

**BEFORE THE SECRETARY OF THE INTERIOR**

**PETITION FOR A RECOVERY PLAN FOR THE  
HAY'S SPRING AMPHIPOD (*STYGOBROMUS HAYI*)**



Photo Credit: David Culver and Irena Šereg 2004

**Center for Biological Diversity**



July 28, 2014

Sally Jewell  
Secretary  
Department of the Interior  
1849 C Street NW  
Washington, D.C. 20240

Dan Ashe  
Director  
U.S. Fish and Wildlife Service  
1849 C Street NW  
Washington, D.C. 20240

**Re: Petition to the U.S. Department of Interior and the U.S. Fish and Wildlife Service for the Development of a Recovery Plan for the Hay's spring amphipod (*Stygobromus hayi*).**

Dear Secretary Jewell and Director Ashe:

Pursuant to 16 U.S.C. § 1533(f) of the Endangered Species Act and section 5 U.S.C. § 553 of the Administrative Procedure Act, the Center for Biological Diversity ("Center") hereby petitions the U.S. Department of the Interior ("DOI"), by and through the U.S. Fish and Wildlife Service ("Service"), to meet its mandatory duty to develop a recovery plan for the Hay's spring amphipod (*Stygobromus hayi*) to ensure its full recovery.

The petition requests that the Service develop a set of recovery actions to (1) improve forest habitat, including groundwater and surface water flows, around the springs where Hay's spring amphipod are known to occur or are likely to be present, (2) address pesticide use in areas around suitable habitat, (3) identify development activities that may harm the Amphipod, (4) address flooding risks, and (5) identify additional areas in Rock Creek Park in Washington D.C. and in Maryland where reintroductions and translocation of Hay's spring amphipods could occur. The petition requests that the Service develop a set of recovery criteria by which the Service could first downlist the Hay's spring amphipod to threatened status and eventually delist the species as recovered.

The Center for Biological Diversity is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has more than 775,000 members and online activists dedicated to the protection and restoration of endangered species and wild places. The Center has worked for many years to protect imperiled plants and wildlife, as well as open space, air and water quality, and overall quality of life.

The Center and its members are "interested persons" within the meaning of the APA, and hence petition the Service for a comprehensive recovery strategy for the Hay's spring amphipod pursuant to the APA and in accordance with the ESA.<sup>1</sup> For the reasons set forth in this petition

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<sup>1</sup> See 5 U.S.C. § 553(e) (granting any "interested person the right to petition for the issuance, amendment, or repeal of a rule"); 5 U.S.C. § 551(4) (a "rule" is "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy.").

and as a matter of law, the Service is required to respond to this petition by developing a recovery plan for the Hay's spring amphipod.

Should it fail to comply with these mandatory obligations, the Center may pursue relief from a federal district court.<sup>2</sup> Accordingly, we ask you to respond to this petition expeditiously to inform us that you are commencing a process to develop a recovery plan for the Hay's spring amphipod, and moreover, that you include a timeline by which you will conduct and complete this process, and commence implementation of all necessary recovery strategies for the Hay's spring amphipod.

Respectfully submitted,



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<sup>2</sup> 5 U.S.C. § 702 (“A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof.”); id. § 551(13) (“agency action” includes “the whole or a part of an agency rule...or the equivalent or denial thereof, or failure to act”); id. § 706(1) and (2)(A) (granting a reviewing court the authority to “compel agency action unlawfully withheld or unreasonably delayed” and/or to “hold unlawful and set aside agency action ... found to be ... arbitrary, capricious, an abuse of discretion”); see also 16 U.S.C. § 1540(g)(1)(C) (“any person may commence a civil suit on his own behalf” “against the Secretary where there is alleged a failure of the Secretary to perform any act or duty under section 4 which is not discretionary with the Secretary”).

## INTRODUCTION

The Hay's spring amphipod is a small, aquatic crustacean that is known to exist only in a few springs in Washington D.C. and Montgomery County, Maryland. It is the District of Columbia's only endangered species and is an indicator of the overall health of the natural ecosystems, especially in Rock Creek and Rock Creek Park. The Hay's spring amphipod looks like a very tiny shrimp—just 5-10 millimeters in length, and is both colorless and blind. The amphipod lives most of its life underground; it possesses small hairs on its body that sense water currents and help it search for food—mostly small pieces of leaf litter and dead insects.

The Hay's spring amphipod was listed as an endangered species in 1982 due to development threats including alter flooding, water quality degradation, and the risk that “careless movement of equipment slightly onto the hillside from which the spring flows could have a catastrophic effect on the habitat.”<sup>3</sup> At that time, the entire world population of Hay's spring amphipod was thought to exist in a meter-wide area of a single spring in Rock Creek Park. In 1982, it seemed that little could be done to improve the conservation status of the Amphipod, given its extremely tenuous existence. Despite the discovery of four additional springs where the Amphipod has been found and at least three more springs where Amphipods is likely to be present, the Service has done virtually nothing to conserve or recover this critically endangered species on the very brink of extinction. The Amphipod never received any critical habitat and the Service has never completed a recovery plan for the species. Instead, the Service exempted the species from recovery planning, stating in both the 2007 and 2013 5-year status reviews that:

The Hay's spring amphipod has been exempted from recovery planning because the U.S. Fish and Wildlife Service determined that management options were so limited that no conservation benefits would ensue from a recovery plan. This exemption is subject to being withdrawn if new information or analysis indicates that the species would benefit from recovery planning.<sup>4</sup>

The decision to exempt the Hay's spring amphipod violates the Service's own guidance on recovery planning.<sup>5</sup> More fundamentally, the decision violates the spirit and philosophy of the ESA that all species that are not yet extinct can and should be recovered. As explained by the Supreme Court, the “plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost.” It was not the intent of Congress to stop and reverse the trend towards species extinction only when it was easy to do so.<sup>6</sup> While there is little doubt that recovering the Hay's spring amphipod will not be easy, it is still possible to recover this species. Unfortunately, by refusing to take any action to develop a recovery plan for the Amphipod, the Service has allowed further habitat loss and habitat degradation to occur, resigning the species to a tenuous existence at the brink of extinction.

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<sup>3</sup> *Listing Hay's spring amphipod as an Endangered Species*, 47 Fed. Reg. 5425 (Feb. 5, 1982).

<sup>4</sup> USFWS 2007. HAY'S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION available at: [http://ecos.fws.gov/docs/five\\_year\\_review/doc1889.pdf](http://ecos.fws.gov/docs/five_year_review/doc1889.pdf); USFWS 2011. HAY'S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION, available at: [http://ecos.fws.gov/docs/five\\_year\\_review/doc4172.pdf](http://ecos.fws.gov/docs/five_year_review/doc4172.pdf)

<sup>5</sup> USFWS & NMFS. 2004. *Endangered and Threatened Species Recovery Planning Guidance* at 5.1.8 Available at: [http://www.fws.gov/endangered/esa-library/pdf/NMFS-FWS\\_Recovery\\_Planning\\_Guidance.pdf](http://www.fws.gov/endangered/esa-library/pdf/NMFS-FWS_Recovery_Planning_Guidance.pdf)

<sup>6</sup> *Tennessee Valley Authority v. Hill*, 437 U.S. 153 at 184 (1978).

Furthermore, the decision to exempt the Amphipod from recovery planning is contradicted by the very same 5-year status reviews that exempted the species in the first place. Both the 2007 and 2013 reviews recommend that the Service: “Develop a recovery outline and (if deemed appropriate as a consequence of the analysis in the recovery outline) a recovery plan for the Amphipod.”<sup>7</sup> Rather than moving forward with recovery planning for the species, the Service has done nothing, devoting almost no resources to recover the species in the last twenty years, and is allowing threats to the species continue to go on unabated.

### **NATURAL HISTORY AND CONSERVATION STATUS OF THE HAY’S SPRING AMPHIPOD.**

The Hay’s spring amphipod has been found in five springs that feed into Rock Creek along a 3-mile stretch of Rock Creek. These springs are located within Rock Creek Park. Four of the springs are on land which is managed by the National Park Service, and one of the springs is found on property of the National Zoo, which is managed by the Smithsonian Institution. The Hay’s spring amphipod is likely be present in at least three additional springs within the Rock Creek watershed and may be present in springs in Montgomery County Maryland.

The Hay’s spring amphipod is difficult to study and monitor because it lives most of its life underground in interstitial groundwater. As a result, little is known about the natural history of the Hay’s spring amphipod. In general, amphipods in the genus *Stygobromus* tend to occur in caves or areas where there are permanent groundwater habitats that contain low levels of organic matter such as decomposing leaf litter and dead insects, on which they feed.<sup>8</sup> Some research suggests that the Hay’s spring amphipod may also be able to live in a few other valley floor habitats within Rock Creek Park that have shallow subsurface groundwater that are high in organic matter and may even be seasonally dry. These hypotelminorheic habitats occur when groundwater seeps to the surface from underlying bedrock to flow up through sediments and vegetative litter.<sup>9</sup> In Rock Creek Park, thick layers of clay lie beneath freshwater seeps, stopping the water and creating perched pockets of subterranean habitat for *Stygobromus* amphipods.

Rock Creek Park and its watershed possess one of the most diverse assemblages of *Stygobromus* amphipods in the United States. In fact, with the exception of some springs in the Edwards Aquifer of Texas, no other area in the world has this many sympatric subterranean amphipod species.<sup>10</sup> In addition to the Hay’s spring amphipod, *Stygobromus sextarius*, *Stygobromus tenuis potomacus*, and *Stygobromus kenki* can all be found in Rock Creek Park. Kenk’s Amphipod (*S. kenki*) is a federally-designated candidate species and warrants listing under the

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<sup>7</sup> USFWS 2007. HAY’S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION available at: [http://ecos.fws.gov/docs/five\\_year\\_review/doc1889.pdf](http://ecos.fws.gov/docs/five_year_review/doc1889.pdf); USFWS 201. HAY’S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION, available at: [http://ecos.fws.gov/docs/five\\_year\\_review/doc4172.pdf](http://ecos.fws.gov/docs/five_year_review/doc4172.pdf)

<sup>8</sup> Pavék, D. 2001. URBAN REFUGE FOR RARE AMPHIPODS IN THE NATIONAL CAPITOL REGION, in National Park Service, 2001. *Natural Resource Year in Review-2001* May 2001 (publication D-2255).

<sup>9</sup> Culver, D.C., T. Pipan, and S. Gottstein. 2006. *Hypotelminorheic—a unique freshwater habitat*. *Subterranean Biology* 4:1-8.

<sup>10</sup> Culver, D.C., J.R. Holsinger, D.J. Feller, 2012. *The Fauna of Seepage Springs and Other Shallow Subterranean Habitats in the Mid-Atlantic Piedmont and Coastal Plain*, *Northeastern Naturalist*, 19(m9):1-42.

ESA. Although Rock Creek once provided drinking water to residents within the District of Columbia, most of its streams and springs have either disappeared, been channeled into pipes and sewers, or entombed in concrete. Little unaltered natural habitat for these amphipod species remains in the Rock Creek watershed.

## **THREATS TO THE HAY'S SPRING AMPHIPOD**

Hay's spring amphipods spend the majority of their lives in groundwater, and consequently have few natural predators. Although they are vulnerable to predators such as stonefly larvae and salamanders when they make brief trips to the surface, the main threats to the amphipod, especially when considered in the context of its extremely limited range, are from human caused habitat loss and habitat degradation, including alterations of groundwater flows, groundwater pollution, loss of detritus as a food source, and disturbance of spring sites.<sup>11</sup> The original 1982 listing decision, the 2007 status review and the 2013 status review indicate that the threats to the Hay's spring amphipod have gotten progressively worse over the past thirty years, making recovery actions all the more pressing.<sup>12</sup>

### A. Alteration of Groundwater Flows

Rock Creek Park and the National Zoo are surrounding by high-density urban development, all of which contributes to altered hydrology and groundwater flows. As DC continues to develop, more and more natural areas are replaced by impervious surfaces which change the rate, amount, and direction that rainwater moves through the environment. Changes in hydrology can cause changes in flood frequency, duration and intensity, all of which can impact groundwater springs and seeps that provide habitat for the Amphipod. Altered hydrology has already impacted two springs/seeps where the Amphipod may be located making it harder to sample the springs due to greatly reduced flows in the ten years.<sup>13</sup> Intensified flooding due to altered hydrology may adversely affect the spring habitat by removing individual Amphipods, as well as the leaves and soft bottom sediments that form their microhabitat, from the spring.

### B. Groundwater Pollution

Following altered hydrology, groundwater pollution is the next largest threat to the Hay's spring amphipod. Sources of water pollution in DC are primarily from non-point runoff and include oil spills from underground storage tanks, antifreeze, road de-icing salts, herbicides, insecticides, fertilizers, sewage leaks, other chemical leaks, improper garbage disposal, and other industrial and residential activities.<sup>14</sup>

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<sup>11</sup> Culver, D.C., and I. Šereg. 2004. KENK'S AMPHIPOD (*STYGOBROMUS KENKI* HOLSINGER) AND OTHER AMPHIPODS IN ROCK CREEK PARK, WASHINGTON, D.C. 147 pp. Report to Rock Creek Park, National Capitol Region, National Park Service.

<sup>12</sup> USFWS 2007. HAY'S SPRING AMPHIPOD (*STYGOBROMUS HAYI*) 5-YEAR REVIEW: SUMMARY AND EVALUATION; USFWS 2013. HAY'S SPRING AMPHIPOD (*STYGOBROMUS HAYI*) 5-YEAR REVIEW: SUMMARY AND EVALUATION.

<sup>13</sup> *Id.* at 2-3.

<sup>14</sup> Culver, D.C., and I. Šereg. 2004. KENK'S AMPHIPOD (*STYGOBROMUS KENKI* HOLSINGER) AND OTHER AMPHIPODS IN ROCK CREEK PARK, WASHINGTON, D.C. 147 pp. Report to Rock Creek Park, National Capitol Region, National Park Service.

The impacts of non-point source pollution are extensive. According to the Environmental Protection Agency, every water body within DC, including Rock Creek does not meet water quality standards and is listed as impaired.<sup>15</sup> Rock Creek fails to meet both the “Protection And Propagation Of Fish, Shellfish And Wildlife” water quality criterion and the “Protection Of Human Health Related To Consumption Of Fish And Shellfish” criterion.<sup>16</sup>

### C. Isolation of Seeps/Springs

Urbanization has fragmented the habitats of the Hay’s spring amphipod by altering groundwater flows and redirecting rainfall to human-built infrastructure. In the past, subsurface groundwater may have been connected in Rock Creek through multiple, complex hydrological connections. As roads and development have bisected the park into small patches of habitat, each spring becomes functionally isolated from other springs. This isolation puts the species at even greater risk of extinction by reducing the chance that a spring can be recolonized if a stochastic event were to extirpate a population from one of these springs.

### D. Spring Destruction and Forest Habitat Loss

The springs and seeps that harbor Hay’s spring amphipods are very fragile. When the Hay’s spring amphipod was first discovered at the Smithsonian National Zoo in 1978, biologists identified two where the species was found. In 1980, one of the two springs was destroyed when Hurricane David passed through the DC area when just a single tree fell into the spring. Even minor habitat disturbance events can wipe out an amphipod population, showing just how fragile this species’ habitat is.

Many types of human activities have and continue to degrade amphipod habitat, including “intensive recreational use adjacent to the springs in Rock Creek Park, which increases the potential for pollution of the springs, and intensive development and associated increases in impermeable surfaces, which may decrease water quality and quantity in the springs.”<sup>17</sup> Loss in forest cover and intact forest canopy alters and reduces forest leaf-litter, which in turn reduces food availability for the Amphipod and increases surface temperatures. Development also degrades forest conditions through the opening of the forest canopy, furthers the spread of invasive species, changes overall forest plant and animal communities, all of which can have a negative impact on Hay’s spring amphipods. As the 1982 listing decision makes abundantly clear, construction activities, soil compaction, disturbance from mowing equipment, and even foot traffic can adversely affect or eliminate amphipod spring habitat. Acts of vandalism or even carelessness could easily wipe out any of the springs where the species is located.<sup>18</sup> In 1982, the Service explained:

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<sup>15</sup> [http://ofmpub.epa.gov/tmdl\\_waters10/attains\\_watershed.control](http://ofmpub.epa.gov/tmdl_waters10/attains_watershed.control);

<sup>16</sup> See also [http://ofmpub.epa.gov/tmdl\\_waters10/attains\\_waterbody.control?p\\_list\\_id=&p\\_au\\_id=DCRCR00R\\_02&p\\_cycle=2010&p\\_state=DC](http://ofmpub.epa.gov/tmdl_waters10/attains_waterbody.control?p_list_id=&p_au_id=DCRCR00R_02&p_cycle=2010&p_state=DC)

<sup>17</sup> USFWS. 2013. Hay’s spring amphipod (*Stygobromus hayi*) 5-year Review: Summary and Evaluation. Annapolis, MD: Chesapeake Bay Field Office, U.S. Fish and Wildlife Service.

<sup>18</sup> *Listing Hay’s spring amphipod as an Endangered Species*, 47 Fed. Reg. 5425 (Feb. 5, 1982).

The spring is so small that careless movement of equipment slightly onto the hillside from which the spring flows could have a catastrophic effect on the habitat.<sup>19</sup>

## **NEED FOR A HAY'S SPRING AMPHIPOD RECOVERY PLAN**

Increased development in the Rock Creek watershed, increased urbanization around the park, further degradation of water quality, increased recreational use in Rock Creek Park all put the species at greater risk of extinction. The obvious vulnerability of this species and the magnitude of the threats make abundantly clear that the species needs a recovery plan in order to start the process of rationally addressing these threats.

Unfortunately in both 5-year review, the Service exempted Hay's spring amphipod from recovery planning because it determined that "management options were so limited that no conservation benefits would ensue from a recovery plan."<sup>20</sup> This exemption violated the Endangered Species Act, which only allows the Service to bypass the otherwise-mandatory duty to complete recovery planning if the Service "finds that such a plan will not promote the conservation of the species."<sup>21</sup> The Service has defined when the development of a recovery plan would not "promote the conservation of the species" in its Recovery Guidance.<sup>22</sup> According the guidance, there are only two scenarios where recovery planning may be skipped. First, the Guidance exempts recovery planning for species whose historic and current ranges occur entirely outside the territorial jurisdiction of the United States because the Service has only a few limited options when it comes to helping recover species in foreign nations.<sup>23</sup> Second, the guidance exempts species from recovery planning when "delisting is anticipated in the near future"—in other words if a species is going to be delisted either due to recovery or taxonomic error, completing the recovery planning process would simply be a waste of resources.<sup>24</sup> Finally, the guidance allows a species to be exempted based on other circumstances that are not easily foreseen but in which the species would not benefit from a recovery plan.

The guidance goes on to explain that a species that may be extinct should be exempted from recovery planning, but only temporarily:

If the species is later discovered to exist, recovery planning should commence promptly. In the meantime, a recovery outline can guide surveys and should include a contingency plan in the case of re-discovery of the species. In this case, the species may be only temporarily exempt from the recovery planning requirement.<sup>25</sup>

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<sup>19</sup> Hutchins, B., and D.C. Culver. 2008. INVESTIGATING RARE AND ENDEMIC POLLUTION-SENSITIVE SUBTERRANEAN FAUNA OF VULNERABLE HABITATS IN THE NCR. Report to National Capital Region, National Park Service.

<sup>20</sup> USFWS 2013. HAY'S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION.

<sup>21</sup> 16 U.S.C. 1533(f)(1).

<sup>22</sup> National Marine Fisheries Service & U.S. Fish and Wildlife Service, Interim Recovery Planning Guidance for Threatened and Endangered Species (Ver. 1.3) (Jun. 2010)..

<sup>23</sup> *Id.* at 2.2.1.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

In other words, if a species is extinct, it can be exempted from recovery planning, but a recovery outline should be prepared in the meanwhile. If this is true, it is clearly arbitrary and capricious for the Service to exempt the Hay's spring amphipod from recovery planning because the species is not yet extinct. At an absolute minimum, the Service should have completed a recovery outline for this species years—if not decades—ago. Because the species is *not* extinct it cannot be exempted from recovery planning. The Service has more than a duty to avoid extinction, it has the more “far-reaching” duty to “bring such species back from the brink so that they may be removed from the protected class, and [it] must use *all necessary methods to do so.*”<sup>26</sup>

Finally, as mentioned above, both 5-year reviews explicitly recognized the necessity of creating a recovery plan for Hay's spring amphipod.<sup>27</sup> The Service cannot simultaneously state that a species is exempt from recovery planning and also that recovery planning would benefit the species. The 2013 review recommends the following actions to improve the conservation status of the amphipod, all of which should be included in a recovery outline and plan for this species:

- Take additional amphipod samples at the three sites where probable Hay's spring amphipods have been found in order to allow confirmation of the species' occurrence.
- Carry out a study to delineate recharge areas for the springs supporting Hay's spring amphipod. Once this delineation is complete, designate areas within the parks to protect these recharge zones.
- Redirect existing artificial surface flows away from springs and spring runs supporting this species.
- To the extent possible, prevent any increase in impervious surfaces or clearing of forest lands within the drainages and recharge areas supporting this species.
- Maintain a buffer area around each of the springs/seeps and associated spring runs where recreational activities, construction activities (including new trails), and activities adversely affecting water quality are prohibited or discouraged.<sup>28</sup>

## CONCLUSION

Without recovery planning, the Hay's spring amphipod and will likely go extinct. For the above reasons, the Center hereby petitions the Service to meet its mandatory duty under the ESA to develop a recovery plan for the Hay's spring amphipod to ensure its full recovery.

Respectfully submitted,



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<sup>26</sup> *Loggerhead Turtle v. County Council of Volusia County, Florida*, 92 F.Supp.2d 1296, 1302 (M.D. Florida, Orlando Division, 2000).

<sup>27</sup> USFWS 2013. HAY'S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION.

<sup>28</sup> USFWS 2013. HAY'S SPRING AMPHIPOD (STYGOBROMUS HAYI) 5-YEAR REVIEW: SUMMARY AND EVALUATION.