DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2013–0100; 4500030113]

RIN 1018–AY72

Endangered and Threatened Wildlife and Plants; Threatened Status for *Arabis georgiana* (Georgia rockcress)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, determine threatened species status under the Endangered Species Act of 1973, as amended (Act), for *Arabis georgiana* (Georgia rockcress), a plant species in Georgia and Alabama. The effect of this regulation is to add this species to the List of Endangered and Threatened Plants and extend the Act's protections to this species.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov* and *http://www.fws.gov/athens/* . Comments and materials we received, as well as supporting documentation we used in preparing this rule, are available for public inspection at *http://www.regulations.gov*. All of the comments, materials, and documentation that we considered in this rulemaking are available by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Georgia Ecological Services Office, 105 Westpark Dr., Suite D, Athens, GA 30606; telephone 706-613-9493.

FOR FURTHER INFORMATION CONTACT: Don Imm, Field Supervisor, U.S. Fish and Wildlife Service, 105 Westpark Dr., Suite D, Athens, GA 30606; telephone 706-613-9493; facsimile 706-613-6059. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800−877−8339.

SUPPLEMENTARY INFORMATION:

We will refer to *Arabis georgiana* by its common name, Georgia rockcress, in this rule.

Elsewhere in this **Federal Register**, we publish the final rule designating critical habitat for the Georgia rockcress under the Act (16 U.S.C. 1531 *et seq*.).

Previous Federal Actions

Please refer to the proposed listing rule for the Georgia rockcress (78 FR 56192, September 12, 2013) for a detailed description of previous Federal actions concerning this species.

Background

Please refer to the proposed listing rule for the Georgia rockcress (78 FR 56192, September 12, 2013) for a summary of species information. The following section contains revisions to the proposed listing rule reflecting comments we received during peer review.

There are two species known to be syntopic (occurring on same site) with Georgia rockcress that are easily misidentified as Georgia rockcress. They are *Boechera canadensis* and *B. laevigata*, previously assigned to the genus *Arabis* (Al-Shehbaz 2003, pp. 381-391). Confusion with the two *Boechera* taxa could lead to an overestimate of abundance for Georgia rockcress.

Georgia rockcress generally occurs on steep river bluffs often with shallow soils overlaying rock or with exposed rock outcroppings. These edaphic conditions result in micro-disturbances, such as sloughing soils with limited accumulation of leaf litter or canopy gap dynamics, possibly with wind-thrown trees, which provide small patches of exposed mineral soil in a patchy distribution across the river bluff (Schotz 2010, p. 6). While Georgia rockcress needs small-scale disturbances with slightly increased light, limited competition for water, and exposed soils for seed germination, the species is a poor competitor and is easily outcompeted by aggressive competitors (Allison 1995, p. 8; Moffett 2007, p. 4; Schotz 2010, p. 9). Natural large-scale disturbances, such as fire and catastrophic flooding, are unlikely to occur on the steep river bluffs occupied by Georgia rockcress.

Populations of Georgia rockcress are healthiest in areas receiving full or partial sunlight. This species seems to be able to tolerate moderate shading, but it exists primarily as vegetative rosettes in heavily shaded areas (Moffett 2007, p. 4). Those populations occurring in forested areas will decline as the forest canopy closes. Allison (1999, p. 4) attributed the decline of a population in Bibb County, Alabama, to canopy closure. In addition, the small number of individuals at the majority of the sites makes these populations vulnerable to local extinctions from unfavorable habitat conditions such as extreme shading.

Georgia rockcress is rare throughout its range. Moffett (2007, p. 8) found approximately 2,140 plants from all known sites in Georgia. During surveys in 1999, Allison (1999, pp. 1-7) found that populations of this species typically had a limited

number of individuals restricted to a small area. Of the nine known localities (six populations) in Georgia, Allison (1995, pp. 18-28) reported that six sites consisted of only 3 to 25 plants, and the remaining three sites had 51 to 63 individuals. However, a 2007 survey by Moffett (2007, p. 8) of the six Georgia populations resulted in counts of 5 or fewer plants at one population; 30 to 50 plants at two populations; 150 plants at one population; and two populations (greatly expanded from 1995) of almost 1,000 plants each. In 2009, plants could not be relocated at one Floyd County, Georgia, site, and only one plant was seen at another site where 25 to 50 had been documented in 2007 (Garcia 2012, p. 76; Elmore 2010, p. 1). Moffett (2007, pp. 1-2) indicated that the overall status of the three populations in the Ridge and Valley ecoregion (Floyd and Gordon Counties, Georgia) was poor, as these populations tended to be small, and declining in size and vigor. The largest population in Georgia is the multi-site Goat Rock Dam complex in the Piedmont province (Harris/Muscogee Counties) with approximately 1,000 flowering stems at last census (Garcia 2012, p. 76; Moffett 2007, p. 2). The Goat Rock Dam population has recently increased by 130 percent, which likely reflects management efforts to control invasive species by Georgia Power and the Georgia Plant Conservation Alliance. Fort Benning also supports a vigorous population with an estimated 1,000 plants (Garcia 2012, p. 76; Moffett 2007, p. 2). Georgia rockcress has been extirpated from its type locality near Omaha, Georgia, in Stuart County (Garcia 2012, p. 76; Moffett 2007, p. 2). At another site, Blacks Bluff, Georgia, rockcress had declined to a few individuals by 2007 (Garcia 2012, p. 76; Moffett 2007, p. 2), but 100 individuals were replanted in 2009. During a count done in 2013, 31 individuals were found to be

surviving at the site, and more than 15,000 seeds were broadcast to supplement this population (Goldstrohm 2013, p. 1).

Schotz (2010, p. 8) documented fewer than 3,000 plants from all known sites in Alabama. Populations from Bibb County, Alabama, had between 16 and 229 plants, with 42 and 498 from Dallas County, 47 from Elmore County, 414 from Monroe County, 842 from Russell County, 4 from Sumter County, and 551 from Wilcox County. Allison (1999, pp. 2-4) originally documented this species at 18 localities (representing seven populations) in Bibb County. However, one of these Bibb County populations was not relocated during surveys in 2001 (Allison 2002, pers. comm.), and plants were not relocated at two other sites in Alabama (Schotz 2010, pp. 13, 57). Therefore, it is believed that Georgia rockcress has been extirpated from these three sites in Alabama.

Summary of Comments and Recommendations

In the proposed rule published on September 12, 2013 (78 FR 56192), we requested that all interested parties submit written comments on the proposal by November 12, 2013. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Atlanta Jounal-Constitution, Columbus Ledger, Montgemenry Advertiser, and Birmingham News. We conducted a public informational session and public hearing in Columbus, Georgia, on May 28, 2014; no public comments were received, and only one individual attended the informational session.

Peer Reviewer Comments

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from three knowledgeable individuals with scientific expertise that included familiarity with Georgia rockcress and its habitat, biological needs, and threats. We received responses from all of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the listing of Georgia rockcress. The peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve the final rule. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

Comment: Two peer reviewers suggested that the Service should include several citations, figures, and a table from Garcia (2012).

Our Response: We have incorporated information from Garcia (2012) into this final rule, with citations included, in the **Background** section, above, and **Summary of Biological Status and Threats** section, below. Figures and tables will be posted as supplemental information on *http://www.regulations.gov*.

Comments from States

Both the States of Alabama and Georgia provided editorial comments on our proposed rule; these comments have been incorporated into this final rule as appropriate. The State of Georgia also provided additional detail about conditions on specific sites and recommended we add a brief discussion of two syntopic species, which we include in the **Background** section, above.

Public Comments

We received four public comments on the proposed listing determination during the public comment periods, and none on record at the public hearing. Only one of those comments was substantive; it is discussed below.

Comment: One commenter expressed concern that the Service had not provided information about why the Georgia rockcress is necessary, useful, or beneficial, and noted that the Service had not determined what the costs of conservation for this species would be or what would happen in a "no action" alternative.

Our Response: When Congress passed the Act in 1973, it found and declared that [America's] "species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people" (16 U.S.C. 1531(a)(3)). The purpose of the Act is to protect and recover imperiled species and the

ecosystems upon which they depend. 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 solely on (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. Listing actions may be warranted based on any of the above threat factors, singly or in combination. We may not consider other criteria, including the value, use, or benefit associated with a species, in connection with the listing determination.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to Georgia rockcress. Habitat degradation (Factor A) and the subsequent invasion of nonnative species (Factor E) are the most serious threats to this species' continued existence. Disturbance, associated with timber harvesting, road building, and grazing, has created favorable conditions for the invasion of nonnative weeds, especially Japanese honeysuckle, in this species' habitat. Because nearly all populations are currently or potentially threatened by the presence of nonnatives, we find that this species is warranted for listing.

We do not analyze the economic impact of listing a species under the Act; however, an economic analysis is done for the designation of critical habitat and has been

completed for this species. It can be found at *http://www.regulations.gov* under Docket No. FWS–R4–ES–2013–0030. No analysis of a "no action" alternative is required under the Act; this is a requirement of the 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, need not be prepared in connection with listing a species as an endangered or threatened species under the Act (see **Required Determinations**, below).

Summary of Changes from the Proposed Rule

All changes are largely editorial and are addressed in the response to peer reviewer comments (see *Peer Reviewer Comments*, above).

Summary of Biological Status and Threats

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: (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. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

Please refer to the proposed listing rule for the Georgia rockcress (78 FR 56192, September 12, 2013) for a more complete description of the factors affecting this species. Our assessment evaluates the biological status of the species and threats affecting its continued existence. It is based upon the best available scientific and commercial data and the expert opinion of the species status assessment team members.

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

Habitat fragmentation is a major feature of many landscapes within the eastern deciduous forest and creates boundaries or edges where disturbed patches of vegetation are adjacent to intact habitat. Disturbance events fragment the forest, creating edge habitat and promoting the invasion of nonnative species (Honu and Gibson 2006, pp. 263-264). Edges function as sources of propagules for disturbed habitats and represent complex environmental gradients with changes in light availability, temperature, humidity, wind speed, and soil moisture, with plant species responding directly to environmental changes (Meiners et al. 1999, p. 261). Edge effect, including any canopy break due to timber harvest, fields, or maintained rights-of-way, may penetrate as far as 175 meters (574 feet), resulting in changes in community composition (Honu and Gibson 2006, p. 264; Gehlhausen et al. 2000, p. 21; Meiners et al. 1999, p. 266; Fraver 1994).

Roads create a canopy break, destroy the soil profile, and disrupt hydrology of the bluff habitat. Roads are also known corridors for the spread of invasive plant species (Forman et al. 2003, pp. 75-112), as disturbed soil and the maintenance of open, sunny conditions create favorable conditions where invasive species can establish and spread into the forest interior (Fraver 1994, pp. 828-830). Aspect is an important factor in determining how forest microclimate and vegetation are influenced by the external environment (Gehlhausen et al. 2000, p. 30; Fraver 1994, pp. 828-830). Aspect likely increases the distance that the edge effect can influence microclimate and plays an important role on the steep bluff habitat occupied by Georgia rockcress. Edge effects are reduced by a protective border with buffers that eliminate most microhabitat edge effect (Honu and Gibson 2006, p. 255; Gehlhausen et al. 2000, p. 32).

Currently, habitat degradation is the most serious threat to this species' continued existence. Most of the Coastal Plain rivers surveyed by Allison (1995, p. 11) were considered unsuitable for Georgia rockcress because their banks had been disturbed to the point where there was no remaining vegetative buffer. Recent habitat degradation (i.e., vegetation denuded and replaced by hard-packed, exposed mineral soil) has occurred at several Georgia sites in association with residential development and campsites atop the bluffs (Moffett 2007, pp. 3-4). Disturbance associated with timber harvesting, road building, and grazing in areas where the plant exists has created favorable conditions for the invasion of nonnative weeds in this species' habitat (Factor E) (Schotz 2010, p. 10). Timber operations that remove the forest canopy promote early successional species and result in the decline of Georgia rockcress (Schotz 2010, p. 10). Encroachment of

development, in the form of bridges, roads, houses, commercial buildings, or utility lines allowing for the introduction of nonnative species (Factor E), also results in the decline of Georgia rockcress (Schotz 2010, pp. 9-10; Moffett 2007, pp. 2-7; Allison 1995, pp. 7-18).

The riparian bluff habitat surrounding 18 of the known populations has been adversely impacted in some way, and in many cases the habitat has suffered multiple impacts. Blacks Bluff, Fort Benning (Georgia), McGuire Ford, Limestone Park, Prairie Bluff, and Fort Benning (Alabama) all have roads that bisect the habitat while Murphys Bluff, Pratts Ferry, Fort Tombecbee, and Resaca Bluffs have roads associated with bridges that impact bluff habitat (Schotz 2010, pp. 20-57; Moffett 2007, pp. 5-8; Allison 1999, pp. 3-8; Allison 1995, pp. 18-28). Housing development requires a road network and further impacts bluff habitat by creating canopy gaps and soil disturbances, with landscaping that may introduce nonnative plants. Whitmore Bluff, McGuire Ford, Prairie Bluff, Fort Tombecbee, and Creekside Glades have bluff habitat that has been impacted by housing development (Schotz 2010, pp. 20-57; Allison 1999, pp. 3-8). Commercial development has the same impact as housing; Resaca Bluff and Fort Tombecbee are impacted by commercial development (Schotz 2010, pp. 20-57; Moffett 2007, pp. 5-8; Allison 1999, pp. 3-8; Allison 1995, pp. 18-28). Impervious surfaces associated with housing and commercial development have increased runoff and provided access for dumping of trash on some sites. The Resaca Bluffs population is further disturbed by the long-term camping at the site. McGuire Ford and Fort Toulouse have maintained fields for pasture or recreational use (Schotz 2010, pp. 20-57; Allison 1999, pp. 3-8). The removal of the canopy to maintain a field provides an opportunity for nonnatives to

invade. Utility lines have created canopy breaks at Creekside Glades, Little Schulz Creek, and Goat Rock Dam (Schotz 2010, pp. 20-57; Moffett 2007, pp. 5-8; Allison 1999, pp. 3-8; Allison 1995, pp. 18-28). Timber harvesting activities create soil disturbance and canopy breaks that provide access for nonnative plants to invade. Durant Bend, Portland Landing, Fort Gaines, Pratts Ferry, Fern Glade, and Sixmile Creek, and Whitmore Bluff have all been impacted by timber harvesting activates (Schotz 2010, pp. 20-57; Moffett 2007, pp. 5-8; Allison 1999, pp. 3-8; Allison 1995, pp. 18-28). While these impacts are to the bluff habitat that surrounds these populations, these disturbances eliminate potential habitat for expansion of populations, fragment the populations, and introduce nonnative species (Factor E).

TABLE 1. Impacts to populations of Georgia rockcress from human-induced factors and nonnative plants.

Site Name	**County/State**	**Human-Induced Impact (Factor A)**	**Impacted by Nonnative Plants (Factor E)**
Fort Tombecbee	Sumter/AL	Road with bridge, housing, commercial	None
Marshalls Bluff	Monroe/AL	Quarry	None
Prairie Bluff	Wilcox/AL	Road, housing, hydropower	Chinese privet and Japanese honeysuckle
Portland Landing River Slopes	Dallas/AL	Timber harvest, hydropower	China berrytree, Japanese honeysuckle, and kudzu

Durant Bend	Dallas/AL	Timber harvest	Chinese privet and Japanese honeysuckle
Murphys Bluff Bridge Cahaba River	Bibb/AL	Road with bridge	Chinese privet, Japanese honeysuckle, and others
Creekside Glades and Little Schulz Creek	Bibb/AL	Housing, utility lines	None
Cottingham Creek Bluff and Pratts Ferry	Bibb/AL	Road with bridge, timber harvest	Chinese privet and Japanese honeysuckle
Fern Glade and Sixmile Creek	Bibb/AL	Timber harvest	Chinese privet and Japanese honeysuckle
Browns Dam Glade North and South	Bibb/AL	None	Chinese privet
McGuire Ford | Limestone Park	Bibb/AL	Road, housing, maintained field	None
Fort Toulouse State Park	Elmore/AL	Maintained field/recreation	Japanese honeysuckle
Fort Gaines Bluff	Clay/GA	Timber harvest	Japanese honeysuckle
Fort Benning (GA and AL)	Chattahoochee/GA, Russell/AL	Road	Chinese privet and Japanese honeysuckle
Goat Rock North and South	Harris, Muscogee/GA	Hydropower, utility lines	Chinese privet and Japanese honeysuckle

Blacks Bluff Preserve	Floyd/GA	Road, quarry	Nepalese browntop and Japanese honeysuckle
Whitmore Bluff	Floyd/GA	Timber harvest, housing	Japanese honeysuckle
Resaca Bluffs	Gordon/GA	Road with bridge, commercial, trash dumping, camping	Chinese privet and Japanese honeysuckle

Quarrying destroys the bluff habitat by removing the canopy and soil. The Blacks Bluff population of Georgia rockcress in Floyd County, Georgia, appears to be a surviving remnant of a once larger population. The primary habitat at this locality has been extensively quarried (Allison 1995, p. 10). The Marshalls Bluff population in Monroe County, Alabama, is adjacent to an area that was once quarried (Schotz 2010, pp. 45-47). Rock bluffs along rivers have also been favored sites for hydropower dam construction. The construction of Goat Rock Dam in Harris County, Georgia, destroyed a portion of suitable habitat for a population of Georgia rockcress, and the current population there may also represent a remnant of a once much larger population (Allison 1995, p. 10). The Prairie Bluff and Portland Landing populations in Wilcox and Dallas Counties, Alabama, occur on the banks of William "Bill" Dannelly Reservoir, where potential habitat was likely inundated (Schotz 2010, pp. 41 and 56). Due to the obscure nature of Georgia rockcress, it is likely that other populations on rocky bluffs, in the Piedmont and Ridge and Valley provinces, were destroyed by quarrying or inundated by hydropower projects (Allison 1995, p. 10).

Conservation efforts by The Nature Conservancy (TNC) in Bibb County, Alabama, have included the land acquisition of the entire population of Georgia rockcress at Browns Dam Glade and a small portion of the Cottingham Creek Bluff population, and the proposed acquisition of the Sixmile Creek population.

The Blacks Bluff Preserve population, Floyd County, Georgia, is in private ownership with a conservation easement held by TNC on the property. There were 27 Georgia rockcress reported on this site in 1995; however, the presence of nonnative species has since extirpated Georgia rockcress from this site. The Georgia Plant Conservation Alliance (GPCA) and TNC agreed to bolster the existing population with plants grown from seed collected from Blacks Bluff, and two planting sites have been established. In 2008, 100 Georgia rockcress plants were planted in this unit, with 31 Georgia rockcress surveyed on this site in 2013 (Goldstrohm 2013, p. 3). In April 2013, an additional 15,000 seeds where sown directly onsite to attempt to recruit new plants to this population (Goldstrohm 2013, p. 1).

Two populations are on land owned by the Federal Government, and two are on land owned by the State of Alabama. In Federal ownership, the entire Fern Glade population, Bibb County, Alabama, is on land owned by the Cahaba National Wildlife Refuge. Also, along the banks of the Chattahoochee River in Russell County, Alabama, and Chattahoochee County, Georgia, the entire population at Fort Benning is on land that is in Federal ownership. The Department of Defense (DOD) is aware of the two sites on the Fort Benning property and is working with TNC to monitor and provide for the

conservation of these populations (Elmore 2010, pp. 1-2). In August 2014, DOD modified its integrated natural resources management plan (INRMP 2001) for Fort Benning to address Georgia rockcress and its habitat. The Prairie Bluff population, in Wilcox County, Alabama, may be within an area under a U.S. Army Corps of Engineers easement. The State of Alabama owns Fort Tombecbee in Sumtner County and Fort Toulouse State Park in Elmore County, but there is no protection afforded to these State-owned properties.

The majority of the Goat Rock Dam population in Georgia (Harris/Muscogee Counties) is mostly located on buffer lands of the Georgia Power Company and receives a level of protection in the form of a shoreline management plan with vegetative management buffers developed to prohibit disturbance and protect Georgia rockcress; this management plan was developed during Federal Energy Regulatory Commission (FERC) licensing (FERC 2004, pp. 7, 18-19, 29-30; Moffett 2007, p. 4). However, the southernmost portion of the Goat Rock Dam population is on privately owned land.

In total, at least some portions of nine populations are on land owned by potential conservation partners; however, with the exception of Ft. Benning's INRMP, none of these populations has a formal management plan to benefit Georgia rockcress. These populations are afforded varying degrees of protection, and while none of these lands is likely to be developed, they could be subject to other impacts including recreation, military training, road construction, inappropriate timber harvest, and continued pressure from invasive species. Only the Fort Benning population has a management plan that

specifically directs management for the benefit of Georgia rockcress. The Goat Rock Dam and Blacks Bluff populations are on land on which efforts have been directed to managing for Georgia rockcress.

Historically, suitable habitat was destroyed or degraded due to quarrying, residential development, timber harvesting, road building, recreation, and hydropower dam construction. Severe impacts continue to occur across the range of this species, from quarrying, residential development, timber harvesting, road building, recreation, and hydropower dam construction, and one or more of these activities pose ongoing threats to all known populations. Given the extremely small size of Georgia rockress populations, projects that destroy even a small amount of habitat can have a serious impact on this species, including existing genetic diversity of the species (Factor E).

Factor B: Overutilization for commercial, recreational, scientific, or educational purposes

Overutilization is not known to pose a threat to this species (Allison 1995, p. 10; Moffett 2007, p. 2; Schotz 2010, p. 11).

Factor C: Disease or predation

Limited browsing of Georgia rockcress plants has been noted in Georgia (Allison 1995, p. 10; Moffett 2007, p. 3; Schotz 2010, p. 11). However, disease and predation are not considered to be a threat to this species.

Factor D: The inadequacy of existing regulatory mechanisms

Georgia rockcress is listed as threatened by the State of Georgia (Patrick et al. 1995, p. 17; Chaffin 2007, p. 47). This State listing provides legal standing under the Georgia Wildflower Preservation Act of 1973. This law prohibits the removal of this and other wildflower species from public land and regulates the taking and sale of plants from private land. This law also triggers the Georgia Environmental Protection Act process in the event of potential impacts to a population by State activities on State-owned land (Moffett 2007, p. 3). However, the greater problem of habitat destruction and degradation is not addressed by this law (Patrick et al. 1995, p. 6); therefore, there is no protection from projects like road construction, construction of reservoirs, installation of utility lines, quarrying, or timber harvest that degrade or fragment habitat, especially on private lands. Moreover, the decline of the species in Georgia is also attributed to invasive species (Factor E), and there are no State regulatory protections in place to ameliorate that threat on private lands. In Alabama, there is no protection or regulation, either direct or indirect, for Georgia rockcress (Schotz 2010, pp. 2, 11).

Factor E: Other natural or manmade factors affecting its continued existence

Climate change will be a particular challenge for biodiversity because the interaction of additional stressors associated with climate change and current stressors may push species beyond their ability to survive (Lovejoy 2005, pp. 325–326). The synergistic implications of climate change and habitat fragmentation are the most threatening facet of climate change for biodiversity (Hannah and Lovejoy 2005, p. 4). Current climate change predictions for terrestrial areas in the Northern Hemisphere indicate warmer air temperatures, more intense precipitation events, and increased summer continental drying (Field et al. 1999, pp. 1–3; Hayhoe et al. 2004, p. 12422; Cayan et al. 2005, p. 6; Intergovernmental Panel on Climate Change (IPCC) 2007, p. 1181). Climate change may lead to increased frequency and duration of severe storms and droughts (Golladay et al. 2004, p. 504; McLaughlin et al. 2002, p. 6074; Cook et al. 2004, p. 1015).

While severe drought would be expected to have an effect on the plant community, including the mature canopy and canopy gap dynamic, and increased storm intensity could accelerate erosion-related disturbances, the information currently available on the effects of global climate change and increasing temperatures does not make sufficiently precise estimates of the location and magnitude of the effects. In addition, we are not currently aware of any climate change information specific to the habitat of the Georgia rockcress that would indicate which areas may become important to the species in the future.

The primary threat to extant populations of Georgia rockcress is the ongoing

invasion of nonnative species due to the degradation of its habitat. Encroachment from timber management and development in the form of bridges, roads, houses, commercial buildings, or utility lines allowing for the introduction of nonnative species has resulted in the decline of Georgia rockcress (Schotz 2010, pp. 9-10; Moffett 2007, pp. 2-7; Allison 1995, pp. 7-18). Human-induced disturbance (quarrying, residential development, timber harvesting, road building, recreation, and hydropower dam construction) has fragmented river bluff habitats and created conditions so that these bluff habitats are receptive to invasion of nonnative species (Honu and Gibson 2006, pp. 263-264). Disturbance of 14 of the 18 known sites occupied by this species has provided opportunities for the invasion of aggressive, nonnative weeds, especially *Lonicera japonica* (Japanese honeysuckle). This species is a gap adaptor, that can easily invade disturbed areas to 90 meters (295 feet) into a forested habitat (Honu and Gibson 2006, p. 264). Other nonnatives include *Melia azedarach* (Chinaberry or bead-tree), *Pueraria montana* var. *lobata* (kudzu), *Albizia julibrissin* (mimosa), *Ligustrum japonica* (Japanese privet), *Ligustrum sinense* (Chinese privet), *Lygodium japonicum* (Japanese climbing fern), and *Microstegium vimineum* (Napalese browntop) (Allison 1995, pp. 18-29; Moffett 2007, p. 9; Schotz 2010, pp. 10, 19-57). While edge habitats are subject to invasion of nonnative species, a more limited group of nonnative plants can then invade closed-canopy habitats; furthermore, species with a rosette form (e.g., Georgia rockcress) are more susceptible to exclusion by some nonnatives (Meiners et al. 1999, p. 266). Georgia rockcress is not a strong competitor and is usually found in areas where growth of other plants is restrained due to the shallowness of the soils or the dynamic status of the site (e.g., eroding riverbanks) (Allison 1995, pp. 7-8; Moffett 2007, p. 5). However, nonnative species are

effectively invading these riverbank sites, and the long-term survival of the at least five populations in the Coastal Plain province is questionable (Allison 1995, p. 11). This species is only able to avoid competition with nonnative species where the soil depth is limited (e.g., rocky bluffs) (Allison 1995, pp. 7-8; Moffett 2007, p. 4)

Competition from nonnative species, exacerbated by adjacent land use changes (Factor A), likely contributed to the loss of the population at the type locality in Stewart County, Georgia (Allison 1995, p. 28), and possibly to one of the Bibb County, Alabama, populations and several other sites in this general area (Allison 2002, pers. comm.; Alabama Natural Heritage Program 2004, p. 2). Additional populations are also currently being negatively affected by competition with nonnative plants. According to Moffett (2007, p. 3), most of the sites in Georgia are being impacted by the presence of invasive plant species, primarily Japanese honeysuckle, Chinese privet, and Napalese browntop. Japanese honeysuckle was observed growing on individual plants of Georgia rockcress at three sites visited by Allison in 1995. At a fourth site, plants growing in a mat of Nepalese browntop declined in number from 27 individuals in 1995 (Allison 1995, p. 19) to 3 in 2006 (Moffet 2007 p. 8). Allison (1995, pp. 18-28; Allison 1999, pp. 1-5) considered four other populations to be imminently threatened by the nearby presence of nonnative plants. Thus, rangewide, approximately 40 percent of the populations visited by Allison in 1995 were reportedly threatened by nonnative species. By 2007, Moffett (2007, p, 3) reported all six of the Georgia rockcress populations in Georgia were threatened by nonnative species. By 2010, Schotz (2010, pp. 20-57) reported 9

populations in Alabama were impacted by nonnative species. Currently 14 of the 18 extant populations are threatened by nonnatives.

Given the extremely low number of total plants (fewer than 5,000 in a given year; 12 of the 18 populations have fewer than 50 plants (Garcia 2012, p. 76; Schotz 2010, p. iii; Elmore 2010, pp. 1-4; Moffett 2007, pp. 2-7; Allison 1999, pp. 1-5; Allison 1995, pp. 7-18)), and because the species is distributed as disjunct populations across sixphysiographic provinces (Schotz 2010, pp. 9-10; Moffett 2007, pp. 2-7; Allison 1995, pp. 7-18) in three major river systems, each population is important to the conservation of genetics for the species (Garcia 2012, pp. 30-36). Only the Goat Rock Dam and Fort Benning populations are sufficiently large (greater than 1,000 individuals) to preclude a genetic bottleneck (Schotz 2010, pp. 13-57; Moffett 2007, p. 8). A genetic bottleneck would result in reduced genetic diversity with mating between closely related individuals, which can lead to reduced fitness due to inbreeding depression (Garcia 2012, Chapter 1; Ellstrand and Elam, pp. 217-237). This species is composed of three genetic groups: a North Georgia group, a Middle Georgia group, and an Alabama group (Garcia 2012, p. 32). While the Middle Georgia genetic group contains the largest populations (Goat Rock Dam and Fort Benning) and is the most important to the conservation of this species, the smaller populations in the North Georgia and Alabama genetic groups are more vunerable to localized extirpation and represent an important conservation element for this species. Any threats that remove or further deteriorate populations can also have a detrimental effect on the existing genetic diversity of the species.

Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to Georgia rockcress. Habitat degradation (Factor A) and the subsequent invasion of nonnative species (Factor E), more than outright habitat destruction, are the most serious threats to this species' continued existence. The riparian bluff habitat surrounding all 18 of the known populations has been adversely impacted in some way, and in some cases the habitat has suffered multiple impacts. As described above in Table 1, all sites are affected by one or more threats leading to habitat degration or nonnative species invasion. Specifically, in two locations, bluff habitat was quarried for limestone, resulting in the destruction of bluff habitat. Four sites have roads with bridges, and eight sites have roads that pass through or provide access to buildings. Five sites have been impacted by housing, and two sites are impacted by commercial buildings. Six sites have been impacted by timber management. Two sites have maintained fields, one of which is maintained for recreation, that encroach on bluff habitat and potential habitat has been inundated at three sites, and transmission lines bisect two sites. Because these sites are relatively small, even a single road corridor can have substantial impact on the population. While the initial infrastructure is already in place from many of these impacts, they continue to pose a threat to populations as they provide a means for nonnative species to overtake these sites. These threats are likely to continue slowly over time. However, they are of high severity because they often completely destroy the habitat and provide continuing opportunities for the introduction of nonnative species (Factor E).

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." We find that the Georgia rockcress is likely to become endangered throughout its entire range within the forseeable future, based on the immediacy, severity, and scope of the threats described above. However, we do not find the Georgia rockcress to meet the definition of an endangered species at this time because there are sufficient sites spread across the geographic range to ensure that the species is unlikely to be in danger of extinction throughout all or a significant portion of its range. Therefore, on the basis of the best available scientific and commercial information, we are listing the Georgia rockcress (*Arabis georgiana*) as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Significant Portion of the Range

Because we have determined that Georgia rockcress is threatened throughout all of its range, no portion of its range can be "significant" for purposes of the definitions of "endangered species" and "threatened species." See the Service's significant portion of the range (SPR) policy (79 FR 37578, July 1, 2014).

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 and preparation of a draft and final recovery plan. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to

address continuing or new threats to the species, as new substantive information becomes available. The recovery plan identifies site-specific management actions that set a trigger for review of the five factors that control whether a species remains endangered or 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 (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans.

When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (*http://www.fws.gov/endangered* or *http://www.fws.gov/athens/*), or from our Georgia Ecological Services 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, Tribes, 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.

Following publication of this final listing rule, 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, pursuant to section 6 of the Act, the State(s) of Alabama and Georgia will be eligible for Federal funds to implement management actions that promote the protection or recovery of the Georgia rockcress. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants*.

Please let us know if you are interested in participating in recovery efforts for the Georgia rockcress. 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 **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species 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 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 Service or the DOD; issuance of permits under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) by the U.S. Army Corps of Engineers; and construction and maintenance of roads or highways by the Federal Highway Administration.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened plants. The prohibitions of section 9(a)(2) of the Act, codified at 50 CFR 17.61 for endangered plants and at 50 CFR 17.71 for threatened plants, in part, make it illegal for any person subject to the jurisdiction of the United States to import, export, transport in interstate commerce in the course of 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. It is also unlawful to violate any

regulation pertaining to plant species listed as endangered or threatened (section 9(a)(2)(E) of the Act).

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened plants 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 and threatened plants, a permit issued under this section must be for one of the following: scientific purposes, the enhancement of the propagation or survival of threatened species, economic hardship, botanical or horticultural exhibition, educational purposes, or other activities consistent with the purposes and policy of the Act.

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 listing on proposed and ongoing activities within the range of listed species. The following activities could potentially result in a violation of section 9 of the Act: 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 Georgia Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Under section 4(d) of the Act, the Secretary has discretion to issue such regulations as she deems necessary and advisable to provide for the conservation of threatened species. Our implementing regulations (50 CFR 17.61 and 17.71) for endangered and threatened plants generally incorporate the prohibitions of section 9 of the Act for endangered plants, except when a rule promulgated pursuant to section 4(d) of the Act (4(d) rule) has been issued with respect to a particular threatened species. In such a case, the general prohibitions in 50 CFR 17.61 and 17.71 would not apply to that species, and instead, the 4(d) rule would define the specific take prohibitions and exceptions that would apply for that particular threatened species, which we consider necessary and advisable to conserve the species. With respect to a threatened plant, the Secretary of the Interior also has the discretion to prohibit by regulation any act prohibited by section 9(a)(2) of the Act. Exercising this discretion, which has been delegated to the Service by the Secretary, the Service has developed general prohibitions that are appropriate for most threatened species in 50 CFR 17.71 and exceptions to those prohibitions in 50 CFR 17.72. We are not promulgating a 4(d) rule for Georgia rockcress and as a result, all of the section 9(a)(2) general prohibitions, including the "take" prohibitions, will apply to Georgia rockcress.

Required Determinations

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 need not be prepared in connection with listing a species as an endangered or threatened species under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

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. This species is not currently known to occur on tribal lands.

References Cited

A complete list of all references cited in this rule is available on the Internet at *http://www.regulations.gov* or upon request from the Field Supervisor, Ecological Services Office in Athens, Georgia (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this rule are the staff members of the Ecological Services Office in Athens, Georgia (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, we 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; 1531-1544; 4201-4245, unless otherwise noted.

2. Amend § 17.12(h) by adding an entry for "*Arabis georgiana*" to the List of Endangered and Threatened Plants in alphabetical order under Flowering Plants, to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
Flowering Plants							
* * * * * * *							
Arabis georgiana	Georgia rockcress	U.S.A. (GA, AL)	Brassicaceae	T	849	17.96(a)	NA
* * * * * * *							

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Dated: August 29, 2014.

Rowan W. Gould,

Acting Director, U.S. Fish and Wildlife Service.

Billing Code 4310–55–P

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