification and Nomenclature

Scientific name: *Eriogonum corymbosum* var. *nilesii*

Common name: Las Vegas buckwheat (LVB); golden buckwheat

Scientific group: *Polygonaceae* (buckwheat family)

III. Legal and Agency Status

Federal:

U.S. Fish and Wildlife Service (FWS): Candidate Species, Priority Level 6, as of December 6, 2007.

Bureau of Land Management (BLM): Nevada Special Status Species.

Department of Defense, Nellis Air Force Base (NAFB): Not protected.

National Park Service, Lake Mead National Recreation Area: Threatened.

State of Nevada: Not protected.

Local: Not protected. LVB is a Clark County Multiple Species Habitat Conservation Plan Evaluation Species and is not covered by the Plan or associated Incidental Take Permit.

Nature Serve: G5T2

IV. Description

Note: Sections IV-VIII have been extracted out of the U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form (FWS, 2007c)

The Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii)* is a woody perennial shrub up to 4 feet (ft) high with a mounding shape. The subspecies is distinguished from closely related taxa by leaves that are densely hairy on one or both surfaces, at least twice as long as wide, with dense hairs spread along the stem. The branches are wooly haired and swollen at branch intersections. The inflorescences are 1 to 4 inches (in) long with the flowers arranged in umbrella-like clusters (corymbs) at the end of branches. The inflorescence branches are divaricate, rigid, and sometimes spinescent. The numerous flowers are small and yellow with small bract like leaves at the base of each flower. This plant is very conspicuous when flowering in late September and early October.

Flowering plant (R. Mrowka)

Over wintering plant (R. Mrowka)

V. Taxonomy

The taxonomic classification of Las Vegas buckwheat has been an intricate history of name changes and revisions (*e.g.* Reveal 1967, 1971, 1980a, 1980b, 1983, 1985a, 1985b, 2002, and 2004). The Las Vegas buckwheat is part of the *corymbosum* complex, which is widespread in the southwest and concentrated on the Colorado Plateau (Reveal 2002, pp.26-37; Reveal 2004, p. 129). Based on morphology, Las Vegas buckwheat is probably most closely related to *Eriogonum corymbosum* the subspecies *glutinosum* (Reveal 2002, pp.32-33; Reveal 2004, p. 129). Las Vegas buckwheat has traditionally been assigned to the Colorado Plateau variant *Eriogonum corymbosum* the subspecies *glutinosum* but differs from *glutinosum* in its dense, white tomentosa (hairy) leaves, disjunct distribution and preference for gypsum soils (Reveal 2002, p. 26). Based on morphometric studies, Reveal (2004, p. 129) determined material from Clark County, Nevada was a unique taxon and named this subspecies *nilesii*. The validity of Reveal's morphological determination was confirmed by Ellis and Wolf (2007, pp. 1-14) using molecular genetic analysis. After review of the available taxonomic data we conclude that the *Eriogonum corymbosum* var. *nilesii* is a valid taxon that meets the definition of "species" in the Endangered Species Act (Act).

VI. Habitat and Life History

Plants of the *corymbosum* complex are common in sandy substrates on the Colorado Plateau from southwestern Wyoming through western Colorado, eastern Utah, northern New Mexico, and Arizona. Within this complex a key feature for considering the Las Vegas buckwheat a distinct subspecies is its marked preference for gypsum soils (Reveal 2002, p. 26). Susan Meyer (1986, p. 1308) described the Las Vegas buckwheat as a gypsocline, a species that principally occurs on gypsum but is also found on other

unusual substrates such as clay beds and high-boron shale. Using soil test pits, Drohan and Buck (2006, p. 12) determined the Las Vegas buckwheat typically occurs on deeper soils than the Las Vegas bearpoppy (*Arctomecon californica*) another endemic gypsocline that shares much of the same habitat preferences and range. Typically, gypsum soil outcroppings occupied by Las Vegas buckwheat are sparsely vegetated with bare exposed soils covered with a cryptogammic soil crust. Although a specific vegetation classification for Las Vegas buckwheat habitat does not exist, it generally can be differentiated from typical Mojave creosote-bursage scrub and saltbush scrub that usually surrounds it by the presence of gypsophiles (gypsum obligate species) and other gypsoclines that occasionally share habitat, including the Las Vegas bearpoppy, Parry sandpaper plant (*Petalonyx parryi*), Palmer's phacelia (*Phacelia palmeri*), wingseed blazing star (*Mentzelia pterosperma*) and froststem suncup (*Camissonia multijuga*) (Meyer 1986 p. 1308).

VII. Historical Range and Distribution

Because the taxonomy of the species was only recently resolved in 2006, there is very little information regarding the historic range distribution of the subspecies. Based on herbarium records, Las Vegas buckwheat is historically known from three locations in Clark County: Las Vegas Valley, Gold Butte, and Muddy Mountains (Service 2000, p. 9). The distribution of all known (current and historic) occurrences in Southern Nevada is shown in Figure 1. Based on all records for the subspecies (herbarium records, surveys of undeveloped parcels in the Las Vegas Valley and all current records), the Las Vegas Valley historically contained the primary distribution of the subspecies. Based on US Geological Survey soils mapping, there are approximately 88,000 acres of suitable soils for the subspecies in the Las Vegas Valley (Figure 2). However, this is likely an

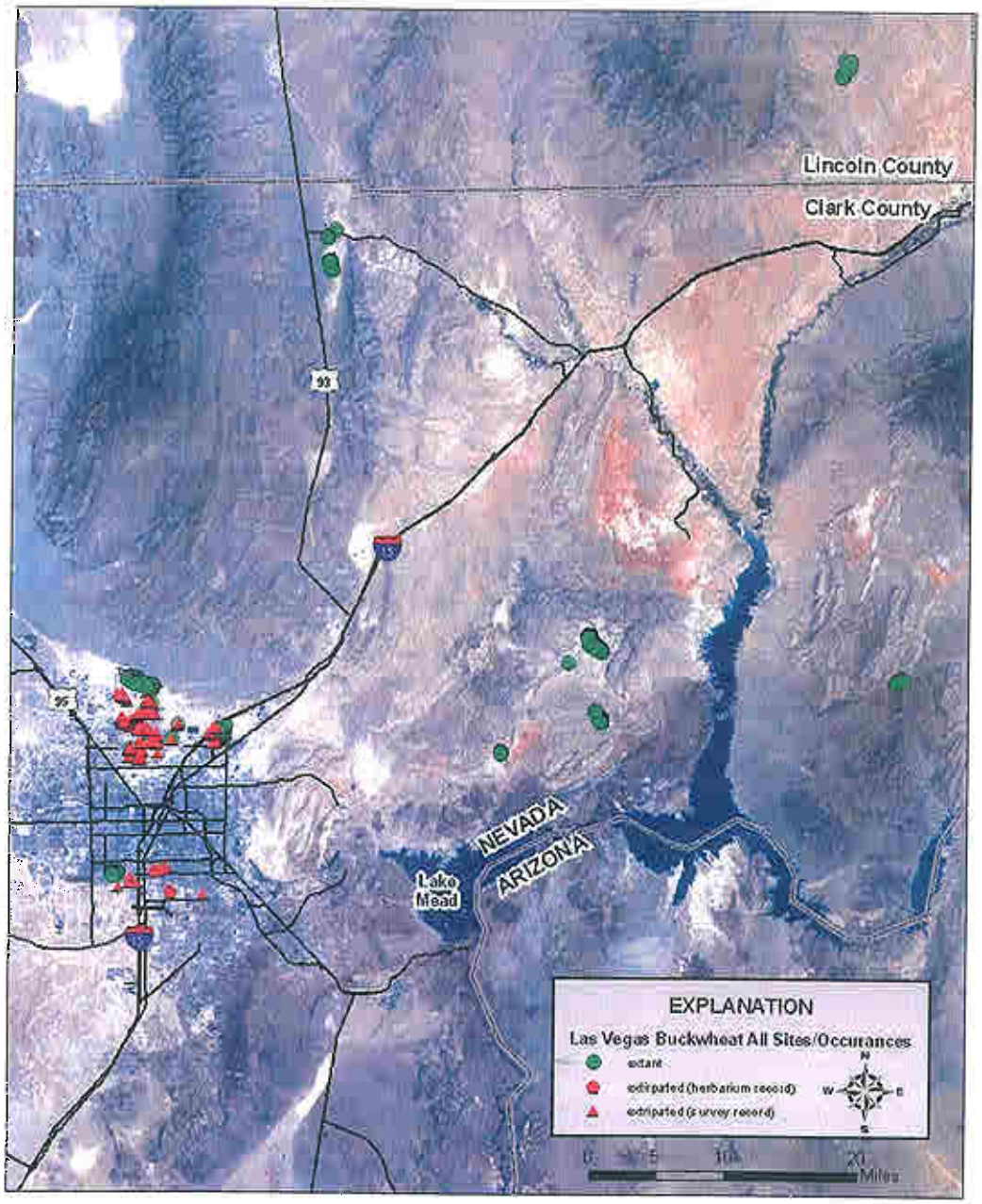

Figure 1: Known historic and current occurrence of Las Vegas buckwheat in Southern Nevada (FWS, 2007c)

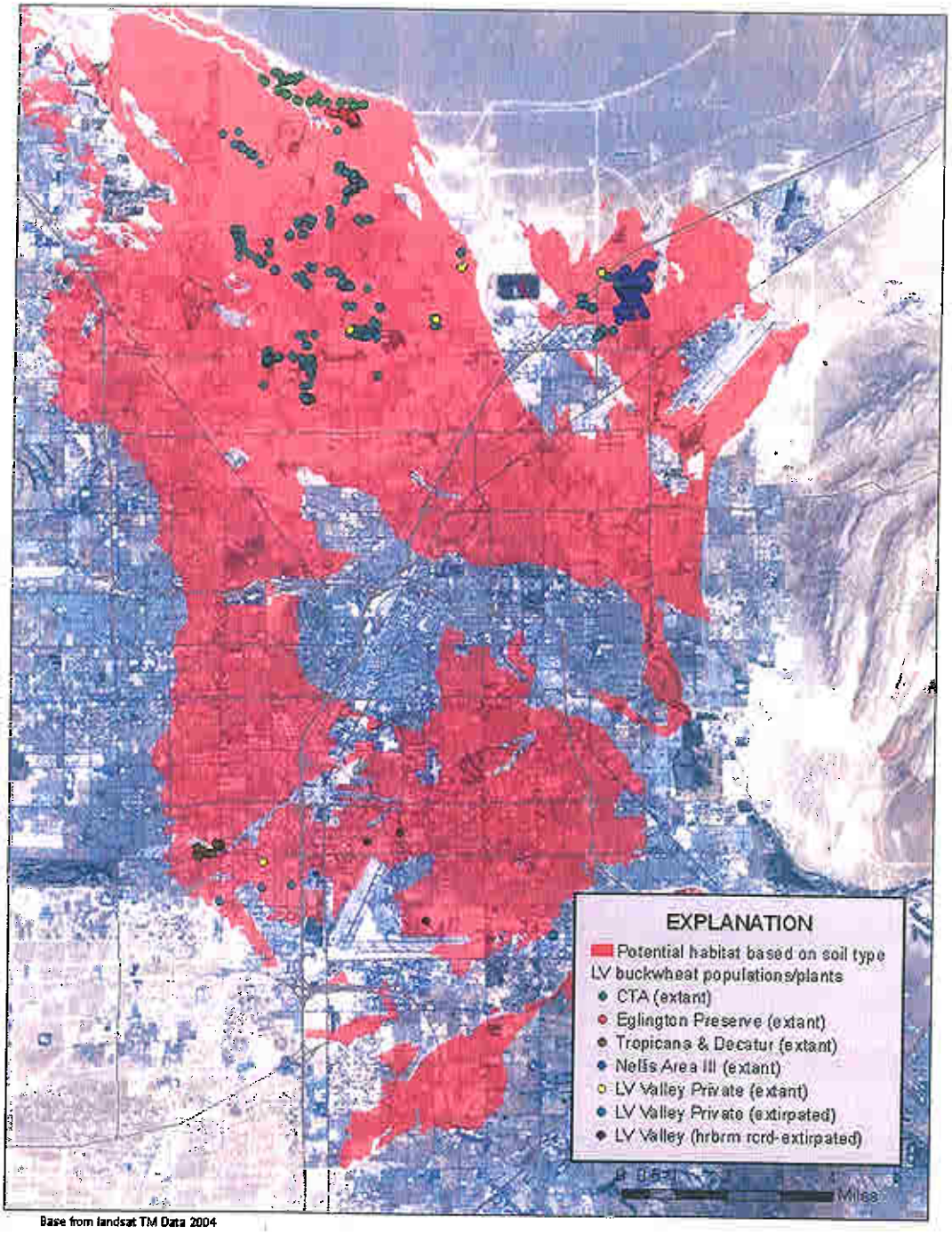

Figure 2: Potential habitat based on suitable soils mapping and known occurrences (historic and current) of Las Vegas buckwheat in the Las Vegas Valley (FWS, 2007c)

overestimate of the historic occurrence of the subspecies within the Las Vegas Valley because additional biotic and abiotic factors that regulate recruitment and reproduction (including pollination biology, seed dispersal, soil depth and local hydrology) would also limit the species distribution within suitable soils. There is no information available to infer the number of plants historically present.

VIII. Population Estimates, Status, and Current Range and Distribution

The Las Vegas buckwheat is geographically isolated from other subspecies of *Eriogonum corymbosum* within the Mojave Desert (Reveal 2002, p. 26; Reveal 2004, p. 129). Both Reveal (2002, p. 26; 2004, p. 129) and Ellis and Wolf (2007, p. 1) describe the range of the Las Vegas buckwheat as Southern Nevada, southwestern Utah and northern Arizona. Based on herbarium work, Reveal (2004, p. 129) suggests the subspecies could be present in two additional locations outside of Nevada, the first along the flood plain of the Paria River in southern Kane County, Utah and the second at a site on Pierce Wash, in northern Mohave County, Arizona. Reveal (2002, p. 26) also indicated the species could be present at a third location near Flagstaff in Coconino County, Arizona; however Ellis and Wolf (2007, p. 5) determined plants near Flagstaff in Coconino County to be a yellow flowered expression of the otherwise white flowered individuals of the subspecies *glutinosum*.

The Kane County, Utah and Mohave County, Arizona herbarium records were not included in the Ellis and Wolf genetic analysis. Without additional field work, using herbarium records to infer the range of the species is problematic because herbarium records are often old (the Utah herbarium collection was made in 1978) and important habitat features such as the presence of gypsum soils are generally unavailable. Data from Ellis and Wolf (2007, p. 13) suggest populations in the eastern portion of the range may have a higher similarity to subspecies *aureum* than the Las Vegas Valley population; therefore, potential populations in Utah and Arizona could represent transitional forms between the subspecies *nilesii* and subspecies *aureum*. Until habitat information can be collected and additional genetics work can be completed on the Kane County, Utah and Mohave County, Arizona herbarium records, it can be concluded the current range of the subspecies is limited to southern Nevada.

IX. Land Ownership and Management Responsibilities

Upon receiving notice of the U.S. Fish and Wildlife Service's assessment of the status of the Las Vegas buckwheat in the Federal Register on December 6, 2007 (Federal Register, 2007b), the Center conducted its own analysis of the data and developed Table 1 which follows.

Table 1: Known Populations and Conservation Status of the Las Vegas Buckwheat, as of January, 2008.

Population/ Location	Site name	Land owner	Acres of remaining occupied habitat	Acres extirpated or soon to be extirpated	Threats 1/	**Conservation Status**
Upper Las Vegas Clark County	Eglington Preserve	BLM	59		ORV Recreation	**At risk**
	Olympia – Parks Highlands Master planned community	private		92	Development	**To Be Extirpated** (most of site still exists as of 2.2.08)
	Conservation Transfer Area	BLM	127		Development ORV Recreation	**At Risk**
Nellis AFB Clark County	Area III (1)	DOD	233		Recreation Mission essential needs	**At Risk**
	Area III (2)	DOD		137	Flood Control Housing Other development	**Extirpated, or to be Extirpated**
Undeveloped parcels (7) in Las Vegas Valley Clark County	Las Vegas Valley Private	Private	3		Development	**At Risk**
	Las Vegas Valley Private	Private		32	Development	**Extirpated**
Tropicana-Decatur Parcel Clark County	Trop-Decatur	BLM	44		R&PP lease Flood control Developed park	**At Risk**
Muddy Mountains Clark County	Lovell Wash	BLM	50			**Conserved**
Coyote Springs Clark County	Coyote Springs (1)	BLM	62		ORV Utility corridors Development	**At Risk**
	Coyote Springs (2)	Private		25	Development	**Extirpated**
Gold Butte Clark County	Gold Butte	BLM	7.5		ORV Recreation	**At Risk**
White Basin Clark County	White Basin (1)	US Borax Co	30		Mining ORV	**At Risk**
	White Basin (2)	BLM	172		ORV	**At Risk**
Toquop Wash Lincoln County	Toqoup Wash	BLM	71.8		Utility corridors Development Mining ORV	**At Risk**
Totals			859.3	286 acres		
1/ All sites at risk Change and	**from climate other stochastic**	**events.**				

The nine populations can be viewed as occurring on 15 different sites, with varying degrees of protection and viability. These sites are now summarized:

- **Upper Las Vegas Wash** – This population is in an area available for disposal under the Clark County Conservation of Public Lands and Natural Resources Act of 2002. Portions of these lands were nominated for sale by the City of North Las Vegas, and were sold to the Olympia Group in November, 2005.
    - **Eglington Preserve** – This area was withdrawn from the land sale proposal under a conservation agreement among the BLM, FWS, Nevada Division of Forestry and the City of North Las Vegas in June 2005 (BLM, 2005a). The BLM has contracted with The Nature Conservancy of Nevada to assist with the management and restoration of the area. The Preserve contains approximately 59 acres of occupied LVB habitat. The area will be bordered on three sides by residential and commercial development and on the north it will be bisected and isolated from the other occupied habitat in the upper Las Vegas Wash by a four-laned highway. The area experiences heavy illegal off-road vehicle (ORV) use. Due to the direct and indirect impacts from the surrounding development this area is **At Risk**.

Picture of the Eglington Preserve, February 2008. (R. Mrowka)

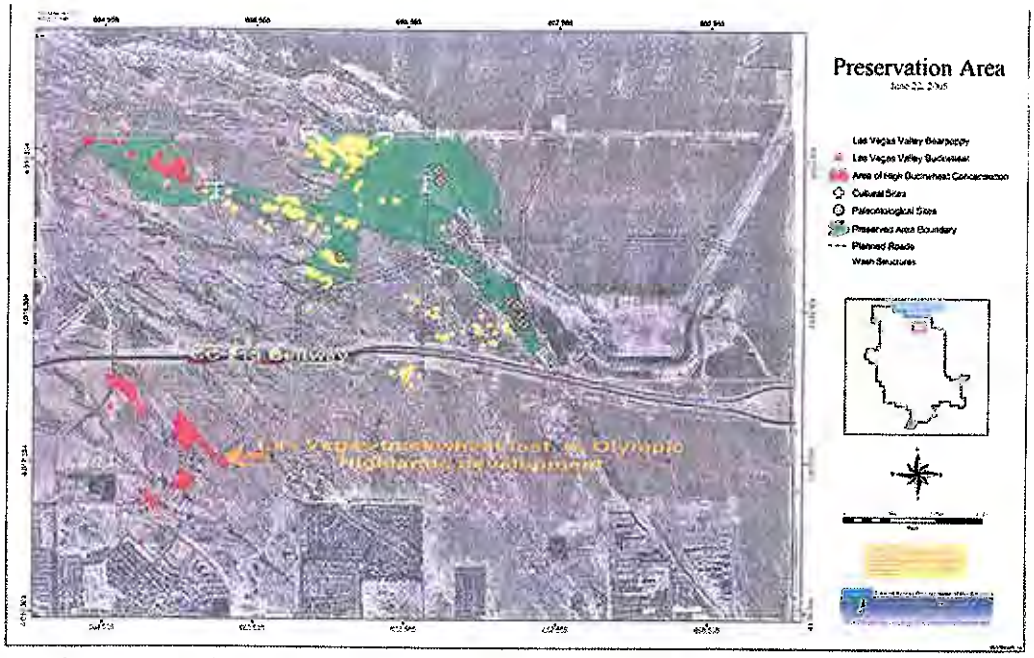

Figure 3: Map showing relationship of the Eglington Preserve (green area) to the substantial LVB population lost to the Olympic Park Highlands development (area south of the CC 215 Beltway)(BLM, 2005a).

- **Olympia Park Highlands Master Planned Community** – under the terms of the conservation agreement, 92 acres of occupied LVB habitat were approved by the BLM and FWS for development and extirpation of the habitat. Included, were two sites isolated from the main population of LVB in the upper Las Vegas Wash – the Deer Springs and the Decatur sites, as well as sites adjacent to the Eglington Preserve. These sites provided geographic redundancy and some level of insurance, against stochastic or human caused impacts, for the Upper Las Vegas Wash population, but were determined to be "degraded" and hence expendable. The Deer Springs site in particular seemed to offer a reasonable opportunity for conservation management (see Figure 3). While approved for destruction, as of February 2008, most of the site still exists. However, these sites should be considered **Extirpated.**

Occupied Las Vegas buckwheat habitat sold to Olympia for the Parks Highlands master planned community. To be, but not yet, extirpated as of early February, 2008. (R. Mrowka)

- **Conservation Transfer Area** – The 2004 Final Environmental Impact Statement (FEIS) and Record of Decision for the Las Vegas Valley Disposal Boundary (BLM, 2004) deferred a decision on 5000 acres of the upper Las Vegas Wash pending more inventory and analysis on the unique paleontological, cultural and special status plant species the area contained. This area was identified in the FEIS as the Conservation Transfer Alternative or CTA. The CTA contains approximately 127 acres of occupied LVB habitat. The BLM initiated several subsequent planning efforts for the CTA, and in July, 2007 published notice in the Federal Register of a NEPA process for the development of an Upper Las Vegas Wash Supplemental Environmental Impact Statement (Federal Register, 2007a). Preliminary alternatives being considered range from protecting about 3000 acres to 13,000 acres. Also under consideration is what entity or agency should be responsible for managing the CTA; options run the gamut from BLM retaining ownership to transferring it to a local government or non-profit organization. The area experiences heavy illegal ORV use. Due to the uncertainty of the decision on how many acres will be protected, how they will be managed and by whom, the LVB plants and habitat in the CTA are **At Risk.**

View of the Conservation Transfer Area (CTA) looking northwest. Current dirt road to the left will soon be a 4-lane arterial highway forming the southern boundary of the CTA. (R. Mrowka)

- **Nellis Air Force Base –** Area III of Nellis AFB contains the single largest and intact remaining population of the LVB. There are approximately 370 acres of occupied habitat, which can be divided into two distinct sites (Figure 4).
    - **Area III (1)** – This site is fenced and has been in a pseudo-protected status since the late 1990s due to the co-presence of Las Vegas bearpoppy, a State protected species. Area III (1) constitutes 233 acres. Presently, passive recreational use, including horseback riding occurs in the area. During discussions regarding sites 1 & 2 in Area III, Nellis AFB and Air Force planning staff in Langley, Virginia stated many times that "mission essential" needs will ultimately come ahead of any desired conservation measures. A conservation agreement is being considered which would cover this site and further clarify the level of protection afforded to it. Until the conservation agreement is completed, this site is **At Risk.**

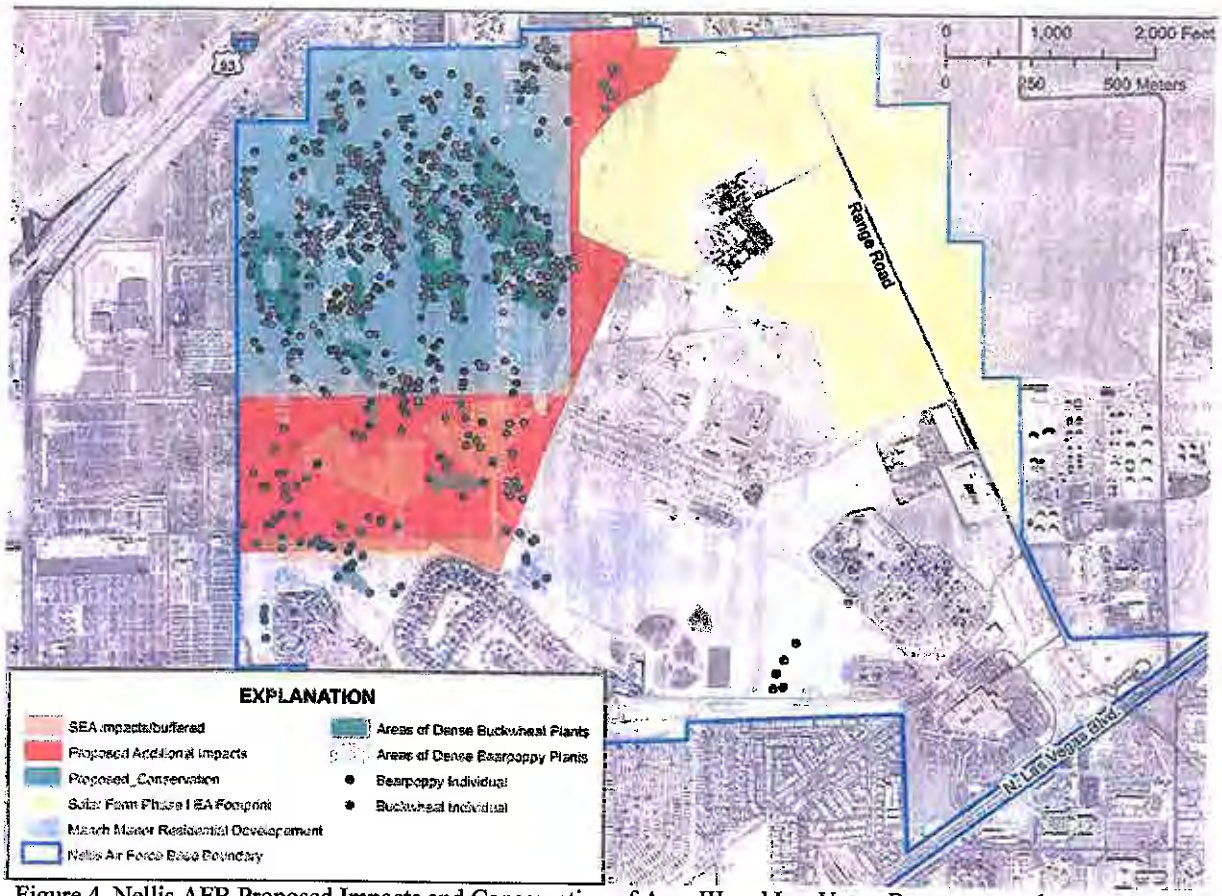

Figure 4. Nellis AFB Proposed Impacts and Conservation of Area III and Las Vegas Bearpoppy and Buckwheat Populations (2004 Data)

- **Area III (2)** – In February, 2007, Nellis AFB issue an Environmental Assessment and Finding of No Significant Impact for the construction of a stormwater detention system and relocation of 12 previously assessed housing units as part of the Military Family Housing Revitalization Project. This project in Area III will result in the destruction of 137 acres of occupied LVB habitat. The conservation agreement for Area III (1) is a possible mitigation for this action. This site should be considered as **Extirpated.**

- **Private, Undeveloped Parcels in the Las Vegas Valley** – Growth in the Las Vegas Valley has been explosive (see Figures 5 & 6). The Southern Nevada Public land Management Act of 1998 sped the disposal of BLM public land holdings in the Las Vegas Valley, and with them, uncounted acres of LVB. As can be inferred from Figure 2, a large part of the Las Vegas Valley provided habitat for the LVB. Today, habitat is down to the last vestiges of what it once was. In 2004, LVB occurred on 35 acres of private property. In 2007, just 3 acres remained undeveloped. With no current efforts being made to preserve the remaining private habitats, all 35 acres should be considered as **Extirpated.**

- **<u>Tropicana-Decatur Parcel –</u>** This parcel (72 acres) is completely isolated from other populations of LVB, and is surrounded by heavy urban development. It most likely represents a habitat that was once common in the Las Vegas Valley. The site is encumbered by Clark County who holds an easement and a Recreation & Public Purpose lease from the BLM for the construction of a detention basin and developed urban park. The area, according to FWS estimates, in a technical assistance letter to the BLM, contains 44 acres of LVB habitat (FWS, 2007a). The FWS in the same letter requested that at least 33 acres be conserved. Current County development proposals would conserve only about 10 acres. This area is severely **At Risk.**

Tropicana-Decatur parcel. Las Vegas buckwheat occupies the "badland" topography. The foreground has been cleared of mesquite-acacia habitat to make way for a detention basin/park. Photo taken in January, 2008. (R. Mrowka)

Another view of the Tropicana-Decatur parcel showing its proximity to the Las Vegas Strip. (FWS photo)

- **Lovell Wash, Muddy Mountains** – This 50 acre population is the only one which can be considered as **Conserved.** It is located in a congressionally designated Wilderness Area, managed by the BLM. It is still at some risk from illegal ORV activity.

- **Coyote Springs** – This population was confirmed in 2005 and consists of two sites:
  - **Coyote Springs (1)** – This site of 62 acres is managed by the BLM. It is near Highway 93 and is potentially affected by power, water and utility corridors, as well as by unmanaged ORV recreational use. For these reasons it is **At Risk.**
  - **Coyote Springs (2)** – This site of 25 acres is in private ownership and within the Coyote Springs Master Planned Development. There are no know plans to protect the site and in fact it may have already been destroyed. It should be considered as **Extirpated.**

- **Gold Butte** – This is an isolated and remote population in a BLM Area of Critical Environmental Concern that was established for desert tortoise conservation. Never the less, unmanaged recreational ORV use of the area is heavy and poses a definite threat to this small population. It is **At Risk.**

- **White Basin** – This area, east of the Las Vegas Valley, can be divided into two sites:
  - **White Basin (1)** – This site is owned by the U.S. Borax Company as part of its gypsum mining activities. The FWS in its species assessment notes that the BLM has plans to acquire the lands holding this site to protect it for the benefit of the species. ORV recreational use is another threat to the site. The plants and habitat are **At Risk** due to the tentative status of the plans for protection and the heavy, unrestricted use by ORVs.

- **White Basin (2)** – This site is managed by the BLM, and is open to unmanaged ORV use and surface mining claims, both of which are an immediate threat to the plants inhabiting the site. It therefore is **At Risk.**

- **Toquop Wash** – Located in Lincoln County, this population is currently the only one outside of Clark County, Nevada. Recently discovered in 2005, this population is at risk from surface mining, unmanaged ORV use, and impacts from a proposed coal-fired power plant and associated infrastructure. It is **At Risk.**

X. Criteria for Listing Under the Endangered Species Act.

A species must be listed if it is endangered or threatened by "present or threatened destruction, modification, or curtailment of its habitat or range." (50 C.F.R.§ 424.11(c)(1); 16 U.S.C. § 1533(a)(1)(A)).

1. **The present or threatened destruction, modification, or curtailment of a species habitat or range.**
   a. **Human-built Development** – Growth in Las Vegas and Clark County, Nevada is known national for being explosive and prolonged (Figure 5). The area it is the fastest growing in the U.S. and 30th fastest in the world. (U.S. Census Bureau, 2007; Citymayors, 2008). In December, 2007 the population of Clark County topped the 2 million mark for the first time (Clark County, 2007).

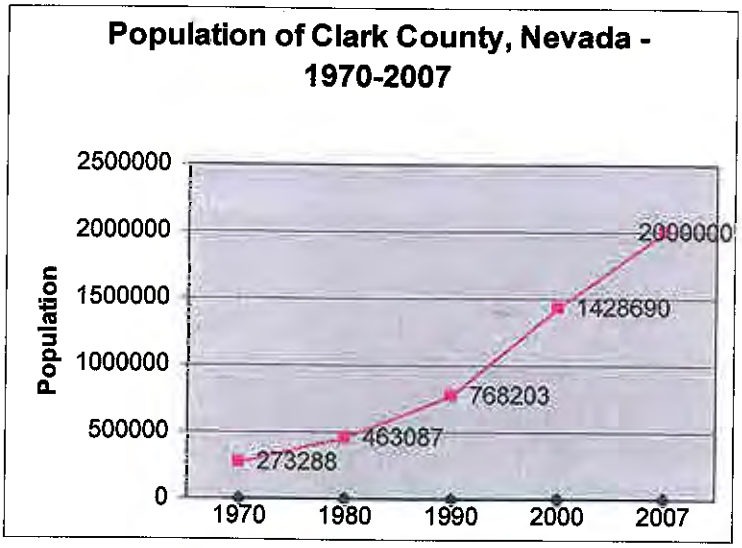

Figure 5: Population growth of Clark County, 1970-2007

Despite recent stories and claims about the "Manhatanization" of Las Vegas, most growth is and has occurred at the urban-wildland boundary, and has consumed many acres of wildland habitat. (Figure 6). This sprawl and development at the margins has been facilitated by Congressional land acts which provide for the disposal of BLM public lands, within an identified disposal boundary, for private development. Since the passage of the

Southern Nevada Public Land Management Act in 1998, 12,994 acres of public lands have been sold to private interests in the Las Vegas Valley. Additionally, 5140 acres were conveyed to Clark County for an "airport cooperative management area", much of which has seen commercial and industrial development.

The net result of these land transfers and development is a reduction of LVB habitat in the Las Vegas Valley, and increased threat to the remaining habitat. According to FWS files acquired through FOIA, there were about 67 acres of buckwheat habitat on private lands in the Valley in 1999; in 2004 there were 35 acres; and in 2007, the Service estimated only 3 acres remained. (FWS, 2007b). The FWS also acknowledge that over 95% of the historic range of the subspecies has already been lost to development (Edwards, 2007).

As previously noted in the discussion of remaining populations and sites, several of the sites are at risk from additional future development. This is particularly pertinent to the habitats in the upper Las Vegas Wash, The Nellis AFB Area III (2) site, those remaining on private sites, those at Coyote Springs or along Highway 93, the site at Tropicana & Decatur, and the sites in Toquop Wash. These sites constitute about 541 acres, or 63% of the remaining known occupied habitat.

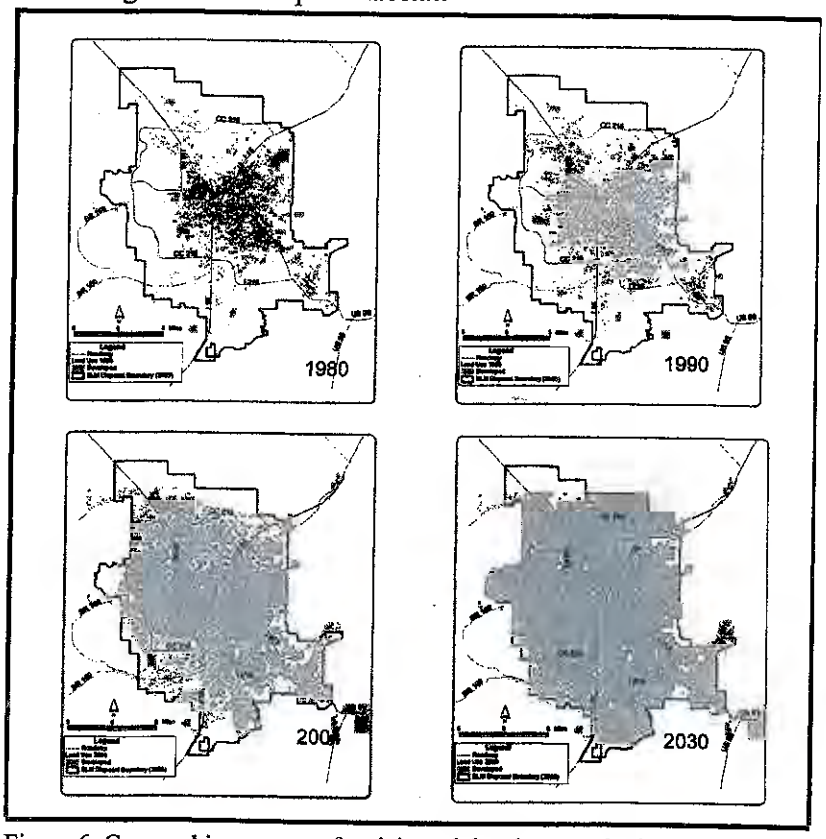

Figure 6: Geographic expanse of anticipated development in the Las Vegas Valley (RTC, 2006)

b. **Unmanaged Recreation** – Aside from the direct loss from the development of its habitat, the next biggest threat to LVB is from unmanaged recreational use of the habitat and the attendant unintended consequences of such use.

Damage from unmanaged ORV use constitutes the biggest threat from the recreational use of habitat. Impacts from ORV use include the direct destruction or injury of plants; compaction of soil and reduced infiltration of rainwater; damage to soil crusts; and alterations in microclimate. The Clark County Rare Plant Conservation Management Strategy identified casual ORV use and the creation of ORV trails as significant threats for all rare plants on BLM public lands (TNC, 2007).

Las Vegas buckwheat surviving in an ORV heavy use area. (R. Mrowka)

A feasibility report for a proposed ORV park reported that nationally, new retail sales of all-terrain vehicles and off-highway motorcycles has increased dramatically according to the most recent statistics available (see Figure 7)

New retail sales	All-terrain Vehicles	Off-highway Motorcycles	Total
1995	277,800	90,700	368,600
1999	545,900	159,700	705,600
2003	799,400	314,000	1,113,400

Figure 7 - Number of new retail sales of OHVs in the U.S., 1995-2003 (Applied Analysis, 2006).

In this same report the authors estimated that in Nevada in 2003, 23.8% of the over 16 years of age population (360,000 people) participated in some form of ORV activity throughout the year.

Given the proximity of many of the remaining LVB sites to the existing Las Vegas urban area or the proposed Coyote Springs urban area, the threat from casual and unmanaged ORV recreation is a serious one.

High speed desert racing with specialized off-highway trucks, permitted by the BLM, is a threat to the LVB in the White Basin area.

Of the remaining occupied habitat of LVB, 62% is highly susceptible to damage or destruction from ORV motorized recreation.

Other forms of outdoor recreation, such as equestrian use or hiking pose much less of a threat and are probably of concern only in specific cases. Equestrian use at Nellis AFB Area III occurs, but is limited due to the restricted access to the base. An increased awareness of base personnel for the need to protect the buckwheat plants is sorely needed.

c. **Mining** – It is well established that the LVB has a strong affinity for soils with high gypsum content. It is most often found in a "badlands" context, on areas with low competition from other plants. It is most commonly found on the Natural Resource Conservation Service's soil types 630 and 302 (FWS, 2000; Reveal, 2002). The gypsum soils of Clark and Lincoln Counties can yield a high quality and commercially extractable product, leading to a threat to the species.

According to information contained in the FWS Species Assessment (FWS, 2007c), the entire Toquop population is within a valid placer mining claim, and both White Basin sites (private and BLM) are open to mining at risk from surface mining. The Gold Butte and Coyote Springs (BLM) populations are in Areas of Critical Environmental Concern and have been previously withdrawn from mineral entry; however, this protection has expired and is once again being evaluated in a NEPA process.

As such, mining is a current threat to about 12% of the currently occupied habitat.

2. **The inadequacy of existing regulatory mechanisms and management failures.**
A species must be listed under the ESA if it is endangered or threatened due to "the inadequacy of existing regulatory mechanisms." 50 C.F.R.§ 424.11(c)(4); 16 U.S.C. § 1533(a)(1)(D). No plan or agreement has been drafted that contains adequate regulatory mechanisms to prevent further decline of the LVB and avoid listing the species under the ESA.

In assessing the adequacy of existing regulatory mechanisms to conserve and protect sensitive species, FWS applies it's Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE Policy). (DOI 2003, 68 Fed. Reg. 15100-

15115). The policy lists the specific criteria that FWS will utilize to assess existing and proposed conservation measures to determine whether they are adequate to protect imperiled species. The policy relies heavily on two factors: the certainty that a conservation effort will be implemented, and the certainty that the conservation effort will be effective. (DOI 2003, 68 Fed. Reg. 15114-15115).

Criteria that will affect FWS's consideration of the certainty that a conservation effort will be implemented include:

1. The conservation effort, the party(ies) to the agreement of plan that will implement the effort, and the staffing, funding level, funding source, and other resources necessary to implement the effort are identified.
2. The legal authority of the party(ies) to the agreement or plan to implement the formalized conservation effort, and the commitment to proceed with the conservation effort are described.
3. The legal procedural requirements (e.g., environmental review) necessary to implement the effort are described, and information is provided indicating that fulfillment of these requirements does not preclude commitment to the effort.
4. Authorizations (e.g., permits, landowner permission) necessary to implement the conservation effort are identified, and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the effort will obtain these authorizations.
5. The type and level of voluntary participation…necessary to implement the conservation effort is identified and a high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain that level of voluntary participation…
6. Regulatory mechanisms (e.g., laws, regulations, ordinances) necessary to implement the conservation effort are in place.
7. A high level of certainty is provided that the party(ies) to the agreement or plan that will implement the conservation effort will obtain the necessary funding.
8. An implementation schedule (including incremental completion dates) for the conservation effort is provided.
9. The conservation agreement or plan that includes the conservation effort is approved by all parties to the agreement or plan. (DOI 2003, 68 Fed. Reg. 15114-15115).

Criteria that will affect FWS's consideration of the certainty that the conservation effort will be effective include:

1. The nature and extent of threats being addressed by the conservation effort are described, and how the conservation effort reduces the threats is described.
2. Explicit incremental objectives for the conservation effort and dates for achieving them are stated.
3. The steps necessary to implement the conservation efforts are identified in detail.

4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified.
5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.
6. Principles of adaptive management are incorporated. (DOI 2003, 68 Fed. Reg. 15115).

a. BLM – Approximately 69% of the remaining occupied habitat is under the management if the BLM (see Table 1). Currently, the LVB is a BLM sensitive species. Under BLM Directives, sensitive species are to receive the same level of protection as that afforded to candidates for listing. Under BLM manual Section 6840.06C, BLM's policy for candidate species states, "BLM shall implement management plans that conserve candidate species and their habitats and shall ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed" (BLM, 2001).

Although the BLM must consider sensitive species in National Environmental Policy Act (NEPA) decisions for federal projects, the responsible official may still authorize impacts to occur to the LVB. Some recent examples of this include: the conservation agreement with the City of North Las Vegas and others that led to the sale of occupied buckwheat habitat to the Olympia Group for the Parks Highlands development; an easement and Recreation and Public Purpose lease to Clark County for development of the occupied Trop-Decatur site; and permits for desert racing potentially affecting the White Basin population.

The Las Vegas Resource Management Plan and Final Environmental Impact Statement restrict ORV use to designated roads and trails and dry washes. The BLM has also issued Closure Orders that prohibit ORV use on all Public Lands in the Las Vegas Valley, except for the Nellis Dunes ORV Use Area (BLM, 2005b). Despite these decisions, illegal and unmanaged ORV use is rampant throughout Clark County, including the Las Vegas Valley. The LVB is particularly threatened in the Upper Las Vegas Wash area, White Basin, Coyote Springs and Gold Butte. Effective enforcement of closures and restrictions is severely hampered by limited budgets and limited staffing. Las Vegas BLM staff informed FWS that there is only one law enforcement officer for about every 370,200 acres of the Las Vegas District, outside of the National Conservation Areas (FWS, 2007c).

Lack of mineral withdrawals by the BLM leads to the continued threat to the White Basin, Muddy Mountains and Toquop populations, and potentially to

the Gold Butte and Coyote springs populations if expired mineral withdrawals are not re-instated.

b. **Congressional Actions** – About 90% of Clark County is owned by the federal government. Legitimate concerns about federal lands "land locking" growing communities have led Congress to pass several pieces of legislation that authorize the sale of BLM public lands to private developers. The first was the Santini-Burton Act of 1980 (Public Law 96-586), which authorized the BLM to sell up to 700 acres of public lands in the Las Vegas Valley within an identified "disposal boundary". Approximately 600 acres were sold through the year 2000 (GAO, 2001). Santini-Burton was expanded in 1998 by the passage of the Southern Nevada Public Land Management Act which included the Santini-Burton disposal boundary and expanded it to accommodate the disposal of 52,000 acres of BLM public land in the Las Vegas Valley. The Las Vegas Valley disposal boundary was further expanded by the Clark County Conservation of Public Land and Natural Resources Act of 2002 to make available an additional 22,000 acres of public lands for disposal. The 2002 additions include the areas covered by the CTA and the Olympic Park Highlands master planned community (BLM, 2004).

   As of December 31, 2007, the BLM reports having disposed of about 34,500 acres of public lands within the Las Vegas Valley through land sales, Recreation and Public Purpose leases or exchange (BLM, 2007).

   In addition, outside the Las Vegas Valley other land disposal acts provided for the sale of over 25,000 additional acres in the Ivanpah Valley and Mesquite Areas.

   These land acts were done without NEPA and without adequate public review and input. As a result their passage has led to many unintended consequences such as the destruction of LVB and other rare plant habitats, unmanaged growth in the face of water supply shortages and air quality concerns, destruction of significant paleontological resources, and controversies between the BLM, interest groups, and municipalities over the appropriate uses of lands within the disposal areas. Further Congressional authorizations for public land disposal pose an unknown, but potentially significant threat to the LVB and other rare species in Clark County.

c. **Department of Defense (DOD)** – Under the Integrated Natural Resources Management Program (INRMP), the FWS and DOD have a cooperative agreement to manage species on military installations to preclude listing under the Endangered Species Act.

   In Area III of Nellis AFB there are an estimated 370 acres of LVB habitat, of which currently only 233 may be conserved. The remaining 137 acres of habitat will be extirpated to build flood control devices and base housing.

The LVB in the protected habitat enjoys such protection from the presence of Las Vegas bearpoppy, a State listed species. The protected area on Nellis AFB Area III constitutes over 27% of the remaining occupied LVB habitat.

The FWS notes in its Species Assessment for LVB that protections for the conserved habitat in Area III are inadequate, and that unmanaged equestrian and other recreational uses, as well as dumping are occurring in the LVB area (FWS, 2007c). In addition, Nellis AFB staff has consistently stated that protections for Area III cannot be guaranteed due to the absolute priority given to the mission for the base (Mrowka, personal observation). This is further substantiated in an internal FWS electronic correspondence in which it was reported that the USAF Air Combat Command (ACC) directed the Nellis command to not make any commitments that restrict the uses of Nellis AFB lands, and to remove any mention of the proposed conservation agreement from the INRMP. Further, the memo goes on to state that the ACC questions whether State of Nevada plant laws pertain to Department of Defense lands (Bair, 2008).

d. **State Government** – Currently, the LVB is not a protected species under Nevada Revised Statutes or Nevada Administrative Code, nor are there any management plans developed by the State for it. In 2001, 2002, 2003, and 2006 the Nevada Rare Plant Workshop and Rare Plant Committee recommended the addition of LVB to the State's list of critically endangered species (Heritage, 2007; Heritage, 2008). The State held hearings for LVB listing in September of 2005, and in January 2006 issued a Decision Notice to not add LVB to the list of critically endangered species (State of Nevada, 2006).

   There is a current Notice of Intent is re-examining the past conclusions in light of new data and changed circumstances, such as the Nevada Natural Heritage Program's report, *Population Status of Las Vegas buckwheat (Eriogonum corymbosum* var. *Nilesii) based on 2006-2007 data* (Morefield, 2007), and the U.S. Fish and Wildlife Service's Candidate Notice of Review finding that the Las Vegas buckwheat was sufficiently at risk to be added as a Candidate species (Federal Register, 2007c).

e. **Local Governments** – A Clark County Multiple Species Habitat Conservation Plan (MSHCP) and associated Incidental Take Permit (ESA Section 10 (a)) were developed for 78 species of plants and animals in Clark County in 2001. However, LVB is not a Covered Species under the MSHCP or Take Permit, and enjoys no regulatory or other protections under local government purview. It is an Evaluation Species under the MSHCP, meaning that insufficient information existed at the time to support an application for a Take Permit.

f. **Private** – There are no adequate or comprehensive private protections afforded to LVB or its habitat.

In June, 2005, a Conservation Agreement was developed that afforded some protections for LVB found on parcels of land nominated by the City of North Las Vegas under the Southern Nevada Public Land Management Act. This agreement provided for the development and extirpation of 92 acres of LVB habitat in exchange for dropping 59 acres of habitat from development plans and instituting certain mitigation into any development agreements the City negotiated with the purchaser of the parcels (BLM, 2005a). These actions resulted in a net loss of the species and its habitat.

3. **Natural or manmade factors affecting its survival.**

a. Altered fire regimes and invasive species – In its Species Assessment (FWS, 2007c) the FWS the threat as follows:
"Historically, fire in the Mojave Desert has been an infrequent and rare event. However, there has been a recent increase in fire prevalence caused by the invasion of nonnative annual grasses, which is a major concern for land managers (Brooks and Matchett 2006 p. 148). Additionally, human activities in the Mojave have increased both fire frequencies and the size of individual fires (Brooks and Matchett 2006 pp. 148-164). Although we have little specific information regarding the potential for Las Vegas buckwheat habitat to burn, fire is a major threat to the desert tortoise (Esque et al. 2003 pp 103-111) which occupies the same ecosystem as the Las Vegas buckwheat. The known range of the Las Vegas buckwheat closely matches the desert tortoise Northwestern Mojave Recovery Unit in both location and extent. In 2005, more than 60 fires larger than 10 acres in size burned approximately 500,000 acres or approximately 10% of the desert tortoise Northwestern Mojave Recovery Unit (Service 2007c p. 28).

While none of the 2005 fires burned in Las Vegas buckwheat habitat, fires ignited in creosote-bursage vegetation outside of Las Vegas buckwheat habitat could easily spread through an entire Las Vegas buckwheat population. Based on a BLM fire risk assessment, the Coyote Springs and Gold Butte populations are in areas with a moderate risk of fire and the White Basin, Muddy Mountains, CTA and Eglington preserve populations are in areas with a low to moderate risk of fire (Rash 2007 p.1).

Woody shrubs (like the Las Vegas buckwheat) and cacti are often killed by fire and those that survive are vulnerable to recurrent fire (Brooks and Pike 2002, p. 7). Post-fire survival of Las Vegas buckwheat is unknown; however, like many perennial desert plant species, individual plants are extremely slow growing, long lived and not specifically adapted to fire; and therefore, post-fire recovery would take decades. An increased fire frequency would likely negatively affect the Las Vegas buckwheat by not allowing a sufficient interval of time for recruitment and reproduction of new individuals to replace those lost during fires.

Based on the small size of the remaining Las Vegas buckwheat populations, life history of the subspecies (i.e. its slow recovery from fire) and the threat that fire

poses to the Mojave Desert ecosystem, we conclude the Las Vegas buckwheat is vulnerable to stochastic fire events. It is unlikely that a single fire would threaten the entire Las Vegas buckwheat range, however, it is likely that a series of fires over a period of years could threaten the subspecies over a significant portion of its habitat.

Two nonnative species are present in high densities on disturbed areas within two Las Vegas buckwheat populations. In the conservation transfer area, saltlover, (*Halogeton glomeratus*) has colonized disturbed soil within the CTA; while at Nellis Area III, African mustard, (*Malcolmia africana*) is common along the southern boundary of the site (Service 2007b, p. 2). Invasive species can out compete native annuals and perennial plants for water and soil nutrients and densely packed stands of invasive annual plants can reduce germination rates (Brooks and Pike 2002 p. 6). We do not have information in our files to indicate whether or not these species will adversely affect Las Vegas buckwheat recruitment and establishment. At this time we do not have sufficient information to evaluate the threat nonnative species pose to Las Vegas buckwheat. However, given the seriousness and magnitude of this threat for the Mojave Desert in general, we believe this threat to the subspecies should be carefully monitored. "

b. Air pollution – Related particularly to the Toquop Wash site, there is a concern about nitrogen deposition to the soil from smoke stack emissions. Brooks and Pyke reported in a paper on invasive plants and fire in desert environments, that invasive and non-native grasses increase in density with increased soil nitrogen. This has the subsequent effect of potentially increasing the wildfire frequency and intensity, thus threatening the continued existence of the buckwheat at this site (Brooks and Pyke, 2001).

c. Climate change – While climate change models are not predictive to the scale of LVB habitat, the general trends for southern Nevada indicate a high likelihood of increased temperatures and drought. The likely effects on LVB are reduced seedling recruitment, reduced vigor of established plants, and an increased threat from wildfires.

XI. Fish and Wildlife Service Priority Rating

In its Species Assessment and Listing Priority Assignment Form for the LVB (FWS, 2007c), the FWS incorrectly concluded that the LVB is a Priority 6 subspecies.

Guidelines for assigning priority rankings appeared in the Federal Register in September, 1983. They established a three criteria ranking system based on the magnitude of the threats, the immediacy of the threat, and taxonomy (Federal Register, 1983).

In the LVB species assessment, the Service correctly identifies the magnitude of the threats facing the LVB as "High". Given the rampant growth, lack of adequate regulatory mechanisms, unmanaged ORV use, threats of utility corridors and power plants, and climate change, this determination is easily justified.

Where the Service erred is in determining that the immediacy of the threats is, "Non-imminent". They are led to this conclusion by the following assumption found in the assessment: "Under factor A, we consider urban development/surface mining to be a more significant threat than casual recreation and OHV activity.....While the inadequacy of existing regulatory mechanisms are significant, we know of no pending congressional land transfers that could immediately affect the subspecies; therefore we believe the imminence of threats facing the Las Vegas buckwheat under factor D are non-imminent."(FWS, 2007c).

With regards to factor A, "The present or threatened destruction, modification, or curtailment of its habitat or range", no basis is provided why the Service concludes certain threats are more significant than others. Putting this aside, consider the historic and projected growth of the Las Vegas Valley and Clark County (See Figures 5 and 8).

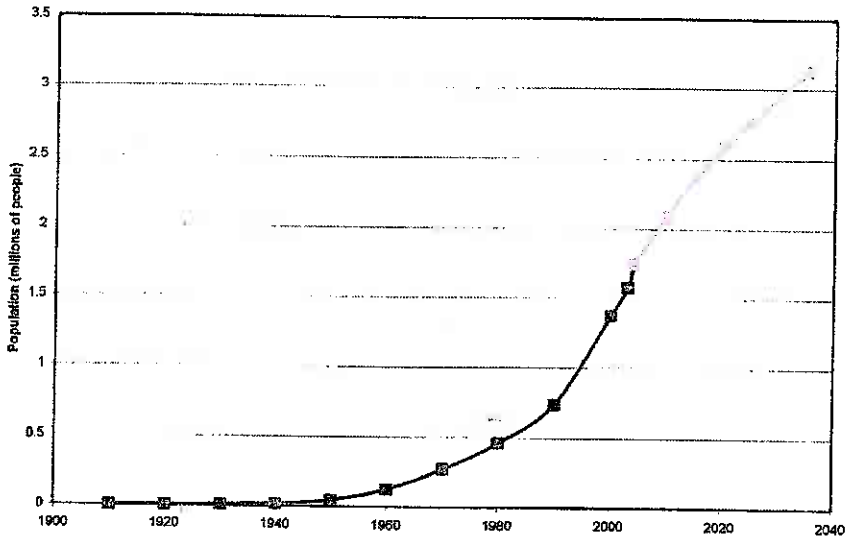

Figure 8: Population of Clark County from 1910 to 2005, and projected to 2035 (NSDO, 2004).

Despite the current housing correction, it is unreasonable to assume that the growth will differ much from the projections in Figure 8. In fact, as previously mentioned, Clark County reached the 2 million population mark in 2007, sooner than the projection in Figure 8.

A close look at the northern boundary of the Las Vegas Valley in Figure 6 reveals that the likely growth scenario used by the Regional Transportation Commission would extirpate all remaining LVB plants and habitats in the Las Vegas Valley except for the Eglington Preserve.

With the explosive growth of Clark County comes a corresponding increase in recreationists on the federal public lands. As shown in Figure 7, the growth in ORV recreation has mirrored the population growth in general. These recreationists will look for riding opportunities close to the Las Vegas Valley, placing LVB habitats in White Basin, Coyote Springs, Toquop Wash and Gold Butte at immediate risk.

With regards for FWS factor D, "The inadequacy of existing regulatory mechanisms", it is difficult to comprehend how the Service can arrive at a "Non-imminent" ranking.

As previously explored in this petition (Section X.2), there are no on-going effective regulatory mechanisms available for the protection of the LVB. To re-cap:

- The BLM, while recognizing the LVB as a sensitive species is under no obligation to afford protections, and in fact has made decisions (Sale of LVB habitat for the Olympia Park Highlands development, easements and R&PP leases to Clark County, and permitting ORV races in White Basin) detrimental to the LVB. Further, the BLM has not withdrawn surface mining rights for LVB habitat, has not adequately managed ORV use of LVB habitats, and lacks adequate resources to enforce laws, closures and decisions on the lands they manage (an estimate is they have one enforcement officer for every 370,200 acres of public land).
- The Department of Defense, and specifically Nellis AFB is openly hostile to any effort to work collaboratively to provide safeguards and protections to LVB and other imperiled plants that occupy their lands. Despite having the single largest amount of LVB habitat, NAFB made the decision to extirpate 137 acres of the 370 acre total. Having done so with the promise to protect the remainder through a conservation easement, they are now balking at following through on their word. In fact, they are considering challenging the jurisdiction of the State to protect any species on their lands (Bair, 2008).
- The State of Nevada has repeatedly declined to place the LVB on its list of critically endangered species, despite repeated recommendations to do so by the Natural Heritage Program and the Nevada Native Plant Society Rare Plant Working Group.
- The LVB enjoys no protections under the Clark County Multiple Species Habitat Conservation Plan.

The lack of formal regulatory mechanisms for protection and the failure to engage in voluntary conservation actions create an imminent threat to the LVB.

In fact, in two preliminary drafts of the FWS petition, internal California & Nevada Office and Washington Headquarters staff provided the following comment: "Based on the discussion of threats, this conclusion (non-imminent)

does not seem to follow – the threats are basically described as ongoing, which means they are imminent" (FWS, 2006a; FWS, 2006b).

Based on the rationale and facts cited in this section and throughout this Petition, the Center requests that the Las Vegas buckwheat be given a **Priority 3 – High Magnitude of Threat and Imminent Threat for a Subspecies.**

XII. Actions Needed for Recovery of the Las Vegas buckwheat.

a. **Designation of critical habitat.**
The ESA mandates that, when the USFWS lists a species as endangered or threatened, the agency generally must also concurrently designate critical habitat for that species. Section 4(a)(3)(A)(i) of the ESA states that, "to the maximum extent prudent and determinable," the USFWS:

> shall, concurrently with making a determination . . . that a species is an endangered species or threatened species, designate any habitat of such species which is then considered to be critical habitat . . . .

16 U.S.C. § 1533(a)(3)(A)(i); *see also id.* at § 1533(b)(6)(C). The ESA defines the term "critical habitat" to mean:

i. the specific areas within the geographical area occupied by the species, at the time it is listed . . . , on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
ii. Specific areas outside the geographical occupied by the species at the time it is listed..., upon a determination by the Secretary that such areas are essential for the conservation of the species.

Id. at § 1532(5)(A.).

Petitioner expects that USFWS will comply with this unambiguous mandate and designate critical habitat concurrently with the listing the LVB. We believe that all remaining current and historic habitat utilized by this species meet the criteria for designation as critical habitat and must therefore be designated as such.

b. **The FWS must immediately revise its priority rating for LVB to reflect a Priority level of 3.**

c. **The BLM must acquire the LVB habitat now owned by US Borax in the White Basin.**

d. **The BLM must Withdraw all current and historic remaining LVB habitats from mineral entry.**

e. **The BLM must prohibit off-road vehicle recreations use from all remaining current and historic habitat, including the prohibition of using routes in or close by LVB habitat for desert racing.**

f. **The BLM, with the support of FWS, must secure adequate funding to properly manage and enforce requirements ORV closures in LVB habitat.**

g. **The BLM and FWS must ensure that all remaining current and historic LVB habitat is protected and preserved in the upper Las Vegas Wash "Conservation Transfer Area".**

h. **FWS must work with Nellis AFB and the State of Nevada to ensure that the remaining current and historic LVB habitat on Nellis AFB is protected and preserved.**

i. **The BLM and FWS must ensure that the Toquop Wash population is conserved and protected from the direct and indirect impacts of the proposed coal-fired power plant and the infrastructure and other developments associated with it.**

j. **The BLM and FWS must ensure that the Tropicana-Decatur population is fully conserved and protected.**

k. **The State of Nevada must add the LVB to the State's list of "fully protected species of native flora", pursuant to NRS 527.050 and 527.270.**

l. **The FWS should seek to develop conservation agreements with the private landowners having LVB populations or potential habitat on their lands.**

m. **The FWS and BLM must initiate statistically-valid studies on the success of propagating LVB from seed, and the success of salvaging mature plants from areas where it will be extirpated.**

XIII. Conclusions

Until very recently the Las Vegas buckwheat has enjoyed no protections. As a result, its available habitat has been eliminated, save a few remaining special places. Of these, only one can be considered as secure from direct human-caused threats, but is still at risk from the impacts of global climate change.

Historically, much of the buckwheat's habitat was on private or privatized federal lands within the Las Vegas Valley. Today, only small remnants remain on private lands, but

these populations can offer redundancy and spatial "insurance" against natural and man-caused events.

The principal federal land managing agency, the Bureau of Land Management, has been unwilling or unable to provide protection for the LVB from privatization and development of former federal public lands; illicit, inappropriate or illegal off-road vehicle use; the impacts from mining; and utility corridors.

The refusal of Nellis AFB to protect a large, intact population of LVB on its lands in Area III of the base is perhaps the greatest immediate threat to this species.

The Fish and Wildlife Service and the Nevada Division of Forestry have likewise failed to provide adequate regulatory protections, and in instances cited in this petition, were actually party to agreements that seriously compromised the future viability of the species by approving already severely limited habitat for development.

If the Las Vegas buckwheat is to persist as a species on planet Earth, it must be immediately listed as Threatened or Endangered under the Endangered Species Act, assigned a Priority rating of 3, and concurrently, Critical Habitat must be identified.

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DECATUR BL
DOUBLE LN
EMBORN RD
SEVERANCE LN
FARM RD
WHISTLING SANDS
GRAND TETON DR
DECATUR BL
DEER SPRINGS WAY
AVIARY WAY
AVIARY WAY
TENDING RD
ALLEN LANE
GRAND TETON DR
7/8 BELTWAY
CENTENNIAL PKWY
CLAYTON
CLAYTON
HIGHLAND RD
REVERE
REVERE
7/8 BELTWAY
CENTENNIAL PKWY
DEER SPRINGS WAY
NORTH 5TH
NORTH 5TH
BONNA
BRUCE
LAWRENCE
LOSEE
LOSEE
GRAND TETON DR