

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 17**

[Docket No. FWS-R2-ES-2020-0048; FF09E21000 FXES11110900000 212]

RIN 1018-BE78

**Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Georgetown and Salado Salamanders****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), designate critical habitat for the Georgetown salamander (*Eurycea naufragia*) and Salado salamander (*Eurycea chisholmensis*) under the Endangered Species Act of 1973, as amended (Act). We designate a total of approximately 1,315 acres (538 hectares) of critical habitat for these species in Bell and Williamson Counties, Texas. This rule extends the Act's protections to the Georgetown salamander's and Salado salamander's designated critical habitat.

**DATES:** This rule is effective September 17, 2021.

**ADDRESSES:** This final rule is available on the internet at <http://www.regulations.gov> and at <http://www.fws.gov/southwest/es/austintexas>. Comments and materials we received, as well as some supporting documentation we used in preparing this rule, are available for public inspection at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048.

The coordinates or plot points or both from which the maps are generated are included in the decision file for this critical habitat designation and are available at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048 and at the Austin Ecological Services Field Office's website ([https://www.fws.gov/southwest/es/austin\\_texas/](https://www.fws.gov/southwest/es/austin_texas/)). Any additional tools or supporting information that we developed for this critical habitat designation will also be available at the Service website and may also be included in this preamble and/or at <http://www.regulations.gov>.

**FOR FURTHER INFORMATION CONTACT:**

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**SUPPLEMENTARY INFORMATION:****Executive Summary**

*Why we need to publish a rule.* Under the Act, if we determine that a species is an endangered or threatened species, we must designate critical habitat to the maximum extent prudent and determinable. We published a final rule to list the Georgetown salamander and Salado salamander as threatened species on February 24, 2014 (79 FR 10236). Designations of critical habitat can be completed only by issuing a rule.

*What this document does.* This rule designates a total of approximately 1,315 acres (ac) (538 hectares (ha)) as critical habitat for the Georgetown and Salado salamanders in Bell and Williamson Counties, Texas.

*The basis for our action.* Under section 4(a)(3) of the Act, if we determine that any species is an endangered or threatened species, we must, to the maximum extent prudent and determinable, designate critical habitat. Section 3(5)(A) of the Act defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protections; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 4(b)(2) of the Act states that the Secretary must make the designation 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 she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she 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.

*Economic analysis.* In accordance with section 4(b)(2) of the Act, we prepared an economic analysis of the impacts of designating critical habitat for the Georgetown and Salado salamanders. We published the announcement of, and solicited public comments on, the draft economic analysis (DEA; 85 FR 57578, September 15, 2020).

**Previous Federal Actions**

It is our intent to discuss only those topics directly relevant to the designation of critical habitat for the Georgetown and Salado salamanders in this rule. For more information on the Georgetown and Salado salamanders, their habitat, or previous Federal actions, refer to the final listing rule published in the **Federal Register** on February 24, 2014 (79 FR 10236), which is available online at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2012-0035.

On August 22, 2012, we published a proposed rule (77 FR 50768) to list the Georgetown salamander (*Eurycea naufragia*), Salado salamander (*Eurycea chisholmensis*), Jollyville Plateau salamander (*Eurycea tonkawae*), and Austin blind salamander (*Eurycea waterlooensis*) as endangered species and to designate critical habitat for these species under the Act (16 U.S.C. 1531 *et seq.*). We proposed to designate approximately 1,031 acres (ac) (423 hectares (ha)) in 14 units located in Williamson County, Texas, as critical habitat for the Georgetown salamander, and approximately 372 ac (152 ha) in 4 units located in Bell County, Texas, as critical habitat for the Salado salamander. That proposal had a 60-day comment period, ending October 22, 2012. We held a public meeting and hearing in Round Rock, Texas, on September 5, 2012, and a second public meeting and hearing in Austin, Texas, on September 6, 2012.

On January 25, 2013, we published a proposed rule (78 FR 5385) revising the locations of proposed critical habitat units 2, 3, 5, 8, and 12 for the Georgetown salamander based on new information. We reopened the public comment period for 45 days, ending March 11, 2013, to allow comments on the revisions to the proposed critical habitat and the draft economic analysis.

On August 20, 2013, we announced our decision to extend the deadline for our final listing and critical habitat determination for the Georgetown and Salado salamanders for 6 months due to scientific disagreements regarding conservation status of these species and reopened the comment periods on our August 22, 2012, and January 25, 2013, proposals for 30 days (78 FR 51129). In addition, on January 7, 2014, we announced the availability of new information and reopened the previous comment periods for an additional 15 days, until January 22, 2014 (79 FR 800).

On February 24, 2014, we published: (1) A final rule (79 FR 10236) to list the Georgetown and Salado salamanders as threatened species under the Act; and

(2) a proposed rule (79 FR 10077) under section 4(d) of the Act (a proposed “4(d) rule”) containing regulations necessary and advisable to provide for the conservation of the Georgetown salamander, with a 60-day public comment period, ending April 25, 2014.

On April 9, 2015, we published a revised proposed 4(d) rule for the Georgetown salamander (80 FR 19050); that document reopened the public comment period on the proposed 4(d) rule for 30 days, ending May 11, 2015. On August 7, 2015, we published a final 4(d) rule for the Georgetown salamander (80 FR 47418).

On September 15, 2020, we published a proposed rule (85 FR 57578) to revise our proposed designation of critical habitat for the Georgetown and Salado salamanders. Based on published genetic analyses, we revised the distribution of the Georgetown and Salado salamanders and adjusted previously proposed critical habitat units accordingly. We also proposed changes to our description of the physical or biological features essential to the conservation of the species. We proposed a total of approximately 1,519 ac (622 ha) of critical habitat for the species in Bell and Williamson Counties, Texas. The total amount of critical habitat proposed for both salamanders increased by approximately 116 ac (47 ha). The reasons for this increase were the addition of a new occupied site for the Salado salamander and refined mapping of previously proposed critical habitat units based on more precise spring locations. That proposal had a 60-day comment period, ending November 16, 2020.

#### **Summary of Changes From the September 15, 2020, Proposed Rule**

As noted above, we published three proposed rules concerning the designation of critical habitat for the Georgetown and Salado salamanders (77 FR 50768, August 22, 2012; 78 FR 5385, January 25, 2013; 85 FR 57578, September 15, 2020), as well as other relevant documents concerning these species. In doing so, we gathered public comments on the proposed critical habitat and its revisions during multiple comment periods, and we obtained new and updated scientific information following the publication of the 2012 proposed rule. Accordingly, the critical habitat we are designating in this rule differs from what we originally proposed to designate as critical habitat for these species in 2012. Please see the January 25, 2013, and September 15, 2020, proposed rules for a discussion of our proposed revisions to the August 22,

2012, proposed critical habitat, and the reasons for those revisions. This summary discusses only the changes we make in this final rule from the September 15, 2020, proposed rule.

This final rule incorporates changes to our September 15, 2020, proposed rule (85 FR 57578) based on the comments we received, as discussed below under Summary of Comments and Recommendations. Based on those comments, in this rule, we revise our discussion under Physical or Biological Features Essential to the Conservation of the Species, specifically the discussion of aspects of salamander movement from spring openings, potential prey, and water quality parameters. We also revise our discussion under Criteria Used To Identify Critical Habitat to provide additional clarity. Finally, we exclude three critical habitat units for the Salado salamander, totaling approximately 204 ac (84 ha), as identified below in Table 3. These exclusions account for the difference between the approximately 1,519 ac (622 ha) we proposed for designation as critical habitat for the two salamanders in our September 15, 2020, proposed rule (85 FR 57578) and the approximately 1,315 ac (538 ha) we are designating as critical habitat for the species in this rule.

#### **Summary of Comments and Recommendations**

In the proposed rule published on September 15, 2020 (85 FR 57578), we requested that all interested parties submit written comments on the proposal by November 16, 2020. 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 Temple Daily Telegram and Williamson County Sun. We did not receive any requests for a public hearing. During the open comment period, we received 25 public comments on the proposed rule to designate critical habitat for the Georgetown and Salado salamanders. Some commenters provided suggestions on how we could refine or improve the designation, and all substantive information provided to us during the comment period has been incorporated directly into this final rule or is addressed below.

#### **Peer Review**

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review actions under the

Act, we solicited expert opinion on the proposed critical habitat from five knowledgeable individuals with scientific expertise that includes familiarity with the Georgetown and Salado salamanders and their taxonomy, habitat, biological needs, and threats. We received responses from three of the peer reviewers. The purpose of peer review is to ensure that our critical habitat designations are based on scientifically sound data, assumptions, and analyses.

We reviewed all the comments we received from the peer reviewers for substantive issues and new information regarding the Georgetown and Salado salamanders and their habitat use and needs. The peer reviewers generally concurred with the information regarding the Georgetown and Salado salamanders' taxonomy and habitat. In some cases, they provided additional information, clarifications, and suggestions to improve the designation. The reviewers also provided or corrected references we cited in the September 15, 2020, proposed rule. The additional details and information have been incorporated into this final rule as appropriate. Substantive comments we received from peer reviewers as well as local governments, nongovernmental organizations, and the public are outlined below.

#### **Peer Review Comments**

**Comment 1:** One peer reviewer recommended subsurface areas designated as critical habitat should be larger considering that the Georgetown and Salado salamanders heavily rely upon subterranean habitat. Specifically, more emphasis should be placed on the recharge zones that allow water to enter the aquifer that supports habitat for these species.

**Our Response:** In accordance with section 3(5)(A) of the Act, we are designating critical habitat in specific areas within the geographical area occupied by the species at the time of listing that contain the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. We acknowledge that the recharge zone of the aquifer supporting salamander locations is very important to the conservation of these species. However, our goal with this critical habitat designation is to delineate the habitat that is physically occupied and used by the species rather than delineate all land or aquatic areas that influence the species. There is no evidence to support that the entire recharge zone of the

aquifers is occupied by the salamander species.

#### Public Comments

**Comment 2:** One commenter requested that Solana Ranch in Bell County be excluded from the final critical habitat designation because the area occupied by the Salado salamander is protected by a conservation easement monitored by The Nature Conservancy.

**Our Response:** In this final rule, we exclude 204 ha (84 ac) of private land within the boundaries of the 256 ac (104 ha) Solana Ranch under perpetual conservation easement, from our designation of critical habitat (see Exclusions, below). When considering the benefits of exclusion based on a current land management or conservation plan, we examine a number of different criteria (see Exclusions, below, in this rule). Among these is the likelihood that the conservation strategies in the plan will be effective. The conservation easement, established on a portion of the Solana Ranch (*i.e.*, Solana Ranch Preserve) in 2016, includes management activities such as maintenance of the site as permanent open space that has been left in its natural vegetative state, maintenance and repair of existing enclosure fences around springs, and research approved by the landowner. In addition, we evaluate if the conservation management strategies and actions in the plan will be implemented into the future, based on past practices, written guidance, or regulations. The perpetual Solana Ranch Preserve conservation easement will result in long-term protection of three springs located on Solana Ranch, including areas immediately upstream of the springs to maintain water quality. By protecting the springs and their surrounding areas, occupied Salado salamander habitat will be protected from development and other threats.

**Comment 3:** One commenter stated their view that the Service did not make the case that all areas considered as occupied critical habitat met the Act's standard that they be occupied at the time of listing. The September 15, 2020, proposed rule added several new critical habitat units based on discoveries made since the original 2012 proposed designation, but the Service does not make the required showing that these locations were occupied at the time of listing. The September 15, 2020, proposed rule also did not establish that the areas proposed for designation continue to be occupied. Instead, the proposal acknowledged the difficulty in determining whether a salamander population has been

extirpated from a spring site due to these species' ability to occupy the inaccessible subsurface habitat. The commenter believes this approach is inadequate to establish occupancy.

**Our Response:** In our September 15, 2020, proposed rule, we explain the evidence for the inclusion of the new proposed critical habitat units, and we conclude that the additional areas of proposed critical habitat were occupied at the time of listing (see 85 FR 57583). Additionally, we state in our September 15, 2020, proposed rule that as critical habitat units were shifted from the Georgetown salamander to the Salado salamander, based on Devitt et al. (2019, entire), critical habitat units for both species were re-numbered. New locations for Salado salamander were also discovered through sampling efforts after January 25, 2013. Georgetown and Salado salamanders are restricted to subterranean spaces in aquifers and on the surface to springs and associated outflow where groundwater emerges from the underlying aquifer. They are not capable of unaided, long-distance surface dispersal between isolated springs given their aquatic life history. Most springs in Bell and Williamson Counties and their underlying aquifer connections are historical landscape features that predate European settlement of the North American continent (Brune 1981, pp. 65–69, 473–476). Therefore, we conclude that these Salado salamander sites were occupied at the time of listing and we are designating critical habitat in specific areas within the geographical area occupied by the species at the time of listing that contain the physical or biological features essential to the conservation of the species and which may require special management considerations or protection, as directed by the Act.

We are required to make determinations based on the best available information, and the Devitt et al. (2019) peer-reviewed publication used to inform the September 15, 2020, revisions to our proposed critical habitat for these species, as well as this final rule designating critical habitat for these species, is the best available information.

**Comment 4:** One commenter stated that because the September 15, 2020, proposed rule contained all known locations of the salamander species in the proposed critical habitat designation, it is contrary to the statement in section 3 of the Act that critical habitat shall not include the entire geographical area which can be occupied by the threatened or

endangered species (16 U.S.C. 1532(5)(C)).

**Our Response:** Section 3(C) of the Act says "Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species." The Secretary has the discretion to designate the entire geographic area that can be occupied. However, the critical habitat we are designating in this rule does not include the entire geographical area which can be occupied by the species. We are designating only those specific areas within the geographical area occupied by the species, at the time it was listed in accordance with the provisions of section 4 of the Act, on which are found those physical or biological features that are essential to the conservation of the species.

**Comment 5:** Some commenters stated their belief that designating critical habitat for these two species is not prudent or is not determinable. These commenters believed that the two salamander species are better protected under the existing, local efforts than they would be with the proposed critical habitat designation. In their view, the existing conservation efforts for the species exceeds any conservation benefits that would be conferred if critical habitat were finalized.

**Our Response:** We appreciate and acknowledge all the hard work conservation partners and residents have voluntarily undertaken to help conserve both species of salamander. However, in our proposed rule we concluded that critical habitat is both prudent and determinable for Georgetown salamander and Salado salamander (85 FR 57578; September 15, 2020), and we affirm those determinations in this final rule.

Based on the best available scientific evidence at the time of this final rule, the surface critical habitat component was delineated by starting with the spring point locations that are occupied by the salamanders and extending a line upstream and downstream 262 ft (80 m), because this is the farthest a member species of the *Eurycea* salamander subgenus *Septentrionalis* (which includes the Georgetown and Salado salamanders) has been observed from a spring outlet. The subsurface critical habitat was delineated based on evidence that indicates a *Eurycea* salamander population can extend at least 984 ft (300 m) from the spring opening through underground conduits. We defined an area as occupied based upon the reliable observation of a salamander species by a knowledgeable

scientist and cited within published articles, unpublished reports, and Service files including Hunter and Russell (1993, p. 7–8), Pierce and Wall (2011, pp. 2–3), Chippindale et al. (2000, pp. 39–43), Diaz and Montagne (2017, p. 6), Cambrian Environmental (2018b, pp. 5–6), Devitt et al. (2019a, pp. 2,626, 2,628), and Devitt et al. (2019b, pp. 16–18). Although we do not have data for every site indicating that a salamander was observed 262 ft (80 m) downstream, we find that it is reasonable to consider the downstream habitat occupied based on the dispersal capabilities observed in individuals of very similar species. See Criteria Used To Identify Critical Habitat, below, for more information.

**Comment 6:** Some commenters questioned the Service's reliance on the proposed 262-ft (80-m) surface designation for its divergence from available literature, incorrect assumption of identical spring sites, and significant discrepancies between the text description and proposed maps. Commenters noted that, the Service states Salado salamanders are rarely found more than 66 ft (20 m) from a spring source and are most abundant within the first 16 ft (5 m). Therefore, the Service's proposed 262-ft (80-m) radius surface designation is inconsistent with the best available science.

**Our Response:** When determining surface critical habitat boundaries, we were not able to delineate specific stream segments on maps due to the small size of the streams. Therefore, we drew a circle with a 262-ft (80-m) radius, from spring point locations, representing the extent the surface population of the site is estimated to exist upstream and downstream. Georgetown and Salado salamanders are generally found within 66 ft (20 m) of a spring source (TPWD 2011, p. 3; Diaz et al. 2015, p. 7) but several studies have documented these salamanders beyond that distance up to 194 ft (59 m) away (Pierce et al. 2011a, p. 4; Pierce 2015, p. 13; Pierce 2016, pp. 14, 17, 19; Gutierrez et al. p. 386). In addition, the closely related Jollyville Plateau salamander has been observed 262 ft (80 m) from a spring opening (Bendik et al. 2016, p. 9). Given the close taxonomic relationship of the Georgetown, Jollyville Plateau, and Salado salamanders we applied that distance (*i.e.*, 262 ft (80 m)) in designating surface critical habitat boundaries. Surface critical habitat includes the spring outlets and outflow up to the ordinary high water mark (the average amount of water present in nonflood conditions, as defined in 33 CFR 328.3(e)) and 262 ft (80 m) of

upstream and downstream habitat (to the extent that this habitat is ever present), including the dry stream channel during periods of no surface flow. Upland habitat adjacent to streams, left inside surface critical habitat boundaries shown on the maps of this final rule, have been excluded by text in the final rule and are not designated as critical habitat. Therefore, 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 designated subsurface or surface critical habitat (see *Application of the "Destruction or Adverse Modification" Standard*, below). We defined an area as occupied based upon the reliable observations of Georgetown and/or Salado salamander species by a knowledgeable scientist and cited within published articles, unpublished reports, and Service files including Hunter and Russell (1993, p. 7–8), Pierce and Wall (2011, pp. 2–3), Chippindale et al. (2000, pp. 39–43), Diaz and Montagne (2017, p. 6), Cambrian Environmental (2018b, pp. 5–6), Devitt et al. (2019a, pp. 2,626, 2,628), and Devitt et al. (2019b, pp. 16–18). Although we do not have data for every site indicating that a salamander was observed 262 ft (80 m) downstream, we conclude it is reasonable to consider the downstream habitat occupied based on the dispersal capabilities observed in individuals of the same species or very similar species. See Criteria Used To Identify Critical Habitat, below, for more information.

**Comment 7:** The Bell County Adaptive Management Coalition and others commented that the use of a 984-ft (300-m) subsurface designation is not consistent with available literature, and provided two references in support of this conclusion, from the Clearwater Underground Water Conservation District and Baylor University. The 984-ft (300-m) subsurface designation, as delineated by the Service, is not consistent with Baylor University research, which indicated that the geology and hydrology of the subsurface feature (*i.e.*, springshed) do not match the delineations proposed by the Service. Much of the subsurface delineations do not actually contribute to the spring flow for the occupied sites; thus, their inclusion within critical habitat would improperly subject those areas to the same regulations as areas that actually have an impact on the salamander and its habitat.

**Our Response:** The commenter suggested that we should restrict the

subsurface critical habitat designation to an area that they defined as the contributing springshed. We reviewed the information provided by the Clearwater Underground Water Conservation District and Baylor University and determined that there is not enough information to modify our original 984-ft (300-m) circular subsurface designation for these sites without further long-term study. Wong and Yelderman (2015, pp. 8–15) found connectivity between Stagecoach Inn Cave well and all the down-gradient springs indicating the Salado salamander, and other mobile aquatic organisms, can move throughout the entire spring system and it should be grouped as one system. If toxins entered Salado Creek, groundwater flows could carry the toxins to occupied salamander springs. The proposed 984-ft (300-m) radius subsurface designation is an area that represents where salamander populations are likely to exist, which is further supported from studies conducted on the Austin blind salamander that showed their presence throughout the entire underground Barton Springs complex (Dries 2011, pers. comm.). Regarding the Coalition's concern about holding areas outside the springshed to the same standards as within the springshed, Salado Creek is a gaining stream (*i.e.*, reaches of a stream where groundwater exits the subsurface and contributes to stream flow) near downtown Salado. Therefore, pollution introduced to Salado Creek could enter the aquifer system providing water to springs occupied by the Salado salamander.

The Coalition identified Edwards Aquifer Recharge Zone and applied the springshed boundary mapped by Yelderman (2013, pp. 6–8) and Wong and Yelderman (2015, p. 4) to show a simplified groundwater flow system that indicates groundwater recharge to the spring is limited to southwestern sources. This approach was used to create a management area, which is a section of the watershed that they propose can impact the springs occupied by the Salado salamander. However, the Wong and Yelderman (2015, p. 22) study that the Coalition used to delineate this area also concluded that Salado Creek and nearby springs receive waters from the north bank (*i.e.*, Rock Spring), that is sourced from groundwater from the north and south of Salado Creek. Therefore, activities such as spills of hazardous materials north and south of Salado Creek could adversely impact groundwater, nearby springs, and salamander habitat. While we recognize

the uncertainty inherent in identifying subsurface habitat boundaries for these two salamander species, we used the best available scientific information to designate critical habitat, as required by the Act. A fuller understanding of all of the subsurface flow patterns and connections for every salamander site will require numerous years of research. The subsurface critical habitat was delineated based on evidence that indicates that a *Eurycea* salamander population can extend at least 984 ft (300 m) from the spring opening through underground conduits.

**Comment 8:** One commenter stated support for designating as unoccupied critical habitat reaches beyond the current 262-ft (80-m) extent of proposed critical habitat downstream and upstream of known salamander-occupied spring openings, and extending that to 1,640 ft (5,381 m) instead based on Bendik et al. (2016, p. 9). These streambeds and riverbeds trace the outlines of likely remaining and/or restorable subterranean aquatic connectivity for these salamanders. Maintaining such connectivity or restoring it where feasible is essential to their conservation and eventual recovery. Bendik et al. (2016, p. p. 9) indicates that the closely related Jollyville Plateau salamanders along Bull Creek that uses habitats as far as 1,640-ft (5,381-m) from its epigean habitat. Designation of the full 1,640-ft (5,381-m) distance downstream and upstream as critical habitat would provide regulatory and educational means to manually rehabilitate degraded streambeds (for example, through revegetation) and to decrease human extraction of groundwater (for example, through retirement of agricultural lands) in order to effectuate conservation of these species, which is precisely the Act's purpose for critical habitat designation.

**Our Response:** We did not consider unoccupied areas for critical habitat because we determined that occupied areas were sufficient to conserve the species. In accordance with section 3(5)(A) of the Act, we are designating critical habitat in specific areas within the geographical area occupied by the species at the time of listing that contain the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. The Service has developed a preliminary long-term conservation strategy that represents the overall objectives and actions that we believe are needed to conserve the salamanders (Service 2013, entire). The purpose of the strategy is to provide initial

guidance for conservation and threat alleviation. In general, this includes measures aimed at reducing or removing threats to the species and ensuring self-sustaining populations remain in the wild.

The unique hydrology where that Jollyville Plateau salamander observation was made leads us to conclude that it should not be extrapolated to the Georgetown and Salado salamanders. The area of Bull Creek where that observation was made is known for its alluvial deposits (COA 2012, p. 6), which discharge spring water through non-obvious seeps, instead of open springheads (SWCA 2012, p. 77). This type of hydrology appears to create suitable habitat for salamanders along long stretches of stream, rather than a short stretch of springwater-influenced habitat following an open spring outlet (Bendik 2013, pers. comm.). We have no information indicating that any Georgetown or Salado salamander sites function in the same manner as these Bull Creek alluvial resurgence areas. As currently known, Georgetown and Salado salamanders do not have access to the same extent or nature of aquatic surface habitat as the Jollyville Plateau salamander (Pierce et al. 2010, pp. 14–15). Therefore, we conclude that the 1,640 feet (500 meters) distance traveled by a Jollyville Plateau salamander is an observation unique to the hydrological setting and does not apply to Georgetown or Salado salamander sites.

The purpose of designating critical habitat is to identify those areas needed for a species' recovery. In this case, we designated habitat occupied by the species at the time it was listed on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection. While our designation of critical habitat does not remove the threat from urban development, for example, it does identify those areas that are critical to the conservation of the species, which provides awareness about occupied sites to nearby landowners and land managers, and it informs them that they should consider their impacts on those sites.

A critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be managed or conserved for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will 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) section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects outside of designated critical habitat areas may still result in jeopardy or in adverse effects on areas within critical habitat, if those activities are affecting the critical habitat.

**Comment 9:** One commenter provided a number of publications that they thought should be considered and referenced in the final rule.

**Our Response:** The contributions stakeholders, academic researchers, and others have made to advance knowledge on the Georgetown and Salado salamanders and their habitat is valued by the Service. Where relevant and appropriate, we have incorporated information from these efforts and cited peer-reviewed articles and unpublished reports pertaining to salamander dispersal, taxonomy, and water quality parameters including Cambrian Environmental (2016; 2017; 2018; 2019; 2020), Diaz et al. (2016; 2017), Diaz et al. (2020), Gutierrez et al. (2018), Jones et al. (2020), Pierce et al. (2014), and Wall et al. (2020). Other publications cited by the commenter provide valuable information on the life history (e.g., temporal activity and tail loss) of the Georgetown and/or Salado salamanders but were not directly relevant to this final critical habitat rule or more current information was available and include Biagas et al. (2012), McEntire and Pierce (2015), Norris et al. (2012), and Pierce and Gonzalez (2019). See Physical or Biological Features Essential to the Conservation of the Species, below, for more information.

**Comment 10:** One commenter opined that the Service does not identify the physical or biological features essential to the conservation of the Georgetown and Salado salamanders with an appropriate level of specificity as required by 50 CFR 424.12(b)(1)(ii). Although the Service describes each of the physical and biological features in some detail, the Service used studies relating to different species, the Jollyville Plateau salamander and Barton Springs salamander, in an attempt to infer further parallels as to the habitat requirements for the Georgetown and Salado salamanders. In the commenter's view, inferring parallels between species does not

comport with the contemporary scientific practice or the applicable legal standard because it's not specific to the conservation of the Georgetown and Salado salamanders.

*Our Response:* We conclude that the Jollyville Plateau salamander is an appropriate surrogate for determining habitat requirements for the Georgetown and Salado salamanders. The Jollyville Plateau, Georgetown, and Salado salamander species are within the same genus, are entirely aquatic throughout each portion of their life cycles, respire through gills, inhabit water of high quality with a narrow range of conditions, depend on water from the Edwards Aquifer, and have similar predators. Both the Jollyville Plateau and Georgetown salamanders have cave populations that live exclusively in subterranean habitats. Certain populations of the Salado salamander also appear to spend more time inhabiting subterranean habitat than surface habitats. These three biologically and ecologically similar species also form a related clade of *Eurycea* salamanders in the Northern Segment of the Edwards Aquifer, distinct from other *Eurycea* species in southern portions of the Edwards Aquifer. Peer reviewers of earlier proposed and final rules for the Georgetown, Jollyville Plateau, and Salado salamanders have agreed that it is acceptable to use and apply ecological information on closely related species if species-specific information is lacking. Based on this information, the best available scientific information supports our conclusion that these species are suitable surrogates for each other.

*Comment 11:* The September 15, 2020, proposed rule does not demonstrate that the proposed critical habitat units meet the definition of critical habitat. The Service proposes to designate occupied areas, which, by statutory definition, must have the physical and biological features essential to the conservation of the species that may require special management. Although the Service describes each of the physical and biological features in some detail, the Service does not identify the physical or biological features essential to the conservation of the Georgetown and Salado salamanders with an appropriate level of specificity. Instead, the Service used studies relating to a different species, the Jollyville Plateau salamander and Barton Springs salamander, in an attempt to infer further parallels as to the habitat requirements for the Georgetown and Salado salamanders.

*Our Response:* Occupied critical habitat always contains at least one or more of the physical or biological features that provide for some life-history needs of the listed species. However, an area of critical habitat may not contain all physical or biological features at the time it is designated, or those features or elements may be present but in a degraded or less than optimal condition. In the case of a highly urbanized salamander site, some physical or biological features such as rocky substrate and access to the subsurface habitat may be present, even if the water quality physical or biological feature is not. We consider these sites to meet the definition of critical habitat because they are occupied at the time of listing and contain those physical or biological features essential to the conservation of the species, which may require special management considerations or protection. See also our responses to *Comments 9* and *10*, above.

*Comment 12:* One commenter stated that we should not designate critical habitat for the Salado salamanders because public identification of habitat could increase impacts to the species and its habitat, in the form of site disturbance and harassment of the species.

*Our Response:* These sites are already publicly identified in several survey reports, in descriptions in scientific papers, and in our proposed critical habitat rules. The Service is not aware of any trade in these species or general collection, other than research, that would lead the Service to believe that there may be harm to the species in designating critical habitat.

*Comment 13:* The Bell County Adaptive Management Coalition stated that water quantity and quality degradation in Bell County is being addressed through various actions such as regulations, ordinances, and zoning. Because the Coalition has successfully managed the quality of water associated with the Salado salamander and its habitat, they did not agree that water quality and quantity degradation should be considered as a factor for critical habitat designation. The result is managed spring flow with sufficient water quantity for the Salado salamander, invalidating the need for critical habitat designation.

*Our Response:* We appreciate the efforts of Bell County to address water quality and quantity issues within the range of the Salado salamander. Bell County's efforts have ameliorated some of the threats to the Salado salamander and have provided protection to some of the critical habitat units. However,

additional threats to the species remain, including increased impervious cover, chemical spills from existing and future roadways, and leakage from sewer lines and septic systems.

The Service is not relieved of its statutory obligation to designate critical habitat based on the contention that designation will not provide additional conservation benefit. In *Ctr. for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003), the court held that the Act does not direct us to designate critical habitat only in those areas where "additional" special management considerations or protection is needed. We find that the areas in question meet the definition of critical habitat in the Act.

Special management considerations that will ameliorate threats to surface habitat include, but are not limited to, protecting the quality of cave and spring water by implementing comprehensive programs to control and reduce point sources and non-point sources of pollution, minimizing the likelihood of pollution events or surface runoff from existing and future development that would affect groundwater quality, protecting groundwater and spring flow quantity, and measures to prevent surface habitat destruction or degradation (e.g., exclusion of cattle and feral hogs). Some of the management activities listed above, such as those that protect spring flow and groundwater quality, protect both surface and subsurface habitats, as these are interconnected.

Additional management activities that could ameliorate threats that are specific to subsurface habitat include, but are not limited to, the development and implementation of void mitigation plans for construction projects to prevent impacts to salamanders in the event of severed aquifer conduits or interrupted groundwater flow paths, site-specific plans to prevent changes to subsurface water flow from construction activities, environmental monitors during construction, excavation, and drilling activities to monitor spring flow, and post-construction monitoring of spring flow.

*Comment 14:* Some commenters believe that the Service should have determined that critical habitat for the species is not prudent because "designation is not wise, such as when a designation would apply additional regulation but not further the conservation of the species" (see p. 84 FR 45041). The State, Williamson County, and its residents have voluntarily restricted their activities to degrees far more protective than an added layer of regulation under the Act

would achieve. The Texas Commission on Environmental Quality's Edwards Aquifer rules were enacted to prevent water quality degradation within the Edwards Aquifer where the salamanders reside. Those rules require, among other things, that any construction-related activity occurring over the Edwards Aquifer must first prepare detailed studies and reports and then employ certain best management practices to prevent pollution of the surface water and groundwater. The Georgetown water quality ordinance heavily restricts activity in a tiered structure within 262-ft (80-m) and 984-ft (300-m) of salamander occupied springs. The City of Georgetown's water quality ordinance provides protections that exceed what would be achieved by the proposed critical habitat, but without the additional regulatory layer and associated delays and costs that would result from a critical habitat designation. The Georgetown water quality ordinance has been strictly implemented, and the success of such efforts is evidenced by the monitoring results voluntarily undertaken by the Williamson County Conservation Foundation. Further, numerous other voluntary conservation actions are in place to address the surface and subsurface concerns identified in the September 15, 2020, proposed rule. These actions demonstrate that significant and existing conservation efforts exceed the protections that would otherwise be afforded by a critical habitat designation. A critical habitat designation would not further the conservation of the species, but it would add significant regulatory processes resulting in project delays and increased costs.

*Our Response:* See our response to Comment 13. Again, we appreciate and acknowledge all the hard work conservation partners and residents have voluntarily undertaken to help conserve both species of salamander. However, we have concluded that critical habitat is prudent for Georgetown salamander and Salado salamander (85 FR 57578). In the final listing rule, we identified destruction, modification, or curtailment of habitat or range as threats to the species and include increases in impervious cover and infrastructure (e.g., roadways and sewage lines) that accompany urbanization and degrade water quality, quarrying that may damage subterranean habitat, and installation of impoundments that alter surface habitat. These threats can be addressed under section 7(a)(2) of the Act.

The buffer zones described in the City of Georgetown's ordinance lessen the

potential for further water quality degradation, but they do not remove the threat posed by existing development. Buffer zones also do not address threats to water quantity. The threat of chemical spills from existing highways, sewer lines, and septic systems still exists. We acknowledge that some Georgetown salamander, and now Salado salamander, sites in Williamson County have been monitored since 2008. However, only a small number of sites occupied by those salamanders have been regularly monitored for water quality and salamander abundance. Data are lacking for many springs occupied by the Georgetown salamander as well as additional sites for the Salado salamander. Available monitoring data do not reflect the potential for individual site variation or depict the range of landscape or habitat conditions (e.g., degree of urbanization or age of development) within which the occupied springs occur.

*Comment 15:* One commenter stated that the Service should explain how special management may be required for the biological and physical features when describing each proposed critical habitat unit. Courts have interpreted the special management provision to mean that the Service must provide an analysis explaining how the biological and physical features in the proposed critical habitat area may require special management.

*Our Response:* On the contrary, in *Arizona Cattle Growers Association v. Kempthorne*, the courts stated that ". . . the statute does not require anything more than a finding that the physical and biological features themselves . . . may require special management." and the Service ". . . has fulfilled its lone requirement . . ." by making such a finding that an area(s) *may* require special management (534 F. Supp. 2d. 1013, 1031, D. Ariz. 2008). The court made clear in its finding that the Service needs to look at whether the physical or biological features may require special management considerations. Each unit description identifies the physical or biological features in the unit and identifies which special management considerations or protections may be needed for that unit, fulfilling this requirement. Please see unit descriptions and Special Management Considerations or Protections, below, for a description of the management needs of the physical or biological features.

*Comment 16:* Some commenters requested that the final rule address the effects to the Georgetown and Salado salamanders from nitrates, as we have done in past rules (77 FR 50768; 79 FR

10236), because salamanders might be experiencing impairments to their respiratory, metabolic, and feeding capabilities as a result of high nitrate concentrations.

*Our Response:* Nutrient input, such as nitrogen, may affect the aquatic habitats inhabited by the Georgetown and Salado salamanders (Gomez et al. 2020, entire). Nitrate, ammonia, total dissolved solids, and total suspended solids can increase in watersheds that encompass residential development, golf courses, and other human activities. The February 24, 2014, final rule listing the Georgetown and Salado salamanders as threatened species (79 FR 10236) reviewed the potential impacts of nitrates on amphibians and noted higher levels of this substance at some salamander locations. At this time, we lack sufficient information to specifically detail a range of nitrate levels that may affect Georgetown and Salado salamanders, and we therefore do not describe them under Physical or Biological Features Essential to the Conservation of the Species in this rule.

*Comment 17:* In the September 15, 2020, proposed rule, the Service cited a single paper (Pierce et al. 2010) that primarily reports one year of water quality data at Swinbank Spring. Water quality data pertinent to these species can also be found in additional peer-reviewed, published manuscripts as well as numerous reports. These collective reports and publications identify a much wider range of appropriate water conditions than included in the September 15, 2020, proposed rule. The Service did not rely on the best available scientific information when defining water conditions that are essential to the conservation of the two species. One commenter stated that our analysis of the negative effects of elevated water conductance on the Georgetown and Salado salamanders was flawed because we based our analysis on research conducted on the Jollyville Plateau salamander. Pierce et al. (2010, p. 294) studied a different species of salamander with different habitat requirements and did not indicate that conductance of 604 to 721 micro-Siemens per centimeter ( $\mu\text{S}/\text{cm}$ ) was an essential requirement for the Georgetown salamander, as the Service stated in the proposed rule.

*Our Response:* Based on comments, scientific research, and water quality monitoring data, we have updated text in this final rule regarding water quality parameters to include temperature, dissolved oxygen, and specific conductance. See Physical or Biological Features Essential to the Conservation of

the Species, below, for more information.

**Comment 18:** Some commenters stated that our economic analysis did not accurately capture impacts to tourism or development in Bell and Williamson counties. Commenters stated that the Village of Salado relies on the tourism industry and receives approximately 75,000 visitors per year, or 30 times the number of people living in Salado and believed there is serious potential for this industry to be negatively impacted by the proposed designation. In addition, development in surrounding areas may experience increased restrictions and negative impacts to property values. The designation of critical habitat may also cause delays in public safety and education projects. For example, if a bridge is not up to standards, and the bridge's new construction is tied to Federal nexus funding, then there will be additional costs and delays from section 7 consultation. Commenters anticipate the impact to Bell and Williamson Counties to be a much larger estimate than the described \$38,500 per year.

The commenters stated that the draft economic analysis' estimate of \$38,500 per year conclusion did not to acknowledge the stigma that arises when an area is designated as critical habitat. As acknowledged by the Fifth Circuit, a critical habitat designation creates an economic stigma that affects property values, even where the designation affects non-Federal lands and does not presently have a Federal nexus. This cost is not mentioned or captured anywhere in the September 15, 2020, proposed rule. Where there is a Federal nexus, the designation of critical habitat can trigger formal consultation where consultation could otherwise be avoided through the implementation of best management practices. Further, critical habitat can prompt a formal consultation where informal consultation would otherwise be appropriate. Consultation, itself, imposes costs and takes time, and a critical habitat designation adds another layer of analysis. In some instances, the Service seeks additional conservation or restoration measures based on adverse modification. All of these processes, measures, and delays can have significant costs to a project proponent.

**Our Response:** We revised the economic analysis based on several comments; the final economic analysis is available at <http://www.regulations.gov> under Docket No. FWS-R2-ES-2020-0048. As directed by the Act, we proposed as critical habitat those areas occupied by the species at

the time of listing and that contain the physical or biological features essential to the conservation of the species, which may require special management considerations or protection. Section 3 of the economic analysis outlines the substantial baseline protections currently afforded the Georgetown and Salado salamanders throughout the proposed designation (IEC 2021, p. 7). These baseline protections result from the listing of the Georgetown and Salado salamanders under the Act. As a result of these protections, the economic analysis concludes that incremental impacts associated with section 7 consultations for the Georgetown and Salado salamanders is likely limited to additional administrative effort. The analysis forecasts future section 7 consultation activity based on consultations for the Georgetown and Salado salamanders that have occurred since its listing in 2014. Using these historical consultation rates and applying estimated consultation costs presented in Exhibit 3 of the analysis (IEC 2021, p. 11), we expect that the additional administrative costs incurred by critical habitat designation will not exceed \$38,500 in a given year.

The Service anticipates conservation measures provided to address impacts to occupied critical habitat areas will be the same as those recommended to address impacts to the species because the habitat requirements of the Georgetown and Salado salamanders are closely linked to the survival, growth, and reproduction of these species, which are present year-round in their spring, stream, cave, and subterranean habitats. As such, the economic analysis of the critical habitat designation does not anticipate that the designation will result in new conservation efforts for the species that would not already occur due to the listing of the species in designated critical habitat areas. Therefore, critical habitat designation for the Georgetown and Salado salamanders is not anticipated to result in additional costs for development or other infrastructure projects other than administrative costs to address critical habitat in section 7 consultations. We also updated our economic analysis to further elaborate on this topic (IEC 2021).

The Act does not authorize the Service to regulate private actions on private lands. Critical habitat designation also does not establish specific land management standards or prescriptions, although Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. 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 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.

Most of the costs identified by the commenter are costs that are a result of the listing of the Georgetown and Salado salamanders and are not attributable to the designation of critical habitat for the species. The economic analysis acknowledges that the two counties in which the critical habitat designation spans are experiencing significant development pressure. The Service anticipates conservation recommendations provided to address impacts to the occupied critical habitat will be the same as those recommended to address impacts to the species because the habitat requirements of the Georgetown and Salado salamanders are closely linked to the survival, growth, and reproduction of these species, which are present year-round in their spring, stream, cave, and subterranean habitats. As such, the economic analysis of critical habitat designation does not anticipate that the designation will result in new conservation efforts for the species that would not already occur due to the listing of the species in designated critical habitat areas. As such, this critical habitat designation for the Georgetown and Salado salamanders is not anticipated to result in additional restrictions or requirements for development or other infrastructure projects. Therefore, critical habitat designation for the Georgetown and Salado salamanders is not anticipated to result in additional costs for development or other infrastructure

projects other than administrative costs to address critical habitat in section 7 consultations.

**Comment 19:** One commenter believed that our reclassification of five spring sites previously considered to be Georgetown salamanders as Salado salamander sites results in economic impacts due to the resulting changes in application of the 4(d) rule for the Georgetown salamander, which incorporates the City of Georgetown's water quality ordinance. This revision means that members of the regulated community that have previously relied on the 4(d) rule and ordinance are now exposed to potential section 9 violations.

**Our Response:** The costs identified by the commenter are costs that are a result of the listing and 4(d) rule for the Georgetown and Salado salamanders and are not attributable to the designation of critical habitat for the species. This critical habitat designation in no way changes the 4(d) rule for the Georgetown salamander referenced by the commenter.

**Comment 20:** Williamson County Conservation Foundation commented that the Service did not conduct an exclusion analysis consistent with its authority under the Act's section 4(b)(2). The broadly drawn proposed critical habitat units confer little benefit to the species at great detriment to the County and its residents. The existing protections provide significant upside to both the species and the County's residents, while the September 15, 2020, proposed rule would yield significant downsides and little, if any, benefit to the two species. The benefits of excluding the proposed critical habitat areas far outweigh the benefits of inclusion. The Service should redo its economic analysis considering the myriad of impacts discussed above and conduct an exclusion analysis.

**Our Response:** For exclusion of an area from critical habitat designation based on management, we look to our Policy Regarding Implementation of Section 4(b)(2) of the Endangered Species Act (81 FR 7226; February 11, 2016) that outlines measures we consider when excluding any areas from critical habitat. Although we published revised regulations that address section 4(b)(2) on December 18, 2020 (85 FR 82376), the revised regulation applies to critical habitat rules for which a proposed rule is published after January 19, 2021. The proposed rule for the Georgetown and Salado salamanders published on September 15, 2020. Therefore, this rule is grandfathered from the December 18, 2020 regulation.

The Service considers six elements when considering whether to exclude any areas from critical habitat: (1) Partnerships and conservation plans; (2) conservation plans permitted under section 10 of the Act; (3) national security and homeland security impacts, and military lands; (4) Tribal lands; (5) Federal lands; and (6) economic impacts. We did not receive any request for exclusion of any specific critical habitat units in Williamson County and the Williamson County Conservation Foundation. No permitted plans under section 10 of the Act exist within the county, we are not aware of any impacts to national security or homeland security, and the designation does not include Tribal or Federal lands within the county. The partnerships and voluntary conservation plans cited by the Foundation do not remove the threat posed by existing development or the threat of chemical spills from existing highways, sewer lines, and septic systems. The human population in Williamson County is projected to increase by 161 percent, between 2022 and 2050 (Texas Demographic Center 2021). The associated increase in urbanization is likely to result in continued impacts to water quality that require special management of the habitat to address. Therefore, we did not conduct a weighing analysis to determine whether the benefits of exclusion outweigh the benefits of inclusion for other areas. Please see Exclusions, below, for a discussion of the areas we are excluding from the final designation.

Finally, the Service updated its economics analysis (IEc 2021, entire) based on public comment provided during the comment period associated with the proposed critical habitat destination (85 FR 57578).

**Comment 21:** One commenter stated that the September 15, 2020, proposed rule did not properly follow the process by which the Secretary should take into account economic and other impacts and exclude areas from critical habitat if she determines that the benefits of exclusion outweigh the benefits of inclusion.

**Our Response:** Our regulations state that "The Secretary will make a final designation of critical habitat based on the best scientific data available, after taking into consideration the probable economic, national security, and other relevant impacts of making such a designation in accordance with § 424.19" (50 CFR 424.12(a)). In accordance with 50 CFR 424.19, "The Secretary has the discretion to exclude any particular area from critical habitat upon a determination that the benefits

of such exclusion outweigh the benefits of specifying the particular area as part of the critical habitat." It is the Service's practice to propose all lands that meet the definition of critical habitat and determine whether any lands should then be excluded under Section 4(b)(2) of the Act in the final rule. We received further information during the public comment period on the September 15, 2020, proposed rule, and after conducting a weighing analysis, we are excluding Salado salamander units 1, 2, and 3 from critical habitat designation in this rule. Please see Exclusions, below, for a discussion of the areas we are excluding from the final designation.

**Comment 22:** One commenter disagreed with the methodology in the draft economic analysis to limit the assessment of economic impacts to those solely attributable to the critical habitat designation (*i.e.*, the baseline approach). They opined that the Service's use of the baseline approach is not only illegal, it prejudices landowners affected by the designation, as it significantly understates the designation's economic impact and ignores the cumulative impact of adding the designation's costs to those that landowners already bear because of the salamanders' listing. The commenter believed that we should analyze all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes, such as listing the species. The commenter further opined that the Service should conduct a new economic analysis, using the co-extensive approach.

**Our Response:** Because the primary purposes of the economic analysis are to facilitate the mandatory consideration of the economic impact of the designation of critical habitat, to inform the discretionary section 4(b)(2) exclusion analysis, and to determine compliance with relevant statutes and Executive Orders, the economic analysis focuses on the incremental impact of the designation. The economic analysis of the designation of critical habitat for the Georgetown and Salado salamanders follows this incremental approach. The Service acknowledges that significant debate has occurred regarding whether assessing the impact of critical habitat designations using the incremental approach is appropriate, with several courts issuing divergent opinions. Most recently, the U.S. Ninth Circuit Court of Appeals concluded that the incremental approach is appropriate, and the U.S. Supreme Court declined to hear the case (*Home Builders Association of Northern California v. United States Fish and Wildlife Service*, 616 F.3d 983 (9th Cir.

2010), cert. denied, 179 L. Ed 2d 301, 2011 U.S. Lexis 1392, 79 U.S.L.W. 3475 (2011); *Arizona Cattle Growers v. Salazar*, 606 F.3d 1160 (9th Cir. 2010), cert. denied, 179 L. Ed. 2d 300, 2011 U.S. Lexis 1362, 79 U.S. L.W. 3475 (2011)). Subsequently, on August 28, 2013, the Service published a final rule (78 FR 53058) revising our regulations pertaining to impact analyses conducted for designations of critical habitat under the Act; the regulations specify that the incremental approach should be used (see p. 78 FR 53062 and 50 CFR 424.19(b)). We updated our final economic analysis for this critical habitat designation to further clarify these points (IEC 2021).

Section 4(b)(1)(A) of the Act states that the Secretary shall make listing determinations “solely on the basis of the best scientific and commercial data available,” which prevents the Service from factoring in economic considerations when making a listing determination. However, with regard to designating critical habitat, and specific to designating critical habitat, section 4(b)(2) of the Act states that the Secretary shall designate and revise critical habitat on the basis of the best scientific data available and after taking into consideration “the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat.” The incremental approach, or “baseline approach,” is in accord with the language and intent of the Act. The regulations at 50 CFR 424.19(b) state that the Secretary will consider impacts at a scale that the Secretary determines to be appropriate and will compare the impacts with and without the designation. The incremental approach (baseline approach) compares the impacts with and without designating the critical habitat, as opposed to with or without a listing determination. We have concluded that an incremental approach is consistent with the Act and with the Office of Management and Budget (OMB) guidance and is the most logical way of analyzing impacts. Lastly, the Service considered the economic impacts of the designation of critical habitat in its economics analysis summarized in an updated memorandum dated April 13, 2021, which is available at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048.

**Comment 23:** One commenter stated that our economic analysis is deficient because it failed to adequately measure reductions in the value of private property, did not consider the costs likely to be incurred by landowners in avoiding or defending against citizen

lawsuits to enforce other provisions of the Act, and ignored incremental costs attributable to the avoidance of adversely modifying the salamanders’ habitat. The commenter recommended that we: (1) Analyze or quantify how public perception of the critical habitat designation will affect private property values within the designation; (2) analyze the costs that may be incurred by landowners in avoiding and defending against citizen lawsuits pursuant to section 11 of the Act from environmental groups or neighbors alleging violations of the Act’s section 9 prohibition on take; and (3) correct the proposed rule’s erroneous assumption that any adverse modification of habitat would necessarily jeopardize the species.

**Our Response:** First, the costs of litigation pursuant to section 11 citizen suit provisions alleging that a section 9 violation has occurred are not attributable to the designation of critical habitat. The Act does not contain any section 9 protections for critical habitat. Secondly, as stated in the economic screening analysis memorandum, the Service recognizes that, under certain circumstances, critical habitat designations may affect private property values. The memorandum describes that public attitudes about the limits and costs that the Act may impose can cause real economic effects to the owners of property, regardless of whether such limits are actually imposed. This effect is sometimes referred to as a stigma effect. Over time, as public awareness grows of the regulatory burden placed on designated lands, the effect of critical habitat designation on properties may subside. Because the economics literature on the subject is limited and is species- and site-specific in nature, the likelihood and potential magnitude of property value effects due to critical habitat designation for the salamanders is uncertain. Lastly, and consistent with this comment, the final economics screening memorandum clarifies that the Georgetown salamander 4(d) rule at 50 CFR 17.43(e) exempts the incidental take of Georgetown salamander if the take occurs on non-Federal land from regulated activities that are conducted consistent with the water quality protection measures contained in the City of Georgetown (Texas) Unified Development Code (UDC), as endorsed by the Service. As the 4(d) rule serves to reduce regulatory uncertainty for these development activities, perceptual effects on land values may be less likely to occur on these lands.

**Comment 24:** One commenter stated that we should conduct a NEPA analysis in conjunction with the proposed

designation of critical habitat for the Georgetown and Salado salamanders, citing various case law in support of their assertion. The commenter recommended that the Service prepare an environmental assessment in conjunction with the critical habitat designation.

**Our Response:** 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)). This critical habitat designation is outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit.

**Comment 25:** A commenter stated that the Service has not prepared an initial regulatory flexibility analysis for the proposed critical habitat designation as required by the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*). The RFA requires that, whenever an agency publishes a general notice of proposed rulemaking, as it has done here, it must also “prepare and make available for public comment” an “initial regulatory flexibility analysis.” Thus, the commenter recommended that the Service reissue the September 15, 2020, proposed rule, after preparing the required initial regulatory flexibility analysis and conduct a final regulatory flexibility analysis prior to finalizing the designation.

**Our Response:** Under the RFA, Federal agencies are only required to evaluate the potential incremental impacts of a rulemaking on directly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried by the agency is not likely to adversely modify critical habitat. Therefore, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Under these circumstances, it is the Service’s position that only Federal action agencies will be directly regulated by this designation. Therefore, because Federal agencies are not small entities, the Service may certify that this critical

habitat designation will not have a significant economic impact on a substantial number of small entities. Because certification is possible, no regulatory flexibility analysis is required.

## Background

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.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.*, range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (*e.g.*, migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

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 Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must 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 geographical area occupied by the species at the time it was listed 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 or biological features within an area, we focus on the specific features that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity.

Under the second prong of the Act's definition of critical habitat, we may designate critical habitat in 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. The implementing regulations at 50 CFR 424.12(b)(2) further delineate

unoccupied critical habitat by setting out three specific parameters: (1) When designating critical habitat, the Secretary will first evaluate areas occupied by the species; (2) the Secretary will only consider unoccupied areas to be essential where a critical habitat designation limited to geographical areas occupied by the species would be inadequate to ensure the conservation of the species; and (3) for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to 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. 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 any generalized conservation strategy, criteria, or outline that may have been developed for the species; 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. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will 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 found in section 9 of the Act. 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 will continue to contribute to recovery of the species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, HCPs, or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

#### *Prudence and Determinability*

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. In our proposed critical habitat rule (85 FR 57578; September 15, 2020), we found that designating critical habitat is both prudent and determinable for the Georgetown and Salado salamanders. In this final rule, we reaffirm those determinations.

#### *Physical or Biological Features Essential to the Conservation of the Species*

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. The regulations at 50 CFR 424.02 define “physical or biological features essential to the conservation of the species” as the features that occur in specific areas and that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey,

vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include gravel of a particular size required for spawning, alkaline soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, we may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

Based on public comment, we separated the summary of essential physical or biological features (formerly primary constituent elements) for these salamander species into surface and subsurface habitat categories and added additional details in order to clarify habitat needs of both species. We derive the specific physical or biological features essential to the conservation of the Georgetown and Salado salamanders from studies of the species’ habitat, ecology, and life history as described in the August 22, 2012, proposed rule (77 FR 50768), and in the information presented below. Additional information can be found in the final listing rule for the Georgetown and Salado salamanders (79 FR 10236; February 24, 2014).

Observational and experimental studies on the habitat requirements of Georgetown and Salado salamanders are rare. In the field of aquatic ecotoxicology, it is common practice to apply the results of experiments on common species to other species that are of direct interest (Caro et al. 2005, p. 1,823). In addition, the field of conservation biology is increasingly relying on information about surrogate species to predict how related species will respond to stressors (for example, see Caro et al. 2005 pp. 1,821–1,826; Wenger 2008, p. 1,565). In instances where information was not available for the Georgetown and Salado salamander specifically, we have provided references for studies conducted on similarly related species that inhabit the same or nearby segments of the Edwards Aquifer, such as the Jollyville Plateau salamander (*i.e.*, Northern Segment) and Barton Springs salamander (Barton Springs Segment; *Eurycea sosorum*), which occur within the central Texas area, and other salamander species that occur in other parts of the United States. The similarities among these species may include: (1) A clear systematic (evolutionary) relationship (for example, members of the Family Plethodontidae); (2) shared life-history attributes (for example, the lack of metamorphosis into a terrestrial form); (3) similar morphology and physiology (for example, the lack of lungs for respiration and sensitivity to environmental conditions); (4) similar prey (for example, small invertebrate species); and (5) similar habitat and ecological requirements (for example, dependence on aquatic habitat in or near springs with a rocky or gravel substrate). Depending on the amount and variety of characteristics in which one salamander species can be analogous to another, we used these similarities as a basis to infer further parallels in what Georgetown and Salado salamanders require from their habitat. We have determined that the Georgetown and Salado salamanders require the physical or biological features described below.

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

#### *Georgetown and Salado Salamanders*

The Georgetown and Salado salamanders occur in wetted caves and where water emerges from the ground as a spring-fed stream. Within the spring ecosystem, salamanders’ proximity to the springhead is presumed important because of the appropriate stable water chemistry and temperature, substrate, and flow regime. In surface aquatic

habitats (e.g., spring opening and spring run), Georgetown and Salado salamanders are generally found within 66 ft (20 m) of a spring source (TPWD 2011, p. 3; Diaz et al 2015, p. 7). These salamanders appear to be most abundant within the first 16 ft (5 m) of a spring opening (Pierce et al. 2010, p. 294; Gutierrez et al. 2018, pp. 386–388; Pierce et al. 2014, pp. 139–140, 141–142). However, some researchers have noted results of their mark-recapture efforts are most applicable to large juvenile and adult Georgetown and Salado salamanders, and may not accurately depict the movement of larvae (Gutierrez et al., pp. 387–388).

Georgetown and Salado salamanders have been regularly observed, in reduced numbers, at distances greater than 66 ft (20 m) from spring openings (Pierce 2016, p. 13; Pierce 2017, p. 14, 17, 19; Gutierrez et al. 2018, p. 386). Some individual salamanders have been found up to 194 ft (59 m) from a spring opening (Pierce et al. 2011a, p. 4; Pierce 2015, p. 13; Pierce 2016, pp. 14, 17, 19; Gutierrez et al. p. 386). Gravid (*i.e.*, egg-bearing) Georgetown and Salado salamanders have been noted as moving more often and to greater distances than non-gravid individuals (Pierce 2015, pp. 7–8; Gutierrez et al. 2018, pp. 385–386). Some researchers have indicated that areas downstream from spring openings may be important for salamander reproduction (Pierce 2015, pp. 7–8; Gutierrez et al. 2018, pp. 387–388). Jollyville Plateau salamander small juveniles were most abundant downstream from spring openings, with most of these individuals occurring at a distance of approximately 197–262 ft (60–80 m) from spring outlets (Bendik et al. 2016, pp. 9–10, 16).

The Jollyville Plateau salamander has been found up to 262 ft (80 m) both upstream and downstream from a spring outlet (Bendik et al. 2016, p. 9). That salamander species, along with the Georgetown and Salado salamanders, comprise a closely related subgenus, *Septentriomolge*, occurring in the Northern Segment of the Edwards Aquifer (Hillis et al. 2001, pp. 275, 277; Devitt et al. 2019, pp. 2626–2628). Members of the *Eurycea* subgenus can travel greater distances from a discrete spring opening than previously thought, including upstream areas (Bendik et al. 2016, p. 9). Therefore, we presume that the Georgetown and Salado salamanders may move a comparable distance and that aquatic habitat away from spring openings is potentially important to salamander reproduction.

Georgetown and Salado salamanders likely use the subterranean aquifer for habitat throughout the year, similar to

other *Eurycea* species (Bendik and Gluesenkamp 2012, pp. 4–5; Bendik et al. 2013, pp. 10–12, 15; Bendik 2017, p. 5,013; Diaz and Bronson-Warren 2018, p. 11; Devitt et al. 2019a, p. 2,625). Morphological forms of Georgetown salamander with cave adaptations have been found at two caves (TPWD 2011, p. 8), indicating that they spend all of their lives underground at these two locations. We assume that the Salado salamander also uses subsurface areas given recruitment of individuals to the surface from the underlying aquifer, with surface recruitment at one occupied spring opening in Bell County estimated at 0.03 salamanders per day (Diaz and Bronson-Warren 2019, p. 7). Therefore, based on the information above, we identify springs, associated streams, and underground spaces within the Northern Segment of the Edwards Aquifer to be physical or biological features essential for individual and population growth and for normal behavior of the Georgetown and Salado salamanders.

#### *Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements*

##### Georgetown and Salado Salamanders

No species-specific dietary study has been completed, but the diet of the Georgetown salamander is presumed to be similar to other *Eurycea* species, consisting of small aquatic invertebrates such as amphipods, copepods, isopods, and insect larvae (reviewed in COA 2001, pp. 5–6). Crustaceans from the Class Ostracoda were the most commonly observed prey item for Salado salamanders (Diaz and Bronson-Warren 2018, pp. 8, 14). Other invertebrates consumed by the Salado salamander included amphipods, aquatic snails, and larvae of mayflies and caddisflies (Diaz and Bronson-Warren 2018, p. 14).

Georgetown and Salado salamanders are strictly aquatic and spend their entire lives submerged in water from the Northern Segment of the Edwards Aquifer (Pierce et al. 2010, p. 296; Diaz and Bronson-Warren 2019, p. 7). These salamanders, and the prey that they feed on, require water sourced from the Edwards Aquifer at sufficient flows (*i.e.*, quantity) to meet all of their physiological requirements (TPWD 2011, p. 8). This water should be flowing and unchanged in chemistry, temperature, and volume from natural conditions. Currently, only a limited subset of springs inhabited by Georgetown and Salado salamanders have been assessed for water quality. Research at additional occupied spring

sites will aid in refining the range of suitable water quality parameters these salamanders depend upon. Our assessment of water quality parameters was restricted to a subset of relatively intact spring sites with available water quality data—specifically, Robertson Springs in Bell County and Cobbs, Cowan, King's Garden, Swinbank, and Twin Springs in Williamson County. The Salado salamander occurs at five (*i.e.*, Robertson, Cobbs, Cowan, King's Garden, and Twin Springs) of these springs. The Georgetown salamander occupies Swinbank Spring. We presume that water quality parameters at these other sites are suitable for the Georgetown salamander as well given that species' co-occurrence in the Northern Segment of the Edwards Aquifer. These spring sites provide some degree of a representative sample as they lie along a roughly north to south line across that segment of the Edwards Aquifer, from southern Bell County to central Williamson County.

Water temperature recorded at the six springs referenced above averaged 69 degrees Fahrenheit (°F) (21 degrees Celsius (°C)) and ranged from 61 to 84 °F (16 to 29 °C) (Diaz et al. 2015, p. 10; Diaz et al. 2016, p. 14; Cambrian Environmental 2016, pp. 3, 5, 7; Cambrian Environmental 2017a, pp. 3, 5, 7; Cambrian Environmental 2017b, pp. 5, 8, 12; Diaz and Montagne 2017, p. 17; Cambrian Environmental 2018a, pp. 4, 9, 13; Cambrian Environmental 2018c, pp. 13–14; Cambrian Environmental 2019a, pp. 37–38; Cambrian Environmental 2019b, pp. 295–297, 329; Cambrian Environmental 2020, pp. 35–36). Concentrations of contaminants should be below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Georgetown and Salado salamanders' prey base).

Edwards Aquifer *Eurycea* species are adapted to a lower ideal range of oxygen saturations compared to other salamanders (Turner 2009, p. 11). However, *Eurycea* salamanders need dissolved oxygen concentrations to be above a certain threshold, as the related Barton Springs salamander demonstrates declining abundance with dissolved oxygen levels below 5 milligrams per liter (mg/L) (Turner 2004, pp. 5–7, 10; Turner 2009, pp. 12–15). In addition, dissolved oxygen concentrations below 4.5 mg/L resulted in a number of physiological effects in the related San Marcos salamander, including decreased metabolic rates and decreased juvenile growth rates (Woods et al. 2010, p. 544). Large-scale mortality

of a San Marcos salamander was expected if dissolved oxygen dropped below 3.4 mg/L for extended periods (*i.e.*, 25 days) (Woods et al. 2010, pp. 544, 549–551).

Lower dissolved oxygen values have been noted at sites inhabited by the Georgetown and Salado salamanders, with measured values as low as 1.5 mg/L (Cambrian Environmental 2018, p. 22). Reported impacts to Georgetown and/or Salado salamanders, in the presence of lower dissolved oxygen, are limited. One Georgetown salamander site (*i.e.*, Swinbank Spring) experienced a decrease in dissolved oxygen to 2.2 mg/L in June 2016, with levels rebounding in July 2016 to 6.4 mg/l (Cambrian Environmental 2017b, p. 8). No decline in numbers of salamanders was noted after that event (Cambrian Environmental 2017b, p. 22). Dissolved oxygen at that spring averaged 7.2 mg/L for the remainder of 2016 (Cambrian Environmental 2017b, p. 8). Conversely, Cobbs Spring, occupied by the Salado salamander, experienced a decrease in dissolved oxygen to 3.2 mg/L in February 2016, and remained below 4.0 mg/L into March 2016 (Cambrian Environmental 201a8, p. 13). That low dissolved oxygen event was followed by sharper declines in August 2016 to 1.5 mg/L with dissolved oxygen remaining below 4.0 mg/L through September 2016 (Cambrian Environmental 2018a, p. 13). Numbers of Salado salamanders observed at this spring declined after the latter event and remained low throughout 2017 (Cambrian Environmental 2018a, pp. 13, 42–43). Subsequently, numbers of Salado salamanders observed at this spring have increased (Cambrian Environmental 2020, p. 18).

Based on available water quality data, the six relatively intact springs in Bell and Williamson counties are generally characterized by average dissolved oxygen of 6.6 mg/L with recorded levels ranging from 1.5 to 13.3 mg/L (Diaz et al. 2015, p. 10; Diaz et al. 2016, p. 14; Cambrian Environmental 2016, pp. 3, 5, 7; Cambrian Environmental 2017a, pp. 3, 5, 7; Cambrian Environmental 2017b, pp. 5, 8, 12; Diaz and Montagne 2017, p. 17; Cambrian Environmental 2018a, pp. 4, 9, 13; Cambrian Environmental 2018c, pp. 13–14; Cambrian Environmental 2019a, pp. 37–38; Cambrian Environmental 2019b, pp. 295–297, 329; Cambrian Environmental 2020, pp. 35–36). Dissolved oxygen below 4.5 mg/L appears to have some impact on Salado salamander abundance. This is consistent with observed effects on the Barton Springs and San Marcos salamanders (Turner 2004, pp. 5–7, 10; Turner 2009, pp. 12–

15; Woods et al. 2010, pp. 544, 549–551). Woods et al. (2010, p. 540) states that an ambient concentration of dissolved oxygen of 5.0 mg/L appears adequate to sustain *Eurycea* salamanders. Therefore, we presume that dissolved oxygen in the range of 5.0 to 13.0 mg/L is important to the Georgetown and Salado salamanders for respiratory function. Research is needed to better define the physiological tolerances of the Georgetown and Salado salamanders to low dissolved oxygen.

The conductivity of water is also important to salamander physiology. Increased conductivity is associated with increased water contamination and decreased *Eurycea* abundance (Willson and Dorcas 2003, pp. 766–768; Bowles et al. 2006, pp. 117–118). The lower limit of observed conductivity in developed Jollyville Plateau salamander sites where salamander densities were lower than undeveloped sites was 800 micro Siemens per centimeter (μS/cm) (Bowles et al. 2006, p. 117). Salamanders were significantly more abundant at undeveloped sites where water conductivity averaged 600 μS/cm (Bowles et al. 2006, p. 117). Because of their similar physiology to the Jollyville Plateau salamander, we presume that the Georgetown and Salado salamanders will have a similar response to elevated water conductance (*i.e.*, specific conductance). Water conductance at six relatively intact salamander sites averaged 671 μS/cm and ranged from 317 to 814 μS/cm (Diaz et al. 2015, p. 10; Diaz et al. 2016, p. 14; Cambrian Environmental 2016, pp. 3, 5, 7; Cambrian Environmental 2017a, pp. 3, 5, 7; Cambrian Environmental 2017b, pp. 5, 8, 12; Diaz and Montagne 2017, p. 17; Cambrian Environmental 2018a, pp. 4, 9, 13; Cambrian Environmental 2018c, pp. 13–14; Cambrian Environmental 2019a, pp. 37–38; Cambrian Environmental 2019b, pp. 295–297, 329; Cambrian Environmental 2020, pp. 35–36). Although one laboratory study on the related San Marcos salamander demonstrated that conductivities up to 2,738 μS/cm had no measurable effect on adult activity (Woods and Poteet 2006, p. 5), it remains unclear how elevated water conductance might affect juveniles or the long-term health of salamanders in the wild. Bowles et al. (2006, pp. 117–118) documented lower densities of the Jollyville Plateau salamander at sites with higher amounts of human development and high specific conductance (*i.e.*, average of 917 μS/cm). Greater densities of that salamander were observed in

undeveloped (*i.e.*, less than 10 percent impervious cover) sites with lower specific conductance (593 μS/cm) (Bowles et al. 2006, pp. 117–118). Higher specific conductance at developed sites was attributed to the presence of contaminants from roadway runoff, wastewater leakage, and fertilizer use (Bowles et al. 2016, pp. 118–119). A more recent assessment of contaminants uptake in the Georgetown, Jollyville Plateau, and Salado salamanders found higher amounts of contaminants (*e.g.*, organochlorines and polycyclic aromatic hydrocarbons) at more heavily developed sites (*i.e.*, greater than 10 percent impervious cover) and in the tissues of the salamanders themselves (Diaz et al. 2020, pp. 291–294). In that study, specific conductance of developed sites averaged 798 μS/cm, whereas sites with little to no impervious cover averaged 684 μS/cm (Diaz et al. 2020, Table S5). In the absence of better information on the sensitivity of salamanders to changes in conductivity (or other contaminants) in the wild, it is reasonable to presume that salamander survival, growth, and reproduction will be most successful when water quality is unaltered from natural aquifer conditions.

Therefore, based on the information above, we identify aquatic invertebrates and water from the Northern Segment of the Edwards Aquifer, including adequate dissolved oxygen concentration of 5.0 to 13.0 mg/L, water conductance of 317 to 814 μS/cm, and water temperature of 61 to 84 °F (16 to 29 °C), to be physical or biological features essential for the nutritional and physiological requirements of the Georgetown and Salado salamanders.

#### Cover or Shelter

Similar to other *Eurycea* salamanders in central Texas, Georgetown and Salado salamanders move an unknown depth into the interstitial spaces (empty voids between rocks) within the substrate, using these spaces for foraging habitat and cover from predators (Cole 1995, p. 24; Pierce and Wall 2011, pp. 16–17; Jones et al. 2020, pp. 291–292). These spaces should have minimal sediment, as sediment fills interstitial spaces, eliminating resting places and reducing habitat of the prey base (small aquatic invertebrates) (O'Donnell et al. 2006, p. 34).

Georgetown and Salado salamanders have been observed under rocks, leaf litter, woody debris, and other cover objects (Pierce et al. 2010, p. 295; Diaz and Montagne 2017, p. 10; Diaz and Bronson-Warren, 2019, p. 7). Georgetown salamanders appear to

prefer large rocks over other cover objects (Pierce et al. 2010, p. 295), which is consistent with other studies on *Eurycea* habitat (Bowles et al. 2006, pp. 114, 116). Larger rocks provide more suitable interstitial spaces for foraging and cover. Other studies have noted greater detection of Salado salamanders in gravels, although cobble is occupied as well (Diaz and Montagne 2017, p. 10; Diaz and Bronson-Warren, 2019, p. 7).

If springs stop flowing and the surface habitat dries up, Jollyville Plateau salamanders recede with the water table and persist in groundwater refugia until surface flow returns (Bendik 2011a, p. 31). Access to refugia allows populations some resiliency against drought events. Due to the similar life history and habitats of the Georgetown and Salado salamanders, we presume that access to subsurface refugia for shelter during drought is also important for these salamanders.

Therefore, based on the information above, we identify rocky substrate, consisting of boulder, cobble, and gravel, with interstitial spaces that have minimal sediment, and access to the subsurface groundwater table to be physical or biological features essential for the cover and shelter for these species.

#### *Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring*

Little is known about the reproductive habits of these species in the wild. However, the Georgetown and Salado salamanders are fully aquatic, spending all of their life cycles in aquifer and spring waters. Eggs of central Texas *Eurycea* species are rarely seen on the surface, so it is widely assumed that eggs are laid underground (Gluesenkamp 2011a, TPWD, pers. comm.; Bendik 2011b, COA, pers. comm.).

Therefore, based on the information above, we identify access to subsurface or subterranean, water-filled voids of varying sizes (e.g., caves, conduits, fractures, and interstitial spaces) to be a physical or biological feature essential for breeding and reproduction for this species.

#### *Summary of Essential Physical or Biological Features for the Georgetown and Salado Salamanders*

We derive the specific physical or biological features essential for the Georgetown and Salado salamanders from studies of these species' habitat, ecology, and life history, as described above. We have determined that the following physical or biological features are essential to the conservation of the Georgetown and Salado salamanders:

#### *Georgetown Salamander*

(1) For surface habitat:  
 (A) *Water from the Northern Segment of the Edwards Aquifer*. Groundwater issuing to the surface from the underlying aquifer is similar to natural aquifer conditions as it discharges from natural spring outlets. Concentrations of water quality constituents and contaminants should be below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Georgetown salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with at least some surface flow during the year. The water chemistry of aquatic surface habitats is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Rocky substrate with interstitial spaces*. Rocks in the substrate of the salamander's surface aquatic habitat are large enough to provide salamanders with cover, shelter, and foraging habitat. The substrate and interstitial spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food*. The spring environment supports a diverse aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

(D) *Subterranean aquifer*. Access to the subsurface water table exists to provide shelter, protection, and space for reproduction. This access can occur in the form of large conduits that carry water to the spring outlet or porous voids between rocks in the streambed that extend down into the water table.

(2) For subsurface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer*. Groundwater quality is similar to natural aquifer conditions. Concentrations of water quality constituents and contaminants should be below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Georgetown salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with continuous flow. The water chemistry is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Subsurface spaces*. Voids between rocks underground are large enough to

provide salamanders with cover, shelter, and foraging habitat. These spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food*. The habitat supports an aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

#### *Salado Salamander*

(1) For surface habitat:  
 (A) *Water from the Northern Segment of the Edwards Aquifer*. Groundwater quality issuing to the surface from the underlying aquifer is similar to natural aquifer conditions as it discharges from natural spring outlets. Concentrations of water quality constituents and contaminants are below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Salado salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with at least some surface flow during the year. The water chemistry of aquatic surface habitats is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Rocky substrate with interstitial spaces*. Rocks in the substrate of the salamander's surface aquatic habitat are large enough to provide salamanders with cover, shelter, and foraging habitat. The substrate and interstitial spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food*. The spring environment is capable of supporting a diverse aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

(D) *Subterranean aquifer*. Access to the subsurface water table exists to provide shelter, protection, and space for reproduction. This access can occur in the form of large conduits that carry water to the spring outlet or porous voids between rocks in the streambed that extend down into the water table.

(2) For subsurface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer*. Groundwater quality is similar to natural aquifer conditions. Concentrations of water quality constituents and contaminants are below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Salado salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with continuous flow. The water chemistry is similar to natural

aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Subsurface spaces*. Voids between rocks underground are large enough to provide salamanders with cover, shelter, and foraging habitat. These spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food*. The habitat is capable of supporting an aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

#### **Special Management Considerations or Protection**

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of these species may require special management considerations or protection to reduce the following threats: Water quality degradation from contaminants, alteration to natural flow regimes, and physical habitat modification.

The areas designated for critical habitat include both surface and subsurface critical habitat components. The surface critical habitat includes the spring outlets and outflow up to the high water line and 150 ft (80 m) of downstream habitat, but does not include human-made structures (such as buildings, aqueducts, runways, roads, and other paved areas); nor does it include upland habitat adjacent to streams. However, the subterranean aquifer may extend below such structures beneath the surface habitat. The subsurface critical habitat includes underground features in a circle with a radius of 984 ft (300 m) around the springs. Most of designated critical habitat is a subsurface designation and only includes the physical area beneath any buildings on the surface.

We detailed threats to surface and subsurface habitats under A. *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range* in the final listing rule for the Georgetown and Salado salamanders (79 FR 10236, February 24, 2014, pp. 79 FR 10258–10279). The Georgetown and Salado salamanders are sensitive to modification of surface (*i.e.*, spring openings and outflow) and subsurface habitats. Due to the connectivity between the surface and subsurface habitats, an impact to one

will affect the other. Examples of surface habitat modifications may include (but are not limited to) damage to spring openings, sedimentation due to construction activities, and installation of impoundments. Examples of impacts to subsurface habitat may include (but are not limited to) pipeline construction, replacement, and maintenance; excavation for construction or quarrying; and groundwater depletion that can reduce spring flow. The depth of the subsurface habitat will vary from site to site.

For these salamanders, special management considerations or protections may be needed to address identified threats. Management activities that could ameliorate threats to surface habitat include (but are not limited to): (1) Protecting the quality of cave and spring water by implementing comprehensive programs to control and reduce point sources and non-point sources of pollution throughout the Northern Segment of the Edwards Aquifer; (2) minimizing the likelihood of pollution events or surface runoff from existing and future development that would affect groundwater quality; (3) protecting groundwater and spring flow quantity (for example, by implementing water conservation and drought contingency plans throughout the Northern Segment of the Edwards Aquifer); (4) protecting water quality and quantity from present and future quarrying; (5) excluding cattle and feral hogs from spring openings and outflow through fencing to protect spring habitats from damage; and (6) fencing and signage to protect spring habitats from human vandalism. Some of the management activities listed above, such as those that protect spring flow and groundwater quality, protect both surface and subsurface habitats, as these are interconnected.

Additional management activities that could ameliorate threats that are specific to subsurface habitat include (but are not limited to): (1) The development and implementation of void mitigation plans for construction projects to prevent impacts to salamanders in the event of severed aquifer conduits or interrupted groundwater flow paths; (2) site-specific plans developed by geotechnical engineers to prevent changes to subsurface water flow from construction activities; (3) the presence of environmental monitors during construction, excavation, and drilling activities to monitor spring flow; and (4) post-construction monitoring of spring flow. Because subsurface habitat differs with regard to groundwater flow paths, depth, and amount of water-bearing rocks with voids that can support

salamanders, management, and mitigation plans to ameliorate threats will need to be developed on a site-specific basis.

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

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat. During our preparation for designating critical habitat for the two salamander species, we reviewed: (1) Data for historical and current occurrence; (2) information pertaining to habitat features essential for the conservation of these species; and (3) scientific information on the biology and ecology of the two species. We have also reviewed a number of studies and surveys of the two salamander species that confirm historical and current occurrence of the two species including, but not limited to, Sweet (1978; 1982), Russell (1993), Warton (1997), City of Austin (COA)(2001), Chippindale et al. (2000), Hillis et al. (2001), and Devitt et al. (2019). Finally, salamander site locations and observations were verified with the aid of salamander biologists, museum collection records, and site visits.

We are not designating any additional areas outside the geographical area occupied by these species because we have determined that occupied areas are sufficient to conserve the Georgetown and Salado salamanders, although we acknowledge that other areas, such as the recharge zone of the aquifers supporting salamander locations, are very important to the conservation of the species. This critical habitat designation delineates the habitat that is physically occupied and used by the species rather than delineating all land or aquatic areas that influence the species. We also recognize that there may be additional occupied areas outside of the areas designated as critical habitat that we are not aware of at the time of this designation that may be necessary for the conservation of the species. For the purpose of designating critical habitat for the Georgetown and Salado salamanders, we define an area as occupied based upon the reliable observation of either salamander species

by a knowledgeable scientist and cited within published articles, unpublished reports, and Service files including Hunter and Russell (1993, p. 7–8), Pierce and Wall (2011, pp. 2–3), Chippindale et al. (2000, pp. 39–43), Diaz and Montagne (2017, p. 6), Cambrian Environmental (201bc, pp. 5–6), Devitt et al. (2019a, pp. 2,626, 2,628), and Devitt et al. (2019b, pp. 16–18). It is very difficult to determine whether a salamander population has been extirpated from a spring site due to these species' ability to occupy the inaccessible subsurface habitat. The Georgetown and Salado salamanders are not capable of long-distance dispersal between isolated springs due to their reliance on discrete, groundwater-dependent ecosystems. Springs in central Texas are frequently historical features of the landscape that predate European settlement of the North American continent (Brune 1981, pp. 65–69, 473–476). We, therefore, consider sites with observations of salamanders at the time of listing to be currently occupied, unless that spring or cave site had been destroyed.

Based on our review, the critical habitat areas (described below) are within the geographical range occupied by at least one of the two salamander species and meet the definition of critical habitat. The true extent to which the subterranean populations of these species exist below ground away from outlets of the spring system is unknown because the hydrology of central Texas is very complex and information on the hydrology of specific spring sites is largely unknown. We will continue to seek information to increase our understanding of spring hydrology and salamander underground distribution to inform conservation efforts for these species. At the time of this final critical habitat rule, the best scientific evidence available indicates that a population of groundwater-dependent *Eurycea* salamanders can extend at least 984 ft (300 m) from the spring opening through underground conduits or voids between rocks. For example, the Austin blind salamander is thought to occur underground throughout the entire Barton Springs complex (Dries 2011, pers. comm.). The spring habitats used by salamanders of the Barton Springs complex are not connected on the surface, so the Austin blind salamander population extends at least 984 ft (300 m) underground, as this is the approximate distance between the farthest two outlets within the Barton Springs complex known to be occupied by the species.

We designate critical habitat in areas that we have determined are occupied

by one of the two salamanders and contain physical or biological features essential to the conservation of the species. We delineated both surface and subsurface critical habitat components. As previously stated, a Jollyville Plateau salamander was observed to have traveled up to 1,640 ft (500 m) after multiple years (*i.e.*, 2010–2014) in Bull Creek (Bendik et al. 2016, p. 9). However, the surface critical habitat component was delineated by starting with the spring point locations that are occupied by the salamanders and extending a line upstream and downstream 262 ft (80 m). This was the farthest distance a *Eurycea* salamander has been observed from a spring outlet over a 4-month period (*i.e.*, January to April) in a single year (Bendik et al. 2016, pp. 9–10) and is likely a more reasonable distance for salamanders in common hydrological settings. We applied this maximum distance to account for the potential movement and surface habitat use of Georgetown and Salado salamanders upstream and downstream of spring openings. It is reasonable to consider the downstream and upstream habitat occupied based on the dispersal capabilities observed in individuals of very similar species. When determining surface critical habitat boundaries, we were not able to delineate specific stream segments on the map due to the small size of the streams. Therefore, we drew a circle with a 262-ft (80-m) radius representing the extent the surface population of the site is estimated to exist upstream and downstream. This circle does not include upland habitat adjacent to streams. The surface critical habitat includes the spring outlets and outflow up to the ordinary high water mark (the average amount of water present in nonflood conditions, as defined in 33 CFR 328.3(e)) and 262 ft (80 m) of upstream and downstream habitat (to the extent that this habitat is ever present), including the dry stream channel during periods of no surface flow. We acknowledge that some spring sites occupied by one of the two salamanders are the start of the watercourse, and upstream habitat does not exist for these sites. The surface habitat we are designating as critical habitat does not include human-made structures (such as buildings, aqueducts, runways, roads, and other paved areas) within this circle, nor does it include upland habitat adjacent to streams.

We delineated the subsurface critical habitat unit boundaries by starting with the cave or spring point locations that are occupied by the salamanders. Depth to subsurface habitat will vary from site

to site based on local geology. From these cave or spring points, we delineated an area with a 984-ft (300-m) radius to create the polygons that capture the extent to which we estimate the salamander populations exist through underground habitat. This radial distance comes from observations of the Austin blind salamander, which is thought to occur underground throughout the entire Barton Springs complex (Dries 2011, COA, pers. comm.). The Austin blind salamander is a reasonable surrogate for Salado and Georgetown salamanders, as it also inhabits subsurface, water-filled voids in the underlying Edwards Aquifer (Hillis et al. 2001, p. 23). The spring outlets used by salamanders of the Barton Springs complex are not connected on the surface, so the Austin blind salamander population extends a horizontal distance of at least 984 ft (300 m) underground, as this is the approximate distance between the farthest two outlets within the Barton Springs complex known to be occupied by the species. This distance was applied to the Georgetown and Salado salamanders given their reliance on subsurface aquifer habitats (Bendik and Gluesenkamp 2012, pp. 4–5; Bendik et al. 2013, pp. 10–12, 15; Bendik 2017, p. 5,013; Diaz and Bronson-Warren 2018, p. 11; Devitt et al. 2019, p. 2,625). Polygons that were within 98 ft (30 m) of each other were merged together as these areas have the potential to be connected underground (Devitt et al. 2019a, pp. 2,629–2,630). Each merged polygon was then revised by removing extraneous divots or protrusions that resulted from the merge process.

Developed areas of surface habitat, such as lands covered by buildings, pavement, and other structures, lack physical or biological features for the Georgetown and Salado salamanders. 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 final rule have been excluded by text in the final rule and are not designated as critical habitat. Therefore, 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 designate as critical habitat lands that we have determined are occupied at the time of listing (*i.e.*, currently occupied) and that contain one or more

of the physical or biological features that are essential to support life-history processes of the species.

The critical habitat designation is defined by the maps, as modified by any accompanying regulatory text, presented at the end of this document under Regulation Promulgation. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048 and on our internet site at [https://www.fws.gov/southwest/es/AustinTexas/ESA\\_Sp\\_Salamanders.html](https://www.fws.gov/southwest/es/AustinTexas/ESA_Sp_Salamanders.html).

### Final Critical Habitat Designation

We are designating as critical habitat nine units for the Georgetown salamander and seven units for the Salado salamander. In Tables 1 and 2 below, we present the critical habitat units for the Georgetown and Salado salamanders. All units are considered occupied by the relevant species at the time of listing. We also provide unit descriptions for all Georgetown and Salado salamander critical habitat units. The critical habitat areas we describe below constitute our current best assessment of subsurface and surface areas that meet the definition of critical habitat for the Georgetown and Salado salamanders. During periods of drought or dewatering on the surface in and

around spring sites, access to the subsurface water table must be provided for shelter and protection. Surface critical habitat includes the spring outlets and outflow up to the high water line and 262 ft (80 m) of downstream habitat, but does not include terrestrial habitats or human-made 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 (see **DATES**, above) or land adjacent to streams; however, the subterranean aquifer may extend below such structures. The subsurface critical habitat includes underground features in a circle with a radius of 984 ft (300 m) around the springs.

TABLE 1—CRITICAL HABITAT UNITS FOR THE GEORGETOWN SALAMANDER

Critical habitat unit	Land ownership by type	Size of unit in acres (hectares)
1. Water Tank Cave Unit .....	Private .....	68 (28)
2. Hogg Hollow Spring Unit .....	Private, Federal .....	122 (49)
3. Cedar Hollow Spring Unit .....	Private .....	68 (28)
4. Lake Georgetown Unit .....	Federal, Private .....	134 (54)
5. Buford Hollow Spring Unit .....	Federal, Private .....	68 (28)
6. Swinbank Spring Unit .....	City, Private .....	68 (28)
7. Avant Spring Unit .....	Private .....	68 (28)
8. Shadow Canyon Spring Unit .....	City, Private .....	68 (28)
9. Garey Ranch Spring Unit .....	Private .....	68 (28)
Total .....	.....	732 (299)

**Note:** Area sizes may not sum due to rounding. Area estimates reflect all land within critical habitat unit boundaries.

TABLE 2—CRITICAL HABITAT UNITS FOR THE SALADO SALAMANDER

Critical habitat unit	Land ownership by type	Size of unit in acres (hectares)
1. Hog Hollow Spring Unit .....	Excluded under section 4(b)(2) of the Act.	
2. Solana Spring Unit .....	Excluded under section 4(b)(2) of the Act.	
3. Cistern Spring Unit .....	Excluded under section 4(b)(2) of the Act.	
4. IH-35 Unit .....	Private, State, City .....	175 (71)
5. King's Garden Main Spring Unit .....	Private .....	68 (28)
6. Cobbs Spring Unit .....	Private .....	68 (28)
7. Cowan Creek Spring Unit .....	Private .....	68 (28)
8. Walnut Spring Unit .....	Private, County .....	68 (28)
9. Twin Springs Unit .....	Private, County .....	68 (28)
10. Bat Well Cave Unit .....	Private .....	68 (28)
Total .....	.....	583 (239)

**Note:** Area sizes may not sum due to rounding. Area estimates reflect all land within critical habitat unit boundaries.

#### Georgetown Salamander

Critical habitat units for the Georgetown salamander may require special management because of the potential for groundwater pollution from current and future development in the watershed, present operations and future expansion of quarrying activities, depletion of groundwater, and other

threats (see Special Management Considerations or Protection, above). All units are occupied by the Georgetown salamander. The designation includes the spring outlets and outflow up to the high-water mark and 262 ft (80 m) of upstream and downstream habitat. Units are further delineated by drawing a circle with a radius of 984 ft (300 m)

around the spring, representing the extent of the subterranean critical habitat. For cave populations of the Georgetown salamander, the unit is delineated by drawing a circle with a radius of 984 ft (300 m) around the underground location of the salamanders, representing the extent of the subsurface critical habitat.

**Unit 1: Water Tank Cave Unit**

Unit 1 consists of approximately 68 ac (28 ha) of private land in west-central Williamson County, Texas. A golf course crosses the unit from northwest to southeast, and there are several roads in the eastern part of the unit. A secondary road crosses the extreme southern portion of the unit, and there are residences in the northwestern, southwestern, and west-central portions of the unit. This unit contains Water Tank Cave, which is occupied by the Georgetown salamander. Only subsurface critical habitat was designated for this cave population. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 2: Hogg Hollow Spring Unit**

Unit 2 consists of approximately 122 ac (49 ha) of U.S. Army Corps of Engineers land and private land in Williamson County, Texas. The unit is located south of Lake Georgetown and is mostly undeveloped. The northwestern part of the unit includes Sawyer Park, part of the Lake Georgetown recreation area. This unit contains two springs: Hogg Hollow Spring and Hogg Hollow 2 Spring, which are occupied by the Georgetown salamander. Hogg Hollow Spring is located on Hogg Hollow, and Hogg Hollow 2 Spring is located on an unnamed stream, both tributaries to Lake Georgetown. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 3: Cedar Hollow Spring Unit**

Unit 3 consists of approximately 68 ac (28 ha) of private land in west-central Williamson County, Texas. A secondary road crosses the extreme southern portion of the unit, and there are residences in the northwestern, southwestern, and west-central portions of the unit. This unit contains Cedar Hollow Spring, which is occupied by the Georgetown salamander. The spring is located on Cedar Hollow, a tributary to Lake Georgetown. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 4: Lake Georgetown Unit**

Unit 4 consists of approximately 134 ac (54 ha) of Federal and private land in west-central Williamson County, Texas. Part of the unit is the U.S. Army Corps of Engineers' Lake Georgetown property. There are currently no plans to develop the property. There is some control of public access. Unpaved roads are found in the western portion of the unit, and a trail begins in the central part of the unit and leaves the northeast corner. A

secondary road crosses the extreme southern portion of the unit, and there are residences in the northwestern, southwestern, and west-central portions of the unit. A large quarry is located a short distance southeast of the unit. This unit includes two springs, Knight (Crockett Gardens) Spring and Cedar Breaks Hiking Trail Spring, which are occupied by the Georgetown salamander. The springs are located on an unnamed tributary to Lake Georgetown. A portion of the northern part of the unit extends under Lake Georgetown. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 5: Buford Hollow Spring Unit**

Unit 5 consists of approximately 68 ac (28 ha) of Federal and private land in west-central Williamson County, Texas. The unit is located just below the spillway for Lake Georgetown. The U.S. Army Corps of Engineers owns most of this unit as part of Lake Georgetown. The D.B. Wood Road, a major thoroughfare, crosses the eastern part of the unit. The rest of the unit is undeveloped. This unit contains Buford Hollow Springs, which is occupied by the Georgetown salamander. The spring is located on Buford Hollow, a tributary to the North Fork San Gabriel River. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 6: Swinbank Spring Unit**

Unit 6 consists of approximately 68 ac (28 ha) of City and private land in west-central Williamson County, Texas. The unit is located near River Road south of Melanie Lane. The northern part of the unit is primarily in residential development, while the southern part of this unit is primarily undeveloped. This unit contains Swinbank Spring, which is occupied by the Georgetown salamander. The spring is located just off the main channel of North Fork San Gabriel River. The unit contains the physical or biological features essential for the conservation of the species. The population of Georgetown salamanders in the spring is being monitored monthly as part of the Williamson County Regional HCP's efforts to conserve the species.

**Unit 7: Avant Spring Unit**

Unit 7 consists of approximately 68 ac (28 ha) of private land in west-central Williamson County, Texas. The northern part of a large quarry is along the southwestern edge of the unit. The rest of the unit is undeveloped. This unit contains Avant's (Capitol Aggregates) Spring, which is occupied

by the Georgetown salamander. The spring is close to the streambed of the Middle Fork of the San Gabriel River. The unit contains the physical or biological features essential for the conservation of the species.

**Unit 8: Shadow Canyon Spring Unit**

Unit 8 consists of approximately 68 ac (28 ha) of City and private land in west-central Williamson County, Texas. The unit is located just south of State Highway 29. This unit contains Shadow Canyon Spring, which is occupied by the Georgetown salamander. The spring is located on an unnamed tributary of South Fork San Gabriel River. The unit contains the essential physical or biological features for the conservation of the species. The unit is authorized for development under the Shadow Canyon HCP. Impacts to the endangered golden-cheeked warbler (*Dendroica chrysoparia*) and Bone Cave harvestman (*Texella reyesi*) are permitted under the Shadow Canyon HCP; however, impacts to Georgetown salamander are not covered under the HCP.

**Unit 9: Garey Ranch Spring Unit**

Unit 9 consists of approximately 68 ac (28 ha) of private land in Williamson County, Texas. The unit is located north of RM 2243. The unit is mostly undeveloped. A small amount of residential development enters the southern and eastern parts of the unit. This unit contains Garey Ranch Spring, which is occupied by the Georgetown salamander. It is located on an unnamed tributary to the South Fork San Gabriel River. The unit contains the physical or biological features essential for the conservation of the species.

***Salado Salamander***

Critical habitat units for the Salado salamander may require special management because of the potential for groundwater pollution from current and future development in the watershed, present operations and future expansion of quarrying activities, depletion of groundwater, and other threats (see Special Management Considerations or Protection, above). All units are considered to be occupied by the Salado salamander. The designation includes the spring outlets and outflow up to the high-water mark and 262 ft (80 m) of upstream and downstream habitat. Units are further delineated by drawing a circle with a radius of 984 ft (300 m) around the spring, representing the extent of the subterranean critical habitat. For cave populations of the Salado salamander, the unit is delineated by drawing a circle with a radius of 984 ft (300 m) around the

underground location of the salamanders, representing the extent of the subsurface critical habitat.

#### Unit 1: Hog Hollow Spring Unit

Unit 1 consists of approximately 68 ac (28 ha) of private land located in southwestern Bell County, Texas. The unit is primarily undeveloped ranch land. This unit contains Hog Hollow Spring, which is occupied by the Salado salamander. The unit is located on a tributary to Rumsey Creek in the Salado Creek drainage and contains the physical or biological features essential for the conservation of the species. In 2016, the owners of the spring entered into an agreement with The Nature Conservancy for a perpetual conservation easement that provides long-term protection for this site. We have excluded the entire unit from this final critical habitat designation (see Exclusions, below).

#### Unit 2: Solana Spring Unit

Unit 2 consists of approximately 68 ac (28 ha) of private land located in southwestern Bell County, Texas. The unit is primarily undeveloped ranch land. This unit contains Solana Spring, which is occupied by the Salado salamander. The unit is located on a tributary to Rumsey Creek in the Salado Creek drainage and contains the physical or biological features essential for the conservation of the species. In 2016, the owners of the spring entered into an agreement with The Nature Conservancy for a perpetual conservation easement that provides long-term protection for this site. We have excluded the entire unit from the final critical habitat designation (see Exclusions, below).

#### Unit 3: Cistern Spring Unit

Unit 3 consists of approximately 68 ac (28 ha) of private land located in southwestern Bell County, Texas, on the same private ranch as Units 1 and 2 for the Salado salamander. The unit is primarily undeveloped ranch land. This unit contains Cistern Spring, which is occupied by the Salado salamander. The unit is located on a tributary to Rumsey Creek in the Salado Creek drainage and contains the physical or biological features essential for the conservation of the species. In 2016, the owners of the spring entered into an agreement with The Nature Conservancy for a perpetual conservation easement that provides long-term protection for this site. We have excluded the entire unit from the final critical habitat designation (see Exclusions, below).

#### Unit 4: IH-35 Unit

Unit 4 consists of approximately 175 ac (71 ha) of private, State, and City of Salado land located in southwestern Bell County, Texas, in the southern part of the Village of Salado. The unit extends along Salado Creek on both sides of Interstate Highway 35 (IH 35). The unit contains the physical or biological features essential for the conservation of the species. The IH 35 right-of-way crosses Salado Creek and is owned by the Texas Department of Transportation. The unit is a mixture of residential and commercial properties on its eastern portion, with some undeveloped ranch land in the western part west of IH-35. This unit contains Robertson Springs complex, located on private property. West of IH-35 consists of two springs, Creek Spring and Sam Bass Spring, and five spring openings, Bathtub, Beaver Upper, Beaver Middle, Headwaters, and María, occupied by the Salado salamander. East of IH-35, the Downtown Spring complex of Unit 4 contains five springs, Anderson Spring, Big Boiling Spring, Lazy Days Fish Farm, Lil' Bubbly Spring, and Side Spring, which are all located on private property and occupied by the Salado salamander.

The spring habitat within this unit has been modified. In the fall of 2011, the outflow channels and edges of Big Boiling Spring and Lil' Bubbly Spring were reconstructed by a local organization, with large limestone blocks and mortar, to increase human access and visitation. In addition, in response to other activity in the area, the U.S. Army Corps of Engineers issued a cease-and-desist order to the Salado Chamber of Commerce in October 2011, for unauthorized discharge of dredged or fill material that occurred in this area (Brooks 2011, U.S. Corps of Engineers, in litt.). This order was issued in relation to the need for a section 404 permit under the Clean Water Act (33 U.S.C. 1251 *et seq.*). A citation from a Texas Parks and Wildlife Department (TPWD) game warden was also issued in October 2011, due to the need for a sand and gravel permit from the TPWD for work being conducted within TPWD jurisdiction (Heger 2012a, pers. comm.). The citation was issued because the Salado Chamber of Commerce had been directed by the game warden to stop work within TPWD jurisdiction, which they did temporarily, but work started again contrary to the game warden's directive (Heger 2012a, pers. comm.). A sand and gravel permit was obtained on March 21, 2012. The spring run modifications were already completed by this date, but further modifications in

the springs were prohibited by the permit. Additional work on the bank upstream of the springs was permitted and completed (Heger 2012b, pers. comm.).

#### Unit 5: King's Garden Main Spring Unit

Unit 5 consists of approximately 68 ac (28 ha) of private land in northern Williamson County, Texas. The unit is undeveloped land. The unit contains King's Garden Main Spring, which is occupied by the Salado salamander. The surface population of King's Garden Main Spring has been observed at the spring's outlet. The unit contains the physical or biological features essential for the conservation of the species.

#### Unit 6: Cobbs Spring Unit

Unit 6 consists of approximately 68 ac (28 ha) of private land located in northwestern Williamson County, Texas. The unit is undeveloped land. This unit contains Cobbs Spring, which is occupied by the Salado salamander. Cobbs Springs is located on Cobbs Springs Branch. The subsurface population of Cobbs Spring has been observed in Cobbs Well (Gluesenkamp 2011a, TPWD, pers. comm.), which is located approximately 328 ft (100 m) to the southwest of the spring. The unit contains the physical or biological features essential for the conservation of the species.

#### Unit 7: Cowan Creek Spring Unit

Unit 7 consists of approximately 68 ac (28 ha) of private land located in west-central Williamson County, Texas. The northern portion of the unit is residential development; the remainder is undeveloped. This unit contains Cowan Creek Spring, which is occupied by the Salado salamander. The spring is located on Cowan Creek. The unit contains the physical or biological features essential for the conservation of the species.

#### Unit 8: Walnut Spring Unit

Unit 8 consists of approximately 68 ac (28 ha) of private and Williamson County land located in west-central Williamson County, Texas. The western, eastern, and northeastern portions of the unit contain low-density residential development; the southern and north-central portions are undeveloped. The extreme southeastern corner of the unit is part of Williamson County Conservation Foundation's Twin Springs Preserve. This unit contains Walnut Spring, which is occupied by the Salado salamander. The spring is located on Walnut Spring Hollow. The unit contains the physical or biological

features essential for the conservation of the species.

#### Unit 9: Twin Springs Unit

Unit 9 consists of approximately 68 ac (28 ha) of private and Williamson County land located in west-central Williamson County, Texas. The northern portion of the unit contains low-density residential development; the remainder of the unit is undeveloped. The majority of the unit is part of Williamson County Conservation Foundation's Twin Springs Preserve. The preserve is managed by Williamson Conservation Foundation as a mitigation property for the take of golden-cheeked warbler and Bone Cave harvestman under the Williamson County Regional HCP. The preserve habitat will be undeveloped in perpetuity. Salamander populations are monitored, and there is some control of public access. This unit contains Twin Springs, which is occupied by the Salado salamander. The spring is located on Taylor Ray Hollow, a tributary of Lake Georgetown. The unit contains the physical or biological features essential for the conservation of the species.

#### Unit 10: Bat Well Cave Unit

Unit 10 consists of approximately 68 ac (28 ha) of private land located in west-central Williamson County, Texas. The western, northern, and southern portion of the unit contains residential development. This unit contains Bat Well Cave, a cave occupied by the Salado salamander. The cave is located in the Cowan Creek watershed. Only subsurface critical habitat was designated for this cave population. The unit contains the physical or biological features essential to the conservation of the species.

### 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.

We published a final rule revising the definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed 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, authorized, or carried out by a Federal agency—do not require section 7 consultation.

Compliance with the requirements of section 7(a)(2), is documented 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, and 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 Service 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 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency’s discretionary involvement or control is authorized by law) and, subsequent to the previous consultation: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

In such situations, Federal agencies sometimes may need to request reinitiation of consultation with us, but the regulations also specify some exceptions to the requirement to reinitiate consultation on specific land management plans after subsequently listing a new species or designating new critical habitat. See the regulations for a description of those exceptions.

#### *Application of the “Destruction or Adverse Modification” Standard*

The key factor related to the destruction or adverse modification determination is whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat as a whole for the conservation of the listed species. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed 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 violate section 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

Activities that the Service may, during a consultation under section 7(a)(2) of the Act, be considered likely to destroy or adversely modify critical habitat include, but are not limited to:

(1) Actions that would physically disturb the surface or subsurface habitat

upon which these two salamander species depend. Such activities could include, but are not limited to, channelization, removal of substrate, clearing of vegetation, construction of commercial and residential development, quarrying, and other activities that result in the physical destruction of habitat or the modification of habitat so that it is not suitable for the species.

(2) Actions that would increase the concentration of sediment or contaminants in the surface or subsurface habitat. Such activities could include, but are not limited to, increases in impervious cover in the surface watershed, inadequate erosion controls on the surface and subsurface watersheds, and release of pollutants into the surface water or connected groundwater at a point source or by dispersed release (non-point source). These activities could alter water conditions to levels that are harmful to the Georgetown and Salado salamanders or their prey and result in direct, indirect, or cumulative adverse effects to these salamander individuals and their life cycles. Sedimentation can also adversely affect salamander habitat by reducing access to interstitial spaces.

(3) Actions that would deplete the aquifer to an extent that decreases or stops the flow of occupied springs or that reduces the quantity of subterranean habitat used by the species. Such activities could include, but are not limited to, water withdrawals from aquifers, increases in impervious cover over recharge areas, and channelization or other modification of recharge features that would decrease recharge. These activities could dewater habitat or cause reduced water quality to levels that are harmful to one of the two salamanders or their prey and result in adverse effects to their habitat.

## Exemptions

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

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an integrated natural resources management plan (INRMP) 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. No DoD lands with a completed INRMP are within the critical habitat designation.

## Consideration of Impacts Under 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 we determine that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless we determine, 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 the determination to exclude a particular area, 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. On December 18, 2020, we published a final rule in the **Federal Register** (85 FR 82376) revising portions of our regulations pertaining to exclusions of critical habitat. These final regulations became effective on January 19, 2021, and apply to critical habitat rules for which a proposed rule was published after January 19, 2021. Consequently, these new regulations do not apply to this final rule.

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 discretion to exclude the area only if such exclusion would not result in the extinction of the species. We describe below the process that we undertook for taking into consideration each category of impacts and our analyses of the relevant impacts.

### *Consideration of Economic Impacts*

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. In order to consider economic impacts, we prepared an incremental effects memorandum (IEM) and

screening analysis which, together with our narrative and interpretation of effects we consider our draft economic analysis (DEA) of the proposed critical habitat designation and related factors (Industrial Economics, Incorporated (IEc) 2020, entire). The analysis, dated April 14, 2020, was made available for public review from September 23, 2020, through November 16, 2020 (IEc 2020, entire). The DEA addressed probable economic impacts of critical habitat designation for the Georgetown and Salado salamanders. Following the close of the comment period, we reviewed and evaluated all information submitted during the comment period that may pertain to our consideration of the probable incremental economic impacts of this critical habitat designation. Additional information relevant to the probable incremental economic impacts of critical habitat designation for the Georgetown and Salado salamanders is summarized below and available in the screening analysis for the Georgetown and Salado salamanders (IEc 2021, entire), available at <http://www.regulations.gov>.

We received public comment on our DEA during the public comment period and updated the analysis based on public comment. The economic analysis now acknowledges “The designation of critical habitat may cause developers to perceive that private lands will be subject to use restrictions or litigation from third parties, resulting in costs. Data limitations prevent quantification of the possible incremental reduction in property values” (IEc 2021, p. 2 & 12–13). The updates made to the DEA did not change the overall conclusions of the analysis. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the designation of critical habitat for the Georgetown and Salado salamanders, first we identified, in the IEM dated April 14, 2020, probable incremental economic impacts associated with the following categories of activities: (1) Future stream/river crossings and bridge replacements and maintenance; (2) pipeline construction, replacement, maintenance, or removal; (3) electrical transmission line construction; (4) stream restoration activities for habitat improvement; (5) herbicide and pesticide use along stream banks; (6) irrigation and water supply system installations; (7) livestock management and livestock facilities construction; (8) bank stabilization projects; (9) disaster

debris removal; (10) repairs to existing and damaged roads, bridges, utilities, and parks; (11) construction of tornado safe rooms, and demolition of flood-prone structures; (12) return of land to open space in perpetuity; and (13) removal of hazardous fuels in wildland urban interface to reduce the risk of catastrophic wildfire. We considered each industry or category individually. Additionally, we considered whether their activities may have any Federal involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. In areas where the Georgetown or Salado salamander are present, Federal agencies already are required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. When this critical habitat designation is effective (see **DATES**, above), consultations to avoid the destruction or adverse modification of critical habitat will be incorporated into the existing consultation process.

In our IEM, we attempted to clarify the distinction between the effects that result from the species being listed and those attributable to the critical habitat designation (*i.e.*, difference between the jeopardy and adverse modification standards) for the Georgetown and Salado salamander's critical habitat. Because all of the units we are designating as critical habitat for the Georgetown and Salado salamanders are occupied, we do not expect that the critical habitat designation will result in any additional consultations above and beyond those caused by the species' listing. The conservation recommendations provided to address impacts to the occupied critical habitat will be the same as those recommended to address impacts to the species because the habitat tolerances of the Georgetown and Salado salamanders are inextricably linked to the health, growth, and reproduction of the salamanders, which are present and confined year-round in their occupied critical habitat. Furthermore, because the designated critical habitat and the Georgetown and Salado salamanders' known range are identical, the results of consultation under adverse modification are not likely to differ from the results of consultation under jeopardy. In the event of an adverse modification determination, we expect that reasonable and prudent alternatives to avoid jeopardy to the species will also

avoid adverse modification of the critical habitat. The only incremental impact of critical habitat designation that we anticipate is the small (not expected to exceed \$38,500 per year) administrative effort required during section 7 consultation to document effects on the physical and biological features of the critical habitat and whether the action appreciably diminishes the value of critical habitat as a whole for the conservation of the listed species (IEc 2021).

The critical habitat designations for the Georgetown and Salado salamanders amount to a total of approximately 1,315 ac (538 ha) in Bell and Williamson Counties, Texas. In these areas, any actions that may affect the species or its habitat will also affect designated critical habitat, and it is unlikely that any additional conservation efforts will be recommended to address the adverse modification standard over and above those recommended as necessary to avoid jeopardizing the continued existence of the Georgetown and Salado salamanders. While this additional analysis will require time and resources by both the Federal action agency and the Service, it is believed that, in most circumstances, these costs will predominantly be administrative in nature and will not be significant.

Incremental costs are likely to be minor and primarily limited to administrative efforts that consider adverse modification in consultation. This finding is based on these factors: (1) All activities with a Federal nexus occurring within the critical habitat designations will be subject to section 7 consultation requirements regardless of critical habitat designation due to the presence of listed species; and (2) since the Service predicts that the majority of project modifications avoiding jeopardy and adverse modification overlap, there will only be a limited number of project modification requests that are solely caused by a critical habitat designation (IEc 2020). The estimated \$38,500 per year of incremental costs associated with the designation of critical habitat is well below \$100 million and, therefore, is unlikely to trigger additional requirements under State or local regulations. Further, while some perceptual effects may arise, they are not expected to result in substantial costs.

#### *Consideration of Impacts on National Security and Homeland Security*

The Service must consider impacts on national security, including homeland security, under section 4(a)(3)(B)(i) and on those DoD lands or areas not covered by section 4(a)(3)(B)(i), because section

4(b)(2) requires the Service to consider those impacts whenever it designates critical habitat. Accordingly, if DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns, or we have otherwise identified national-security or homeland-security impacts from designating particular areas as critical habitat, we generally have reason to consider excluding those areas. We did not identify any national security or homeland security impacts, nor did we receive any requests for exclusion based on national or homeland security.

#### *Consideration of 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 discussed above. Other relevant impacts may include, but are not limited to, impacts to Tribes, States, local governments, public health and safety, community interests, the environment (such as increased risk of wildfire or pest and invasive species management), Federal lands, and conservation plans, agreements, or partnerships. To identify other relevant impacts that may affect the exclusion analysis, we consider a number of factors, including whether there are permitted conservation plans covering the species in the area—such as HCPs, safe harbor agreements (SHAs), or candidate conservation agreements with assurances (CCAs)—or whether there are non-permitted conservation agreements and partnerships that may be impaired by designation of, or exclusion from, critical habitat. In addition, we look at whether Tribal conservation plans or partnerships, Tribal resources, or government-to-government relationships of the United States with Tribal entities may be affected by the designation. We also consider any State, local, public-health, community-interest, environmental, or social impacts that might occur because of the designation.

#### **Exclusions**

##### *Exclusions Based on Economic Impacts*

The Service considered the economic impacts of the critical habitat designation as described above. Based on this information, the Secretary has determined not to exercise her discretion to exclude any areas from this designation of critical habitat for the Georgetown or Salado salamander based on economic impacts.

### *Exclusions Based on Impacts on National Security and Homeland Security*

In preparing this rule, we have determined that the lands within the designation of critical habitat for Georgetown and Salado salamanders are not owned or managed by DoD or the Department of Homeland Security. Therefore, we anticipate no impact on national security or homeland security. Based on this information, the Secretary has determined not to exercise her discretion to exclude any areas from this designation of critical habitat for the Georgetown or Salado salamander based on impacts on national security or homeland security.

### *Exclusions Based on Other Relevant Impacts*

When analyzing other relevant impacts of including a particular area in a designation of critical habitat, we weigh those impacts relative to the conservation value of the particular area. To determine the conservation value of designating a particular area, we consider a number of factors, including, but not limited to, the additional regulatory benefits that the area would receive due to the protection from destruction or adverse modification as a result of actions with a Federal nexus, the educational benefits of mapping essential habitat for recovery of the listed species, and any benefits that may result from a

designation due to State or Federal laws that may apply to critical habitat.

In the case of the Georgetown and Salado salamanders, the benefits of critical habitat include public awareness of the presence of the two species and the importance of habitat protection, and, where a Federal nexus exists, increased habitat protection for the two species due to protection from destruction or adverse modification of critical habitat. Continued implementation of an ongoing management plan that provides conservation equal to or more than the protections that result from a critical habitat designation would reduce those benefits of including that specific area in the critical habitat designation.

We evaluate the existence of a conservation plan when considering the benefits of inclusion. We consider a variety of factors, including, but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

After identifying the benefits of inclusion and the benefits of exclusion,

we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction of the species. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Based on the information provided by entities seeking exclusion, any additional public comments we received, and the best scientific data available, we evaluated whether certain lands in the proposed critical habitat designation were appropriate for exclusion from this final designation under section 4(b)(2) of the Act. If our analysis indicated that the benefits of excluding lands from the final designation outweighed the benefits of designating those lands as critical habitat, then we identified those areas for the Secretary to exercise her discretion to exclude those lands from the final designation, unless exclusion would result in extinction.

In the paragraphs below, we provide a detailed balancing analysis of the areas being excluded under section 4(b)(2) of the Act. Table 3 below provides approximate areas (ac, ha) of lands that meet the definition of critical habitat but that we are excluding from this final critical habitat designation under section 4(b)(2) of the Act.

TABLE 3—AREAS EXCLUDED BY CRITICAL HABITAT UNIT FOR THE SALADO SALAMANDER

Critical habitat unit	Proposed critical habitat (ac (ha))	Area excluded (ac (ha))	Final critical habitat (ac (ha))
1. Hog Hollow Spring Unit .....	68 (28)	68 (28)	0
2. Solana Spring Unit .....	68 (28)	68 (28)	0
3. Cistern Spring Unit .....	68 (28)	68 (28)	0

### *Private or Other Non-Federal Conservation Plans or Agreements and Partnerships, in General*

We sometimes exclude specific areas from critical habitat designations based in part on the existence of private or other non-Federal conservation plans or agreements and their attendant partnerships. A conservation plan or agreement describes actions that are designed to provide for the conservation needs of a species and its habitat, and may include actions to reduce or mitigate negative effects on the species caused by activities on or adjacent to the area covered by the plan. Conservation plans or agreements can be developed

by private entities with no Service involvement, or in partnership with the Service, sometimes through the permitting process under Section 10 of the Act.

When we undertake a discretionary section 4(b)(2) analysis, we evaluate a variety of factors to determine how the benefits of any exclusion and the benefits of inclusion are affected by the existence of private or other non-Federal conservation plans or agreements and their attendant partnerships. A non-exhaustive list of factors that we will consider for non-permitted plans or agreements is shown below. These factors are not required elements of

plans or agreements, and some elements may not apply to a particular plan or agreement.

(i) The degree to which the plan or agreement provides for the conservation of the species or the essential physical or biological features (if present) for the species.

(ii) Whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan or agreement will be implemented.

(iii) The demonstrated implementation and success of the chosen conservation measures.

(iv) The degree to which the record of the plan supports a conclusion that a

critical habitat designation would impair the realization of benefits expected from the plan, agreement, or partnership.

(v) The extent of public participation in the development of the conservation plan.

(vi) The degree to which there has been agency review and required determinations (e.g., State regulatory requirements), as necessary and appropriate.

(vii) Whether National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) compliance was required.

(viii) Whether the plan or agreement contains a monitoring program and adaptive management to ensure that the conservation measures are effective and can be modified in the future in response to new information.

#### Salado Salamander Units 1, 2, and 3—Solana Ranch Preserve

In 2013, the Texas Chapter of The Nature Conservancy was awarded funding through a Texas Parks and Wildlife Department non-traditional section 6 grant (Solana Ranch Recovery Land Acquisition, Grant TX E-154-RL-1) to obtain a conservation easement on 256 ac (104 ha) of the privately owned Solana Ranch in Bell County, Texas. The Nature Conservancy acquired the conservation easement in perpetuity from the landowner, Michaux Holdings Ltd., on June 29, 2016. That portion of the Solana Ranch included in the conservation easement, Solana Ranch Preserve, encompasses three spring outlets (*i.e.*, Cistern, Hog Hollow, and Solana Springs) occupied by the Salado salamander (Francell 2012, p. 3) and the upstream lands surrounding these springs. The springs comprise the following critical habitat units for the Salado salamander: Hog Hollow Spring (Unit 1; 68 ac (28 ha)), Solana Spring (Unit 2; 68 ac (28 ha)), and Cistern Spring (Unit 3; 68 ac (28 ha)). The springs are located on a tributary to Rumsey Creek in the Salado Creek drainage and are upstream of other springs occupied by the Salado salamander along Salado Creek to the northeast. All three springs are considered high-quality habitat for the Salado salamander (Gluesenkamp 2011b, TPWD, pers. comm.). The Solana Ranch Preserve conservation easement establishes that these lands are protected and managed for the benefit of the Salado salamander. Management activities include: (1) Protection of the site from development or encroachment, (2) maintenance of the site as permanent open space that has been left in its natural vegetative state, (3) maintenance and repair of existing enclosure fences

around springs, and (4) research approved by the landowner. Grazing, hunting, and other recreational activities will be allowed.

The perpetual Solana Ranch Preserve conservation easement will result in long-term protection of the three springs located on Solana Ranch, including areas immediately upstream of the springs to maintain water quality. By protecting the springs and their surrounding areas, occupied Salado salamander habitat will be protected from development and other threats. Based on the actions to benefit the Salado salamander, we considered excluding a total of 204 ha (84 ac) of critical habitat within Solana Ranch Preserve lands, specifically Hog Hollow Spring (Unit 1; 68 ac (28 ha)), Solana Spring (Unit 2; 68 ac (28 ha)), and Cistern Spring (Unit 3; 68 ac (28 ha)), from this final Salado salamander critical habitat designation under section 4(b)(2) of the Act.

*Benefits of Inclusion—Solana Ranch Preserve:* The principal benefit of including an area in critical habitat designation is the requirement of Federal agencies to ensure that actions that they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat, which is the regulatory standard of section 7(a)(2) of the Act under which consultation is completed. Federal agencies must consult with the Service on actions that may affect a listed species, and refrain from actions that are likely to jeopardize the continued existence of such species. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. For some cases, the outcome of these analyses will be similar, because effects to habitat will often result in effects to the species. Thus, critical habitat designation may provide greater benefits to the recovery of a species than listing would alone. Therefore, critical habitat designation may provide a regulatory benefit for the Salado salamander on lands covered under the Solana Ranch Preserve conservation easement when there is a Federal nexus present for a project that might adversely modify critical habitat.

Another possible benefit of including lands in critical habitat is public education regarding the potential conservation value of an area that may help focus conservation efforts on areas of high conservation value for certain species. We consider any information about the Salado salamander and its

habitat that reaches a wide audience, including parties engaged in conservation activities, to be valuable. Designation of critical habitat would provide educational benefits by informing Federal agencies and the public about the presence of listed species for all units.

In summary, we find that the benefits of inclusion of 204 ha (84 ac) lands within the Solana Ranch Preserve conservation easement are: (1) A regulatory benefit when there is a Federal nexus present for a project that might adversely modify critical habitat; and (2) educational benefits for the Salado salamander and its habitat.

*Benefits of Exclusion—Solana Ranch Preserve:* The benefits of excluding 204 ha (84 ac) of land within the Solana Ranch Preserve, under a perpetual conservation easement held by The Nature Conservancy, from the designation of critical habitat for the Salado salamander are substantial and include: (1) Continuance and strengthening of our effective working relationship with private landowners to promote voluntary, proactive conservation of the Salado salamander and its habitat as opposed to reactive regulation; (2) allowance for continued meaningful collaboration and cooperation in working toward species recovery, including conservation benefits that might not otherwise occur; and (3) encouragement of developing additional conservation easements and other conservation and management plans in the future for other federally listed and sensitive species.

Many landowners perceive critical habitat as an unfair and unnecessary regulatory burden. According to some, the designation of critical habitat on private lands significantly reduces the likelihood that landowners will support and carry out conservation actions (Main et al. 1999, p. 1,263; Bean 2002, p. 2). The magnitude of this negative outcome is greatly amplified in situations where active management measures (such as reintroduction, fire management, and control of invasive species) are necessary for species conservation (Bean 2002, pp. 3–4). We find that the judicious exclusion of specific areas of non-federally owned lands from critical habitat designations can contribute to species recovery and provide a superior level of conservation than critical habitat alone. We find that, where consistent with the discretion provided by the Act, it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources and that remove or reduce disincentives to conservation

(Wilcove et al. 1996, pp. 1–15; Bean 2002, pp. 1–7).

Partnerships with non-Federal landowners are vital to the conservation of listed species, especially on non-Federal lands; therefore, the Service is committed to supporting and encouraging such partnerships through the recognition of positive conservation contributions. In the case considered here, excluding these areas from critical habitat will help foster the partnerships the landowners and land managers in question have developed with Federal and State agencies and local conservation organizations; will encourage the continued implementation of voluntary conservation actions for the benefit of the Salado salamander and its habitat on these lands; and may also serve as a model and aid in fostering future cooperative relationships with other parties here and in other locations for the benefit of other endangered or threatened species. We find that the judicious exclusion of specific areas of non-federally owned lands from critical habitat designation can contribute to species recovery and provide a superior level of conservation than critical habitat. Therefore, we consider the positive effect of excluding active conservation partners from critical habitat to be a significant benefit of exclusion.

*Benefits of Exclusion Outweigh the Benefits of Inclusion—Solana Ranch Preserve:* We evaluated the exclusion of 204 ha (84 ac) of private land within the boundaries of the 256 ac (104 ha) Solana Ranch under a perpetual conservation easement with The Nature Conservancy, from our designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them as critical habitat for the Salado salamander.

We conclude that the additional regulatory and educational benefits of including these lands as critical habitat are relatively small, because of the unlikelihood of a Federal nexus on these private lands. These benefits are further reduced by the existence of a 256-ac (104-ha) conservation easement on the Solana Ranch that contains 204 ha (84 ac) of proposed critical habitat. We anticipate that there will be little additional Federal regulatory benefit to the taxon on private land because there is a low likelihood that those parcels will be negatively affected to any significant degree by Federal activities requiring section 7 consultation, and ongoing management activities indicate there would be no additional requirements pursuant to a consultation that addresses critical habitat.

Furthermore, the potential educational and informational benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the Salado salamander would be minimal, because the landowners and land managers under consideration have demonstrated their knowledge of the species and its habitat needs in the process of developing their partnerships with the Service. Additionally, the current active conservation efforts on some of these lands contribute to our knowledge of the species through monitoring and scientific research.

In contrast, the benefits derived from excluding these owners and enhancing our partnership with these landowners and land managers is significant. Because voluntary conservation efforts for the benefit of listed species on non-Federal lands are so valuable, the Service considers the maintenance and encouragement of conservation partnerships to be a significant benefit of exclusion. The development and maintenance of effective working partnerships with non-Federal landowners for the conservation of listed species is particularly important in areas such as Texas, a State with relatively little Federal landownership but many species of conservation concern. Excluding these areas from critical habitat will help foster the partnerships the landowners and land managers in question have developed with Federal and State agencies and local conservation organizations, and will encourage the continued implementation of voluntary conservation actions for the benefit of the Salado salamander and its habitat on these lands. In addition, these partnerships not only provide a benefit for the conservation of these species, but may also serve as a model and aid in fostering future cooperative relationships with other parties in this area of Texas and in other locations for the benefit of other endangered or threatened species.

We find that excluding areas from critical habitat that are receiving both long-term conservation and management for the purpose of protecting the habitat that supports the Salado salamander will preserve our partnership with the Solana Ranch owner and operator and will encourage future collaboration towards conservation and recovery of listed species. The partnership benefits are significant and outweigh the small potential regulatory, educational, and ancillary benefits of including the land in the final critical habitat designation for the Salado salamander. Therefore,

the Solana Ranch Preserve conservation easement provides greater protection of habitat for the Salado salamander than could be gained through the project-by-project analysis of a critical habitat designation.

*Exclusion Will Not Result in Extinction of the Species—Solana Ranch Preserve:* We determined that the exclusion of 204 ha (84 ac) of land within the boundaries of the Solana Ranch Preserve conservation easement held by The Nature Conservancy in perpetuity will not result in extinction of the taxon. Protections afforded the taxon and its habitat by the conservation easement provide assurances that the taxon will not go extinct as a result of excluding these lands from the critical habitat designation.

An important consideration as we evaluate these exclusions and their potential effect on the species in question is that critical habitat does not carry with it a regulatory requirement to restore or actively manage habitat for the benefit of listed species; the regulatory effect of critical habitat is only the avoidance of destruction or adverse modification of critical habitat should an action with a Federal nexus occur. It is, therefore, advantageous for the conservation of the species to support the proactive efforts of non-Federal landowners who are contributing to the enhancement of essential habitat features for listed species through exclusion. The jeopardy standard of section 7 of the Act will also provide protection in these occupied areas when there is a Federal nexus. Therefore, based on the above discussion, the Secretary is exercising her discretion to exclude 204 ha (84 ac) of land from the designation of critical habitat for the Salado salamander.

## Required Determinations

### Regulatory Planning and Review (Executive Orders 12866 and 13563)

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

Executive Order (E.O.) 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)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to 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 (*i.e.*, 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.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

Under the RFA, as amended, and as understood in light of recent court

decisions, Federal agencies are required to evaluate only the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies will be directly regulated by this designation. The RFA does not require evaluation of the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities will be directly regulated by this rulemaking, the Service certifies that this critical habitat designation will not have a significant economic impact on a substantial number of small entities, and a regulatory flexibility analysis is not required.

#### *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 find that this critical habitat designation will significantly affect energy supplies, distribution, or use, as the areas identified as critical habitat are along riparian corridors in mostly remote areas with little energy supplies, distribution, or infrastructure in place. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

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

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

(1) This rule will 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 have determined that this rule will not significantly or uniquely affect

small governments because it will not produce a Federal mandate of \$100 million or greater in any year; that is, it is not a “significant regulatory action” under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments. By definition, Federal agencies are not considered small entities, although the activities they fund or permit may be proposed or carried out by small entities.

Consequently, we have determined that this critical habitat designation will not significantly or uniquely affect small government entities. As such, a Small Government Agency Plan is not required.

#### Takings—Executive Order 12630

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the Georgetown and Salado salamanders in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation.

Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas.

Furthermore, the designation of critical habitat 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. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed and concludes that this designation of critical habitat for the Georgetown and Salado salamanders does not pose significant takings implications for lands within or affected by the designation.

#### Federalism—Executive Order 13132

In accordance with E.O. 13132 (Federalism), this 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 the critical habitat designation with, the appropriate State resource agencies. We

did not receive comments from the State. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the rule does not have substantial direct effects either on the State, or on the relationship between the Federal Government and the State, or on the distribution of powers and responsibilities among the various levels of government. The designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological 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 these local governments in long-range planning because these local governments no longer have to 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) will 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 are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this rule identifies the physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested public to obtain more detailed location information, if desired.

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

This rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) is not required. We may not conduct or sponsor and you are 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.)

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 the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) 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)).

#### 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 have identified no Tribal interests that will be affected by this rule.

#### References Cited

A complete list of references cited in this rulemaking is available on the internet at <http://www.regulations.gov> and upon request from the Austin

Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

#### Authors

The primary authors of this rule are the staff members of the Service's Austin Ecological Services Field Office.

#### 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 1, title 50 of the Code of Federal Regulations, as set forth below:

#### PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

**Authority:** 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

- 2. Amend § 17.11 in paragraph (h) by revising the entries for “Salamander, Georgetown” and “Salamander, Salado” in the List of Endangered and Threatened Wildlife under “AMPHIBIANS” to read as follows:

#### § 17.11 Endangered and threatened wildlife.

\* \* \* \* \*

(h) \* \* \*

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
AMPHIBIANS				
*	*	*	*	*
Salamander, Georgetown	<i>Eurycea naufragia</i> .....	Wherever found .....	T	79 FR 10236, 2/24/2014; 50 CFR 17.43(e); <sup>4d</sup> 50 CFR 17.95(d). <sup>CH</sup>
*	*	*	*	*
Salamander, Salado	<i>Eurycea chisholmensis</i>	Wherever found .....	T	79 FR 10236, 2/24/2014; 50 CFR 17.95(d). <sup>CH</sup>
*	*	*	*	*

- 3. Amend § 17.95 in paragraph (d) by adding entries for “Georgetown Salamander (*Eurycea naufragia*)” and “Salado Salamander (*Eurycea chisholmensis*)” in the same order that these species appear in the table at § 17.11(h) to read as follows:

#### § 17.95 Critical habitat—fish and wildlife.

\* \* \* \* \*

(d) \* \* \*

Georgetown Salamander (*Eurycea naufragia*)

(1) Critical habitat units are depicted for Williamson County, Texas, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of Georgetown salamander consist of the following components:

(i) For surface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer.* Groundwater issuing to the surface from the underlying aquifer is similar to natural aquifer conditions as it discharges from natural spring outlets. Concentrations of water quality constituents and contaminants should be below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Georgetown salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with at

least some surface flow during the year. The water chemistry of aquatic surface habitats is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 milligrams per liter (mg/L), and specific water conductance from 317 to 814 micro-Siemens per centimeter (µS/cm).

(B) *Rocky substrate with interstitial spaces.* Rocks in the substrate of the salamander's surface aquatic habitat are large enough to provide salamanders with cover, shelter, and foraging habitat. The substrate and interstitial spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food.* The spring environment supports a diverse aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

(D) *Subterranean aquifer.* Access to the subsurface water table exists to provide shelter, protection, and space for reproduction. This access can occur in the form of large conduits that carry water to the spring outlet or porous voids between rocks in the streambed that extend down into the water table.

(ii) For subsurface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer.* Groundwater quality is similar to natural aquifer conditions. Concentrations of water quality constituents and contaminants should be below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth,

development, or metabolic processes), or indirect effects (such as effects to the Georgetown salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with continuous flow. The water chemistry is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Subsurface spaces.* Voids between rocks underground are large enough to provide salamanders with cover, shelter, and foraging habitat. These spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food.* The habitat supports an aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

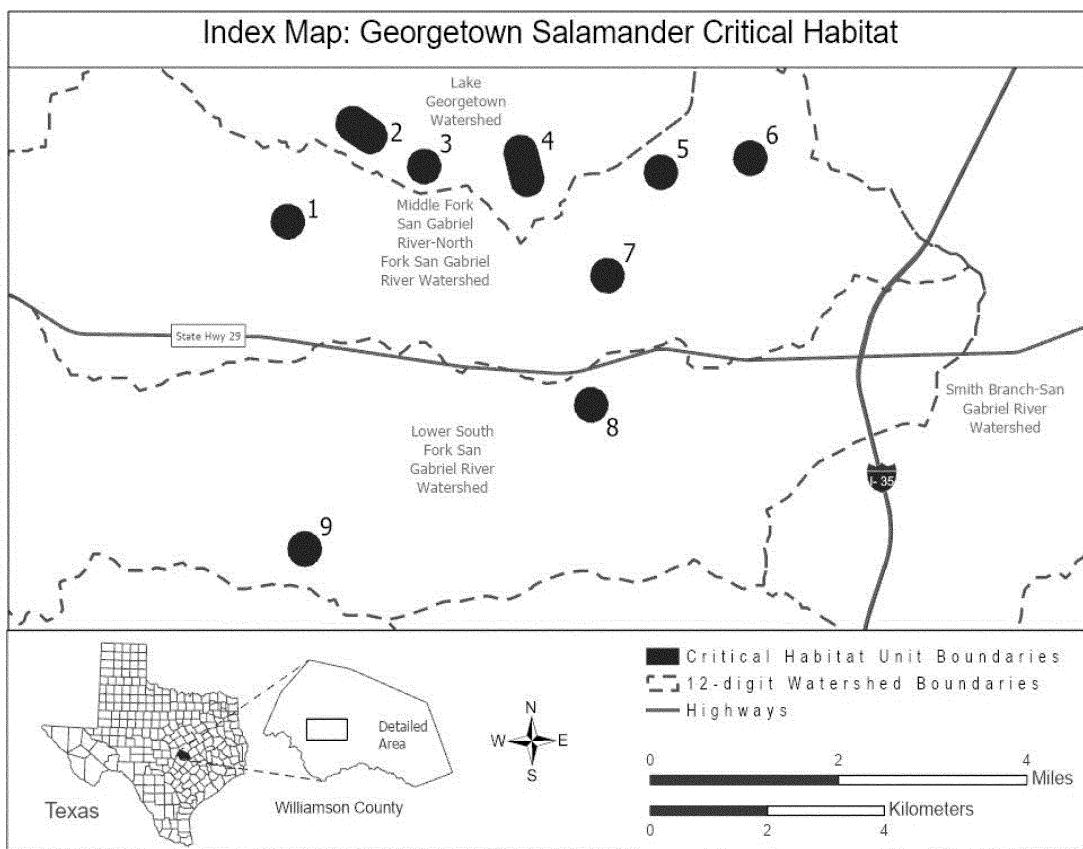
(3) Surface critical habitat includes the spring outlets and outflow up to the high-water line and 262 feet (ft) (80 meters (m)) of upstream and downstream habitat, including the dry stream channel during periods of no surface flow. The surface critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) existing within the legal boundaries on September 17, 2021; however, the subsurface critical habitat may extend below such structures. The subsurface critical habitat includes underground features in a circle with a radius of 984 ft (300 m) around the springs.

(4) Data layers defining map units were created using a geographic information system (GIS), which included species locations, roads, property boundaries, 2011 aerial photography, and U.S. Geological Survey 7.5' quadrangles. Points were placed on the GIS. We delineated critical habitat unit boundaries by starting with the cave or spring point locations that are occupied by the salamander. From these cave or springs points, we delineated a 984-ft (300-m) buffer to create the polygons that capture the extent to which we estimate

the salamander populations exist through underground conduits. The polygons were then simplified to reduce the number of vertices, but still retain the overall shape and extent. Subsequently, polygons that were within 98 ft (30 m) of each other were merged together. Each new merged polygon was then revised to remove extraneous divots or protrusions that resulted from the merge process. 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 at <http://www.fws.gov/southwest/es/AustinTexas/>, at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048, 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) Note: Index map follows:  
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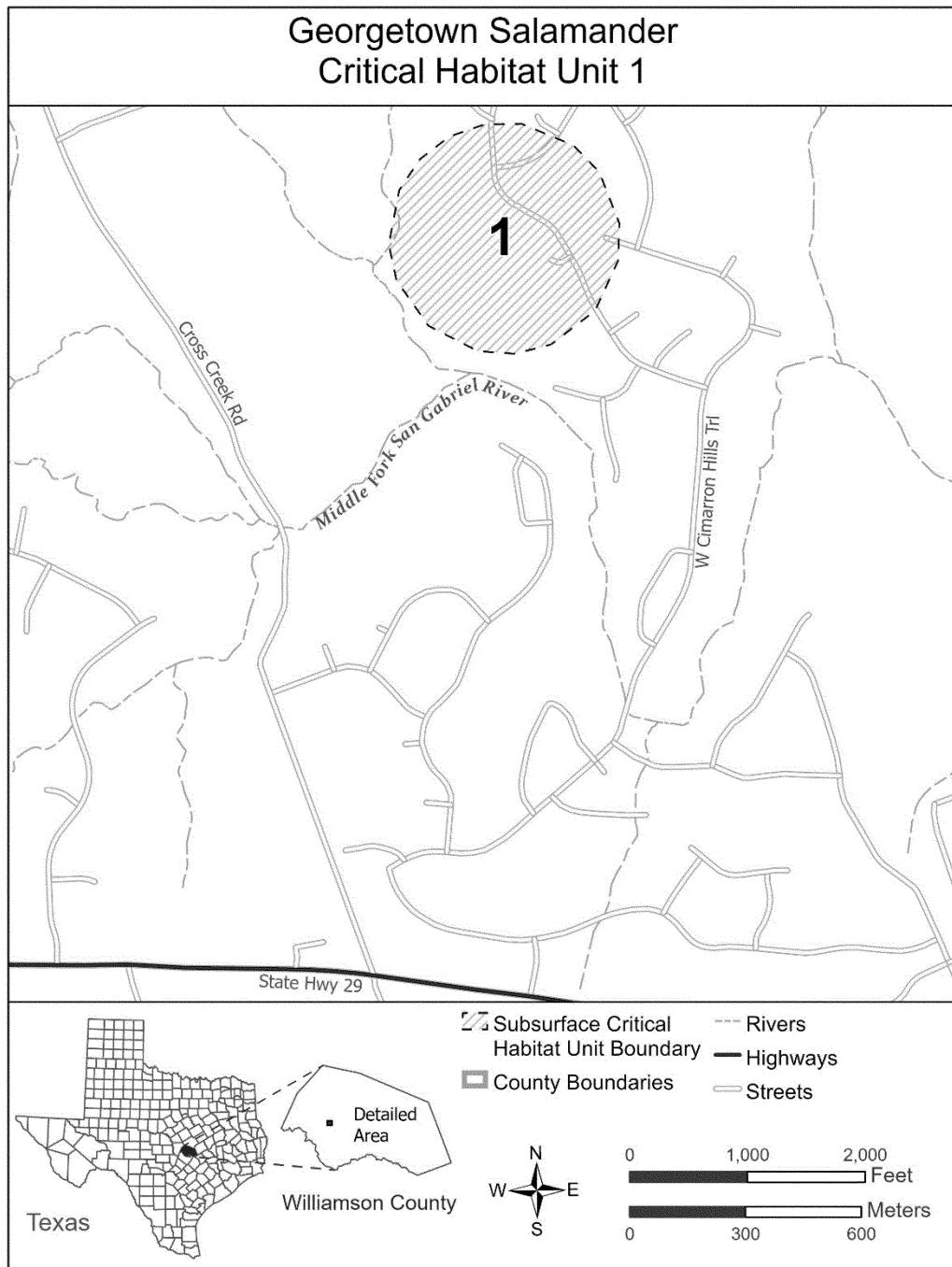
**(6) Unit 1: Water Tank Cave Unit, Williamson County, Texas.**

(i) Unit 1 consists of 68 ac (28 ha) of private land in west-central Williamson County. A golf course crosses the unit

from northwest to southeast, and there are several roads in the eastern part of the unit. A secondary road crosses the extreme southern portion of the unit,

and there are residences in the northwestern, southwestern, and west-central portions of the unit.

(ii) Map of Unit 1 follows:



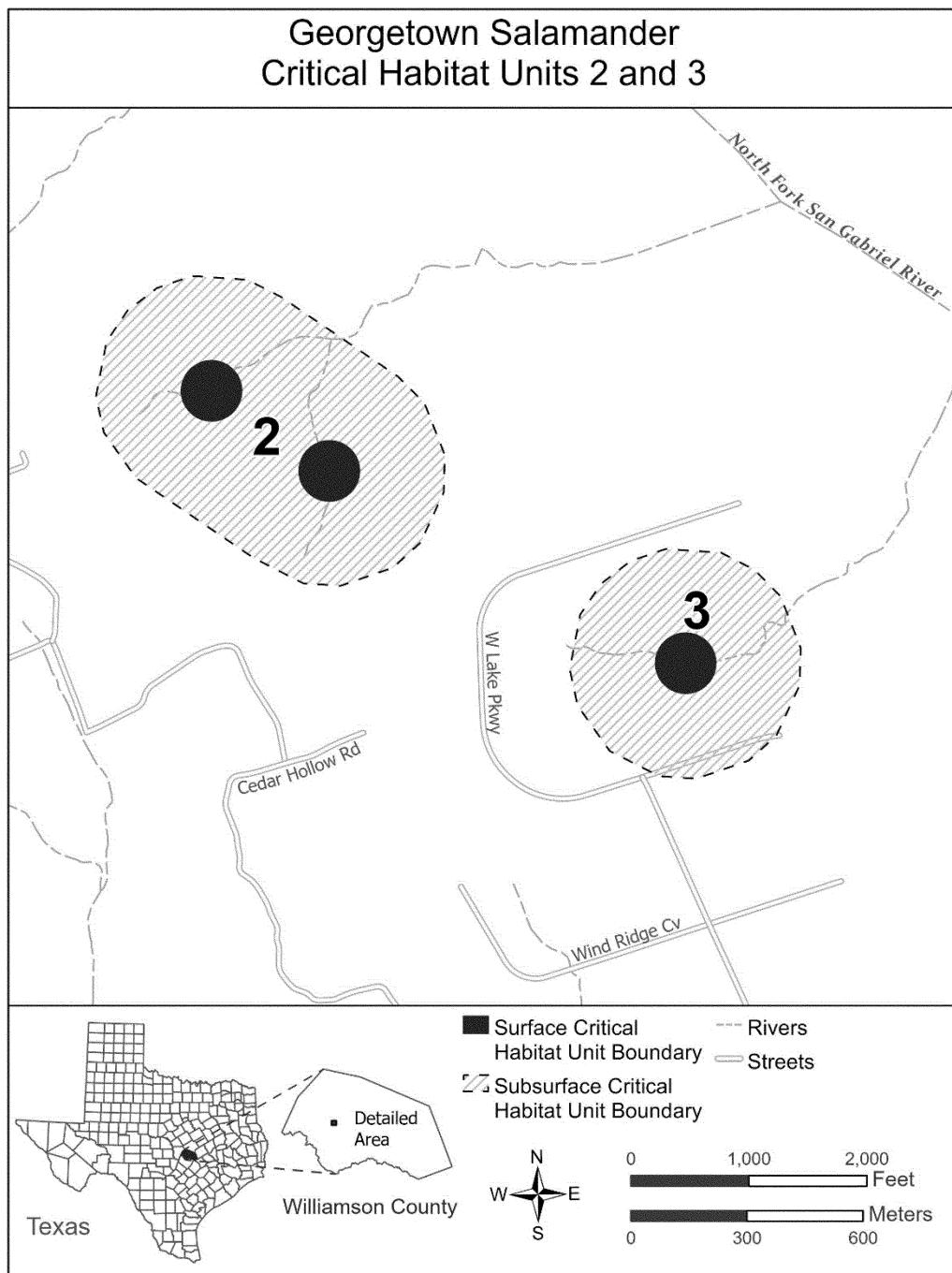
(7) Unit 2: Hogg Hollow Spring Unit, Williamson County, Texas.

(i) Unit 2 consists of approximately 122 ac (49 ha) of U.S. Army Corps of

Engineers land and private land in Williamson County, Texas. The unit is located south of Lake Georgetown and is mostly undeveloped. The northwestern

part of the unit includes Sawyer Park, part of the Lake Georgetown recreation area.

(ii) Map of Units 2 and 3 follows:



(8) Unit 3: Cedar Hollow Spring Unit, Williamson County, Texas.

(i) Unit 3 consists of approximately 68 ac (28 ha) of private land in west-central Williamson County, Texas. A secondary road crosses the extreme southern portion of the unit, and there are residences in the northwestern, southwestern, and west-central portions of the unit.

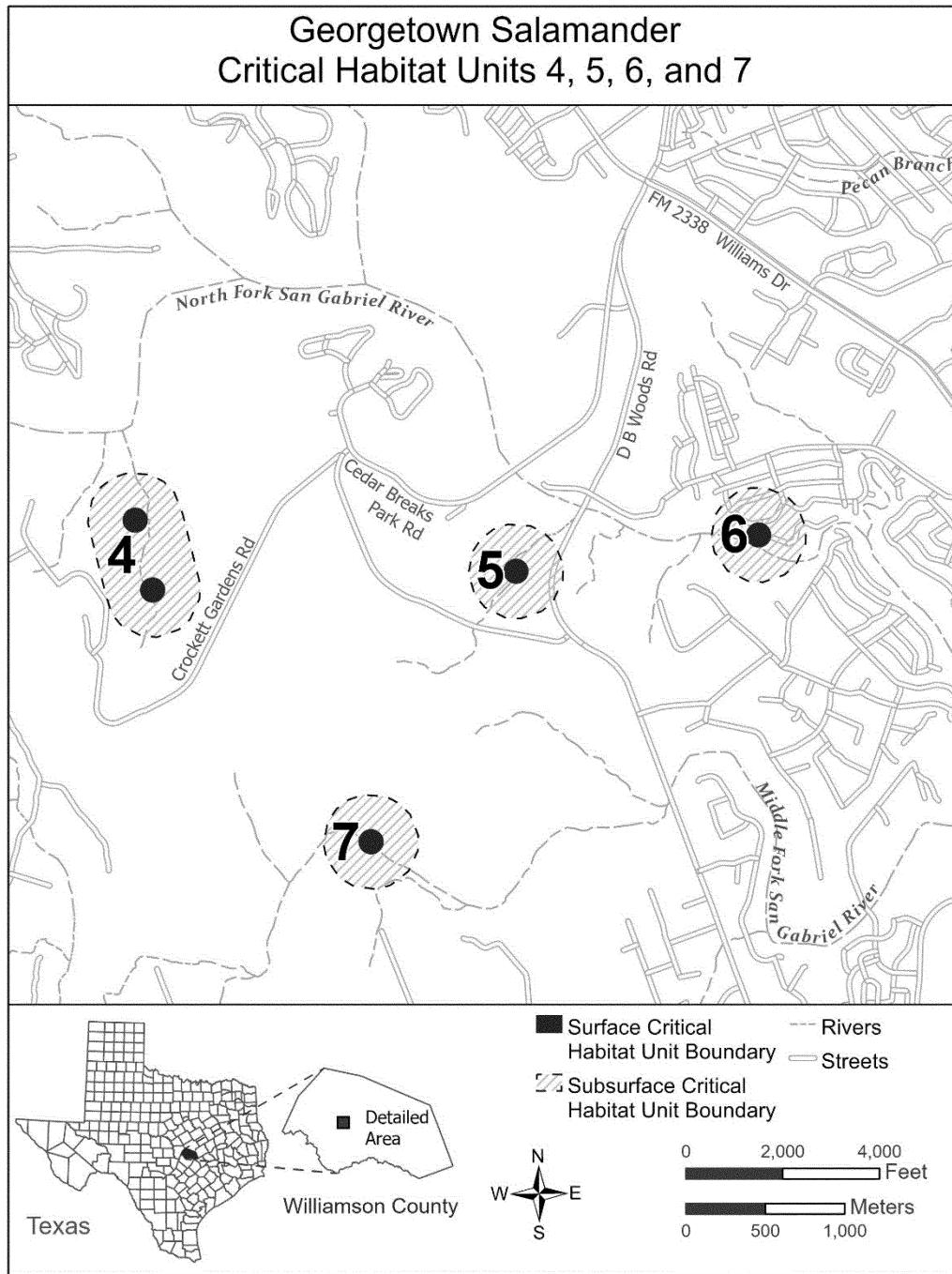
(ii) Map of Unit 3 is provided at paragraph (7)(ii) of this entry.

(9) Unit 4: Lake Georgetown Unit, Williamson County, Texas.

(i) Unit 4 consists of approximately 134 ac (54 ha) of Federal and private land in west-central Williamson County, Texas. Part of the unit is the U.S. Army Corps of Engineers' Lake Georgetown property. There are currently no plans to develop the property. There is some control of public access. Unpaved roads are found in the western portion of the unit, and a trail begins in the central

part of the unit and leaves the northeast corner. A secondary road crosses the extreme southern portion of the unit, and there are residences in the northwestern, southwestern, and west-central portions of the unit. A large quarry is located a short distance southeast of the unit.

(ii) Map of Units 4, 5, 6, and 7 follows:



**(10) Unit 5: Buford Hollow Spring Unit, Williamson County, Texas.**

(i) Unit 5 consists of approximately 68 ac (28 ha) of Federal and private land in west-central Williamson County, Texas. The unit is located just below the spillway for Lake Georgetown. The U.S. Army Corps of Engineers owns most of this unit as part of Lake Georgetown. The D.B. Wood Road, a major thoroughfare, crosses the eastern part of the unit.

(ii) Map of Unit 5 is provided at paragraph (9)(ii) of this entry.

**(11) Unit 6: Swinbank Spring Unit, Williamson County, Texas.**

(i) Unit 6 consists of approximately 68 ac (28 ha) of City and private land in west-central Williamson County, Texas. The unit is located near River Road south of Melanie Lane. The northern part of the unit is primarily in residential development, while the southern part of this unit is primarily undeveloped.

(ii) Map of Unit 6 is provided at paragraph (9)(ii) of this entry.

**(12) Unit 7: Avant Spring Unit, Williamson County, Texas.**

(i) Unit 7 consists of approximately 68 ac (28 ha) of private land in west-central Williamson County, Texas. The northern part of a large quarry is along the southwestern edge of the unit. The rest of the unit is undeveloped.

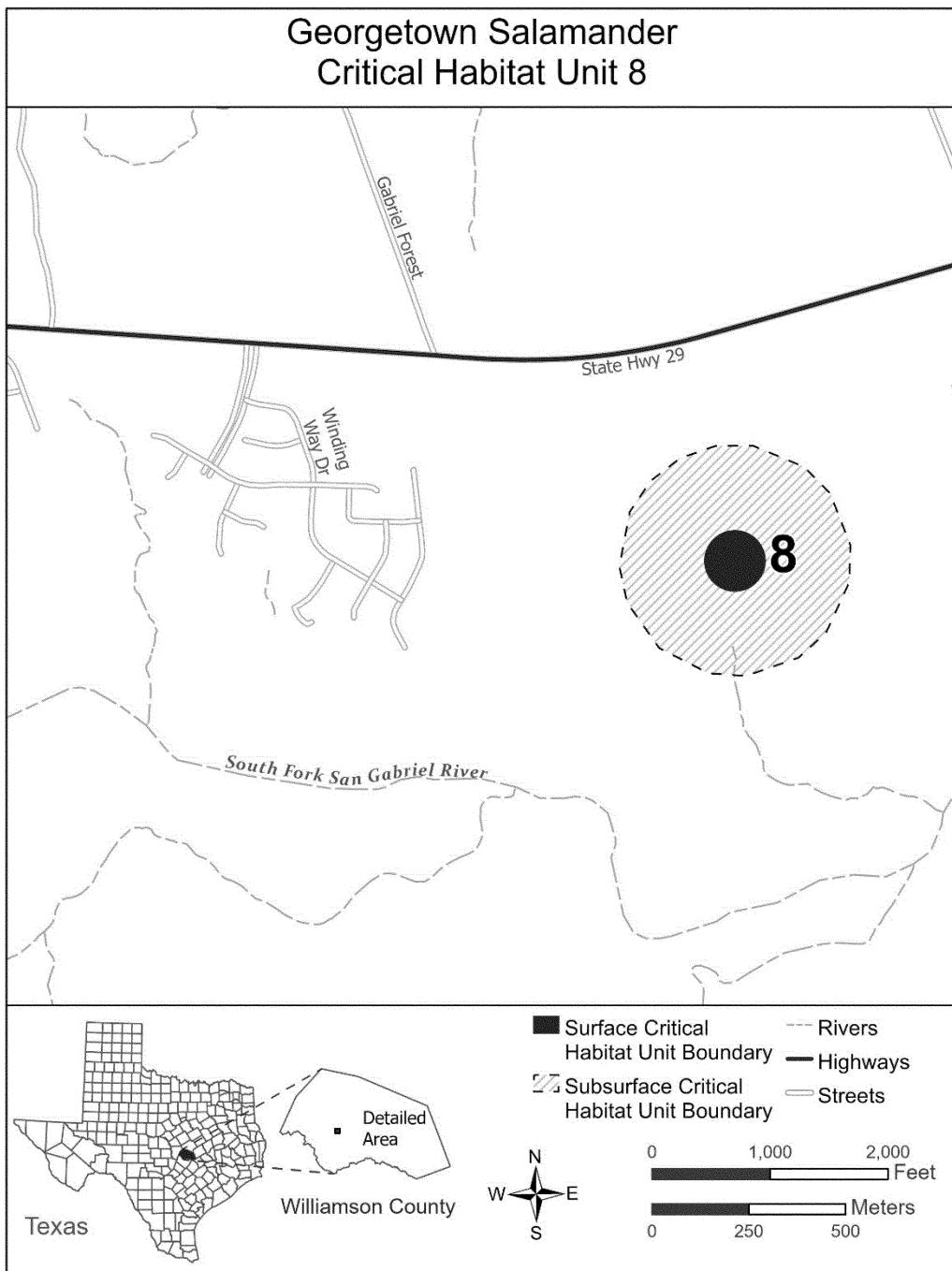
(ii) Map of Unit 7 is provided at paragraph (9)(ii) of this entry.

**(13) Unit 8: Shadow Canyon Spring Unit, Williamson County, Texas.**

(i) Unit 8 consists of approximately 68 ac (28 ha) of City and private land in west-central Williamson County, Texas. The unit is located just south of State Highway 29. This unit contains Shadow

Canyon Spring, which is occupied by the Georgetown salamander.

(ii) Map of Unit 8 follows:



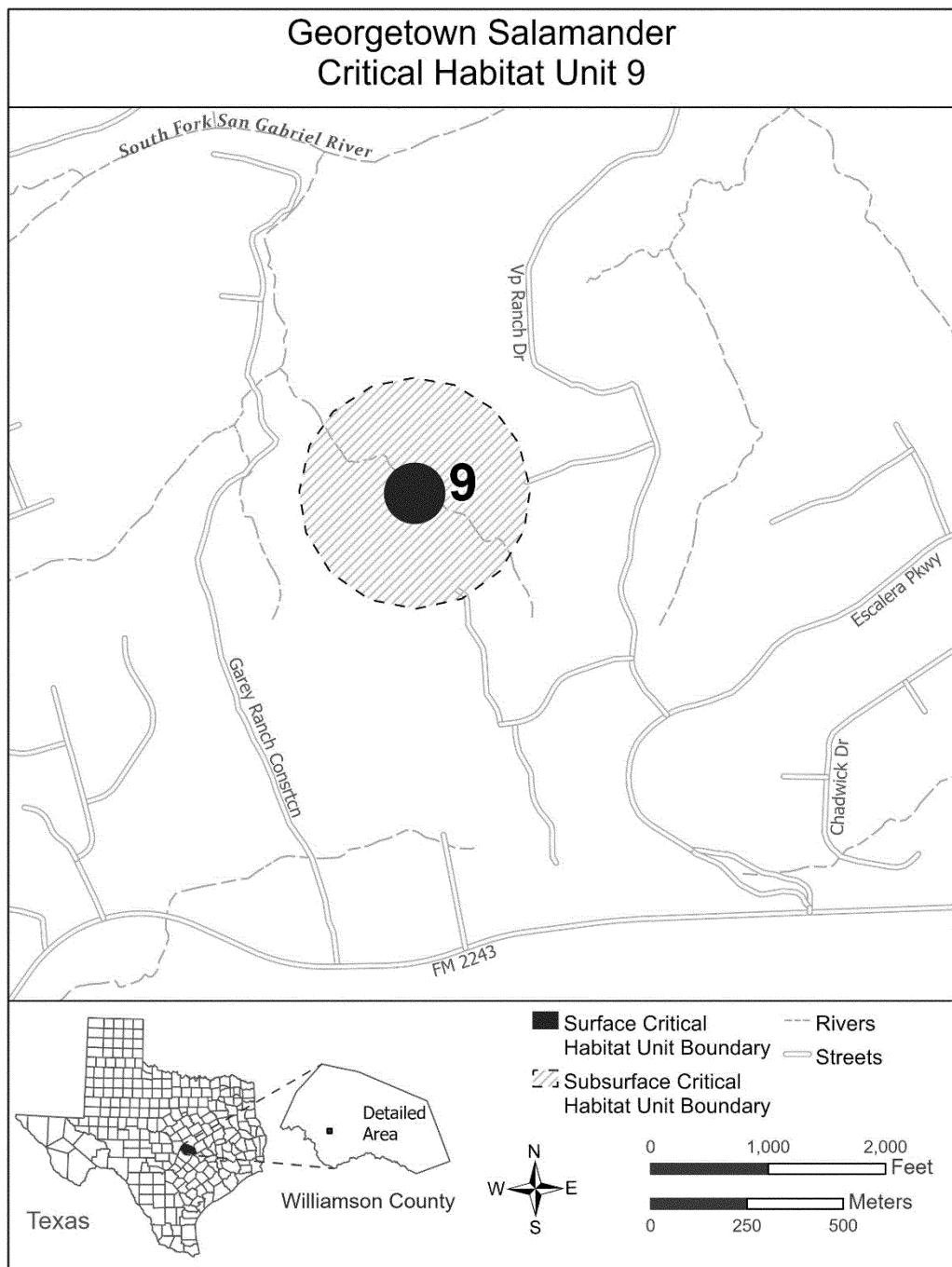
(14) Unit 9: Garey Ranch Spring Unit, Williamson County, Texas.

(i) Unit 9 consists of approximately 68 ac (28 ha) of private land in Williamson

County, Texas. The unit is located north of RM 2243. The unit is mostly undeveloped. A small amount of

residential development enters the southern and eastern parts of the unit.

(ii) Map of Unit 9 follows:



\* \* \* \* \*

#### Salado Salamander (*Eurycea chisholmensis*)

(1) Critical habitat units are depicted for Bell and Williamson Counties, Texas, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of Salado salamander consist of the following components:

(i) For surface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer.* Groundwater quality issuing to the surface from the

underlying aquifer is similar to natural aquifer conditions as it discharges from natural spring outlets. Concentrations of water quality constituents and contaminants are below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Salado salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with at least some surface flow during the year. The water chemistry of aquatic surface habitats is similar to

natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 milligrams per liter (mg/L), and specific water conductance from 317 to 814 micro-Siemens per centimeter (µS/cm).

(B) *Rocky substrate with interstitial spaces.* Rocks in the substrate of the salamander's surface aquatic habitat are large enough to provide salamanders with cover, shelter, and foraging habitat. The substrate and interstitial spaces have minimal sedimentation.

(C) *Aquatic invertebrates for food.* The spring environment is capable of supporting a diverse aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

(D) *Subterranean aquifer.* Access to the subsurface water table exists to provide shelter, protection, and space for reproduction. This access can occur in the form of large conduits that carry water to the spring outlet or porous voids between rocks in the streambed that extend down into the water table.

(ii) For subsurface habitat:

(A) *Water from the Northern Segment of the Edwards Aquifer.* Groundwater quality is similar to natural aquifer conditions. Concentrations of water quality constituents and contaminants are below levels that could exert direct lethal or sublethal effects (such as effects to reproduction, growth, development, or metabolic processes), or indirect effects (such as effects to the Salado salamander's prey base). Hydrologic regimes similar to the historical pattern of the specific sites are present, with continuous flow. The water chemistry is similar to natural aquifer conditions, with temperatures from 61 to 84 °F (16 to 29 °C), dissolved oxygen concentrations from 5 to 13 mg/L, and specific water conductance from 317 to 814 µS/cm.

(B) *Subsurface spaces.* Voids between rocks underground are large enough to

provide salamanders with cover, shelter, and foraging habitat. These spaces have minimal sedimentation.

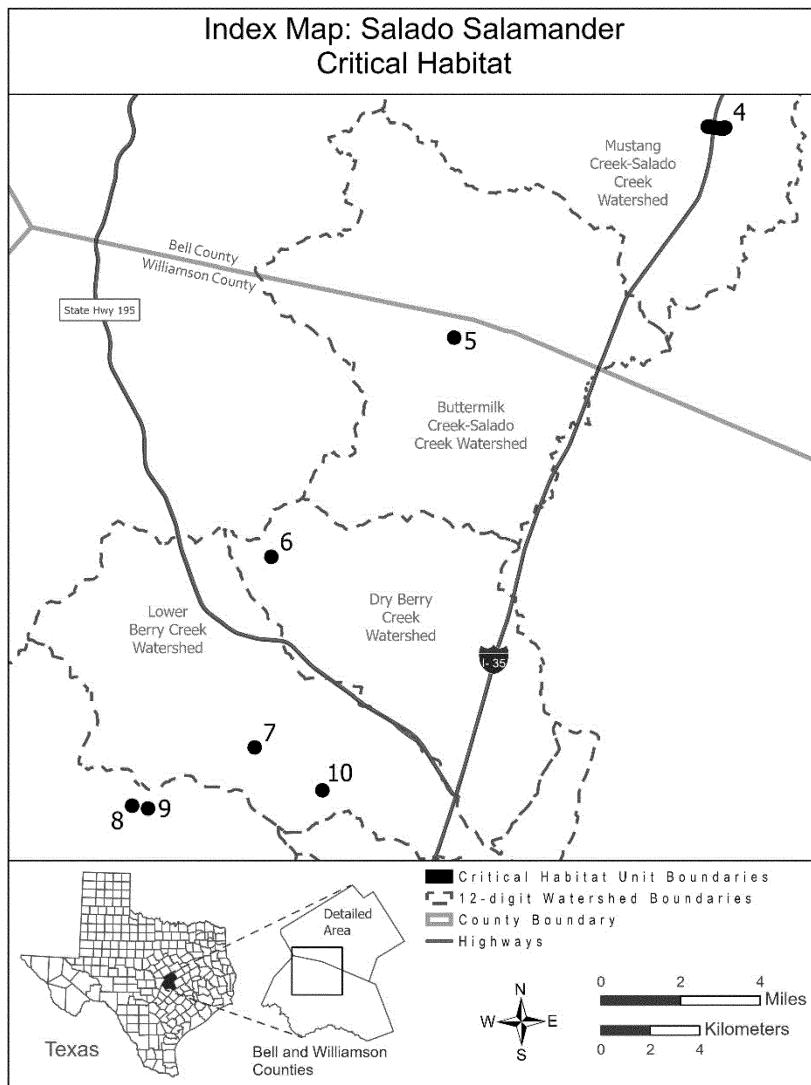
(C) *Aquatic invertebrates for food.* The habitat is capable of supporting an aquatic invertebrate community that includes crustaceans, insects, and aquatic snails.

(3) Surface critical habitat includes the spring outlets and outflow up to the high-water line and 262 ft (80 m) of upstream and downstream habitat, including the dry stream channel during periods of no surface flow. The surface critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) existing within the legal boundaries on September 17, 2021; however, the subsurface critical habitat may extend below such structures. The subsurface critical habitat includes underground features in a circle with a radius of 984 ft (300 m) around the springs.

(4) Data layers defining map units were created using a geographic information system (GIS), which included species locations, roads, property boundaries, 2011 aerial photography, and U.S. Geological Survey 7.5' quadrangles. Points were placed on the GIS. We delineated critical habitat unit boundaries by starting with the cave or spring point

locations that are occupied by the salamanders. From these cave or springs points, we delineated a 984-ft (300-m) buffer to create the polygons that capture the extent to which we estimate the salamander populations exist through underground conduits. The polygons were then simplified to reduce the number of vertices, but still retain the overall shape and extent. Subsequently, polygons that were within 98 ft (30 m) of each other were merged together. Each new merged polygon was then revised to remove extraneous divots or protrusions that resulted from the merge process. 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 at <http://www.fws.gov/southwest/es/AustinTexas/>, at <http://www.regulations.gov> at Docket No. FWS-R2-ES-2020-0048, 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) Note: Index map follows:



(6) Unit 4: IH-35 Unit.

(i) Unit 4 consists of approximately 175 ac (71 ha) of private, State, and City of Salado land located in southwestern Bell County, Texas, in the southern part of the Village of Salado. The unit

extends along Salado Creek on both sides of Interstate Highway 35 (IH 35). The IH 35 right-of-way crosses Salado Creek and is owned by the Texas Department of Transportation. The unit

is a mixture of residential and commercial properties on its eastern portion, with some undeveloped ranch land in the western part west of IH-35.

(ii) Map of Unit 4 follows:

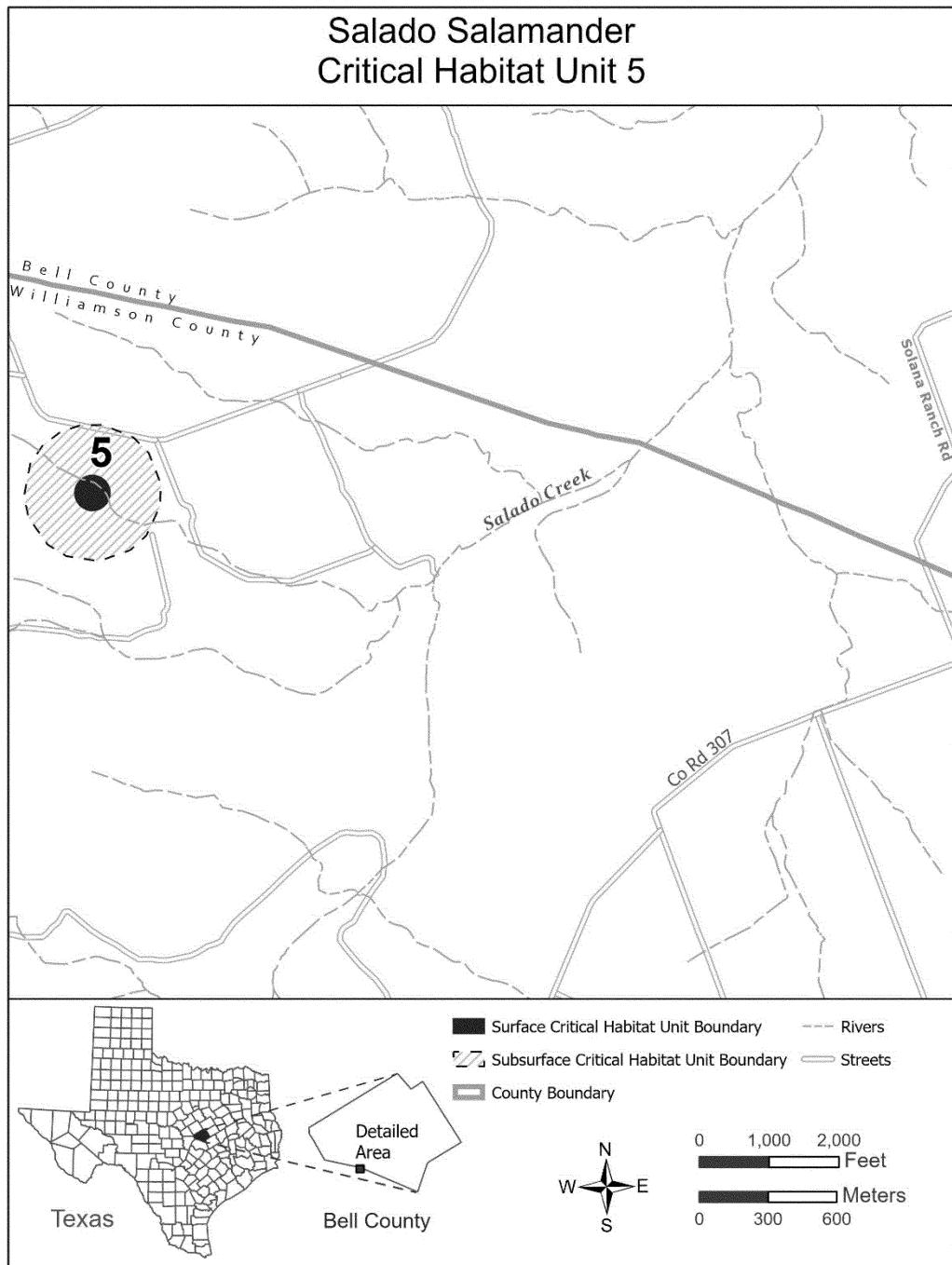


(7) Unit 5: King's Garden Main Spring Unit.

(i) Unit 5 consists of approximately 68 ac (28 ha) of private land in northern

Williamson County, Texas. The unit is undeveloped land.

(ii) Map of Unit 5 follows:



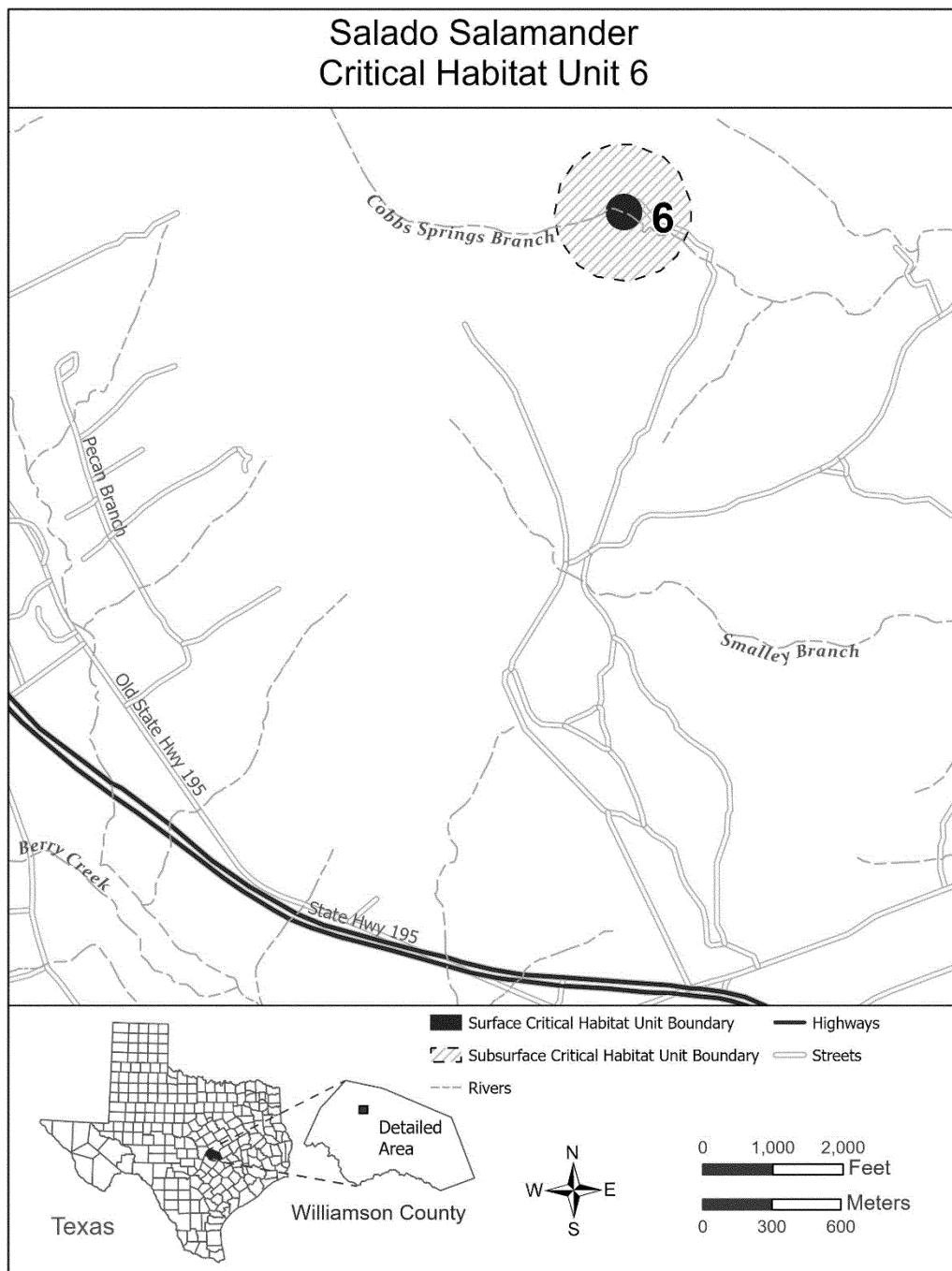
(8) Unit 6: Cobbs Spring Unit.

(i) Unit 6 consists of approximately 68 ac (28 ha) of private land located in

northwestern Williamson County,

Texas. The unit is undeveloped land.

(ii) Map of Unit 6 follows:



(9) Unit 7: Cowan Creek Spring Unit.

(i) Unit 7 consists of approximately 68 ac (28 ha) of private land located in

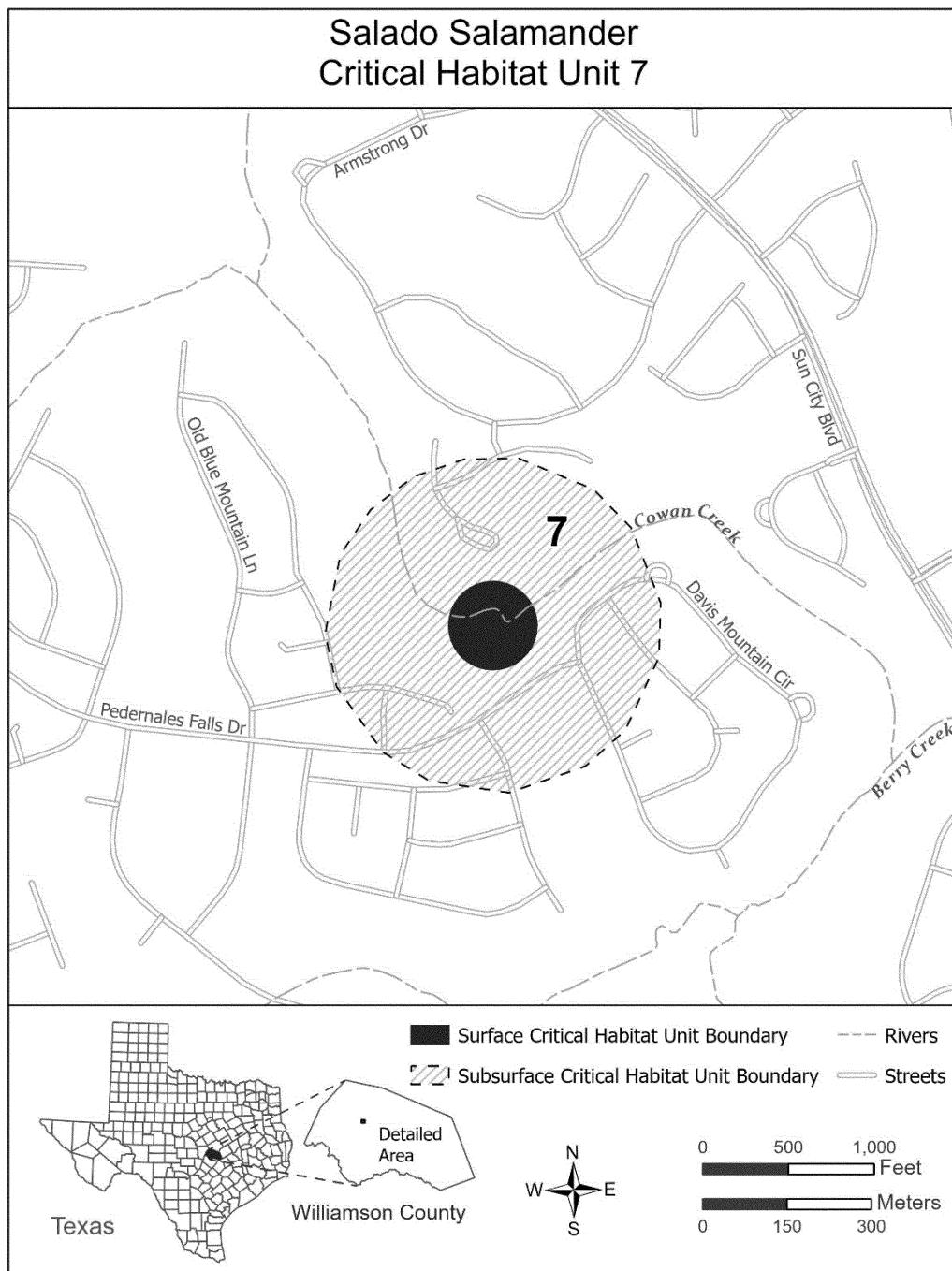
west-central Williamson County, Texas.

The northern portion of the unit is

residential development; the remainder

is undeveloped.

(ii) Map of Unit 7 follows:



**(10) Unit 8: Walnut Spring Unit.**

(i) Unit 8 consists of approximately 68 ac (28 ha) of private and Williamson County land located in west-central Williamson County, Texas. The western,

eastern, and northeastern portions of the unit contain low-density residential development; the southern and north-central portions are undeveloped. The extreme southeastern corner of the unit

is part of Williamson County Conservation Foundation's Twin Springs Preserve.

(ii) Map of Units 8 and 9 follows:



**(11) Unit 9: Twin Springs Unit.**

(i) Unit 9 consists of approximately 68 ac (28 ha) of private and Williamson County land located in west-central Williamson County, Texas. The northern portion of the unit contains low-density residential development;

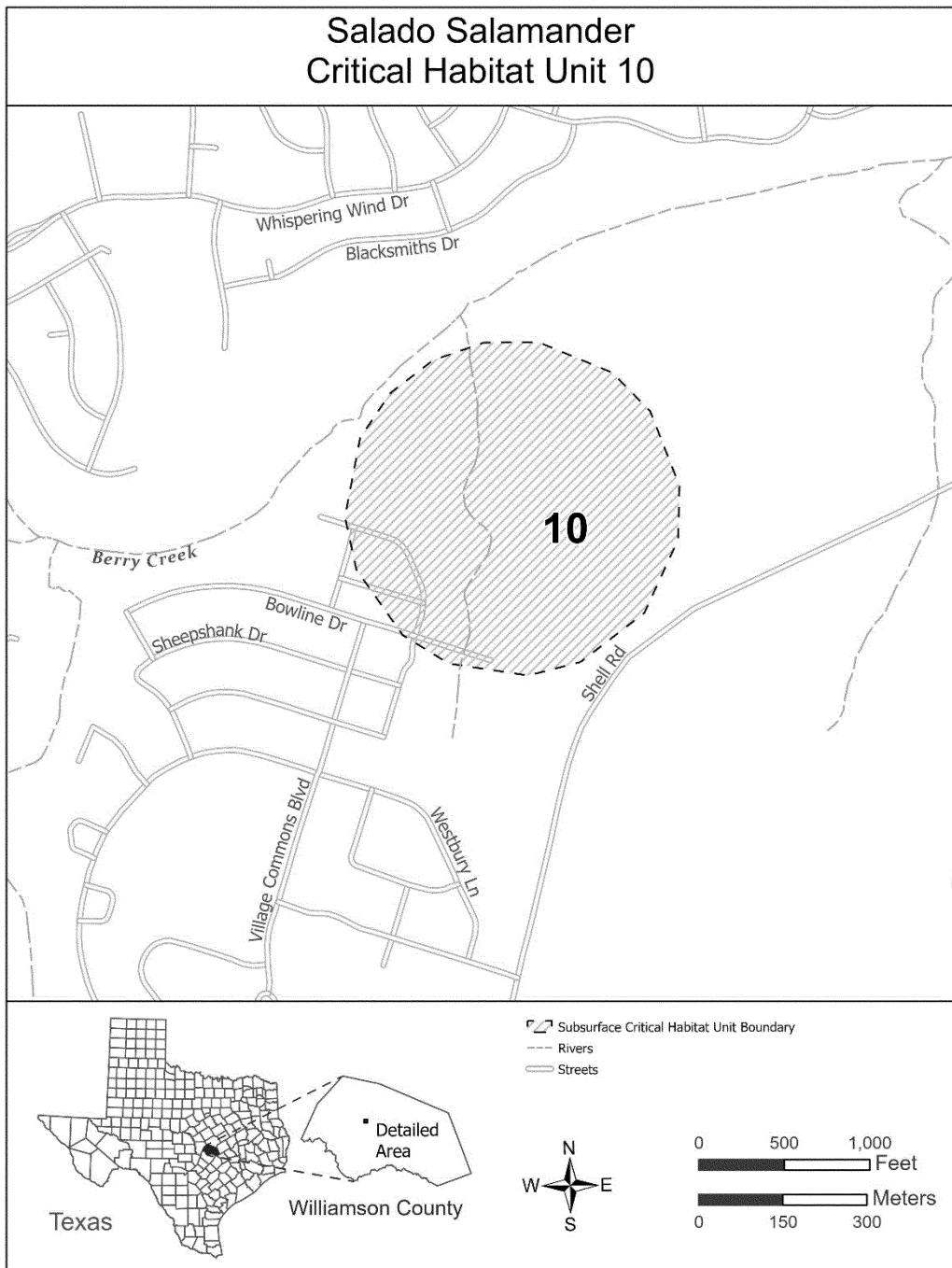
the remainder of the unit is undeveloped. The majority of the unit is part of Williamson County Conservation Foundation's Twin Springs Preserve.

(ii) Map of Unit 9 is provided at paragraph (10)(ii) of this entry.

(12) Unit 10: Bat Well Cave Unit.

(i) Unit 10 consists of approximately 68 ac (28 ha) of private land located in west-central Williamson County, Texas. The western, northern, and southern portion of the unit contains residential development.

(ii) Map of Unit 10 follows:



\* \* \* \* \*

**Martha Williams,**

*Principal Deputy Director, Exercising the  
Delegated Authority of the Director, U.S. Fish  
and Wildlife Service.*

[FR Doc. 2021-17600 Filed 8-17-21; 8:45 am]

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