DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2024–0090; FXES1111090FEDR–245–FF09E21000]

RIN 1018–BH96

Endangered and Threatened Wildlife and Plants; Endangered Species Status for Black Creek Crayfish and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the Black Creek crayfish (*Procambarus pictus*), a crayfish species from Florida, as an endangered species under the Endangered Species Act of 1973, as amended (Act). We also propose to designate critical habitat for the Black Creek crayfish under the Act. In total, approximately 1,056 kilometers (656 miles) of streams in Clay, Duval, Putnam, and St. Johns Counties, Florida, fall within the boundaries of the proposed critical habitat designation. If we finalize this rule as proposed, it would extend the Act's protections to this species and its designated critical habitat. We also announce the availability of an economic analysis of the proposed critical habitat designation for the Black Creek crayfish.

DATES: We will accept comments received or postmarked on or before November 12, 2024. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. eastern time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by October 25, 2024.

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

(1) *Electronically:* Go to the Federal eRulemaking Portal: *https://www.regulations.gov*. In the Search box, enter FWS–R4–ES–2024–0090, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment.''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R4–ES–2024–0090, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *https://www.regulations.gov*. This generally means that we will post any personal information you provide us (see Information Requested, below, for more information).

Availability of supporting materials: Supporting materials, such as the species status assessment report, are available at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2024–0090.

FOR FURTHER INFORMATION CONTACT: Gian Basili, Deputy State Supervisor, Florida Ecological Services Office, 7915 Baymeadows Way, Suite 200, Jacksonville, FL 32256–7517; telephone 904–731–3079. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States. Please see Docket No. FWS–R4–ES–2024–0090 on *https://www.regulations.gov* for a document that summarizes this proposed rule.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act (16 U.S.C. 1531 *et seq.*), a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the Black Creek crayfish meets the definition of an endangered species; therefore, we are proposing to list it as such and proposing a designation of its critical habitat. Both listing a species as an endangered or threatened species and making a critical habitat designation can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 *et seq.*).

What this document does. We propose to list the Black Creek crayfish as an endangered species under the Act, and we propose to designate critical habitat for the species.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that the Black Creek crayfish is endangered primarily due to the invasion of the white tubercled crayfish (*Procambarus spiculifer*) through competition for food and shelter, and possibly through direct predation (Factors C and E).

Section 4(a)(3) of the Act requires that the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, designate critical habitat for the species concurrently with listing the species. 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 protection; 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 scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impacts of specifying any particular area as critical habitat.

Information Requested

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

(1) The species' biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including

habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns and the locations of any additional populations of this species;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Threats and conservation actions affecting the species, including:

(a) Factors that may be affecting the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors;

(b) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species; and

(c) Existing regulations or conservation actions that may be addressing threats to this species.

(3) Additional information concerning the historical and current status of this species.

(4) Specific information on:

(a) The amount and distribution of Black Creek crayfish habitat;

(b) Any additional areas occurring within the range of the species in the Lower St. Johns River Basin in Clay, Duval, Putnam, and St. Johns Counties in northeastern Florida that should be included in the designation because they (i) are occupied at the time of listing and contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection, or (ii) are unoccupied at the time of listing and are essential for the conservation of the species;

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

(d) Whether areas not occupied at the time of listing qualify as habitat for the species and are essential for the conservation of the species.

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

(6) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, and the related benefits of including or excluding specific areas.

(7) Information on the extent to which the description of probable economic impacts in the economic analysis is a reasonable estimate of the likely economic impacts and any additional information regarding probable economic impacts that we should consider.

(8) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act. If you think we should exclude any additional areas, please provide information supporting a benefit of exclusion.

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

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, do not provide substantial information necessary to support a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened species must be made solely on the basis of the best scientific and commercial data available, and section 4(b)(2) of the Act directs that the Secretary shall designate critical habitat on the basis of the best scientific data available.

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

If you submit information via *https://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *https://www.regulations.gov*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *https://www.regulations.gov*.

Our final determinations may differ from this proposal because we will consider all comments we receive during the comment period as well as any information that may become available after this proposal. Based on the new information we receive (and, if relevant, any comments on that new information), we may conclude that the species is threatened instead of endangered, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species. For critical habitat, our final designation may not include all areas proposed, may include some additional areas that meet the definition of critical habitat, or may exclude some areas if we find the benefits of exclusion outweigh the benefits of inclusion and exclusion will not result in the extinction of the species. In our final rule, we will clearly explain our rationale and the basis for our final decisions, including why we made changes, if any, that differ from this proposal.

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES.** Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. We may hold the public hearing in person or virtually via webinar. We will announce any public hearing on our website, in addition to the **Federal Register**. The use of virtual public hearings is consistent with our regulations at 50 CFR 424.16(c)(3).

Previous Federal Actions

For a detailed description of Federal actions concerning the Black Creek crayfish that occurred prior to September 2021, please refer to the document we published in the **Federal Register** on September 29, 2021 (86 FR 53933).

On November 20, 2023, the Center for Biological Diversity (Center) sent the Service a notice of intent to sue, alleging violations of the Act and Administrative Procedure Act by denying protections to the Black Creek crayfish. The Center

filed a complaint on February 16, 2024 (*Center* v. *Service,* No. 1:24–cv–00457 (D.D.C.)). In May 2024, the court granted a stay in the case through August 30, 2024, to allow the Service to consider new information on the Black Creek crayfish and issue a new status determination. However, we are effectively mooting the action by publishing this proposed rule, which proposes to list the Black Creek crayfish as an endangered species, and proposes to designate critical habitat for the species, under the Act.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the Black Creek crayfish. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species.

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review in listing and recovery actions under the Act, we solicited independent scientific review of the information contained in the Black Creek crayfish SSA report (version 2.0). We sent the SSA report to six independent peer reviewers and received four responses. Results of this structured peer review process can be found at *https://www.regulations.gov.* In preparing this proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this proposed rule.

Summary of Peer Reviewer Comments

As discussed in Peer Review above, we received comments from four peer reviewers on the draft SSA report. We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the contents of the SSA report. The peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications, and suggestions, including clarifications in using terminology and other editorial suggestions. All comments regarding Black Creek crayfish survey records were further clarified in the SSA report. Otherwise, no substantive changes to our analysis and conclusions in the SSA report were deemed necessary, and peer reviewer comments are addressed in version 2.0 of the SSA report (Service 2024, entire).

I. Proposed Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of the Black Creek crayfish is presented in the SSA report (version 2.0, Service 2024, pp. 9–16).

The Black Creek crayfish is endemic to the Lower St. Johns River Basin in four northeastern Florida counties (Clay, Duval, Putnam, and St. Johns). This small to medium-sized crayfish has dark claws and a dark carapace with a white or yellowish mid-dorsal stripe, white spots or streaks on its sides, and a rust-colored abdomen. The Black Creek crayfish lives for approximately 16 months and reproduces once during its life cycle. The Black Creek crayfish occurs in flowing, sand-bottomed, tannic-stained streams that contain cool, clean water, and maintain a constant flow of highly oxygenated water (greater than 5 parts per million). Within these streams, Black Creek crayfish require aquatic vegetation and debris for shelter, with alternating shaded and open canopy cover where they eat aquatic plants, dead plant and animal material, and detritus.

When version 1.0 of the SSA report was completed in 2019, the effects of the co-occurring white tubercled crayfish were uncertain, but it is now known that wherever white tubercled crayfish is found, it displaces Black Creek crayfish through competition or predation. Monitoring surveys in 2019–2023 documented expansion of the white tubercled crayfish, with 47 percent of the Black Creek crayfish's range facing inevitable extirpation due to white tubercled crayfish invasion, and 42 percent of the range at high risk of imminent invasion. The expansion of white tubercled crayfish and its apparent displacement of Black Creek crayfish led the Service to reassess the species in 2024. The Service updated the SSA report, resulting in version 2.0, and subjected the SSA report to peer review. As noted above, the Service considered peer review comments on the updated SSA report. The Service used the updated SSA report to make a new status determination for the Black Creek crayfish, resulting in this proposed rule.

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. On April 5, 2024, jointly with the National Marine Fisheries Service, we issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and what criteria we apply when designating listed species' critical habitat (89 FR 24300). On the same day, we published a final rule revising our protections for endangered species and threatened species at 50 CFR part 17 (89 FR 23919). These final rules are now in effect and are incorporated into the current regulations.

The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term ''threat'' to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term ''threat'' includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term ''threat'' may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an ''endangered species'' or a ''threatened species.'' In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an ''endangered species'' or a ''threatened species'' only after conducting this cumulative analysis and describing the expected effect on the species.

The Act does not define the term ''foreseeable future,'' which appears in the statutory definition of ''threatened species.'' Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis which is further described in the 2009 Memorandum Opinion on the foreseeable future from the Department of the Interior, Office of the Solicitor (M–37021, January 16, 2009; ''M-Opinion,'' available online at *https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/M-37021.pdf*). The foreseeable future extends as far into the future as the U.S. Fish and Wildlife Service and National Marine Fisheries Service (hereafter, the Services) can make reasonably reliable predictions about the threats to the species and the species' responses to those threats. We need not identify the foreseeable future in terms of a specific period of time. We will describe the foreseeable future on a case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability. In other words, the foreseeable future is the period of time over which we can make reasonably reliable predictions. ''Reliable'' does not mean ''certain''; it means sufficient to provide a reasonable degree of confidence in the prediction, in light of the conservation purposes of the Act.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent our decision on whether the species should be proposed for listing as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess the Black Creek crayfish's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy is the ability of the species to withstand catastrophic events (for example, droughts, large pollution events); and representation is the ability of the species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time, which we then used to inform our regulatory decision.

The following is a summary of the key results and conclusions from version 2.0 of the SSA report; the full SSA report can be found at Docket No. FWS–R4–ES–2024–0090 on *https://www.regulations.gov*.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resource needs, and the threats that influence the species' current and future condition, in order to assess the species' overall viability.

At an individual level, Black Creek crayfish require aquatic vegetation, leaf litter, and tree roots or undercut banks for shelter, as well as aquatic plants, dead plant and animal material, and detritus for food. Additionally, individuals need clean and cool, highly oxygenated, flowing water to survive. For populations of Black Creek crayfish to persist, the needs of individuals (suitable shelter, food sources, mates) must be met at a larger scale. Connected areas of habitat must be large enough to support a reservoir of potential mates for breeding and to avoid inbreeding depression. For Black Creek crayfish, suitable habitat depends on the absence of competitors (*e.g.,* white tubercled crayfish) and maintenance of sand-bottomed, highly oxygenated, tannic headwater streams.

Species viability requires adequate redundancy. Redundancy is sustained by resilient populations (natural or reintroduced) distributed across the species' range, and connectivity allows nearby populations to expand their range, rescue and recolonize areas after catastrophic events, or both. Representation can be maintained through heterogeneity of occupied habitats and sustained resilient populations spread across the range of genetic and/or ecological diversity for the species. The Black Creek crayfish occupies similar habitat (primarily high-quality headwater streams) throughout its range. Long-term viability requires resilient populations to be sustained into the future. For this species, long-term viability means protecting and maintaining high-quality headwater streams and excluding or minimizing impacts from nonindigenous and invading competitors.

Influences on Black Creek crayfish viability vary by location, but the most imminent threat to the species is competition and potential predation from the nonindigenous and invading white tubercled crayfish (Factors C and E), which is now being regularly detected across the Black Creek crayfish's range in addition to other crayfish competitors. Other threats include disease (Factor C), habitat degradation and water quality

impairment (Factor A), and a changing climate (Factor E) and are described in more detail in the SSA report (Service 2024, pp. 18–39).

White Tubercled Crayfish

The white tubercled crayfish, a crayfish from an adjacent watershed, was introduced to the Black Creek crayfish's range and is influencing Black Creek crayfish through competition for food and shelter and possibly through direct predation (Service 2024, pp. 18–25). The white tubercled crayfish is native to the United States and is broadly distributed across the Southeast. In Florida, white tubercled crayfish historically only occurred in the St. Mary's and Suwannee basins in the northern part of the State, as well as in panhandle basins (NatureServe 2023, unpaginated). The first detection of white tubercled crayfish in areas known to be historically occupied by Black Creek crayfish was in 2008 (Franz et al. 2008, p. 16). While it is unclear if the white tubercled crayfish expanded its range in Florida from the north and west, Trail Ridge, a sandy dune geologic feature running north to south from South Georgia through North Florida, was likely a barrier to white tubercled crayfish expansion (G. Warren 2020, pers. comm.; U.S. Geological Survey (USGS) 1989, entire).

Analysis of the pattern of white tubercled crayfish and Black Creek crayfish presence/absences suggests that the white tubercled crayfish was introduced into the Black Creek Basin rather than spreading naturally from the north (Fralick et al. 2021, p. 18). One explanation for introduction is through live bait release from fishing, which is one of the main methods for crayfish invasions (DiStefano et al. 2015, p. 404). Other mechanisms for introductions include personal aquarium releases, planting of infested aquatic plants, intentional stocking, and the potential release of crayfish for educational purposes (Nagy et al. 2022, unpaginated; Donahou et al. 2024, unpaginated). Commercial sales of white tubercled crayfish are legal in Florida. The first record of white tubercled crayfish in the Black Creek Basin was in an urbanized portion of Bull Creek in the Lower South Fork of Black Creek subwatershed that is located near the center of the Black Creek Basin (Franz et al. 2008, p. 17).

From 2012–2018, the white tubercled crayfish was detected at two sites in the Black Creek Basin. A 2021 basin-wide evaluation of the population status of Black Creek crayfish comparing 2018–2023 surveys with sites historically occupied by Black Creek Crayfish between 1976–2016 indicated a substantial decline in Black Creek crayfish occurrences and a corresponding increase in the number of sites inhabited by white tubercled crayfish (Fralick et al. 2023, unpublished data). Surveys from 2018–2023 across 75 sites historically occupied by Black Creek crayfish documented 51 total sites (68 percent) occupied by white tubercled crayfish, 33 of which (44 percent) it has replaced Black Creek crayfish. Black Creek crayfish occurrence was reduced to only 36 (48 percent) of the 75 historical sites; however, white tubercled crayfish has been detected in 18 of these sites, leaving only 18 (24 percent) of the historical sites unoccupied by white tubercled crayfish. While we do not have a rate of extirpation calculated, the replacement of Black Creek crayfish by white tubercled crayfish has been dramatic since its initial detection in 2008. Given these recent trends, the 18 sites with both Black Creek crayfish and white tubercled crayfish present will likely transition to only white tubercled crayfish occupation in the future.

Some barriers, such as natural or artificial waterfalls, culverts, or salinity, seem to prevent or at least slow down the spread of white tubercled crayfish (Reisinger et al. 2023, p. 2). Within the Black Creek Basin, all the Black Creek crayfish sites where white tubercled crayfish have not been found are in the headwaters behind barriers or in Peter's Creek, a tributary near Black Creek's terminus where it meets the brackish St. Johns River. The remainder of the Black Creek crayfish sites with no white tubercled crayfish present are located outside of the Black Creek basin or are on the east side of the St. Johns River.

Preliminary data suggest that the white tubercled crayfish tolerates a wider range of stream temperatures than the Black Creek crayfish (Warren et al. 2019, pp. 8–9). Both crayfish species require high dissolved oxygen levels and generally overlap in many aspects of their resource needs. White tubercled crayfish reach a larger size than Black Creek crayfish, have a higher growth rate, and outcompete Black Creek crayfish when they have a size advantage (Reisinger et al. 2023, p. 12). White tubercled crayfish likely have a size advantage over Black Creek crayfish during much of the lifecycle due to higher growth rates and culmination in a larger overall maximum size (Reisinger et al. 2023, p. 11). In an enclosure experiment, there were no observed impacts of white tubercled crayfish on the growth or survival of Black Creek crayfish, but Black Creek crayfish used the shelter less frequently in the presence of white tubercled crayfish (Reisinger et al. 2023, pp. 11–12) This suggests that competition for shelter may be a key mechanism by which the white tubercled crayfish is replacing the Black Creek crayfish (Reisinger et al. 2023, p. 12). Several other studies have found that introduced crayfish can outcompete native crayfish for shelter and lead to displacement (Hill and Lodge 1994, entire; Usio et al. 2001, entire; Chucholl et al. 2008, entire).

Additional research is needed to fully understand the life histories and resource needs for both species, the extent of their interspecific competition for resources, and their behavioral ecology. It is theorized that white tubercled crayfish may have an advantage over Black Creek crayfish because they have a longer lifespan and likely reproduce multiple times over a lifetime, whereas female Black Creek crayfish only reproduce once during their life cycle (Franz 1994, p. 212; Hightower and Bechler 2013, pp. 86–87). Although not yet documented for Black Creek crayfish and white tubercled crayfish interactions, reproductive interference is also a potential mechanism for species replacement (M. Ellis 2023, pers. comm.). In some systems, nonindigenous male crayfish have tried to mate with native females, producing no offspring, but effectively eliminating the female's reproductive capacity for the season (J. Cook 2023, pers. comm.; Butler and Stein 1985, p. 14; Ellis 1999, pp. 108–109). It is also possible that changing environmental factors are enhancing the white tubercled crayfish's ability to move into and dominate areas once occupied by Black Creek crayfish. There is anecdotal evidence that after a severe drought, white tubercled crayfish recolonized rehydrated streams more rapidly than Black Creek crayfish (Smith-Hicks 2020, p. 1).

Overall, the white tubercled crayfish can be considered both a stochastic threat, depending on the timing of invasion and interaction with the Black Creek crayfish, and a catastrophic threat, because of the likelihood of human-mediated introduction as well as their ability to outcompete and displace the Black Creek crayfish, thus making the entire Black Creek crayfish species vulnerable to extirpation throughout its range.

Other Influencing Factors

There are several influences that individually and synergistically impact Black Creek crayfish viability. These include other crayfish competitors,

disease, habitat degradation and water quality impairment, and climate change.

Other Crayfish Competitors

Other crayfish species, including both native and nonnative species, can pose a threat if they are aggressive, are resilient to more extreme conditions, or compete for food and cover, thus starving other crayfish species and forcing them out of refugia where other animals can more easily prey upon them. In addition to the nonindigenous and invading white tubercled crayfish (*Procambarus spiculifer*), Black Creek crayfish are occasionally found with other native crayfish species, including slough crayfish (*P. fallax*), peninsula crayfish (*P. paeninsulanus*), brushpalm crayfish (*P. pubischelae*), and Seminole crayfish (*P. seminolae*), which may compete with them for resources (Franz 1994, p. 212; Franz et al. 2008, pp. 14, 16; Nelson and Floyd 2011, pp. 5–6). While not known to occur within the range of the Black Creek crayfish, there is a small, introduced population of highly aggressive and invading red swamp crayfish (*P. clarkii*) in the Doctors Lake subwatershed, which borders the Black Creek Basin. This population is limited to a small retention pond and a few drainage ditches. Eradication efforts in 2022 were unsuccessful, as surveys in 2023 continued to find red swamp crayfish (Gestring 2023, pers. comm.).

Disease

Microsporidian diseases have been attributed to Black Creek crayfish declines (Reisinger et al. 2023, pp. 10–11; Service 2024, pp. 25–28). Microsporidia are spore-forming, obligate, intracellular parasites whose numerous hosts include crayfish. In crayfish, the disease usually causes the deterioration of muscle tissue, lethargy, and eventually death (Freeman et al. 2010, pp. 217–218), or can alter the habitat use or body condition and increase susceptibility to infection (Reisinger and Bolds 2022, p. 3). Visual signs of the disease are white streaks or white opaque abdominal tissue, lending to the name ''porcelain disease'' or ''cotton tail,'' that usually becomes more pronounced as the infection progresses. Black Creek crayfish with microsporidian disease have been reported in several studies (Franz et al. 2008, p. 13; Nelson and Floyd 2011, p. 6; Smith–Hicks 2020, p. 1;Reisinger et al. 2023, pp. 10–11).

Habitat Degradation and Water Quality Impairment

Within the range of the Black Creek crayfish, pollution from nonpoint sources stemming from urbanization, mining, and other activities has been documented in the past (Brody 1990, p. 21; Franz and Franz 1990, p. 294; Florida Natural Areas Inventory (FNAI) 2001, p. 2; Franz et al. 2008, pp. 17–18; Nelson and Floyd 2011, pp. 6–7). Not only can these impacts cause direct mortality to crayfish, but they can also degrade habitat used for foraging, sheltering, and spawning. Sections 4.3 and 4.4 of the SSA report provide additional details about the effects of water withdrawals and other development-related, mining, and agricultural/silvicultural activities that affect water quality within the Black Creek Basin (Service 2024, pp. 29–33). Implementation of construction, agricultural, and silvicultural best management practices (BMPs) has alleviated many past threats associated with siltation and other water quality impacts in recent years and have improved overall habitat conditions within the Black Creek crayfish's range (Service et al. 2017, p.24; Florida Department of Agriculture and Consumer Services (FDACS) and Florida Fish and Wildlife Conservation Commission (FWC) 2018, p. 4;).

Climate Change

Effects of climate change, such as increasing temperatures, increased catastrophic storm and/or extreme drought events, and sea level rise, pose ongoing risks to habitat suitability for the Black Creek crayfish. The climate in the southeastern United States has warmed approximately 1 degree Celsius (°C) (approximately 2 degrees Fahrenheit (°F)) since the 1970s and is expected to continue to rise (Carter et al. 2014, pp. 398–399; Carter et al. 2018, pp. 749–750). Various emissions scenarios suggest that, by the end of the 21st century, average global temperatures are expected to increase 2 to >4 °C (3.6 to >7.2 °F) (Intergovernmental Panel on Climate Change (IPCC) 2022, entire). By the end of 2100, it is extremely likely that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales, and it is very likely that heat waves and extreme precipitation events may occur with higher frequency and intensity (IPCC 2014, pp. 15–16; Carter et al. 2018, pp. 750–752).

Projections for future precipitation trends in the Southeast are less certain than those for temperature, but suggest that overall annual precipitation may decrease, and that tropical storms may occur less frequently, but with more force (more category 4 and 5 hurricanes) than historical averages (Carter et al. 2014, p. 398). Projected warmer temperatures and decreased precipitation may increase water temperatures and concurrently decrease dissolved oxygen levels; change runoff regimes; and increase frequency, duration, and intensity of droughts in the southeastern United States (Carter et al. 2018, pp. 746, 773, 775). Droughts cause decreases in water flow and dissolved oxygen levels and increases in temperature in stream systems; droughts can also lead to increases in the concentration of pollutants. These issues may be exacerbated by increases in groundwater withdrawals that likely coincide with human population increases.

The restricted range of the Black Creek crayfish may indicate a narrow tolerance for temperature increases resulting from climate change in northeastern Florida. The direct influence of temperature changes to crayfish habitat depends on the species' thermal range, geographical distribution, and general ability to acclimate (Carmona–Osalde et al. 2003, p. 306). Previous research indicates increased temperature can lead to decreased survival, growth rates, and reproduction (Carmona–Osalde et al. 2003, pp. 308–313), as well as behavioral modifications (Seals et al. 1997, pp. 136–137) in other *Procambarus* species. There are no direct studies to indicate the impact higher water temperatures would have on Black Creek crayfish populations; however, there are some early indications that Black Creek crayfish are disappearing from previously occupied streams, and congeners such as slough crayfish, peninsula crayfish, and Seminole crayfish are replacing them in streams above 31°C (88 °F) and with dissolved oxygen levels below 4 milligrams per liter (mg/L) (Fralick et al. 2021, p. 16).

Sea level rise may cause saltwater intrusion of groundwater within the range of the Black Creek crayfish, increasing salinity and decreasing oxygen levels, even in areas not directly impacted by higher tide levels and inundation. Prior to surface inundation, habitat may undergo vegetation shifts triggered by changes to hydrology (wetter), salinity (higher), and more frequent storm surge and king tide events (pulse events causing massive erosion and salinization of soils) (Saha et al. 2011, pp. 181–182).

Conservation Efforts and Regulatory Mechanisms

Habitat Protection and Management

In 2013, the Florida Natural Areas Inventory (FNAI) indicated that 40 percent of Black Creek crayfish habitat was protected (FNAI 2013, p. D–7). The range of the Black Creek crayfish largely overlaps public lands managed by the Florida Army National Guard (Camp Blanding Joint Training Center (Camp Blanding)), St. Johns River Water Management District, and the Florida Forest Service, specifically three State forests: Belmore, Jennings, and Etoniah Creek (Service 2024, p. 37). Resource management activities occur on these public lands. Additional Black Creek crayfish are known to occur on mitigation bank parcels. Land managers of public conservation lands do not necessarily manage stream habitat or the fauna that live in streams, although these areas likely benefit from management of adjacent uplands. Black Creek crayfish populations on public lands may receive some protection, but no rangewide conservation actions have yet been undertaken for the species.

Florida statutes require managers of lands that contain imperiled species to consider the habitat needs of these species during preparation of management plans and require that all land management plans include short-term and long-term goals to serve as the basis for land management activities; these goals include measurable objectives for imperiled species habitat maintenance, enhancement, restoration, or population restoration (Florida Statutes, title XVIII, section 253.034(5)).

As part of the implementation of the Sikes Improvement Act (1997; 16 U.S.C. 670 *et seq*), the Secretaries of the military departments are required to prepare and implement an integrated natural resources management plan (INRMP) for each military installation in the United States. The INRMP must be prepared in cooperation with the Service and State fish and wildlife agencies and must reflect the mutual agreement of these parties concerning conservation, protection, and management of wildlife resources (16 U.S.C. 670a). The Department of Defense (DoD) must conserve and maintain native ecosystems, viable wildlife populations, Federal and State listed species, and habitats as vital elements of its natural resource management programs on military installations, to the extent that these requirements are consistent with the military mission (DoD Instruction 4715.3).

Camp Blanding, the property with the largest known occurrence of Black Creek crayfish, is owned by the State of Florida and managed by the Florida Army National Guard. In 2017, Camp Blanding entered into a 15–year candidate conservation agreement with assurances (CCAA) to protect Federal candidate and Florida Fish and Wildlife Conservation Commission (FWC) listed species, including Black Creek crayfish (Service et al. 2017, entire). Enrolled lands include 46,507 acres of the total 73,000–acre installation (Service et al. 2017, p. 2) and encompass 121 miles of streams, many of which are occupied by the Black Creek crayfish. Surveys have found white tubercled crayfish co-occurring with Black Creek crayfish in several locations; however, some headwaters are protected from white tubercled crayfish invasion by barriers. The objectives for the Camp Blanding CCAA are to: (1) maintain or enhance the quality of habitat for the covered species on the enrolled lands, (2) reduce or eliminate disease transmission to the covered species on the enrolled lands, and (3) reduce or eliminate exotic and invasive species on the enrolled lands. During the implementation of the CCAA, hydrologic measurements will be taken, and invasive (including nonindigenous and invading) species will be monitored in areas known to be occupied by Black Creek crayfish on Camp Blanding lands (Service et al. 2017, p. 24). Additionally, Black Creek crayfish will be surveyed at least once every 5 years to evaluate the success of conservation actions and implementation of BMPs for improved water quality, reduction and/or elimination of disease transmission, and control of exotic and invasive species (Service et al. 2017, p. 24). In addition to the CCAA and existing INRMP, Camp Blanding has an ongoing program to purchase lands within 3 miles of the installation to create a buffer for the localized effects of loud training exercises. These lands would not fall within the purview of the CCAA, and Black Creek crayfish habitat in streams surrounded by these lands would not be afforded the same protections as those that occur on the installation.

The Florida Department of Environmental Protection (DEP) coordinates development and implementation of basin management action plans (BMAPs) to assess, monitor, and improve the water quality of water bodies in the basin that are considered ''impaired'' by pollution. Total maximum daily loads (TMDLs) are water quality targets for specific pollutants (such as fecal coliforms) that are established for impaired waterbodies that do not meet their designated uses based on Florida water quality standards (DEP 2008, p. 1). A BMAP prepared for tributaries to the lower St. Johns River (DEP 2008, entire) addresses water quality issues for some drainages in or near the range of the Black Creek crayfish. Two streams in urbanizing areas, Big Davis Creek and Durbin Creek, in southeastern Duval and northwestern St. Johns Counties are locations where TDMLs were established (DEP 2008, p. 87), and subsequently were met so that they are no longer considered impaired waters and could provide habitat for Black Creek crayfish (FDEP 2022, entire).

State Conservation Measures

The Black Creek crayfish was listed by the State of Florida as a State threatened species in 2018 (FWC 2018, p. 8) and is afforded protections under Florida Administrative Code section 68A–27.003(2)(a), which makes it illegal to take, possess, or sell Black Creek crayfish except as authorized by permit from FWC. Florida Administrative Code section 68A–27.001(4) defines the term ''take'' for the purpose of this prohibition. Subsequently, FWC has also drafted Species Conservation Measures and Permitting Guidelines for the Black Creek crayfish (see Florida Administrative Code section 68A–27.003(2)(b)3 and FWC 2019, entire). Intentional take permits authorizing the take of State-designated threatened species are issued for scientific or conservation purposes that will benefit the survival potential of the species, as described in Florida Administrative Code section 68A–27.007(2)(a). Incidental take permits are issued when there is a scientific or conservation benefit and only after showing that the permitted activity will not negatively impact the species, as described in Florida Administrative Code section 68A–27.007(2)(b).

The FWC has also drafted a Species Action Plan (SAP; FWC 2013, entire) to guide conservation actions for the benefit of the Black Creek crayfish across its range. The Black Creek crayfish SAP details the actions deemed necessary to improve the species' conservation status, including: (1) working with land managers and landowners to protect, monitor, and enhance the habitat quality of known crayfish sites; (2) drafting and disseminating stream-centered habitat management recommendations to reduce threats and safeguard crayfish and riparian corridors; and (3) continuing to survey to determine the extent of occupied stream reaches and

to identify additional occupied drainages to extend the known range of the species, decentralize its vulnerability to threats, and reduce its overall risk of extinction.

Forestry and Agriculture BMPs

To avoid activities that could degrade or alter riparian zones adjacent to areas inhabited by the Black Creek crayfish, as well as to prevent upland erosion into streams and rivers, some actions require measures to avoid take of the species. These include following guidelines for activities that do not require FWC permits, including avoidance of degradation of Black Creek crayfish habitat through the State of Florida BMPs for stormwater runoff and the FDACS silviculture BMPs. Modern forestry operations in Florida have a (self–reported) compliance rate of 100 percent for following Wildlife Best Management Practices (WBMPs) for State-imperiled species, including the Black Creek crayfish. Forestry protection of special management zones (SMZs) may reduce contribution of nonpoint source pollution (FDACS and FWC 2018, p. 4). SMZs are meant to provide shade for temperature regulation, a natural vegetation strip, intact ground cover, large and small woody debris, leaf litter, and a variety of tree species and age classes; most of these habitat components benefit Black Creek crayfish (FDACS 2014, p. 5). For the sites following WBMPs across the State of Florida in 2017, 19 percent were located on private nonindustrial forestlands, 64 percent on forest industry lands, and 17 percent on public lands (FDACS and FWC 2018, p. 4). According to Florida's BMPs for forestry, SMZs should be 35 ft wide (200 ft for Outstanding Florida Waters (OFWs)), but selective logging is permitted in this zone (FDACS 2008, p. 9).

Cumulative Effects

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have analyzed the cumulative effects of identified threats and conservation actions on the species. To assess the current and future condition of the species, we evaluate the effects of all the relevant factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative–effects analysis.

Current Condition

Black Creek crayfish analysis units were delineated using HUC 12 (12-digit hydrologic unit code) subwatersheds from the U.S. Geological Survey (USGS) Watershed Boundary Dataset (USGS 2024, unpaginated). There may be genetic separation of Black Creek crayfish on the east and west side of the St. Johns River based on limited samples (Breinholt and Crandall 2010, entire); therefore, we separated the Black Creek crayfish into two representation units: one on the east side of the St. Johns River and one on the west side of the St. Johns River. There are no meaningful ecological distinctions between these representation units. We identified 19 analysis units across the range of the Black Creek crayfish; three units are located in the eastern representation unit, and 16 units are located in the western representation unit (see figure 1, below).

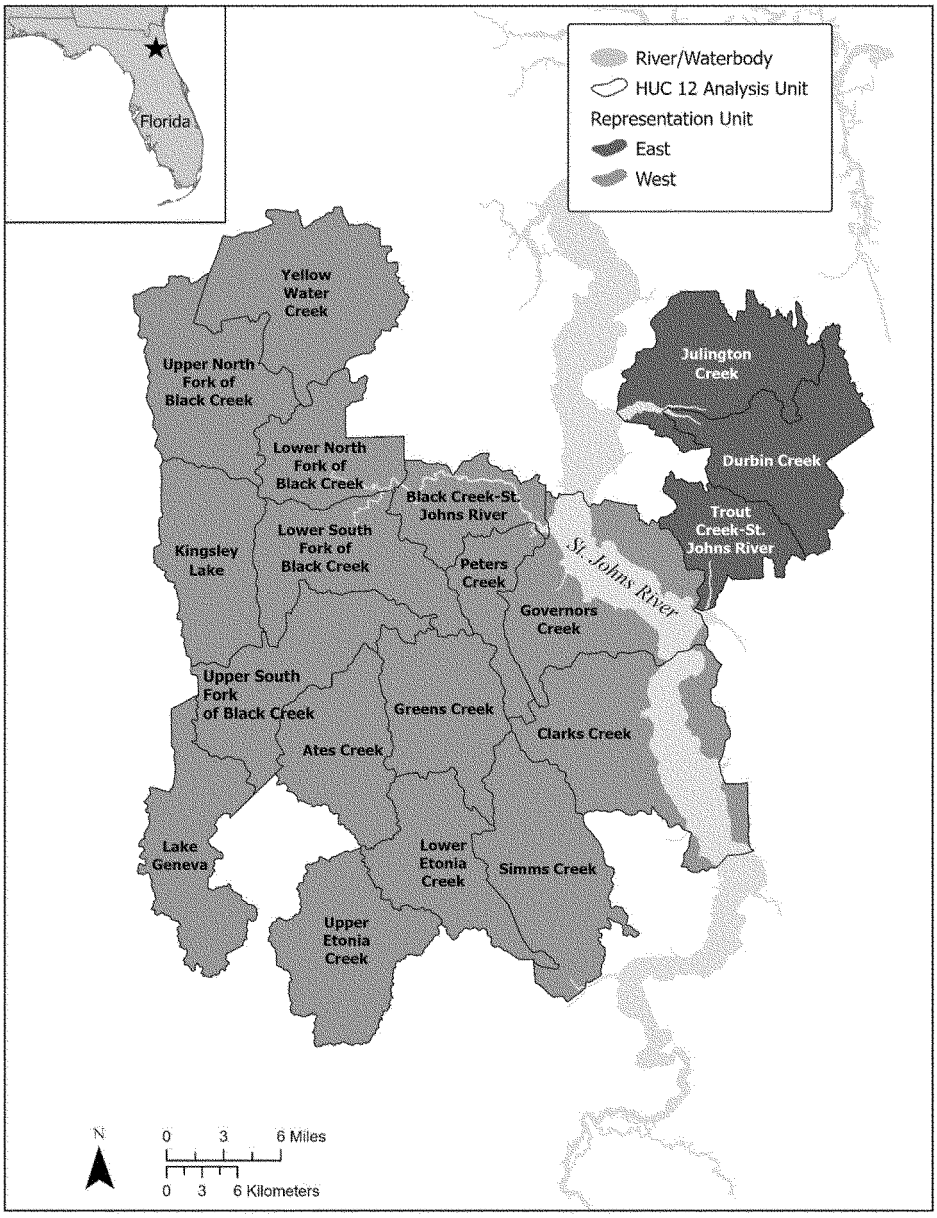


Figure 1. Black Creek crayfish analysis units, defined by HUC 12 hydrologic units.

We assessed resiliency at the analysis unit (HUC 12 subwatershed) scale. Due to the local impact of white tubercled crayfish on Black Creek crayfish occupancy, units with only white tubercled crayfish present were assigned no resiliency and not evaluated further, as Black Creek crayfish in these watersheds are considered at high risk of extirpation, given recent evidence of rapid community replacement as detailed above. ''No resiliency'' is an indication of functional extirpation, as Black Creek crayfish have been documented in each analysis unit in the past 12 years (Fralick 2023, entire), but the rapid replacement by white tubercled crayfish currently nullifies any ability for the Black Creek crayfish to persist.

TABLE 1—ANALYSIS UNIT STATUS BASED ON INITIAL SCREENING OF WHITE TUBERCLED CRAYFISH PRESENCE AND IMPACT

Presence/absence white tubercled crayfish	Unit status
Presence of white tubercled crayfish with evidence of decline in occupancy of Black Creek crayfish.	Status = no resiliency. High risk of extirpation. No further evaluation of resiliency.
Absence of white tubercled crayfish	Status = extant. Evaluated for resiliency.

While Black Creek crayfish are still present, nine analysis units (47 percent) in the western representation unit (*i.e.,* west of the St. Johns River) were assigned no resiliency (or functionally extirpated) due to the presence of white

tubercled crayfish that we assume will imminently extirpate Black Creek crayfish. To assess resiliency in the remaining 10 analysis units without white tubercled crayfish presence, we evaluated three metrics to determine resiliency for each analysis unit: (1) the risk of white tubercled crayfish invasion, (2) the amount of suitable habitat available for Black Creek crayfish, and (3) riparian condition.

White Tubercled Crayfish Invasion Risk

Due to potential release and expansion through various mechanisms, the risk of white tubercled crayfish invasion is high across the range of the Black Creek crayfish. We did not explicitly measure the risk of invasion of newly introduced white tubercled crayfish; rather, we evaluated the risk that nonindigenous and invading crayfish from currently occupied areas may spread to nearby locations (see table 2, below). Seven units (44 percent) located in the western representation unit are at high risk of white tubercled crayfish invasion due to proximity to areas with current white tubercled crayfish presence with no barriers to prevent white tubercled crayfish invasion. These units were assigned low resiliency and were not assessed further.

TABLE 2—ANALYSIS UNIT INVASION RISK OF WHITE TUBERCLED CRAYFISH BASED ON PROXIMITY TO AREAS CURRENTLY OCCUPIED BY WHITE TUBERCLED CRAYFISH

If:	Then:
Adjacent to unit with white tubercled crayfish present	High risk of white tubercled crayfish invasion.
Not adjacent to unit with white tubercled crayfish present	Low risk of white tubercled crayfish invasion.

The remaining three units, which are all located in the eastern representation unit, have lower risk of white tubercled crayfish invasion; therefore, we proceeded to evaluate the amount of suitable habitat and riparian condition to assess resiliency for those units. Note that low risk does not mean zero risk; the analysis units east of the St. Johns River are still at risk of white tubercled crayfish invasion.

Suitable Habitat

Suitable habitat was determined from an available habitat suitability model (HSM) (Appendix B of SSA report (Service 2024, pp. 72–80) that uses stream attributes (gradient and sinuosity), forest conditions, geology type, and water quality to calculate potential habitat for the Black Creek crayfish (Service 2020, pp. 53, 55). To conservatively estimate suitable Black Creek crayfish habitat, potential habitat was limited to stretches in the HSM as having ''Fair–Good'' or better habitat index values (greater than or equal to (≥) 4). Only including habitat indices of ≥4 limits predictions to the 10–percentile threshold, which generally provides a good cutoff for indicating potential habitat. There are currently no data indicating how much habitat is needed within the range of a population to maintain sufficient resiliency levels. However, it can be inferred that, in the absence of other limiting factors (*e.g.,* stochastic events, unknown alterations to water quality, interspecific competitors), the greater the amount of suitable linear habitat within an analysis unit, the greater the likelihood of both occurrence and high abundance of the species. Therefore, we used the amount of habitat available within a unit to determine a suitable habitat ranking for the Black Creek crayfish. We considered analysis units with greater than 50 kilometers (km) (31 miles (mi)) of available suitable habitat as high, 20–50 km (12–31 mi) of available suitable habitat as moderate, and less than 20 km (12 mi) of available suitable habitat as low (see table 3, below; Service 2020, pp. 54–55).

TABLE 3—HABITAT RANKING CATEGORIES ASSIGNED BASED ON AMOUNT OF SUITABLE HABITAT

Habitat ranking	Amount of suitable habitat
Low	Less than 20 km suitable habitat available.
Moderate	20–50 km suitable habitat available.
High	More than 50 km suitable habitat available.

Riparian Condition

Intact, undisturbed riparian areas are needed to sustain habitat features to meet the life history needs of the Black Creek crayfish. To assess whether these conditions are currently sufficient to sustain the species, we analyzed current riparian condition for each analysis unit by combining percentage of urban development within 100 meters (m) (328 feet (ft)) of streams (Kawula and Redner 2018, entire) and total riparian disturbance (see table 4, below; Service 2024, pp. 46–48).

TABLE 4—OVERALL RIPARIAN CONDITION ASSIGNED TO EACH ANALYSIS UNIT BASED ON COMBINATION OF LAND COVER PERCENTAGES OF DEVELOPED LAND COVER AND TOTAL RIPARIAN DISTURBANCE

	Total riparian disturbance		
	<15%	15–28%	>28%
Developed Land Cover:			
<6%	High	High	Moderate.
6–12%	Moderate	Moderate	Low.
>12%	Low	Low	Low.

Current Condition Summary

For analysis units with low risk of white tubercled crayfish invasion risk, resiliency was determined by a combination of suitable habitat and riparian condition (see table 5, below).

TABLE 5—OVERALL RESILIENCY CONDITION CALCULATION METHODOLOGY FOR ANALYSIS UNITS WITHOUT WHITE TUBERCLED CRAYFISH OCCUPANCY BASED ON A COMBINATION OF WHITE TUBERCLED CRAYFISH INVASION RISK, AMOUNT OF SUITABLE HABITAT, AND RIPARIAN CONDITION

White tubercled crayfish invasion risk	Combination of suitable habitat and riparian condition		Current resiliency
High	Not assessed	Not assessed	Low.
Low	High	High	High.
Low	High	Moderate	High.
Low	High	Low	Moderate.
Low	Moderate	Moderate	Moderate.
Low	Moderate	Low	Low.
Low	Low	Low	Low.

The Black creek crayfish has a total of 19 analysis units across its narrow range. Nine units (47 percent) have no resiliency, or are considered functionally extirpated, eight units (42 percent) have low resiliency, one unit (5 percent) has moderate resiliency, and one unit (5 percent) has high resiliency (see table 6, below). White tubercled crayfish have been detected in nine analysis units (47 percent of range), all located in the western representation unit. These nine units are considered at high risk of extirpation due to the risk of community replacement by the white tubercled crayfish and are considered as having no resiliency or functionally extirpated. Overall, eight units (42 percent of range) have low resiliency. The seven units in the western representation unit on the west side of the St. Johns River that are not currently occupied by the white tubercled crayfish are considered low resiliency due to the high risk of invasion of the white tubercled crayfish. The Julington Creek unit in the eastern representation unit on the east side of the St. Johns River ranked low resiliency due to the combination of a moderate amount of suitable habitat and poor riparian condition. The Durbin Creek unit has high resiliency, while the Trout Creek-St. Johns River unit has moderate resiliency. Both moderate and high units (10 percent of range) are located in the eastern representation unit on the east side of the St. Johns River and have a low risk of invasion of white tubercled crayfish due to the St. Johns River acting as a barrier to dispersal into these units. These two units, despite having suitable instream and riparian habitat condition to sustain the species and a large barrier (St. Johns River) to natural white tubercled crayfish movement, are still susceptible to white tubercled crayfish invasion through various mechanisms, including bait bucket introduction, which is a plausible risk to the species.

TABLE 6—CURRENT CONDITION PARAMETERS AND OVERALL RESILIENCY RESULTS FOR ALL ANALYSIS UNITS

Analysis unit	Presence of white tubercled crayfish	White tubercled crayfish invasion risk	Suitable habitat	Riparian condition	Current resiliency
Western Representation Unit					
Ates Creek	Yes	NA	NA	NA	None.
Black Creek-St. Johns River	Yes	NA	NA	NA	None.
Clarkes Creek	No	High Risk	NA	NA	Low.
Governors Creek	No	High Risk	NA	NA	Low.
Greens Creek	Yes	NA	NA	NA	None.
Kingsley Lake	Yes	NA	NA	NA	None.
Lake Geneva	No	High Risk	NA	NA	Low.
Lower Etonia Creek	No	High Risk	NA	NA	Low.
Lower North Fork-Black Creek	Yes	NA	NA	NA	None.
Lower South Fork-Black Creek	Yes	NA	NA	NA	None.
Peters Creek	No	High Risk	NA	NA	Low.
Simms Creek	No	High Risk	NA	NA	Low.
Upper Etonia Creek	No	High Risk	NA	NA	Low.
Upper North Fork-Black Creek	Yes	NA	NA	NA	None.
Upper South Fork-Black Creek	Yes	NA	NA	NA	None.
Yellow Water Creek	Yes	NA	NA	NA	None.
Eastern Representation Unit					
Durbin Creek	No	Low Risk	Moderate	High	High.
Julington Creek	No	Low Risk	Moderate	Low	Low.

TABLE 6—CURRENT CONDITION PARAMETERS AND OVERALL RESILIENCY RESULTS FOR ALL ANALYSIS UNITS—Continued

Analysis unit	Presence of white tubercled crayfish	White tubercled crayfish invasion risk	Suitable habitat	Riparian condition	Current resiliency
Trout Creek-St. Johns River	No	Low Risk	Low	High	Moderate.

The value of 'NA' in a column means ''Not Assessed,'' either because the white tubercled crayfish is present in that analysis unit or because the risk of white tubercled crayfish invading that unit is high and, therefore, we did not further evaluate the unit.

For the Black Creek crayfish, redundancy was assessed by mapping the number and distribution of high and moderate resiliency analysis units across the species' range in order to describe how the species will respond to catastrophic events. Of the 19 analysis units, only two have moderate or high resiliency (Durbin Creek and Trout Creek-St. Johns River), and both units are located in the eastern representation unit on the east side of the St. Johns River. In the past 5 years, Black Creek crayfish redundancy has been greatly reduced on the west side of the St. Johns River due to the catastrophic invasion of white tubercled crayfish, and the remaining low resiliency units make the species vulnerable to additional stochastic and catastrophic events, such as catastrophic storm and/or extreme drought events (Service 2020, entire; Service 2024, entire). Overall, the Black Creek crayfish has low redundancy with only two analysis units with moderate to high resiliency located in one part of the species' range, thus leaving the species extremely vulnerable to any catastrophic event, especially catastrophic storm and/or extreme drought events.

As described earlier, we identified representation units based on measured genetic separation between samples on the eastern and western sides of the St. Johns River (Breinholt and Crandall 2010, entire). For the Black Creek crayfish, current representation is best understood as the remaining adaptive capacity within the high and moderate resiliency analysis units that represent remaining genetic diversity across the species' range. Representation for the species is naturally limited due to the narrow range, but the entire western representation unit is on the verge of extirpation and is not considered to contribute to species' viability. Further, the remaining populations in the eastern representation unit will not be able to naturally disperse or colonize areas in the western representation unit, thus indicative of the reduced adaptive capacity of the species. Overall, the Black Creek crayfish currently has extremely limited representation, with moderate to high resiliency currently being restricted to the eastern representation unit, and therefore all genetic representation for the species is confined to one small area of the former species' range. With all of the species' representation confined to one small part of the historical range, the Black Creek crayfish is not likely to adapt and track suitable habitat and climate over time.

As part of the SSA, we also developed future-condition scenarios to capture the range of uncertainties regarding future threats and the projected responses by the Black Creek crayfish. Our scenarios examined two urbanization futures and three sea level rise futures out to 2070. Because we determined that the current condition of the Black Creek crayfish is consistent with that of an endangered species (see Determination of Black Creek Crayfish's Status, below), we are not presenting the results of the future scenarios in this proposed rule. Please refer to the SSA report (Service 2024, pp. 52–55) for the full analysis of future scenarios.

Determination of Black Creek Crayfish's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an ''endangered species'' as a species in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an endangered species or a threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we have determined the Black Creek crayfish to be an endangered species throughout all of its range. Our review of the best available information indicates that there are currently 19 populations (analysis units) occurring in a narrow range of northeastern Florida. Since 2019, there has been documentation of decline of the Black Creek Crayfish, with 16 populations (84 percent) in the western part of the range having low to no resiliency, the latter being considered functionally extirpated given the presences of white tubercled crayfish. Of the three populations in the eastern part of the range, one has low resiliency, one has moderate resiliency, and one has high resiliency. Therefore, 17 populations (89 percent) of Black Creek crayfish are currently at high risk of extirpation. The Black Creek crayfish exhibits low redundancy given its narrow range, and given the imminent risk of extirpation across the majority of populations, the species' redundancy will be further reduced.

While influences on the Black Creek crayfish's viability vary by location, the most imminent threat to the species is competition and possible predation from the nonindigenous and invading white tubercled crayfish (Factors C and E), which has been detected across the western part of the Black Creek crayfish's range and could easily be introduced into the eastern part of the Black Creek crayfish's range. The white tubercled crayfish is a larger crayfish, is a strong competitor and potential predator, and tends to expand its range. This larger crayfish has been attributed to declines of the Black Creek crayfish. It has been documented that once white tubercled crayfish is established at a site, it will outcompete or displace Black Creek crayfish. This catastrophic threat is currently impacting the Black Creek crayfish to such a degree that the species is currently at high risk of

extirpation across the majority of its range. Additional threats of competition from other crayfishes (Factor E), disease (Factor C), habitat degradation and water quality impairment (Factor A), and climate change (Factor E) act together to further reduce the Black Creek crayfish's ability to withstand stochastic events. In addition, given the current low resiliency and high risk of extirpation of all but two populations in the eastern part of the species' range, the species is also at risk of extirpation due to potential catastrophic climatic events such as storm and/or extreme drought events. While the moderate to high resiliency populations are limited to just two watersheds in the eastern part of the species' range, all threats listed above (competition from other crayfishes, disease, habitat degradation and water quality impairment, climate change) are currently influencing the viability of the species in these areas as well.

Thus, we have determined that the Black Creek crayfish is currently in danger of extinction throughout all of its range. A threatened species status is not appropriate because the species is currently at high risk of extirpation due to the imminent impacts of white tubercled crayfish invasion combined with the impacts of other threats as described above.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so within the foreseeable future throughout all or a significant portion of its range. We have determined that the Black Creek crayfish is in danger of extinction throughout all of its range and accordingly did not undertake an analysis of any significant portion of its range. Because the Black Creek crayfish warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity* v. *Everson,* 435 F. Supp. 3d 69 (D.D.C. 2020), because that decision related to significant portion of the range analyses for species that warrant listing as threatened, not endangered, throughout all of their range.

Determination of Status

Our review of the best available scientific and commercial information indicates that the Black Creek crayfish meets the Act's definition of an endangered species. Therefore, we propose to list the Black Creek crayfish as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, foreign governments, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies, including the Service, and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self–sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened (''downlisting'') or removal from protected status (''delisting''), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (*https://www.fws.gov/program/endangered-species*), or from our Florida Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

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

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of Florida would be eligible for Federal funds to implement management actions that promote the protection or recovery of the Black Creek crayfish. Information on our grant programs that are available to aid species recovery can be found at: *https://www.fws.gov/service/financial-assistance.*

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

Section 7 of the Act is titled, ''Interagency Cooperation,'' and it mandates all Federal action agencies to use their existing authorities to further the conservation purposes of the Act and to ensure that their actions are not likely to jeopardize the continued existence of listed species or adversely modify critical habitat. Regulations implementing section 7 are codified at 50 CFR part 402.

Section 7(a)(2) states that each Federal action agency shall, in consultation with the Secretary, ensure that any action

they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Each Federal agency shall review its action at the earliest possible time to determine whether it may affect listed species or critical habitat. If a determination is made that the action may affect listed species or critical habitat, formal consultation is required (50 CFR 402.14(a)), unless the Service concurs in writing that the action is not likely to adversely affect listed species or critical habitat. At the end of a formal consultation, the Service issues a biological opinion, containing its determination of whether the Federal action is likely to result in jeopardy or adverse modification.

In contrast, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. Although the conference procedures are required only when an action is likely to result in jeopardy or adverse modification, action agencies may voluntarily confer with the Service on actions that may affect species proposed for listing or critical habitat proposed to be designated. In the event that the subject species is listed or the relevant critical habitat is designated, a conference opinion may be adopted as a biological opinion and serve as compliance with section 7(a)(2) of the Act.

Examples of discretionary actions for the Black Creek crayfish that may be subject to conference and consultation procedures under section 7 are land management or other landscape-altering activities 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. Federal agencies should coordinate with the Florida Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions on section 7 consultation and conference requirements.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, and the Service's implementing regulations codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit or to cause to be committed any of the following acts with regard to any endangered wildlife: (1) import into, or export from, the United States; (2) take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) within the United States, within the territorial sea of the United States, or on the high seas; (3) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such wildlife that has been taken illegally; (4) deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity; or (5) sell or offer for sale in interstate or foreign commerce. Certain exceptions to these prohibitions apply to employees or agents of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits for endangered wildlife are codified at 50 CFR 17.22, and general Service permitting regulations are codified at 50 CFR part 13. With regard to endangered wildlife, a permit may be issued: for scientific purposes, for enhancing the propagation or survival of the species, or for take incidental to otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

II. Critical Habitat

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 each Federal action agency 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 designated 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 also 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. Rather, designation requires that, where a landowner requests Federal agency funding or authorization for an action that may affect an area designated as critical habitat, the Federal agency consult with the Service under section 7(a)(2) of the Act. If the action may affect the listed species itself (such as for occupied critical habitat), the Federal agency would have already been required to consult with the Service

even absent the designation because of the requirement to ensure that the action is not likely to jeopardize the continued existence of the species. Even if the Service were to conclude after consultation that the proposed activity is likely to 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 data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

Under the second prong of the Act's definition of critical habitat, we can 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.

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

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information compiled in the SSA report and 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 scientific data available at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

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 which 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 absence of 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.

The SSA report (Service 2024, p. 18) lists the Black Creek crayfish's individual, species, and population needs as: (1) streams with aquatic vegetation, leaf litter, tree roots, or undercut banks for shelter; (2) aquatic plants, dead plant and animal material, and detritus for food; (3) clean and cool, highly oxygenated, flowing water for all life-history functions; (4) sand-

bottomed, tannic-stained headwater streams for habitat; (5) absence of white tubercled crayfish; and (6) connected suitable streams.

Black Creek crayfish rely on cool, flowing, sand-bottomed, and tannic-stained streams that are highly oxygenated (Franz and Franz 1979, p. 14; Franz 1994, p. 212). These high-quality streams typically originate in Sandhills and may flow through swampy terrain (Franz and Franz 1979, p. 14; Brody 1990, pp. 8–11; FNAI 2001, p. 102; Nelson and Floyd 2011, p.1). Preliminary data suggest that Black Creek crayfish have not been found in water with temperatures over 30 °C (86 °F; Warren et al. 2019, unpublished data). Locations that fulfill the species' habitat requirements are typically headwater sections of streams that maintain a constant flow; however, Black Creek crayfish are found in small and large tributary streams that fulfill other habitat criteria (*e.g.,* high oxygen levels, sandy bottom) (Franz and Franz 1979, p. 14). Within these streams, Black Creek crayfish require aquatic vegetation and debris for shelter with alternation of shaded and open canopy cover. In forested sections of habitat, surrounding riparian areas provide bank stability and shade, which cools the air and water temperature and provides woody detritus that serves as refuge and a food source (Franz et al. 2008, p. 16; FWC 2013, pp. 2, 19). In open stretches of habitat, Black Creek crayfish rely on aquatic vegetation for cover.

Overall, the primary habitat characteristics that are important to the Black Creek crayfish include water quantity and flow, water quality, substrate, forested streambanks, and instream plant and animal material that allow for normal feeding, breeding, and sheltering in an area with no white tubercled crayfish.

Summary of Essential Physical or Biological Features

We derive the specific physical or biological features essential to the conservation of the Black Creek crayfish from studies of the species' habitat, ecology, and life history as described below. Additional information can be found in the SSA report (Service 2024, entire; available on *https://www.regulations.gov* under Docket No. FWS–R4–ES–2024–0090). We have determined that the following physical or biological features are essential to the conservation of Black Creek crayfish:

(1) Small to medium flowing streams with sandy bottom substrate and with sufficient water quantity and velocity to support normal behavior, growth, and viability of all life stages.

(2) Moderate amounts of instream aquatic cover, such as woody debris, overhanging terrestrial vegetation, and aquatic plants, for refugia, prey, and temperature moderation.

(3) Stream banks with intact riparian cover to maintain stream morphology and reduce erosion.

(4) Water quality characterized by seasonally moderated water temperatures (maximum of 30 °C (86 °F)) and physical and chemical parameters (*e.g.,* dissolved oxygen ≥ 4 mg/L) sufficient for the normal behavior, growth, reproduction, and viability of all life stages.

(5) Adequate food base, indicated by a healthy aquatic community structure including native benthic macroinvertebrates and plant matter (*e.g.,* leaf litter, algae, detritus).

(6) An interconnected network of streams and rivers that have the physical or biological features described in 1 through 5, above, that allow for movement of individual crayfish in response to environmental, physiological, or behavioral drivers.

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 the Black Creek crayfish may require special management considerations or protection to reduce the effects from the following threats: (1) Impacts from nonindigenous and invading species, including the white tubercled crayfish; (2) impacts from disease; (3) nutrient pollution from agricultural activities that impact water quantity and quality; (4) significant alteration of water quantity, including water withdrawals; and (5) other watershed and floodplain disturbances, such as development and extractive land uses that release sediments or nutrients into the water.

Management activities that could ameliorate these threats include, but are not limited to: control and removal of introduced and invading species; use of BMPs designed to reduce sedimentation, erosion, and bank side destruction; protection of riparian corridors and retention of sufficient canopy cover along banks; moderation of surface and ground water withdrawals to maintain natural flow regimes; and reduction of other watershed and floodplain disturbances that release sediments, pollutants, or nutrients into the water.

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. We are not currently proposing to designate any areas outside the geographical area occupied by the species because we have not identified any unoccupied areas that meet the definition of critical habitat. The occupied areas identified encompass the habitat needed and provide sufficient habitat to allow for maintaining the populations.

We consider the areas occupied at the time of listing to include all suitable streams within occupied subwatersheds (HUC 12). Occupied subwatersheds have a documented occurrence through recent surveys. While many sites within the Black Creek crayfish's range are considered extirpated, all critical habitat units have occupied sites within them. We identified suitable streams using a habitat suitability model (HSM) developed by the Florida Fish and Wildlife Research Institute that includes variables related to stream gradient and sinuosity, geology, forest condition (*e.g.,* canopy cover), and water quality (see appendix B of the SSA report (Service 2024, pp. 73–81)).

Sources of data for this critical habitat designation include the SSA report (Service 2024, entire); records maintained by the Florida Fish and Wildlife Conservation Commission (FWC); university and museum collections; gray papers by researchers involved in wildlife biology and conservation activities; peer-reviewed articles on this species, its relatives, or both; State agency reports; and regional Geographic Information Systems (GIS) coverages. GIS sources include the USGS National Hydrography Dataset, Fish and Wildlife Research Institute HSM, and ESRI ArcPro basemaps.

For areas within the geographic area occupied by the Black Creek crayfish at the time of listing, we delineated critical habitat unit boundaries using the following criteria:

(1) We identified subwatersheds within the geographical area occupied at

the time of listing (*i.e.,* with Black Creek crayfish occurrence records from 2008 to 2023).

(2) We then selected those streams categorized as suitable by the 2018 Fish and Wildlife Research Institute HSM (*e.g.,* good, good–best, or best).

(3) We delineated end points of stream units by evaluating the presence or absence of suitable habitat.

(4) We also considered stream segments between suitable streams to provide migratory corridors.

(5) We refined these areas to eliminate any unsuitable or less suitable areas that are unlikely to contain the physical and biological features essential to the conservation of the species based on the Black Creek crayfish's biology (*e.g.,* stream length or size) and aerial imagery.

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

Units are proposed for designation based on one or more of the physical or biological features being present to support the Black Creek crayfish's life-history needs. All units contain all of the identified physical or biological features to support Black Creek crayfish life-history processes.

The proposed critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document under Proposed Regulation Promulgation.

Proposed Critical Habitat Designation

We are proposing to designate approximately 1,056 kilometers (km) (656 miles (mi)) in 15 units as critical habitat for the Black Creek crayfish. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the Black Creek crayfish. The 15 areas we propose as critical habitat are: (1) Julington Creek, (2) Durbin Creek, (3) Trout Creek, (4) Governors Creek, (5) Clarks Creek, (6) Black Creek, (7) Peters Creek, (8) Yellow Water Creek, (9) North Fork of Black Creek, (10) South Fork of Black Creek, (11) Greens Creek, (12) Simms Creek, (13) Kingsley Lake, (14) Ates Creek, and (15) Etonia Creek. Table 7 shows the proposed critical habitat units and the approximate area of each unit; please note, however, that the table does not include streams that flow through Camp Blanding, as these areas are exempted under section 4(a)(3)(B)(i) of the Act. While many units may have very few remaining Black Creek crayfish present, all proposed units are considered occupied.

TABLE 7—PROPOSED CRITICAL HABITAT UNITS FOR THE BLACK CREEK CRAYFISH

[Stream segment estimates reflect all waters at bankfull within critical habitat unit boundaries]

Unit	Land ownership adjacent to streams					Total length * km [mi]
	State km [mi]	State & private km [mi]	Local km [mi]	Local & private km [mi]	Private km [mi]	
1. Julington Creek	4.4 [2.7]	.....	1.9 [1.2]	1.2 [0.7]	34.2 [21.3]	41.7 [25.9]
2. Durbin Creek	5.6 [3.5]	6.1 [3.7]	0.3 [0.2]	.....	11.9 [7.4]	23.9 [14.8]
3. Trout Creek	.....	.....	.....	.....	13.7 [8.5]	13.7 [8.5]
4. Governors Creek	2.5 [1.5]	0.2 [0.1]	.....	.....	45.8 [28.5]	48.5 [30.1]
5. Clarks Creek	18.2 [11.3]	.....	.....	.....	55.9 [34.8]	74.1 [46.1]
6. Black Creek	.....	.....	.....	.....	23.7 [14.7]	23.7 [14.7]
7. Peters Creek	.....	.....	.....	.....	35.1 [21.8]	35.1 [21.8]
8. Yellow Water Creek	33.3 [20.7]	.....	25.0 [15.5]	1.6 [1.0]	32.6 [20.3]	92.5 [57.5]
9. North Fork of Black Creek	89.0 [55.3]	.....	2.6 [1.6]	.....	125.0 [77.7]	216.6 [134.6]
10. South Fork of Black Creek	21.0 [13.0]	.....	.....	.....	119.0 [74.0]	140.0 [87.0]
11. Greens Creek	.....	.....	.....	.....	91.8 [57.0]	91.8 [57.0]
12. Simms Creek	.....	.....	.....	.....	58.1 [36.1]	58.1 [36.1]
13. Kingsley Lake	8.4 [5.2]	.....	.....	.....	15.9 [9.9]	24.3 [15.1]
14. Ates Creek	25.6 [15.9]	1.7 [1.1]	.....	.....	47.5 [29.5]	74.8 [46.5]
15. Etonia Creek	21.4 [13.3]	.....	.....	.....	76.7 [47.7]	98.1 [61.0]
Total	229.4.0 [142.4]	8.0 [4.9]	29.8 [18.5]	2.8 [1.7]	786.9 [489.2]	1,056.9 [656.7]

* Note: Total lengths may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the Black Creek crayfish, below.

Unit 1: Julington Creek

Unit 1 includes 41.7 km (25.9 mi) of stream/river habitat in portions of Julington Creek, Oldfield Creek, Flora Branch, and Cormorant Branch and their tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Julington Creek (HUC 12: 030801031302) subwatershed in Duval and St. Johns Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State, local government, and private ownership. Approximately 11 percent (4.4 km (2.7 mi)) are State lands: the Julington-Durbin Preserve, managed by the St. Johns Water Management District; and the Freedom Commerce Center, managed by the City of Jacksonville. The Lower St. Johns Mitigation Bank (8 percent; 3.5 km (2.2 mi)) is a privately owned conservation area adjacent to the Freedom Commerce Center.

The physical and biological features in this unit may require special management considerations or protection to address threats from climate change, development, extractive land use (*e.g.,* mining, gravel pits, rock quarries), and agricultural and silvicultural activities.

Unit 2: Durbin Creek

Unit 2 includes 23.9 km (14.8 mi) of stream/river habitat in portions of Durbin Creek and its tributaries that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Durbin Creek (HUC 12: 030801031301) subwatershed in Duval and St. Johns Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State, local government, and private ownership. Approximately 49 percent (11.7 km (7.2 mi)) are State lands managed by the St. Johns River Water Management District as the Twelve-mile Swamp Conservation Area, Gourd Island Conservation Area, and Julington-Durbin Preserve.

The physical or biological features in this unit may require special management considerations or protection to address threats from climate change, development, and agricultural and silvicultural activities.

Unit 3: Trout Creek

Unit 3 includes 13.7 km (8.5 mi) of stream/river habitat in portions of Trout Creek and its tributaries and Molasses Branch that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Trout Creek-St. Johns River (HUC 12: 030801031202) subwatershed in St. Johns County, Florida. This unit is considered occupied, and adjacent riparian lands are in private ownership.

The physical or biological features in this unit may require special management considerations or protection to address threats from climate change, development, and agricultural and silvicultural activities.

Unit 4: Governors Creek

Unit 4 includes 48.5 km (30.1 mi) of stream/river habitat in portions of Governors Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Governors Creek (HUC 12: 030801031204) subwatershed in Clay County, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 6 percent (2.7 km (1.6 mi)) are State lands managed by the St. Johns River Water Management District as the Bayard Conservation Area.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, extractive land use (*e.g.,* mining, gravel pits, or rock quarries), and agricultural and silvicultural activities.

Unit 5: Clarks Creek

Unit 5 includes 74.1 km (46.1 mi) of stream/river habitat in portions of Clarks Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Clarks Creek (HUC 12: 030801030804) subwatershed in Clay and Putnam Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 25 percent (18.2 km (11.3 mi)) are State lands managed by the St. Johns River Water Management District as the Bayard Conservation Area. A portion of this unit (4 percent; 3.2 km (2.0 mi)) is in private conservation as the Sundew Mitigation Bank.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, extractive land use (*e.g.,* mining, gravel pits, or rock quarries), and agricultural and silvicultural activities.

Unit 6: Black Creek

Unit 6 includes 23.7 km (14.7 mi) stream/river habitat in portions of Pecks Branch, Mill Log Creek, Bradley Creek, and their tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Black Creek-St. Johns River (HUC 12: 030801031103) subwatershed in Clay County, Florida. This unit is considered occupied, and adjacent riparian lands are in private ownership.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 7: Peters Creek

Unit 7 includes 35.1 km (21.8 mi) of stream/river habitat in portions of Peters Creek and its tributaries that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Peters Creek (HUC 12: 030801031102) subwatershed in Clay County, Florida. This unit is considered occupied, and adjacent riparian lands are in private ownership.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 8: Yellow Water Creek

Unit 8 includes 92.5 km (57.5 mi) of stream/river habitat in portions of Yellow Water Creek and its tributaries that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Yellow Water Creek (HUC 12: 030801031003) subwatershed in Clay and Duval Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State, local government, and private ownership. Jennings State Forest, managed by the FDACS, encompasses approximately 36 percent (33.3 km (20.7 mi)) of adjacent lands. Approximately 33 percent (30.8 km (19.2 mi)) are in local government or private conservation. The Cecil Field Conservation Corridor, Loblolly Mitigation Preserve, Loblolly Park, Sal Taylor Creek Preserve, and Yellow Water Branch Trail Head are co-owned by Duval County and the City of Jacksonville (25.0 km (15.5 mi)). Private conservation lands include the Peterson Tract (3.8 km (2.4 mi)), managed by the Jacksonville Electric Authority, and the Normandy Mitigation Bank. A portion of the Moore Branch (1.6 km (1.0 mi)) forms the border between the Normandy Mitigation Bank and the Loblolly Mitigation Preserve.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 9: North Fork of Black Creek

Unit 9 includes 216.6 km (134.6 mi) of stream/river habitat in portions of the North Fork Black Creek, Dillaberry Branch, Grog Branch, and their tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Upper North Fork of Black Creek (HUC 12: 030801031002) and Lower North Fork of Black Creek (HUC 12: 030801031004) subwatersheds in Clay and Duval Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State, local government, and private ownership. Approximately 40 percent of adjacent lands (88.2 km (54.8 mi)) are

within the Jennings State Forest managed by the Florida Department of Agriculture and Consumer Services. Private conservation lands (0.4 percent; 0.9 km (0.6 mi)) include the Trail Ridge and Rideout Point Preserves managed by the North Florida Land Trust.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, extractive land use (*e.g.,* mining, gravel pits, or rock quarries), and agricultural and silvicultural activities.

Unit 10: South Fork of Black Creek

Unit 10 includes 140.0 km (87.0 mi) of stream/river habitat in portions of the South Fork Black Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Upper South Fork of Black Creek (HUC 12: 030801030903) and Lower South Fork of Black Creek (HUC 12: 030801030904) subwatersheds in Clay County, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 15 percent (21 km (13 mi)) are State lands within the Belmore State Forest, managed by the Florida Department of Agriculture and Consumer Services. Approximately 7 percent (9.7 km (6 mi)) are within three private conservation easements managed by the St. Johns River Water Management District: Longbranch Crossing Conservation Easement, Halloran Conservation Area, and Arahatchee Conservation Easement. Due to the Florida Army National Guard's Camp Blanding Joint Training Center (FLARNG–CBJTC) INRMP (see *Exemptions,* below), 98.9 km (61.4 mi) of this unit are exempted from the critical habitat designation.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, extractive land use (*e.g.,* mining, gravel pits, or rock quarries), and agricultural and silvicultural activities.

Unit 11: Greens Creek

Unit 11 includes 91.8 km (57.0 mi) of stream/river habitat in portions of Greens Creek and its tributaries that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Greens Creek (HUC 12: 030801030902) subwatershed in Clay County, Florida. This unit is considered occupied, and adjacent lands are in private ownership.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 12: Simms Creek

Unit 12 includes 58.1 km (36.1 mi) of stream/river habitat in portions of Simms Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Simms Creek (HUC 12: 030801030603) subwatershed in Clay and Putnam Counties, Florida. This unit is considered occupied, and adjacent lands are in private ownership.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 13: Kingsley Lake

Unit 13 includes 24.3 km (15.1 mi) of stream/river habitat in portions of the North Fork Black Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Kingsley Lake (HUC 12: 030801031001) subwatershed in Clay County, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 34 percent (8.4 km (5.2 mi)) are State lands within the Jennings State Forest, managed by the Florida Department of Agriculture and Consumer Services. Private conservation lands (44 percent; 10.8 km (6.7 mi)) include the Trail Ridge Preserve, managed by the North Florida Land Trust, and the Highlands Ranch Mitigation Bank. Due to the FLARNG–CBJTC INRMP (see *Exemptions,* below), 60.5 km (37.6 mi) of this unit are exempted from the critical habitat designation.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, extractive land use (*e.g.,* mining, gravel pits, or rock quarries), and agricultural and silvicultural activities.

Unit 14: Ates Creek

Unit 14 includes 74.8 km (46.5 mi) of stream/river habitat in portions of the Ates Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Ates Creek (HUC 12: 030801030901) subwatershed in Clay County, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 34 percent (25.6 km (15.9 mi)) are State lands within the Belmore State Forest, managed by the Florida Department of Agriculture and Consumer Services. Approximately 20 percent (15.3 km (9.5 mi)) of lands adjacent to Ates Creek are within three private conservation easements: the Longbranch Crossing Conservation Easement managed by the St. Johns River Water Management District and the McArthur Trust; and two Bear Bay conservation easements managed by the North Florida Land Trust. Due to the FLARNG–CBJTC INRMP (see *Exemptions,* below), 16.1 km (10 mi) of this unit are exempted from the critical habitat designation.

The physical or biological features in this unit may require special management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

Unit 15: Etonia Creek

Unit 15 includes 98.1 km (61.0 mi) of stream/river habitat in portions of the Etonia Creek and its tributaries and other unnamed streams that contain all of the physical or biological features essential to the conservation of the Black Creek crayfish within the Lower Etonia Creek (HUC 12: 030801030601) and Upper Etonia Creek (HUC12: 030801030504) subwatersheds in Clay and Putnam Counties, Florida. This unit is considered occupied. Riparian lands that border the unit are in State and private ownership. Approximately 22 percent (21.4 km (13.3 mi)) are State lands within the Etoniah State Forest, managed by the Florida Department of Agriculture and Consumer Services, and the Palatka to Lake Butler State Trail, managed by the Florida Department of Environmental Protection. Private conservation lands (8 percent; 7.6 km (4.7 mi)) include the Highbrighton Conservation Easement, managed by the St. Johns River Water Management District, and the Nochaway Mitigation Bank.

The physical or biological features in this unit may require special

management considerations or protection to address threats from nonindigenous and invading crayfish, climate change, development, and agricultural and silvicultural activities.

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

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 (50 CFR 402.02).

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 formal 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 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 consultation. Reinitiation of consultation is required and shall be requested by the Federal agency, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (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 written concurrence; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action. As provided in 50 CFR 402.16, the requirement to reinitiate consultations for new species listings or critical habitat designation does not apply to certain agency actions (*e.g.,* land management plans issued by the Bureau of Land Management in certain circumstances).

Destruction or Adverse Modification of Critical Habitat

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 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 that our **Federal Register** notices ''shall, to the maximum extent practicable also include a brief description and evaluation of those activities (whether public or private) which, in the opinion of the Secretary, if undertaken may adversely modify [critical] habitat, or may be affected by such designation.'' Activities that may be affected by designation of critical habitat for the Black Creek crayfish include those that may affect the physical or biological features essential to the conservation of the Black Creek crayfish in the subject areas (see Physical or Biological Features Essential to the Conservation of the Species, above).

Exemptions

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

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an 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.

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the proposed critical habitat designation for Black Creek crayfish to determine if they meet the criteria for exemption from critical

habitat under section 4(a)(3) of the Act. The following areas are Department of Defense (DoD) lands with completed, Service-approved INRMPs within the proposed critical habitat designation.

Approved INRMPs

Florida Army National Guard's Camp Blanding Joint Training Center (FLARNG–CBJTC) (Lake Geneva subwatershed, and areas within Unit 10 (South Fork of Black Creek), Unit 13 (Kingsley Lake), Unit 14 (Ates Creek), and), 186 km (116 mi))

As described in *Conservation Efforts and Regulatory Mechanisms,* above, Camp Blanding, the property with the largest known population of the Black Creek crayfish, is owned by the State of Florida and managed by the Florida Army National Guard. The FLARNG–CBJTC INRMP explains that the management of Camp Blanding must be conducted in a way that provides for sustainable, healthy ecosystems; complies with applicable environmental laws and regulations; and provides for support of the military mission of the installation, including goals to manage rare species using an ecosystem approach. The 2021 update to the 2014 FLARNG–CBJTC INRMP incorporates updated natural resources data (CBJTC 2021, p. ES–1). The INRMP is a living document, and the majority of the tasks discussed are short-term (less than 5 years) and medium-term (6 to 10 years) natural resources management tasks. Goals, objectives, and tasks will be revised over time to reflect evolving environmental conditions, adaptive management, and the completion of tasks as the INRMP is implemented (CBJTC 2021, p. 117).

Objective TE7 is to maintain populations of the Black Creek crayfish and other rare species by protecting riparian and wetland habitats (CBJTC 2021, p. 93). The INRMP also details goals for water resource management (CBJTC 2021, pp. 66–72), as well as soil conservation and sediment management (CBJTC 2021, pp. 63–66) that will benefit Black Creek crayfish habitats.

During the implementation of the INRMP and the CCAA (see *Consideration of Other Relevant Impacts,* below), hydrologic measurements will be taken, and invasive (including nonindigenous and invading) species monitored, in areas known to be occupied by Black Creek crayfish on Camp Blanding lands (Service et al. 2017, p. 24). Additionally, Black Creek crayfish will be surveyed at least once every 5 years to evaluate the success of conservation actions and implementation of best management practices (BMPs; Service et al. 2017, p. 24).

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Camp Blanding Joint Training Center INRMP and that conservation efforts identified in the INRMP are being implemented and will provide a benefit to Black Creek crayfish. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including approximately 186 km (116 mi) of stream habitat in this proposed critical habitat designation because of this exemption.

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 designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. Exclusion decisions are governed by the regulations at 50 CFR 424.19 and the Policy Regarding Implementation of Section 4(b)(2) of the Endangered Species Act (hereafter, the ''2016 Policy''; 81 FR 7226, February 11, 2016), both of which were developed jointly with the National Marine Fisheries Service (NMFS). We also refer to a 2008 Department of the Interior Solicitor's opinion entitled, ''The Secretary's Authority to Exclude Areas from a Critical Habitat Designation under Section 4(b)(2) of the Endangered Species Act'' (M–37016).

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. 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. In our final rules, we explain any decision to exclude areas, as well as decisions not to exclude, to make clear the rational basis for our decision. We describe below the process that we use for taking into consideration each category of impacts and any initial 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. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We then must evaluate the impacts that a specific critical habitat designation may have on restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.''

The ''without critical habitat'' scenario represents the baseline for the analysis, which includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (*e.g.,* under the Federal listing as well as other Federal, State, and local regulations). Therefore, the baseline represents the costs of all efforts attributable to the listing of the species under the Act (*i.e.,* conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct a discretionary section 4(b)(2) exclusion analysis.

Executive Order (E.O.) 14094 amends and reaffirms E.O. 12866 and E.O. 13563 and directs Federal agencies to assess

the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. Section 3(f) of E.O. 12866 identifies four criteria when a regulation is considered a ''significant regulatory action'' and requires additional analysis, review, and approval if met. The criterion relevant here is whether the designation of critical habitat may have an economic effect of $200 million or more in any given year (section 3(f)(1) of E.O. 12866, as amended by E.O. 14094). Therefore, our consideration of economic impacts uses a screening analysis to assess whether a designation of critical habitat for the Black Creek crayfish is likely to exceed the economically significant threshold.

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the Black Creek crayfish (IEc 2024, entire). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographical areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (*i.e.,* absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to conservation plans, land management plans, BMPs, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. The presence of the listed species in occupied areas of critical habitat means that any destruction or adverse modification of those areas is also likely to jeopardize the continued existence of the species. Therefore, designating occupied areas as critical habitat typically causes little if any incremental impacts above and beyond the impacts of listing the species. As a result, we generally focus the screening analysis on areas of unoccupied critical habitat (unoccupied units or unoccupied areas within occupied units). Overall, the screening analysis assesses whether designation of critical habitat is likely to result in any additional management or conservation efforts that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM constitute what we consider to be our economic analysis of the proposed critical habitat designation for the Black Creek crayfish and is summarized in the narrative below.

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 proposed designation of critical habitat for the Black Creek crayfish, first we identified, in the IEM dated March 4, 2024, probable incremental economic impacts associated with the following categories of activities: (1) bridge maintenance/repair (U.S. Department of Transportation, U.S. Army Corps of Engineers); (2) dam maintenance (U.S. Army Corps of Engineers); (3) wastewater permit applications or renewals (U.S. Environmental Protection Agency); (4) Clean Water Act quality standards of review (U.S. Environmental Protection Agency); and (5) road widening/construction/repair (U.S. Department of Transportation). We considered each industry or category individually. Additionally, we considered whether their activities 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. If we list the species, in areas where the Black Creek crayfish is present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they authorize, fund, or carry out that may affect the species. If, when we list the species, we also finalize this proposed critical habitat designation, Federal agencies would be required to consider the effects of their actions on the designated habitat, and if the Federal action may affect critical habitat, our consultations would include an evaluation of measures to avoid the destruction or adverse modification of critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that would 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 Black Creek crayfish's critical habitat. Because the designation of critical habitat for the Black Creek crayfish is being proposed concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would likely adversely affect the essential physical or biological features of occupied critical habitat are also likely to adversely affect the Black Creek crayfish itself. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the Black Creek crayfish totals approximately 1,056 km (656 mi), of which 100 percent is currently occupied by the species. In these areas, any actions that may affect the species or its habitat would also affect designated critical habitat, and it is unlikely that any additional conservation efforts would be recommended to address the adverse modification standard over and above those recommended as necessary to avoid jeopardizing the continued existence of the Black Creek crayfish. Therefore, only administrative costs are expected in the proposed critical habitat designation. 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 would predominantly be administrative in nature and would not be significant.

The entities most likely to incur incremental costs are parties to section 7 consultations, including Federal action agencies and, in some cases, third parties, most frequently State agencies or municipalities. Activities we expect would be subject to consultations that may involve private entities as third parties are residential and commercial development that may occur on private lands. However, based on coordination efforts with State and local agencies, the cost to private entities within these sectors is expected to be relatively minor (administrative costs of $2,700 to $5,700 per consultation, depending on type (IEc 2024, p. 20)); therefore, they would not be significant.

The probable incremental economic impacts of the Black Creek crayfish critical habitat designation are expected to be limited to additional administrative effort. This limitation is due to:

(1) All of the proposed critical habitat designation is considered occupied by the Black Creek crayfish. In occupied habitat areas, regardless of whether critical habitat is designated, all projects with a Federal nexus would be subject to section 7 requirements.

(2) In these occupied habitat areas, conservation efforts requested to avoid jeopardizing the continued existence of the species are likely to be substantially similar to those that would be recommended to avoid adverse modification; thus, no additional conservation efforts are anticipated to be necessary to address the adverse modification standard over and above those that would be recommended to avoid jeopardizing the continued existence of the Black Creek crayfish.

(3) In addition, in some areas proposed as critical habitat for the Black Creek crayfish, conservation efforts for other listed species with ranges and/or proposed critical habitat areas that overlap the proposed designation are likely to provide protections to the Black Creek crayfish even absent critical habitat designation.

Our analysis anticipates approximately fewer than one new formal consultation and nine informal consultations each year in the proposed critical habitat areas will consider the Black Creek crayfish. The anticipated average annual administrative costs for these efforts are approximately $29,800 per year for all units. The designation is unlikely to trigger additional requirements under State or local regulations. Thus, the annual administrative burden is relatively low.

We are soliciting data and comments from the public on the economic analysis discussed above. During the development of a final designation, we will consider the information presented in the economic analysis and any additional information on economic impacts we receive during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under the authority of section 4(b)(2) of the Act, our implementing regulations at 50 CFR 424.19, and the 2016 Policy. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species.

Consideration of National Security Impacts

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (*e.g.,* a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), then national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of ''critical habitat.'' However, we must still consider impacts on national security, including homeland security, on those lands or areas not covered by section 4(a)(3)(B)(i) because section 4(b)(2) of the Act requires us to consider those impacts whenever we designate 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.

However, we cannot automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, we must conduct an exclusion analysis if the Federal requester provides information, including a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If we conduct an exclusion analysis because the agency provides a reasonably specific justification or because we decide to exercise the discretion to conduct an exclusion analysis, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we also consider whether a national security or homeland security impact might exist on lands owned or managed by DoD or DHS. In preparing this proposal, we have determined that, other than the land exempted under section 4(a)(3)(B)(i) of the Act based upon the existence of an approved INRMP (see Exemptions, above), the lands within the proposed designation of critical habitat for the Black Creek crayfish are not owned or managed by DoD or DHS. Therefore, we anticipate no impact on national security 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. 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 safe harbor agreements (SHAs), or CCAAs or ''conservation benefit agreements'' or ''conservation agreements'' (CBAs) (CBAs are a new type of agreement replacing SHAs and CCAAs in use after April 2024 (89 FR 26070; April 12, 2024)) or HCPs—or whether there are non-permitted conservation agreements and partnerships that would be encouraged 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, social, or other impacts that might occur because of the designation.

Summary of Exclusions Considered Under 4(b)(2) of the Act

In preparing this proposal, we have determined that no HCPs or other management plans for Black Creek crayfish currently exist, and the proposed designation does not include any Tribal lands or trust resources or any lands for which designation would have any economic or national security impacts. Therefore, we anticipate no impact on Tribal lands, partnerships, or HCPs from this proposed critical habitat designation and thus, as described above, we are not considering excluding any particular areas on the basis of the presence of conservation agreements or impacts to trust resources.

However, if through the public comment period we receive information that we determine indicates that there are potential economic, national security, or other relevant impacts from designating particular areas as critical habitat, then as part of developing the final designation of critical habitat, we will evaluate that information and may conduct a discretionary exclusion analysis to determine whether to exclude those areas under authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19. If we receive a request for exclusion of a particular area and after evaluation of supporting information we do not exclude, we will fully describe our decision in the final rule for this action.

Required Determinations

Clarity of the Rule

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

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

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

Regulatory Planning and Review (Executive Orders 12866, 13563 and 14094)

Executive Order (E.O.) 14094 amends and reaffirms the principles of E.O. 12866 and E.O. 13563 and states that regulatory analysis should facilitate agency efforts to develop regulations that serve the public interest, advance statutory objectives, and are consistent with E.O. 12866, and E.O. 13563. Regulatory analysis, as practicable and appropriate, shall recognize distributive impacts and equity, to the extent permitted by law. 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 proposed rule in a manner consistent with these requirements.

Executive Order 12866, as reaffirmed by E.O. 13563 and amended by E.O. 14094, 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 proposed rule is not significant.

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

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; title II of Pub. L. 104–121, March 29, 1996), 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 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 would be directly regulated if we adopt the proposed critical habitat 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 would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical habitat designation will not have a significant

economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small business entities. Therefore, an initial 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 ''to the extent permitted by law'' when undertaking actions identified as significant energy actions (66 FR 28355; May 22, 2001). E.O. 13211 defines a ''significant energy action'' as an action that (i) is a significant regulatory action under E.O. 12866 or any successor order; and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy. This rule is not a significant regulatory action under E.O. 12866 or E.O. 14094 (88 FR 21879; April 11, 2023). Therefore, this action is not a significant energy action, and there is no requirement to prepare a statement of energy effects for this action.

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

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

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

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions are not likely to destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it will not produce a Federal mandate of $100 million or more (adjusted annually for inflation) in any year, that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. Further, only stream habitats owned in the public trust by the State of Florida are involved in the proposed designation. Therefore, 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 Black Creek crayfish in a takings implications assessment. The Act does not authorize the Services 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 for the proposed designation of critical habitat for the Black Creek crayfish, and it concludes that, if adopted, this designation of critical habitat 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 proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. 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 proposed rule does not have substantial direct effects either on the States, or on the relationship between the Federal government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed 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 for 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 State and local governments in long-range planning because they 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) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that this proposed rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the physical or biological features essential to the conservation of the species. The proposed areas of critical habitat are presented on maps, and the proposed 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.)

Regulations adopted pursuant to section 4(a) of the Act are exempt from the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations. In a line of cases starting with *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), the courts have upheld this position.

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, May 4, 1994), E.O. 13175 (Consultation and Coordination with Indian Tribal Governments), the President's memorandum of November 30, 2022 (Uniform Standards for Tribal Consultation; 87 FR 74479, December 5, 2022), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes and Alaska Native Corporations (ANCs) on a government-to-government basis. In accordance with Secretary's 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 determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the Black Creek crayfish, so no Tribal lands would be affected by the proposed designation.

References Cited

A complete list of references cited in this rulemaking is available on the internet at *https://www.regulations.gov* and upon request from the Florida Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and the Florida Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

Accordingly, we propose to revise part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, to read as follows:

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. In § 17.11, in paragraph (h), amend the List of Endangered and Threatened Wildlife by adding an entry for ''Crayfish, Black Creek'' in alphabetical order under CRUSTACEANS to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
		CRUSTACEANS		
*	*	*	*	*
Crayfish, Black Creek	*Procambarus pictus*	Wherever found	E	[**Federal Register** citation when published as a final rule]; 50 CFR 17.95(h).CH
*	*	*	*	*

■ 3. In § 17.95, amend paragraph (h) by adding an entry for ''Black Creek Crayfish (*Procambarus pictus*)'' following the entry for ''Big Sandy Crayfish (*Cambarus callainus*)'' to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(h) *Crustaceans.*

* * * * *

Black Creek Crayfish (*Procambarus pictus*)

(1) Critical habitat units are depicted for Clay, Duval, Putnam, and St. Johns Counties, Florida, on the maps in this entry.

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

(i) Small to medium flowing streams with sandy bottom substrate and with sufficient water quantity and velocity to support normal behavior, growth, and viability of all life stages.

(ii) Moderate amounts of instream aquatic cover, such as woody debris, overhanging terrestrial vegetation, and aquatic plants, for refugia, prey, and temperature moderation.

(iii) Stream banks with intact riparian cover to maintain stream morphology and reduce erosion.

(iv) Water quality characterized by seasonally moderated water temperatures (maximum of 30 degrees Celsius (86 degrees Fahrenheit)) and physical and chemical parameters (*e.g.,* dissolved oxygen greater than or equal to 4 milligrams per liter (mg/L)) sufficient for the normal behavior, growth, reproduction, and viability of all life stages.

(v) Adequate food base, indicated by a healthy aquatic community structure including native benthic macroinvertebrates and plant matter (*e.g.,* leaf litter, algae, detritus).

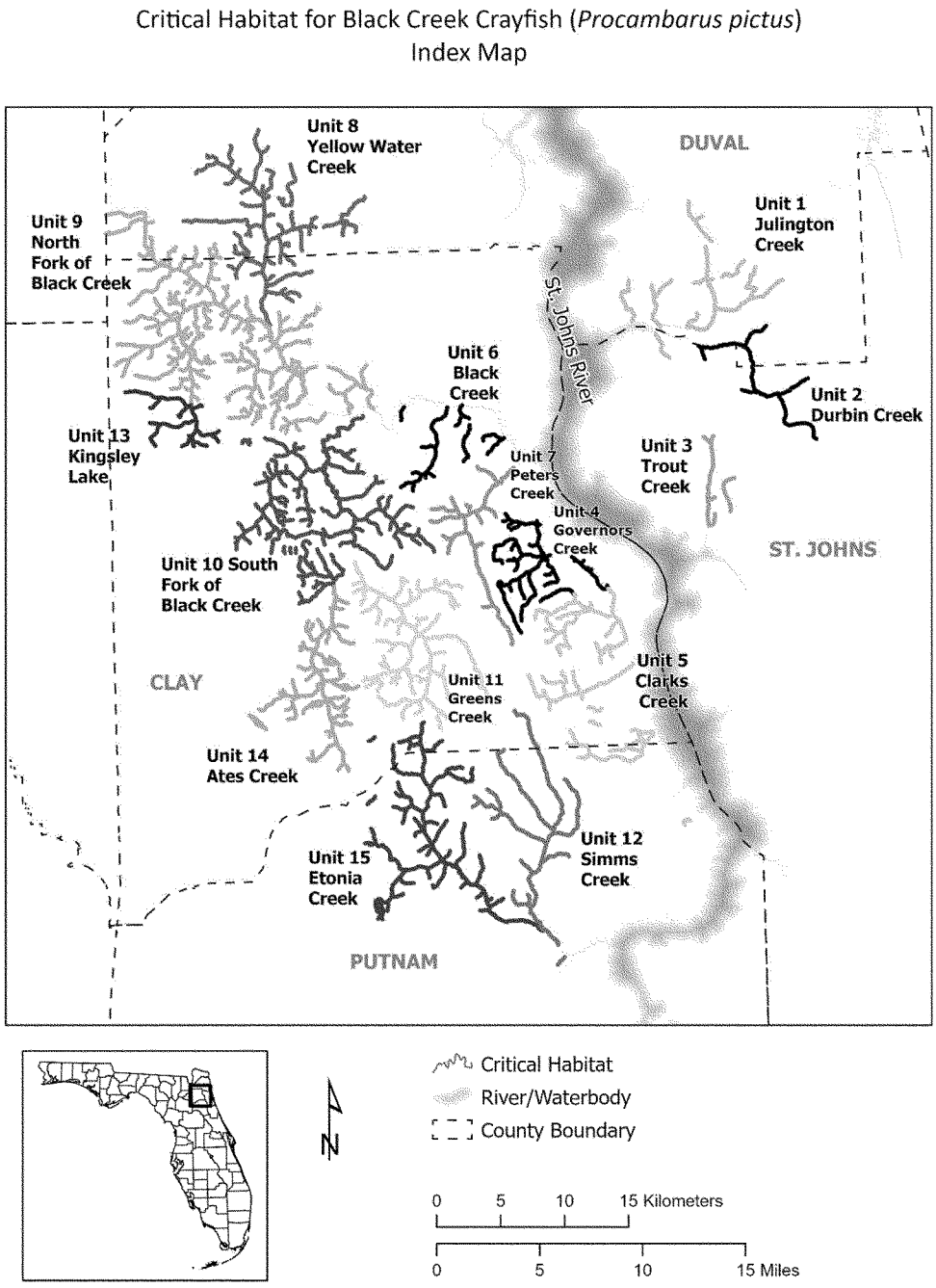
(vi) An interconnected network of streams and rivers that have the physical or biological features described in paragraphs (2)(i) through (v) of this entry that allow for movement of individual crayfish in response to environmental, physiological, or behavioral drivers.

(3) Critical habitat does not include 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 [EFFECTIVE DATE OF THE FINAL RULE].

(4) Data layers defining map units were created using Esri ArcGIS Pro mapping software, version 3.1.4, with U.S. Geological Survey's National Hydrography Dataset flowline data and Watershed Boundary Dataset watershed data, on a base map of county boundaries from the University of Florida GeoPlan Center. Critical habitat units were mapped using the Geodetic coordinate system for North America projection and North American 1983 (NAD83) datum. 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 *https://www.fws.gov/office/florida-ecological-services,* at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2024–0090, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Index map follows:

Figure 1 to Black Creek Crayfish (*Procambarus pictus*); paragraph (5)

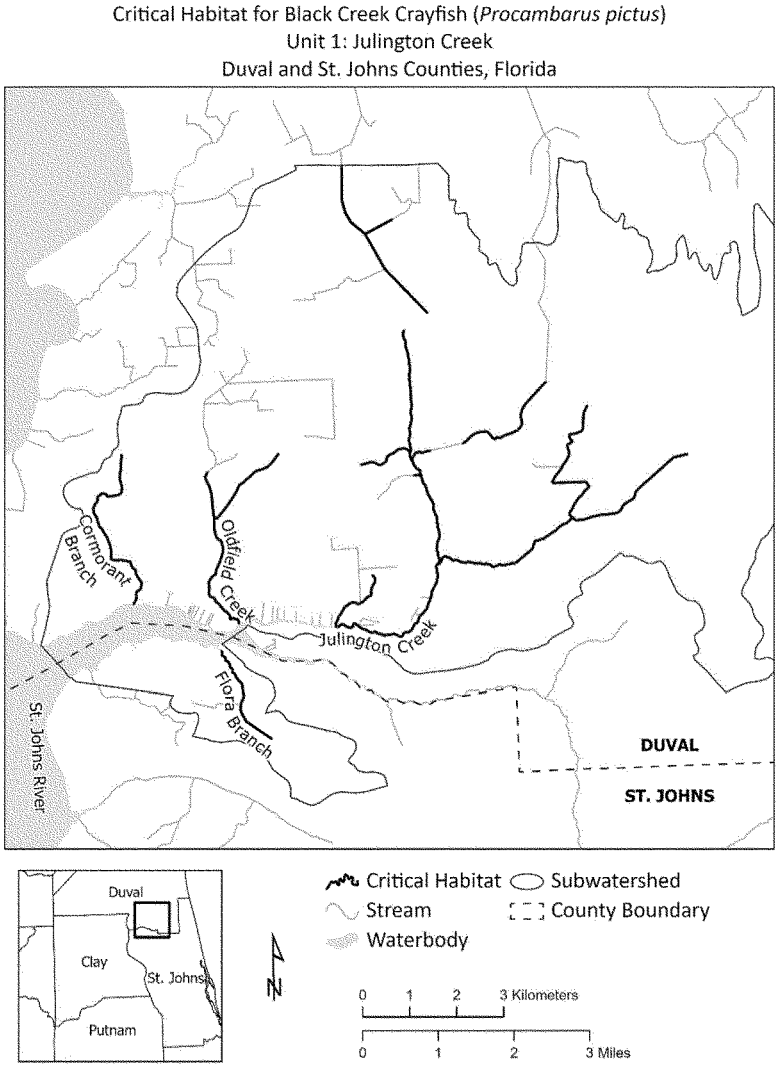


(6) Unit 1: Julington Creek; Duval and St. Johns Counties, Florida.

(i) Unit 1 includes 41.7 km (25.9 mi) of stream/river habitat in portions of Julington Creek, Oldfield Creek, Flora Branch, and Cormorant Branch and their tributaries and other unnamed streams within the Julington Creek (12-digit hydrologic unit code (HUC 12): 030801031302) subwatershed in Duval and St. Johns Counties, Florida. Riparian lands that border the unit are in State, local government, and private ownership.

(ii) Map of Unit 1 follows:

Figure 2 to Black Creek Crayfish (*Procambarus pictus*) paragraph (6)(ii)

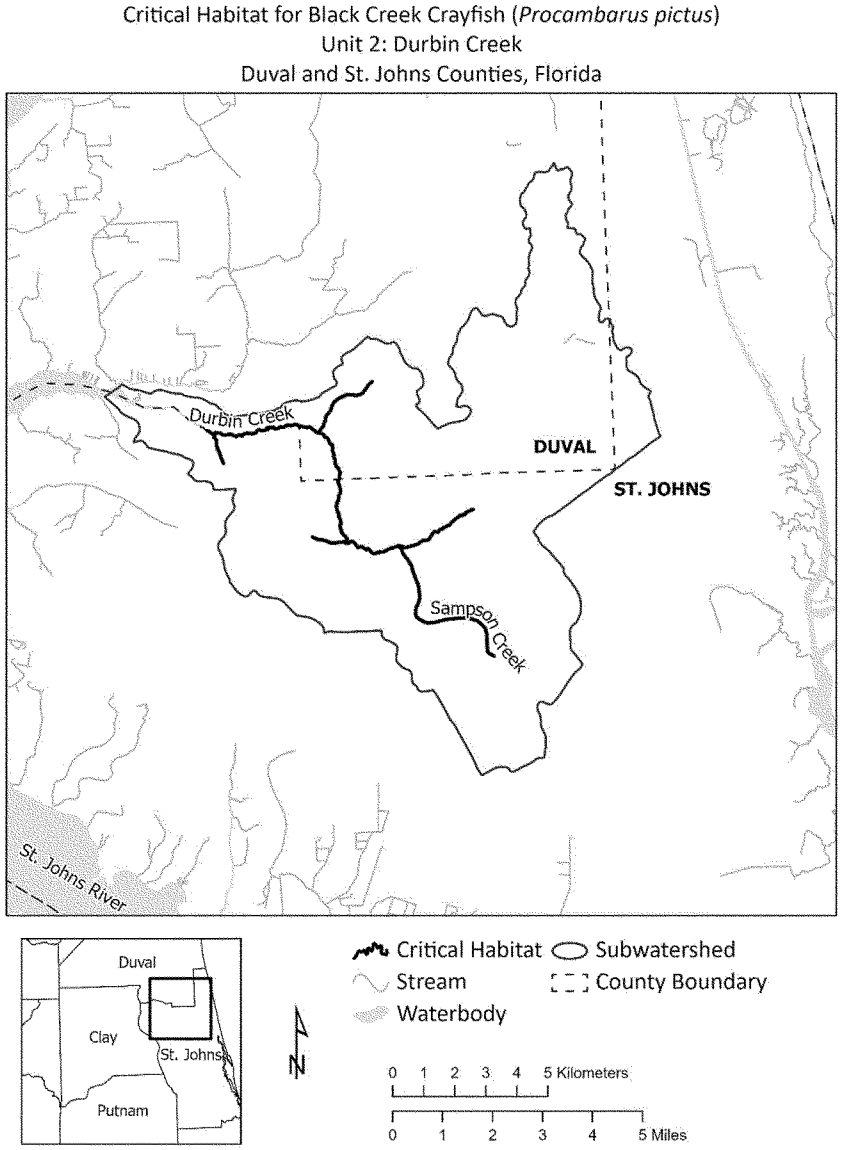


(7) Unit 2: Durbin Creek; Duval and St. Johns Counties, Florida.

(i) Unit 2 includes 23.9 km (14.8 mi) of stream/river habitat in portions of Durbin Creek and its tributaries within the Durbin Creek (HUC 12: 030801031301) subwatershed in Duval and St. Johns Counties, Florida. Riparian lands that border the unit are in State, local government, and private ownership.

(ii) Map of Unit 2 follows:

Figure 3 to Black Creek Crayfish (*Procambarus pictus*) paragraph (7)(ii)

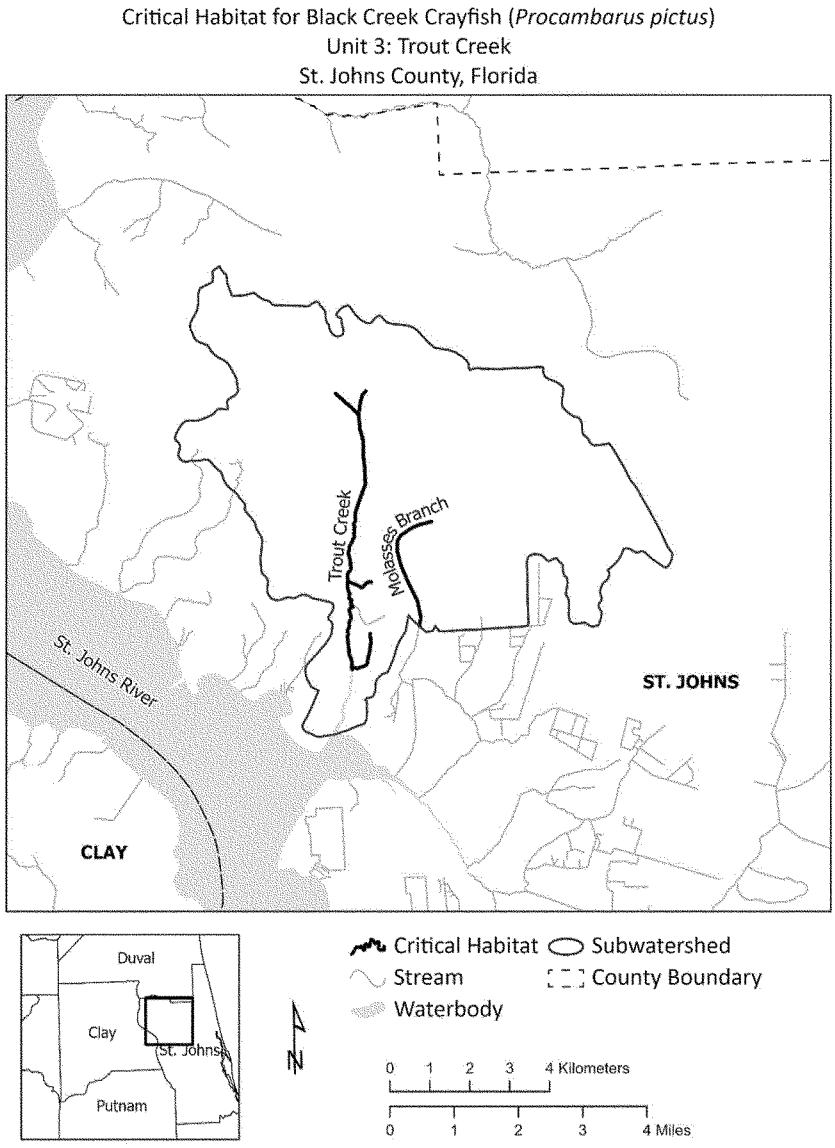


(8) Unit 3: Trout Creek; St. Johns County, Florida.

(i) Unit 3 includes 13.7 km (8.5 mi) of stream/river habitat in portions of Trout Creek and its tributaries and Molasses Branch within the Trout Creek—St. Johns River (HUC 12: 030801031202) subwatershed in St. Johns County, Florida. Riparian lands that border the unit are in private ownership.

(ii) Map of Unit 3 follows:

Figure 4 to Black Creek Crayfish (*Procambarus pictus*) paragraph (8)(ii)



(9) Unit 4: Governors Creek; Clay County, Florida.

(i) Unit 4 includes 48.5 km (30.1 mi) of stream/river habitat in portions of Governors Creek and its tributaries and other unnamed streams within the Governors Creek (HUC 12: 030801031204) subwatershed in Clay County, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 4 follows:

Figure 5 to Black Creek Crayfish (*Procambarus pictus*) paragraph (9)(ii)

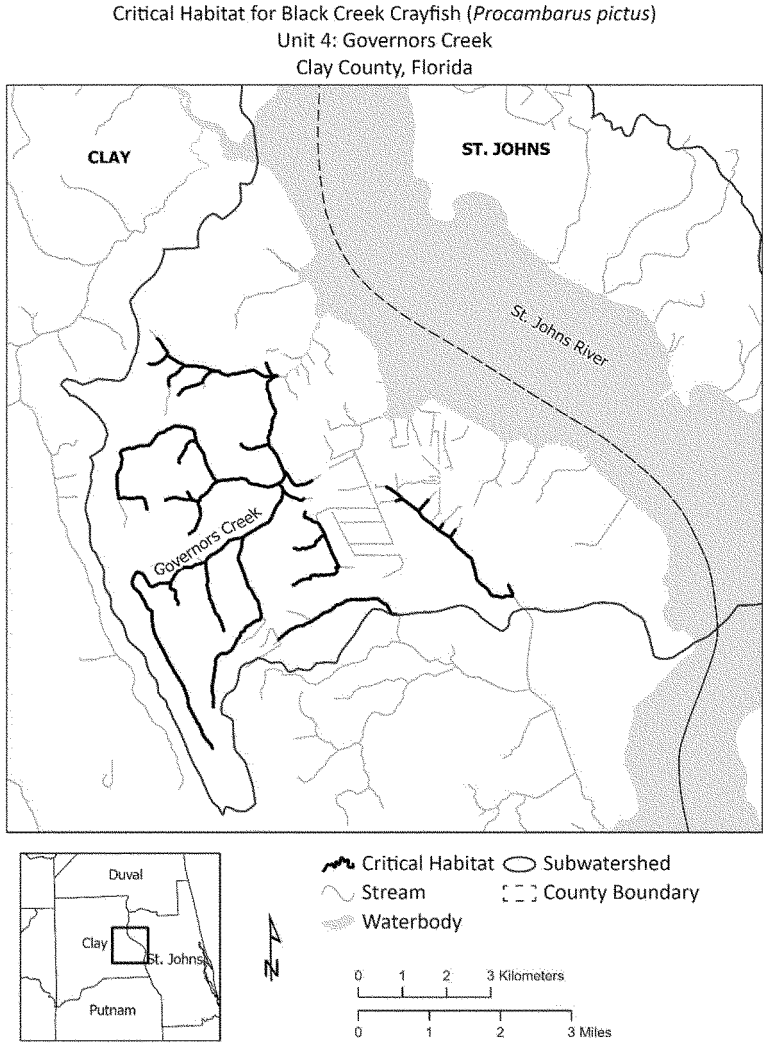
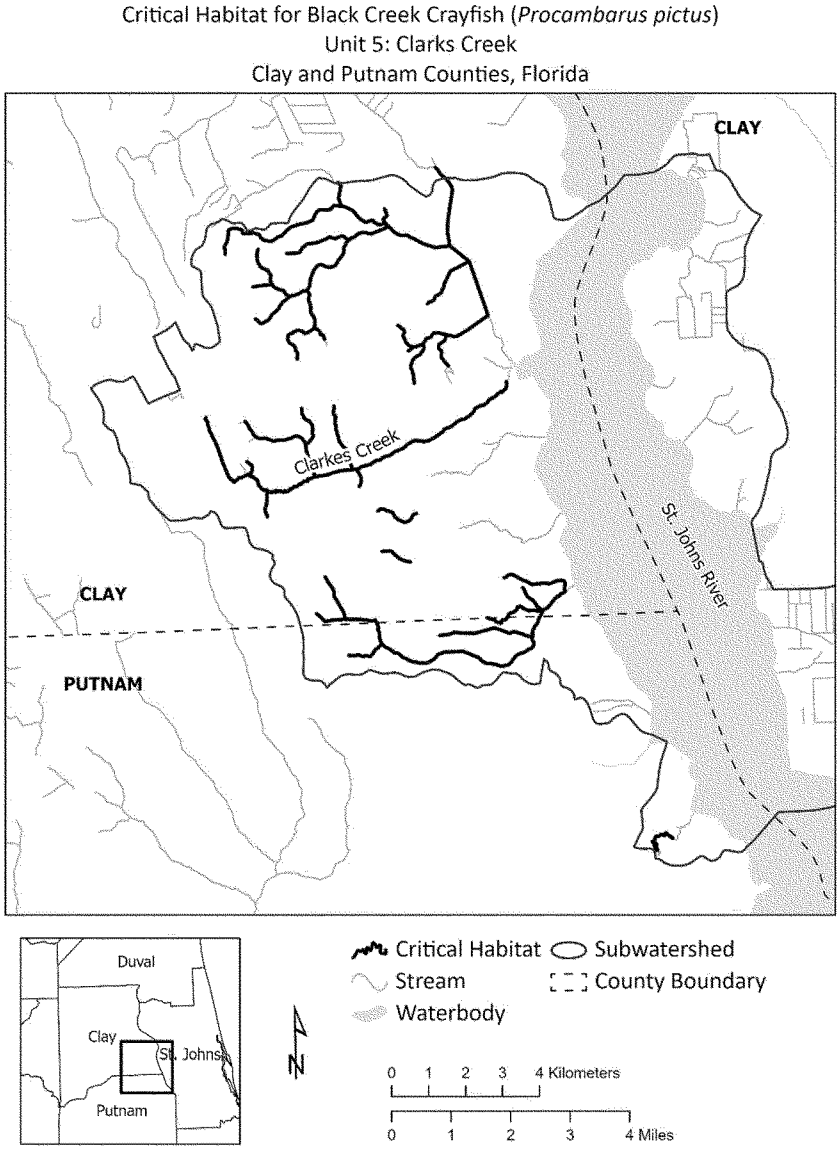


Figure 6 to Black Creek Crayfish (*Procambarus pictus*) paragraph (10)(ii)

(10) Unit 5: Clarks Creek; Clay and Putnam Counties, Florida.

(i) Unit 5 includes 74.1 km (46.1 mi) of stream/river habitat in portions of Clarks Creek and its tributaries and other unnamed streams within the Clarks Creek (HUC12: 030801030804) subwatershed in Clay and Putnam Counties, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 5 follows:

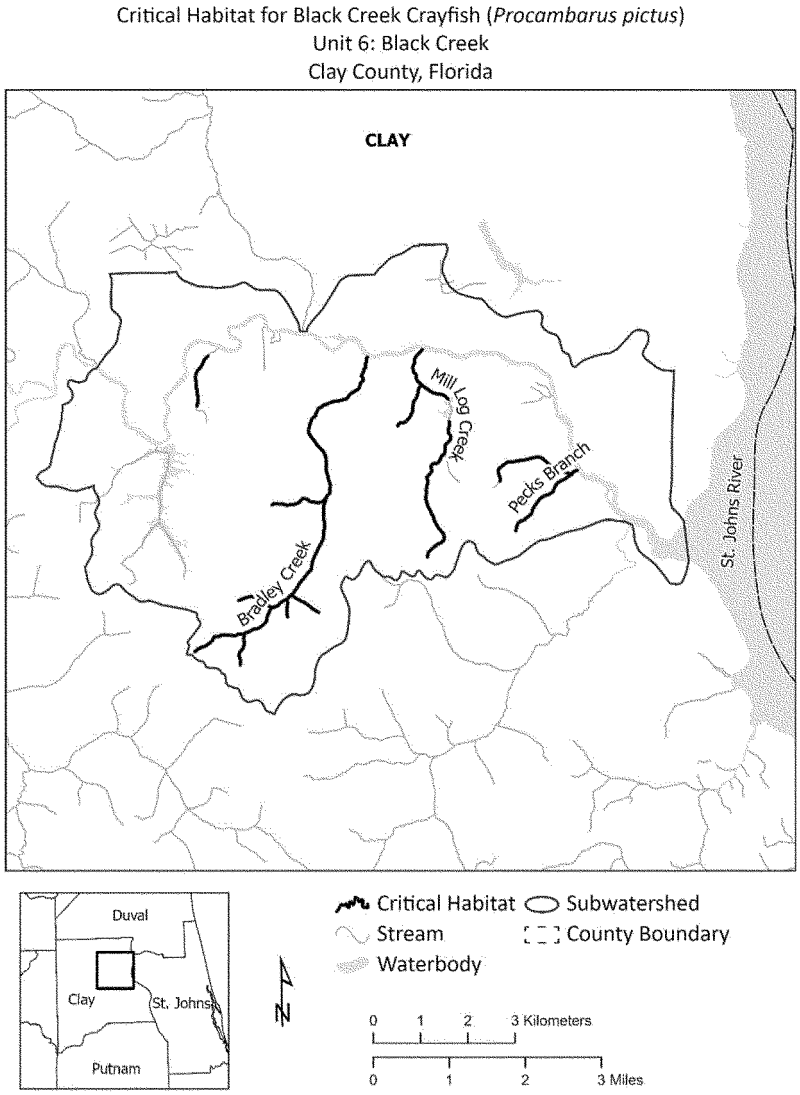


(11) Unit 6: Black Creek; Clay County, Florida.

(i) Unit 6 includes 23.7 km (14.7 mi) stream/river habitat in portions of Pecks Branch, Mill Log Creek, Bradley Creek, and their tributaries and other unnamed streams within the Black Creek—St. Johns River (HUC 12: 030801031103) subwatershed in Clay County, Florida. Riparian lands that border this unit are in private ownership.

(ii) Map of Unit 6 follows:

Figure 7 to Black Creek Crayfish (*Procambarus pictus*) paragraph (11)(ii)



(12) Unit 7: Peters Creek; Clay County, Florida.

(i) Unit 7 includes 35.1 km (21.8 mi) of stream/river habitat in portions of Peters Creek and its tributaries within the Peters Creek (HUC 12: 030801031102) subwatershed in Clay County, Florida. Riparian lands that border this unit are in private ownership.

(ii) Map of Unit 7 follows:

Figure 8 to Black Creek Crayfish (*Procambarus pictus*) paragraph (12)(ii)

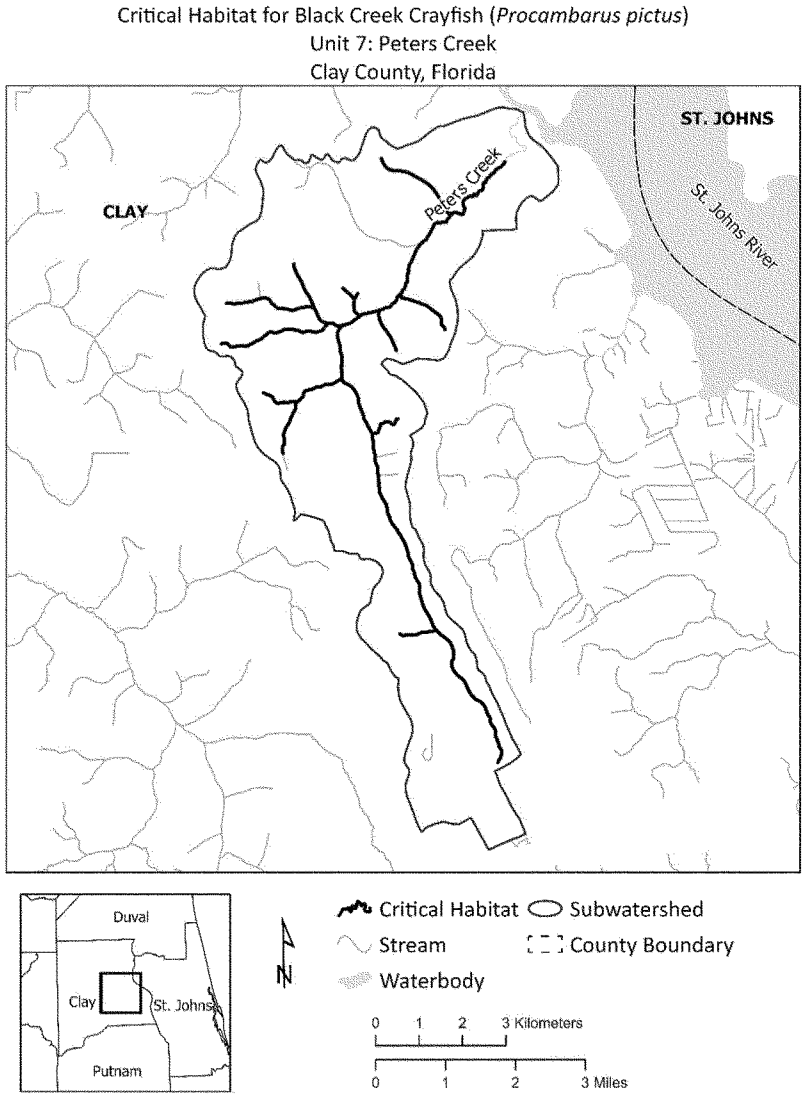
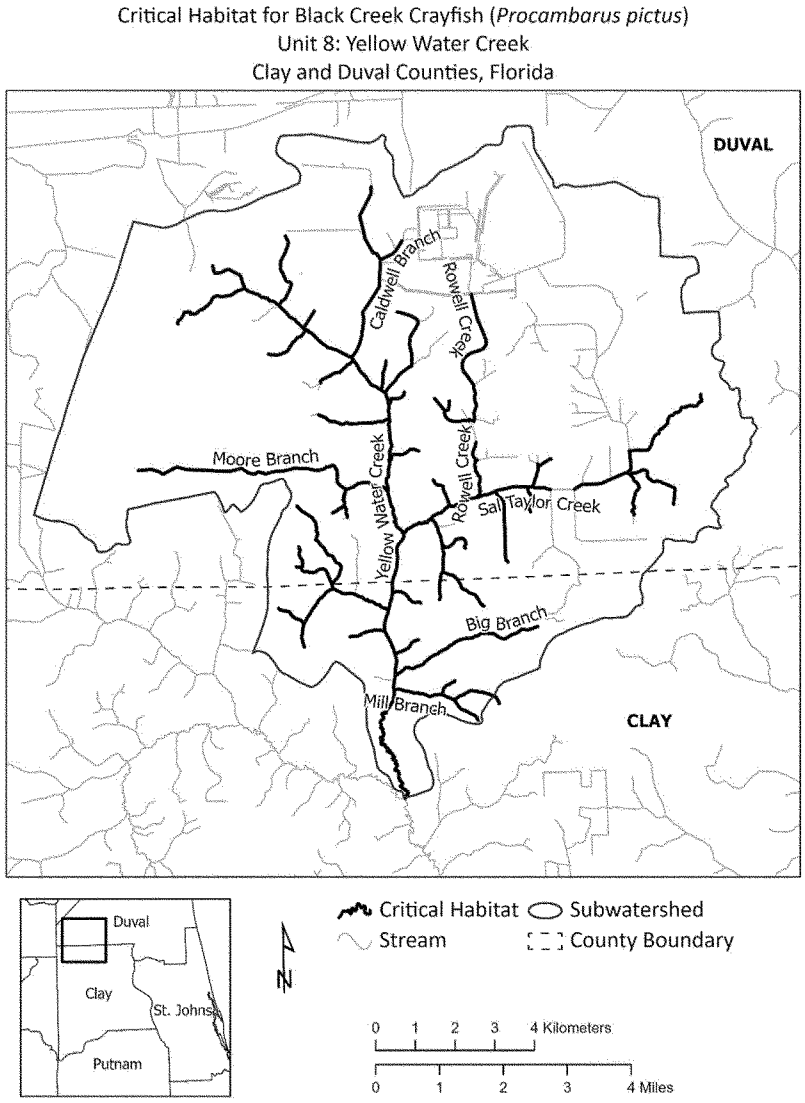


Figure 9 to Black Creek Crayfish (*Procambarus pictus*) paragraph (13)(ii)

(13) Unit 8: Yellow Water Creek; Clay and Duval Counties, Florida.

(i) Unit 8 includes 92.5 km (57.5 mi) of stream/river habitat in portions of Yellow Water Creek and its tributaries within the Yellow Water Creek (HUC 12: 030801031003) subwatershed in Clay and Duval Counties, Florida. Riparian lands that border the unit are in State, local government, and private ownership.

(ii) Map of Unit 8 follows:

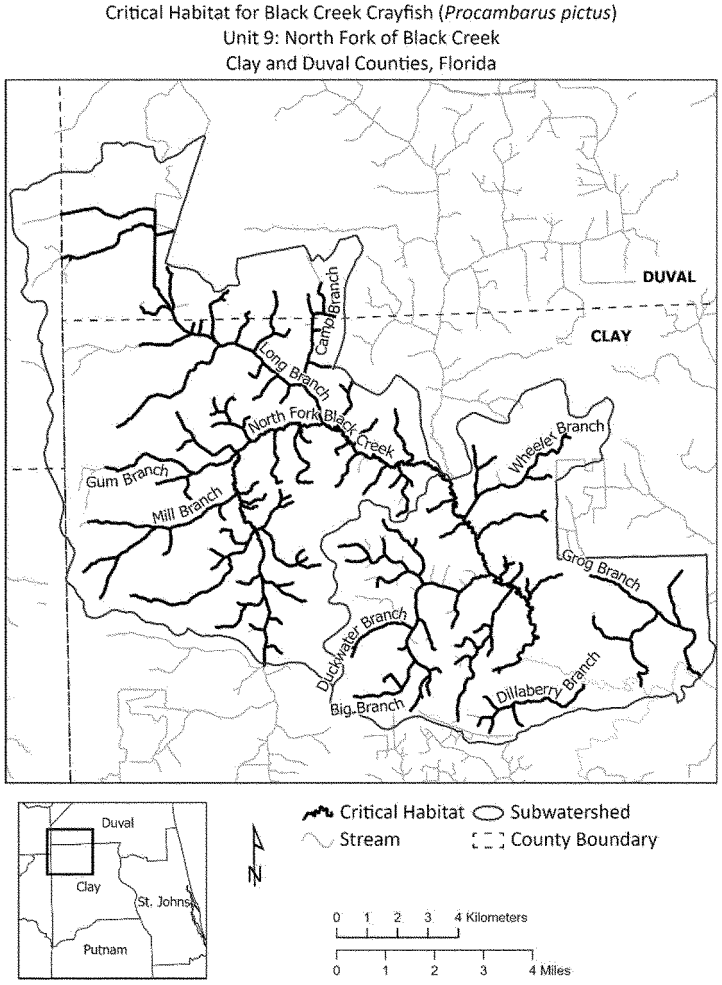


(14) Unit 9: North Fork of Black Creek; Clay and Duval Counties, Florida.

(i) Unit 9 includes 216.6 km (134.6 mi) of stream/river habitat in portions of the North Fork Black Creek, Dillaberry Branch, Grog Branch, and their tributaries and other unnamed streams within the Upper North Fork of Black Creek (HUC 12: 030801031002) and Lower North Fork of Black Creek (HUC 12: 030801031004) subwatersheds in Clay and Duval Counties, Florida. Riparian lands that border the unit are in State, local government, and private ownership.

(ii) Map of Unit 9 follows:

Figure 10 to Black Creek Crayfish (*Procambarus pictus*) paragraph (14)(ii)

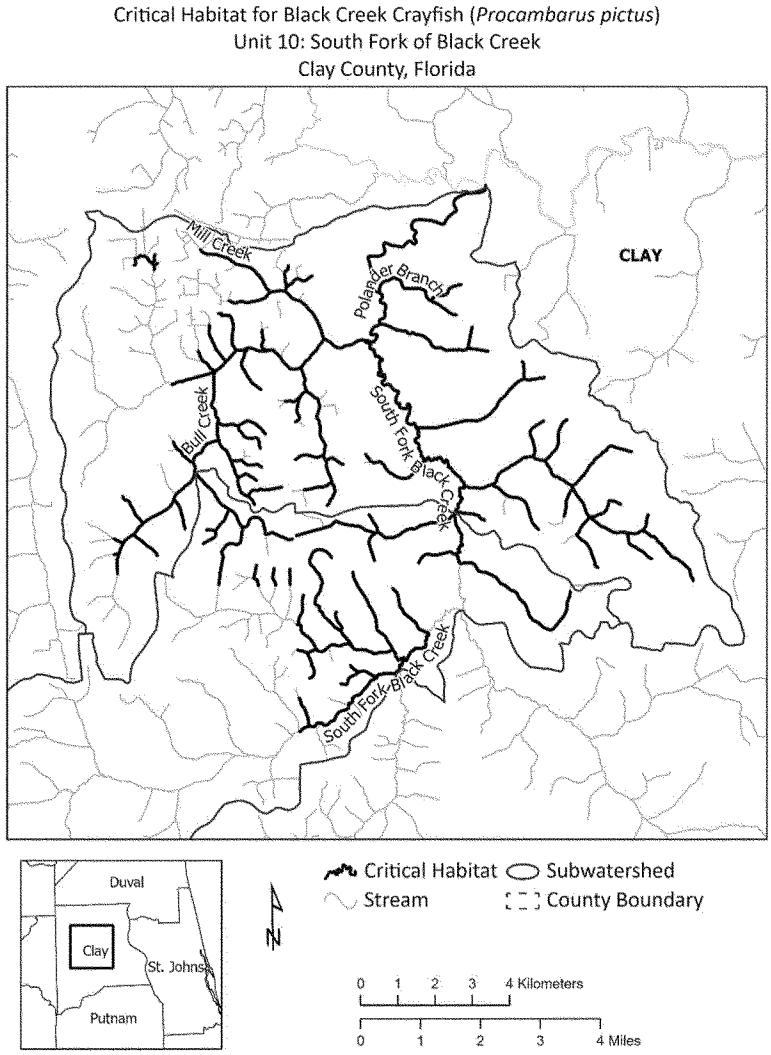


(15) Unit 10: South Fork of Black Creek; Clay County, Florida.

(i) Unit 10 includes 140.0 km (87.0 mi) of stream/river habitat in portions of the South Fork Black Creek and its tributaries and other unnamed streams within the Upper South Fork of Black Creek (HUC 12: 030801030903) and Lower South Fork of Black Creek (HUC 12: 030801030904) subwatersheds in Clay County, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 10 follows:

Figure 11 to Black Creek Crayfish (*Procambarus pictus*) paragraph (15)(ii)



(16) Unit 11: Greens Creek; Clay County, Florida.

(i) Unit 11 includes 91.8 km (57.0 mi) of stream/river habitat in portions of Greens Creek and its tributaries within the Greens Creek (HUC 12: 030801030902) subwatershed in Clay County, Florida. Riparian lands that border this unit are in private ownership.

(ii) Map of Unit 11 follows:

Figure 12 to Black Creek Crayfish (*Procambarus pictus*) paragraph (16)(ii)

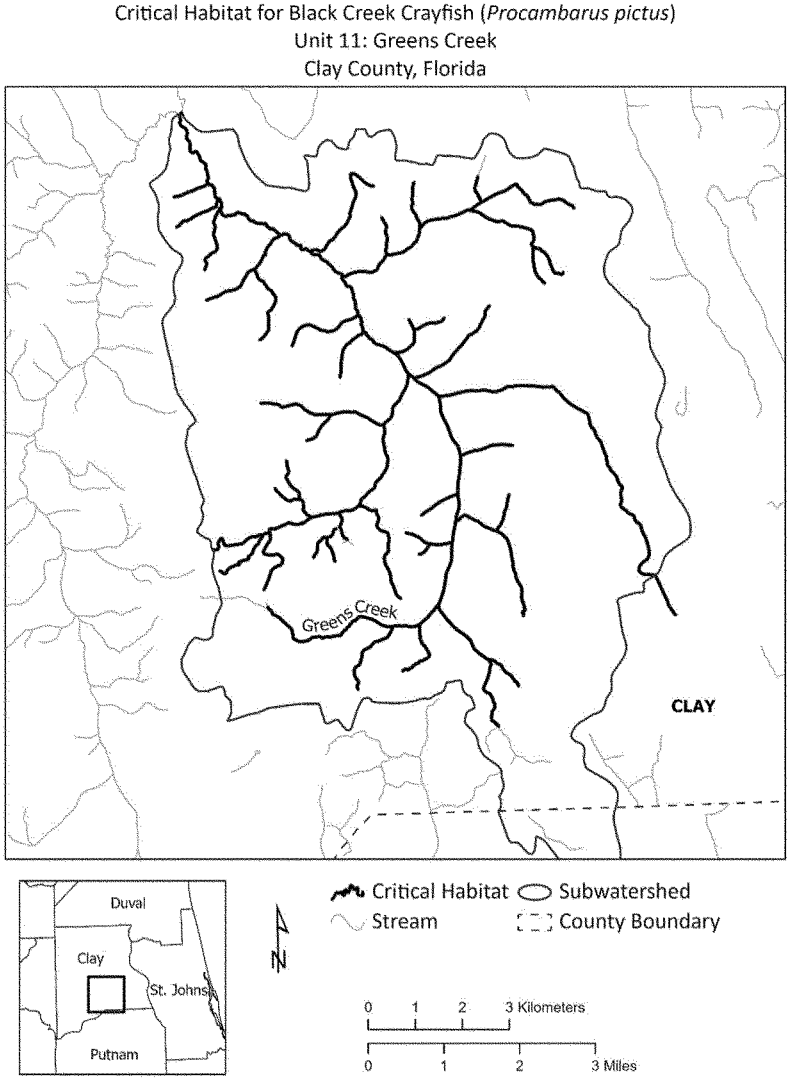


Figure 13 to Black Creek Crayfish (*Procambarus pictus*) paragraph (17)(ii)

(17) Unit 12: Simms Creek; Clay and Putnam Counties, Florida.

(i) Unit 12 includes 58.1 km (36.1 mi) of stream/river habitat in portions of Simms Creek and its tributaries and other unnamed streams within the Simms Creek (HUC 12: 030801030603) subwatershed in Clay and Putnam Counties, Florida. Riparian lands that border this unit are in private ownership.

(ii) Map of Unit 12 follows:

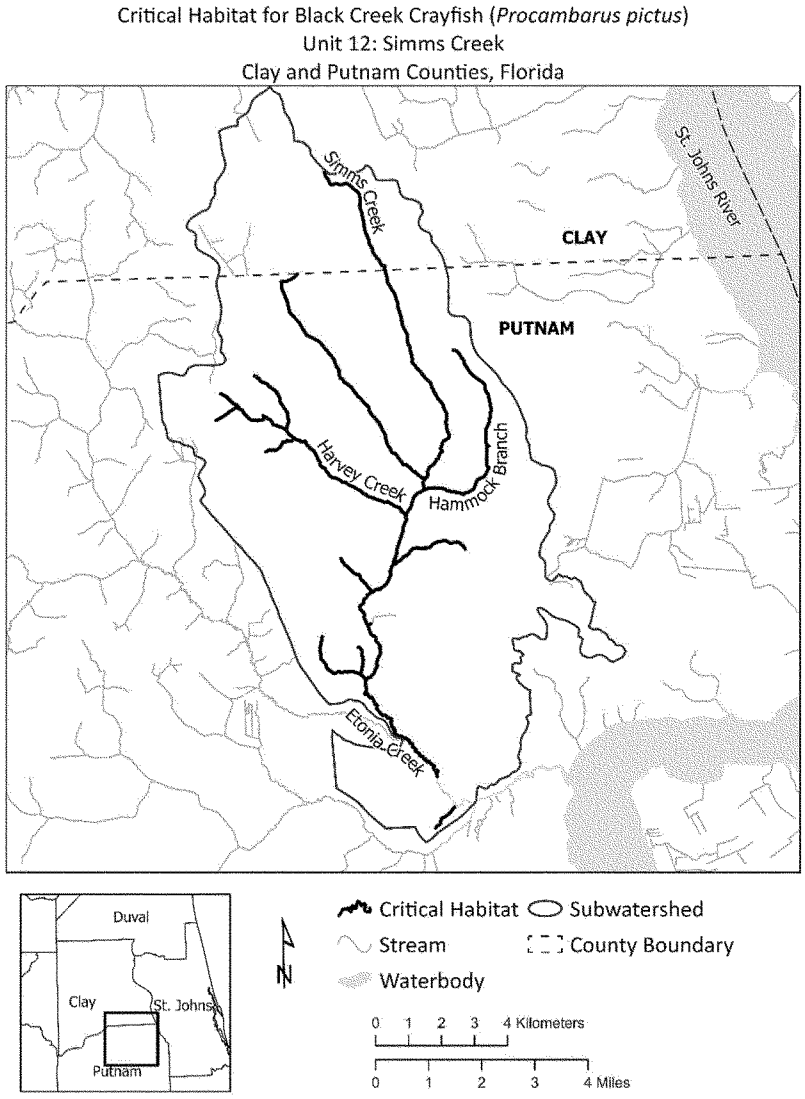
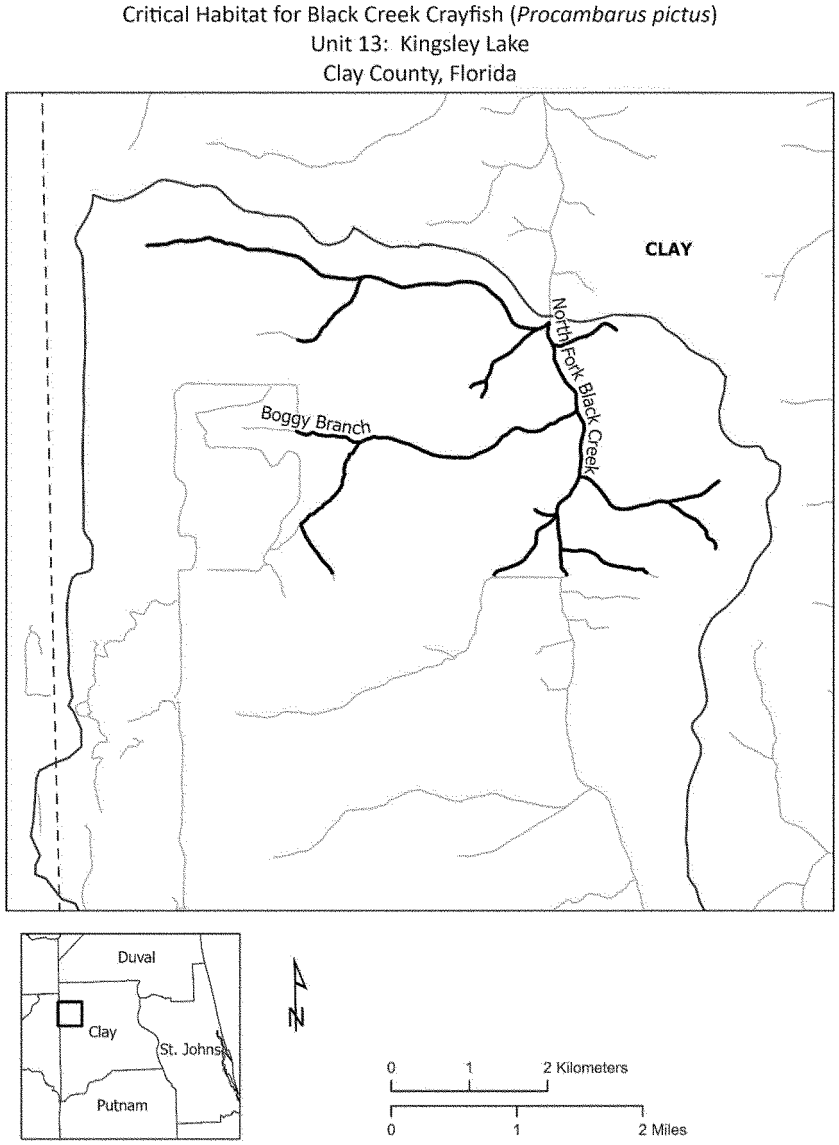


Figure 14 to Black Creek Crayfish (*Procambarus pictus*) paragraph (18)(ii)

(18) Unit 13: Kingsley Lake; Clay County, Florida.

(i) Unit 13 includes 24.3 km (15.1 mi) of stream/river habitat in portions of the North Fork Black Creek and its tributaries and other unnamed streams within the Kingsley Lake (HUC 12: 030801031001) subwatershed in Clay County, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 13 follows:

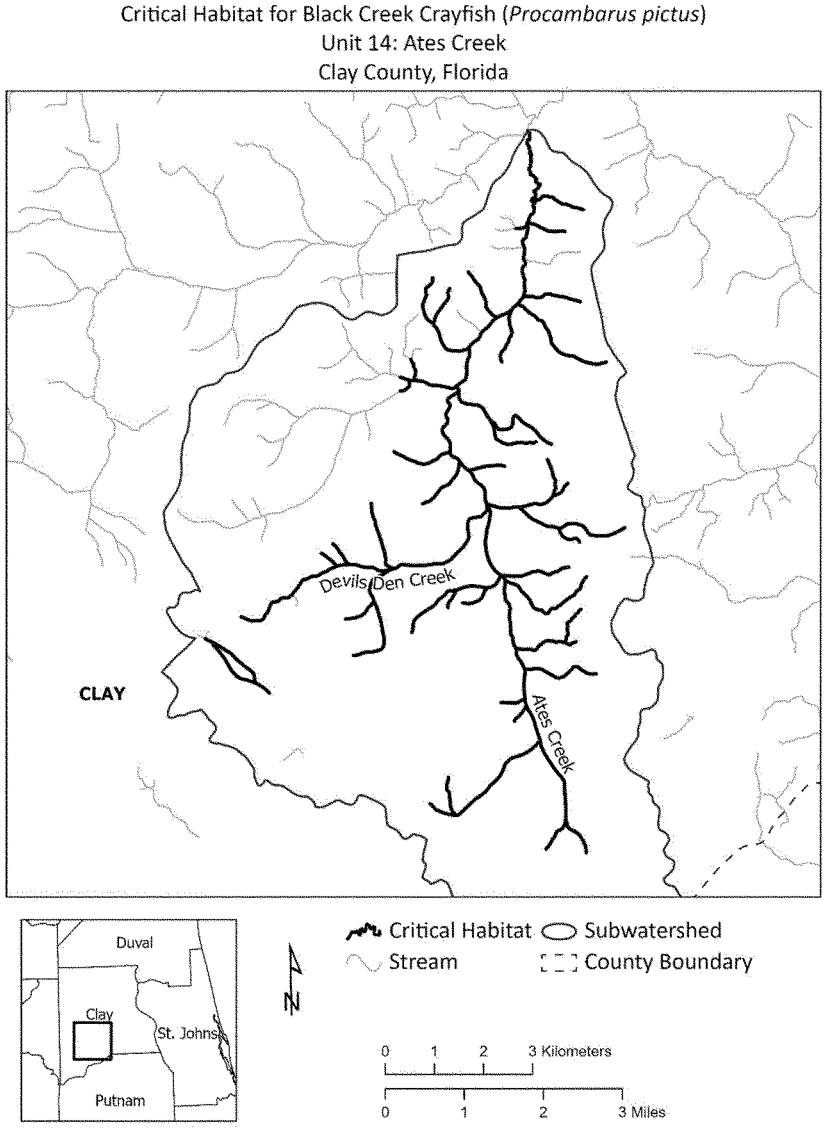


(19) Unit 14: Ates Creek; Clay County, Florida.

(i) Unit 14 includes 74.8 km (46.5 mi) of stream/river habitat in portions of the Ates Creek and its tributaries and other unnamed streams within the Ates Creek (HUC 12: 030801030901) subwatershed in Clay County, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 14 follows:

Figure 15 to Black Creek Crayfish (*Procambarus pictus*) paragraph (19)(ii)



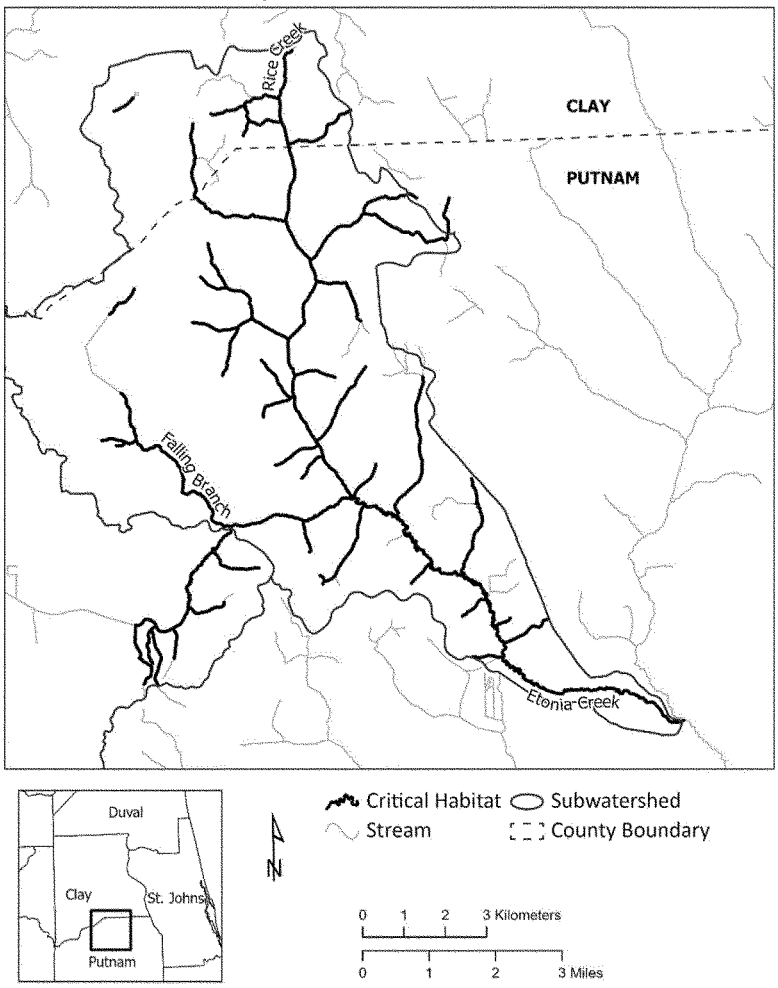
(20) Unit 15: Etonia Creek; Clay and Putnam Counties, Florida.

(i) Unit 15 includes 98.1 km (61.0 mi) of stream/river habitat in portions of the Etonia Creek and its tributaries and other unnamed streams within the Lower Etonia Creek (HUC 12: 030801030601) and Upper Etonia Creek (HUC 12: 030801030504) subwatersheds in Clay and Putnam Counties, Florida. Riparian lands that border the unit are in State and private ownership.

(ii) Map of Unit 15 follows:

Figure 16 to Black Creek Crayfish (*Procambarus pictus*) paragraph (20)(ii)

Critical Habitat for Black Creek Crayfish (*Procambarus pictus*)
Unit 15: Etonia Creek
Clay and Putnam Counties, Florida



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Martha Williams,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 2024–20106 Filed 9–9–24; 8:45 am]

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