

**BEFORE THE  
NATURAL RESOURCES COMMITTEE  
U.S. HOUSE OF REPRESENTATIVES  
WASHINGTON, D.C.**

**COMMENTS IN OPPOSITION TO HR4141  
BROADBAND FOR AMERICANS THROUGH RESPONSIBLE STREAMLINING ACT  
AUGUST 9, 2023**

**The following groups and individuals submit these comments in opposition to HR4141 and have granted permission to submit these comments on their behalf:**

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## INTRODUCTION

HR4141 virtually eliminates environmental and historical preservation reviews on federal lands. It represents an unprecedented consolidation of power within the federal government in favor of the wireless industry and threatens to take away from local government control over wireless permitting. It runs contrary to the rule of law and threatens, with surgical precision, to undermine current federal statutes and successes in important federal court decisions that otherwise protect the public and the environment.

### **In summary, HR4141:**

- Overrides established federal laws – the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) – by stripping projects of their former designation as federal actions or major federal undertakings under those Acts.
- Nullifies a 2019 major court decision by the DC Circuit Court of Appeals which ruled against the FCC when the FCC attempted to exclude 5G technology from environmental and historical preservation reviews. *United Keetoowah Band of Cherokee Indians (UKB)*

*v FCC* (representing about 20 Tribes) (D.C. Cir. 2019).<sup>1</sup> As a result of this seminal decision, those reviews are now required under NEPA and NHPA.

- Facilitates the irresponsible placement of wireless facilities everywhere on federal lands by overriding NEPA, NHPA, *UKB v FCC*, and virtually all state and local regulations that otherwise protect the public and the environment, including flora and fauna.
- Runs against the tide of opposition in the country. For example, there has been widespread opposition in NYC against monolithic, three-story 5G cell towers on NYC streets just feet from people’s homes, windows, schools and businesses. Through local government advisory boards in NYC, known as community boards, 16 community boards have already disapproved or called for moratoria on those towers, which represents about 2 million NYC residents -- more than a quarter of the NYC population.
- Would eliminate environmental and historical preservation reviews that may now be underway or should be underway on federal lands. For example, in NYC, the site developer for the 5G cell towers was notified by the FCC that it is required to undergo environmental and historical preservation review for all towers prior to construction, and as to those that have already been constructed, there must be post-construction review. To the extent that any of these cell towers are located on or slated for federal lands, any reviews on federal lands would be undermined.

To exemplify the opposition of placing wireless facilities in historic districts, major historic preservation organizations in NYC have been united in opposing the irresponsible placement of these monolithic 5G cell towers in NYC’s historic districts. On January 12, 2023, eight historic preservation organizations in NYC voiced their joint opposition that if these towers were to be placed in historic districts there would be potentially “severe, negative and permanent impacts.”<sup>2</sup>

Elected local and federal officials also issued a joint letter on January 23, 2023 and the cell towers’ impacts on historic districts:

The siting of massive cellular towers in historic districts is antithetical to the purpose of preserving these districts, as they are meant to have “coherent

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<sup>1</sup> See their notice here: <https://www.ukb-nsn.gov/post/ukb-wins-critical-case-against-fcc-5g-deployment>. See also: <https://ehtrust.org/federal-court-overturms-fcc>. Those reviews are now required by law, but these bills will overturn them. See their notice here: <https://www.ukb-nsn.gov/post/ukb-wins-critical-case-against-fcc-5g-deployment>. (See also: <https://ehtrust.org/federal-court-overturms-fcc-order-which-bypassed-environmental-review-for-5g-small-cell-wireless/>).

<sup>2</sup> <http://friends-ues.org/wp-content/uploads/2023/01/Preservation-Group-Request-to-Deputy-Mayors-on-5G-Towers.pdf?emci=4a0975a4-0698-ed11-994c-00224832eb73&emdi=fa3fe730-0f98-ed11-994c-00224832eb73&ceid=6757961>; see also, <https://www.mas.org/news/link5g-towers-spark-concern/>.

streetscapes” that reflect particular historic periods and styles of architecture.<sup>3</sup>

Rep. Jerrold Nadler requested that the FCC review whether the 5G cell towers required Section 106 review under NHPA.<sup>4</sup> A week later, on April 20, 2023, the FCC notified the 5G cell tower site developer that such review is required prior to construction not only under NHPA, but also under NEPA.<sup>5</sup>

HR4141 will **virtually eliminate** the very environmental and historical preservation reviews that the site developer is required to undergo in NYC to the extent that the 5G cell towers are on federal lands.

This bill, in effect, targets with **surgical precision** the very successes the public, New Yorkers and the Indian Tribal Nations have had so far in requiring that the wireless industry follow the rule of law.

### CONSTITUTIONAL AND DOCTRINAL VIOLATIONS

HR4141 intrudes upon the constitutional right of procedural due process for the public -- the right to reasonable prior notice and the right to be heard – otherwise guaranteed by the 5<sup>th</sup> and 14<sup>th</sup> Amendments to the U.S. Constitution. This is particularly important for communities adjacent to federal lands or which use federal lands, and in which the state and federal governments may now have joint stewardship. The bill also abridges substantive due process rights by denying the public the right to voice their concerns and opposition and to give or withhold their informed consent.

What are the regulatory barriers that the wireless industry want to eliminate? The public’s right to due process. Who are the regulatory barriers? The public.

HR4141 violates the doctrine of the federal public trust in national forests and historic sites. The bill exemplifies the immediate need to apply a “federal public trust doctrine” to bolster states’ rights over federal encroachment on national forests and sacred historic treasures. In conflict with this doctrine, the bill is effectively turning over the responsibility of protecting our national forests and historic sites to the discretion of the wireless industry. The U.S. government has repeatedly asserted the position that the federal trust doctrine must be reserved to the states,

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<sup>3</sup> <https://nyc.wpenginepowered.com/wp-content/uploads/2023/01/Joint-Electeds-Link-5G-Letter-to-LPC-1-23-2023-1.pdf>; see also, Rep. Nadler letter at , City Council Member Menin letter at [https://www.carnegiehillneighbors.org/files/ugd/02baf5\\_e1841418e98243d4bf31287bba2f700b.pdf](https://www.carnegiehillneighbors.org/files/ugd/02baf5_e1841418e98243d4bf31287bba2f700b.pdf).

<sup>4</sup> <https://nadler.house.gov/news/documentsingle.aspx?DocumentID=394982>.

<sup>5</sup> FCC Letter to CityBridge, April 20, 2023, <https://www.dropbox.com/s/u483jswa8y72zua/FCC%20Letter%20to%20CityBridge%204-20-23.pdf?dl=0>.

even though at least one federal court decision has modified that position by holding that the trust is held jointly with the federal government.<sup>6</sup>

HR4141 essentially grants a *carte blanche* to the wireless industry to expose flora and fauna to continuous cumulative levels of RF radiation in the face of a large preponderance of research showing extensive adverse impacts to flora and fauna (see next section).

HR4141 exempts various “covered projects” from environmental and historic preservation reviews, stripping away the statutory protections of NEPA and NHPA, without any explanation or justification for doing so. As to environmental and historic preservation review on federal lands that involve flora and fauna, the elimination of such review would be disastrous for our national treasures.

### **ENVIRONMENTAL IMPACTS ON BIRDS, BEES AND TREES**

HR4141 would virtually eliminate environmental protections on federal lands. Studies have shown that radio frequency (RF) radiation can be and is hazardous to both flora and fauna.<sup>7</sup> RF radiation can affect wildlife’s orientation, migration, food finding, reproduction, nest building, territorial defense, vitality, longevity and survival. Trees next to cell towers have been consistently observed to become damaged and die.

“Studies on the effects of electromagnetic radiation on plants show that it hampers germination and reduces crop yields” and “[w]orldwide, tree die-off will be a huge driver of climate change.”<sup>8</sup> The massive disappearance or die-offs of wildlife, insects and tree species in areas where they were once abundant, “would create enormous imbalances in any ecosystem and could explain the proliferation of pests such as the emerald ash borer.”<sup>9</sup>

In a 2021 landmark report on the effects of RF radiation on wildlife, insects, plants and trees, the following U.S experts – journalist Blake Levitt, Dr. Henry Lai and former U.S. Fish and Wildlife (USFW) senior biologist Dr. Albert Manville, former agency lead on avian structural impacts including from RF radiation,<sup>10</sup> -- found that RF radiation intensities, even very low RF

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<sup>6</sup> U.S. v. 1.58 Acres of Land, 523 F.Supp. 120, 124 (D. Mass. 1981) stating that “the trust impressed upon this property is governmental and administered jointly by the state and federal governments by virtue of their sovereignty;” see also, Michael C. Blum and Lynn S. Schaefer, “Federal Public Trust Doctrine: Misinterpreting Justice Kennedy and Illinois Central Railroad,” 45 *Envtl. L.* 399 (2015).

<sup>7</sup> Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment, Levitt, Lai and Manville, March 28, 2022, <https://pubmed.ncbi.nlm.nih.gov/34047144/>. See also, <https://ehtrust.org/wp-content/uploads/Letter-National-Park-Service-Sept-2020-6.pdf>; see also, Dr. Magda Havas Letter on WiFi in Public Places, July 11, 2018, <https://ehtrust.org/wp-content/uploads/Dr.-Magda-Havas-Letter-on-WiFi-in-Public-Places-.pdf>.

<sup>8</sup> Id at 22.

<sup>9</sup> Id at 22-23.

<sup>10</sup> Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment, Levitt, Lai and Manville, March 28, 2022, <https://pubmed.ncbi.nlm.nih.gov/34047144/>.

radiation intensities, from cell towers have adverse biological effects. Although the advertising hype touts for ever increasing RF radiation intensities, RF radiation can disrupt the Earth's natural magnetic fields that birds, fish and other wildlife use to navigate and orient themselves.<sup>11</sup> The report is 150 pages with more than 1200 references, uncovering studies otherwise neglected on the subject.<sup>12</sup>

Dr. Manville, has written to the FCC on RF radiation impacts on birds,<sup>13</sup> in particular the higher frequencies to be used in 5G.<sup>14</sup>

While the need for protecting flora and fauna is becoming more vital with the advent of ever-increasing RF radiation intensities, the report focuses on the fact that there is no federal agency, nor international authority, setting safety limits for flora or fauna, nor is there any funded mandate to do so.<sup>15</sup>

Moreover, with every new network, such as 4G or 5G, the signal structure becomes more complex than the previous network, yet no research has been done on "the biological effects of simultaneous exposure to multiple signals,"<sup>16</sup>

There have been observed dramatic declines and disappearances among birds and bees, and the observed damage and die-off of trees.

## **Birds**<sup>17</sup>

Birds are particularly susceptible to RF radiation. Studies done in 1975 in the ranges of 1-10 KHz<sup>18</sup> and 10-16 GHz<sup>19</sup> showed that bird feathers (the hollow part) were receptors for RF radiation. A study of robins exposed to RF at a low range from 2KHz to 5MHz found that the birds were unable to use their electromagnetic compass for orientation.<sup>20</sup>

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<sup>11</sup> [https://www.santafenewmexican.com/news/local\\_news/report-says-wireless-radiation-said-by-telecom-companies-to-be-harmless-could-be-hurting-wildlife/article\\_1ae80fc0-7d5d-11ec-8c13-4f3411ea8ea1.html](https://www.santafenewmexican.com/news/local_news/report-says-wireless-radiation-said-by-telecom-companies-to-be-harmless-could-be-hurting-wildlife/article_1ae80fc0-7d5d-11ec-8c13-4f3411ea8ea1.html).

<sup>12</sup> Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment, Levitt, Lai and Manville, March 28, 2022, <https://pubmed.ncbi.nlm.nih.gov/34047144/>.

<sup>13</sup> <https://ehtrust.org/memorandum-bird-wildlife-impacts-non-ionizing-radiation-albert-m-manville-ph-d-former-u-s-fish-wildlife-service-senior-biologist/>.

<sup>14</sup> <https://www.fcc.gov/ecfs/search/search-filings/filing/1060315601199>.

<sup>15</sup> Id; see also, EHT Letter to US National Park Service on 5G, Cell Towers and Impacts to Pollinators, Trees and Wildlife, Sep 15, 2020, <https://ehtrust.org/eh-letter-to-us-national-park-service-on-5g-cell-towers-and-impacts-to-pollinators-trees-and-wildlife/>; see also, 5G: Environmental Effects of Birds, Bees, Trees and Climate, <https://ehtrust.org/5g-and-small-cell-environmental-effects-birds-bees-trees-and-climate/>.

<sup>16</sup> <https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf> at 35.

<sup>17</sup> <https://ehtrust.org/biological-effects-of-electromagnetic-radiation-on-birds/>.

<sup>18</sup> The properties of bird feathers as converse piezoelectric transducers and as receptors of microwave radiation. I. Bird feathers as converse piezoelectric transducers, Blanco and Sierra, 1975, <https://pubmed.ncbi.nlm.nih.gov/1235241/>.

<sup>19</sup> The properties of bird feathers as converse piezoelectric transducers and as receptors of microwave radiation. II. Bird feathers as dielectric receptors of microwave radiation, Blanco and Sierra, 1975, <https://pubmed.ncbi.nlm.nih.gov/1242004/>.

<sup>20</sup> Id.

Birds are acutely sensitive to RF radiation due to their thin skulls, how their feathers can act as dielectric receptors of microwave radiation and the fact that many bird species use magnetic navigation.<sup>21</sup> Migrating birds have been severely affected. “Several million disorientated [sic] migrating birds of 230 species have been crashing into cell towers and dying each year, since they were erected in the 90’s. It happens mostly at night or in fog or bad weather, when they are most reliant on the earth’s magnetic field for navigation ... Mortality has risen with the increasing number of towers.”<sup>22</sup> For example, the birds’ inability to discern impending storms via the earth’s natural electromagnetic fields is finding a growing number of birds flying into the storms, rather than flying around them.<sup>23</sup> Wildlife biologist Dr. Balmori has documented in his research that RF radiation is an emerging threat to wildlife orientation.<sup>24</sup>

The U.S. Department of the Interior (DOI) addressed a letter dated February 7, 2014 to the National Telecommunications and Information Administration (NTIA) warning against categorical exemptions of RF radiation emitted from cell towers on bird species.<sup>25</sup> DOI warned of the already known “mass mortality events” of impacts of birds with cell towers during peak migration seasons, estimated to cause four/five million to 6.8 million bird deaths per year. DOI describes the “injury, crippling loss and death from collisions with cell towers and their supporting guy-wire infrastructure.”<sup>26</sup> With respect to impacts from RF radiation emanating from the towers,

“[s]tudy results have documented nest and site abandonment, plumage deterioration, locomotion problems, reduced survivorship and death...Nesting migratory birds have apparently been affected by the radiation from cellular phone towers in the 900 and 1800 MHz ranges...”<sup>27</sup>

RF radiation has been associated with observed declines in bird populations. As early as 2009, two studies observing House Sparrows in Valladolid, Spain<sup>28</sup> and Belgium<sup>29</sup> during breeding season showed a decline in the House Sparrows associated with proximity to mobile phone base stations. Wildlife biologist Alfonso Balmori and Hallberg, engineer, who conducted the

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<sup>21</sup> Birds and Balmori: For the Birds, June 14, 2022, [https://safetechinternational.org/for-the-birds/?fbclid=IwAR2\\_d2mc\\_JYi45umgMvG0-0SdQG3rf4Jf3sTao61T-kVyGzjnXs3WE1Uo5M](https://safetechinternational.org/for-the-birds/?fbclid=IwAR2_d2mc_JYi45umgMvG0-0SdQG3rf4Jf3sTao61T-kVyGzjnXs3WE1Uo5M)

<sup>22</sup> Id.

<sup>23</sup> Id.

<sup>24</sup> “Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation,” at <https://www.ncbi.nlm.nih.gov/pubmed/25747364>.

<sup>25</sup> U.S. Dep’t of Interior letter to NTIA, 2-7-14, [https://www.ntia.doc.gov/files/ntia/us\\_doi\\_comments.pdf](https://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf).

<sup>26</sup> Id at 6.

<sup>27</sup> Id at 5-6.

<sup>28</sup> *The Urban Decline of the House Sparrow (Passer domesticus): A Possible Link with Electromagnetic Radiation*, Alfonso Balmori & Örjan Hallberg, July 7, 2009 <https://www.tandfonline.com/doi/abs/10.1080/15368370701410558?journalCode=iebm20>.

<sup>29</sup> *A Possible Effect of Electromagnetic Radiation from Mobile Phone Base Stations on the Number of Breeding House Sparrows*, Joris Everaert & Dirk Bauwens, July 7, 2009, <https://www.tandfonline.com/doi/abs/10.1080/15368370701205693?journalCode=iebm20>.

study in Spain, observed that RF radiation, even more generally, may be responsible for the observed decline of sparrows in other cities in Europe.<sup>30</sup>

The Delaware River from Hancock, NY to the Delaware Water Gap has been recognized as “one of the largest and most important inland bald eagle wintering habitats in the Northeastern United States.”<sup>31</sup> The U.S. Fish and Wildlife Service (USFWS) considers this habitat “essential” for their full recovery and long-term survival.<sup>32</sup> The highest concentration of eagle wintering areas in New York is found in the Delaware watershed.

An area also known for its eagle breeding grounds is the city of Delta in British Columbia, Canada, a part of which is considered one of the most heavily populated and ecologically important eagle territories in North America and one of the richest areas for bald eagle reproduction. However, it has been reported that eagles have been harmed or killed by lightning rod fixtures on cell towers; the Orphaned Wildlife Rehabilitation Society (OWL) in Delta has been reported to retrieve these eagles.<sup>33</sup> Residents have been concerned that cell towers “will increase the odds of attracting lightning strikes directly into the habitat which could ... occur at a time when it is heavily populated.”<sup>34</sup>

David Hancock, a renowned biologist of the Hancock Wildlife Foundation who has been studying eagles for more than 60 years, said that cell towers adversely affect their breeding activity:

***“Cell towers have a very negative affect on eagles (and other raptors). The towers attract them to perch and even nest, which results in unproductive breeding activity.”<sup>35</sup>***

It is instructive to examine how poorly bird populations in different parts of the world have fared when increasing amounts of RF radiation have been introduced into their habitats.

On May 29, 2022 it was reported that 35 dead Sandwich terns were found in a nature reserve in the Netherlands.<sup>36</sup> Three cell towers located on the edge of the reserve and within the terns’

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<sup>30</sup> *The Urban Decline of the House Sparrow (Passer domesticus): A Possible Link with Electromagnetic Radiation*, Alfonso Balmori & Örjan Hallberg, July 7, 2009

<https://www.tandfonline.com/doi/abs/10.1080/15368370701410558?journalCode=iebm20>.

<sup>31</sup> Delaware River Basin Commission, Living Resources: Bald Eagles, <https://www.nj.gov/drbc/basin/living/bald-eagle.html#:~:text=The%20120%2Dmile%20stretch%20of,U.S.%20Fish%20and%20Wildlife%20Service>.

<sup>32</sup> Delaware River Basin Commission, Living Resources: Bald Eagles, <https://www.nj.gov/drbc/basin/living/bald-eagle.html#:~:text=The%20120%2Dmile%20stretch%20of,U.S.%20Fish%20and%20Wildlife%20Service>.

<sup>33</sup> Delaware River Basin Commission, Living Resources: Bald Eagles, <https://www.nj.gov/drbc/basin/living/bald-eagle.html#:~:text=The%20120%2Dmile%20stretch%20of,U.S.%20Fish%20and%20Wildlife%20Service>.

<sup>34</sup> *River Road residents rally against cell phone tower*, Delta Optimist, March 3, 2022, <https://www.delta-optimist.com/local-news/river-road-residents-rally-against-cell-phone-tower-5110646>.

<sup>35</sup> *River Road residents rally against cell phone tower*, Delta Optimist, March 3, 2022, <https://www.delta-optimist.com/local-news/river-road-residents-rally-against-cell-phone-tower-5110646>.

<sup>36</sup> “*The Sky is Falling! ...*,” (Dutch Island of Texel in the De Petten nature reserve reports Sandwich tern colony collapse after 18 new cell towers were installed, July 2022), <https://www.cellphonetaskforce.org/wp-content/uploads/2022/07/Birds-on-Exel-Island.pdf>.



habitat had been augmented with 18 new 4G antennas – 6 antennas on May 25, 2022, and 12 antennas on May 29, 2022.

On June 24, 2022, it was reported that 4,600 dead adult and young Sandwich terns from another nature reserve, the Waterdunen nature reserve in the Netherlands, had been collected.<sup>37</sup> The nature reserve had hosted 7,000 pairs of terns flying from Africa to breed during the Spring of 2022. Since the end of June, 2022, the colony no longer exists. From April to June, 2022, two cell towers **less than 2 miles** from the reserve had been augmented with 18 new antennas – from 6 to 12 antennas on one tower on May 18, 2022, and from 6 to 18 antennas on the second tower on June 23, 2022. The towers are also within a fish habitat, on which the terns depend for foraging.

In contrast, in another nature reserve in the Netherlands 20 miles from Waterdunen and more isolated, a small but healthy colony of terns have been apparently thriving and no dead birds were found from April to July, 2022.<sup>38</sup> From distances of **up to 8 miles away** from the reserve, there are a total of 35 4G antennas facing the reserve, with only two of those antennas having been added since April, 2022.

The disappearance of bird and insect species have been attributed to proximity to cell towers. For instance, such disappearances in Mount Nardia Park World Heritage Area, an old growth rainforest, in New South Wales, Australia, from 2000 to 2015, corresponded with an increasing number of installations in Mt. Nardia of digital replacing analog telecommunications antenna, starting with “3G” to “4G” and “5G.”<sup>39</sup> Ethno-Botanist Mark Broomhall prepared a report for UNESCO documenting this trend. There are approximately 105 transmitters in Mt. Nardia.<sup>40</sup> As a result, Broomhall estimates that

***“from 70% to 90% of the wildlife has become rare or has disappeared ... within a 2-3 km radius of the Mt. Nardi tower complex.”***<sup>41</sup>

Having lived in the area for 40 years, Broomhall was able to observe first-hand the disappearance of a large number of species.

- 3 bat species once common became rare or were gone
- 11 threatened and endangered bird species were gone
- 11 migratory bird species were gone
- 86 bird species have been demonstrating unnatural behaviours

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<sup>37</sup> Id.

<sup>38</sup> Id.

<sup>39</sup> Report for the United Nations Educational Scientific and Cultural Organization (UNESCO) And International Union for the Conservation of Nature (IUCN) Report detailing the exodus of species from the Mt. Nardi area of the Nightcap National Park World Heritage Area during a 15-year period (2000-2015), Ethno-botanist Mark Broomhall, <https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf>.

<sup>40</sup> Id at 6 for map showing concentration of cell towers.

<sup>41</sup> Id. at 4.

- 66 once common bird species became rare or were gone<sup>42</sup>

In sharp contrast, Broomhall noted that when the towers were shut off for 2 days, there was a “resultant explosion of biology on the mountain.”

Broomhall chronicles the progression from the 1970s when there was an increase in species diversity to the drastic decline that he witnessed when digital antennas were installed, e.g.:

- In 2002-2004, when 3G replaced analog antennas, insect populations precipitously declined;
- In 2009, when more 3G antennas were installed, 27 bird species disappeared and insect population were dramatically reduced;
- In 2012-2013, when 4G antennas were installed:
  - 49 bird species disappeared
  - All of the once-common bat species became scarce
  - 4 cicada species disappeared
  - The once enormous and varied population of moths and butterfly species almost disappeared
  - Frogs and tadpole populations were drastically reduced
  - The once massive volumes of ant population became uncommon or rare.<sup>43</sup>

Broomhall also includes references to scientific studies that corroborate his findings.<sup>44</sup>

This becomes more dire when viewed from the perspective that this area may be, as Broomhall describes it, “the most pristine, most botanically complex and bio-diverse area of the Nightcap National Park” and “the entire caldera has been identified as Neo-Pleistocene Refugia.” Broomhall describes the Mt. Nardi sector as part of the “jewel in the crown” within the prehistoric Gondwanaland forest – “mountainous terrain, with its extensive cliff-lines, narrow ridges, steep gorges and deep valleys, provides the fire-proof niches able to support the ancient rainforest remnants and the majority of endangered plants and animals that depend on this habitat.”<sup>45</sup>

Broomhall warns that:

“ ... [electromagnetic radiation] levels near towers are millions of times greater than the natural background levels that wildlife has evolved to utilize for navigation, homing, etc. Every new network is more complex in signal structure than the previous ... virtually no research has been

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<sup>42</sup> Id at 4.

<sup>43</sup> Id at 3; see also Tower Activation Timeline at 21.

<sup>44</sup> Id at 37-39.

<sup>45</sup> Id at 3.

conducted upon the biological effects of simultaneous exposure to multiple signals ...”<sup>46</sup>

Similar precipitous declines were observed in Greece. Diana Kourdas, a naturalist living on the island of Samos in Greece, has also chronicled the precipitous decline of birds, insects and trees (for the latter, see below under the section “Trees”).<sup>47</sup>

Kourdas chronicled her observations of several regions in Greece:

- In 2014, when Vathi, the main town on Samos, was upgraded to 4G, the birds on the mountain near the cell towers began to gradually disappear until late 2016 when there were virtually no birds on the mountain, except for the occasional raptor, or robin, or a single chaffinch where there had been flocks.<sup>48</sup>
- When a large 4G cell tower was placed in an otherwise protected area to the south of the island, dominating the landscape, “the birds have almost all gone except for jays, seagulls and enormous flocks of crows.”<sup>49</sup> “The Hellenic Ornithological Society says that unusually large numbers of crows points [sic] to an imbalance in the ecosystem.”<sup>50</sup>

Kourdas further chronicled her bleak observations in 2017, compared to her observations from 2014, of many regions in Greece, previously known for their rich bird populations and for their many species of migratory birds:

- A number of areas in northern Greece which had installed 4G cell towers had virtually no birds.<sup>51</sup>
- In the southern part of Lake Kerkini in northern Greece, where a 4G cell tower array was located, there were no birds where hundreds of birds had been.

“No cormorants sitting on pilings. No great crested grebes in full mating regalia. (On every other visit, the great cresteds were all over the lake, hundreds of pairs of birds). No pelicans, grey herons, little egrets, or night herons.”<sup>52</sup>

Scientists have observed that RF radiation have toxic effects on animals at even “vanishingly low intensities,” including effects on “orientation and migration, food finding, reproduction, mating, nest and den building, territorial maintenance, defense, vitality, longevity and

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<sup>46</sup> Id at 35.

<sup>47</sup> Birds and Trees of Northern Greece: Population Declines since the Advent of 4G Wireless An Observational Study, Oct 5, 2017, Diana Kourdas, <http://cellphonetaskforce.org/wp-content/uploads/2021/10/BirdsTreesNorthGreece.pdf>.

<sup>48</sup> Id at 3.

<sup>49</sup> Id at 3.

<sup>50</sup> Id at 1.

<sup>51</sup> Id at 1.

<sup>52</sup> Id at 5.

survivorship.”<sup>53</sup> “Wildlife loss is often unseen and undocumented until tipping points are reached.”<sup>54</sup>

Artificial, man-made RF radiation has been recognized as a form of environmental pollution which can harm wildlife, including bats and birds, such as sparrows. Cell towers located in their habitats would be continuously irradiating 24/7, 365 days a year, without refuge from the cell towers, and wildlife could suffer long-term effects, such as:

“reduction of their natural defenses, deterioration of their health, problems in reproduction and reduction of their useful territory through habitat deterioration.”<sup>55</sup>

Toxic effects “have been observed in mammals such as bats, cervids, cetaceans, and pinnipeds among others, and on birds, insects, amphibians, reptiles, microbes and many species of flora. Cyto- and geno-toxic effects have long been observed in laboratory research on animal models that can be extrapolated to wildlife.”<sup>56</sup> Different habitats for wildlife, including aquatic environments, “rely on the Earth’s natural geomagnetic fields for critical life-sustaining information,” with which artificial, man-made RF radiation interferes.<sup>57</sup>

Broomhall cautions that “[a] moratorium on all levels of radio frequencies and electromagnetic frequencies above 3G should be in place, while causes for such steep, rapid declines in bird populations are thoroughly researched. It seems that 5G technology is being bundled out virtually untested, which flouts all former conventions.”<sup>58</sup>

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<sup>53</sup> Id; see also, Johansson O, *The Stockholm Declaration about "Life EMC"*, Bee Culture Magazine 2022; May issue: 56-61 and Levitt BB, Lai HC, Manville AM. Effects of non-ionizing electromagnetic fields on flora and fauna, Part 3. Exposure standards, public policy, laws, and future directions. *Rev Environ Health*. 2021 Sep 27. Doi: 10.1515/reveh-2021-0083. Epub ahead of print. PMID: 34563106. <https://pubmed.ncbi.nlm.nih.gov/34563106/>

<sup>54</sup> Levitt BB, Lai HC, Manville AM. Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment. *Rev Environ Health*. 2021 May 27;37(1):81-122. doi: 10.1515/reveh-2021-0026. PMID: 34047144, <https://pubmed.ncbi.nlm.nih.gov/34047144/>.

<sup>55</sup> Electromagnetic pollution from phone masts. Effects on wildlife, Alfonso Balmori, August 2009, <https://www.sciencedirect.com/science/article/abs/pii/S0928468009000030?via%3Dihub>. See also, The incidence of electromagnetic pollution on wild mammals: A new “poison” with a slow effect on nature? Alfonso Balmori, November 2009.

Balmori, A. The incidence of electromagnetic pollution on wild mammals: A new “poison” with a slow effect on nature?. *Environmentalist* 30, 90–97 (2010). <https://doi.org/10.1007/s10669-009-9248-y>.

<sup>56</sup> Levitt BB, Lai HC, Manville AM. Effects of non-ionizing electromagnetic fields on flora and fauna, Part 2 impacts: how species interact with natural and man-made EMF. *Rev Environ Health*. 2021 Jul 8. doi: 10.1515/reveh-2021-0050. <https://pubmed.ncbi.nlm.nih.gov/34243228/>.

<sup>57</sup> Levitt BB, Lai HC, Manville AM. Effects of non-ionizing electromagnetic fields on flora and fauna, Part 2 impacts: how species interact with natural and man-made EMF. *Rev Environ Health*. 2021 Jul 8. doi: 10.1515/reveh-2021-0050. <https://pubmed.ncbi.nlm.nih.gov/34243228/>.

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## Bees

Bees, as our primary source of pollination, are injured from RF radiation which means a decrease in pollination and, in turn, food production. A study showed that “every time a bee approaches a power line or a cell phone antenna, it becomes stressed and, therefore, its internal temperature increases and the pollination service decreases.”<sup>59</sup> Moreover, “[h]oneybees are among the species that use magnetoreception, which is sensitive to anthropogenic electromagnetic fields, for navigation.”<sup>60</sup>

Researchers have proposed that the stress of exposure to RF radiation has weakened bee populations’ resistance to other environmental stressors such as pesticides and chemicals.<sup>61</sup> A study performed by placing two mobile phones under a beehive showed that when the phones were turned on, within 20-40 minutes, the bees began emitting “piping” calls and squeaks announcing their start of swarming which means they are about to abandon the hive.<sup>62</sup> Another study corroborated this study and found that the bees “stopped producing honey, egg production by the queen bee halved, and the size of the hive dramatically reduced.”<sup>63</sup>

Another study examining how insects, including the Western honeybee, react to RF radiation exposure at frequencies from 2GHz to 120GHz, in simulations found increases in absorbed power of 3-370%.<sup>64</sup> Researchers concluded that “[t]his could lead to changes in insect behaviour, physiology and morphology over time...”<sup>65</sup> and that:

“enough research has been performed to indicate an urgent need to reduce electromagnetic radiation exposures to protect the bee population and in turn, protect the environment. As 5G will increase radiation exposures and use new higher frequencies shown to be highly absorbed into insects, scientists are calling for a moratorium on 5G.”<sup>66</sup>

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<sup>59</sup> Research confirms negative effects of power lines on bees, May 3, 2022, <https://ehtrust.org/research-confirms-negative-effects-of-power-lines-on-bees/>.

<sup>60</sup> Bandara, P., & Carpenter, D. O. (2018). Planetary electromagnetic pollution: It is time to assess its impact. *The Lancet. Planetary Health*, 2(12), e512–e514. [https://doi.org/10.1016/S2542-5196\(18\)30221-3](https://doi.org/10.1016/S2542-5196(18)30221-3).

<sup>61</sup> Id.

<sup>62</sup> *Why a mobile phone ring may make bees buzz off: Insects infuriated by handset signals*, Daily Mail, May 13 2011, <https://www.dailymail.co.uk/sciencetech/article-1385907/Why-mobile-phone-ring-make-bees-buzz-Insects-infuriated-handset-signals.html>; see also, “Cell Phones Caused Mysterious Worldwide Bee Deaths, Study Finds.” Fox News, May 13, 2011, <https://www.foxnews.com/tech/cell-phones-caused-mysterious-worldwide-bee-deaths-study-finds>.

<sup>63</sup> *5G & Other Wireless Radiation Is Having A Detrimental Impact On Bees: Here’s The Science*, Arjun Walia December 31, 2021, <https://thepulse.one/2021/12/31/5g-other-wireless-radiation-is-destroying-bees/>.

<sup>64</sup> *5G & Other Wireless Radiation Is Having A Detrimental Impact On Bees: Here’s The Science*, Arjun Walia December 31, 2021, <https://thepulse.one/2021/12/31/5g-other-wireless-radiation-is-destroying-bees/>.

<sup>65</sup> *5G & Other Wireless Radiation Is Having A Detrimental Impact On Bees: Here’s The Science*, Arjun Walia December 31, 2021, <https://thepulse.one/2021/12/31/5g-other-wireless-radiation-is-destroying-bees/>.

<sup>66</sup> Id.

Andrew Goldsworthy, a biologist from the UK's Imperial College, London, explains that insects, as well as animals, use cryptochrome for navigation and:

“to sense the direction of the earth's magnetic field and their ability to do this is compromised by radiation from [cell] phones and their base stations. So basically bees do not find their way back to the hive.”<sup>67</sup>

Goldsworthy contacted the UK communications regulator OFCOM (Office of Communications), that “a change of phone frequencies would stop the bees being confused.”<sup>68</sup>

A review of 45 peer-reviewed scientific studies also found physiological and morphological changes in plants, such maize, roselle, pea, fenugreek, duckweeds, tomato, onions and mungbean plants, which appeared to be very sensitive to RF radiation.<sup>69</sup> This can have repercussions for our food supply.

### **Trees**

It has been shown that trees are damaged by RF radiation from mobile phone base stations, with damage starting on one side and then “extending to the whole tree over time.”<sup>70</sup> Tree damage was found with chronic exposure to RF radiation.<sup>71</sup> Visual observations of tree damage include:

“irregular leaf coloration, leaf wilt, leaf loss, temporal and spatial irregularities in the seasonal leaf color change and leaf loss, fewer shoots, greatly elongated shoots with foliage at the tip and bare patches farther down the shoot, changes in branching patterns, and dead limbs and branches. The damage is most prominent at the edge on one side of the crown. This area is referred to as the starting point of damage. From there, the damage decreases in its intensity toward the opposite side of the crown that may be less affected or not at all. The crown volume, which is damaged within this geometric space, is referred to as the damage area. It will continue to develop further over the course of several growing seasons.”<sup>72</sup>

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<sup>67</sup> *Study links bee decline to cell phones*, Sasha Herriman, CNN, June 30, 2010, <http://edition.cnn.com/2010/WORLD/europe/06/30/bee.decline.mobile.phones/index.html>.

<sup>68</sup> *Study links bee decline to cell phones*, Sasha Herriman, CNN, June 30, 2010, <http://edition.cnn.com/2010/WORLD/europe/06/30/bee.decline.mobile.phones/index.html>.

<sup>69</sup> Review: Weak radiofrequency radiation exposure from mobile phone radiation on plants, M. Halgamug, Sept 20, 2016, <https://pubmed.ncbi.nlm.nih.gov/27650031/>.

<sup>70</sup> Radiofrequency radiation injures trees around mobile phone base stations, Aug. 24, 2016, <https://pubmed.ncbi.nlm.nih.gov/27552133/>.

<sup>71</sup> *Tree Damage from Chronic High Frequency Exposure*, <https://ehtrust.org/wp-content/uploads/tree-health-radiation-Schorpp-2011-02-18.pdf>.

<sup>72</sup> Tree damage caused by mobile phone base stations; An observation guide, Helmut Breunig, March 2017, [https://kompetenzinitiative.com/wp-content/uploads/2019/08/2017\\_Observation\\_Guide\\_ENG\\_FINAL\\_RED.pdf](https://kompetenzinitiative.com/wp-content/uploads/2019/08/2017_Observation_Guide_ENG_FINAL_RED.pdf)

## **Conclusion**

We oppose HR4141 as it virtually eliminates environmental and historical preservation reviews on federal lands, runs contrary to the rule of law and threatens to undermine current federal statutes and successes in important federal court decisions that otherwise protect the public and the environment.

**Respectfully submitted, jointly with the Joiners set forth above**

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