

March 29, 2021

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U.S. Department of Interior  
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[exsec@ios.doi.gov](mailto:exsec@ios.doi.gov)

*Re: Nomination of Rhyolite Ridge Area of Critical Environmental Concern*

To the Bureau of Land Management and Department of Interior:

Attached you will find a petition submitted pursuant to the Administrative Procedure Act formally nominating 4,015 acres of public land in the Tonopah Field Office as the Rhyolite Ridge Area of Critical Environmental Concern (ACEC). We urge you to amend the Tonopah Field Office Resource Management Plan to protect the habitat for the imperiled plant Tiehm's buckwheat (*Eriogonoum tiehmii*) and an appropriate buffer as a part of this ACEC.

Thank you for your consideration of this matter,



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**Petition to the Bureau of Land Management and Department of Interior  
To Nominate  
Rhyolite Ridge Area of Critical Environmental Concern**



**Center for Biological Diversity**

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March 29, 2021

## Summary

Tiehm's buckwheat is a rare plant that grows on just 10 acres of public lands in the Rhyolite Ridge area of the Silver Peak Range in western Nevada. The Rhyolite Ridge area possesses significant scenic and aesthetic values, and is composed of unique geology. Over millennia, Tiehm's buckwheat has become highly adapted to the mineralized substrates where it grows. It is a unique example of a soil specialist plant. Tiehm's buckwheat faces the threat of extinction from numerous factors including from mining, and invasive plants, off-highway vehicles. Protecting these public lands as an Area of Critical Environmental Concern (ACEC) would help prevent the extinction of this rare species and ensure the integrity of its habitat for future generations.

## Legal & Regulatory Background

The Federal Land Policy and Management Act (FLPMA) is the “organic act” for the Bureau of Land Management (BLM). In FLPMA Congress declared that it is the official policy of the U.S. Government to manage all public lands “in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; [and] that, where appropriate, will preserve and protect certain public lands in their natural condition.”<sup>1</sup>

To carry out this policy, FLPMA requires BLM to “give priority to the designation and protection of areas of critical environmental concern,” or ACECs, in the development and revision of land-use plans.<sup>2</sup> The statute defines “areas of critical environmental concern” as follows:

[A]reas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.<sup>[3]</sup>

BLM regulations direct the agency to consider the designation of ACECs based on two primary criteria: relevance and importance. “Relevance” is defined as the presence of “a significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or natural hazard.”<sup>4</sup> “Importance” requires “substantial significance and values.”<sup>5</sup> “This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.”<sup>6</sup>

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<sup>1</sup> 43 U.S.C. § 1701(8).

<sup>2</sup> *Id.* § 1712(c).

<sup>3</sup> *Id.* § 1702(a). *See also* 43 C.F.R. § 1601.0-5(a); *Or. Natural Desert Ass'n v. BLM*, 625 F.3d 1092 (9th Cir. 2010).

<sup>4</sup> 43 C.F.R. § 1610.7-2(a).

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

Each area that meets the relevance and importance criteria must be identified as a potential ACEC and “fully considered” for designation and protection in resource management planning.<sup>7</sup> “Designation is based on whether or not a potential ACEC requires special management attention in the selected plan alternative.”<sup>8</sup>

BLM’s ACEC Manual sets out more specific requirements for the designation and management of ACECs. It specifically requires that each area recommended for consideration as an ACEC, including those externally nominated, be considered thoroughly by BLM through collection of data on relevance and importance, and evaluated by an interdisciplinary team.<sup>9</sup>

Once the relevant and important values are identified, along with a need for special management attention, BLM is required to ensure protection of these special values. If any nominated ACEC is not designated, the analysis supporting the conclusion “must be incorporated into the plan and associated environmental document.”<sup>10</sup>

Management prescriptions for ACECs must be “fully developed” in the relevant RMP.<sup>11</sup> BLM’s guidance on this issue specifically includes size requirements and mineral withdrawal. Section 1613.22.B.2 of the ACEC Manual (“Size of area to receive special management attention”) states that an ACEC must be as large as is necessary to protect the important and relevant values. In addition, the Manual recognizes mineral withdrawal as an appropriate management prescription for protecting ACEC values.<sup>12</sup>

Under FLPMA, the BLM State Director formally designates ACECs through the resource management planning process.<sup>13</sup> Here, the State Director may use the resource management plan (“RMP”) amendment process to designate the Rhyolite Ridge area as an ACEC.<sup>14</sup> As BLM regulations state:

A resource management plan may be changed through amendment. An amendment shall be initiated by the need to consider monitoring and evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan.<sup>15]</sup>

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<sup>7</sup> U.S. Dep’t of the Interior, Bureau of Land Mgmt., ACEC Manual §§ 1613.21, 1613.22.

<sup>8</sup> *Id.* § 1613.22.B.1.

<sup>9</sup> *Id.* § 1613.21 (“Identifying Potential ACECs”).

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* § 1613.22 (“Develop Management Prescriptions for Potential ACECs”).

<sup>12</sup> *Id.* § 1613.33.C (“Provision for Special Management Attention”).

<sup>13</sup> 43 C.F.R. § 1610.7-2.

<sup>14</sup> *See id.* § 1610.7-2(b).

<sup>15</sup> *Id.* § 1610.5-5.

The environmental consequences of a plan amendment must be considered through the National Environmental Policy Act (“NEPA”) environmental review process.<sup>16</sup> In addition, the amendment process must include public involvement, interagency cooperation, and “any other data or analysis that may be appropriate.”<sup>17</sup> “If the amendment is being considered in response to a specific proposal, the analysis required for the proposal and for the amendment may occur simultaneously.”<sup>18</sup>

The RMP amendment designating the ACEC “shall include the general management practices and uses, including mitigation measures, identified to protect the ACEC.”<sup>19</sup>

### **The 1997 Tonopah RMP and 1998 Notice of Intent**

The Rhyolite Ridge ACEC was originally proposed by BLM in 1998, shortly after BLM completing revisions to the Tonopah Resource Management Plan (“RMP”). Even though FLPMA requires BLM to “give priority to the designation and protection,” of ACECs, the final 1997 version of the Tonopah RMP failed to do so. In fact, the plan revision did not designate a single ACEC in the entire Tonopah planning area. In its record of decision (“ROD”) finalizing the RMP revision, BLM explained that, following the submission of several protest letters, BLM deemed it “necessary to withhold the decisions to designate several Areas of Critical Environmental Concern (ACECs).”<sup>20</sup> However, the ROD stated that “[d]ecisions to designate ACECs” would “be prepared during the next two years [1997-1999] as a Plan Amendment to the Tonopah RMP.”<sup>21</sup>

On February 11, 1998 BLM published in the Federal Register a “notice of intent” to prepare an RMP amendment designating several ACECs.<sup>22</sup> Among the proposed ACECs listed in the notice of intent was a “Rhyolite Ridge” ACEC.<sup>23</sup> The reason given for the proposed designation was an “uncommon plant,” apparently referring to the rare endemic Tiehm’s buckwheat (*Eriogonum tiehmii* Reveal, Polygonaceae).<sup>24</sup>

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<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.* at § 1610.7-2(b).

<sup>20</sup> U.S. Dep’t of the Interior, Bureau of Land Mgmt., Approved Tonopah Resource Management Plan and Record of Decision (Oct. 1997) (Tonopah RMP ROD), at 3.

<sup>21</sup> *Id.* at 34.

<sup>22</sup> U.S. Dep’t of the Interior, Bureau of Land Mgmt., Areas of Critical Environmental Concern (ACEC) Plan Amendment to the Tonopah Resource Management Plan and Record of Decision, 63 Fed. Reg. 6952, 6952-53 (Feb. 11, 1998).

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

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

## Tiehm's Buckwheat

Tiehm's buckwheat is an extremely rare plant species found only on ten isolated acres of BLM-administered public lands in the Rhyolite Ridge area of the Silver Peak Range mountains of western Nevada.<sup>25</sup>

A long-lived, mat-forming perennial shrub uniquely associated with certain mineralized clay soils,<sup>26</sup> Tiehm's buckwheat has been designated by BLM as a Sensitive Species and proposed for listing under both the Federal Endangered Species Act ("ESA"), 16 U.S.C. §§ 1532-33, and the Nevada Protected Species of Native Flora statute, NRS § 527.270. With a total population of approximately 20,000 individual plants,<sup>27</sup> this limited, endemic species is vulnerable to a variety of anthropogenic threats including climate change, proliferation of invasive species, and off-road vehicle use, but mining presents the most significant and immediate threat.<sup>28</sup>

The entire global population of Tiehm's buckwheat lies within the proposed project area for the Rhyolite Ridge open-pit lithium/boron mine,<sup>29</sup> which is currently under active consideration for environmental review and federal permitting. BLM has publicly stated that it intends to issue a permit for the Rhyolite Ridge project by January of 2022.<sup>30</sup> According to recent letter signed by over 100 scientists, the project "threatens the continued existence of Tiehm's buckwheat."<sup>31</sup>

The mining project has already had a substantial impact. In the summer of 2019, BLM authorized mining exploration activities in and around the plant's six subpopulations, including road grading, test-well drilling, borehole drilling, and pit-digging.<sup>32</sup> Over 1.5 miles of road were

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<sup>25</sup> James M. Morefield, Current Knowledge and Conservation Status of *Eriogonum tiehmii* Reveal (Polygonaceae), Tiehm's buckwheat, Status report prepared for U.S. Fish and Wildlife Service, Nevada State Office (1995) [hereinafter "Morefield 1995"].

<sup>26</sup> Arnold Tiehm, Status Report, *Eriogonum tiehmii*, unpublished report, prepared for Nevada Natural Heritage Program (1994); James L. Reveal, *Eriogonum* in the Garden, 65 Rock Garden Quarterly (Spring 2007); U.S. Dep't of the Interior, Endangered and Threatened Wildlife and Plants; 90-Day Findings for Two Species, 85 Fed. Reg. 44265, 44267 (July 22, 2020).

<sup>27</sup> Morefield 1995; Kris F. Kuypers, Summary of Preliminary Results of 2019 Tiehm Buckwheat Survey, unpublished report prepared for U.S. Fish and Wildlife Serv. (2019); Letter from Patrick Donnelly, Nev. State Director, Center for Biological Diversity and Naomi Fraga, Ph.D., Director of Conservation, Cal. Botanic Garden to Douglas Furtado et al. (Sept. 15, 2020); Letter from Patrick Donnelly, Nev. State Director, Center for Biological Diversity and Naomi Fraga, Ph.D., Director of Conservation, Cal. Botanic Garden to Marc Jackson et al. (Nov. 2, 2020).

<sup>28</sup> Center for Biological Diversity, Emergency Petition to the U.S. Fish and Wildlife Service to List Tiehm's Buckwheat (*Eriogonum tiehmii*) Under the Endangered Species Act as an Endangered or Threatened Species and to Concurrently Designate Critical Habitat (Oct. 7, 2019) [hereinafter "Center for Biological Diversity 2019"].

<sup>29</sup> EM Strategies, 2019 Tiehm Buckwheat Survey Plan (Draft, March 2019) [hereinafter "EM Strategies 2019"], on file with the Bureau of Land Mgmt., Battle Mountain Dist., Tonopah Field Office, 1553 South Main Street, PO Box 911, Tonopah, Nevada 89049.

<sup>30</sup> Bureau of Land Mgmt., Rhyolite Ridge EIS Project Schedule (November 19, 2020).

<sup>31</sup> Letter from Dr. Naomi Fraga et al. to John Christopherson, Nevada Division of Forestry (July 20, 2020).

<sup>32</sup> Center for Biological Diversity 2019.

built, and in some areas excavation took place directly adjacent to occupied habitat.<sup>33</sup> Surface disturbance was evident throughout the area, but the true extent of the environmental damage remains unknown because BLM authorized these mining exploration activities as “notice” projects under the Mining Law of 1872, without environmental analysis under NEPA or plan approval under FLPMA.<sup>34</sup>

Mining and mineral exploration presented an existential threat even before over half of the species’ total population was destroyed in a targeted fashion in late Summer and Fall 2020. On September 12, 2020 Center staff visited Rhyolite ridge and found that roughly 40 percent of the total population of Tiehm’s buckwheat had been either destroyed or excavated.<sup>35</sup> Subsequent studies have yet to conclusively determine the cause of these incidents, but together they raise concerns that Tiehm’s buckwheat will become extinct in the very near future.<sup>36</sup>

Other threats to the species include off-highway vehicle (OHV) use, invasive species, and climate change impacts. Impacts from off-road travel have been frequently observed in and around all six Tiehm’s buckwheat subpopulations.<sup>37</sup> OHV travel is one of the fastest-growing forms of outdoor recreation, and unauthorized use of unpaved roads, trails, and “open” lands leads to resource damage and associated management issues.<sup>38</sup> Off-road vehicle use has numerous environmental impacts including increased soil compaction and erosion, disrupted hydrologic function, damage to living plants, diminished seed germination and seedling establishment, decreased soil moisture and nutrients, increased spread of invasive plants, and increased pollution levels.<sup>39</sup> Mineral exploration activities within the habitat of Tiehm’s buckwheat have included grading new roads. This will encourage off-road vehicle activity in areas which did not previously have any, leading vehicular users directly into the habitat of the buckwheat.

Invasive species also pose a significant threat to Tiehm’s buckwheat as they dramatically alter landscapes across the Great Basin Desert, and invasion typically follows human disturbances such as road construction, mining exploration, and OHV travel. One invasive species observed within and adjacent to all populations of Tiehm’s buckwheat habitat is *Halogeton glomeratus* (saltlover). Halogeton was accidentally introduced to the Great Basin in the early 20th century,

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<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> Letter from Naomi Fraga, Ph.D., Cal. Botanic Garden to Marc Jackson, Field Supervisor, U.S. Fish and Wildlife Serv., Reno Office, et al. (Sept. 28, 2020).

<sup>36</sup> *See, e.g.*, Scott Sonner, Massive Damage of Rare Plants Probed at Nevada Mine Site, Associated Press (Sept. 20, 2020).

<sup>37</sup> *See, e.g.*, Center for Biological Diversity 2019; Letter from Allison N. Melton, Staff Atty., Center for Biological Diversity to Leilani Doktor Anthony D. Ortiz, U.S. Dep’t of Justice, Nov. 16, 2020.

<sup>38</sup> Wrangle, North American Sagebrush Steppe, Global Rangelands (2019), available at: <https://wrangle.org/ecotype/north-american-sagebrush-steppe-and-shrubland>

<sup>39</sup> *Id.*

and by mid-century had spread to all of the intermountain and mountain west states.<sup>40</sup> Its invasion typically follows human disturbance, including overgrazing and road construction.<sup>41</sup> It is highly adapted to saline and mineralized soils, though not exclusive to them.<sup>42</sup> Since mining exploration disturbances were first observed in June 2019, this invasive species has rapidly spread throughout the recently disturbed areas, including newly graded roads and well pads.<sup>43</sup> Additional threats recently observed at the Tiehm's buckwheat habitat include cattle grazing and recreational shooting.

All of these threats are compounded by the effects of global climate change. Data from the past 50,000 years shows that the Great Basin is highly sensitive to climactic change.<sup>44</sup> Heat waves and drought have become more common throughout the southwestern United States, with earlier spring snowmelt.<sup>45</sup> The state of Nevada recorded a temperature increase of two degrees Fahrenheit within the last century.<sup>46</sup> Endemic plants are at far greater risk of extinction, and narrow endemic plants that are restricted to specific soil types and within a narrow elevation band are the most vulnerable to climactic shifts.<sup>47</sup> Both conditions apply to Tiehm's buckwheat.

As temperatures increase, so does the likelihood for species shifts.<sup>48</sup> There is a high probability of localized extinctions and displacement of native species with shifts in distribution and abundance for sensitive plants species.<sup>49</sup> Moreover, as precipitation events become rarer, the risk of a drought lasting longer than 35 years goes up by 50 percent, and "persistent drought" goes up by 30-40 percent in southern Nevada.<sup>50</sup> Variability in precipitation is harmful to Tiehm's buckwheat. In fact, low precipitation could prevent reproduction and recruitment of new individuals from the seed bank.

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<sup>40</sup> James A. Young and William S. Longland, Impact of Alien Plants on Great Basin Rangelands, 10(2) Weed Technology 384-391 (2010).

<sup>41</sup> Jeffrey J. Duda et al., Differences in native soil ecology associated with invasion of the exotic annual chenopod, *Halogeton glomeratus*, 38 Biol. Fertil. Soils 72-77 (2003).

<sup>42</sup> James A. Young, Halogeton grazing management: historical perspective, 55 J. Range Manage. 309-311 (2002).

<sup>43</sup> Center for Biological Diversity 2019.

<sup>44</sup> Jeanne C. Chambers, Great Basin Factsheet Series 2016—Information and tools to restore and conserve Great Basin ecosystems," Great Basin Fire Science Exchange (2016) [hereinafter "Chambers 2016], available at: [https://www.fs.fed.us/rm/pubs\\_journals/2016/rmrs\\_2016\\_chambers\\_j003.pdf](https://www.fs.fed.us/rm/pubs_journals/2016/rmrs_2016_chambers_j003.pdf)

<sup>45</sup> U.S. Env'tl. Protection Agency, What Climate Change Means for Nevada (2016) <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nv.pdf>

<sup>46</sup> *Id.*

<sup>47</sup> Chambers 2016.

<sup>48</sup> Jeanne C. Chambers, Climate Change and the Great Basin (U.S. Dept. of Agriculture 2008) [https://www.fs.fed.us/rm/pubs/rmrs\\_gtr204/rmrs\\_gtr204\\_029\\_032](https://www.fs.fed.us/rm/pubs/rmrs_gtr204/rmrs_gtr204_029_032)

<sup>49</sup> *Id.*

<sup>50</sup> Joanne Skelly, Climate Change Impacts on Nevada, The Record Courier (Jan. 16, 2019). <https://www.recordcourier.com/opinion/climate-change-impacts-on-nevada/#>

## ACEC Proposal

For all of these reasons, the Center hereby petitions BLM and the Department of the Interior (“DOI”) to amend the Tonopah RMP to designate the Rhyolite Ridge ACEC, develop appropriate management prescriptions for the ACEC, and withdraw all lands within the proposed ACEC boundary from mineral entry pursuant to FLPMA, 43 U.S.C. § 1712(c), BLM regulations at 43 C.F.R. §§ 1610.5-5 and 1610.7-2, and the Administrative Procedure Act (“APA”), 5 U.S.C. § 555.<sup>51</sup>

The Rhyolite Ridge area meets BLM’s regulatory criteria for relevance and importance due to the presence of Tiehm’s buckwheat. In addition, the various imminent threats faced by Tiehm’s buckwheat require “special management attention.”<sup>52</sup>

BLM regulations define “relevance” as “a significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or natural hazard.”<sup>53</sup> Tiehm’s buckwheat falls within this definition as a “significant”—indeed, an irreplaceable—“natural system or process.” As noted, the species is taxonomically and ecologically unique, specially adapted to mineralized soils in the Rhyolite Ridge area, and exists nowhere else on Earth. The significant biological and ecological value of Tiehm’s buckwheat has previously been recognized by BLM, both through the 1998 proposal for the Rhyolite Ridge ACEC and through the designation of Tiehm’s buckwheat as a BLM “sensitive” species.

The proposed Rhyolite Ridge ACEC also meets BLM’s criteria for “importance.” Under BLM regulations, “importance” requires “substantial significance and values.”<sup>54</sup> This “generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.”<sup>55</sup> The “substantial significance and value” of Tiehm’s buckwheat was recognized by BLM through its 1998 ACEC proposal, and was made abundantly clear this past summer, when support emerged from scientists and conservationists across the country for the species’ conservation and protection.

A July 20, 2020 letter from over 100 scientists to the Nevada Division of Forestry stated:

The threat to Tiehm’s buckwheat highlights the vulnerability of narrowly endemic species on federal public lands and the need for the State to support and protect its

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<sup>51</sup> The APA provides that an “interested person may appear before an agency or its responsible employees for the presentation, adjustment, or determination of an issue, request . . . or in connection with an agency function.” 5 U.S.C. § 555(b). When the agency is presented with such a matter, the agency “shall proceed to conclude a matter presented to it . . . within a reasonable time.” *Id.* The APA also requires that “[p]rompt notice . . . be given of the denial in whole or in part of a written application, petition, or other request of an interested person made in connection with any agency proceeding.” *Id.* § 555(e); 43 C.F.R. § 14.3 (same); 5 U.S.C. § 551(5), (12) (“agency proceeding” includes “rule making.”). Unless affirming a prior denial or when the denial is self-explanatory, “the notice shall be accompanied by a brief statement of the grounds for denial.” *Id.*

<sup>52</sup> BLM ACEC Manual § 1613.22.B.1.

<sup>53</sup> 43 C.F.R. § 1610.7-2(a).

<sup>54</sup> *Id.*

<sup>55</sup> *Id.*

natural heritage. Th[e Rhyolite Ridge mining] project has elevated Tiehm’s buckwheat status [sic] as one of the most at risk plant species that is threatened with extinction in the United States.<sup>[56]</sup>

A separate January 11, 2021 letter, also signed by over 100 scientists in addition to Nevada elected officials, urged the Biden Administration to take immediate action to protect Tiehm’s buckwheat. That letter stated:

Because more than 50% of the species has been partially or completely destroyed due to recent events, Tiehm’s buckwheat is now one of the plant species most at-risk of extinction in the United States. We ask you to . . . direct the U.S. Fish and Wildlife Service to immediately list Tiehm’s buckwheat as endangered under the Endangered Species Act using the temporary emergency listing provision. Second, we ask that you direct the U.S. Fish and Wildlife Service to complete its 12-month review of the species within 30 days and make the emergency endangered species protections permanent. And third, we ask that you direct the Bureau of Land Management to immediately take corrective measures to address the ongoing destruction of the species, including fencing, security, habitat restoration, and other measures.

We are currently faced with a global extinction crisis. A recent global assessment found that there have been at least 600 known recent plant species extinctions, and that we are losing plant species at a rate 500 times higher than the background extinction rate. Plant conservation is essential to preserving our natural heritage. By protecting Tiehm’s buckwheat we can ensure that Nevada’s and the United States’ irreplaceable biological diversity is preserved for future generations.<sup>[57]</sup>

The various threats faced by this rare endemic species clearly require “special management attention” warranting ACEC designation. In fact, Tiehm’s buckwheat’s status as a BLM “sensitive” species compels this conclusion. BLM defines “sensitive” or “special status” species as: “(1) species listed or proposed for listing under the [ESA], and (2) species *requiring special management consideration* to promote their conservation and reduce the likelihood and need for future listing under the ESA.”<sup>58</sup> The objectives of this designation are “to conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species,” and “to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA.”<sup>59</sup> BLM must “ensure that actions requiring [BLM] authorization or approval . . . are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of

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<sup>56</sup> Letter from Dr. Naomi Fraga et al. to John Christopherson, Nevada Division of Forestry (July 20, 2020).

<sup>57</sup> Letter from Nevada Assemblywoman Sarah Peters et al. to President-Elect Joseph R. Biden, Jr. (Jan. 11 2021).

<sup>58</sup> BLM Manual 6840 - Special Status Species Management § 6840.01 (2008) (emphasis added).

<sup>59</sup> *Id.* § 6840.02.

the ESA or other provisions of [BLM sensitive species] policy.”<sup>60</sup> BLM must also manage sensitive species and their habitats “to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat,” by, among other things, “prioritizing Bureau sensitive species and their habitats for conservation action.”<sup>61</sup> In other words, BLM must implement “practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species’ habitat on BLM-administered lands.”<sup>62</sup>

Despite this designation, however, Tiehm’s buckwheat has not received special management consideration, and as a consequence currently faces existential threats from mining development, invasive species, OHV use, and other unknown factors contributing to the recent destruction or removal of a significant percentage of the plant’s total population. Management under BLM’s default “multiple use” policy has utterly failed to adequately protect Tiehm’s buckwheat or its habitat. Designating the plant’s known range as an ACEC, with a reasonable buffer to prevent further impacts, will help ensure that BLM complies with its own special status species policy. Further, BLM is required under FLPMA to prioritize the designation of ACECs, something that has not yet occurred in the development and implementation of the Tonopah RMP. Although BLM’s 1998 notice of intent recognizes the site’s eligibility for designation, BLM has failed to take further action to designate and protect the Rhyolite Ridge ACEC. We therefore request, pursuant to FLPMA, the APA, and BLM’s own regulations, the designation of an ACEC in the Rhyolite Ridge area to protect the unique environmental values therein.

### **Proposed Boundary and Need for Buffer**

The proposed Rhyolite Ridge ACEC boundary includes all six subpopulations of Tiehm’s buckwheat, and a one-mile buffer surrounding them, for a total of 4,015 acres. This buffer is intended to protect the buckwheat from potential harms from nearby mining, which is the chief threat faced by the plant. Specifically, mining can harm air quality through the creation of dust, and emissions of particulate matter and pollutants which can cause harm to nearby plant and animal life. A one-mile buffer will help protect Tiehm’s buckwheat from the worst of these effects.

The proposed Rhyolite Ridge Mine would emit numerous pollutants, including annual emissions of 43 tons PM<sub>2.5</sub>; 24 tons H<sub>2</sub>SO<sub>4</sub>; 78 tons SO<sub>2</sub>; 1 ton H<sub>2</sub>S; 92 tons NO<sub>x</sub>; 20 tons CO; and 4 tons VOCs.<sup>63</sup> While there are a number of factors influencing air quality, including hourly as opposed to annual emission rates, it’s clear that the emissions from Rhyolite Ridge Mine would be significant. These emissions could have a negative effect on Tiehm’s buckwheat, as explained below. Including a one mile protective buffer in the ACEC boundary would help ameliorate those effects, at least to some degree.

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<sup>60</sup> *Id.*

<sup>61</sup> *Id.* § 6840.02(C)(5).

<sup>62</sup> *Id.* at Glossary 5.

<sup>63</sup> Nev. Div. of Envntl. Protection, 2021 Rhyolite Ridge Mine Class 2 Air Quality Operating Permit.

The 2018 EPA Integrated Science Assessment for Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter-Ecological Criteria (2018 NO<sub>x</sub>/SO<sub>x</sub>/PM ISA) details the effects of nitrogen and sulfur deposition and how it is related to particulate matter (PM). This 2018 ISA, along with other studies, shows PM is a complex mixture of extremely small particles and liquid droplets.<sup>64</sup> These particles can be made up of a number of components including nitrogen and sulfur compounds, resulting in PM being a significant contributor to nitrogen and sulfur deposition.<sup>65</sup> The majority of PM<sub>2.5</sub> mass in the United States is made up of nitrogen and sulfur compounds.

The 2018 NO<sub>x</sub>/SO<sub>x</sub>/PM ISA found casual relationships between nitrogen deposition and the alteration of the physiology and growth of terrestrial organisms and the productivity of terrestrial ecosystems as well as alterations of species richness, community composition and biodiversity in terrestrial ecosystems.<sup>66</sup> These findings were similar to the 2009 Integrated Science Assessment for PM, which found, “[e]cological effects of PM include direct effects to metabolic processes of plant foliage; to total metal loading resulting in alteration of soil biogeochemistry and microbiology, plant growth and animal growth and reproduction; and contribution to total organics loading resulting in bioaccumulation and biomagnification across trophic levels.”<sup>67</sup>

The 2018 NO<sub>x</sub>/SO<sub>x</sub>/PM ISA finding is supported by scientific literature which has found air pollution contributes to nitrogen and sulfur deposition, which are causing acidification, nitrogen enrichment, and sulfur induced mercury methylation in sensitive ecosystems throughout the U.S.<sup>68</sup> One study even concluded the current NAAQS is not set at a level which will protect ecosystems from the effects of nitrogen and sulfur deposition in many parts of the United States.<sup>69</sup>

The US Fish and Wildlife Service has found that acid deposition and other consequences of NO<sub>x</sub> and SO<sub>x</sub> emissions are threats to plants listed under the Endangered Species Act, including for the Zuni fleabane (*Erigeron rhizomaxs*),<sup>70</sup> the Mancos milkvetch (*Astragalus humillimus*),<sup>71</sup> and harperella (*Ptilimnium nodosum*).<sup>72</sup>

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<sup>64</sup> U.S. Env'tl. Protection Agency, Particulate Matter (PM) Basics, available at <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM> (last visited June 28, 2020) [hereinafter “EPA 2020”].

<sup>65</sup> *Id.*; U.S. Env'tl. Protection Agency, Health and Environmental Effects of Particulate Matter (PM), available at <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (last visited June 28, 2020); U.S. Env'tl. Protection Agency, Integrated Sciences Assessment for Particulate Matter (December 2009), at 9-165; U.S. Env'tl. Protection Agency, Integrated Science Assessment for Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter Ecological Criteria, 2nd External Review Draft. (June 2018).

<sup>66</sup> EPA 2020.

<sup>67</sup> U.S. Env'tl. Protection Agency, Integrated Sciences Assessment for Particulate Matter (December 2009), at 2-29.

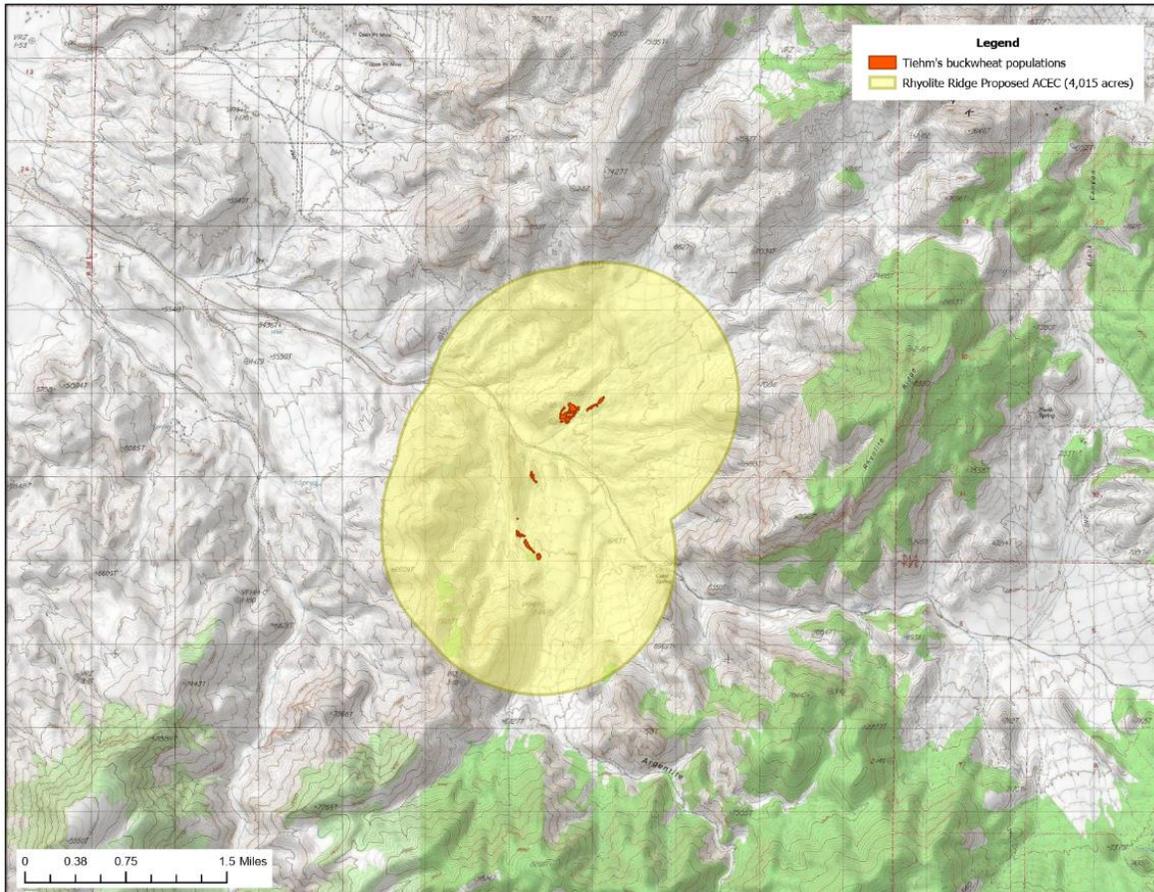
<sup>68</sup> Greaver et al., Ecological effect of nitrogen and sulfur air pollution in the US: what do we know?, 10(7) The Ecological Society of America, *Front Ecol. Environ*; 365-372 (Mar. 29 2012), doi: 10.1890/110049

<sup>69</sup> *Id.*

<sup>70</sup> U.S. Fish & Wildlife Serv., Recovery Plan for Zuni fleabane (*Erigeron rhizomaxs* Cronquist) (1988).

<sup>71</sup> U.S. Fish & Wildlife Serv., Recovery Plan for Mancos milkvetch (*Astragalus humillimus*) (1989).

<sup>72</sup> U.S. Fish & Wildlife Serv., Recovery Plan for harperella (*Ptilimnium nodosum*) (1990).



*Proposed boundary for Rhyolite Ridge Area of Critical Environmental Concern*

Dust is also of concern for Tiehm’s buckwheat. Ambient dust has been shown to negatively affect the ability of plants to set fruit, and also affected the number of seeds per plant, and mean seed weight, meaning that dust has widespread effects on plant reproduction.<sup>73</sup> Ambient dust has also been correlated with plant stress symptoms such as water stress, plant die-back, and smaller leaf size.<sup>74</sup> Appreciable changes to the species composition of shrubland communities have been associated with significant dust deposition.<sup>75</sup> In short, dust can have effects on plant species and communities.

The majority of particulate dust was deposited within 1 kilometer of the site producing the dust at a mining operation studied in the San Bernardino Mountains of California<sup>76</sup>. This suggests that

<sup>73</sup> M.B. Lewis, E.W. Schupp, and T.A. Monaco, Road Dust Correlated with Decreased Reproduction of the Endangered Utah Shrub *Hesperidanthus suffrutescens*, 77(4) *Western North American Naturalist* 430-439 (2017).

<sup>74</sup> T.S. Talley and M. Holyoak, The Effects of Dust on the Federally Threatened Valley Elderberry Longhorn Beetle, 37(5) *Environmental Management* 647-658 (2006).

<sup>75</sup> T. Krippelova, The influence of emissions from a magnesium factory on ruderal communities, *Urban Ecology*, R. Bornkamm, J. A. Lee & M. R. D. Seaward, eds. (Blackwell Scientific Publications, Oxford, 1982).

<sup>76</sup> P.E. Padgett et al., Patterns of Carbonate Dust Deposition: Implications for Four Federally Endangered Plant Species 54(4) *Madroño* 275-285.

a one-mile buffer around Tiehm's buckwheat would be effective at partially mitigating the effects of mining in the area. It would limit the exposure of the species to direct dust impacts and would provide some buffer against deposition of NO<sub>x</sub> and SO<sub>x</sub>.

### **Management Direction**

The ACEC designation and RMP amendment should also include management direction to protect and recover Tiehm's buckwheat in its native habitat. At minimum, this should include withdrawal of all lands within the ACEC from mineral location. BLM's ACEC Manual explicitly recognizes mineral withdrawal as an appropriate management prescription for protecting ACEC values.<sup>77</sup>

BLM should also deny any future requests to develop or extract locatable minerals within the proposed ACEC. This would be consistent with the purpose of the ACEC designation, BLM's special status species policy, and BLM's statutory mandate to prevent "unnecessary and undue degradation" of the public lands. FLPMA, 43 U.S.C § 1732(b). FLPMA, "by its plain terms, vests the Secretary of the Interior with the authority—and indeed the obligation—to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land."<sup>78</sup> In other words, if mining claims cannot be utilized without violating FLPMA's environmental requirements, then they cannot be developed.

In addition to prohibiting future mining development, BLM should take steps to re-acquire any interests in mineral rights within the proposed ACEC that may have already vested.

The ACEC designation should also include management direction to reclaim any roads or other disturbances from mining exploration that has already occurred. Motorized travel, including OHV use, should be limited to existing, designated routes within the ACEC. Finally, BLM should continue investigating the cause of the recent destruction incidents in order to develop appropriate and effective conservation and recovery measures.

### **Conclusion**

Tiehm's buckwheat is an extremely rare plant at risk of extinction, and lives only on BLM-managed public lands in the Rhyolite Ridge area. The Center's proposed Rhyolite Ridge Area of Critical Environmental Concern, protecting the rare plant and a one-mile buffer, would provide essential protection for Tiehm's buckwheat and would help prevent its extinction. The proposed ACEC clearly meets BLM's criteria for relevance and importance. BLM should commence a Resource Management Plan amendment to designate Rhyolite Ridge ACEC and develop regulations to manage it for the protection of the irreplaceable biodiversity located there.

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<sup>77</sup> BLM Manual 1613 § 1613.33.C.

<sup>78</sup> *Mineral Policy Ctr. v. Norton*, 292 F.Supp.2d 30, 42 (D.D.C. 2003).

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