

**DRAFT ENVIRONMENTAL ASSESSMENT
PROPOSAL OF CRITICAL HABITAT
FOR THE HOLMGREN AND SHIVWITS MILK-VETCHES
(*Holmgren milk-vetch* and *Shivwits milk-vetch*)**

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1.0 Purpose of the Proposed Action

The purpose of the proposed action is to designate critical habitat for the Holmgren milk-vetch (*Astragalus holmgreniorum*) and Shivwits milk-vetch (*Astragalus ampullarioides*) (jointly hereafter referred to as the milk-vetches) by utilizing provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act). The purpose of the Act is to conserve the ecosystems upon which endangered and threatened species depend. Critical habitat designation identifies areas essential to the survival and recovery of the milk-vetches, and describes physical and biological features within critical habitat that require special management considerations to achieve conservation of the species.

Our position is that, outside the Tenth Circuit, we do not need to prepare environmental analyses as defined by the National Environmental Policy Act (NEPA) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit (*Douglas County v. Babbitt*, 48 F .3d 1495 (Ninth Cir. Ore. 1995), cert. denied 116 S. Ct. 698 (1996)). However, when the range of the species includes States within the Tenth Circuit, pursuant to the Tenth Circuit ruling in *Catron County Board of Commissioners v. U.S. Fish and Wildlife Service*, 75 F .3d 1429 (Tenth Cir. 1996), we will complete a NEPA analysis. The range of the milk-vetches includes States within the Tenth Circuit; therefore, we must complete an analysis.

2.0 Need for the Action

The need for this action is to comply with section 4 of the Act, which requires that critical habitat be designated for endangered and threatened species unless such designation is not prudent. On September 28, 2001, the milk-vetches were designated as endangered throughout their entire range under the Act (66 FR 49560), but critical habitat was not designated at that time. On September 27, 2004, Center of Biological Diversity and Utah Native Plant Society filed a lawsuit against the Department of Interior (DOI) and the Service. The plaintiffs alleged that we were in violation of the ESA because we had failed to designate critical habitat and we had not developed a recovery

plan for the two species. On July 15, 2005, a court settlement was approved with a proposed critical habitat designation to be submitted to the Federal Register by March 17, 2006, and a final critical habitat designation to be submitted to the Federal Register by December 16, 2006. Recovery planning for these species is ongoing; however, a recovery plan for these species has not yet been completed. On March 29, 2006, the rule proposing critical habitat for the milk-vetches was published in the *Federal Register* (71 FR 15966).

Critical habitat is one of several provisions of the Act that aid in protecting the habitat of listed species until populations have recovered and threats have been minimized so that the species can be removed from the list of threatened and endangered species. Critical habitat designation is intended to assist in achieving long-term protection and recovery of the milk-vetches and the ecosystem upon which they depend. Section 7(a)(2) of the Act (50 CFR §402.13) requires consultation for Federal actions that may effect critical habitat to avoid destruction or adverse modification of this habitat. Further explanation of critical habitat and its implementation is provided below.

2.1 Background

Both *Astragalus holmgreniorum* (Holmgren milk-vetch) and *A. ampullarioides* (Shivwits milk-vetch) are members of the pea family (Fabaceae or Leguminosae). Holmgren milk-vetch is found in both Washington County, Utah (UT), and Mohave County, Arizona (AZ), while Shivwits milk-vetch is only found in Washington County, UT. Both species are narrowly distributed Mojave Desert endemics. Three populations of Holmgren milk-vetch and five populations of Shivwits milk-vetch are known to exist (66 FR 49560; September 28, 2001).

However, the distribution of plants within these populations is not always continuous; therefore, some populations are split into more than one site or proposed critical habitat unit. For the purposes of the proposed critical habitat rule, the term "population" refers to an area of species concentration of either Holmgren or Shivwits milk-vetch individuals. The term "occurrence" indicates a record of one or more individual plants. A "site" refers to the land that supports individuals of the species, while a "unit" refers to specific sites that are being considered for critical habitat designation.

Astragalus holmgreniorum

All known populations of Holmgren milk-vetch occur within approximately 16 kilometers (km) (10 miles (mi)) of St. George, UT in Washington County, UT and in Mohave County, AZ. Populations are found between 756 and 914 meters (m) (2,480 and 3,000 feet (ft)) in elevation in areas that drain to the Santa Clara and Virgin rivers. The landscape has small and large hill and plateau formations which are broken up by water erosion. Holmgren milk-vetch is most frequently found on the skirt edges of hill and plateau formations, slightly above or on the edge of drainage areas (e.g., Harper and Van Buren 1997; Van Buren 2004; Service, unpublished data, 2005). In areas where Holmgren milk-vetch are found, a large portion of the soil surface is non-vegetated, and is characterized by small stone and gravel deposits (Van Buren and Harper 2003a). Holmgren milk-vetch frequently occur near intermittent drainage and receive "run on" water from nearby sloping areas (Harper 1997; Harper and Van Buren 1997). This, combined with slower evaporation due to shading produced by the small stone and gravel, may create better water relations in excess of regional rainfall (Harper 1997; Harper and Van Buren 1997).

Holmgren milk-vetch is a short-lived perennial; few plants live past three years, with 4 years being the oldest documented lifespan (Stubben 1997; Van Buren and Harper 2003a). Second-year and older plants appear several weeks before seedlings, generally in late February or early March. The best time to detect the species is while it is producing flowers (typically between March and April) and fruit (the majority of plants set fruits by the end of April). Seed pods are persistent until the end of May. Plants die back to roots between late May and mid-June (Van Buren and Harper 2003a).

Annual fluctuations in the number of individuals within a population are great. Populations in dry years may be ninety-five percent smaller than in years of adequate precipitation (Van Buren and Harper 2003a). Surveys conducted in one part of the range found counted 12,315 individuals in 2003, in a separate area counts in 2004 found individual numbers at 15,902 (Van Buren 2003; Van Buren 2004). These limited, but intensive surveys indicate that in some years population numbers are higher than the 10,000 individuals estimated at the time of the listing rule. However, surveys in 2003 and 2004 occurred in the spring and nearly all individuals counted were seedlings. More

seedlings are found when precipitation in the first quarter of the year is higher (Van Buren and Harper 2003a). In the most recent years (2000, 2001, 2003, 2004), high flushes of seedlings have been coupled with a low survivorship rate (58.9 to 96.8 percent mortality) most likely due to the timing of precipitation; this mortality has resulted in relatively few reproductive adults (Van Buren and Harper 2004a). There is not a current total population estimate.

Although the landscape holds an unknown quantity of seeds (referred to as a seed bank), high mortality may be depleting the seed bank (Van Buren 2004). Low survivorship and reproductive results would make this species vulnerable to extinction due to chance events, in the event that the population declines. In addition, in relationship to genetic fitness, seed germination may decrease as a population declines in size (Menges 1991; Heschel & Paige 1995). According to Menges (1990), if a population is to survive, offspring must be produced in quantity to replace the parent population. Currently, Holmgren milk-vetch seedling mortality continues to be very high, and adults are lacking (Van Buren 2003 and 2004; Van Buren and Harper 2004a).

Habitat is often dynamic, and species may move from one area to another over time. Seeds are thought to be dispersed by water as plants are generally found on the skirt edges of washes or in run-off channels around mounds (Harper and Van Buren 1997; Van Buren and Harper 2003a). Rodents and smaller ground-dwelling birds are likely other dispersal agents (Dr. Stanley Welsh, Brigham Young University, pers. comm. 2005).

Holmgren milk-vetch do not reproduce through vegetative methods; therefore, the setting of seed is necessary for future offspring. Flowers on some Holmgren milk-vetch plants can produce fruit without insect visitation (i.e., autogamously) (Tepedino 2005). However, self-fertilized flowers produced fewer fruits, and this ultimately negatively influences the number of offspring. A loss in pollinators could decrease genetic diversity and population fitness (Tepedino 2005).

Shivwits milk-vetch

All known populations of Shivwits milk-vetch occur within Washington County, UT. Because occupied sites are small in area, it is difficult to link the presence of Shivwits milk-vetch to any

wide-ranging defined soil type, however locations of Shivwits milk-vetch populations are located on an often purple-hued patch of soft clay soil previously thought to be associated with the Chinle Formation with newer information indicating an association with the Moenave Formation (Harper and Van Buren 1997; Stubben 1997. M. Miller, U.S. Geological Survey Researcher, pers. comm. 2006). This substrate, which is light and airy when dry, expands greatly with precipitation, becoming slick and glue-like (Harper 1997). In dry periods, this soil is considered unstable (Van Buren and Harper 2003b). During soil expansion, areas rise up into mounds (Harper 1997). Equal contraction upon drying often results in the formation of deep, wide cracks (Harper 1997). This quality tends to constrict root systems so that few perennial plants persist on the Chinle formation (Harper 1997).

Shivwits milk-vetch populations are found between 920 to 1330 m (3,018 to 4,367 ft) in elevation. Shivwits milk-vetch is a perennial herb. Its lifespan is unknown, but available data indicate a lifespan of at least 9 years (Van Buren and Harper 2004b). Flowering occurs between March and late May. In most years, plants dry up by the end of June; however, vestiges of dried plants may persist longer. The perennial rootstock allows Shivwits milk-vetch to survive dry years; in a drought year (e.g., 2002) plants may not emerge (Van Buren and Harper 2003b). Dormancy is one documented method by which longer-lived plant species can survive changing climatic conditions, particularly in areas with variable and unpredictable rainfall (Epling and Lewis 1952). Epling and Lewis (1952) indicate that the adaptive traits of a plant species utilizing dormancy, with some individuals remaining dormant in one growing season while others develop and reproduce, produces populations with some resiliency to environmental fluctuation.

Due to climatic or other conditions, the number of Shivwits milk-vetch individuals documented in a given year at a given site varies. The total number of Shivwits milk-vetch individuals was estimated at 1,000 individuals at the time of listing, with numbers in Zion National Park (NP) estimated at 300 to 500 individuals (R. Van Buren 2000, in 66 FR 49560). More recent site visits and surveys at Zion NP have expanded this number to above 1,500 individuals (J. Alexander, Zion NP, pers. comm. 2004; M. Miller, pers. comm. 2006). Yearly information at other sites has varied, and total numbers may be around 4,000 individuals (Dr. Renee Van Buren, Utah Valley State College, pers. comm. 2006; M. Miller, pers. comm. 2006). Variables (such as plant dormancy and population shift due to

extinction and colonization of new sites) make estimating the total number of individuals in any given year difficult.

According to Van Buren and Harper (2003a), the number of new Shivwits milk-vetch seedlings is related to precipitation in the year of observation, while percent mortality reflects moisture relations experienced in the prior year. Prior to 2002, when plants were not seen due to extreme drought conditions, the percent of adults and overall representation of age classes documented at a single site (Pahcoon Spring Wash) was considered stable (Van Buren and Harper 2003a; Van Buren and Harper 2004b). In the years 2000, 2001, 2003, 2004, seedlings comprised 7.5 to 54 percent of the population, and adults ranged from 40 to 77 percent (Van Buren and Harper 2004b). However, data on population size, reproductive output, and percent survivorship indicate a decline occurred in conjunction with severe drought in 2002 (Van Buren and Harper 2004b). The small population size of most Shivwits milk-vetch populations and limited geographic range make these populations vulnerable to randomly occurring catastrophic events, as well as small-scale habitat degradation (66 FR 49560).

No methods of seed dispersal have been documented. Water drainage patterns, landscape erosion, and soil slumping may contribute to the development of appropriate habitat sites and may move seeds within sites (Van Buren and Harper 2003). The disjunct populations of Shivwits milk-vetch suggest bird dispersal, as pockets of Chinle are sufficiently far apart (Dr. S. Welsh, pers. comm. 2005).

2.2 Endangered Species Act

2.2.1 Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as – (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such

areas are essential for the conservation of the species. The term “conservation” as defined in section 3(3) of the Act, means “to use and the use of all methods and procedures which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary” (i.e., the species is recovered and removed from the list of endangered and threatened species).

Section 4(b)(2) of the Act requires that we base critical habitat designation on the best scientific and commercial data available, taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation if we determine that the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species. Within the geographic area occupied by the species, we will designate only areas currently known to be “essential to the conservation of the species.” Critical habitat should already have the features and habitat characteristics that are necessary to sustain the species. We will not speculate about what areas might be found to be essential if better information were available, or what areas may become essential over time. If information available at the time of designation does not show an area provides essential support for a species at any phase of its life cycle, then the area should not be included in the critical habitat designation. Within the geographic area occupied by the species, we will not designate areas that do not now have the primary constituent elements, as defined at 50 CFR 424.12(b), that provide essential life cycle needs of the species.

Habitat is often dynamic, and species may move from one local area to another over time. Furthermore, we recognize designation of critical habitat may not include all habitat eventually determined as necessary to recover the species. For these reasons, areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) and the regulatory protections afforded by section 7(a)(2) jeopardy standard and the section 9 take prohibition, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally-funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat

conservation plans, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12 in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider physical and biological features (primary constituent elements) that are essential to the conservation of the species, and that may require special management considerations or protection. These include, but are not limited to-- (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing (or development) of offspring; and (5) habitats protected from disturbance or that are representative of the historic geographical and ecological distributions of a species.

2.2.2 Section 7 Consultation

Section 7(a)(2) of the Act requires every Federal agency, in consultation with and with the assistance of the Secretary, to insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In fulfilling these requirements, each agency is to use the best scientific and commercial data available. This section of the Act sets out the consultation process, which is further implemented by regulation (50 CFR 402).

Each Federal agency is to review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If the action may affect a listed species or critical habitat, consultation with the Service is needed. It should be noted that section 7 requirements are not restricted to designated critical habitat, but apply to any Federal action that may affect a listed species.

Informal consultation is an optional process that includes all discussions and correspondence between the Service and a Federal agency or designated non-Federal representative, designed to

assist the Federal agency in determining whether formal consultation or a conference is required. If during consultation it is determined by the Federal agency, with the written concurrence of the Service, that the action is not likely to adversely affect listed species or critical habitat, the consultation process is terminated, and no further action is necessary. During informal consultation, the Service may suggest modifications to the action that the Federal agency and any applicant could implement to avoid the likelihood of adverse effects to listed species or critical habitat. Although the process for informal consultation is relatively simple, it can require substantial administrative effort on the part of all participants.

If the proposed action is likely to adversely affect a listed species or designated critical habitat, formal consultation with the Service is required. Formal consultation is a process between the Service and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion by the Service.

With the request to initiate formal consultation, the Federal agency is to include: (1) a description of the proposed action, (2) a description of the area that may be affected, (3) a description of any listed species or critical habitat that may be affected, (4) a description of the manner in which the listed species or critical habitat may be affected and an analysis of cumulative effects, (5) relevant reports including any environmental impact statement, environmental assessment, or biological assessment, and (6) any other relevant and available information.

Formal consultation concludes 90 days after its initiation. Within 45 days after concluding formal consultation, the Service is to deliver a biological opinion to the Federal agency and any applicant. The biological opinion will include the Service's opinion on whether the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. Activities that would destroy or adversely modify critical habitat are defined as those actions that "appreciably diminish the value of critical habitat for both the survival and recovery" of the species (50 CFR 401.02). Activities that would jeopardize the continued existence of a species are defined as those actions that "reasonably would be expected,

directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery” of the listed species (50 CFR 402.02). Given the similarity of these definitions, activities that would likely destroy or adversely modify critical habitat would likely result in jeopardy to the species. This is particularly true in cases, such as the milk-vetches, where the range of the species is relatively small and only occupied and associated occupied area is proposed as critical habitat units.

If the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the biological opinion will include a reasonable and prudent alternative, if any exist. A reasonable and prudent alternative is a recommended alternative action that can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction, that is economically and technologically feasible, and that would avoid the likelihood of jeopardizing the continued existence of the listed species or the destruction or adverse modification of designated critical habitat.

2.2.3 Technical Assistance

Although it is not defined in the regulations, technical assistance includes those parts of the informal consultation that provide information to agencies, applicants, and/or consultants, but specifically stops short of concurrence on “may effect” determinations. The term is used to differentiate “informal” consultation (where a concurrence with an agency, applicant, or consultant on “may effect” is provided) and the provision of information. This differentiation is primarily made for record-keeping purposes.

A telephoned or written inquiry about the presence or absence of listed and/or proposed species in a project area usually initiates informal consultation and frequently generates technical assistance. Service biologists may respond in different ways:

1. If species are not likely to be present, the consultation requirement is met and the Service may advise the agency, applicant or consultant.

2. If historical records or habitat similarities suggest the species may be in the area, then some survey work may be recommended to make a more precise determination.
3. If the species is definitely in the project area, but the Service determines it will not be adversely affected, the Service may notify the agency of that finding.

Technical assistance from the Service may take a variety of forms. It can include information on candidate species as well as names of contacts having information on State listed species. The Service may provide correspondence to State agencies or other Service offices to alert them to a project.

As a part of technical assistance, the Service may recommend:

1. the action agency conduct additional studies on the species' distribution in the area affected by the action, or
2. the action agency monitor impacts of the action on aspects of the species' life cycle. Monitoring may be recommended when incidental take is not anticipated but might possibly occur, thus triggering the need for project changes or formal consultation.

2.2.4 DECISION TO BE MADE BY RESPONSIBLE OFFICIAL

The Service's decision is whether to implement the proposed rule to designate critical habitat for Homgren milk-vetch in portions of northern Arizona and southern Utah and Shivwits milk-vetch in portions of southern Utah described in the March, 29, 2006, rule proposing critical habitat for the milk-vetches as published in the *Federal Register* (71 FR 15966). Criteria being used for designation of critical habitat include lands determined to be occupied at the time of listing, that currently support the most abundant, reproducing Holmgren milk-vetch and Shivwits milk-vetch populations in the contiguous United States, and that contain the primary constituent element that is essential to the conservation of these two milk-vetches.

3.0 Description of Alternatives

The Service considered two alternatives, the No Action Alternative and the Action Alternative. The Action Alternative is to designate critical habitat as agreed to in the court-approved settlement.

3.1 Alternative A: No Action Alternative

Pursuant to NEPA and its implementing regulations (40 CFR 1502.14), we are required to consider the No Action Alternative. The No Action Alternative would basically maintain the *status quo*. The milk-vetches would remain listed as endangered species, but with no designation of critical habitat. Since the listing of the both species as endangered, the milk-vetches have been protected under section 7 of the Act by prohibiting Federal agencies from implementing actions that would jeopardize the continued existence of the species. This protection under the Act is considered the baseline against which we evaluate the action alternatives described below. In addition, the No Action Alternative would ignore the legal requirement to designate critical habitat, where prudent, and would be non-responsive to the court-mediated settlement to designate critical habitat by December 16, 2006.

3.2 Action Alternative – Proposed Alternative

The Action Alternative includes designation of critical habitat in areas that contain the physical and biological features upon which the milk-vetches depend. The Act refers to these essential habitat features as “primary constituent elements.”

The primary constituent elements for the Holmgren milk-vetch consist of, but are not limited to:

(1) Appropriate geological layers or soils that support individual Holmgren milk-vetch plants. Holmgren milk-vetch is found on the Virgin Limestone member, middle red member, and upper red member of the Moenkopi Formation and the Petrified Forest member of the Chinle Formation (Harper and VanBuren 1997; L. Hughes, pers. comm. 2005). Associated soils are defined by USDA et al. (1977 and 2001 as Badland; Badland, very steep; Eroded land-Shalet

complex, warm; Hobog-rock land association; Isom cobbly sandy loam; Ruesh very gravelly fine sandy loam; Gypill Hobog complex, 6-35 percent slopes; Gypill very cobbly sandy loam, 15-40 percent slopes; and Hobog-Grapevine complex, 2-35 percent slopes. These soils are generally found at elevations from 756 to 914 m (2,430 to 3,000 ft) and support the associated native plant species described above with low presence or lack of Larrea tridentata (creosote bush).

(2) Topographic features/relief (mesas, ridge remnants, alluvial fans and fan terraces, their summits and backslopes, and gently rolling to steep swales) and the drainage areas along formation edges with little to moderate slope (0 to 20 percent). These topographic features/relief contribute to the soil substrate and vegetative community described above, natural weathering and erosion, and the natural surface and subsurface structure that provides minimally altered or unaltered hydrological conditions (e.g., seasonally available moisture from surface or subsurface runoff).

(3) The presence of insect visitors or pollinators, such as Anthophora captognatha, A. damnersi, A. porterae, Anthophora sp., Eucera quadricincta, Omia titus, and two types of Dialictus sp.

The primary constituent elements for the Shivwits milk-vetch consist of, but are not limited to:

(1) Outcroppings of soft clay soil, often purple-hued, within the Chinle and Moenave Formations, at elevations from 920 to 1,330 m (3,018 to 4,367 ft). Plant species that are characteristically found on these clay soils within the Chinle Formation and can indicate the presence of this PCE for Shivwits milk-vetch include: native plant species include annual forbs, such as Eriogonum annual species, Lotus humistratus (hairy deer vetch) and Plantago patagonica (woolly plantain); perennials, such as Calochortus flexuosus (sego lily) and Dichelostemma pulchellum (bluedicks); native grass, such as, Hilaria rigida (big galletta); and shrubs, such as Coleogyne ramosissima (blackbrush) and Gutierrezia microcephala (broom snakeweed) (Van Buren and Harper 2003a and 2004b).

(2) Topographic features/relief, including alluvial fans and fan terraces, and gently rolling to steep swales that are often markedly dissected by water flow pathways from seasonal precipitation

with little to moderate slope (3 to 24 percent). Associated topographic features/relief contribute to the soil substrate and vegetative community described above, natural weathering and erosion, and the natural surface and subsurface structure that provide minimally altered or unaltered hydrological conditions (e.g., seasonally available moisture from surface or subsurface runoff) upon which Shivwits milk-vetch depends.

(3) The presence of insect visitors or pollinators, such as Anthophora captognatha, A. damnersi, A. porterae, Anthophora species, Eucera quadricincta, Bombus morrissonis, Hoplitis grinnelli, Osmia clarescens, O. marginata, O. titus, O. clarescens, and two types of Dialictus species.

Our Proposed Alternative would designate critical habitat as described in the Proposed Rule published on March 29, 2006, the rule proposing critical habitat for the milk-vetches was published in the *Federal Register* (71 FR 15969) with small changes to due to improved site knowledge on units recently surveyed by Bureau of Land Management (BLM) on BLM managed lands. The proposed critical habitat area constitutes our best assessment at this time of the area essential for the conservation of the milk-vetches. The sites include known locations where the milk-vetches currently occur, and are comprised of one or more of the primary constituent elements.

Critical habitat is being proposed on approximately 6,475 acres (ac) (2,620 hectares (ha)) for the Holmgren milk-vetch on Bureau of Land Management (BLM) Arizona, BLM Utah, Arizona State, Utah State, and private lands within Mohave County of Arizona and Washington County in Utah. For the Holmgren milk-vetch, we have proposed 6 areas as critical habitat (in bold) in the form of three units and five subunits. The critical habitat areas listed here and further described below constitute our best assessment at this time of the areas essential for the conservation of the Holmgren milk-vetch that may require special management. Unit 1, Utah- Arizona Border, consists of subunit 1a (**H1a**) State line found in Arizona and Utah, subunit 1b (**S1b**) Gardner Well found in Arizona, and subunit 1c (**S1c**) Central Valley found in Utah. Unit 2, Santa Clara, is found solely in Utah and consists of subunit (**S2a**) Stucki Spring and subunit (**S2b**) South Hills. Also in Utah is Unit 3 (**S3**): Purgatory Flat. A small number of Holmgren milk-vetch plants also occur near the

border of Section 23 and 24 (T43S, R16W); this site was not included in our proposed rule based on a lack of information supporting its importance to species conservation. We will consider any public comments received that may provide additional information on the importance of this population.

For the Shivwits milk-vetch critical habitat is being proposed on approximately 2,421 ac (980 ha) in Washington County, Utah on BLM Utah, Zion National Park, Shivwits band of the Paiute Tribe, Utah State and private lands. For the Shivwits milk-vetch, we have proposed 6 areas as critical habitat in the form of five units and two subunits. The critical habitat areas listed here and further described below constitute our best assessment at this time of the areas essential for the conservation of the Shivwits milk-vetch that may require special management. Unit 1 (**H1**), Pahcoon Spring Wash, Unit 2 (**H2**), Shivwits, Unit 3 (**H3**), Coral Canyon, Unit 4, Harrisburg Junction, consisting of subunit 4a (**H4a**) Harrisburg Bench and Cottonwood and subunit 4b (**H4b**) Silver Reef and Unit 5 (**H5**) Zion.

All proposed units are essential because, as previously discussed, the long-term conservation of both milk-vetches is dependent upon the protection of existing populations and the maintenance of ecological functions within these sites, including: connectivity within and between populations within close geographic proximity to facilitate pollinator activity and seed dispersal mechanisms; population expansion; and the ability to maintain these areas free of major ground-disturbing activities. The areas we are proposing to designate as critical habitat provide some or all of the habitat components essential for the conservation of the milk-vetches. We do not propose any areas outside the geographical area presently occupied by the species. We believe the proposed designation is of sufficient size to maintain ecological processes and to minimize secondary impacts resulting from human activities and land management practices occurring in adjacent areas. We mapped the units with a degree of precision commensurate with the available information, the size of the unit, and time allotted to complete this proposal. We anticipate that the boundaries of the units may be refined based on additional information received during the comment period and after surveys are completed in the summer of 2006.

4.0 Affected Environment

For Holmgren milk-vetch, the Proposed Alternative includes approximately 6,475 acres (ac) (2,620 hectares (ha)) and for Shivwits milk-vetch it includes approximately 2,421 ac (980 ha). Unless otherwise noted, the following information has been taken from the *Draft Economic Analysis of Critical Habitat Designation for Holmgren and Shivwits Milk-Vetch* (Northwest Economic Associates (NEA), June 2006) which analyzed the economic effects of the Proposed Alternative (Alternative B) and is available in Appendix 3. Further details of information provided below, as well as complete citations and bibliography also may be found in the Draft Economic Analysis.

4.1 Physical Environment

Holmgren milk-vetch

In Utah, the Holmgren milk-vetch typically occurs on the Virgin Limestone, upper redbed subunits of the Moenkopi formation, and on the Chinle shale formation (Petrified Forest member) with a thin gravel layer from the Shinarump Conglomerate member (Harper and Van Buren 1997). Sites in UT are most affiliated with the following soil series: both Badland and Badland, very steep; Hobog-Rock Land association; Isom cobbly sandy loam, 3-30 percent slope; Eroded land-Shalet complex, warm (USDA et al., 1977). Sites in AZ are believed to be associated with the Virgin Limestone member and middle red member of the Moenkopi Formation (L. Hughes, pers. comm. 2005). These sites may be affiliated with the following soil series: Ruesh very gravelly fine sandy loam, 3-20 percent slopes; Gypill-Hobog complex, 6-35 percent slopes; Gypill very cobbly sandy loam, 15-40 percent; and Hobog-Grapevine complex, 2-35 percent slopes (USDA et al. 2001).

Holmgren milk-vetch occurs at elevations from 756 to 914 m (2,480 to 3,000 ft) on sites with slight to moderate slope (Service, unpublished data, 2005). Slopes range from 0 to 46.55 percent (Service, unpublished, 2005), although most individuals of Holmgren milk-vetch are found between 1.54 and 14.01 percent slope (Service, unpublished data, 2005).

Shivwits milk-vetch

Shivwits milk-vetch has a limited distribution and is found on clay outcroppings associated with the Chinle and Moenave Formations (Harper and Van Buren 1997; Stubben 1997; M. Miller, pers. comm. 2006). Shivwits milk-vetch requires appropriate soils, associated formations, slope, drainage, and plant community within the landscape to provide space for individual and population growth and to provide food, water, air, light minerals or other nutritional or physiological requirements. The texture of this soil is approximately 48.9 percent clay (Van Buren and Harper 2003a). The high content of minerals non-oxidized iron minerals gives the soils purplish red hues. These clay outcroppings are found in limited pockets in Washington County, UT. Topographic relief that contains the Chinle Formation is necessary to maintain the soil and natural hydrologic conditions upon which Shivwits milk-vetch relies, such as surface or subsurface runoff, water erosion, and water drainages.

Shivwits milk-vetch occurs at elevations from 920 to 1331 m (3,018 to 4,367 ft) on sites with slight to moderate slope. Individual sites range from 3.1 to 24 percent slope (Service, unpublished, 2005). Most individuals of Shivwits milk-vetch are found between 4 and 14 percent slope (Service, unpublished, 2005).

4.2 Fish, Wildlife, and Plants

Holmgren milk-vetch occurs in sparsely vegetated warm desert communities. Ninety-eight percent of known sites in UT occur within the landcover described as Sonora-Mojave Creosote-White Bursage Desert Scrub (NatureServe 2004). This classification contains a matrix of desert scrub, sparse to moderately dense (2 to 50 percent cover), found in the broad valleys, plains, and low hills of the Mojave and lower Sonora Deserts. Holmgren milk-vetch is not found within the lower Sonora Desert. Typical dominant shrubs within this landcover type are *Larrea tridentata* (creosote bush) and *Ambrosia dumosa* (white burrobush). However, in UT, areas where Holmgren milk-vetch is found are generally without *Larrea tridentata* and lack shrub density (Dr. R. Van Buren, pers. comm. 2005). In Arizona, the species occurs within Mohave Mixed Shrub and Mohave Creosote/Bursage habitats (Bennett, Kunzmann, and Graham 2004). Within this ecological system

Holmgren milk-vetch is found in low vegetated areas where shrubs are sparse and creosote rarely resides.

Woody plant species associated with Holmgren milk-vetch are *Acamptopappus sphaerocephalus* (desert goldenhead), *Ambrosia dumosa* (white burrobush), *Ephedra nevadensis* (Nevada jointfir), *E. torreyana* (Torrey's jointfir), *Krameria grayi* (White ratany), *K. parvifolia* (range ratany), *Lycium andersonii* (Anderson wolfberry), *Gutierrezia microcephala* (threadleaf snakeweed), and *G. sarothrae* (broom snakeweed). Other commonly-associated, nonwoody species include: *A. nuttallianus* (small flowered milk-vetch), *Chaenactis* sp. (pincushion flower), *Cryptantha* sp.(cryptantha), annual *Eriogonum* sp. (buckwheat), *Eriogonum inflatum* (desert trumpet), *Hilaria rigida* (big galleta), and *Plantago patagonica* (wholly plantain) (Armstrong and Harper 1991; Van Buren and Harper 2003a and b, 2004a). Depending on the moisture regime, Holmgren milk-vetch also can be seen with native annuals that are often ephemeral (seen only in the spring) and, like many Mohave Desert plant species, seasonally abundant based on climatic conditions.

Shivwits milk-vetch is found on sparsely vegetated soil outcroppings within a variety of plant communities. Living plant cover is low, approximately 12.3 percent of the landscape, with annual exotics representing a high proportion (approximately half) of plants seen (Van Buren and Harper 2003a and 2004b). Associated native plant species include annual forbs, such as *Eriogonum* annual species, *Lotus humistratus* (hairy deer vetch) and *Plantago patagonica* (woolly plantain); perennials, such as *Calochortus flexuosus* (sego lily) and *Dichelostemma pulchellum* (bluedicks); native grass, such as, *Hilaria rigida* (big galleta); and shrubs, such as *Coleogyne ramosissima* (blackbrush) and *Gutierrezia microcephala* (broom snakeweed) (Van Buren and Harper 2003a and 2004b).

Wildlife potentially found in the vicinity of the proposed critical habitat includes most species commonly found in the arid Mohave ecosystem of southwest Utah and northwest Arizona. This includes mammals, such as black-tailed jackrabbits and kangaroo rats; reptiles, such as collard lizard and whiptails; and birds, such as sage thrasher, horned lark, and red-tailed hawks. In addition to the milk-vetches, other federally-listed species that may occur within or in the vicinity of the proposed critical habitat designation for the milk-vetches include the following : 1) endangered dwarf bear-poppy (*Arctomecon humilis*), Virgin River chub (*Gila seminude*), woundfin

(*Plagopterus argentissimus*) and southwestern willow flycatcher (*Empidonax traillii extimus*); and 2) threatened Siler pincushion cactus (*Pediocactus sileri*), desert tortoise (*Gopherus agassizii*), bald eagle (*Haliaeetus leucocephalus*), and Mexican spotted owl (*Strix occidentalis lucida*). The California condor (*Gymnogyps californianus*) is listed as endangered throughout the lower 48 contiguous United States except in specific portions of Utah, Arizona and Nevada where it is listed as an experimental, non-essential population. The proposed action area falls within the flight boundaries of this experimental population.

4.3 Human Environment

The proposed critical habitat designation for both milk-vetches spans urban St. George, Utah into rural areas within Mohave County, Arizona and Washington County, Utah. For the Holmgren milk-vetch, most of the proposed designation (nearly 5,000 ac, or approximately 75 percent) is located in Washington County, Utah. All of the proposed designation for the Shivwits milk-vetch is in Washington County, Utah.

Washington County, located in southwestern Utah, has an estimated population of 109,924 persons as of 2004. The population of Washington County is currently increasing by about 1,000 persons per month. The population growth rate experienced by Washington County from 2001 to 2004 is 21.7 percent. This growth rate is larger than the 7 percent statewide population increase between 2001 and 2004. Most of Washington County's growth has been in and around St. George.

Washington County has also experienced fast job growth in recent years. The unemployment rate in the County was 3.8 percent in 2004, which was below Utah's statewide unemployment rate of 4.7 percent.

The fast population growth, coupled with a high rate of employment, has had a big impact on the housing market in Washington County. Average home prices increased 30.2 percent in 2004 alone. Washington County will be able to accommodate all new migrants in the foreseeable future, since 91 percent of the potentially developable land in the County is still undeveloped. It is also estimated that by 2050, when the population of the County will reach 600,000 (up 446 percent from a

population of 109,924 in 2004, which equates to a CAGR (compound annual growth rate) of 3.76 percent), only 44 percent of the developable land will be developed. This increase in the rate of development will be spurred on by, among other factors, the construction of a regional airport that will support jet engine aircrafts, providing better access to the County, thereby bringing more migrants from other counties and states.

Cultural resources, such as prehistoric and historic archeological sites, may exist in the affected physical area. It is estimated that over 10,000 early native American sites may occur on public lands in Washington County alone (USDI/BLM1998). However, no ground disturbance activities are proposed with the designation of critical habitat.

Human activities ongoing and proposed within or adjacent to the proposed critical habitat units include:

Holmgren milkvetch

Unit 1, Arizona-Utah border

Subunit 1a, State Line – This subunit consists of 1,630 ha (4,027 ac) of which 9 percent is managed by BLM Arizona, 44 percent managed by BLM Utah, 23 percent managed by Arizona State Lands Department (ASLD), 19 percent managed by Utah State Institutional Trust Lands Administration (SITLA), and 5 percent in private ownership. Subunit 1a is bisected by Highway I-15; regular road maintenance activities including herbicide application, prescribed burning, mowing, and seeding are expected to be ongoing along this interstate. Private housing development occurs in the northern part of the State Line population. A utility corridor exists to support this development. Off-highway vehicle (OHV)_ use occurs on lands within this population subunit; BLM has zoned this area for OHV use on existing roads and trails only. Approximately 2,550 ac of subunit 1a falls within the 28,055 ac Curly Hollow grazing allotment; grazing activities cease by mid-February.

Subunit 1b, Gardner Well – The Gardner well population occurs on 228 ha (564 ac) of ASLD lands. Real estate development is planned for these properties.

Subunit 1c, Central Valley -- Subunit 1c consists of 466 ha (1,148 ac), managed entirely by SITLA. A high density residential development is planned for this area. The proposed Southern Corridor highway is located along the south portion of this subunit, and is scheduled for 2007 construction. Current uses include OHV recreation. A substation and transmission lines also occur in this subunit.

Unit 2, Santa Clara Unit

Subunit 2a and 2b, Stucki Spring and South Hills – Subunit 2a includes 168 ha (412 ac) managed by BLM Utah. Subunit 2b consists of 59 ha (147 ac), with 97 percent managed by BLM Utah and 3 percent private lands. BLM lands in these units are under active

consideration for land trades to support projected community development. Future transportation planning by the Dixie Metropolitan Planning Organization includes a Western Corridor highway alignment from the city of Ivins to the Sun River Parkway and I-15; the highway alignment may bisect portions of the Stucki Spring and South Hills subunits. Powerlines occur in the Stucki Spring subunit. The Stuck Spring subunit straddles two grazing allotments, with 147 ac in Boomer Hill and 265 ac in Curly Hollow. South Hills subunit occupies 31 acres of the Boomer Hill allotment's 28,000 total acres. An unpaved county road (Stucki Springs Road) partitions grazing allotments through both subunits. Grazing rights east of Stucki Spring Road were purchased by Grand Canyon Trust in 2001, specifically to protect the Holmgren milk-vetch. Minimal grazing still occurs west of Stucki Spring Road. OHV use is allowed only on existing roads and trails in the area.

Unit 3, Purgatory Flat – Recreation use occurs in this unit. Lands are currently leased by BLM to Washington County which proposes expansion of an exiting shooting range into a more developed Southern Utah Shooting Sports Park. Powerlines are also found in this subunit.

Shivwits Milk-vetch

Unit 1, Pahcoon Springs Wash – This Unit includes 54 ha (134 ac) of BLM Utah lands. OHV use occurs in this unit. Electric power transmission lines occur. Livestock grazing is ongoing.

Unit 2, Shivwits – All 97 ha (240 ac) of this subunit occur on lands managed by the Shivwits Band of the Paiute Tribe. Some cattle grazing occurs in the vicinity of this Unit. A utility corridor is located adjacent to the population. A dirt road traverses a portion of the Unit.

Unit 3, Coral Canyon – Land ownership for the 35 ha (87 ac) includes 87 percent SITLA, 12 percent BLM Utah, and 1 percent private. Residential and commercial development is occurring and proposed at the Coral Canyon unit. The Unit is also located adjacent to a golf course.

Unit 4, Harrisburg Junction

Subunit 4a, Harrisburg Bench and Cottonwood – The 120 ha (297 ac) in this subunit are comprised of 88 percent BLM lands and 12 percent private lands. Highway I-15 bisects this

subunit; regular road maintenance activities including herbicide application, prescribed burning, mowing, and seeding are expected to be ongoing along this interstate. OHV use occurs throughout this subunit.

Subunit 4b, Silver Reef – The 187 ha (462 ac) in this subunit includes 90 percent BLM lands and 10 percent private lands. OHV use occurs throughout this subunit.

Unit 5, Zion – This subunit consists of 486 ha (1,201 ac) located entirely within Zion National Park. An established hiking and horse trail that is used infrequently from November through April occurs near populations of Shivwits milk-vetch.

4.4 Tribal lands

The Reservation of the Shivwits Band of the Paiute Indians is located in the western part of Washington County, Utah. The Shivwits Band is one of the five groups comprising the Paiute Indian Tribe of Utah. The other four are Cedar City, Koosharem, Kanosh, and Indian Peaks. The Shivwits Reservation was first established in 1903, but was terminated by the Federal Government in 1954. However, the Reservation was restored in 1980 by the Paiute Indian Tribe of Utah Restoration Act.

The 27,000 acres comprising the Shivwits Reservation represent 84 percent of the total land owned by the Tribe (the other four bands own a total of 5,036 acres). Currently, there are 289 Tribal Members. The main industries on the Reservation are agriculture (five acres are being used for gardens), livestock (the rangeland on the Shivwits Reservation is being leased by two non-Indian ranchers for grazing), and sand and gravel extraction and mining (a portion of the Reservation is leased for sand and gravel extraction, as well as for mining operations).

5.0 Environmental Consequences

This section reviews the expected environmental consequences (Table 1) of designating critical habitat for the milk-vetches under the Action Alternative and the environmental consequences of the No Action Alternative. Typically, determining the impacts of a proposed action involves evaluating the “without the action” baseline versus the “with the action” scenario. The impact of a

proposed action equals the difference, or the increment, between the two scenarios. However, in the case of critical habitat designation, it is often difficult to ascertain whether the possible impacts are attributable solely to the critical habitat designation or whether they would result absent the designation due to the Act's other protections for listed species.

The Tenth Circuit Court of Appeals, in a case involving economic analysis of critical habitat designation for the southwestern willow flycatcher, concluded that: "Congress intended that the Service conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes." (*New Mexico Cattle Growers Ass'n v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001)).

The focus of our economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. This analysis recognizes the difficulty in differentiating between consultations that result from the listing of the species (i.e., jeopardy) and consultations that result from the presence of critical habitat (i.e., adverse modification). By quantifying the potential impacts associated with all future section 7 impacts in or near proposed critical habitat, the analysis ensures that any critical habitat impacts that may occur co-extensively with the listing of the species are not overlooked. As a result, this analysis likely overstates the regulatory activity under section 7 attributable to designation of critical habitat.

In sum, the Service has tried to provide an assessment of the possible impacts from the designation. At the same time, however, it remains true that this NEPA analysis was necessitated by designation of critical habitat alone; listing a species pursuant to the Act is not subject to NEPA analysis. Thus, the Service has also tried to identify and analyze, to the greatest extent possible, those impacts that might result solely from critical habitat designation.

The milk-vetches were both listed as endangered in 2001, which has precipitated section 7 consultations and subsequently influenced management actions, all in the absence of a critical habitat designation. Thus the costs of section 7 consultation based upon the listing of the species

would remain absent the designation. The following discussion discloses the potential impacts associated with all future section 7 in or near critical habitat (as provided in the Draft Economic Analysis) and attempts to describe how much of this cost is attributable to critical habitat designation. However, the Service does not have adequate information to precisely describe the proportion of section 7 costs attributable to critical habitat designation, so all discussion is qualitative.

Individuals, organizations, States, local and Tribal governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Potential environmental consequences that may result from implementation of the No Action and the Action Alternative are discussed below. All impacts are expected to be indirect, as critical habitat designation does not in itself result in any alteration of the environment.

Regardless of which alternative is chosen, in accordance with section 7(a)(2) of the Act, Federal agencies are required to review actions they authorize, fund, or carry out to determine the effects of proposed actions on federally listed species. If the Federal agency determines that its action may adversely affect a listed species, it must enter into formal consultation with the Service. This consultation results in a biological opinion issued by the Service as to whether the proposed action is likely to jeopardize the continued existence of the species, which is prohibited under the Act.

As required by NEPA, this document is in part intended to disclose the programmatic goals and objectives of the Act. The goals and objectives of the Act are to conserve threatened and endangered species and the ecosystems upon which they depend, and to carry out applicable international treaties and conventions.

Unless otherwise noted, the following information has been taken from the *Draft Economic Analysis of Critical Habitat Designation for the Holmgren and Shivwits Milk-Vetch* (Northwest Economic Associates (NEA) 2006) which is available as Appendix 2.

5.1 Physical Environment

None of the alternatives will impact the physical environment.

5.2 Fish, Wildlife, and Plants

5.2.1 Holmgren Milk-vetch and Shivwits Milk-vetch

The No Action Alternative would have no impacts on the milk-vetches because the protections resulting from its listing in 2001 and the associated requirements of section 7 of the Act are already in place and duplicate protections associated with critical habitat designation.

The Action Alternative would have minimal additional impacts beyond those already considered in section 7 consultation since the 2001 listing. Benefits to the milk-vetches that may accrue from designation of critical habitat would be the requirement under section 7 of the Act that Federal agencies review their actions to assess their effects on critical habitat. Designation of critical habitat also may provide some benefits to the milk-vetches by alerting Federal agencies to situations when section 7 consultation is required. Another potential benefit is that critical habitat may help to focus Federal, State, and private conservation and management efforts by identifying the areas of most importance to a species. Critical habitat also allows for long-term planning for species conservation.

Designating critical habitat does not, in itself, lead to the recovery of a listed species. The designation does not establish a reserve, create a management plan, establish numerical population goals, prescribe specific management practices (inside or outside of critical habitat), or directly affect areas not designated as critical habitat. Specific management recommendations for areas designated as critical habitat are most appropriately addressed in recovery and management plans, and through section 7 consultation and section 10 permits.

5.2.2 Other Fish, Wildlife and Plant Species

The No Action Alternative would have no significant impacts on fish, wildlife or plants beyond those protections already in place as a result of listing of the milk-vetches in 2001 and associated requirements of section 7 of the Act.

The Action Alternative would have minimal additional impacts beyond those already considered in section 7 consultation since the 2001 listing. The objectives of designating critical habitat are to protect features essential to the conservation of the species for which the habitat is designated. Fish, wildlife, and plants may indirectly benefit as a result of protections provided through conservation of the milk-vetches and the associated requirements of section 7(a)(2) of the Act. As a result of critical habitat designation, the BLM Arizona, BLM Utah, Zion NP may be able to prioritize conservation actions that benefit the milk-vetches, with indirect benefits to other plant, wildlife, and fish. Critical habitat designation may assist the State of Arizona and the State of Utah in prioritizing its conservation and land-managing programs.

5.3 Human Environment

As discussed above, individuals, organizations, States, local governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or authorization, or involve Federal funding. Since 2001, Federal agencies have been required to consider the effects of their actions on the milk-vetches and consult with the Service as appropriate. While a similar process is required for critical habitat, analysis of effects to critical habitat is not expected to cause large increases in the number or complexity of consultations. This is true partially because unoccupied habitat has not been proposed as critical habitat. Differentiating between consultations that result from the listing of the milk-vetches and consultations that result from the presence of critical habitat is difficult. Therefore, the following discussion will disclose the potential impacts associated with all future section 7 consultation in or near the critical habitat (as provided in the Draft Economic Analysis) and will describe how much of this cost is likely attributable to critical habitat designation.

5.3.1 Residential and Commercial Development

5.3.1.1 On private and state owned lands

The No Action Alternative would have no impacts on residential and commercial development on private and state owned lands beyond those already resulting from the 2001 listing of both milk-vetches as endangered. Section 7 only applies to private and state-lands where federal funding or permitting is involved in project development or implementation. Section 9 take provisions of the Act do not apply to plants.

Development is the primary activity impacting the milk-vetches. Development has continued after the listing of both species. Recently completed projects (post-listing) and projects currently under construction extend into the proposed critical habitat on private- and state-owned lands. This development is unimpeded by the presence of the plants and their habitat, as the prohibition against “take” does not apply to plant species and no Federal nexus exists for the development activity and, thus, no section 7 consultation occurs. In fact, since the plants were listed in 2001, no section 7 consultation has taken place regarding development, but development has occurred in the vicinity of the plants since listing. Since this development is likely to occur unrestricted by the section 7 consultation process, no impacts are expected on the development of private- and state-owned lands.

5.3.1.2. On Federal or Tribal lands

The No Action Alternative would have no impacts on residential and commercial development on federal or tribal owned lands beyond those already resulting from the 2001 listing of both milk-vetches as endangered and the associated requirements of section 7 of the Act.

The Action Alternative would have minimal additional impacts beyond those already considered in section 7 consultation since 2001. The Shivwits unit is located near the center of the reservation for the Shivwits band of the Paiutes, south of the Santa Clara River and except for intermittent cattle

grazing, there is no current development in this area. The estimated impacts are based on activities that are “reasonably foreseeable,” including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. There is no current residential or commercial development within the S2 proposed critical habitat on tribal lands and forecasts of economic conditions provided by the NEA did not estimate future development in this area. Therefore no impacts are expected.

The value of undeveloped land, such as rangeland, is not only derived from current use, but from potential use as well. According to the NEA, for land designated as critical habitat for the milk-vetches in Utah and Arizona, almost all the value is derived from potential use – residential, commercial, and industrial development due to the value of grazing, the current use, being nominal compared to the market value of raw developable land. Thus, if development is precluded on a parcel of land designated as critical habitat, most of its value will be lost.

BLM lands within and immediately adjacent to, the proposed critical habitat may be maintained in their current status (i.e., grazing and public use) and not converted to their highest and best use, i.e., commercial, industrial, and residential development. Consequently, in estimating development impact, the economic analysis (Appendix 3) estimates the market value of the raw, developable Federal lands that may be removed from disposal status.

Land disposals by the BLM are possible. BLM policy asserts the ability to exchange or sell land to state or private interests. The record of decision for the St. George Field Office Resource Management Plan states “public lands supporting federally-listed or sensitive plants are to be retained in public ownership unless the exchange or transfer results in acquisition of better habitat or provides for suitable management by another qualified agency or organization (USDI 1999)”. Administrative land actions are subject to section 7 consultation under the Endangered Species Act. As Holmgren milk-vetch is a prior listed species, these exchanges must also comply with the ESA, which requires federal agencies to ensure that actions they permit are not likely to jeopardize the continued existence of a listed species. Once designation of critical habitat is achieved, Section 7(a)(2) of the Act requires every Federal agency, to address whether a proposed action will result in the destruction or adverse modification of designated critical habitat. Therefore the Action

Alternative would have some additional impacts beyond those already considered in section 7 consultation since the 2001 listing.

Consequently, in estimating development impact, the economic analysis (Appendix 3) estimates the market value of the raw, developable Federal lands that may be removed from disposal status. In Utah, lands proposed for disposal prior to the listing of the species in 2001 include lands south of the City of Santa Clara. NEA states the proposed critical habitat designation will likely lead BLM to remove the 142 acres (approximately) of Subunit H2b from disposal status (valued at 3.5 million in 2006 dollars). BLM land disposals in Arizona may also be impacted by the proposed critical habitat designation. In Arizona, BLM (Subunit H1a) would have disposed of a larger area of land along the I-15 corridor immediately south of the Arizona-Utah border, but for the protection of the species and the proposed critical habitat designation, 437 acres will be removed from disposal status. These include 76 acres adjacent to the proposed critical habitat in Subunit H1a. The remaining 361 acres are valued at 5,395,000 in 2006 dollars by the economic analysis.

5.3.2. Livestock Grazing

The No Action Alternative would have no impacts on cattle grazing on federal or tribal owned lands beyond those already resulting from the 2001 listing of both milk-vetches as endangered and the associated requirements of section 7 of the Act.

Holmgren milk-vetch

The Action Alternative would have minimal additional impacts. The majority of land included in the proposed critical habitat designation is rangeland (BLM, state, and tribal), leased for open-range grazing. Although Holmgren milk-vetch is not palatable to cattle and cattle grazing in Holmgren milk-vetch habitat occurs when the plants are dormant, cattle trampling or activities associated with cattle impacts would be considered at the time of leasing and leasing renewal. Because cattle grazing could have a small adverse affect on Holmgren milk-vetch, we anticipate section 7 consultation on grazing permits.

Shivwits Milk-vetch

A cost-share agreement by The Nature Conservancy and BLM intends to fence occupied habitat within Units S1, S4a, and S4b. These fence enclosures will exclude about 60 acres, whose value from Animal Unit Months (AUMs) is estimated at less than \$15 annually. Fencing on the tribal lands contains approximately 3 acres, whose value from grazing is estimated at less than \$5 annually.

The Proposed Alternative would have minimal additional impacts beyond those already considered in section 7 consultations since the 2001 listing. As mentioned previously, only a portion of these section 7 costs is attributable to critical habitat designation. Even without critical habitat designation, this consultation would be taking place because of the presence of the milk-vetches. The component of the consultation addressing critical habitat (and associated costs) is only a part of the entire consultation. The Service is unable to quantify precisely what portion of the total co-extensive section 7 costs can be attributed to critical habitat designation.

5.3.3. Off-Highway Vehicle (OHV) Use

OHV recreation is prevalent in the area proposed for critical habitat designation of the milk-vetches. BLM has this area zoned for OHV use on existing roads and trails. A planned fence will not inhibit OHV use in the area and, thus, no loss to legal access or use is expected to occur. The fences will not significantly restrict OHV use, but redirect it. The structures will abut an existing road and will allow OHV travel to continue freely. Furthermore, these existing roads are considered rights-of-way and are administrated by Washington County. Federal agencies, such as BLM, are legally prohibited from interfering with travel on county roads, since this action is outside of their jurisdictional authority. These trails are mostly used by residents of Leeds to access other recreational activities (i.e. hunting). Even though this fence will prohibit OHV use within the habitat (the two small enclosures will fence off 22 acres), ample outlets for OHV users exist for utilizing alternative paths. Thus, no impact to recreational use is expected to occur.

5.3.4. Resource Management Plans

As discussed previously, only a portion of these section 7 costs is attributable to critical habitat designation. Even without critical habitat designation, this consultation on resource management plans for Zion National Park, BLM, St. George, UT, and BLM, Arizona Strip, Arizona would be taking place because of the presence of the milk-vetches. The component of the consultation addressing critical habitat (and associated costs) is only a part of the entire consultation. The Service is unable to quantify precisely what portion of the total co-extensive section 7 costs can be attributed to critical habitat designation.

5.3.5 Road Construction and Maintenance

The No Action Alternative would have no impacts on road and bridge construction and maintenance beyond those already resulting from the 2001 listing of the milk-vetches and the associated requirements of section 7 of the Act.

The Action Alternative would have minimal additional impacts beyond those already considered in section 7 consultation since the 2001 listing. Interstate and state highways, as well as county roads, cross the proposed critical habitat in several places. The main Federal nexus for road and bridge construction and maintenance is Federal funding from the Federal highway Administration (FHWA). In the past, FHWA has consulted with the Service on ESA listed species within the proposed critical habitat area.

Interstate Highway 15 (I-15) bisects two proposed areas, H1a and S4a, and contains plants within the median. Improvements to this highway will continue in future years. ADOT has jurisdiction over the one mile long southern-most section of I-15 within the proposed critical habitat designation. While no major projects are planned for this area in the next five years, maintenance activities are expected to be impacted by the designation of critical habitat for the milk-vetches. These include signing and pavement rehabilitation projects, Best Management Practices (BMP) determination, and vegetation control. To date, no species conservation costs were incurred either in the signing rehabilitation project completed in 2005, or in the ongoing pavement rehabilitation project.

One major project is planned along Interstate Highway 15 (I-15) in the vicinity of Subunit S1c. The Southern Corridor is a proposed four-lane, limited-access highway initiating at Interstate-15 (I-15) near the southwest corner of St. George. It begins about two miles from Utah's border with Arizona (north of Subunit S1a) at the proposed Atkinville interchange, and connects with State Route 9 (SR9) near Hurricane. Additional section 7 consultation may be necessary to ensure consideration of critical habitat. However, the designation of critical habitat is not anticipated to change the mitigation of the "Southern Corridor" as plant location and critical habitat greatly overlap.

The Dixie Metropolitan Planning Organization (MPO) has planned a Western Corridor that will follow the path of Sun River Parkway along the west side of St. George, and eventually connect with Ivins. The project is in the early planning stages and is not expected to commence for another 10 to 15 years. However, when initiated, it may impact subunits H2a and H2b. As the project is early in its planning stages, it is unknown the degree if any critical habitat will differ from the expected mitigation based on plant occupancy and associated habitat. Based on current mitigation for the Southern Corridor, Dixie MPO estimates the costs for establishing a habitat preserve to offset impacts will range from \$0.8 to \$3.1 million (in 2006 dollars).

As discussed previously, only a portion of these section 7 costs is attributable to critical habitat designation. Prior to critical habitat designation, consultation on road construction and maintenance occurred due to the potential occupancy of the milk-vetches and other listed ESA entities. The component of the consultation addressing critical habitat (and associated costs) is only a part of the entire consultation. The Service is unable to quantify precisely what portion of the total co-extensive section 7 costs can be attributed to critical habitat designation.

5.3.6 Rights-of-Way and Utilities

The No Action Alternative would have no impacts on rights-of way beyond those already resulting from the 2001 listing of the milk-vetches and the associated requirements of section 7 of the Act.

The Proposed Alternative would have minimal additional impacts beyond those already considered in section 7 consultations since the 2001 listing. Existing right-of-way corridors for utilities will be used whenever possible for future projects. No utility-related impacts are anticipated.

5.4 Archeological and Cultural Resources

The No Action Alternative would have no impacts on archaeological and cultural areas.

Similarly, the Action Alternatives would have no impacts on archeological and cultural sites. Because designation of critical habitat involves no ground-disturbing activities or changes in management, designation of critical habitat is expected to have no impacts on these archaeological and cultural resources. As a result of designation, increased protection of these sites and resources within critical habitat may occur if a Federal action is proposed.

5.5 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (1994), directs Federal agencies to incorporate environmental justice in their decision making processes. Federal agencies are directed to identify and address, as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations. This assessment has not identified any adverse or beneficial effects unique to minority or low-income populations in the affected areas.

5.6 Cumulative Impacts

According to Council on Environmental Quality NEPA regulations (40 C.F.R.1508.7), cumulative impacts are the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

We have attempted to determine cumulative impacts by combining the impacts of the Action alternative with other past, present, and reasonably foreseeable future actions conducted by the Service and others within the critical habitat. Actions contributing to the cumulative impacts in the

vicinity of the proposed critical habitat appear limited, but include natural events (such as drought) and activities related to BLM, NPS, state, and private land management decisions (such as private and commercial development).

BLM authorized activities occurring in the vicinity of the proposed critical habitat, include cattle grazing, OHV use, recreation, and fire. Activities on National Park Service lands include recreation, fire, and weed control. Grazing occurs in the vicinity of proposed critical habitat on Tribal lands. Development is ongoing and proposed on State and private lands in the vicinity of proposed critical habitat.

All of these activities have been ongoing since species listing in 2001. Potential cumulative effects of the proposed action are unlikely to have any noticeable effect on local services, the availability of housing, or the local or regional economy.

Table 1. SUMMARY OF MAXIMUM POTENTIAL ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE (dollars in thousands)

(Information taken from the Draft Economic Analysis (NEA), Appendix 2)

	ALTERNATIVE A. NO ACTION	ALTERNATIVE B. PROPOSED ACTION
Holmgren and Shivwits milk-vetches	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 2001 listing.
Other Fish, Wildlife, and Plants	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 2001 listing.
Residential and Commercial Development	No change to existing situation.	Economic impacts may result in costs of \$7,200 - \$10,000
Road Construction and Maintenance	No change to existing situation	Economic impacts may result in costs of \$1,030 - \$3,477
Public and Tribal Conservation	No change to existing situation	Economic impacts may result in costs of \$479
Section 7 Administrative	No change to existing situation	Economic impacts may result in costs of \$110

Livestock Grazing	No change to existing situation.	May be minimal impacts associated with section 7 consultation (included in section 7 administrative costs).
Off Highway Vehicle Use	No change to existing situation.	No impacts anticipated because there are already restrictions to existing roads and trails.
Resource Management Plans	No change to existing situation.	May be minimal impacts associated with section 7 consultation (included in section 7 administrative costs).
Archaeological and Cultural	No change to existing situation.	No impacts.
Rights-of-Way and Utilities	No change to existing situation.	May be minimal impacts associated with section 7 consultation (included in section 7 administrative costs).
Environmental Justice	No change to existing situation.	No impacts.
Total	No change to existing situation.	Economic impacts may result in costs of \$8,819 - \$14,066 federal agencies (primarily BLM) and state departments of transportation account for 74 and 25 percent of undiscounted high impacts, respectively

6.0 Council on Environmental Quality Analysis of Significance

Under CEQ 40 CFR Part 1508.27, the determination of “significantly” requires consideration of both context and intensity.

6.1 Context

Based upon information present in the Draft Economic Analysis and responses from agencies and the public, any effects, although long-term, will not be national, only regional and mostly local in context. When considered in the context of the value of the economic activity that is predicted to occur over the next twenty years in the region, the total economic costs associated with the total co-extensive section 7 implementation and third party costs for the milk-vetches appear relatively low.

Additionally, only a portion of the section 7 costs is attributable to critical habitat designation. Even without critical habitat designation, section 7 consultation would be taking place because of the presence of the milk-vetches. The component of the consultation addressing critical habitat (and associated costs) is only a part of the entire consultation.

6.2 Intensity

Intensity is defined by CEQ as referring to the severity of impact. The following 10 points identified by CEQ were considered in evaluating intensity:

- 1. Environmentally beneficial actions.** Critical habitat identifies geographic areas that are essential for the conservation of a threatened or endangered species and which may require special management considerations or protection. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. It does not allow government or public access to private lands. Federal agencies must consult with the Service on activities they undertake, fund, or permit that may affect critical habitat. However, the Endangered Species Act prohibits unauthorized take of listed species and requires consultation for activities that may affect them, including habitat alterations, regardless of whether critical habitat

has been designated. In 30 years of implementing the Act, the Service has found that the designation of critical habitat provides little additional protection to most listed species.

2. **Public health and safety.** This designation will not have a discernable impact on human health or safety.

3. **Unique characteristics of the geographic area.** Although the area proposed as critical habitat may be in proximity to historic and cultural sites, parklands, farmland, wetlands, scenic rivers and ecologically critical areas, no adverse impacts will occur to these areas since designation of critical habitat involves no ground-disturbing activities or changes in management.

4. **Controversy.** There is a perception by some segments of the public that critical habitat designation will severely limit property rights; however, critical habitat designation has no effect on private actions on private land that do not involve Federal approval or action. As discussed above, Federal agencies must consult with the Service on activities they undertake, fund, or permit that may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. It does not allow government or public access to private lands. Public understanding of critical habitat has improved since the publication of the Proposed Rule, largely as a result of ongoing outreach efforts (e.g., extensive discussions with the Wyoming Department of Agriculture to facilitate a better understanding of what constitutes a Federal nexus).

5. **Uncertain, unique, or unknown risks.** The Service has designated critical habitat for other species in the recent past and we are familiar with the associated effects. Therefore, we anticipate minimal effects to the human environment and we are certain this action does not involve any unique or unknown risks.

6. **Precedent-setting aspects.** This designation of critical habitat is not expected to set any precedents for future actions with significant effects or represent a decision in principle about a future consideration because critical habitat has been designated before for other species, as required by law.

7. **Cumulative effects.** We have attempted to determine cumulative impacts by combining the impacts of the Proposed Alternative with other past, present, and reasonably foreseeable future actions conducted by the Service and others within the critical habitat. Other activities considered included natural events (such as drought) and activities related to conservation agreement implementation. Potential cumulative effects are unlikely to have any noticeable effect on local services, the availability of housing, or the local or regional economy.

8. **Cultural resource effects.** This designation will have no impact on National Register of Historic Places or other cultural sites.

9. **Endangered species effects.** In general, there will be little or no impact to threatened or endangered species. Some impacts from this designation of critical habitat will be slightly beneficial to endangered and threatened species, particularly the milk-vetches. Additional benefits to the milk-vetches will exist for those plants occurring on private lands for which conservation agreements are implemented.

10. **Violation of environmental protection laws.** This designation of critical habitat will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment.

7.0 COMPLIANCE, CONSULTATION AND COORDINATION WITH OTHERS

7.1 Compliance with Other Laws and Regulations

Primary laws that may affect implementation of this project include the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA). The requirements of ESA have been outlined in this EA.

The proposed action is to designate critical habitat for lynx. This EA satisfies the requirements of NEPA by analyzing the general effects of the proposed action to designate critical habitat for Holmgren and Shivwits milk-vetches and determining the significance of any resulting impacts.

7.2.1 Public Review and Comment

The proposed rule for designation of Holmgren milk-vetch and Shivwits milk-vetch critical habitat was published March 29, 2006 in the Federal Register (71 FR 15966) with a 60-day comment period. Fourteen comments were received during these comment periods. The Service will provide this draft EA to the public for review and comment for a period of 30 days, consistent with pertinent ESA and NEPA regulations and policy. The Service will provide written and/or electronic notice of the availability of this draft EA to interested individuals including Native American tribes, private landowners, county commissioners, congressional and State representatives, State and Federal agencies, and other potentially interested parties. This draft EA will be posted on the Service's website:<http://mountain-prairie.fws.gov/species/plants/milkvetche/>.

7.3 Contacts and Coordination with Others

The following is a list of individuals, organizations, and public agencies contacted concerning development of the Proposed Rule to designate critical habitat for the Holmgren and Shivwits milk-vetches and to whom copies of this Draft Environmental Assessment were sent. Each of these individuals will also be notified of publication of the final rule:

FEDERAL AGENCIES

DEPARTMENT OF INTERIOR

- U.S. Fish and Wildlife Service (Denver office)
- Bureau of Land Management (State offices in Utah and Arizona, St. George FO, Arizona Strip FO)
- National Park Service (Utah state coordinator, Zion NP)
- Bureau of Indian Affairs (Southern Paiute Field Station, St. George; Phoenix)

DEPARTMENT OF TRANSPORTATION

- Federal Highway Administration

NATIVE AMERICAN TRIBES

- Shivwits Band Chairman of the Paiute Tribe, Glenn Rogers
- Paiute Tribe, Cedar City, Utah

FEDERAL CONGRESSIONAL DELEGATION

Arizona

Office of Senator John McCain
Office of Senator Jon Kyl
Office of Representative Trent Franks
Office of Representative James Hansen

Utah

Office of Senator Robert Bennett
Office of Senator Orrin Hatch
Office of Representative Rob Bishop
Office of Representative Jim Matheson
Office of Representative Chris Cannon

GOVERNOR

Arizona

Office of the Governor, Jane Hull Maria

Utah

Office of the Governor, Jon Huntsman Jr.

COUNTY COMMISSIONERS

Mohave County, Arizona Board of Supervisors

Washington County, Utah Commission

STATE AGENCIES, LOCAL GOVERNMENTS, AND PRIVATE GROUPS

Arizona

Arizona Natural Heritage Program
Arizona State Department of Agriculture
Arizona Game and Fish Department
Arizona State Land Department
Arizona Native Plant Society
Arizona Beef Council and Arizona Cattlemen's Association
Grand Canyon Trust
Northern Arizona University
Southwest Center for Biodiversity
The Arboretum at Flagstaff
The Nature Conservancy, Flagstaff

Utah

Brigham Young University
The Nature Conservancy, Salt Lake City
Sierra Club, Utah Chapter
Southern Utah Wilderness Alliance

Utah Cattlemen's Association
Utah Department of Natural Resources
Utah Department of Transportation
Utah Division of Wildlife Resources
Utah Mining Association
Utah Natural Heritage Program
Utah Native Plant Society
Utah Petroleum Association
Utah School and Institutional Trust Lands Administration
Utah State University
Utah Valley State College

8.0 List of Contributors

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APPENDIX 1

Map of the Proposed Alternative

Figure 1: Area Proposed as Critical Habitat for Holmgren Milk-vetch

APPENDIX 1

Map of the Proposed Alternative

Figure 2: Area Proposed as Critical Habitat for Shivwits Milk-vetch

APPENDIX 2

Draft Economic Analysis of Critical Habitat Designation for the Holmgren and Shivwits Milk-vetches