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## *Conservation, Ecology, and Legal Status of the Greater Sage-Grouse*

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Greater sage-grouse are symbolic of the vast, open lands between the Rocky Mountains and the Sierra Nevada and Cascade ranges.<sup>2</sup> But sage-grouse are in trouble. As many as 16 million of these iconic birds once ranged across 297 million acres of sagebrush grasslands, an area of western North America so vast it is sometimes called the Sagebrush Sea.<sup>3</sup> Over the past 200 years, agriculture and development have reduced the bird's range by nearly half, and sage-grouse abundance has steadily declined to perhaps fewer than 50,000 birds today.<sup>4</sup> Scientists believe that the fate of the Greater

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<sup>2</sup> Steven T. Knick & John W. Connelly, *Greater Sage-Grouse and Sagebrush: An Introduction to the Landscape*, in GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS 1, 1 (Steven T. Knick & John W. Connelly eds., 2011).

<sup>3</sup> 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13,910, 13,920–21 (Mar. 23, 2010); see also PBS, THE SAGEBRUSH SEA (2015), available at <http://www.pbs.org/wnet/nature/sagebrush-sea-about/12170/> (last visited Dec. 10, 2018)

<sup>4</sup> EDWARD O. GARTON ET AL., GREATER SAGE-GROUSE POPULATION DYNAMICS AND PROBABILITY OF PERSISTENCE 21 & Fig. 8 (2015), available at <http://www.pewtrusts.org/~media/Assets/2015/04/Garton-et-al-2015-Greater-SageGrouse-Population-Dynamics-and-Persistence-31815.pdf> (last visited Dec. 10, 2018) (current range-wide

sage-grouse may be a harbinger for hundreds of other species dependent upon the West's sagebrush habitats.<sup>5</sup> And the sage-grouse's survival has been the focus of intense and wide-ranging legal battles for the last 16 years.

In 2002, the U.S. Fish and Wildlife Service ("USFWS" or "Service") received the first of several petitions asking the agency to list the Greater sage-grouse as threatened or endangered under the Endangered Species Act ("ESA").<sup>6</sup> In 2005, despite known threats to the bird's persistence, outlined by both state and federal agencies,<sup>7</sup> the Service decided that protection under the ESA was "not warranted" for the species.<sup>8</sup> A federal district court in Idaho reversed that finding due to improper political interference with the listing process and because the Service had arbitrarily ignored the best available science.<sup>9</sup> The court remanded the matter to the agency to make a new determination.

In 2010, the Service determined that ESA protection was "warranted" for Greater sage-grouse because of loss and fragmentation of sagebrush habitat and the inadequacy of the various state conservation plans then in place.<sup>10</sup> This time, the agency relied upon a newly-published monograph commissioned by the U.S. Geological Survey—*Ecology and Conservation of Greater Sage-grouse: A Landscape Species and its Habitats*—regarding

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population estimates based on reconstructing most recent data from each state in the range of the Greater sage-grouse); see also 75 Fed. Reg. at 13,917–23 (USFWS's 2010 estimate of about 535,000 birds left range-wide).

<sup>5</sup> Steven E. Hanser & Steven T. Knick, *Greater Sage-Grouse as an Umbrella Species for Shrubland Passerine Birds: A Multiscale Assessment*, in *GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS* 475, 476–77 (Steven T. Knick & John W. Connelly eds., 2011) (discussing sage-grouse as an "umbrella species" for purposes of developing conservation measures that can benefit other species).

<sup>6</sup> See 75 Fed. Reg. at 13,910.

<sup>7</sup> See, e.g., JOHN W. CONNELLY *et al.* CONSERVATION ASSESSMENT OF GREATER SAGE-GROUSE AND SAGEBRUSH HABITATS (2004), available at <https://wdfw.wa.gov/publications/01118/> (last visited Dec. 10, 2018).

<sup>8</sup> 12-Month Finding for Petitions to List the Greater Sage-Grouse as Threatened or Endangered, 70 Fed. Reg. 2244 (Jan. 12, 2005). In determining whether a species should be listed as threatened or endangered, the USFWS evaluates five factors. 16 U.S.C. § 1533(a)(1) (listing (A) the "present or threatened destruction, modification, or curtailment" of the species' habitat or range; (B) "overutilization for commercial, recreational, scientific, or educational purposes"; (C) "disease or predation"; (D) "inadequacy of existing regulatory mechanisms"; and (E) "other natural or manmade factors affecting its continued existence.")

<sup>9</sup> *W. Watersheds Proj. v. U.S. Fish & Wildlife Serv.*, 535 F. Supp. 2d 1173 (D. Idaho 2007).

<sup>10</sup> 75 Fed. Reg. at 13,910; see also *Or. Natural Desert Ass'n v. Jewell*, 840 F.3d 562, 565–66 (9th Cir. 2016).

the imperiled status of the sage-grouse and its habitat. The monograph collected unprecedented new research on the bird's life history, habitat needs, and threats to its survival and recovery. Much of the new research showed that sage-grouse are affected by habitat disturbance on far greater spatial scales than previously recognized.<sup>11</sup>

Although the sage-grouse “warranted” protection under the ESA, the Service explained that an immediate listing was “precluded by higher priority” work.<sup>12</sup> Again conservationist groups challenged the Service's decision, this time securing a settlement requiring the Service to make a final listing decision by the end of fiscal year 2015.<sup>13</sup> By 2013, a team of state and federal experts described “an urgent need to ‘stop the bleeding’ of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion.”<sup>14</sup>

In 2015, the Bureau of Land Management (“BLM”) and U.S. Forest Service unveiled a series of sweeping plans—amending 98 land use plans across ten western states—to protect Greater sage-grouse and their sagebrush habitats on public lands throughout the West.<sup>15</sup> The new federal plans represented an important step forward for sage-grouse conservation, and were the main factor cited by the USFWS in revising its earlier decision and determining in late 2015 that an ESA listing was now “not warranted” for the Greater sage-grouse.<sup>16</sup> Then-Secretary of the Interior, Sally Jewell, described the new plans as an “epic conservation effort [that] will benefit westerners and hundreds of species that call this iconic landscape home, while giving states,

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<sup>11</sup> Knick & Connelly, *supra* note 2, at 2.

<sup>12</sup> 75 Fed. Reg. at 13,910.

<sup>13</sup> *In Re Endangered Species Act Section 4 Deadline Litigation – MDL No. 2165*, No. 1:10-mc-00377-E65 (D.D.C. July 12, 2011) (Dkt # 42-1).

<sup>14</sup> U.S. FISH & WILDLIFE SERVICE, GREATER SAGE-GROUSE (*CENTROCERCUS UROPHASIANUS*) CONSERVATION OBJECTIVES: FINAL REPORT (2013), available at [http://www.sagegrouseinitiative.com/wp-content/uploads/2013/07/USFWS\\_ConservationObjectives-report.pdf](http://www.sagegrouseinitiative.com/wp-content/uploads/2013/07/USFWS_ConservationObjectives-report.pdf) (last visited Dec. 10, 2018).

<sup>15</sup> This article focuses on the BLM plans because that agency manages almost half of the land currently occupied by Greater sage-grouse—and more than three-quarters of the bird's range on federally-managed public lands—with smaller portions managed or owned by Tribes, States, the Forest Service and other federal agencies, and private landowners. See 12-Month Findings on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59,858, 59,866 (Oct. 2, 2015).

<sup>16</sup> *Id.* at 59,871, 59,887.

businesses and communities the certainty they need to plan for sustainable economic development.”<sup>17</sup>

The federal plans spawned a steady stream of lawsuits from industry groups and state and local governments.<sup>18</sup> In general, the groups were concerned that the plans place too many restrictions on activities such as oil and gas development, mining operations, and livestock grazing. Some of these plaintiffs reprised a theme that the new plans unfairly imposed top-down management from Washington, D.C., ignoring local conditions and local input.<sup>19</sup> In all of these lawsuits, the plaintiffs have asked the courts to enjoin implementation of and vacate the BLM’s sage-grouse plans.

Concerned that this would leave the bird unprotected save for inconsistent state plans generally not binding on federal public lands, several conservation groups moved to intervene in the anti-grouse plan suits. Several other conservation groups filed their own lawsuit highlighting alleged shortcomings in the federal plans.<sup>20</sup> These groups argue that the plans do not adequately identify and protect priority habitats—failing, for example, to identify winter concentration areas and essential migratory corridors. The groups also point to the plans’ failure to adopt larger disturbance buffers around

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<sup>17</sup> U.S. Fish & Wildlife Service, *Historic Conservation Campaign Protects Greater Sage-Grouse*, press release (Sept. 22, 2015), available at [https://www.fws.gov/news/ShowNews.cfm?ref=historic-conservation-campaign-protects-greater-sage-grouse-&\\_ID=35237](https://www.fws.gov/news/ShowNews.cfm?ref=historic-conservation-campaign-protects-greater-sage-grouse-&_ID=35237) (last visited Dec. 10, 2018).

<sup>18</sup> *Cahill Ranches, Inc. v. BLM*, No. 1:17-cv-960-CL (D. Or. filed June 19, 2017); *Bd. of Cnty. Commr’s of the Cnty. of Garfield, Colo. v. Zinke*, No. 1:17-cv-01199-WYD (D. Colo. filed May 15, 2017); *Harney Soil & Water Conservation Dist. v. U.S. Dep’t of the Interior*, No. 1:16-cv-2400-EGS (D.D.C. filed Dec. 7, 2016); *W. Energy Alliance v. U.S. Dep’t of Interior*, No. 16-cv-112 (D.N.D. filed May 12, 2016); *Am. Exploration & Mining Ass’n v. U.S. Dep’t of the Interior*, No. 16-cv-737 (D.D.C. filed Apr. 19, 2016); *Wyo. Coalition of Local Gov’ts v. U.S. Dep’t of Interior*, No. 2:16-cv-41 (D. Wyo. filed Mar. 1, 2016); *Herbert v. Jewell*, No. 2:16-cv-101 (D. Utah filed Feb. 4, 2016); *Wyo. Stock Growers Ass’n v. U.S. Dep’t of Interior*, No. 2:15-cv-181 (D. Wyo. filed Oct. 14, 2015); *Otter v. Jewell*, No. 1:15-cv-1566 (D.D.C. filed Sept. 25, 2015); *W. Exploration, LLC v. U.S. Dep’t of the Interior*, No. 3:15-cv-491 (D. Nev. filed Sept. 23, 2015).

<sup>19</sup> See, e.g., *Cahill Ranches*, No. 1:17-cv-960-CL, Dkt # 1, ¶ 1 (June 19, 2017) (“This is a classic case in which a federal agency, driven by pressure to make a decision at a national level, ignores a decision by the same agency at the local level on the same matter. . . . The headquarters’ decision was made without any apparent consideration of the local allotment-level decision, the localized facts supporting the local decision, and without any explanation that supports the reversal of position.”).

<sup>20</sup> *W. Watersheds Proj. v. Schneider*, No. 1:16-cv-00083-BLW (D. Idaho filed Feb. 25, 2016).

all-important breeding areas, to impose more concrete standards for sagebrush habitat integrity, and to eliminate vegetation treatments that degrade sagebrush habitat.<sup>21</sup>

For some time, Oregon was the only state whose BLM sage-grouse plan was not subject to any direct challenge in federal court. Among other reasons, BLM's plan for Oregon resulted in large measure from collaborative work undertaken by the Governor of Oregon's Sage Grouse Conservation Partnership, or "SageCon."<sup>22</sup> The SageCon group sought to coordinate federal, state, and local efforts to address the multiple threats to sage-grouse across the eastern Oregon sagebrush landscape, while also expressly supporting community sustainability. A broad cross-section of stakeholders—including state and local governments, ranchers, landowners, conservation groups and others—worked to create a plan that most felt was an important first step in the difficult task of saving the Greater sage-grouse from extinction.

Eventually, however, not even the Oregon plan would escape challenge.<sup>23</sup> Whether Greater sage-grouse survive in Oregon and beyond ultimately will depend on how federal and state agencies, and the courts, address the threats to this bird's unique adaptation to the landscape in which it lives.

### **Sage-Grouse Ecology**

The Greater sage-grouse is a sagebrush "obligate," meaning it cannot survive without a healthy sagebrush ecosystem to provide its food, cover, and varying seasonal habitats year-round.<sup>24</sup> The bird also is described as a "landscape-scale species" because

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<sup>21</sup> Conservation groups later filed additional lawsuits targeting Department of the Interior guidance that would eliminate the 2015 plans' requirement to prioritize oil and gas leasing outside of sage-grouse habitat. *Mont. Wildlife Fed'n v. Zinke*, No. 4:18-cv-69-BMM (D. Mont. filed Apr. 30, 2018); *W. Watersheds Proj. v. Zinke*, No. 1:18-cv-187-REB (D. Idaho filed Apr. 30, 2018). In September, the district court in Idaho issued a preliminary injunction ordering BLM to stop conducting oil and gas lease sales under the 2018 guidance and instead follow the prior policy, issued in 2010 under the Obama Administration. *W. Watersheds Proj. v. Zinke*, 2018 WL 4550396 (Sept. 21, 2018). As a result, BLM announced it would remove over 1 million acres of sage-grouse habitat from planned lease sales in five Western states. *See, e.g.,* <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/wyoming> (last visited Dec. 10, 2018) (announcement postponing leasing on 578 parcels totaling about 775,000 acres in Wyoming).

<sup>22</sup> *See* <http://orsolutions.org/osproject/sagecon> (last visited Dec. 10, 2018).

<sup>23</sup> *See Cahill Ranches, Inc. v. BLM*, No. 1:17-cv-960-CL (D. Or. filed June 19, 2017).

<sup>24</sup> CLAIT BRAUN ET AL., SEASONAL HABITAT REQUIREMENTS FOR SAGE-GROUSE: SPRING, SUMMER, FALL, AND WINTER, USDA Forest Serv. Proceedings RMRS-P-38, 38–40 (2005); John W. Connelly et al., *Characteristics of Greater Sage-Grouse Habitats: A Landscape Species at Micro- and Macroscales*, in GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS 69, 69

it requires vast, contiguous areas of sagebrush for long-term persistence.<sup>25</sup> Because of the region's harsh and arid conditions and the bird's reliance on different features of the land at different times of the year,<sup>26</sup> home or migratory ranges for sage-grouse can span up to hundreds of square miles.

The sage-grouse's life cycle revolves around the seasons. In the early spring, sage-grouse breed at relatively open sites of low grasses called "leks." The males perform an eye-catching courtship dance, which involves spreading their spiked tail feathers and then inflating brightly colored air sacs on their chest, generating a popping sound that can be heard from nearly two miles away.<sup>27</sup> Like salmon returning from the ocean to spawn in the very stream reach in which they hatched years before,<sup>28</sup> sage-grouse faithfully attend the same leks year after year.

Sage-grouse hens then disperse to nest, some traveling more than 12 miles from the lek. They nest under taller stands of sagebrush, which are vital both as food sources and for concealment from predators. After chicks hatch in May, they eat flowering plants and insects throughout the early brood-rearing period. As the summer progresses and conditions become hotter and drier, sage-grouse move from sagebrush uplands to lower, wetter sites like natural springs and wet meadows. By the late-summer and fall, as other plants and grasses wither or are consumed by other creatures, sage-grouse shift their diet entirely to sagebrush.<sup>29</sup>

The birds continue to depend on sagebrush throughout the winter for both food and cover. They select winter sagebrush stands based on topography and the availability of sagebrush protruding from the snow.<sup>30</sup> At high-elevation sites—where deep snow might otherwise bury sagebrush and preclude over-wintering—sage-grouse

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(Steven T. Knick & John W. Connelly eds., 2011); *see also* *W. Watersheds Proj. v. Salazar*, 843 F. Supp. 2d 1105, 1111–12 (D. Idaho 2012) (describing sage-grouse life history and habitat characteristics).

<sup>25</sup> 75 Fed. Reg. at 13,957.

<sup>26</sup> 75 Fed. Reg. at 13,916.

<sup>27</sup> *See* <https://youtu.be/cLnbiTkj1TQ> (last visited Dec. 10, 2018) (video of the renowned sage-grouse courtship dance).

<sup>28</sup> John W. Connelly, C.A. Hagen & M.A. Schroeder, *Characteristics and Dynamics of Greater Sage-Grouse Populations*, in *GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS* 53, 60 (Steven T. Knick & John W. Connelly eds., 2011).

<sup>29</sup> BRAUN *ET AL.*, *supra* note 24, at 38–40; Connelly *et al.*, *supra* note 28, at 71–80; 75 Fed. Reg. at 13,915–16.

<sup>30</sup> BRAUN *ET AL.*, *supra* note 24, at 40; Connelly *et al.*, *supra* note 28, at 79–80.

seek out windswept ridges where high winds prevent heavy snow accumulation, leaving sagebrush exposed.<sup>31</sup> Sage-grouse typically live between three and six years, but researchers have recorded individuals up to nine years of age.<sup>32</sup>

Importantly, the birds not only move among these seasonal habitats centered around leks, but also migrate across so-called “connectivity corridors” to reach neighboring areas of habitat they need to survive.<sup>33</sup> Migration across these corridors allows local sage-grouse populations to intermix—which is key to promoting genetic diversity and protecting against inbreeding that is detrimental to the species’s survival.<sup>34</sup>

Scientists have identified two remaining strongholds of contiguous sagebrush habitat left in North America—one centered on the area where southeastern Oregon, southwestern Idaho, and northern Nevada meet, and a second centered on southern Wyoming.<sup>35</sup> The Service has explained that, like maintaining habitat connectivity, conservation of these stronghold areas is “essential for the long-term persistence of greater sage-grouse.”<sup>36</sup>

Recent studies have confirmed this. Consider, for example, the sage-grouse that live on Steens Mountain deep in southeastern Oregon’s high desert. Nearly 10,000 feet high and 60 miles long, this massive fault-block mountain is part of an expansive landscape punctuated by the high mountains, broad valleys, and desert playas that characterize the Great Basin. Steens Mountain’s precipitous eastern escarpment towers more than a mile above the prehistoric playa of the Alvord Desert. Less than a million

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<sup>31</sup> CHRISTIAN A. HAGEN, GREATER SAGE-GROUSE CONSERVATION ASSESSMENT AND STRATEGY FOR OREGON: A PLAN TO MAINTAIN AND ENHANCE POPULATIONS AND HABITAT 10, 47, 52–53, 184 (2011), *available at* <http://www.dfw.state.or.us/wildlife/sagebrouse/> (last visited Dec. 10, 2018); Connelly *et al.*, *supra* note 28, at 79–80.

<sup>32</sup> 75 Fed. Reg. at 13,916.

<sup>33</sup> HAGEN, *supra* note 31, at 10; 75 Fed. Reg. at 13,923–24.

<sup>34</sup> Steven T. Knick & Steven E. Hanser, *Connecting Pattern and Process in Greater Sage-Grouse Populations and Sagebrush Landscapes*, in GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS 383, 383–405 (Steven T. Knick & John W. Connelly eds., 2011); Sara J. Oyler-McCance & Thomas W. Quinn, *Molecular Insights Into The Biology of Greater Sage-Grouse*, in GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS 85, 91–92 (Steven T. Knick & John W. Connelly eds., 2011) (genetic research confirming “unique genetic clusters” in neighboring “populations geographically adjacent to one another”).

<sup>35</sup> 75 Fed. Reg. at 13,918–19, 13,957–58.

<sup>36</sup> 75 Fed. Reg. at 13,923, 13,945.

years ago, alpine glaciers on top of the Steens carved dramatic gorges thousands of feet deep.<sup>37</sup>

The Greater sage-grouse on Steens Mountain belong to the biologically-defined Western Great Basin population, one of the most important core populations within the species's western stronghold.<sup>38</sup> The 2011 sage-grouse monograph contained an unprecedented population viability analysis that showed a 100% probability that this population will decline below 500 birds—the minimum size to maintain population viability—in just 100 years if the lands' carrying capacity continues to decline.<sup>39</sup>

An update of this research in 2015 concluded that the Western Great Basin population had an estimated minimum population size of just 1,934 males—a 69% decline from the reconstructed estimate of 6,327 males based on 2007 surveys.<sup>40</sup> The intervening years showed a decline to “abundances lower than ever observed before and approximately 16% of average values close to 11,765 males counted in the 1970s and 1980s.”<sup>41</sup> The authors bluntly described the Western Great Basin population as experiencing “an extinction vortex.”<sup>42</sup>

Unfortunately, this is not an uncommon story. In its annual monitoring report in 2018, the Oregon Department of Fish and Wildlife (“ODFW”) concluded that sage-grouse populations throughout Oregon continue to decline.<sup>43</sup> The state agency estimated that the 2018 spring population in Oregon was 18,421 individuals. This was a 10% decline from 2017 (population estimated at 20,510 birds), following a 7.7% decline

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<sup>37</sup> See <https://www.blm.gov/or/districts/burns/recreation/steens-mtn.php> (last visited Dec. 10, 2018).

<sup>38</sup> See Edward O. Garton *et al.*, *Greater Sage-Grouse Population Dynamics and Probability of Persistence*, in *GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS* 293, 354–56 (Steven T. Knick & John W. Connelly eds., 2011) (describing this population); see also 75 Fed. Reg. at 13,919 (USFWS describing that the “Northern Great Basin Management Zone,” where Steens Mountain is located, is significant because it holds “core populations” that “have the highest reported densities” of birds).

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

<sup>40</sup> GARTON *ET AL.*, *supra* note 4 at 19.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> ORE. DEP'T OF FISH & WILDLIFE, OREGON GREATER SAGE-GROUSE POPULATION MONITORING: 2017 ANNUAL REPORT (2018), available at [https://www.dfw.state.or.us/wildlife/sagegrouse/docs/ODFW\\_2018\\_Sage-Grouse\\_Population\\_Report.pdf](https://www.dfw.state.or.us/wildlife/sagegrouse/docs/ODFW_2018_Sage-Grouse_Population_Report.pdf) (last visited Dec. 10, 2018).

from 2016. The 2018 population had now dropped to 37% below the 2003 baseline population estimate of 29,237 individuals.<sup>44</sup> Other states have reported similar declines.<sup>45</sup>

### Threats to the Sage-Grouse

The sagebrush ecosystem is among the most vulnerable in North America.<sup>46</sup> The sage-grouse is in danger of extinction from fragmentation and loss of its sagebrush habitat and increasing isolation of populations due to human activities, including livestock grazing, energy development and transmission, and ever-expanding motorized transportation networks.<sup>47</sup> Fragmentation takes many forms, from habitat conversion (*e.g.*, elimination of food and cover as weeds spread and replace sagebrush), to construction of roads, fences, power lines, energy facilities, and other human developments, to wildfires and livestock grazing.<sup>48</sup> Any land use that subdivides blocks of intact sagebrush causes fragmentation.<sup>49</sup>

Livestock grazing, for example, is one of the most ubiquitous threats to the sage-grouse.<sup>50</sup> Grazing cattle consume native plants, trample and destroy soils and fragile spring and riparian areas, and increase the spread of sagebrush-replacing weeds.<sup>51</sup> Cattle grazing in nesting areas during the April-May nesting season can cause sage-grouse hens to abandon their nests.<sup>52</sup> The infrastructure of watering systems and

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<sup>44</sup> *Id.* at 4–5.

<sup>45</sup> *See, e.g.*, <https://wgfd.wyo.gov/News/Sage-grouse-chick-production-likely-to-decline-in> (last visited Dec. 10, 2018) (Wyoming Game & Fish Department expecting decline again in 2018 based on an analysis of sage grouse wings provided by hunters); NEVADA DEPARTMENT OF WILDLIFE, NEVADA SAGE-GROUSE LEK COUNTS: EFFORT AND TRENDS (2017), *available at* [http://sagebrushhco.nv.gov/uploadedFiles/sagebrushhconvgov/content/Meetings/2017/2017\\_GS\\_G\\_Lek\\_Counts.pdf](http://sagebrushhco.nv.gov/uploadedFiles/sagebrushhconvgov/content/Meetings/2017/2017_GS_G_Lek_Counts.pdf) (last visited Dec. 10, 2018) (reporting 10% decline in male lek attendance between 2016 and 2017).

<sup>46</sup> 75 Fed. Reg. at 13,916, 13,923, 13,957.

<sup>47</sup> 80 Fed. Reg. at 59,871, 59,887.

<sup>48</sup> *See id.* at 59,887–928 (USFWS comprehensive review of threats to sage-grouse).

<sup>49</sup> *See* 75 Fed. Reg. at 13,927 (defining fragmentation as “the separation or splitting apart of previously contiguous, functional habitat components of a species”).

<sup>50</sup> 75 Fed. Reg. at 13,939–42;

<sup>51</sup> 75 Fed. Reg. at 13,939–40, 13,942.

<sup>52</sup> 75 Fed. Reg. at 13,940.

barbed-wire fencing needed to manage large herds of cattle in the desert also fragment and destroy sagebrush habitat, artificially concentrating cattle in important sage-grouse habitat areas, dewatering natural springs and water courses, and creating thousands of potential breeding grounds for West Nile virus-carrying mosquitoes as water stagnates in reservoirs, troughs, and even cattle hoof prints.<sup>53</sup> The virus is 100% fatal to sage-grouse.<sup>54</sup>

Energy facilities and the power lines needed to transmit electricity to the grid also harm to sage-grouse. According to the Service, power lines directly affect the birds “by posing a collision and electrocution hazard, and can have indirect effects by decreasing lek recruitment, increasing predation, fragmenting habitat, and facilitating the invasion of exotic annual plants.”<sup>55</sup> Power poles afford perches for raptors and ravens that “increase a raptor’s range of vision, allow for greater speed during attacks on prey, and serve as territorial markers.”<sup>56</sup> In the sagebrush sea, where natural perches are limited in areas of relatively low, desert vegetation, raptors are quick to populate new stretches of power lines.<sup>57</sup>

Indeed, whether or not predators actually move into a developed area, and even where healthy sagebrush remains intact around project infrastructure, these types of human activities will result in a “functional” fragmentation and loss of habitat. This is because sage-grouse exhibit strong avoidance behavior toward vertical structures such as power lines or wind turbines.<sup>58</sup> Scientists believe sage-grouse avoid these structures instinctively because the birds know they may provide perches and hunting corridors for predators.<sup>59</sup> The Service has concluded that power lines are “a particularly strong barrier to movement.”<sup>60</sup>

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<sup>53</sup> 75 Fed. Reg. at 13,941; Brett L. Walker & David E. Naugle, *West Nile Virus in Sagebrush Habitat and Impacts on Greater Sage-Grouse Populations*, in *GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS* 127, 129, 132 (Steven T. Knick & John W. Connelly eds., 2011).

<sup>54</sup> See 75 Fed. Reg. at 13,941, 13,967–68; Walker & Naugle, *supra* note 53, at 127–41.

<sup>55</sup> 75 Fed. Reg. at 13,928.

<sup>56</sup> *Id.*

<sup>57</sup> HAGEN, *supra* note 31, at 113; 75 Fed. Reg. at 13,928.

<sup>58</sup> 75 Fed. Reg. at 13,928.

<sup>59</sup> *Id.* at 13,928, 13,951.

<sup>60</sup> *Id.* at 13,928.

Finally, fire is a chief factor associated with sage-grouse declines because it kills many of the sagebrush ecosystem's native plants and recovery requires many decades.<sup>61</sup> It is one of the most significant predictors of whether sage-grouse will abandon their ancestral breeding areas. Studies show that sage-grouse are likely to abandon leks as far as an astounding 33.5 miles from areas that have burned.<sup>62</sup> Thus, even "small increases" in area burned have a "large influence on the probability of lek abandonment."<sup>63</sup> The frequency and intensity of wildfires in the West has increased dramatically in recent decades in response to many factors (and exacerbated by earth's changing climate), for example the invasion of exotic annual grasses such as cheatgrass, which out-compete sagebrush and other native plants and burn easily.<sup>64</sup>

### Sage-Grouse Conservation

One of the great challenges of sage-grouse conservation is to understand and protect not only the seasonal habitat areas the bird needs to survive and reproduce each year—lek sites and nesting, brood-rearing, and over-wintering habitats—but also the bird's migratory and population-level movements.<sup>65</sup> Loss of connectivity between neighboring populations increases population isolation and, therefore, "the probability of loss of genetic diversity and extirpation from stochastic events" such as wildfire or drought.<sup>66</sup> Scientists understand that protecting core regions and maintaining genetic connectivity with more isolated sage-grouse populations "may help reverse or stabilize the processes of range contraction and isolation that have resulted in long-term population declines."<sup>67</sup>

Experts at the U.S. Geological Survey have determined that populations centered around leks within eleven miles of each other are biologically connected.<sup>68</sup> They

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<sup>61</sup> *Id.* at 13,931–35; William L. Baker, *Pre-Euro-American and Recent Fire in Sagebrush Ecosystems*, in *GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS* 185, 185–201 (Steven T. Knick & John W. Connelly eds., 2011).

<sup>62</sup> 75 Fed. Reg. at 13,931; Knick & Hanser, *supra* note 34, at 395, 403.

<sup>63</sup> Knick & Hanser, *supra* note 34, at 403.

<sup>64</sup> *See* 75 Fed. Reg. at 13,931–35.

<sup>65</sup> *See* Knick & Connelly, *supra* note 2, at 1–3.

<sup>66</sup> 75 Fed. Reg. at 13,923.

<sup>67</sup> Knick & Hanser, *supra* note 34, at 383; *see also* 75 Fed. Reg. at 13,914 (USFWS explaining that sage-grouse "populations follow an isolation-by-distance model of restricted gene flow" — meaning "gene flow resulting from movement between neighboring populations rather than being the result of long distance movements of individuals").

<sup>68</sup> *See* 75 Fed. Reg. at 13,923.

discovered that even small disruptions in lek connectivity resulted in “large increases” in probability of lek abandonment.<sup>69</sup> Ultimately, the scientists concluded that maintaining connectivity is “essential for sage-grouse persistence.”<sup>70</sup>

Some state wildlife agencies have built upon that research. For example, Oregon’s Department of Fish and Wildlife based its *Conservation Assessment and Strategy* for Greater sage-grouse on what it described as a “Core Areas” framework.<sup>71</sup> Similar to the U.S. Geological Survey’s work, the ODFW drew circles around lek sites in order to identify statistically significant areas of sage-grouse habitat in Oregon. These are the “areas of greatest biological importance to the persistence [of] sage-grouse populations.”<sup>72</sup> By identifying these most important breeding areas, the Core Areas approach allows land managers “to map and analyze the risks and necessary conservation measures” for each Core Area.<sup>73</sup>

But the agency recognized that the Core Areas approach tells only part of the story. The ODFW’s research showed that this approach, focused solely on local populations’ breeding areas, does not capture the sage-grouse’s distinct winter habitat areas, or the corridors used by neighboring populations to intermix.<sup>74</sup> Thus, the agency also developed a complimentary approach focusing on “connectivity corridors” that link local and regional sage-grouse populations.<sup>75</sup> The agency identified just eight corridors in all of eastern Oregon.<sup>76</sup>

These corridors are among the places that the Service has described as “large areas of relatively unfragmented sage-dominated landscapes which are important for maintaining long-term connectivity” between sage-grouse populations.<sup>77</sup> According to the Department of the Interior’s National Technical Team, connectivity corridors (along with winter concentration areas) are among the “priority habitats” that “have the

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

<sup>70</sup> *Id.*

<sup>71</sup> HAGEN, *supra* note 31, at x–xi, 79–88.

<sup>72</sup> *Id.* at x–xi.

<sup>73</sup> *Id.* at 80.

<sup>74</sup> *Id.* at 81.

<sup>75</sup> *Id.* at 80–81.

<sup>76</sup> *Id.* at 95 (map at Fig. 27).

<sup>77</sup> 75 Fed. Reg. at 13,950.

highest conservation value to maintaining or increasing sage-grouse populations.”<sup>78</sup> Ultimately, protecting these areas is crucial for sage-grouse to continue moving easily in response to disturbances such as wildfires, disease, or the spread of invasive plant species that can overwhelm the sagebrush ecosystem.<sup>79</sup>

### Revisiting the 2015 Sage-Grouse Plans

Given the complexities of the sage-grouse’s habitat requirements and the vast geography and mixed ownership of the landscapes where the bird lives, it is no surprise that building a range-wide conservation plan is no easy—and certainly no uncontroversial—task.<sup>80</sup>

In June 2017, new Secretary of the Interior Ryan Zinke issued an order directing the Department of the Interior to “review” the federal sage-grouse plans implemented just two years earlier.<sup>81</sup> A departmental review team issued what has come to be known as the “Zinke Report,” identifying a series of short- and long-term options to generally weaken or remove protections or processes established in the 2015 plan amendments.<sup>82</sup> Later that year, BLM published a Notice of Intent to reopen the public comment period and then again amend Greater sage-grouse conservation measures in land use plans

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<sup>78</sup> NATIONAL TECHNICAL TEAM, A REPORT ON NATIONAL GREATER SAGE-GROUSE CONSERVATION MEASURES 7 (2011). Interior established and charged this team leading expert sage-grouse scientists with identifying “science-based . . . conservation measures” that are “necessary to promote sustainable sage-grouse populations, and which focus on the threats in each of the management zones.” BLM, NATIONAL GREATER SAGE-GROUSE PLANNING STRATEGY, CHARTER (2011).

<sup>79</sup> See MICHELE R. CRIST, S.T. KNICK, AND S.E. HANSER, RANGE-WIDE NETWORK OF PRIORITY AREAS FOR GREATER SAGE-GROUSE—A DESIGN FOR CONSERVING CONNECTED DISTRIBUTIONS OR ISOLATING INDIVIDUAL ZOOS?, U.S. Geological Survey Open-File Report 2015-1158 (2015); Michele R. Crist, S.T. Knick, and S.E. Hanser, *Range-Wide Connectivity of Priority Areas for Greater Sage-Grouse: Implications for Long-Term Conservation from Graph Theory*, 119 THE CONDOR 44–57 (2017) (“Without maintaining corridors to larger priority areas or a clustered group, isolation of small priority areas could lead to regional loss of Greater Sage-Grouse.” ).

<sup>80</sup> See Hannah Nordhaus, *An awkward bird symbolizes the fight over America’s West*, NAT’L GEOGRAPHIC (Nov. 2018), available at <https://www.nationalgeographic.com/magazine/2018/11/saving-the-sage-grouse/> (last visited Dec. 10, 2018).

<sup>81</sup> SECRETARIAL ORDER 3353, GREATER SAGE-GROUSE CONSERVATION AND COOPERATION WITH WESTERN STATES (2017).

<sup>82</sup> SAGE-GROUSE REVIEW TEAM, REPORT IN RESPONSE TO SECRETARIAL ORDER 3353 (2017) (“Zinke Report”), available at [https://www.doi.gov/sites/doi.gov/files/uploads/so\\_3353.pdf](https://www.doi.gov/sites/doi.gov/files/uploads/so_3353.pdf) (last visited Dec. 10, 2018).

across the West.<sup>83</sup> And earlier this year, BLM issued a state-by-state series of draft amendments and environmental impact statements for public review.<sup>84</sup>

Now, aside from the State of Idaho's lawsuit, which was dismissed for lack of standing,<sup>85</sup> all of the challenges to the 2015 plan amendments are stayed while Interior continues this new round of environmental review. Indeed, even before the end of the first public comment period, the anti-plan amendment plaintiffs already gained significant rollbacks from the 2015 plans. Secretary Zinke announced in October 2017 that he was cancelling a 10 million acre mining withdrawal that had been proposed as part of BLM's 2015 decisions.<sup>86</sup> And in December 2017, he rescinded several BLM policies on mitigation, including eliminating "compensatory" mitigation that would allow the agency to charge fees where, for example, an energy development would result in lost acres of habitat.<sup>87</sup>

There is more than a little tension between the Service's listing decision and the Secretary's decision to revisit the plans. In its 2015 "not warranted" determination, the Service relied upon the habitat protections BLM was amending into its land use plans, including restrictions on oil and gas development and mining, disturbance caps, lek buffers, required design features intended to mitigate impacts, and a net conservation benefit mitigation standard.<sup>88</sup> The Service explained that these provisions, among others, would provide the required "adequate regulatory mechanisms" (one of the ESA

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<sup>83</sup> Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments, 82 Fed. Reg. 47,248 (Oct. 11, 2017).

<sup>84</sup> See, e.g., Notice of Availability of the Oregon Draft Resource Management Plan Amendment and Environmental Impact Statement for Greater Sage-Grouse Conservation, 83 Fed. Reg. 19,804 (May 4, 2018).

<sup>85</sup> Memorandum Opinion, *Otter v. Jewell*, No. 1:15-cv-1566, ECF 67 (D.D.C. Jan. 5, 2017).

<sup>86</sup> See

<https://www.blm.gov/press-release/blm-cancels-10-million-acre-sagebrush-focal-area-withdrawal-proposal> (last visited Dec. 10, 2018).

<sup>87</sup> See SECRETARIAL ORDER NO. 3360, RESCINDING AUTHORITIES INCONSISTENT WITH SECRETARY'S ORDER 349, "AMERICAN ENERGY INDEPENDENCE" (2017); see also INSTRUCTION MEMORANDUM 2018-093, COMPENSATORY MITIGATION (July 24, 2018), available at <https://www.blm.gov/policy/im-2018-093> (last visited Dec. 10, 2018) and <https://web.archive.org/web/20181203184449/https://www.blm.gov/policy/im-2018-093> (archived on Dec. 3, 2018 and last visited Jan. 4, 2019) (implementing Sec. Order 3360 by eliminating long-standing requirement, heavily relied upon in ARMPA, of providing compensatory mitigation to make up for damage to habitat from extractive uses of the public lands).

<sup>88</sup> See 80 Fed. Reg. at 59,871, 59,887.

listing factors) to reduce the threats of human-caused habitat disturbance on the most important remaining sage-grouse habitats.<sup>89</sup> Conservation groups have signaled that weakening or removing these mechanisms puts the Service right back to where it was in 2010—when it was left with no choice but to issue a “warranted” determination.<sup>90</sup>

Now, BLM has sought additional comment on the 2015 plans’ designation of Sagebrush Focal Areas, on mitigation standards, on lek buffers, disturbance and density caps, habitat boundaries “to reflect new information,” and “reversing adaptive management response when the BLM determines that resource conditions no longer warrant those responses.”<sup>91</sup> BLM also has sought comment on state-specific issues, including “whether the planning effort should occur through state-by-state amendment processes” instead of the biologically based, landscape-scale approach that generally undergirds the 2015 plans.<sup>92</sup>

In Oregon, for example, the Zinke Report questioned whether BLM’s decision to remove livestock grazing from a handful of Research Natural Areas (“RNA”) is consistent with the Oregon Sage-Grouse Action Plan.<sup>93</sup> In BLM’s sage-grouse plan for Oregon, the agency had identified “key” RNAs that had been previously designated in underlying land use plans to protect “intact representative native plant communities” and which today are recognized as being important for Greater sage-grouse both for (1) their high habitat value (lying within designated Priority Habitat Management Areas, and containing essential breeding, nesting, brood-rearing, foraging, breeding or wintering habitat) and (2) their high management value, in terms of gauging plan effectiveness.<sup>94</sup>

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<sup>89</sup> See 80 Fed. Reg. at 59,934.

<sup>90</sup> Continuing local and range-wide population declines also suggest the bird could be on the path to an eventual ESA listing. See *supra* notes 40–45 and accompanying text. It is also worth noting that it was unusual for the Service to rely so heavily on prospective actions, in deciding that “adequate regulatory mechanisms” were now in place.

<sup>91</sup> 82 Fed. Reg. at 47,249.

<sup>92</sup> See *id.*

<sup>93</sup> ZINKE REPORT, *supra* note 82, Appendix A, at 11. Under BLM’s planning regulations, the agency may designate a Research Natural Area “for the primary purpose of research and education” if the area contains unique, threatened, or endangered plants or animals, or other representative or outstanding natural features. 43 C.F.R. § 8223.0-5(a).

<sup>94</sup> BLM, OREGON GREATER SAGE-GROUSE PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENT AND FINAL ENVIRONMENTAL IMPACT STATEMENT 5-11 to -12 (2015), *available at* <https://www.blm.gov/or/energy/opportunity/finaleis.php> (last visited Dec. 10, 2018) (defining “Key research natural area”).

In 2015, BLM had described that these areas “provide baseline vegetation information to document successional changes, to serve as areas for comparison to treated areas, and to document future vegetation shifts in the plant communities from changes in precipitation and temperature (climate change).”<sup>95</sup> But in 2018, in response to Secretary Zinke’s directive, BLM issued a proposed plan amendment and environmental impact statement evaluating whether removal of grazing from the RNAs is a “necessary component” of sage-grouse conservation.<sup>96</sup> Arguably, BLM’s accompanying environmental review makes clear that the best thing for sage-grouse is to preserve the decision to remove grazing from the RNAs.

The agency’s review acknowledges that grazing damages sage-grouse habitat and states that “[r]emoving grazing would aid in the recovery of the limited riparian areas, playas, and mesic areas within the 13 key RNAs where grazing has been allowed.”<sup>97</sup> Mesic (wet) habitats are “particularly important for pre-laying hens and chicks” and this is a “shortage category in eastern Oregon due to the lack of surface water.”<sup>98</sup>

Preserving the RNA grazing closures also is important because the RNAs provide crucial baseline areas for studying the impacts of grazing in unique ecological settings and habitat types.<sup>99</sup> By contrast, grazing these key RNAs “would reduce BLM’s ability to understand how grazing may or may not be impacting a more complete array of forbs and insects used by Greater Sage-Grouse in different seasons and different ecological settings.”<sup>100</sup>

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<sup>95</sup> *Id.* at 5-12; *see also id.* at 2-33 (Objective SD 4, providing that BLM will manage “key RNAs, or large areas within the RNAs,” as “undisturbed baseline reference areas for the sagebrush plant communities they represent that are important for Greater Sage-grouse” and will “allow[] natural succession to proceed”).

<sup>96</sup> BLM, OREGON GREATER SAGE-GROUSE PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENT AND FINAL ENVIRONMENTAL IMPACT STATEMENT ES-2, I-3 (2018), *available at* <https://goo.gl/4CNtH8> (last visited Dec. 10, 2018).

<sup>97</sup> *Id.* at 4-3.

<sup>98</sup> *Id.* at 4-10.

<sup>99</sup> *See, e.g., id.* at 4-7 (“ungrazed comparison areas, based on seasonal needs of Greater sage-grouse, are lacking”), 4-10 (“Understanding what role, if any, livestock grazing may be playing . . . requires that the BLM have access to long-term ungrazed control sites that cover a variety of ecological settings and habitats”).

<sup>100</sup> *Id.* at 4-12; *see also N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011) (“without [baseline] data, an agency cannot carefully consider information about significant environmental impacts”).

Reinstating grazing in these unique areas also may be inconsistent with the Oregon Sage-Grouse Action Plan's emphasis on providing for "working lands" where appropriate, but steering human-caused disturbance activities away from the most important or "best of the best" habitat areas.<sup>101</sup> The BLM 2015 sage-grouse plan amendments explained that, on BLM-managed lands in Oregon, 12,083,622 acres will continue to be available for livestock grazing in Greater sage-grouse habitat, while just 22,765 acres is unavailable to grazing in key RNAs.<sup>102</sup> That extraordinarily modest initial withdrawal of areas available to grazing is critical to an environmental baseline against which BLM can assess whether the new sage-grouse conservation plan is working.<sup>103</sup>

### Looking Ahead

Just how dramatically the Department of the Interior decides to revise the federal plans for Greater sage-grouse remains to be seen—as is the willingness of local BLM offices to continue implementing the existing plans unless and until they are amended. It seems certain that legal action will continue to play a pivotal role as conservation, industry, state and local government, and other interests continue to jockey for often incompatible objectives.<sup>104</sup>

Concurrent with its sage-grouse plan revisions, BLM also has announced two wide-ranging proposals to study the use of fuel breaks, fuels reduction, and rangeland restoration actions to restore sagebrush habitats throughout the West.<sup>105</sup> Even these are

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<sup>101</sup> See SAGE-GROUSE CONSERVATION PARTNERSHIP, THE OREGON SAGE-GROUSE ACTION PLAN 1 (2015), available at <http://www.dfw.state.or.us/wildlife/sagegrouse/> (last visited Dec. 10, 2018) (emphasis on "steering [human disturbance] activities away from the most important and sensitive areas in order to avoid habitat fragmentation and other impacts").

<sup>102</sup> OREGON GREATER SAGE-GROUSE PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENT (2015), *supra* note 94, at 2-18 (Table 2-6).

<sup>103</sup> Proposed changes in other states are also concerning. The proposed amendment to the Wyoming plan, for example, would eliminate Sagebrush Focal Areas. These are land designations with the highest level of protection under the 2015 plans. See BLM, WYOMING GREATER SAGE-GROUSE DRAFT RESOURCE MANAGEMENT PLAN AMENDMENT AND ENVIRONMENTAL IMPACT STATEMENT ES-6 (2018), available at <https://goo.gl/22jKE2> (last visited Dec. 10, 2018). These critical areas would no longer be prioritized for vegetation management and conservation actions. See *id.* at 2-4 to -5.

<sup>104</sup> Shifts in legislative power also could come into play, particularly in the U.S. House of Representatives where appropriations bill riders are sometimes used to introduce legislative changes that would be difficult to pass on their own in open congressional debate. See, e.g., H.R. 3354, 115th Cong. (2017–18) (rider introduced by Rep. Ken Calvert (R-CA) that would block funding for preparing an Endangered Species Act listing rule for sage-grouse).

<sup>105</sup> 82 Fed. Reg. 60,759, Notice of Intent To Prepare Two Great-Basin-Wide Programmatic Environmental Impact Statements to Reduce the Threat of Wildfire and Support Rangeland Productivity (Dec. 22, 2017).

far from uncontroversial. For example, just months after the agency announced the proposals, the U.S. Geological Survey published a report describing how fuel breaks, intended to reduce wildfire risk and protect remaining sagebrush ecosystems, “substantially alter sagebrush habitats.”<sup>106</sup> There is “relatively little published science that directly addresses the ability of fuel breaks to influence fire behavior in dryland landscapes or that addresses the potential ecological effects of the construction and maintenance of fuel breaks on sagebrush ecosystems and associated wildlife species.”<sup>107</sup> In other words, this is an untested strategy that is “likely to result in thousands of linear miles” of fragmentation “that will have direct ecological effects across hundreds of thousands of acres through habitat loss and conversion.”<sup>108</sup>

The year 2020 looms as potentially significant for the bird. In its 2015 decision not to place the sage-grouse on the endangered species list, the Service had promised to undertake a formal status review of the species in 2020 to evaluate whether the BLM plans were working and guide future research needs.<sup>109</sup> But recent reports indicate the Trump administration may abandon that commitment.<sup>110</sup> Given the weakened plans, still-declining populations, and no guarantee of a transparent, science-based assessment of whether the plans are working, renewed listing petitions seem likely. In any event, 2020 also happens to be the next presidential election year.

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<sup>106</sup> D.J. SHINNEMAN *et al.*, A CONSERVATION PARADOX IN THE GREAT BASIN — ALTERING SAGEBRUSH LANDSCAPES WITH FUEL BREAKS TO REDUCE HABITAT LOSS FROM WILDFIRE, U.S. Geological Survey Open-File Report 2018-1034 (2018), available at <https://doi.org/10.3133/ofr20181034> (last visited Dec. 10, 2018).

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> See 80 Fed. Reg. at 59,941.

<sup>110</sup> See *The Latest: US drops 2020 review of troubled bird's status*, THE WASHINGTON POST (Dec. 6, 2018), available at [https://www.washingtonpost.com/national/energy-environment/the-latest-us-drops-2020-review-of-troubled-birds-status/2018/12/06/bfc312f6-f9a3-11e8-8642-c9718a256cbd\\_story.html?utm\\_term=.af23b7a9a792](https://www.washingtonpost.com/national/energy-environment/the-latest-us-drops-2020-review-of-troubled-birds-status/2018/12/06/bfc312f6-f9a3-11e8-8642-c9718a256cbd_story.html?utm_term=.af23b7a9a792) (last visited Dec. 10, 2018) (suggesting that “the agency is not legally required to complete a review”).