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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Status for the Gierisch Mallow and Designation of Critical Habitat; Proposed Rule

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

[Docket No. FWS-R2-ES-2012-0049; 4500030113]

RIN 1018-AY58

**Endangered and Threatened Wildlife and Plants; Determination of Status for the Gierisch Mallow and Designation of Critical Habitat**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service, propose to list as endangered the Gierisch mallow and propose critical habitat for the species under the Endangered Species Act. This action is being taken as the result of a court-approved settlement agreement. These are proposed regulations, and if finalized, the effect of these regulations will be to add the species to the List of Endangered or Threatened Plants and to designate critical habitat under the Endangered Species Act.

**DATES:** We will accept comments received or postmarked on or before October 16, 2012. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by October 1, 2012.

**ADDRESSES:** You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: <http://www.regulations.gov> and search for Docket No. FWS-R2-ES-2012-0049, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Comment Now!"

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS-R2-ES-2012-0049; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042-PDM; Arlington, VA 22203.

We request that you send comments only by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

The coordinates, or plot points, or both from which the critical habitat maps are generated are included in the administrative record for this rulemaking and are available at (<http://www.fws.gov/southwest/es/arizona/>), <http://www.regulations.gov> at Docket No. FWS-R2-ES-2012-0049, and at the Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for this rulemaking will also be available at the Fish and Wildlife Service Web site and Field Office set out above, and may also be included in the preamble and/or at <http://www.regulations.gov>.

**FOR FURTHER INFORMATION CONTACT:** Steve Spangle, Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, 2321 West Royal Palm Road, Suite 103, Phoenix, AZ 85021; by telephone (602) 242-0210; or by facsimile (602) 242-2513. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:**

**Executive Summary**

This document consists of a proposed rule to list as endangered *Sphaeralcea gierischii* (Gierisch mallow) and to designate critical habitat for Gierisch mallow. In this proposed rule, we will refer to *Sphaeralcea gierischii* as Gierisch mallow.

*Why we need to publish a rule.* Under the Endangered Species Act, a species may warrant protection through listing if it is endangered or threatened throughout all or a significant portion of its range. In this proposal, we are explaining why Gierisch mallow warrants protection under the Endangered Species Act. This rule proposes to list the Gierisch mallow as endangered throughout its range in Mohave County, Arizona, and Washington County, Utah, and proposes

to designate critical habitat for the species. In total, approximately 5,189 hectares (ha) (12,822 acres (ac)) are proposed for designation as critical habitat in both Arizona and Utah.

*The Endangered Species Act provides the basis for our action.* Under the Endangered Species Act, we can determine that a species is endangered or threatened based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Factors supporting the proposed endangered status for Gierisch mallow include:

- Habitat loss and degradation of appropriate gypsum soils as a result of mining operations and recreation activities, including off-highway vehicle (OHV) use, target shooting, and trash dumping;
- Inadequate existing regulatory mechanisms that allow significant habitat-based impacts, such as regulations governing mining operations;
- The spread of nonnative, invasive plant species such as *Bromus tectorum* (cheatgrass) and *B. rubens* (red brome) that can alter native vegetation and promote conditions that support wildfires; and
- Other natural or manmade factors, including the small population size of Gierisch mallow, natural environmental variability, and climate conditions, such as sustained drought.

*This rule proposes designation of critical habitat for Gierisch mallow.* Under the Endangered Species Act, we designate specific areas as critical habitat to foster conservation of listed species. Future actions funded, permitted, or otherwise carried out by Federal agencies will be reviewed to ensure they do not adversely modify critical habitat. Critical habitat does not affect private actions on private lands absent Federal funding. We are proposing the following areas as critical habitat for Gierisch mallow:

Critical habitat unit	Federal		State	
	Arizona	Utah	Arizona	Totals
Unit 1. Starvation Point .....	0 .....	1,022 ha (2,526 ac) .....	316 ha (782 ac) .....	1,339 ha (3,309 ac).
Unit 2. Black Knolls .....	3,586 ha (8,862 ac) .....	0 .....	263 ha (651 ac) .....	3,850 ha (9,513 ac).
Totals .....	3,586 ha (8,862 ac) .....	1,022 ha (2,526 ac) .....	580 ac (1,434 ac) .....	5,189 ha (12,822 ac).

*We are preparing an economic analysis.* To ensure that we consider the economic impacts of designating critical habitat, we are preparing an economic analysis of the proposed critical habitat designation. We will publish an announcement and seek public comments on the draft economic analysis when it is completed.

*We will request peer review of the methods used in our proposal.* We will specifically request that several knowledgeable individuals with scientific expertise in this species or related fields review the scientific information and methods that we used in developing this proposal.

*We are seeking public comment on this proposed rule.* Anyone is welcome to comment on our proposal or provide additional information on the proposal that we can use in making a final determination on the status of this species. Please submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. Within 1 year following the publication of this proposal, we will publish in the **Federal Register** a final determination concerning the listing of the species and the designation of its critical habitat or withdraw the proposal if new information is provided that supports that decision.

#### Public Comments

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and regulations that may be addressing those threats.

(2) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

(3) Any information on the biological or ecological requirements of the species and ongoing conservation measures for the species and its habitat.

(4) Current or planned activities in the areas occupied by the species and possible impacts of these activities on this species.

(5) The reasons why we should or should not designate habitat as “critical habitat” under section 4 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*) including whether there are threats to the species from human activity, the degree of which can be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(6) Specific information on:

(a) The amount and distribution of Gierisch mallow habitat;

(b) What areas, that were occupied at the time of listing (or are currently occupied) and that contain features essential to the conservation of the species, should be included in the designation and why;

(c) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(d) What areas not occupied at the time of listing are essential for the conservation of the species and why.

(7) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(8) Information on the projected and reasonably likely impacts of climate change on the Gierisch mallow and proposed critical habitat.

(9) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation; in particular, we seek information on any impacts on small entities or families, and the benefits of including or excluding areas that exhibit these impacts.

(10) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act, in particular for those areas that are currently being mined for gypsum or proposed to be mined for gypsum in the foreseeable future.

(11) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please note that submissions merely stating support for or opposition to the action under consideration without

providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made “solely on the basis of the best scientific and commercial data available.”

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We request that you send comments only by the methods described in the **ADDRESSES** section.

If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the Web site. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <http://www.regulations.gov>. Please include sufficient information with your comments to allow us to verify any scientific or commercial information you include.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

#### Previous Federal Actions

The Gierisch mallow was included in the June 25, 2007, petition by WildEarth Guardians to the Service seeking the listing of 475 species in the southwestern United States. Based on information we received in that petition and information readily available in the Service’s files, the Service added Gierisch mallow as a candidate for listing in the December 10, 2008, Candidate Notice of Review (73 FR 75176). Species on the candidate list are those fish, wildlife, and plants for which we have sufficient information on biological vulnerability and threats to support the preparation of a listing proposal, but for which development of a listing regulation is precluded by other higher listing priorities. Since 2008, the listing priority number for Gierisch mallow has been a 2, indicating a species with threats that are both imminent and high in magnitude in accordance with our priority guidance published on September 21, 1983 (48 FR

43098). Gierisch mallow has remained a candidate in subsequent Candidate Notices of Reviews (74 FR 57804, November 9, 2009; 75 FR 69222, November 10, 2010; 76 FR 66370, October 26, 2011).

### Background

It is our intent to discuss below only those topics directly relevant to the proposed listing of the Gierisch mallow as endangered and the proposed critical habitat designation.

### Species Information

Gierisch mallow is a perennial, flowering member of the mallow family. It produces few to many stems from a woody caudex (short, thickened, woody stem that is usually subterranean or at ground level). The stems are 43 to 103 centimeters (cm) (17 to 41 inches (in)) tall, and are often dark red-purple. The foliage is bright green and glabrous (not hairy). The leaf blades are 1.2 to 4 centimeters (cm) (0.47 to 1.57 inches (in)) long; 1 to 5 cm (0.4 to 1.9 in) wide; and usually longer than wide. The leaves are usually flat and egg-shaped; the leaf base is heart-shaped to truncate, with 3 to 5 lobes. The inflorescence is compound, with more than one flower per node. The outer envelope of the flower is 0.5 to 1.0 cm (0.2 to 0.4 in) long, green, and uniformly glabrous, and the orange petals are 1.5 to 2.5 cm (0.6 to 0.98 in) long (Atwood and Welsh 2002, p. 161).

Gierisch mallow was named as a unique, distinct species in 2002 (Atwood and Welsh 2002, p. 159). This species of mallow is distinguished from similar species, such as *Sphaeralcea rusbyi* (Rusby's globemallow), by the glabrous (smooth) foliage, few or no stellate (star-shaped) hairs restricted to the leaf margins, larger flowers, and restricted range and habitat.

Another closely related species is *S. moorei* (Moore's globemallow); distinguishing characters are the 3 to 5-parted narrow lobes, bright green leaves, and different habitat. As discussed by Atwood and Welsh (2002, p. 159), the genus *Sphaeralcea* consists of taxa whose morphological distinctions are compromised by overlap of many characters. The characteristics of the mature fruiting carpels (seed-bearing structures) are one of the more important distinguishing characters, but specimens were rarely collected with mature carpels. Atwood and Welsh (2002, pp. 161–163) collected globemallow species in northern Arizona and southern Utah, and reviewed previous collections. The characteristics described in their 2002 taxonomic key allow for the

discrimination of the related and similar taxa known to occur in southern Utah and adjacent northern Arizona, thus making Gierisch mallow a species and, therefore, a listable entity under the Act. The work was published in the peer-reviewed journal *Novon*, which publishes short articles with the primary purpose of the establishment of nomenclature (scientific naming) of vascular plants. Dr. Atwood and Dr. Welsh are very familiar with the flora of Utah; Dr. Atwood is the Collections Manager of the S. L. Welsh Herbarium, and Dr. Welsh is Emeritus Curator of Vascular Plants at Brigham Young University, Utah. After careful review of the 2002 Atwood and Welsh publication and its recognition by the Integrated Taxonomic Information System (ITIS 2012) and its inclusion in the Utah Rare Plant Guide (Utah Rare Plants 2012), it is our conclusion that Gierisch mallow is a valid species because the characteristics described above can be used to distinguish this species from similar species. We also consider it a separate species due to its acceptance in peer-reviewed literature and recognition by taxonomic authorities, as described above.

### Biology, Habitat, and the Current Range

Gierisch mallow is only found on gypsum outcrops associated with the Harrisburg Member of the Kaibab Formation in northern Mohave County, Arizona, and adjacent Washington County, Utah (Atwood and Welsh 2002, p. 161). The Harrisburg Member is the most recent (topmost) exposed geologic layer of the Kaibab Formation. The Harrisburg Member is known for its soils containing high levels of gypsum (gypsiferous soils) (Biek and Hayden 2007, p. 58). The Kaibab Formation comprises a continuous layer of exposed limestone rock in the Grand Canyon region (USGS 2012, p. 1). The surrounding plant community is warm desertscrub (Mojave desertscrub). Very little is known about the life history of the Gierisch mallow, as it was only recently described. The species may be perennial because it is woody at the base and the same individuals have been observed for more than one year. It dies back to the ground during the winter and re-sprouts from the base during late winter and spring (January to March), depending on daytime temperatures and rainfall. Information from the Bureau of Land Management (BLM) indicates that many of the Gierisch mallow populations occur on hillsides or steep slopes. The pollination system (self-pollinated or obligate out-crosser), seed dispersal mechanisms, and the conditions under

which seeds germinate are not known. Although we do not know how the species is pollinated, other species of the genus *Sphaeralcea* (globemallows) are pollinated by *Diadasia diminuta* (globemallow bee), which specializes in pollinating plants of this genus. Globemallow bees are considered important pollinators for globemallows (Tepedino 2010, p. 2). These solitary bees, as well as other *Diadasia* species, are known to occur within the range of the Gierisch mallow (Sipes and Tepedino 2005, pp. 490–491; Sipes and Wolf 2001, pp. 146–147), so it is reasonable to assume that they are potential pollinators of Gierisch mallow and other associated vegetation in the surrounding community. Winter rainfall in 2008 produced many seedlings of Gierisch mallow, indicating that they grow from seeds stored in the seed bank (Hughes 2009, p. 13). Higher densities of seedlings were located within known locations in Arizona and Utah after these winter rain events. Additionally, young plants have been observed on two reclaimed areas within an active gypsum mine (Service 2008a, p. 1), further indicating that seeds are stored in the seed bank; however, we do not know the long-term viability of these plants due to the disruption of the original soil composition. Furthermore, Hughes (2011, p. 7) has documented a decline in the numbers of plants in both of the two reclaimed areas over the last 5 years.

We have no information on the historical range of this species because it is a newly discovered plant. Currently, there are 18 known populations of the Gierisch mallow restricted to less than approximately 186 ha (460 ac) in Arizona and Utah. The main populations in Arizona are located south of the Black Knolls, approximately 19.3 km (12 mi) southwest of St. George, Utah, with the southernmost population of this group being on the edge of Black Rock Gulch near Mokaac Mountain. There is another population approximately 4.8 kilometers (km) (3 miles (mi)) north of the Black Knolls, on Arizona State Land Department (ASLD) lands near the Arizona/Utah State line. The Utah population is located on BLM lands within 3.2 km (2 mi) of the Arizona/Utah State line, near the Arizona population on ASLD land.

There are no other known populations of the Gierisch mallow. We theorized that, because gypsum outcrops associated with the Harrisburg Member are scattered throughout BLM lands in northern Arizona and southern Utah, additional populations may exist. Dr. Atwood and Dr. Welsh conducted

extensive surveys in these areas because numerous other rare plant species are associated with these landforms (Atwood 2008, p. 1). One record of a Gierisch mallow from the Grand Canyon-Parashant National Monument was presented to us (Fertig 2012, p. 3); however, after careful scrutiny, Johnson and Atwood (2012, p. 1) determined that this record is actually Rusby's mallow and not Gierisch mallow.

#### Status and Population Estimates

Atwood (2008, p. 1), and later Hughes (Service 2008a, p. 1), estimated the

population size of the Gierisch mallow from four of the Arizona locations. These populations are referred to as "Hills." There are a total of 18 populations rangewide, with seventeen populations on lands managed by the BLM, and 1 on lands managed by the ASLD. Seventeen populations occur in Arizona, and one occurs in Utah.

Atwood and Hughes' population estimates were simple visual estimates and have only been conducted for four of the 17 populations. These estimates are presented in Table 1 for the areas

surveyed in Arizona. Hughes (2012, pp. 12–14) established belt transects on four of the "Hills" (Hills 1, 2, 4, and 5) and began to count the number of individuals. There is a population on Hill 3, but there are no estimates for it. Data in Table 1 are from files in BLM's St. George Field Office and the Service's Arizona Ecological Services Field Office. The actual transect counts appear in Table 1 in bold, in parentheses. Surveys estimate total population size to be between 7,000 and 12,000 individuals in Arizona.

TABLE 1—POPULATION NUMBERS FOR GIERISCH MALLOW FROM FOUR LOCATIONS IN ARIZONA

Site	Numbers 2001	Numbers 2003	Numbers 2007	Numbers 2008	Numbers 2009	Numbers 2010	Numbers 2011
Hill 1 (BLM) .....	150+ <b>(100)</b> .....	50 <b>(30)</b> .....	<b>(58)</b> .....	No data .....	300 <b>(155)</b> .....	200 <b>(85)</b> .....	*
Hill 2 (BLM) .....	150+ <b>(100)</b> .....	40 <b>(31)</b> .....	<b>(15)</b> .....	50 <b>(37)</b> .....	40 <b>(23)</b> .....	No data .....	*
Hill 4 (BLM) .....	No data .....	5,000–9,000 <b>(180)</b> .	<b>(176)</b> .....	<b>(65)</b> .....	No estimate <b>(108)</b> .	No estimate <b>(170)</b> .	No estimate <b>(136)</b>
Hill 5 (ASLD) .....	No data .....	2,000–3,000 <b>(115)</b> .	No data .....	No data .....	No data .....	No data .....	No data

\* These sites were visited in 2011, and Gierisch mallow plants were observed; however, no data were collected.

Total population size in Utah was estimated to be approximately 200 individuals in 2005 (Franklin 2007, p. 1). In spring 2008 and 2009, Hughes (2008a, p. 12; Hughes 2009, p. 15) conducted more extensive surveys of gypsiferous soils in Utah and estimated the population to be between 5,000 and 8,000 individuals. The Service plant ecologist and staff from the BLM's Arizona Strip Field Office visited all of the known locations in February 2008 (Service 2008a, p. 1). Population estimates were not made at this time because the plants were just emerging from winter dormancy, but there were plants present at all of the known locations visited.

Since surveys began, no new populations have been found outside of the known areas. In addition to the information provided in Table 1, Hughes (2008a, p. 12) reported counts for transects on two rehabilitated sites within the Western Mining and Minerals, Inc., gypsum operation on and near Hill 4, where 85 and 60 plants were counted on the two transects in 2008. These plants are reestablishing themselves in the reclaimed areas from the original seed bank. Hughes (2009, p. 14) counted 50 and 32 plants on these sites in 2009. In 2011, Hughes (2012, p. 7) completed transect surveys on the same reclaimed sites as he did in 2008 and 2009, and counted 67 plants on one rehabilitated site and 1 plant on the other rehabilitated site. We do not have any information to indicate why there was a substantial decrease in plant

numbers at these reclaimed areas. Because the Gierisch mallow is mostly only found in gypsiferous soils, it is possible that they are declining due to disruption of the original soil composition in these reclaimed soils. Outside of the reclaimed areas, some populations of the Gierisch mallow appear to be fluctuating annually according to data provided by Hughes (2011, pp. 4–7). Some populations appear to be decreasing, others have shown slight increases, and some populations have remained stable (Hughes 2011, pp. 4–7).

#### Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

#### A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Because the Gierisch mallow has a limited range and distribution, including being found in a specific soil composition (gypsum outcrops), it is highly susceptible to habitat destruction and modification. Specifically, habitat destruction or modification resulting from mining operations, recreational activities, and wildfires associated with the spread of nonnative grass species, are threats to the Gierisch mallow.

#### Mining

Gypsum mining is an ongoing source of habitat modification for the Gierisch mallow in Arizona. Gypsum is used in construction (including the manufacturing of drywall), and for a variety of agricultural purposes. Gypsum deposits are found at various depths within the Harrisburg Member. Many of the most valuable gypsum deposits are not at ground level. This means that surface materials need to be removed and stockpiled, while the subsurface gypsum is mined. The stockpiled surface material is then used to reclaim the area after the gypsum has been removed. Because all the topsoil is temporarily removed, gypsum mining temporarily removes the plant's habitat and any plants growing in the affected area. Although the topsoil is replaced, the original soil composition is altered; therefore, the reclaimed soils do not contain the original gypsum

composition with which the plants are associated.

There is an existing gypsum mining operation (Black Rock Gypsum Mine) on BLM land affecting the Hill 4 population, the largest population in Arizona (Hughes 2009, p. 13). The plants in the Hill 4 area are not restricted to one hill, but are scattered among several smaller hills that all contain gypsum outcrops. One of the larger deposits is currently being mined. A large amount of soil has been removed, but we cannot quantify how much of the habitat this comprises at this site, as we do not have access to ASLD lands. Based on prior monitoring before access was limited (Hughes 2008, p. 13), there are other small hills within the footprint of the mining claim that support the Gierisch mallow; therefore, we assume the Gierisch mallow occupied the disturbed area. Western Mining and Minerals, Inc., the mine operator, has inquired about expanding the current operation (Service 2008a, p. 1). The area they propose to expand into currently supports the largest portion of the Hill 4 population, estimated to be between 5,000 and 9,000 plants (Hughes 2008, p. 14), which comprises almost half of the entire population rangewide and most of the population in Arizona. The proposed expansion would remove the entire population and its habitat on Hill 4. An environmental assessment (under the National Environmental Policy Act 40, 42 U.S.C. 4321 *et seq.*) for expansion of the quarrying activities within the Black Rock Gypsum Mine has been completed, and the Mining Plan of Operation has been approved (BLM 2008a). Because the demand for gypsum has declined along with the decrease in the housing market, mining activity has not yet reached the expansion area (Cox 2011a, pers. comm.). Recent discussions with the BLM indicate that the expansion could happen as soon as 3 years from now or may take up to 10 years, depending on the housing market, but BLM believes the expansion is very likely to happen (Cox 2011a, pers. comm.).

There is another gypsum mine, located near Hill 5, supporting another large Arizona population (approximately 2,000–3,000 plants). This mine, operated by Georgia-Pacific, is on ASLD lands and encompasses 178 ha (440 ac). Service biologists did not receive permission to enter the site in February 2008, but, through the site boundary fence, did notice at least one pile of spoils near the population, indicating some recent surface-modifying activity prior to the Service biologists' visit. The lease was first issued in 2006, but Georgia-Pacific has

not mined anything, due to the slowing of the economy. The surface-modifying activity observed in February 2008 was likely a result of moving topsoil in preparation to begin mining activities (Dixon 2011, p. 1). Because the lease is for 20 years, we expect that mining operations will begin at some point within the next 14 years, or when the housing market improves. We presume that habitat for the species would be affected by the operation because the technique for gypsum mining necessarily involves removal of the topsoil, eliminating, at least temporarily, the species' ability to survive there. There are no known protection measures for Gierisch mallow or its habitat within the lease on State trust lands.

In addition to the Georgia-Pacific mine, there are several ASLD-issued exploration permits in the area on ASLD lands surrounding Hill 5. These are all relatively new claims, and no significant work has been done on them, yet some drilling was completed, but no other exploration or mining work has occurred. With the depressed housing market, the ASLD does not anticipate any gypsum mining will occur until the housing market improves (Dixon 2011, p. 1).

Gypsum mining is a threat to this species and its habitat. The mining operation removes plants and habitat for the duration of the mining activities, and, post-mining, the reclaimed areas may or may not be capable of supporting the plants. A few Gierisch mallows were seen on reclaimed areas near Hill 4, but no information on the density of plants before the disturbance exists. Plants continue to be observed in two reclaimed areas near Hill 4; however, the numbers are relatively low (Hughes 2012, pp. 6–7). Furthermore, it is unknown if restored areas will support the plants sufficiently to restore populations to pre-mining levels; restoration efforts with this species are currently being planned within the Black Rock Mine to assess the feasibility of seeding reclaimed areas with Gierisch mallow (Service 2008b, p. 1).

We conclude that the ongoing and future gypsum mining activities, as authorized by the BLM and the ASLD, are a significant threat to this species. Although there has been no mining activity on ASLD lands since 2007, the Service believes this inactivity is temporary and that mining will resume when the housing market improves in the future. There will be a significant reduction in the number of individuals of the species when the Western Mining and Minerals Inc., operation (Black Rock Gypsum Mine) expands, and when

mining activities resume at the Georgia-Pacific mine on lands managed by the ASLD. Although Hills 4 and 5 comprise only 2 of the 18 populations, over half of all the known Gierisch mallow plants are in these two areas. That would leave the other Arizona locations and the one Utah population, and those areas support fewer plants. The loss of suitable habitat at Hills 4 and 5 has resulted in the loss of more than 50 percent of the existing populations. The Service believes this would result in a compromise to the long-term viability of the species, due to reduced reproductive potential and fragmentation. The limited distribution of this species, the small number of populations, the limited amount of habitat, and the species' occurrence only in areas that support high-quality gypsum deposits lead us to conclude that mining is a significant threat to the species.

#### Grazing

In general, grazing practices can change vegetation composition and abundance, cause soil erosion and compaction, reduce water infiltration rates, and increase runoff (Klemmedson 1956, p. 137; Ellison 1960, p. 24; Arndt and Rose 1966, p. 170; Gifford and Hawkins 1978, p. 305; Robinson and Bolen 1989, p. 186; Waser and Price 1981, p. 407; Holechek *et al.* 1998, pp. 191–195, 216; and Loftin *et al.* 2000, pp. 57–58), leaving less water available for plant production (Dadkahn and Gifford 1980, p. 979). Fleischner (1994, pp. 630–631) summarized the ecological impacts of grazing in three categories: (1) Alteration of species composition of communities, including decreases in density and biomass of individual species, reduction of species richness, and changing community organization; (2) disruption of ecosystem functioning, including interference in nutrient cycling and ecological succession; and (3) alteration of ecosystem structure, including changing vegetation stratification, contributing to soil erosion, and decreasing availability of water to biotic communities.

Grazing occurs in most populations of the Gierisch mallow in Arizona and Utah on both BLM and ASLD lands. Grazing is excluded from both the Black Rock Gypsum Mine on BLM land and the Georgia-Pacific Mine on ASLD land. Gierisch mallow populations occur on three BLM grazing allotments in Arizona and one allotment in Utah. In Arizona, the Black Rock, Lambing-Starvation, and Purgatory allotments all contain populations of Gierisch mallow. The Black Rock Allotment encompasses 15,250 ha (37,685 ac) that are grazed year-round, but this allotment is on a

deferred grazing system, which means that pasture use is rotated so that each pasture receives a set amount of rest (non-use) every year. As previously stated, there are an additional 1,152 ha (2,846 ac) in this allotment that are unavailable for grazing because of the Black Rock Gypsum Mine. Gierisch mallow occurs in both the "Lizard 1" and "Lizard 2" pastures within this allotment, and both pastures are typically used in the spring to allow the livestock to utilize cheatgrass when it is still green. These two pastures are typically rotated, that is used every other year so that one pasture receives a full year of rest.

The Lambing-Starvation Allotment encompasses 5,446 ha (13,457 ac) that are grazed from November 16 through May 15 every season and is also on a deferred system. Gierisch mallow occurs in two of the three pastures in this allotment, the North Freeway and South Freeway pastures. These two pastures are also used in the spring, as the third pasture is along the Virgin River and contains critical habitat for the endangered southwestern willow flycatcher (*Empidonax traillii extimus*). Because the third pasture contains critical habitat for the southwestern willow flycatcher, its use is restricted seasonally, causing livestock to spend more time in the two pastures containing Gierisch mallow, including during the spring growing season for the Gierisch mallow. The Lambing-Starvation Allotment also contains ASLD lands with a grazing lease; however, the BLM oversees the management of this allotment. The Purgatory Allotment encompasses 1,985 ha (4,905 ac) in a single pasture that is grazed from December 1 through May 31 every season. Only a small portion of a Gierisch mallow population occurs within this allotment. Information from the BLM indicates that many of the Gierisch mallow populations occur on hillsides or steep slopes, and livestock do not typically go up to these areas looking for forage unless it is a dry year (Roaque 2012a, p. 2). All three allotments contain significant amounts of nonnative, invasive annual grasses, including cheatgrass and red brome, although red brome appears to be more prevalent. According to observations by BLM range personnel, both cheatgrass and red brome tend to not grow well in gypsum outcrops in normal (dry) rainfall years; however, they can be abundant in Gierisch mallow habitat during wet years. This was observed after the fall 2010 and winter 2011 rains (Roaque 2102b, p. 1).

In Utah, grazing occurs in the one allotment that contains Gierisch mallow

and its habitat. The Curly Hollow Allotment is comprised of approximately 9,105 ha (22,500 ac) of BLM land and 2,226 ha (5,500 ac) of Utah State trust land. This is a four-pasture allotment that is managed for intensive grazing and a rest rotation system similar to those described above. Gierisch mallow only occurs in the River Pasture, which is usually grazed from November 1 through February 28 of each season. Recent wildfires had burned much of the upper three pastures; therefore, the River Pasture has been grazed beyond February 28 for several years to alleviate pressure on the three upper pastures while the vegetation recovered from the wildfire in the absence of livestock grazing (Douglas 2012a, p. 1). The three upper pastures are now considered rehabilitated, and grazing in the River Pasture should resume with its normal season of use from November 1 through February 28. The general condition of the range in the River Pasture is fair to good (moderate cheatgrass spread); however, portions near Sun River, and the *Astragalus holmgreniorum* (Holmgren milkvetch) (an endangered plant) habitat, have been disturbed in the past, resulting in a more significant spread of cheatgrass and *Malcolmia africana* (African mustard). Livestock utilization on Gierisch mallow has not been monitored by BLM's St. George Field Office, but conditions are expected to be similar to livestock utilization described above in Arizona (Douglas 2012a, p. 1).

In addition to consumption, livestock are known to trample plants. As noted, livestock do not typically go up into Gierisch mallow habitat on the BLM allotments in Arizona and Utah due to the steeper hillsides and slopes that this plant is known to inhabit (Roaque 2012a, p. 2; Douglas 2012a, p. 1). Given the grazing management described above and the observations of how infrequently livestock are in Gierisch mallow habitat, trampling of plants does not likely significantly impact the overall viability of these populations.

Habitat degradation in the Mojave Desert, through loss of microbiotic soil crusts (soils containing algae, lichen, fungi, etc.) due to livestock grazing, is a great concern (Floyd *et al.* 2003, p. 1704). Grazing can disturb soil crusts and other fundamental physical factors in landscapes. For example, climatologists and ecologists have attributed increasing soil surface temperatures and surface reflectivity in the Sonoran Desert to grazing-related land degradation (Balling *et al.* 1998 in Floyd *et al.* 2003, p. 1704). Biological soil crusts provide fixed carbon on

sparsely vegetated soils. Carbon contributed by these organisms helps keep plant interspaces fertile and aids in supporting other microbial populations (Beymer and Klopatek 1991 in Floyd *et al.* 2003, p. 1704). In desert shrub and grassland communities that support few nitrogen-fixing plants, biotic crusts can be the dominant source of nitrogen (Rychert *et al.* 1978 and others in Floyd *et al.* 2003, p. 1704). Additionally, soil crusts stabilize soils, help to retain moisture, and provide seed-germination sites. Soil crusts are effective in capturing wind-borne dust deposits, and have been documented contributing to a 2- to 13-fold increase in nutrients in southeastern Utah (Reynolds *et al.* 2001 in Floyd *et al.* 2003, p. 1704). The presence of soil crusts generally increases the amount and depth of rainfall infiltration (Loope and Gifford 1972 and others in Floyd *et al.* 2003, p. 1704).

In addition to loss of soil crusts, grazing often leads to soil compaction, which reduces water infiltration and can lead to elevated soil temperatures (Fleischner 1994, p. 634; Floyd *et al.* 2003, p. 1704). All of these soil disturbances can increase erosion by both wind and water (Neff *et al.* 2005, p. 87). Because Gierisch mallow only occurs in gypsum soil outcrops, this loss of soil crust, increased soil compaction, and potential increase in erosion may lead to reduced fitness of individual plants as nutrients decrease when livestock enter and concentrate in these areas during dry years. Additionally, it is possible that individual plants, especially seedlings, are not able to take root in any unstable soils that result from loss of soil crusts due to livestock grazing. Increased erosion and decreased water infiltration from loss of soil crusts can lead to depletion of gypsum and other specific soil features that the Gierisch mallow requires. These effects may be significant to Gierisch mallow populations because grazing occurs at some level throughout all populations. Reduced fitness of individual plants may lead to reduced overall reproduction, which may lead to decreases in the overall population.

Grazing can also lead to changes in vegetation structure, including the proliferation of nonnative, invasive species such as cheatgrass and red brome. Livestock have been implicated in the spread of weeds (Brooks 2009, p. 105), and both abundance and diversity of native plants and animals is lower in grazed areas as compared to ungrazed habitat in the Mojave Desert (Brooks 2000, p. 105). We do not know the current density of these two nonnative grass species within the Gierisch

mallow populations; however, we do know that both of these nonnative species are prevalent throughout the Mojave Desert in northwest Arizona and southwest Utah, including throughout all three allotments in Arizona and the allotment in Utah (Roaque 2012a, pp. 1–2; Douglas 2012, p. 1). While cheatgrass and red brome appear not to favor gypsiferous soils under normal (dry) conditions, they can be abundant in Gierisch mallow habitat during wet years, as was recently observed (Roaque 2102b, p. 1). Red brome has also been documented in similar gypsiferous soils near Gierisch mallow populations after wet years (Roth 2012, entire). The proliferation of cheatgrass and red brome can lead to competition with Gierisch mallow for both water and nutrients, which can lead to decreased reproduction and fitness in individual plants.

In addition to decreased reproduction and fitness in established plants, the spread of these two species can also make the habitat less suitable for establishment of new plants. If cheatgrass and red brome reach high densities throughout all of the Gierisch mallow populations, this can lead to a significant reduction in the proper functioning of the habitat, which in turn would lead to a reduction in fitness and reproduction population-wide and an overall population decline. Given the limited distribution of Gierisch mallow and the known abundance of cheatgrass and red brome in its habitat, continued proliferation of these two species into Gierisch mallow habitat is likely to have significant effects to the species and its habitat. The number of populations may be reduced and their current limited distribution may become even more limited. Additionally, the overall resiliency of the species may be significantly reduced, especially if the spread of these nonnative grasses leads to other stochastic events, such as wildfire. Although grazing can help promote the spread of nonnative weeds such as cheatgrass and red brome, and their spread is a threat to the Gierisch mallow and its habitat, we do not know how much livestock contribute to their spread. The threat of wildfire resulting from the spread of nonnative species will be discussed in more detail in “Nonnative, Invasive Species” below.

In summary, livestock grazing can have many effects on the plant and its habitat, and on desert ecosystems in general, particularly on soils. However, livestock do not typically spend much time in Gierisch mallow habitat, due to the steeper hillsides and slopes that this plant inhabits, unless drought conditions cause livestock to search for

forage on the steeper hillsides and slopes. When livestock do enter Gierisch mallow habitat, some limited soil disturbance may occur, and individual plants may be affected, although we do not anticipate population-level effects to the Gierisch mallow. Livestock have been implicated as a mechanism for the spread of cheatgrass and red brome. Although we do not know the extent to which livestock spread these two nonnative grasses, the spread of these grasses does pose a threat to the Gierisch mallow. Because of these potential effects from livestock grazing, we anticipate grazing to be a moderate threat to the species, especially during drought years.

#### Recreation Activities

Mining operations in Utah do not pose a threat to Gierisch mallow population at this time, but there is evidence of off-road vehicle (OHV) activity in the area. Several of the smaller hills were criss-crossed with OHV tracks (Service 2008, p. 1), and these areas are closed to OHV use off of designated roads and trails (Douglas 2012b, p. 1); therefore, this is considered unauthorized OHV use. Washington County is projected to be one of the fastest growing counties in Utah, with a growth rate of 3.9 percent. The population of St. George has grown from 64,201 (2005) to 88,001 (2010), and is expected to increase to 136,376 by 2020 (St. George Area Chamber 2010, pp. 2–3). The surrounding open spaces around St. George are popular for OHV use because of the relatively flat terrain and ease of access.

Vollmer *et al.* (1976, p. 121) demonstrated that shrubs exposed to repeated driving (continued use of the same tracks) were severely damaged. Both live and dead stems were broken and pressed to the ground. Stems still standing exhibited broken twigs or shoots and leaves were dislodged. Damage to about 30 percent of all shrubs examined in tire tracks were scored at 100 percent damage. Vollmer *et al.* (1976, p. 121) go on to state that approximately 54 percent of the shrubs in the tracks sustained 90 percent or greater damage. The numbers of annual shrubs growing in regularly driven ruts were lower than in other areas (Vollmer *et al.* 1976, p. 124). These data indicate that individual Gierisch mallow plants may be susceptible to the effects of OHV use in this area. Plants may be damaged to the point that they are no longer viable and able to produce seed. Seedlings may not be able to reach maturity and reproduce if they are crushed to point of significant damage. As unauthorized OHV use increases in

these areas and associated unauthorized trails proliferate, this population may experience an overall reduction in fitness for the Gierisch mallow.

In addition to the direct effects to vegetation, unauthorized OHV use can have the same indirect effects that were previously described by livestock grazing, including soil compaction, loss of soil crusts, erosion, and the promotion and spread of nonnative invasive species. Refer to the livestock grazing discussion above for a complete description of the effects to soil composition and how those effects impact Gierisch mallow and its habitat.

In summary, we consider continued unauthorized OHV use (off of designated roads) to be a potential threat to this species and its habitat in Utah. Continued unauthorized OHV use can have a significant effect on the long-term viability of the Utah population of the Gierisch mallow because habitat degradation can be severe enough to prevent reestablishment of new plants, as well as removing mature, reproducing plants from the population. As stated above, Hughes (2009, p. 14) estimated this population to be between 5,000 and 8,000 individuals in 2009. While this is only one of 18 known populations, this is the second largest population of the plant and this population includes almost half of the total population, rangewide. This population is important to the long-term viability of the species. Given that this large population only encompasses 1.01 ha (2.5 ac) and is easily accessible, these activities may lead to enough Gierisch mallow plants being crushed to reduce the overall fitness of the population. Therefore, we conclude that this activity is a moderate threat to the species.

#### Other Human Effects

The same areas in Utah that are subjected to unauthorized OHV use are also used for target shooting and trash dumping. Evidence of both of these activities was present in Utah during the February 2008 visit. There was one large appliance dumped near the population, obviously used for target practice (Service 2008a, p. 1). People engaging in target shooting near the population degrade habitat by trampling the soil and plants, and by driving vehicles on the habitat to access areas for target shooting. The unauthorized use of BLM lands for these activities can contribute to the degradation of habitat for the Gierisch mallow by causing the same direct and indirect effects described above for OHV use. It is also possible that trash dumping can lead to soil contamination, which would most likely not be beneficial to the species.



The full extent of damage to soils may not be evident until years or even decades after the original disturbance (Vollmer *et al.* 1976, p. 115). We did not observe these activities near the Arizona populations. Similar to the effects of unauthorized OHV use, we consider illegal trash dumping and impacts associated with target shooting to be moderate threats to this species and its habitat in Utah.

#### Nonnative, Invasive Species

The spread of nonnative, invasive species is considered the second largest threat to imperiled plants in the United States (Wilcove *et al.* 1998, p. 608). Invasive plants—specifically exotic annuals—negatively affect native vegetation, including rare plants. One of the most substantial effects is the change in vegetation fuel properties that, in turn, alter fire frequency, intensity, extent, type, and seasonality (Menakis *et al.* 2003, pp. 282–283; Brooks *et al.* 2004, p. 677; McKenzie *et al.* 2004, p. 898). Shortened fire return intervals make it difficult for native plants to reestablish or compete with invasive plants (D'Antonio and Vitousek 1992, p. 73).

Invasive plants can exclude native plants and alter pollinator behaviors (D'Antonio and Vitousek 1992, pp. 74–75; DiTomaso 2000, p. 257; Mooney and Cleland 2001, p. 5449; Levine *et al.* 2003, p. 776; Traveset and Richardson 2006, pp. 211–213). For example, cheatgrass and red brome outcompete native species for soil nutrients and water (Melgoza *et al.* 1990, pp. 9–10; Aguirre and Johnson 1991, pp. 352–353; Brooks 2000, p. 92), as well as modify the activity of pollinators by producing different nectar from native species (Levine *et al.* 2003, p. 776) or introducing nonnative pollinators (Traveset and Richardson 2006, pp. 208–209). Introduction of nonnative pollinators or production of different nectar can lead to disruption of normal pollinator interactions for the Gierisch mallow.

Cheatgrass and red brome are particularly problematic nonnative, invasive annual grasses in the intermountain west. If already present in the vegetative community, cheatgrass and red brome increase in abundance after a wildfire, increasing the chance for more frequent fires (D'Antonio and Vitousek 1992, pp. 74–75; Brooks 2000, p. 92). In addition, cheatgrass invades areas in response to surface disturbances (Hobbs 1989, pp. 389, 393, 395, 398; Rejmanek 1989, pp. 381–383; Hobbs and Huenneke 1992, pp. 324–325, 329, 330; Evans *et al.* 2001, p. 1308). Cheatgrass and red brome are

likely to increase due to climate change (see “Climate Change and Drought” discussion, below, under Factor E) because invasive annuals increase biomass and seed production at elevated levels of carbon dioxide (Mayeux *et al.* 1994, p. 98; Smith *et al.* 2000, pp. 80–81; Ziska *et al.* 2005, p. 1328).

Although cheatgrass and red brome both occur in close proximity to Gierisch mallow habitat, red brome is more prevalent (Roaque 2012b, p. 1). As previously described above, both cheatgrass and red brome tend to not grow well in gypsum outcrops in normal (dry) rainfall years; however, they can be abundant in the Gierisch mallow habitat during wet years. Red brome has also been documented in similar gypsiferous soils near the Gierisch mallow populations after wet years (Roth 2012, entire). As we stated above, we do not anticipate a high degree of surface disturbances in the Gierisch mallow habitats in the near future from livestock grazing except during drought years; however, increased mining in Arizona and unauthorized OHV use, target shooting, and trash dumping in the Utah population of the Gierisch mallow may lead to significant amounts of surface disturbance, providing conditions that allow red brome to expand into and increase in density within Gierisch mallow habitat.

Invasions of annual, nonnative species, such as cheatgrass, are well documented to contribute to increased fire frequencies (Brooks and Pyke 2002, p. 5; Grace *et al.* 2002, p. 43; Brooks *et al.* 2003, pp. 4, 13, 15). The disturbance caused by increased fire frequencies creates favorable conditions for increased invasion by cheatgrass. The end result is a downward spiral where an increase in invasive species results in more fires, more fires create more disturbances, and more disturbances lead to increased densities of invasive species. The risk of fire is expected to increase from 46 to 100 percent when the cover of cheatgrass increases from 12 to 45 percent or more (Link *et al.* 2006, p. 116). The invasion of red brome, another nonnative grass, into the Mojave Desert of the intermountain west poses similar threats to fire regimes, native plants, and other federally protected species (Brooks *et al.* 2004, pp. 677–678). Brooks (1999, p. 16) also found that high interspace biomass of red brome and cheatgrass resulted in greater fire danger in the Mojave Desert. Brooks (1999, p. 18) goes on to state that the ecological effects of cheatgrass and red brome-driven fires are significant because of their intensity and consumption of perennial shrubs.

In the absence of cheatgrass and red brome, the Gierisch mallow grows in sparsely vegetated communities unlikely to carry fires (see *Biology, Habitat, and the Current Range* section). Thus, this species is unlikely to be adapted to survive high frequency fires. As described in the *Biology, Habitat, and the Current Range* section, the total range of this species covers approximately 186 ha (460 ac), and each of the 18 populations occupies a relatively small area, ranging between 0.003 ha (0.01 ac) and 38.12 ha (94.36 ac). A range fire could easily impact or eliminate one or all populations and degrade Gierisch mallow habitat to the point that it will no longer be suitable for the plant. The loss of one population and associated suitable habitat would be a significant loss to the species. Therefore, the potential expansion of invasive species and associated increase in fire frequency and intensity is a significant threat to the species, especially when considering the limited distribution of the species and the high potential of the Gierisch mallow population extinctions.

In summary, we know that invasive species can impact plant communities by increasing fire frequencies, outcompeting native species, and altering pollinator behaviors. Although invasive species do not occur in high densities in Gierisch mallow habitat during normal (dry) rainfall years, nonnative, invasive species, especially red brome, can be very abundant in wet rainfall years. Given the ubiquitous nature of cheatgrass and red brome in the Intermountain West and their ability to rapidly invade dryland ecosystems (Mack 1981, p. 145; Mack and Pyke, 1983, p. 88; Thill *et al.* 1984, p. 10), we expect these nonnative species to increase in the future in response to surface disturbances from increased mining activities, recreation activities, and global climate change (see “Climate Change and Drought” below). An increase in cheatgrass and red brome is expected to increase the frequency of fires in Gierisch mallow habitat, and the species is unlikely to survive increased wildfires due to its small population sizes and the anticipated habitat degradation. Therefore, we determine that nonnative, invasive species and associated wildfires constitute a significant threat to habitat of the Gierisch mallow.

#### Summary of Factor A

Based on our evaluation of the best available scientific information, we conclude that the present and future destruction and modification of the habitat for the Gierisch mallow is a

significant threat. Destruction and modification of habitat for the Gierisch mallow are anticipated to result in a significant decrease in both the range of the species and the size of the population of the species.

Mining activities impacted Gierisch mallow habitat in the past and will continue to be a threat in the future to the species' habitat throughout its range. All of the populations and habitat are located on BLM and ASLD lands, which have an extensive history of, and recent successful exploration activities for, gypsum mining. Two of the eighteen populations are located in the immediate vicinity of gypsum mining, including the Black Rock Gypsum Mine which has an approved Mining Plan of Operation to expand into the largest Gierisch mallow population. Gypsum mining is expected to continue and expand in the near future (Cox 2011b, p. 1; Dixon 2012, p. 1). Considering the small area of occupied habitat immediately adjacent to existing gypsum mines, anticipated future mining will result in the loss of habitat for these populations in the future, and these two populations comprise more than 50 percent of the entire species' distribution.

Although livestock do not typically eat Gierisch mallow, livestock grazing can affect Gierisch mallow habitat more significantly during drought years, as livestock move into the Gierisch mallow habitat searching for forage. Additionally, livestock have been implicated in spreading nonnative, invasive species such as red brome and cheatgrass, although we do not know the extent to which livestock contribute to the spread of these two nonnative grasses.

Red brome and cheatgrass are documented to occur in all 18 populations of the Gierisch mallow, although mostly after wet rain years. The threat of fire caused by annual nonnative species invasions is exacerbated by mining activities, livestock grazing, and recreation activities. Therefore, we conclude that Gierisch mallow and its habitat face significant threats as a result of habitat loss and modification.

#### *B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

The Gierisch mallow is not typically a plant of horticultural interest; however, we do have information regarding possible seed collection from wild plants on BLM and ASLD department lands for commercial sale (Roth 2011, p. 1). Collection of seeds from both BLM and ASLD is prohibited,

and only the BLM offers a special permit to collect seeds of candidate species. Each respective land management agency referred the matter to its law enforcement branches. Because collection is restricted, and collection permits are only issued for scientific research or educational purposes by the Arizona Department of Agriculture (Austin 2012, p. 1), we do not expect collection to be a regular occurrence. See Factor D discussion, below, for a complete description of when permits are issued for collection of the Gierisch mallow. We are not aware of any other instances when the Gierisch mallow has been collected from the wild other than as a voucher specimen (specimen collected for an herbarium) (Atwood and Welsh 2002, p. 161). Therefore, we conclude that overutilization for commercial, recreational, scientific, or educational purposes is not a threat to the Gierisch mallow now, and we have no information to indicate that it will become a threat in the future.

#### *C. Disease or Predation*

The flowering stalks of the Gierisch mallow are eaten by livestock. All of the Gierisch mallow populations on BLM lands are within grazing allotments. Herbivory has been documented by a BLM ecologist (Service 2008a, p. 1), and Atwood (2008, p. 1). Hughes has found that the mallow is eaten during drought years, when other forage is reduced or unavailable. The plant is also grazed during non-drought times, but not as heavily. The Gierisch mallow plants located near water sources (stock tanks and drinkers) are also heavily browsed (Hughes 2008b, p. 1) because livestock tend to congregate near sources of water. When Atwood (2008, p. 1) was surveying the populations to collect fruit of the Gierisch mallow during drought years, Atwood was unable to locate any fruit because all of the flowering stalks had been consumed by livestock. The effect of sporadic grazing of plants is unknown, but persistent grazing can reduce the reproductive output of the plants, potentially reducing the size of the smaller populations, especially during drought years. As previously described under Factor A, livestock do not typically spend significant amounts of time in Gierisch mallow habitat, due to the hillsides and steep slopes that the Gierisch mallow typically inhabits, although livestock will enter into Gierisch mallow habitat during drought periods.

Herbivory from livestock is not a significant threat, because of the steepness of the terrain on which the

plant is typically located and because the herbivory that does occur is mostly limited to drought years when the plant is not overly abundant. Although herbivory is likely to continue to some degree, especially during drought years, recruitment from the seed bank has been documented in recent years, indicating that herbivory by livestock is not likely to diminish the overall fitness and reproductive ability of the larger Gierisch mallow populations. Smaller populations of the Gierisch mallow are likely to be more susceptible to the effects of herbivory during drought years.

We have no information that disease is affecting the plants. Therefore, based on the best available information, we conclude that disease is not a threat to the Gierisch mallow, and that predation (herbivory, along with some related trampling) is a moderate threat during drought years.

#### *D. The Inadequacy of Existing Regulatory Mechanisms*

Under this factor, we examine whether existing regulatory mechanisms are inadequate to address or alleviate the threats to the species discussed under the other factors. Section 4(b)(1)(A) of the Act requires the Service to take into account "those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species \* \* \*." In relation to Factor D under the Act, we interpret this language to require the Service to consider relevant Federal, State, and tribal laws, plans, regulations, and other such mechanisms that may minimize any of the threats we describe in threat analyses under the other four factors, or otherwise enhance conservation of the species. We give strongest weight to statutes and their implementing regulations and to management direction that stems from those laws and regulations. An example would be State governmental actions enforced under a State statute or constitution, or Federal action under statute.

Having evaluated the significance of the threat as mitigated by any such conservation efforts, we analyze under Factor D the extent to which existing regulatory mechanisms are inadequate to address the specific threats to the species. Regulatory mechanisms, if they exist, may reduce or eliminate the impacts from one or more identified threats. In this section, we review existing State and Federal regulatory mechanisms to determine whether they effectively reduce or remove threats to the Gierisch mallow.

## State Regulations

Over 90 percent of the species' known habitat and over 50 percent of known populations are located on BLM and ASLD lands in Arizona mining claims. There are no laws protecting the Gierisch mallow's habitat on State or private lands in Arizona. This species is currently protected by the Arizona Native Plant Act (ANPA). Since it became a candidate species in 2008, Arizona protects the Gierisch mallow as "Highly Safeguarded." Plants in the "Highly Safeguarded" category under the ANPA include "plants resident to this State and listed as endangered, threatened, or category 1 in the Federal endangered species act of 1973" (ANPA 1997, p. 4). The ANPA controls collecting, and limited scientific collection of "Highly Safeguarded" species is allowed for research and educational purposes (Austin 2012, p. 1), but the ANPA provides no protection for plant habitat. Private landowners are required to obtain a salvage permit to remove plants protected by the ANPA; however, there are no known private lands containing the Gierisch mallow. Furthermore, seed collection on ASLD lands is prohibited, as described above under Factor B, although there are no ASLD regulations protecting habitat for the Gierisch mallow. While the ANPA may be effectively protecting the species from direct threats, it is not designed to protect the species' habitat.

In addition to the Black Rock Gypsum Mine on BLM lands in Arizona, discussed below, the Georgia-Pacific Mine on ASLD Land is in close proximity to a large Gierisch mallow population. The ASLD has fairly strict reclamation provisions and bonding requirements when they approve a Mining Plan of Operation; however, any decision that the ASLD makes on whether or not to lease land is based strictly on the benefit of the State Trust. The ASLD would not deny a mine, or any other project, based on the presence of an endangered or threatened species; however, they can have stipulations written into the ASLD lease or the mining company's reclamation plan that would require them to make allowances for federally listed species (Dixon 2012, p. 1). With listed plants, these stipulations can include seed collection or transplanting plants from the footprint of the mine; however, because the Gierisch mallow is not currently listed, the ASLD does not currently have to include these stipulations in reclamation plans. Because the ASLD does not have to require mitigation stipulations to protect the Gierisch mallow or its habitat, we conclude that

this regulatory mechanism is insufficient to protect the Gierisch mallow from threats to its habitat associated with mining on ASLD lands.

## Federal Regulations

### Mining Activities on BLM Lands

We have previously identified habitat loss associated with gypsum mining as a potential threat to the species. On BLM-managed lands, this mining occurs pursuant to the Mining Law of 1872 (30 U.S.C. 21 *et seq.*), which was enacted to promote exploration and development of domestic mineral resources, as well as the settlement of the western United States. It permits U.S. Citizens and businesses to freely prospect hardrock (locatable) minerals and, if a valuable deposit is found, file a claim giving them the right to use the land for mining activities and sell the minerals extracted, without having to pay the Federal government any holding fees or royalties (GAO 1989, p. 2). Gypsum is frequently mined as a locatable mineral, and gypsum mining is, therefore, subject to the Mining Law of 1872. The BLM implements the Mining Law through Federal regulations, 43 CFR part 3800.

The operators of mining claims on BLM lands must reclaim disturbed areas (Cox 2012, p. 1). The BLM's regulations also require the mitigation of mining operations so that operations do not cause unnecessary or undue degradation of public lands. Unnecessary or undue degradation is generally referred to as "harm to the environment that is either unnecessary to a given project or violates specified environmental protection statutes" (USLegal, 2012, p. 1). Furthermore, it is unclear what specific activities would constitute unnecessary or undue degradation in relation to the Gierisch mallow and its habitat.

The Gierisch mallow is listed as a BLM sensitive species in both Arizona and Utah. Sensitive species designation on BLM lands is afforded through the Special Status Species Management Policy Manual #6840 (BLM 2008B, entire) which states that on BLM-administered lands, the BLM shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species, or to improve the condition of the species habitat (BLM 2008B, pp. 37–38).

The BLM's regulations do not prevent the Black Rock Gypsum Mine's expansion into Gierisch mallow habitat, but the BLM could require mitigation measures to prevent unnecessary or undue degradation from mining operations. For example, the BLM

required seed collection of the Gierisch mallow by the mine operators to aid in reestablishing the species in reclaimed areas of the Black Rock Gypsum Mine in the recently approved expansion of the Black Rock Gypsum Mine.

The BLM has required seed collection as a result of these operations; however, we do not know if enough seeds can be collected to reestablish pre-mining population numbers in reclaimed areas. We are unsure of the ability to reestablish healthy populations in reclaimed areas because the number of plants observed growing from the seed bank in reclaimed soils has decreased since they were first observed. Furthermore, we do not know the long-term viability of these plants or any plants grown from collected seeds. Therefore, we find that the BLM Federal regulatory measures are not adequate to address the loss of habitat caused by gypsum mining.

### *E. Other Natural or Manmade Factors Affecting Its Continued Existence*

#### Small Population Size

As previously described (see the *Biology, Habitat, and the Current Range* section), the entire range of the Gierisch mallow is located in an area of less than 186 ha (460 ac) throughout Arizona and Utah. Within this range, each of the 18 individual populations' habitat areas is very small, ranging from 0.003 ha (0.01 ac) to 38.12 ha (94.36 ac). The Gierisch mallow can be dominant in small areas of suitable habitat, containing thousands of individuals. However, the small areas of occupation and the narrow overall range of the species make it highly susceptible to stochastic events that may lead to local extirpations.

Mining, or a single random event such as a wildfire (see Factor A), could extirpate an entire or substantial portion of a population given the small area of occupied habitat. Species with limited ranges and restricted habitat requirements also are more vulnerable to the effects of global climate change (see the "Climate Change and Drought" section below; IPCC 2002, p. 22; Jump and Penuelas 2005, p. 1016; Maschinski *et al.* 2006, p. 226; Krause 2010, p. 79).

Overall, we consider small population size and restricted range intrinsic vulnerabilities to the Gierisch mallow that may not rise to the level of a threat on its own. However, the small population sizes and restricted range of this species increase the risk of extinction to the Gierisch mallow populations in conjunction with the effects of global climate change (see below) and the potential for stochastic extinction events such as mining and

invasive species (Factor A). Therefore, we consider the small, localized population size to exacerbate the threats of mining, invasive species, and climate change to the species.

#### Climate Change and Drought

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007, p. 78). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8–14, 18–19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

Annual mean precipitation levels are expected to decrease in western North America and especially the southwestern States by mid-century (IPCC 2007, p. 8; Seager *et al.* 2007, p. 1181). Throughout the Gierisch mallow's range, precipitation is predicted to increase 10 to 15 percent in the winter, decrease 5 to 15 percent in spring and summer, and remain unchanged in the fall under the highest emissions scenario (Karl *et al.* 2009, p. 29). The levels of aridity of recent drought conditions and perhaps those of the 1950s drought years will become the new climatology for the southwestern United States (Seager *et al.* 2007, p. 1181). Much of the Southwest remains in a 10-year drought, which is considered the most severe western drought of the last 110 years (Karl *et al.* 2009, p. 130). Although droughts occur more frequently in areas with minimal precipitation, even a slight reduction from normal precipitation may lead to severe reductions in plant production (Herbel *et al.* 1972, p. 1084). Therefore, the smallest change in environmental

factors, especially precipitation, plays a decisive role in plant survival in arid regions (Herbel *et al.* 1972, p. 1084).

As discussed above, the Gierisch mallow has a limited distribution, and populations are localized and small. In addition, these populations are restricted to very specific soil types. Global climate change exacerbates the risk of extinction for species that are already vulnerable due to low population numbers and restricted habitat requirements. Predicted changes in climatic conditions include increases in temperature, decreases in rainfall, and increases in atmospheric carbon dioxide in the American Southwest (Walther *et al.* 2002, p. 389; IPCC 2007, p. 48; Karl *et al.* 2009, p. 129). Although we have no information on how the Gierisch mallow will respond to effects related to climate change, persistent or prolonged drought conditions are likely to reduce the frequency and duration of flowering and germination events, lower the recruitment of individual plants, compromise the viability of populations, and impact pollinator availability as pollinators have been documented to become locally extinct during periods of drought (Tilman and El Haddi 1992, p. 263; Harrison 2001, p. 64). The smallest change in environmental factors, especially precipitation, plays a decisive role in plant survival in arid regions (Herbel *et al.* 1972, p. 1084).

Drought conditions led to a noticeable decline in survival, vigor, and reproductive output of other rare and endangered plants in the Southwest during the drought years of 2001 through 2004 (Anderton 2002, p. 1; Van Buren and Harper 2002, p. 3; Van Buren and Harper 2004, entire; Hughes 2005, entire; Clark and Clark 2007, p. 6; Roth 2008a, entire; Roth 2008b, pp. 3–4). Similar responses are anticipated to adversely affect the long-term persistence of the Gierisch mallow. Periods of prolonged drought, especially with decreased winter rains essential to the survival and persistence of the Gierisch mallow, are likely to decrease the ability of this plant to produce viable seeds. Additionally, prolonged drought will likely diminish the ability of seeds currently in the seed bank to produce viable plants and for seedlings to survive to maturity.

Climate change is expected to increase levels of carbon dioxide (Walther *et al.* 2002, p. 389; IPCC 2007, p. 48; Karl *et al.* 2009, p. 129). Elevated levels of carbon dioxide lead to increased invasive annual plant biomass, invasive seed production, and pest outbreaks (Smith *et al.* 2000, pp. 80–81; IPCC 2002, pp. 18, 32; Ziska *et*

*al.* 2005, p. 1328) and will put additional stressors on rare plants already suffering from the effects of elevated temperatures and drought. This is important to note with regards to the Gierisch mallow because increases in nonnative, invasive plants, including increased seed production, are anticipated to increase both the frequency and intensity of wildfires as described above in “Nonnative, Invasive Species.” Additionally, these additional stressors associated with increased carbon dioxide are likely to increase the competition for resources between the Gierisch mallow and nonnative, invasive plant species.

The actual extent to which climate change itself will impact the Gierisch mallow is unclear, mostly because we do not have long-term demographic information that would allow us to predict the species' responses to changes in environmental conditions, including prolonged drought. Any predictions at this point on how climate change would affect this species would be speculative. However, as previously described, mining and recreation activities are threats (see “Mining” and “Recreation Activities” sections above), which will likely result in the loss of large numbers of individuals and maybe even entire populations. Increased surface disturbances associated with mining and recreation activities also will likely increase the extent and densities of nonnative invasive species and with it the frequencies of fires (see “Nonnative, Invasive Species” section above). Given the cumulative effects of the potential population reduction and habitat loss (of already small populations) associated with mining, recreation, invasive species, and fire, we are concerned about the impacts of future climate change to the Gierisch mallow.

In summary, the future effects of global climate change and drought on the Gierisch mallow are unclear. However, because of the threats of mining, grazing during drought years, recreation, and nonnative species, the cumulative effects of climate change and drought may be of concern for this species in the future. At this time, we believe that the state of knowledge concerning the localized effects of climate change and drought is too speculative to determine whether climate change and drought are a threat to these species in the future. However, we will continue to assess the potential threats of climate change and drought as better scientific information becomes available.

### Summary of Factor E

We assessed the potential risks of small population size to the Gierisch mallow. The Gierisch mallow has a highly restricted distribution and exists in 18 populations scattered over an area that covers approximately 460 ac (186 ha). Individual populations occupy very small areas with large densities of plants. We conclude that stochastic events could impact a significant portion of a population. Small populations that are restricted by habitat requirements also are more vulnerable to the effects of climate change, such as prolonged droughts and increased fire frequencies. Although small population size and climate change make the species intrinsically more vulnerable, we are uncertain whether they would rise to the level of threat by themselves. However, when combined with the threats listed under Factor A (mining operations; livestock grazing; recreation activities; and nonnative, invasive species), and the lack of existing regulatory mechanisms to alleviate those threats, the small population size and restricted range of the Gierisch mallow are likely to significantly increase the level of the above-mentioned threats.

### Proposed Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Gierisch mallow. We find that the species is in danger of extinction due to the current and ongoing modification and destruction of its habitat and range (Factor A) from the ongoing and future gypsum mining operations, livestock grazing, recreation activities, and nonnative, invasive species. The most significant factor threatening the Gierisch mallow is the ongoing and future gypsum mining that is likely to remove more than 50 percent of the total population of the Gierisch mallow. We did not find any significant threats to the species under Factor B. We found that predation (herbivory) during drought years to be a moderate threat (Factor C). We also found that existing regulatory mechanisms that could provide protection to the Gierisch mallow through mining operations management by the BLM and ASLD are inadequate to protect the species (Factor D) from existing and future threats. Finally, the small population size and restricted range of this species also puts it at a heightened risk of extinction (Factor E), due to the significant threats described above in Factors A, C, and D.

The threats acting upon the populations of Gierisch mallow are intensified because of the species' small population size and limited range, resulting in a high likelihood of extinction for this species. The Gierisch mallow is a narrow endemic species with a very restricted range; the small areas of occupied habitat combined with the species' strong association with gypsum soils makes the species highly vulnerable to habitat destruction or modification through mining-related and recreation activities as well as livestock grazing during drought and random extinction events, including invasive species (and the inherent risk of increased fires) and the potential future effects of global climate change (Factor A). Furthermore, two of the largest populations of the Gierisch mallow and its habitat will be completely removed by mining operations. Both of the mines have approved Mining Plans of Operations and permits from the respective land management agencies (BLM and ASLD); thus mining can occur at any time. Even though these mining operations are not currently active, when they begin operation there will be no requirement for notification of land-disturbing activities that would impact or completely remove these populations. As previously stated, operation and expansion of these two mines is anticipated to extirpate more than 50 percent of known Gierisch mallow plants, which are located in two populations in Arizona. The existing regulatory mechanisms are not adequate to protect the Gierisch mallow from the primary threat of mining, particularly because the BLM has approved mining operations with mitigation that we consider ineffective at reducing threats. Furthermore, the ASLD does not consider the presence of a listed species when approving a Mining Plan of Operation. The ASLD has the ability to require mitigation for the presence of a federally listed species; however, there is no current requirement because the Gierisch mallow is not federally listed. We consider this regulatory mechanism to be ineffective as well. The inadequacy of regulatory mechanisms (Factor D), combined with the expected turnaround of the housing market (gypsum is an important component of sheet rock for housing construction), poses a serious threat to the continued existence of the Gierisch mallow. The small, reduced range (Factor E) of the Gierisch mallow also puts it at a heightened risk of extinction.

The elevated risk of extinction of the Gierisch mallow is a result of the

cumulative stressors on the species and its habitat. For example, gypsum mining is anticipated to extirpate more than half of the known population of the Gierisch mallow, especially since the existing regulations cannot sufficiently mitigate the effects of gypsum mining in Gierisch mallow habitat. Livestock grazing throughout the range of the Gierisch mallow may affect the population viability of the remaining populations if periods of drought continue and livestock continue to consume the Gierisch mallow, including seedlings, during drought periods. Additionally, the risk of increased wildfire frequency and intensity resulting from increased nonnative, invasive species has the potential to extirpate several populations and, possibly, contribute to the extinction of the species. Climate change is anticipated to increase the drought periods and contribute to the spread of nonnative, invasive species as well. All of these factors combined heighten the risk of extinction and lead to our finding that the Gierisch mallow is in danger of extinction and warrants listing as an endangered species.

The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." The threats will not start having serious impact to the species in the future, which would be the case with a threatened species, but have already commenced, have been negatively impacting the species for some time, and will continue to do so into the foreseeable future. We find that the Gierisch mallow is presently in danger of extinction throughout its entire range, based on the immediacy, severity, and scope of the threats described above. Therefore, on the basis of the best available scientific and commercial information, we propose listing the Gierisch mallow as endangered in accordance with sections 3(6) and 4(a)(1) of the Act.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. The Gierisch mallow proposed for listing in this rule is highly restricted in its range and the threats occur throughout its range. Therefore, we assessed the status of the species throughout its entire range. The threats to the survival of the species occur throughout the species' range and are not restricted to any particular

significant portion of that range. Accordingly, our assessment and proposed determination applies to the species throughout its entire range.

Listing the Gierisch mallow as a threatened species is not the appropriate determination because the ongoing threats described above are severe enough to increase the immediate risk of extinction. The gypsum mining operations are anticipated to resume full operations and expansions in as few as 3 to 10 years, although the mining operations could occur sooner. Grazing is ongoing throughout the range of the Gierisch mallow, and climate change is anticipated to cause more periods of drought, when livestock graze more heavily on the Gierisch mallow. Additionally, red brome and cheatgrass are abundant throughout the area, and while they are typically more abundant in the Gierisch mallow habitat after wet years, recent wet years have left an abundant crop of red brome in Gierisch mallow habitat. Wildfires could occur at any time as a result of the proliferation of these invasive species. All of these factors combined lead us to conclude that the threat of extinction is high and immediate, thus warranting a determination of endangered rather than threatened for the Gierisch mallow.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation by Federal, State, Tribal, and local agencies; private organizations; and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this

process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprised of species experts, Federal and State agencies, non-government organizations, and stakeholders) are often established to develop recovery plans. If this proposed rule is made final, when completed, the recovery outline, draft recovery plan, and the final recovery plan would be available on our Web site (<http://www.fws.gov/endangered>), or from our Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribal, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, under to section 6 of the Act, the State of Arizona would be eligible for Federal funds to implement management actions that promote the protection and recovery of the Gierisch mallow. Information on our grant programs that are available to aid

species recovery can be found at:

<http://www.fws.gov/grants>.

Although the Gierisch mallow is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **ADDRESSES**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both, as described in the preceding paragraph, include management and any other landscape-altering activities on Federal lands administered by the BLM, such as mining operations, livestock grazing, and issuing special use permits.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or remove and reduce the species to possession from areas under Federal jurisdiction. In addition, for plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying of such plants

in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies.

This species is currently protected by the Arizona Native Plant Act (ANPA). Since it became a candidate species in 2008, Arizona protects the Gierisch mallow as "Highly Safeguarded." Plants in the "Highly Safeguarded" category under the ANPA include "plants resident to this State and listed as endangered, threatened, or category 1 in the Federal endangered species act of 1973" (ANPA 1997, p. 4). The ANPA controls collecting, and limited scientific collection of "Highly Safeguarded" species is allowed (Austin 2012, p. 1), but the ANPA provides no protection for plant habitat. Protection under the Act as an endangered species will, therefore, offer additional protections to this species.

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened plant species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.62 for endangered plants, and at 17.72 for threatened plants. With regard to endangered plants, a permit must be issued for the following purposes: enhancement of propagation or survival of the species.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of species proposed for listing. The following activities could potentially result in a violation of section 9 of the Act; this list is not comprehensive: Unauthorized collecting, handling, possessing, selling, delivering, carrying, or transporting of the species, including import or export across State lines and international boundaries, except for properly documented antique specimens of these taxa at least 100 years old, as defined by section 10(h)(1) of the Act.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**). Requests for copies of the regulations concerning listed plants and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service,

Endangered Species Permits, Southwest Regional Office, P.O. Box 1306, Albuquerque, NM, 87103-1306; telephone (505) 248-6911; facsimile (505) 248-6915.

### Critical Habitat

#### *Prudency Determination*

Section 4 of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations at 50 CFR 424.12(a)(1) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species; or (2) the designation of critical habitat would not be beneficial to the species.

There is no indication that the Gierisch mallow threatened by collection, and there are no likely increases in the degree of threats to the species if critical habitat were designated. This species is not the target of collection, and the areas we propose for designation either have restricted public access (mine sites) or are already readily open to the public (BLM land). None of the threats identified to the species are associated with human access to the sites, with the exception of the threats associated with recreational activities on BLM land. This threat, or any other identified threat, is not expected to increase as a result of critical habitat designation because the BLM cannot control unauthorized recreational activities, and the designation of critical habitat would not change the situation.

In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a prudent finding is warranted. The potential benefits of critical habitat to the Gierisch mallow include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur, because, for example, Federal agencies were not aware of the potential impacts of an action on the species; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments, or private entities; and (4) preventing people from causing inadvertent harm to the species. Therefore, because we

have determined that the designation of critical habitat would not likely increase the degree of threat to any of the species and may provide some measure of benefit, we find that designation of critical habitat is prudent for the Gierisch mallow.

#### *Background*

It is our intent to discuss below only those topics directly relevant to the designation of critical habitat for the Gierisch mallow in this section of the proposed rule. For a complete description of the life history and habitat needs of the Gierisch mallow, see the *Species Information* section above.

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public

to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographic area occupied by the species at the time it was listed (in this case, currently occupied areas) are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements (PCEs) are the elements of physical or biological features that, when laid out in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographic area occupied by the species at the time it is listed (in this case, outside currently occupied areas), upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographic area occupied by a species only when a designation limited to its range would be inadequate

to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. If we list the Gierisch mallow, areas that are important to the conservation of the species, both inside and outside the critical habitat designation, would continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical

habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools would continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation would not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

#### *Physical or Biological Features*

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographic area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features that are essential to the conservation of the species and which 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, or rearing (or development) of offspring; and
- (5) Habitats that are protected from disturbance or are representative of the historical, geographic, and ecological distributions of a species.

We derive the specific physical or biological features required for the Gierisch mallow from studies of this species' habitat, ecology, and life history as described below. We have determined that the following physical or biological features are essential for the Gierisch mallow.

#### *Space for Individual and Population Growth and for Normal Behavior*

The Gierisch mallow has a limited distribution; it is only found in a small area in Utah and Arizona. Within these areas, the Gierisch mallow requires appropriate soils, associated formations, slope, drainage, and plant community types within the landscape to provide space for individual growth and to provide food, water, air, light, minerals, or other nutritional or physiological requirements. In both Arizona and Utah, the Gierisch mallow is found in gypsiferous outcrops of the Harrisburg Member of the Kaibab Formation. In Arizona, these sites may be affiliated



with the following gypsiferous soil series:

- Nikey-Ruesh complex,
- Gypill-Hobog complex,
- Hobog-Tidwell complex,
- Hobog-Grapevine complex,
- Grapevine-Shelly complex,
- Hindu-Rock outcrop-Gypill complex,
- Cave-Harrisburg-Grapevine complex, and
- Grapevine-Hobcan complex (Service unpublished data).

Sites in Utah are most affiliated with the following soil series (Service unpublished data, 2012, p. 1):

- Badland
- Fluvaquents and Torrifluvents, and
- Riverwash.

The Gierisch mallow occurs at elevations from 821 to 1,148 m (2,694 to 3,766 ft) in Arizona and from 755 to 861 m (2,477 to 2,825 ft) in Utah. We could not correlate the Gierisch mallow occurrences to a specific range of slopes; therefore, topography is not considered to be an essential physical feature for this species (Service unpublished data, 2012).

The Gierisch mallow occurs in sparsely vegetated, warm desert communities. All occupied habitat

throughout its range occurs within the landcover described as Mojave mid-elevation mixed desert scrub (NatureServe 2011, p. 2). This classification represents the extensive desert scrub in the transition zone above the *Larrea tridentata* (creosote)–*Ambrosia dumosa* (white bursage) desert scrub and below the lower montane woodlands from 700 to 1800 m (2,296 to 5,905 ft) that occur in the eastern and central Mojave Desert. The vegetation within this ecological system is quite variable. A list of common plants associated with the Gierisch mallow habitat is included in Table 2.

TABLE 2—VEGETATION ASSOCIATED WITH THE GIERISCH MALLOW HABITAT (NATURESERVE 2011, P. 2)

Codominant and diagnostic species	Woody plant species associates	Other common nonwoody species associates
<i>Coleogyne ramosissima</i> (Blackbrush).	<i>Acacia greggii</i> (Catclaw acacia) .....	<i>Achnatherum hymenoides</i> (Indian ricegrass).
<i>Eriogonum fasciculatum</i> (Buckwheat).	<i>Canotia holacantha</i> (Crucifixion thorn) .....	<i>A. speciosum</i> (Desert needlegrass).
<i>Ephedra nevadensis</i> (Nevada jointfir).	<i>Ephedra nevadensis</i> (Nevada jointfir) .....	<i>Muhlenbergia porteri</i> (Bush muhly).
<i>Grayia spinosa</i> (Spiny hopsage).	<i>Ephedra torreyana</i> (Desert Mormon tea) .....	<i>Eriogonum</i> sp. (Various annual buckwheats).
	<i>Encelia farinosa</i> (Brittlebush) .....	<i>Pleuraphis jamesii</i> (James' galleta).
	<i>Purshia stansburiana</i> (Stansbury cliffrose) .....	<i>Poa secunda</i> (Sandberg bluegrass).
	<i>Gutierrezia sarothrae</i> (Broom snakeweed).	

Depending on the moisture regime, the Gierisch mallow also can be associated 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.

Therefore, based on the information above, we identify gypsum soils found in the Harrisburg Member of the Kaibab Formation from 755 to 1,148 m (2,477 to 3,766 ft) and with the appropriate native vegetation communities to be an essential physical or biological feature for this species.

*Sites for Reproduction, Germination, Seed Dispersal or Pollination*

The Gierisch mallow is a native species of sparsely vegetated, warm desert communities. Although we do not know how the species is pollinated, other species of the genus *Sphaeralcea* (globemallows) are pollinated by *Diadasia diminuta* (globemallow bee), which specializes in pollinating plants of this genus. Globemallow bees are considered important pollinators for globemallows (Tepedino 2010, p. 2). These solitary bees, as well as other *Diadasia* species, are known to occur within the range of the Gierisch mallow (Sipes and Tepedino 2005, pp. 490–491; Sipes and Wolf 2001, pp. 146–147), so it is reasonable to assume that they are

potential pollinators of the Gierisch mallow and other associated vegetation in the surrounding community. The globemallow bee, along with other solitary bees, nest in the ground, and nests are commonly found in partially compacted soil along the margins of dirt roads in the western United States (Tepedino 2010, p. 1). It is important to protect those nesting sites and associated natural habitat for the globemallow bee and other potential pollinators.

Natural habitat for the globemallow bee and other potential pollinators includes those appropriate vegetation communities described above in Table 2. The lack of favorable natural habitat can negatively influence pollination productivity (Kremen *et al.* 2004, pp. 1116–1117). Sites for the Gierisch mallow's reproduction, germination, and seed dispersal, and pollination providers are found within the communities described above. Because the Gierisch mallow is potentially pollinated by globemallow bees and other insects, the presence of pollinator populations is essential to the conservation of the species. Preservation of the mix of species and interspecific interactions they encompass greatly improves the chances for survival of rare species in their original location

and habitat (Tepedino *et al.* 1996, p. 245). Redundancy of pollinator species is important because a pollinator species may be abundant one year and less so the next year. Maintaining a full suite of pollinators allows for the likelihood that another pollinator species will stand in for a less abundant one, and is essential in assuring adequate pollination.

Bees have a limited foraging range strongly correlated to body size (Greenleaf, 2005, p. 17; Steffan-Dewenter and Tscharntke 1999, pp. 434–435). Fragmentation of habitat can result in isolating plants from pollinator nesting sites. When the distance between plants and the natural habitats of pollinators increases, plant reproduction (as measured by mean seed set) can decline by as much as 50 percent in some plant species (Steffan-Dewenter and Tscharntke 1999, pp. 435–436). Optimal pollination occurs when there is abundance of individual pollinators and a species-rich bee community (Greenleaf 2005, p. 47).

Greenleaf (2005, p. 15) defines the typical homing distance of a bee taxon as the distance at which 50 percent of individual bees of that taxon have the ability to return to their home (nest, etc.). Solitary bees of various species have been documented to have foraging distances ranging from 150 m (492 ft) to

1,200 m (3,937 ft) (Gathmann and Tscharrntke 2002, p. 760; Greenleaf *et al.* 2007, p. 593).

Therefore, based on the information above, we identify pollinators and associated appropriate native plant communities within 1,200 m (3,937 ft) of occupied sites to be an essential physical or biological feature for this species.

*Habitats Protected From Disturbance or Representative of the Historical, Geographic, and Ecological Distributions of the Species*

The species' known range has not contracted or expanded since the species was described in 2002. All sites contribute to ecological distribution and function for this species by providing representation across the species' limited current range. It is important to minimize surface-disturbing activities throughout the limited range of the Gierisch mallow. Surface disturbing activities, such as mining and recreation activities (OHV and impacts related to target shooting), remove the unique soil composition and associated vegetation communities that the Gierisch mallow needs.

Additionally, it is important to have areas in all the units free of nonnative, invasive species, such as red brome and cheatgrass. As previously discussed in Factor A, above, both cheatgrass and red brome tend to not grow well in gypsum outcrops in normal (dry) rainfall years; however, they can be abundant in Gierisch mallow habitat during wet years. Invasions of annual, nonnative species, such as cheatgrass, are well documented to contribute to increased fire frequencies (Brooks and Pyke 2002, p. 5; Grace *et al.* 2002, p. 43; Brooks *et al.* 2003, pp. 4, 13, 15). The disturbance caused by increased fire frequencies creates favorable conditions for increased invasion by cheatgrass. The end result is a downward spiral, where an increase in invasive species results in more fires, more fires create more disturbances, and more disturbances lead to increased densities of invasive species. The risk of fire is expected to increase from 46 to 100 percent when the cover of cheatgrass increases from 12 to 45 percent or more (Link *et al.* 2006, p. 116). The invasion of red brome into the Mojave Desert of western North America poses similar threats to fire regimes, native plants, and other federally protected species (Brooks *et al.* 2004, pp. 677–678). Brooks (1999, p. 16) also found that high interspace biomass of red brome and cheatgrass resulted in greater fire danger in the Mojave Desert. Brooks (1999, p. 18) goes on to state that the ecological effects of cheatgrass and

red brome-driven fires are significant because of their intensity and consumption of perennial shrubs.

Imprecise forecasts of the impacts of climate change make the identification of areas that may become essential impractical at this time. Therefore, we have not identified additional areas outside those currently occupied where the species may move to, or be transplanted to, as a result of the impacts due to climate change.

Based on the information above, we identify areas free of disturbance and areas with low densities or absence of nonnative, invasive species to be an essential physical or biological feature for this species.

*Primary Constituent Elements for the Gierisch Mallow*

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the Gierisch mallow in areas occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the Gierisch mallow are:

(1) Appropriate geological layers or gypsiferous soils, in the Harrisburg Member of the Kaibab Formation, that support individual Gierisch mallow plants or their habitat, within the elevation range of 775 to 1,148 m (2,477 to 3,766 ft). Appropriate soils are defined as:

- Badland,
- Fluvaquents and Torrifluvents,
- Riverwash,
- Cave-Harrisburg-Grapevine complex,
- Grapevine-Hobcan complex,
- Nikey-Ruesh complex,
- Gypill-Hobog complex,
- Hobog-Tidwell complex,
- Hobog-Grapevine complex,
- Grapevine-Shelly complex, and
- Hindu-Rock outcrop-Gypill complex.

(2) Appropriate Mojave desert scrub plant community and associated native species for the soil types at the sites listed in PCE 1.

(3) The presence of insect visitors or pollinators, such as the globemallow bee and other solitary bees. To ensure the

proper suite of pollinators are present, this includes habitat that provides nesting substrate for pollinators in the areas described in PCE 2.

(4) Areas free of disturbance and areas with low densities or absence of nonnative, invasive plants, such as red brome and cheatgrass.

With this proposed designation of critical habitat, we intend to identify the physical or biological features essential to the conservation of the species, through the identification of primary constituent elements sufficient to support the life-history processes of the species. All units proposed to be designated as critical habitat are currently occupied by the Gierisch mallow and contain the primary constituent elements sufficient to support the life-history needs of the species.

*Special Management Considerations or Protection*

When designating critical habitat, we assess whether the specific areas within the geographic area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of this species may require special management considerations or protection to reduce the direct and indirect effects associated with the following threats: Habitat loss and degradation from mining operations; livestock grazing; recreation activities; and invasive plant species. Please refer to Factor A above for a complete description of these threats.

Special management to protect the features essential to the conservation of the species from the effects of gypsum mining include creating managed plant preserves and open spaces, limiting disturbances to and within suitable habitats, and evaluating the need for and conducting restoration or revegetation of native plants in open spaces or plant preserves containing similar gypsum soils. Management activities that could ameliorate these threats include (but are not limited to) seed collection from the Gierisch mallow throughout its range, including those plants within the footprint of each mine. These seeds could be used to begin propagation studies to determine the long-term viability of plants growing in reclaimed soils. Additionally, these seeds could be used to begin propagating plants to be planted in other gypsum deposits and to augment existing populations. Special management may be necessary to

protect features essential to the conservation of the Gierisch mallow from livestock grazing, including fencing populations; avoiding activities, such as water trough placement, that might concentrate livestock near or in occupied habitat; and removing livestock from critical habitat during the species' growing and reproductive seasons, especially during periods of flowering and fruiting. Special management that may be necessary to protect the features essential to the conservation of the Gierisch mallow from recreational activities includes directing recreational use away from and outside of critical habitat, fencing small populations, removing or limiting access routes, ensuring land use practices do not disturb the hydrologic regime, and avoiding activities that might concentrate water flows or sediments into critical habitat.

Additionally, threats related to both control of nonnative, invasive species and fire suppression and fire-related activities resulting from the spread of nonnative, invasive species include:

- Crushing and trampling of plants from fire suppression and treatment activities;
- Damage to seedbank as a result of fire severity;
- Soil erosion; and
- An increase of invasive plant species that may compete with native plant species as a result of wildfires removing non-fire-adapted native plant species or as a result of fire suppression equipment introducing invasive plant species.

#### *Criteria Used To Identify Critical Habitat*

##### Geographic Range Occupied at the Time of Listing

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we consider whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—are necessary to ensure the conservation of the species. We are proposing to designate critical habitat in areas within the geographic area occupied by the species as described above in the proposed rule to list the Gierisch mallow and that contain one or more of the identified primary constituent elements. We are not currently proposing to designate any areas outside the geographic area occupied by the

species, because occupied areas are sufficient for the conservation of the species.

Our rationale for not including areas outside of the geographic range of Gierisch mallow is twofold. One, the areas designated as occupied contain the physical and biological features essential for the species. Secondly, within the overall geographic range of the species, there are some areas or patches devoid of plants, as one would expect. Therefore, it follows that within the critical habitat units we are proposing, there are areas without the plant growing in them. Thus, even though all units are occupied when considering the appropriate scale for critical habitat designation, there is still room for more plants to grow. This should provide room for expansion of the existing populations. Should recovery planning for this species include actions to augment or establish additional populations, the proposed critical habitat units will provide for enough habitat to allow for those activities. Therefore, we conclude that additional areas outside of the geographic range of the Gierisch mallow are not needed to conserve the species.

There is no information on the historical range of this species; however, it is possible that the gypsum hills supported populations of the Gierisch mallow before active mining (and removal of the gypsum) began, but there is no information that the species occurred outside of its current range. Currently, there are 18 known populations restricted to less than approximately 186 ha (460 ac) in Arizona and Utah, combined. The main populations in Arizona are located south of the Black Knolls, approximately 19.3 km (12 mi) southwest of St. George, Utah, with the southernmost population of this group being on the edge of Black Rock Gulch near Mokaac Mountain. There is another population approximately 4.8 km (3 mi) north of the Black Knolls, on ASLD lands near the Arizona/Utah State line. The Utah population is located on BLM lands within 3.2 km (2 mi) of the Arizona/Utah State line, near the Arizona population on ASLD land. Gypsum outcrops associated with the Harrisburg Member are scattered throughout BLM lands in northern Arizona and southern Utah. Extensive surveys were conducted in these areas because numerous other rare plant species are associated with these landforms. Gierisch mallow plants were not located in any other areas beyond what is currently known and described above (Atwood 2008, p. 1). In identifying proposed critical habitat

units for Gierisch mallow, we proceeded through a multi-step process.

#### Mapping

We obtained records of Gierisch mallow distribution from BLM's Arizona Strip Field Office, BLM's St. George Field Office, and both published and unpublished documentation from our files. This information included BLM hand-mapped polygons that outlined Gierisch mallow habitats in Arizona and Utah.

For all areas, survey data from 2001 to 2011 were available and evaluated to identify the extent of occupied habitat (provided by BLM). Although occupied sites may gradually change, recent survey results confirm that plant distribution is similar to observed distributions over the last 10 years.

Our approach to delineating critical habitat units was applied in the following manner:

(1) We overlaid Gierisch mallow locations into a GIS database. This provided us with the ability to examine slope, aspect, elevation, vegetation community, and topographic features, such as drainages in relation to the locations of Gierisch mallow on the landscape. The locations of Gierisch mallow, and their relationship to landscape features, verified our previous knowledge of the species and slightly expanded the previously recorded elevation ranges for Gierisch mallow. We examined Gierisch mallow locations in an attempt to identify any correlation with aspect, slope, and occurrence location for this species; however we found no such correlation.

To better understand the relationship of the Gierisch mallow locations to specific soils, we also examined soil series layers, aerial photography, and hardcopy geologic maps. For Gierisch mallow, we analyzed soil survey layers. For Gierisch mallow locations in Utah, we found that 26.02 percent of all individuals rangewide (AZ and UT) are associated with Badland, and 0.03 percent of all individuals are associated with Fluvaquents and Torrifluvents soil complexes. In Arizona, we found that occupied sites are associated with the following soil types (percentages are rangewide):

- Nikey-Ruesh complex (3.14 percent),
- Gypill-Hobog complex (65.94 percent),
- Hobog-Tidwell complex (3.53 percent),
- Hobog-Grapevine complex (0.85 percent),
- Grapevine-Shelly complex (0.24 percent), and

- Hindu-Rock outcrop-Gypill complex (0.25 percent) (Service unpublished data).

This provided us with several polygons of occupied habitat spread across the above soil series.

(2) To further refine our critical habitat, we then included a 1,200 m (3,937 feet) buffer around the polygons of occupied habitat to ensure that all potential pollinators would have a sufficient land base to establish nesting sites and to provide pollinating services for Gierisch mallow, as described in *Primary Constituent Elements* above. Additionally, the 1,200 m (3,937 feet) buffer included three other gypsiferous soil types that also contain the necessary habitat for the Gierisch mallow. These soil types are the

- Riverwash,
- Cave-Harrisburg-Grapevine complex, and
- Grapevine-Hobcan complex.

(3) We then drew critical habitat boundaries that captured the locations, soils, and pollinator habitat elucidated under (1) and (2) above. Critical habitat designations were then mapped using

Albers Equal Area (Albers) North American Datum 83 (NAD 83) coordinates.

When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features for Gierisch mallow. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We are proposing for designation of critical habitat lands that we have determined areas occupied at the time of listing and contain sufficient elements of physical or biological features to support life-history processes essential for the conservation of the species. No lands outside of the geographic area occupied at the time of listing have been proposed for listing. The area included in both units is large enough and contains sufficient habitat to ensure the conservation of Gierisch mallow.

**Proposed Critical Habitat Designation**

We are proposing two units as critical habitat for Gierisch mallow. Both units are occupied and contain features that are essential to the conservation of Gierisch mallow. We mapped the units with a degree of precision commensurate with the available information and the size of the unit. The two areas we propose as critical habitat are the Starvation Point Unit and the Black Knolls Unit. The approximate area of each proposed critical habitat unit is shown in Table 3.

**TABLE 3—PROPOSED CRITICAL HABITAT UNITS FOR GIERISCH MALLOW**  
[Area estimates reflect all land within critical habitat unit boundaries]

Critical Habitat unit	BLM AZ Federal	BLM UT Federal	AZ State Lands	Totals
Unit 1. Starvation Point .....	0 .....	1,022 ha (2,526 ac) .....	316 ha (782 ac) .....	1,339 ha (3,309 ac).
Unit 2. Black Knolls .....	3,586 ha (8,862 ac) .....	0 .....	263 ha (651 ac) .....	3,850 ha (9,513 ac).
Totals .....	3,586 ha (8,862 ac) .....	1,022 ha (2,526 ac) .....	580 ac (1,434 ac) .....	5,189 ha (12,822 ac).

**Note:** Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for Gierisch mallow, as follows.

*Unit 1: Starvation Point*

This unit consists of approximately 1,339 ha (3,308.7 ac) and occurs on land managed by both Utah BLM (1,022 ha; 2,526.46 ac) and ASLD (316 ha; 782.24 ac). This unit was occupied at the time of listing and contains the features essential to the conservation of the species. Unit 1 contains two Gierisch mallow populations, including the second largest population. Unit 1 is located west of I-15 as this highway crosses the State line of Arizona and Utah, and is bounded by the Virgin River to the west and I-15 to the south and east.

The features essential to the conservation of the species may require special management considerations or protection to control invasive plant species, to control habitat degradation due to the recreation and mining

activities that disrupt the soil composition, and to maintain the identified associated vegetation and pollinators essential to the conservation of the species. The portion of habitat that occurs on ASLD occurs within the footprint of the Georgia-Pacific Mine, which could resume gypsum mining operations in the near future. Grazing, which can modify the primary constituent elements and may require special management, typically occurs outside of the growing season for Gierisch mallow in the one pasture on BLM land within this unit; however, recent wildfires in adjacent pastures in this allotment have resulted in livestock grazing occurring into the spring growing season for Gierisch mallow. These recently burned pastures have since been rehabilitated, and livestock grazing is anticipated to return to its normal grazing rotation of November 1 to February 28 in the future (Douglas 2012, p. 1).

*Unit 2: Black Knolls*

This unit consists of approximately 3,850 ha (9,513.30 ac) and occurs on land managed by both Arizona BLM (3,586.28 ha; 8,861.90 ac) and ASLD (263.62 ha; 651.41 acres). This unit is occupied at the time of listing and contains the features essential to the conservation of the species. Unit 2 contains the remaining 16 Gierisch mallow populations, including the largest population. Unit 2 is located south of I-15 as this highway crosses the State line of Arizona and Utah, and is bounded by Black Rock Gulch to the west and Mokaac Mountain to the south and east.

The features essential to the conservation of the species may require special management considerations or protection to control invasive plant species, to control habitat degradation due to mining activities that disrupt the soil composition, and to maintain the identified associated vegetation and pollinators essential to the conservation

of the species. The largest population of Gierisch mallow occurs in the area of the proposed expansion of the Black Rock Gypsum Mine. As described in the proposed listing discussion above, grazing on BLM AZ lands typically occurs during the growing season for Gierisch mallow on all three BLM AZ allotments and is expected to modify the primary constituent elements, although some of the pastures are in a rest/rotation system in which a pasture may see an entire year of rest before being grazed again.

### Effects of Critical Habitat Designation

#### Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of “destruction or adverse modification” (50 CFR 402.02) (see *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club v. U.S. Fish and Wildlife Service et al.*, 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action

(such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency’s discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to

request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

#### Application of the “Adverse Modification” Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for Gierisch mallow. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the Gierisch mallow. These activities include, but are not limited to, actions that would significantly alter soil composition that Gierisch mallow requires, including but not limited to mining operations, livestock grazing, and special use permits for recreation activities.

### Exemptions

#### Application of Section 4(a)(3) of the Act

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: “The Secretary shall not designate as critical habitat any lands or other geographic areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.”

There are no Department of Defense lands within the proposed critical habitat designation.

### Exclusions

#### *Application of Section 4(b)(2) of the Act*

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

Under section 4(b)(2) of the Act, we may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species.

#### Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the economic impacts of the proposed critical habitat designation and related factors. Potential land use sectors that may be affected by the critical habitat designation include mining, livestock operations, and OHV use, and recreation activities. We also consider any social impacts that might occur because of the designation.

We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At

that time, copies of the draft economic analysis will be available for downloading from the Internet at <http://www.regulations.gov>, or by contacting the Arizona Ecological Services Field Office directly (see **FOR FURTHER INFORMATION CONTACT**). During the development of a final designation, we will consider economic impacts, public comments, and other new information, and areas may be excluded from the final critical habitat designation under section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19.

#### Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense where a national security impact might exist. In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for the Gierisch mallow are not owned or managed by the Department of Defense, and, therefore, we anticipate no impact on national security. Consequently, the Secretary does not propose to exert his discretion to exclude any areas from the final designation based on impacts on national security.

#### Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors, including whether the landowners have developed any habitat conservation plans or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

We are not proposing any exclusions at this time from the proposed critical habitat designation under section 4(b)(2) of the Act based on partnerships, management, or protection afforded by cooperative management efforts.

#### Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure

that our proposed listing and critical habitat designation are based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during this public comment period on our specific assumptions and conclusions in this proposed rule.

We will consider all comments and information received during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

#### Public Hearings

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

#### Required Determinations

##### *Regulatory Planning and Review—Executive Orders 12866 and 13563*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866, while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

##### *Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 et seq.) as amended

by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 801 *et seq.*), whenever an agency must publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

At this time, we lack the available economic information necessary to provide an adequate factual basis for the required RFA finding. Therefore, we defer the RFA finding until completion of the draft economic analysis prepared under section 4(b)(2) of the Act and Executive Order 12866. This draft economic analysis will provide the required factual basis for the RFA finding. Upon completion of the draft economic analysis, we will announce availability of the draft economic analysis of the proposed designation in the **Federal Register** and reopen the public comment period for the proposed designation. We will include with this announcement, as appropriate, an initial regulatory flexibility analysis or a certification that the rule will not have a significant economic impact on a substantial number of small entities accompanied by the factual basis for that determination.

We have concluded that deferring the RFA finding until completion of the draft economic analysis is necessary to meet the purposes and requirements of the RFA. Deferring the RFA finding in this manner will ensure that we make a sufficiently informed determination based on adequate economic information and provide the necessary opportunity for public comment.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect the designation of this proposed critical habitat to significantly affect energy supplies, distribution, or use. Therefore, this action is not a

significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)–(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that

otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because the lands being proposed for critical habitat designation are owned by the State of Arizona and the BLM. Neither of these government entities fit the definition of “small governmental jurisdiction.” Therefore, a Small Government Agency Plan is not required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

*Takings—Executive Order 12630*

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we will analyze the potential takings implications of designating critical habitat for Gierisch mallow in a takings implications assessment. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward.

*Federalism—Executive Order 13132*

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this proposed critical habitat designation with appropriate State resource agencies in Arizona and Utah. The designation of critical habitat in areas currently occupied by the Gierisch mallow imposes no additional restrictions to those currently in place and, therefore, has little incremental impact on State and local governments and their

activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

#### *Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. This proposed rule uses standard mapping technology and identifies the elements of physical or biological features essential to the conservation of the Gierisch mallow within the designated areas to assist the public in understanding the habitat needs of the species.

#### *Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

#### *National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), need not be prepared under the Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to 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 position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)). However, when the range of the species includes States within the Tenth Circuit, such as that of Gierisch mallow, under the Tenth Circuit ruling in *Catron County Board of Commissioners v. U.S. Fish and Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996), we will undertake a NEPA analysis for critical habitat designation and notify the public of the availability of the draft environmental assessment for this proposal when it is finished.

#### *Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized,
- (2) Use the active voice to address readers directly,
- (3) Use clear language rather than jargon,
- (4) Be divided into short sections and sentences, and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

#### *Government-to-Government Relationship With Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We determined that there are no tribal lands that are occupied by the Gierisch mallow that contain the features essential for conservation of the species, and no tribal lands unoccupied by the Gierisch mallow that are essential for the conservation of the species. Therefore, we are not proposing to designate critical habitat for the Gierisch mallow on tribal lands.

#### **References Cited**

A complete list of references cited in this rulemaking is available on the Internet at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2012-0049 and upon request from the Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

#### **Authors**

The primary authors of this package are the staff members of the Arizona Ecological Services Field Office.

#### **List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

#### **Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

#### **PART 17—[AMENDED]**

1. The authority citation for part 17 continues to read as follows:



**Authority:** 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding an entry for “*Sphaeralcea gierischii*” to the

List of Endangered and Threatened Plants in alphabetical order under “Flowering Plants.”

**§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
FLOWERING PLANTS							
* <i>Sphaeralcea gierischii</i>	* Gierisch mallow .....	* U.S.A (AZ, UT) .....	* Malvaceae .....	* E	* .....	* 17.96(a)	* NA
*	*	*	*	*	*	*	*

3. In § 17.96, amend paragraph (a) by adding an entry for “*Sphaeralcea gierischii* (Gierisch mallow),” in alphabetical order under the family Malvaceae, to read as follows:

**§ 17.96 Critical habitat—plants.**

(a) *Flowering plants.*

\* \* \* \* \*

Family Malvaceae: *Sphaeralcea gierischii* (Gierisch mallow)

(1) Critical habitat units are depicted for Washington County, Utah, and Mohave County, Arizona, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of Gierisch mallow consist of the following components:

(i) Appropriate geological layers or gypsiferous soils, in the Harrisburg Member of the Kaibab Formation, that support individual Gierisch mallow plants or their habitat, within the elevation range of 775 to 1,148 m (2,477 to 3,766 ft). Appropriate soils are defined as:

(A) Badland,

(B) Fluvaquents and Torrifluvents,  
(C) Riverwash,  
(D) Cave-Harrisburg-Grapevine complex,  
(E) Grapevine-Hobcan complex,  
(F) Nikey-Ruesh complex,  
(G) Gypill-Hobog complex,  
(H) Hobog-Tidwell complex,  
(I) Hobog-Grapevine complex,  
(J) Grapevine-Shelly complex, and  
(K) Hindu-Rock outcrop-Gypill complex.

(ii) Appropriate Mojave desert scrub plant community and associated native species for the soil types at the sites listed in paragraph (2)(i) of this entry.

(iii) The presence of insect visitors or pollinators, such as the globemallow bee and other solitary bees. To ensure the proper suite of pollinators are present, this includes habitat that provides nesting substrate for pollinators in the areas described in paragraph (2)(ii) of this entry.

(iv) Areas free of disturbance and areas with low densities or absence of nonnative, invasive plants, such as red brome and cheatgrass.

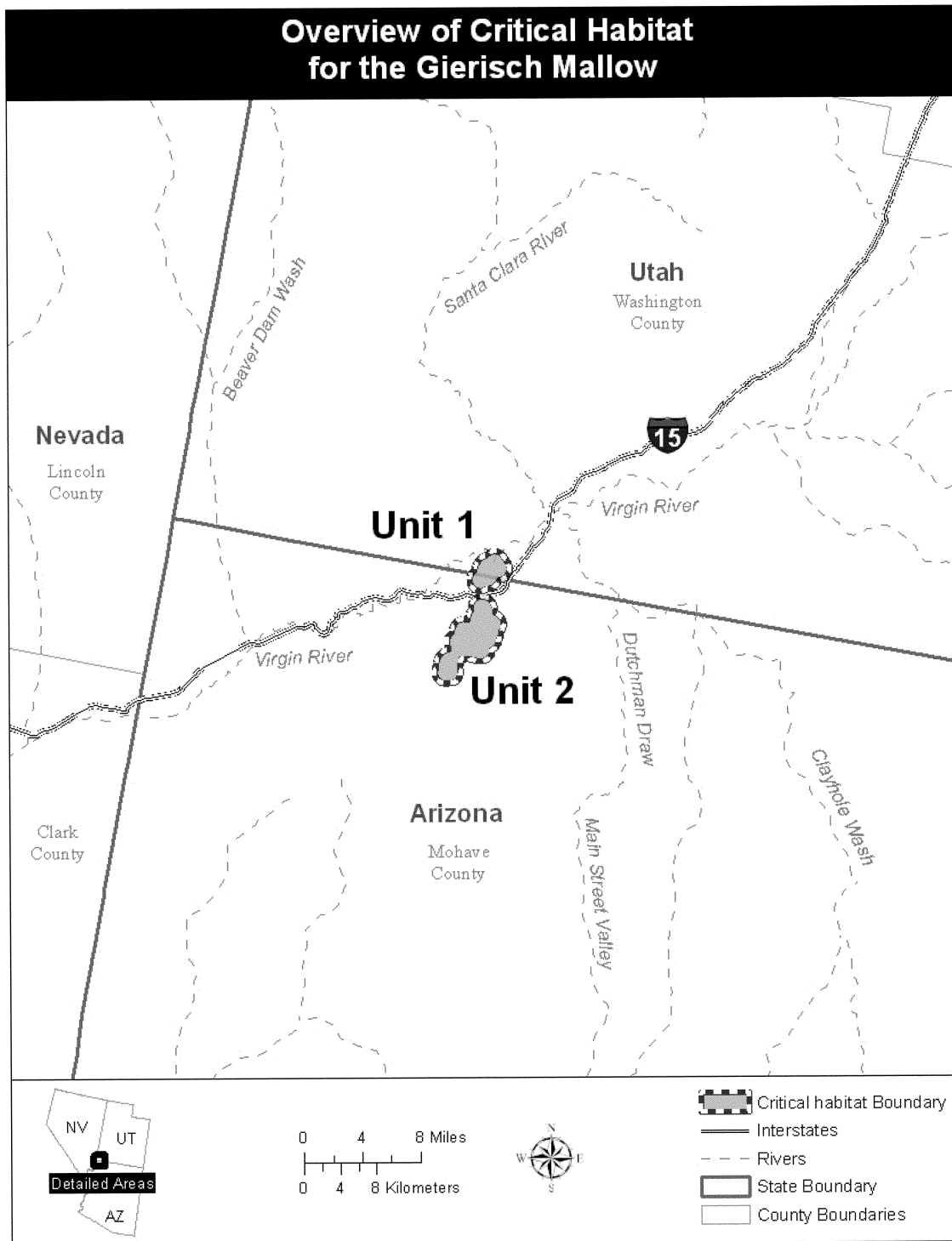
(3) Critical habitat does not include manmade structures (such as buildings,

aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created using Albers Equal Area (Albers) North American Datum 83 (NAD 83) coordinates. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service’s Internet site (<http://www.fws.gov/southwest/es/Arizona/>), Regulations.gov (<http://www.regulations.gov>), at Docket No. FWS–R2–ES–2012–0049, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

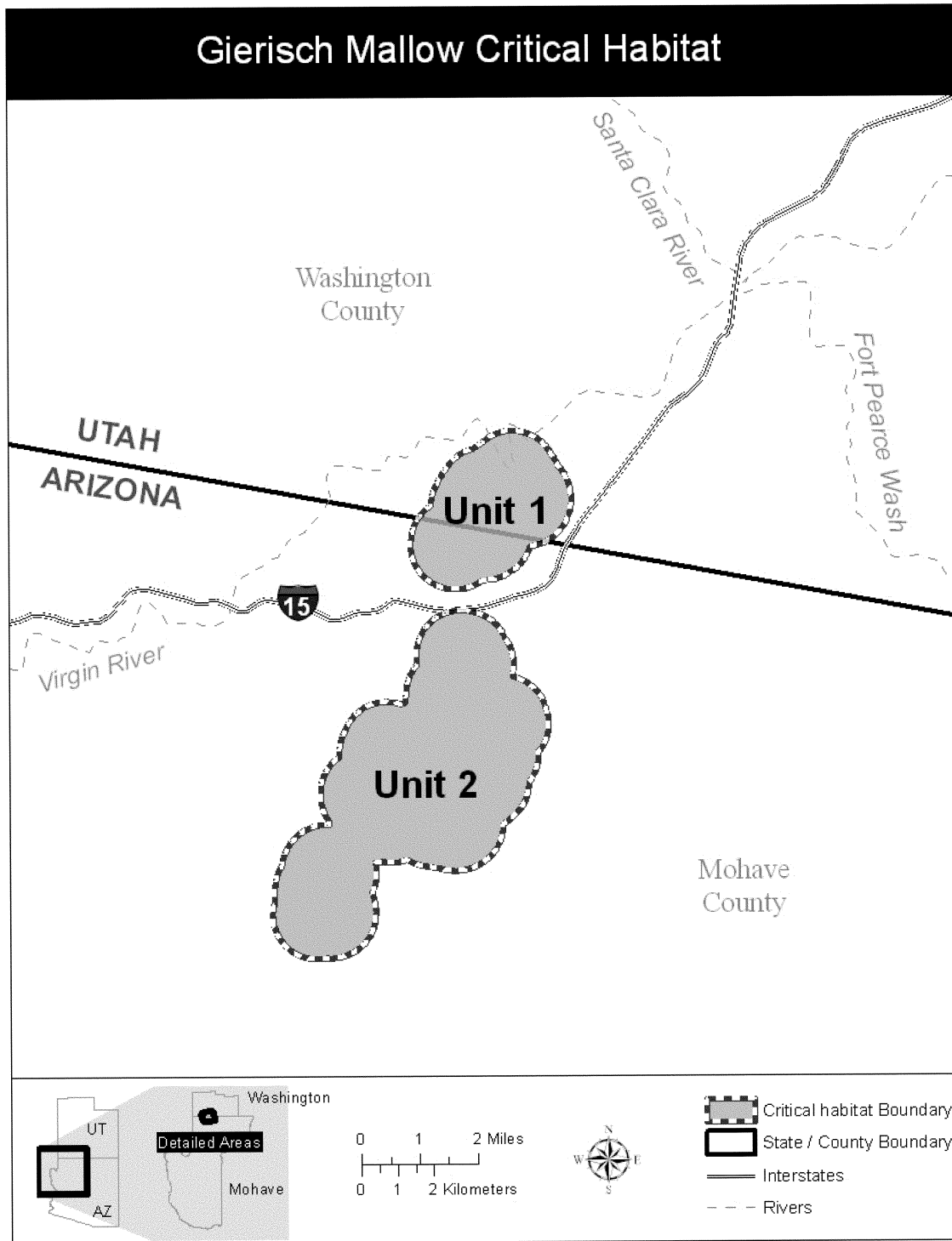
(5) Index map follows:

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(6) Unit 1: Starvation Point Unit, Mohave County, Arizona, and

Washington County, Utah. Map of Units 1 and 2 follows:



(7) Unit 2: Black Knolls Unit, Mohave County, Arizona. Map of Units 1 and 2

is provided at paragraph (6) of this entry.

\* \* \* \* \*

Dated: August 6, 2012.

**Eileen Sobeck,**

*Acting Assistant Secretary for Fish and Wildlife and Parks.*

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