U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Eriogonum corymbosum* var. *nilesii*

COMMON NAME: Las Vegas buckwheat

LEAD REGION: CNO

INFORMATION CURRENT AS OF: September 2007

STATUS/ACTION

___ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status
X__ New candidate
___ Continuing candidate
- ___ Non-petitioned
- ___ Petitioned - Date petition received:
  - __ 90-day positive - FR date:
  - __ 12-month warranted but precluded - FR date:
  - __ Did the petition request a reclassification of a listed species?

ANIMAL/PLANT GROUP AND FAMILY: General Group: Flowering Plants, Scientific Group: Polygonaceae (Buckwheat Family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Nevada, Clark and Lincoln Counties

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Nevada, Clark and Lincoln counties

LAND OWNERSHIP: Based on 1149 acres of total known currently occupied habitat, Federal ownership totals 940 acres (89 percent; including 570 acres Bureau of Land Management (BLM) and 370 acres Department of Defense (DoD)); City of North Las Vegas ownership totals 151 acres (5.4 percent), and private ownership totals 58 acres (5.5 percent)

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BIOLOGICAL INFORMATION

Species Description

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.

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).

Habitat/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 claybeds and high-boron shales. 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).

Historical Range/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 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.

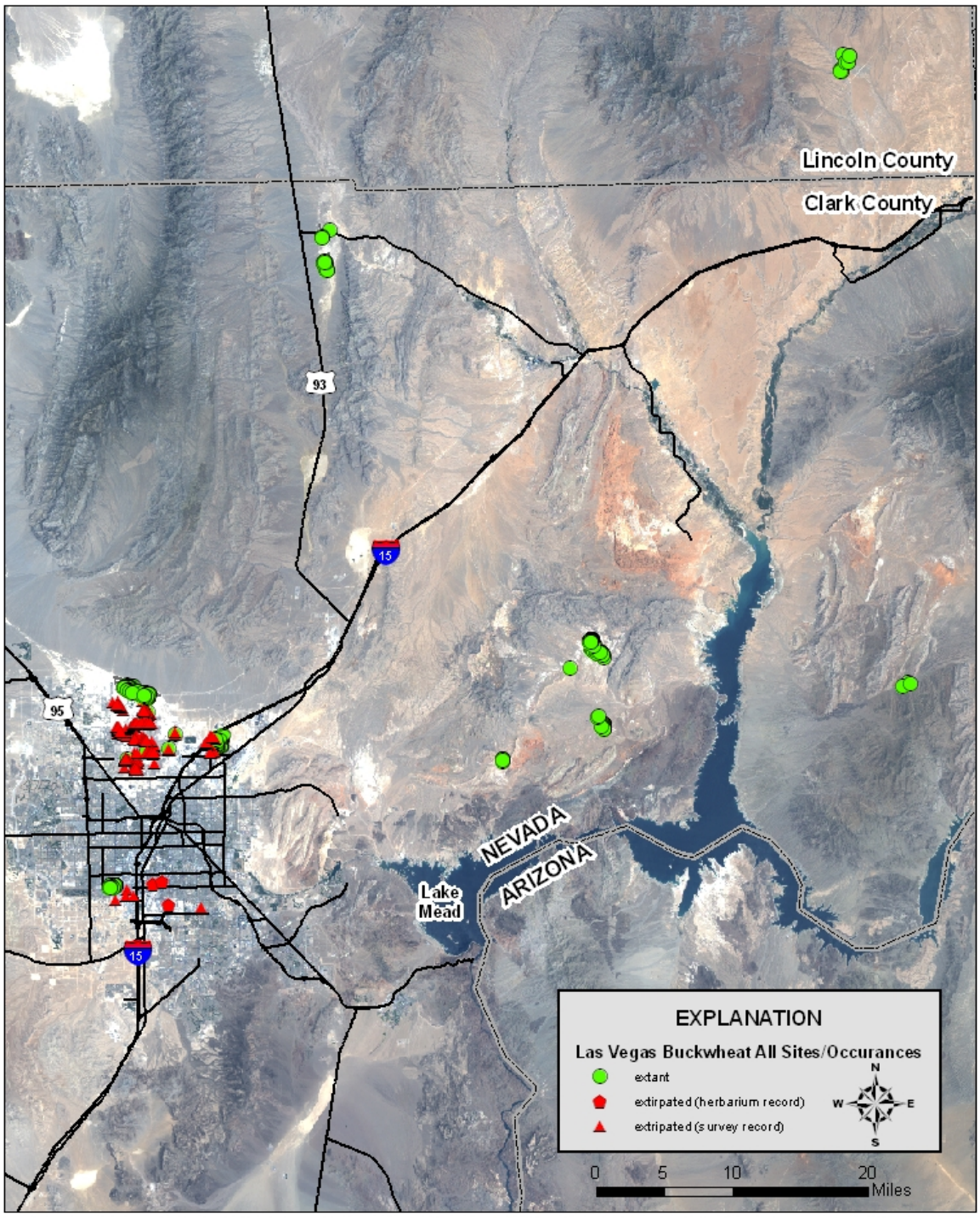

Figure 1: Known historic and current occurrence of Las Vegas buckwheat in Southern Nevada.

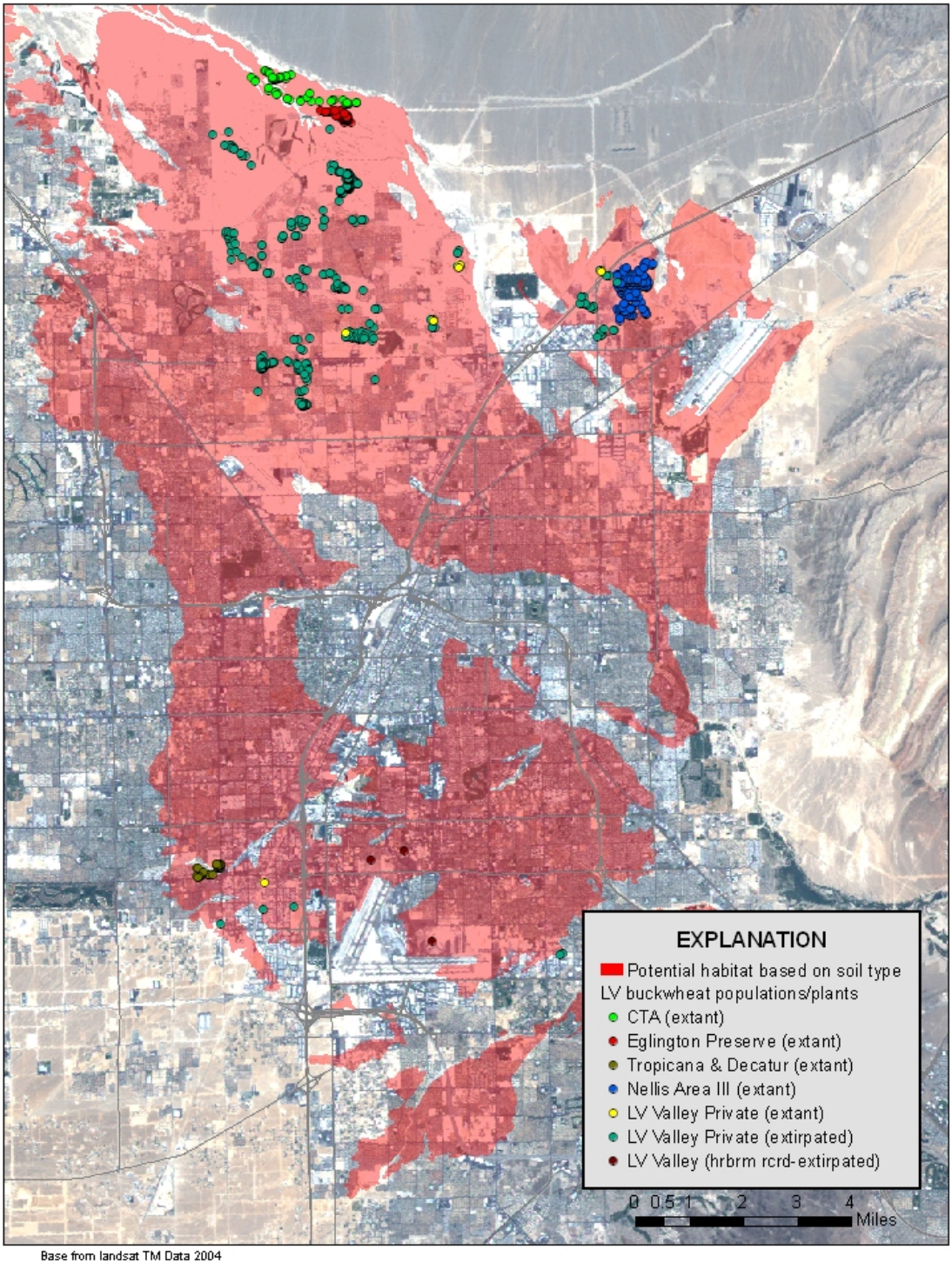

Figure 2: Potential habitat based on suitable soils mapping and known occurrence (historic and current) of Las Vegas buckwheat in the Las Vegas Valley.

Population Estimates/Status and Current Range/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, we conclude the current range of the subspecies is limited to southern Nevada.

In 2005, the Las Vegas buckwheat was known from nine locations on approximately 1,149 acres. However, since that time, approximately 289 acres were or soon will be developed, and approximately 892 acres of undeveloped occupied Las Vegas buckwheat habitat will remain. All known, currently occupied locations are summarized in Table 1 and shown in Figure 3.

The nine populations we consider in this review are: (1) the Upper Las Vegas Wash, which includes the Eglington preserve and Conservation Transfer Area (CTA); (2) Nellis Air Force Base Area III (Nellis AFB Area III); (3) 35 acres of habitat distributed on 15 privately owned parcels in the Las Vegas Valley (Service 2004, pp. 1-2); (4) Tropicana and Decatur population located in the Las Vegas Valley; (5) the Muddy Mountain Wilderness; (6) Coyote Springs, private and Bureau of Land Management (BLM) portions; (7) Gold Butte; (8) White Basin, private and BLM-owned portions; and (9) Toquop Wash in Lincoln County (see Table 1). Because of incomplete survey data the number of individual plants within the entire range of the subspecies is unknown. Land management and conservation status differs within some populations, and for discussion purposes in Table 1 we have retained these distinctions. Ellis and Wolf (2007, p. 13) suggest that the Las Vegas Valley, Toquop Wash and White Basin occurrences were likely contiguous in the past and should be considered a single population. However, these sites (described in Table 1) are no longer contiguous. Currently, given the

distances and barriers between them it is unlikely there is significant genetic exchange. Therefore, for conservation purposes we consider each site to be a unique population, with the exception of private parcels in the Las Vegas Valley, which for discussion purposes, have been combined.

In 2005, two new populations of the subspecies were reported on BLM lands, the first in the Coyote Spring Valley (Coyote Springs 1 and 2) and a second adjacent to Toquop Wash in Lincoln County, Nevada. In response to this new information, BLM and Fish and Wildlife Service (Service) botanists mapped and surveyed where information was incomplete. Based on our analysis, to date, all known sites on Federal land in southern Nevada have been surveyed and mapped. Currently, we are unable to determine whether additional populations would be found if surveys that are more extensive are conducted. The amount of potential habitat surveyed is not readily available and will be provided in a subsequent assessment.

Table 1: Known Populations and Conservation Status of the Las Vegas Buckwheat, as of April 2007

Population/Location	Site Name	Land Owner	Estimated Number of Individuals	Acres of Occupied Habitat	Percent of Total Occupied Habitat	Percent of Remaining Occupied Habitat	Habitat Conservation Status
Upper Las Vegas Wash, LV Valley, Clark County	Eglington Preserve	City of North Las Vegas	300	59	5.13	6.61	Conserved, subject to illegal OHV activity
	Eglington Preserve (Developed)	City of North Las Vegas	1300	92	8.00	--	Developed/ to be Developed (plants have been/will be removed)
	CTA (Conservation Transfer Area)	BLM	5,200	127	11.05	14.23	Likely Conserved, negotiations in progress, subject to illegal OHV activity
Nellis AFB, LV Valley, Clark County	Nellis AFB Area III (1)	DOD	unknown	233	20.27	26.11	Potentially Conserved, negotiations started, subject to public recreation and equestrian activity
	Nellis AFB Area III (2)	DOD	unknown	137	11.92	--	Developed/ to be Developed (plants have been/will be removed)
Undeveloped parcels (seven) present in LV Valley, Clark County (Note: 32 acres of private lands have been developed since 2004)	LV Valley (Private)	Private	unknown	3	0.26	--	Developed/ to be Developed (plants have been/will be removed)
Tropicana/Decatur Parcel, LV Valley, Clark County	Tropicana and Decatur	BLM	366	80	6.96	8.97	Development likely, projects planned
Lovell Wash Area in the Muddy Mountains, Clark County	Muddy Mountains Wilderness	BLM	unknown	50	4.35	5.60	Conserved, BLM designated wilderness
Coyote Spring Valley, Clark County	Coyote Springs(1)	BLM	unknown	62	5.39	6.95	Not conserved: open to OHV activity, subject to indirect impacts from transmission line and development projects
	Coyote Springs(2)	Private	unknown	25	2.18	--	Developed/ to be Developed (plants have been/will be removed)
Gold Butte, Clark County	Gold Butte	BLM	100	7.5	0.65	0.84	Not conserved: open to OHV activity, inadequate law enforcement.
Muddy Mountains/White Basin – \US Borax Company lands, Clark County	White Basin(1)	Private	unknown	30	2.61	3.36	Not conserved: privately owned, once purchased by BLM will be open to OHV activity, inadequate law enforcement
	White Basin(2)	BLM	6,300	172	14.97	19.28	Not conserved: within a BLM Special Recreation Management Area, will be open to OHV activity, inadequate law enforcement
Toquop Wash, Lincoln County	Toquop Wash	BLM	10,000	71.8	6.25	8.05	Development likely, projects planned
			25,214	1149.3	Total acres		
				892.3	Remaining undeveloped acres		

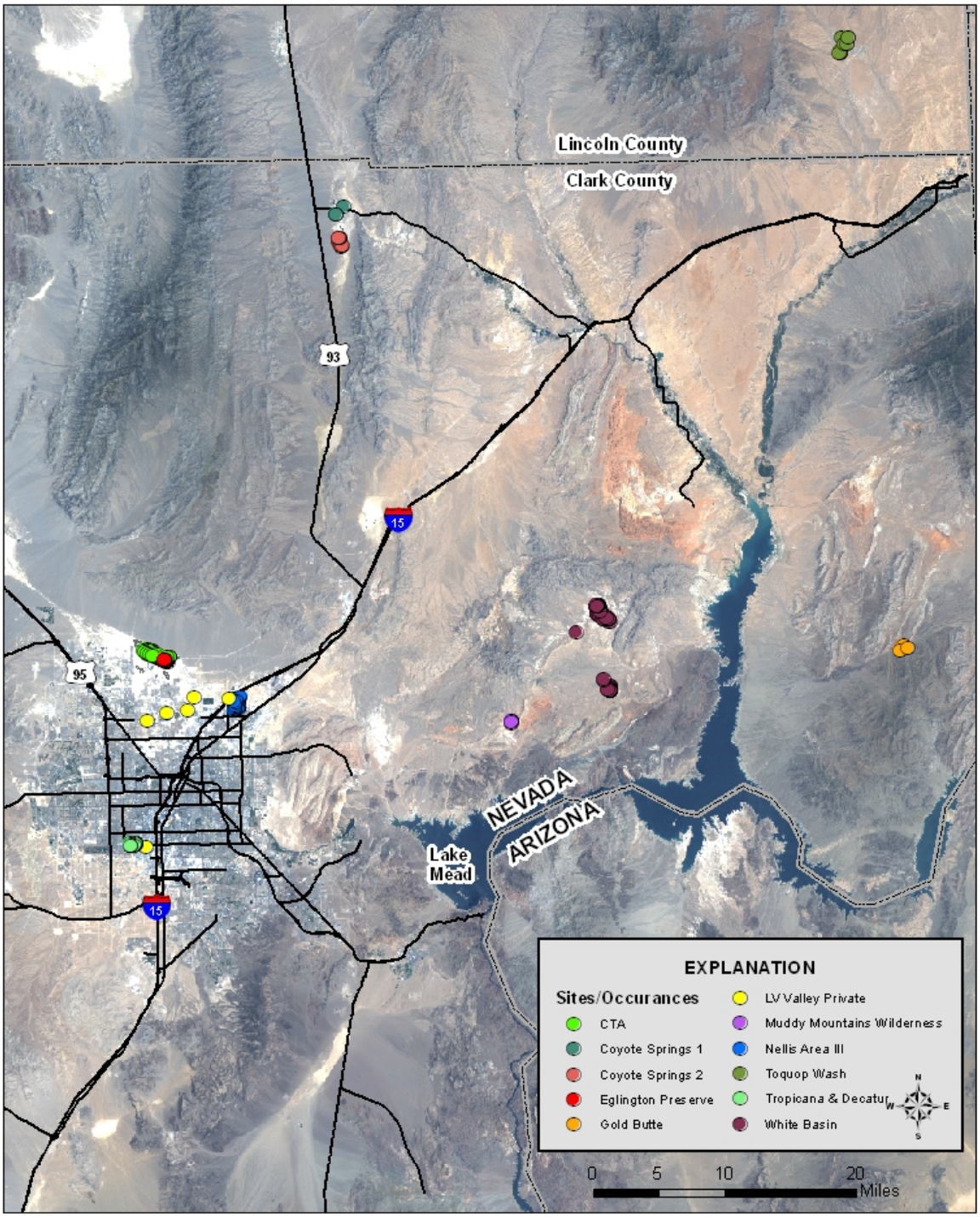

Figure 3: Geographic distribution of Las Vegas buckwheat sites described in Table 1.

THREATS

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

Development of Habitat

Clark County, Nevada is one of the fastest growing counties in the United States. The population has more than doubled between 1990 and 2006, increasing from 770,000 to 1.87 million people (www.nsbdc.org/what/data_statistics/demographer). Growth of Las Vegas has resulted in the loss of over 95 percent of the potential habitat of the subspecies. We estimate that since 2004, 289 acres of the known occupied habitat (roughly one quarter of the remaining habitat) either has been or will be developed through approved projects. This includes:

1. 92 acres of the Upper Las Vegas Wash population on which development has been approved under a Conservation Agreement among the Service, BLM and the City of North Las Vegas (see discussion under planned-implemented conservation measures);

2. 35 acres of privately owned parcels in the Las Vegas Valley that were recorded as undeveloped in 2004, but based on 2007 County Assessor records, roughly 3 acres remain undeveloped;

3. 25 acres of private land within the Coyote Springs Investment, LLC project footprint; and

4. 137 acres of Nellis AFB Area III that is outside of a 233 acre conservation area that may be set aside for conservation of the Las Vegas bearpoppy (see discussion under planned and implemented conservation measures).

There is considerable economic pressure to develop all remaining open space in the Las Vegas Valley. Future development of the CTA and Nellis AFB Area III populations (approximately 37 percent of the remaining known population) is a possibility since no conservation agreements or protective measures have been reached to secure their long-term conservation. The Service is actively working with the Air Force and others to secure this protection (see conservation measures planned).

The 80-acre Tropicana and Decatur parcel is likely to be developed. Although final plans have not been submitted, Clark County currently holds an easement for a flood control detention basin (BLM case number N-55083) within approximately one-third of the parcel and a BLM Recreation and Public Purpose (R&PP) lease (BLM case number N-78796) on the entire parcel. BLM has notified the Service that Clark County is pursuing construction of the detention basin (BLM 2007a), however the extent to which the Las Vegas buckwheat will be conserved on the parcel is unknown at this time.

Recently, URS Corporation and BLM initiated informal consultation with the Service regarding proposed design changes for the Toquop Energy Project. The design change would convert the

power plant from a natural gas to a coal-fired facility. The power plant will be located approximately 1 kilometer southwest of a Las Vegas buckwheat population. Although no documents have been submitted, the design change is anticipated to increase atmospheric nitrogen oxides and mercury deposition in the vicinity. As observed with other power plants, nitrogen deposition resulting from smoke stack emissions could affect Las Vegas buckwheat habitat by an increasing in soil nitrogen. In the Mojave Desert and other portions of southwestern U.S, increased soil nitrogen is correlated with higher densities nonnative grasses and altered fire frequencies (Brooks and Pyke 2002 p. 2-3).

Surface Mining, Mineral Claims

Gypsum soil outcroppings on which the Las Vegas buckwheat occurs can yield gypsum, an extractable mineral with commercial value. Future minerals extraction in Las Vegas buckwheat habitat is a threat to the subspecies. The entire Toquop Wash population is located within the 160 acre Snowflake 41, 42, 45 and 46 Placer Mining Claim, established on April 14, 2005. This claim is valid and fees have been paid through 2007 (BLM 2007b, p. 3). It is likely that at some future date, the 71-acre site will be impacted by mineral extraction. Portions of the site have already been disturbed by the construction of roads to access soil test pits and the excavation of soil test pits, although very few plants have been impacted (Service 2007b p.4).

Habitat supporting the White Basin population also is subject to surface mining. The U.S. Borax mine has already impacted an unknown portion of this population. Public minerals have not been withdrawn on BLM owned portions of the White Basin population and the privately owned portions of the site are, at risk from surface mining. However, this private land is currently being acquired by BLM from U.S. Borax (see discussion under Conservation Measures Planned). As part of the negotiations for the purchase, U.S. Borax has agreed to relinquish mineral rights and BLM has agreed to make an application/petition to withdraw public minerals.

Future mineral extraction is a threat to roughly 8 percent to the remaining range of the subspecies. Another 19 percent (Muddy Mountains/White Basin) is open to public minerals. Public minerals have been withdrawn on approximately 7 percent of occupied habitat (Coyote Springs, Gold Butte). Habitat of these populations is located within designated BLM Areas of Critical Environmental Concern (ACECs) that are temporarily closed to mineral entry. This protection will expire in November 2007; however, the BLM District Office plans on making an application/petition to withdraw mineral entry to continue protection (see discussion under conservation actions planned-implemented).

The Muddy Mountains population is protected from mineral withdrawal under a BLM wilderness designation by congressional action which concurrently withdrew public minerals on the site. Given the urban setting, it is unlikely mineral claims will be made on the Tropicana and Decatur or CTA populations. Together these constitute roughly 35 percent of the remaining habitat.

Recreation

Demand for recreational opportunities is increasing with Clark County's population growth. OHV activity accounts for the single greatest recreational use of public lands within Clark County (RECON 2000, chapter 4, p. 70). Impacts to the desert from OHVs are well documented (e.g. Web and Wilshire 1983, pp. 1-534) and include destruction of soil stabilizers (cryptogammic soil crusts), soil compaction, reduced rates of water infiltration, increased wind and water erosion, and destruction of vegetation (Lovich and Bainbridge 1999, pp. 315-316). Compaction of desert soil reduces root growth of desert plants and makes it much harder for seedlings to survive (Bainbridge and Virginia 1990, pp. 3-13). Natural recovery of the desert is extremely slow because of extreme temperatures, intense sun, high winds, limited moisture, and low fertility of desert soils (Bainbridge and Virginia 1990, pp 3-13). Conditions suitable for plant establishment occur only infrequently or irregularly, and it may take 50-300 years for full recovery from anthropogenic impacts (Lovich and Bainbridge 1999, p. 309).

Unauthorized recreation and associated habitat modification is a significant threat to seven out of nine Las Vegas buckwheat populations. Only the Muddy Mountain Wilderness population is completely protected. A 2006 threats analysis for the Clark County Rare Plant Conservation Management Strategy (CMS) described casual OHV use and the creation of new trails as significant threats for all rare plant species on BLM lands (TNC 2007, p. 44, 62, 80, 91, 103, 120, 132, 145, 157).

Approximately 53 percent of the remaining Las Vegas buckwheat population is located on habitat adjacent to urban development in the Las Vegas Valley; this habitat is at high risk of destruction or modification resulting from illegal OHV activity and casual public use. Sites sustaining the highest resource damage include: Nellis AFB Area III, Upper Las Vegas Wash and Tropicana and Decatur. A threat to the Nellis AFB Area III population was recognized as early as 1998 when an attempt was made to preserve the population through the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and a master permit agreement for the Las Vegas bearpoppy,. In 2000, a fence was constructed to protect Las Vegas bearpoppy on Nellis AFB Area III from illegal OHV activity and the dumping of construction and household debris. During a site visit on January 3, 2007, holes in the fence were observed and illegal trespassing and dumping was obvious. During a site visit four months later in April 21, 2007, the fence was observed to be cut again and illegal dumping was continuing (Service 2007b, p. 2).

Recreational use of Nellis AFB Area III is increasing and expected to increase in the future. Area III is adjacent to a military riding stable and family housing. Because nearly all the open spaces on the base have been developed, Area III is now one of the last areas open for general use. In 2007 equestrian riders and newly created trails were observed within Las Vegas buckwheat habitat (Service 2007b, p. 2). Under a permit issued by the Nevada Division of Forestry (NDF) for development in this area, an agreement must be negotiated for the parcel (NDF 2007, pp. 1-2) (see Conservation Measures to be Implemented), that will address equestrian activity and recreational use of the site. Possible future effects to the Las Vegas buckwheat habitat may include trampling, soil compaction, weed introduction, and additional soil disturbance that would facilitate weed invasion.

In the Upper Las Vegas Wash, the CTA and Eglington preserve are bisected by a transmission line corridor. The power line corridor has been used by recreationists to access the area. As a result, there is an extensive network of user-defined roads and trails throughout the CTA and Eglington preserve as well as widespread OHV disturbance of Las Vegas buckwheat plants and habitat degradation (Service 2007b, p. 2). In 2006 BLM erected a fence to protect the Eglington preserve from damage. This fencing protects approximately one-third of the upper Las Vegas population. It is not clear how effective this fencing will be, since in the past year this fence has been cut several times (subsequently repaired by BLM).

The Tropicana and Decatur parcel of BLM land is surrounded by urban development. This site has sustained the heaviest resource damage, including extensive OHV damage (Service 2007b, p. 3). The site was likely used for motocross events in the 1980s and 1990s. The Las Vegas Metropolitan Police (Las Vegas Metro) and the public regularly ride OHVs though buckwheat habitat to monitor and manage homeless people on the parcel. Homeless people currently occupy the site, living in makeshift shelters and caves excavated into bluffs within the buckwheat's habitat (Service 2007b, p. 3; BLM 2007c, p. 1-16). In March 2007 Las Vegas Metro contacted BLM for assistance and approvals to clear vegetation to improve public safety (BLM 2007c, p. 1), although, as of August 2007, this activity has not yet taken place.

Outside the Las Vegas Valley, habitat supporting the White Basin and Coyote Spring populations (approximately 39 % of the population) is at risk of damage from recreational use. The White Basin, an area open to organized OHV racing, is at high risk. In the Mojave Desert in California, the physical removal, crushing and soil compaction caused by OHV activity has been shown to result in lower plant cover and species diversity (Web and Wilshire 1983). Extremely slow recovery time means that these impacts will persist for many years following the activity (Lovich and Bainbridge 1999, p. 309). In the past two years BLM has permitted at least two races in the area. Immediately adjacent to the Coyote Spring population, a community with 150,000 homes is being constructed. Although there will be requirements to regulate recreational use of the adjacent public lands, use will increase as development proceeds.

OHV activity on public lands is an ongoing activity that is likely to continue to impact habitat in the near future. The 1998 BLM Las Vegas District Resource Management Plan (RMP) has provisions limiting OHV activity to designated roads, trails and dry washes. The Clark County Rare Plant Conservation Management Strategy (CMS) identified conservation measures from the RMP, including closing illegal roads and trails and enforcement of OHV regulations as means of improving rare plant conservation on public lands. However, BLM currently has a limited number of resource staff dedicated to processing road and trail closures and law enforcement officers focused on preventing illegal OHV activity. Outside of the Red Rock Canyon National Conservation Area, there is roughly one officer for every 370,200 acres of the District, and several portions of the District (Moapa, Gold Butte and the Nye County) are currently limited to one duty officer (Marrs-Smith 2007, p. 1).

Summary of Listing Factor A

Based on the available information, habitat loss or modification is a significant threat to the Las Vegas buckwheat. Since 2004, habitat supporting approximately 25 percent of the Las Vegas buckwheat population has been destroyed or modified due to urban development. In 2005, the Las Vegas buckwheat was known from nine locations on approximately 1,149 acres; however, since that time, approximately 289 acres were or soon will be developed. Currently, habitat is conserved or potentially conserved in 4 areas that total 469 acres (41 percent of the known occupied habitat): the Eglington preserve and CTA of the Upper Las Vegas Wash population; Nellis AFT area III (1); and the Muddy Mountains Wilderness, though three of these populations are threatened by recreational use. Future development and surface mining threaten habitat for 56 percent of the population. OHV activity currently occurs in or threatens approximately 85 percent of the remaining occupied habitat of the species, including all the Las Vegas Valley, Coyote Spring Valley, Gold Butte and Muddy Mountains populations. Based on the available information we determine threats under Factor A, the present or threatened destruction, modification, or curtailment of Las Vegas buckwheat habitat or range, are significant.

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

We are not aware of any use of Las Vegas buckwheat for commercial purposes as this subspecies does not have any known commercial value. We are not aware of any scientific or recreational collection, and although some may be occurring, it is unlikely to be having a negative impact on the subspecies as a whole. We are not aware of any use of Las Vegas buckwheat for educational purposes .

C. Disease or predation.

There are no known diseases or predation affecting the Las Vegas buckwheat.

D. The inadequacy of existing regulatory mechanisms.

Federal-BLM

Approximately 70 percent of the remaining Las Vegas buckwheat habitat is managed by BLM. The Las Vegas buckwheat is a BLM sensitive species. Under BLM manual 6840.06E, BLM policy is to provide these species with the same level of protection as BLM provides for species that are candidates for listing. Under BLM manual section 6840.06 C, BLM's policy regarding candidate species is: "BLM shall implement management plans that conserve candidate species and their habitat 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." This status also ensures that BLM sensitive species are included in National Environmental Policy Act (NEPA) analyses of proposed projects. As a BLM special status species, impacts to the Las Vegas buckwheat may still occur and be authorized by BLM Field Managers.

With approximately 60 percent of land in Clark County managed by BLM, congressional actions regularly determine disposal boundaries, utility corridors and other specific project boundaries as desired by local government. Recent congressional actions have mandated the transfer of BLM

lands, some with sensitive species, out of Federal ownership. In 2002 a congressional action mandated the transfer of a significant population of white-margined beard tongue (*Penstemon albomarginatus*), another BLM sensitive species, from BLM to Clark County for construction of the Ivanpah Valley Airport. In 2002 a congressionally mandated utility corridor bisected an important population of the Las Vegas bearpoppy in the Rainbow Garden ACEC. A 2002 amendment to the Southern Nevada Public Land Management Act (SNPLMA) authorized disposal of all remaining significant Las Vegas bearpoppy and Las Vegas buckwheat populations on BLM land in the Las Vegas Valley. In 2005, BLM initiated disposal of these lands, and during section 7 consultation for the desert tortoise, the Service notified BLM that this action could jeopardize the Las Vegas buckwheat. BLM has initiated comprehensive planning at the CTA and a Conservation Agreement established the Eglington preserve as a result of this action (see discussion under conservation measures implemented).

As previously discussed under factor A, demand for recreational opportunities is increasing with Clark County's population growth. OHV activity accounts for the single greatest recreational use of public lands within Clark County (RECON 2000, chapter 4, p. 70). A 2006 threats analysis for the Clark County Rare Plant Conservation Management Strategy (CMS) described casual OHV use and the creation of new trails as significant threats for all rare plant species on BLM lands (TNC 2007, p. 44, 62, 80, 91, 103, 120, 132, 145, 157). OHV activity on public lands is an ongoing activity that is likely to continue to impact habitat problem that is not likely to improve in the near future. The 1998 BLM Las Vegas District Resource Management Plan (RMP) has provisions limiting OHV activity to designated roads, trails and dry washes. However, shortfalls in BLM resource and law enforcement staffing make it difficult to enforce current BLM policies. Outside of the Red Rock Canyon National Conservation Area, there is roughly one officer for every 370,200 acres of the District, and several portions of the District (Moapa, Gold Butte and the Nye County) are currently limited to one duty officer (Marrs-Smith 2007, p. 1).

In addition, unauthorized recreation is a significant threat to seven out of nine Las Vegas buckwheat populations. Approximately 53 percent of the remaining Las Vegas buckwheat population is located on habitat adjacent to urban development in the Las Vegas Valley; this habitat is at high risk of destruction or modification resulting from illegal OHV activity and casual public use. Sites sustaining the highest resource damage include: Nellis AFB Area III, Upper Las Vegas Wash, and Tropicana and Decatur. The Upper Las Vegas Wash Eglington preserve site containing the subspecies was fenced for protection. The fence has been cut multiple times and illegal recreation activity has occurred on the site. Only the Muddy Mountain Wilderness population on land managed by the BLM is completely protected. Again, limited resource staff dedicated to processing road and trail closures on public lands, and limited law enforcement focused on preventing illegal OHV or other recreational activity. This demonstrates that there are inadequate regulatory mechanisms and supporting resources in place on BLM lands for the protection of the Las Vegas buckwheat.

Federal - Department of Defense

Approximately 25 percent of the remaining Las Vegas buckwheat habitat is on Nellis AFB Area

III. Under the Integrated Natural Resource Management Program (INRMP), the Service and the Department of Defense (DOD) have a cooperative agreement to manage species on military installations to preclude listing under the Endangered Species Act. This agreement does not obligate DOD to include species, such as the Las Vegas buckwheat, that do not have federal status. In an October 2005 draft INRMP, Nellis AFB committed to the preservation of undeveloped portions of Area III to conserve the Las Vegas buckwheat. Despite feedback from the Service supporting the idea, these provisions were removed by base command from a May 2007 draft INRMP. The subspecies is not currently protected under the Nellis INRMP. Efforts have been made to permanently protect the Las Vegas buckwheat habitat within Area III through State regulatory mechanisms that protect another rare plant, the Las Vegas bearpoppy (see discussion under Conservation Measures Planned or Implemented); however, these efforts have not yet been finalized.

As previously described under factor A, recreational use of Nellis AFB Area III is increasing and expected to increase in the future. Area III is adjacent to a military riding stable and family housing. Because nearly all the open spaces on the base have been developed, Area III is now one of the last areas open for general use. In 2000, a fence was constructed to protect Las Vegas bearpoppy on Nellis AFB Area III from illegal OHV activity and the dumping of construction and household debris. During a site visit on January 3, 2007, holes in the fence were observed and illegal trespassing and dumping was obvious. During a site visit four months later in April 21, 2007, the fence was observed to be cut again and illegal dumping was continuing (Service 2007b, p. 2). In 2007, equestrian riders and newly created trails were observed within Las Vegas buckwheat habitat (Service 2007b, p. 2). Under a permit issued by the NDF for development in this area, an agreement must be negotiated for the parcel (NDF 2007, pp. 1-2) (see Conservation Measures to be Implemented), that will address equestrian activity and recreational use of the site. Currently, inadequate regulatory mechanisms are in place to protect the population of Las Vegas buckwheat at Nellis AFB from these activities that are modifying the subspecies habitat. This issue should be addressed during the development of the Conservation Agreement for this area.

State

The Las Vegas buckwheat is not protected by the State of Nevada. In Nevada, regulation of protected plant species is administered through the State Forester at the NDF. In 2001, 2002, 2003, and 2006 the Nevada Native Plant Society's Rare Plant Committee recommended inclusion of the buckwheat on the State list of critically endangered species. The State denied the earlier recommendations, and is currently evaluating the 2006 recommendation. The Las Vegas buckwheat and other rare plant species in Nevada are not included in any comprehensive management planning efforts for the State, such as the State Wildlife Action Plan.

Local

The Las Vegas buckwheat is included as a high priority evaluation species under the Clark County MSHCP. The MSHCP defines an evaluation species as those for which additional

information is required or for which sufficient management prescriptions are unlikely to be able to be defined and implemented sufficiently to support an application for a 10(a) permit under the Endangered Species Act. Status as an evaluation species does not provide the subspecies with regulatory protection.

Summary of Listing Factor D

The Las Vegas buckwheat is not protected by the State of Nevada and it is not protected locally through the Clark County MSHCP. The subspecies is not protected on DOD lands by an INRMP, or regulatory mechanisms to deter illegal recreational activity and dumping in Area III at Nellis AFB. The Las Vegas buckwheat has status as a BLM sensitive species; however, this status offers incomplete protection. The occurrence of Las Vegas buckwheat was not considered in various Acts of Congress that transferred public lands out of Federal ownership for development purposes. At present, occupied habitat of the Las Vegas buckwheat is conserved by existing regulatory mechanisms in two areas that total 109 acres: the Eglington preserve area (59 acres) of the Upper Las Vegas Wash population, and the BLM Muddy Mountains Wilderness (50 acres). However, only the Muddy Mountains Wilderness population is fully protected. The Eglington preserve is adjacent to urban development, and although it has been fenced, illegal recreation activity continues to occur on the site. The Las Vegas buckwheat is likely to be conserved in two other areas totaling 360 acres: the Conservation Transfer Area (127 acres) of the Upper Las Vegas Wash population, and the Nellis AFB Area III (1) (233 acres). Currently however, habitat for the subspecies at these sites are affected by casual public use, illegal dumping and illegal recreation activity. Shortfalls in BLM resource and law enforcement staffing suggest the situation to deter illegal use on BLM lands is not likely to improve in the short-term. These four areas, totaling 469 acres, are approximately 41 percent of the known occupied habitat. The other populations and habitat, including the two areas with the largest known populations (Toquop Wash, 10,000 individuals, and White Basin (2), 6,300 individuals) are subject to a variety of risk factors. Based on the information provided, we find that overall, the inadequacy of regulatory mechanisms is a significant threat to the Las Vegas buckwheat.

E. <u>Other natural or manmade factors affecting its continued existence</u>.

Stochastic events

Small populations are vulnerable to stochastic effects (e.g. Shaffer 1981, 1987; Primack 1998; Groom et al. 2006). All nine populations of the Las Vegas buckwheat are small in size, typically between 50 and 90 acres in size, with the largest at just over 200 acres. Fire in the Mojave is the most likely stochastic event that could adversely affect the Las Vegas buckwheat, as these small populations are susceptible to being destroyed from a single large fire. 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.

Nonnative species

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.

Climate change

Current climatic modeling predicts the southwestern United States will continue to experience regional drought in response to elevated levels of atmospheric carbon dioxide (Seager et al. 2007, pp. 1181-1184). Drought could adversely affect Las Vegas buckwheat recruitment by reducing seed germination, seedling establishment and altering fire frequencies. Presently, we do not have sufficient information to analyze this potential threat.

Based on our assessment there is sufficient information to conclude the remaining Las Vegas buckwheat populations are small in size and are therefore vulnerable to stochastic events. It is reasonable to conclude that one or more of the remaining Las Vegas buckwheat populations could be burned as part of a larger fire in the Mojave Desert. Both the frequency and size of fires in the Mojave Desert have increased as a result of the introduction of nonnative grasses and anthropogenic activities. It is our conclusion that the Las Vegas buckwheat faces a significant threat as a result of other natural or manmade factors affecting its continued existence.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

In the past six years, five conservation measures have directly and indirectly benefited the Las Vegas buckwheat. Two of these actions have been completed or are anticipated to be completed in the near future. These include: establishment of the BLM CTA and a Conservation Agreement with the City of North Las Vegas to protect a portion of the Upper Las Vegas Wash population (Eglington preserve), including efforts to fence the Eglington preserve and protect it from unauthorized OHV impacts.

A 2002 amendment to the SNPLMA authorized disposal of the area containing the Upper Las Vegas Wash population of the Las Vegas buckwheat. In 2005, BLM initiated disposal of these lands, and during section 7 consultation for the desert tortoise, the Service notified BLM that this action could jeopardize the Las Vegas buckwheat. As a result, BLM, the Service, NDF and the City of North Las Vegas began negotiating a series of conservation actions to preserve portions of the Upper Las Vegas Wash population. This lead to a Conservation Agreement signed by the parties to establish the Eglington preserve. Through this agreement, development of 92 acres of occupied Las Vegas buckwheat habitat was authorized in exchange for the preservation of 59 acres of habitat within the Eglington preserve.

In addition, the BLM has initiated comprehensive planning for the CTA to determine the extent of area to be protected (not disposed), including the areas containing Las Vegas buckwheat. BLM began preparing a Supplemental Environmental Impact Statement to establish a CTA to protect paleontological resources, archeological resources, mesquite-acacia woodland, the Las Vegas bearpoppy and Las Vegas buckwheat. This process has not been completed. BLM is currently developing alternative boundaries for the CTA. Two of the alternatives being developed for the CTA will fragment the area from undisturbed Mojave Desert on the adjacent Desert National Wildlife Refuge to the north by the construction of a four to six-lane freeway, utility corridor, and residential housing. BLM expects to make the preferred alternative available for public comment in approximately one year. Regardless of the final configuration selected, the CTA and Eglington preserve together will preserve 186 acres, approximately 67 percent of the Upper Las Vegas Wash buckwheat population habitat as it was mapped in 2002.

This is roughly 16 percent of the currently occupied habitat and 21 percent of the overall remaining known undeveloped habitat.

In 2006 BLM installed wire and t-post fencing around the Eglington Preserve to protect the site from unauthorized OHV impacts and illegal dumping. This fence protects roughly one third of the upper Las Vegas Wash population, approximately 6 percent of the remaining population of the subspecies. The remaining two-thirds of the upper Las Vegas Wash population (the CTA) continues to suffer extensive OHV activity and public recreation (Service 2007b, p. 2). Illegal OHV activity will likely increase as development of the surrounding area continues.

Three conservation actions are in the planning stages. These include: plans by BLM to repurchase lands which contain the White Basin population from US Borax; plans by BLM to renew withdrawal of mineral entry on currently established ACECs in the District; and efforts to conserve Las Vegas bearpoppy habitat within Area III at Nellis AFB. BLM received funding through SNPLMA to acquire approximately 30 acres of land owned by U.S. Borax. This property contains roughly 2.5 percent of the remaining Las Vegas buckwheat population. Recently, BLM negotiated the purchase of these lands from U.S. Borax, however the Las Vegas buckwheat population will not be fully protected as the area is within a special recreation management area that allows OHV activity.

Under a 2002 amendment to the SNPLMA, public minerals were withdrawn for a period of five years from all ACECs within the Las Vegas District. Two populations of Las Vegas buckwheat, Coyote Spring Valley and Gold Butte, are within ACECs established for the desert tortoise. The mineral withdrawal will expire in November 2007. To date, a petition/application to continue this protection for a 20-year period has been submitted to the BLM State Office for review but has not been submitted to their Washington Office. This withdrawal would continue protection on roughly 8 percent of the remaining population of the subspecies from surface mining. Approximately 54 percent of the population remains open to surface minerals claims.

Under a permit for the Las Vegas bearpoppy (State listed as critically endangered) issued by NDF, Nellis AFB agreed to set aside a 233-acre portion of Area III under a conservation agreement so they can develop approximately 137 acres of Area III (NDF 2007, pp. 1-5). Because habitat for the Las Vegas bearpoppy overlaps with occupied Las Vegas buckwheat habitat, the conservation agreement would protect both plants in the area covered by the agreement. This conservation agreement has not yet been negotiated, and is the second attempt to negotiate a conservation agreement for Area III. In 1997 Nellis AFB agreed to preserve 450 acres of Area III for the Las Vegas bearpoppy as part of a master take permit from NDF for the Las Vegas bearpoppy under the Clark County MSHCP (Clark County 1997, p. 3). After three years of negotiations among the Service, NDF and Clark County this effort was abandoned. The current Base Commander has agreed to the 233-acre conservation area. If successful, this will protect approximately 26 percent of the remaining occupied habitat of the subspecies. However, with an imminent change in Base Commander, it is uncertain as to whether or not this action will proceed.

SUMMARY OF THREATS (including reasons for addition or removal from candidacy, if

appropriate)

We have reviewed and evaluated the five listing factors with regard to the Las Vegas buckwheat. The Service considers a candidate species to be one for which we have on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened, but for which preparation and publication of a proposal is precluded by higher priority listing actions. Based upon the information in our files we find that there is sufficient information with regard to Factors A and D and E to conclude that the Las Vegas buckwheat meets the definition of a candidate status. Because we find that this subspecies is a candidate for listing throughout all its range, at this time it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range. Of the threats to the Las Vegas buckwheat the present threatened destruction and modification of habitat and inadequacy of regulatory mechanisms are the primary threats facing the subspecies.

With regard to Factor A, the historic center of the subspecies distribution is the Las Vegas Valley. Roughly 95 percent of the historic distribution of the subspecies has been altered, principally by various forms of human developments, and is now considered unsuitable habitat for the Las Vegas buckwheat. Las Vegas is one of the nation's fastest growing metropolitan areas. Since 2004, roughly 25 percent of the habitat of the population of the subspecies has been developed. Based on our analysis, currently 892 acres of Las Vegas buckwheat habitat remain that are undeveloped. Of this acreage, approximately 56 percent is at risk of development, including the Tropicana and Decatur parcel, and Toquop Wash sites (approximately 16 percent), which are at high risk of urban development and surface mining.

Conservation efforts are underway to protect the CTA and Nellis Area II populations from development. If successful, these efforts could preserve 37 percent of the remaining known occupied habitat that is undeveloped. These efforts are in various stages of completion. The CTA (11 percent of the habitat) is the farthest along and we are confident this effort will be successfully implemented. Based on previous negotiations and turnover in Nellis AFB command we are not certain that a Conservation Agreement will be secured for Area III (26% of the population).

All known populations of the subspecies are being affected by casual recreation including illegal OHV use, hiking, and equestrian activity. OHV activity is the single largest recreation use of public lands in Clark County. OHV activity currently threatens seven out of nine populations or 85 percent of the remaining undeveloped acres of habitat known to be occupied by the subspecies. Only the Muddy Mountain wilderness population is protected from OHV activity by its status as a wilderness area. Impacts are most severe in the Las Vegas Valley with 53 percent of the remaining population heavily impacted. Another 7 percent of the subspecies may be similarly impacted following construction of the Coyote Spring development. Continuing OHV activity, including OHV events permitted by BLM in the White Basin threatens another 32 percent of the population. Shortfalls in BLM resource and law enforcement staffing suggest this situation is not likely to improve in the short-term. Based on our analysis of on-going development, surface mining and recreation activities we conclude that there is sufficient

information to develop a proposed listing rule for this subspecies due to the present and threatened destruction, modification, or curtailment of its habitat and range under Factor A.

Regarding Factor D, the Las Vegas buckwheat is not protected by the State of Nevada, nor is it protected under any Nevada comprehensive conservation planning efforts. The subspecies is a Clark County MSHCP evaluation species; however, status as an evaluation species does not offer protection or conservation benefit. The subspecies is not protected on Nellis AFB through the INRMP process, or through other measures to deter illegal dumping or recreational use of the site. The Las Vegas buckwheat is a BLM sensitive species. As a BLM sensitive species, it is covered by policy provisions of BLM manual section 6840.06E that states BLM will provide the species the same protection provided by their policy regarding candidate species (manual section 6840.06C), which is to implement management plans that conserve candidate species and their habitats and ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed. However, the ability of BLM to accomplish this task is limited because federal land disposals are authorized by Congress to dispose of land that may contain BLM sensitive species, and because there is limited law enforcement staffing to deter illegal activities or enforce existing regulations in Las Vegas buckwheat habitat. To date, BLM has made some significant efforts to conserve the Las Vegas buckwheat including the development of a CTA as part of the ongoing effort to protect the upper Las Vegas Wash population, fencing portions of the Eglington preserve and purchasing 30 acres of Las Vegas buckwheat owned by U.S. Borax. However, a key to making these conservation actions work will be adequate BLM law enforcement and consistent management to maintain protective measures for these areas. The absence of sufficient regulatory mechanisms is a threat to the Las Vegas buckwheat and based on our evaluation of regulations, there is sufficient information to develop a proposed listing rule for this subspecies due to the inadequacy of existing regulatory mechanisms under Factor D.

Regarding Factor E, the remaining nine populations of the Las Vegas buckwheat are all less than 200 acres in size, typically between 50 and 90 acres. These populations are small in size and therefore vulnerable to stochastic events, such as fire which could burn through an entire population. Both the frequency and size of fires in the Mojave Desert have increased as a result of the introduction of nonnative grasses and anthropogenic activities. Based on the available data, it is our conclusion that stochastic events, particularly fire, are a threat to the Las Vegas buckwheat and that there is sufficient information to develop a proposed listing rule for this subspecies due to natural or manmade factors affecting the subspecies under Factor E.

RECOMMENDED CONSERVATION MEASURES

These conservation measures are preliminary and have not yet been reviewed or developed in cooperation with other State and Federal Agencies, but will be discussed with these partners in the near future, and thus may be modified:

(1) Complete pending conservation actions including the purchase of the White Basin Population, establishment of the BLM CTA in the Upper Las Vegas Wash, and a

Conservation Agreement with Nellis AFB to preserve a 233 acre portion of Area III.

(2) Develop and implement measures to preserve habitat on the Tropicana and Decatur Parcel.

(3) Extend regulatory protection to Las Vegas buckwheat populations under State law and/or the Clark County MSHCP.

(4) Work to remove casual OHV impacts through increased law enforcement and/or trail closures and fencing, and completely remove casual OHV use of occupied habitat.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6*
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: High

The primary threats to the Las Vegas buckwheat include urban related development and surface mining, under factor A, and inadequate regulatory mechanisms, under factor D. Potential urban development of the remaining Las Vegas Valley populations and surface mining at the Toquop Wash population together threaten roughly 56 percent of the remaining undeveloped habitat Also under factor A, casual recreational use is a threat, however, because this threat will manifest itself relatively slowly over the foreseeable future (the next 5 to 10 years) we determine it has a slightly lower importance for determining the overall magnitude of the threat under factor A even though it threatens a high proportion of the occupied habitat, roughly 85 percent. Conservation measures are being developed that could reduce the amount of occupied habitat threatened by urban development, but we believe it would be premature to consider these measures sufficiently complete as to substantially reduce the magnitude of the threat.

Current regulatory mechanisms to protect the species are inadequate, the consequences for this lack of adequate protection are high, therefore we also consider the magnitude of this threat to be high. At the state level there is no regulatory mechanism to protect the subspecies on private and federal lands. On DOD land (roughly 20 percent of the habitat) there is no regulatory protection for the subspecies. On BLM land (roughly 80 percent of the remaining habitat) the subspecies is a BLM sensitive species. However, status as a BLM sensitive species is inadequate to protect the subspecies from congressionally mandated disposals of BLM managed lands, and to date it has not been adequate to address risks related to surface mining and OHV activities. Based on our conclusions for factors A and D, we consider the overall magnitude of threats facing the Las Vegas buckwheat at this time to be high.

Imminence: Non-imminent
Under factor A, we consider urban development/surface mining to be a more significant threat than casual recreation and OHV activity. Based on the available information, roughly 16 percent of the remaining habitat is immediately threatened with urban development and surface mining. For this reason we conclude the imminence of threats facing the Las Vegas buckwheat under factor A are largely non-imminent. While the inadequacy of existing regulatory mechanisms are significant, we know of no pending congressional land transfers that could immediately affect the subspecies; therefore the imminence of threats facing the Las Vegas buckwheat under factor D are non-imminent. Based on our conclusions for factors A and D, we determine the overall imminence of threats facing the Las Vegas buckwheat to be non-imminent.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted?

No. While the Tropicana and Decatur population is at immediate risk of development, and important conservation actions currently remain incomplete, the immediate loss of a significant portion of the population is low given the threats.

DESCRIPTION OF MONITORING

This is a new assessment. Currently there is no formal monitoring program for the Las Vegas buckwheat throughout its range. Monitoring the threats and status populations will continue by Service and BLM botanists as workloads and staff time permit.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment:

At present, the entire range of the species is presumed to be in Nevada. Coordination with and feedback from NDF and the Nevada Natural Heritage Program on elements of this assessment has been frequent and ongoing since 2005. The entire assessment has been forwarded to NDF for comment.

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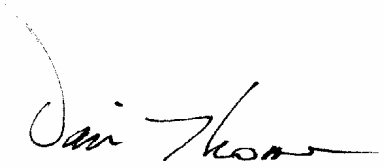
APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.



Approve: _____ 8/16/2007
Manager, CNO, Fish and Wildlife Service Date

Concur: Kenneth Stansell November 27, 2007
Acting Director, U.S. Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks:

Date of annual review:
Conducted by: