

# William & Mary Environmental Law and Policy Review

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Volume 28 (2003-2004)  
Issue 1

Article 2

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October 2003

## Introduction to the Symposium: Pesticides: What will the Future Reap?

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### Repository Citation

Natasha C. Robinson, *Introduction to the Symposium: Pesticides: What will the Future Reap?*, 28 Wm. & Mary Env'tl L. & Pol'y Rev. (2003), <https://scholarship.law.wm.edu/wmelpr/vol28/iss1/2>

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## SYMPOSIUM 2003

### PESTICIDES: WHAT WILL THE FUTURE REAP?

NATASHA C. ROBINSON\*

There was once a town in the heart of America where all life seemed to live in harmony with its surroundings. . . . Then a strange blight crept over the area and everything began to change. . . . There was a strange stillness. . . . The few birds seen anywhere were moribund; they trembled violently and could not fly. It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of . . . scores of . . . bird voices there was now no sound; only silence lay over the fields and woods and marsh.<sup>1</sup>

During the twentieth century, agriculturalists worldwide experienced unprecedented and markedly lucrative crop yields due principally to escalation in pesticide use. Burgeoning scientific evidence, however, revealed that which glittered was certainly not gold, as the unforeseen and disastrous environmental consequences of pesticides use emerged.

The Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”)<sup>2</sup> broadly defines pesticides as “any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, . . . [is] intended for use as a plant regulator, defoliant, . . . desiccant, and . . . any nitrogen stabilizer.”<sup>3</sup> Cultivators used chemical pesticides to defend their crops from insects for thousands of years.<sup>4</sup> Indeed, the heads of chrysanthe-

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<sup>1</sup> RACHEL CARSON, *SILENT SPRING* 1-2 (1962) (predicting that continued use of DDT, a pesticide that irrevocably harmed birds and contributed to their untimely deaths, would result in a spring without tweeting birds).

<sup>2</sup> The Federal Insecticide, Fungicide, Rodenticide Act, Pub. L. No. 80-104, 61 Stat. 163 (1947) (codified as amended at 7 U.S.C. §§ 136-136y (2000)).

<sup>3</sup> 7 U.S.C. § 136u.

<sup>4</sup> See J. Robert Hatherill, *Commercial Agriculture: Facts & Figures*, available at <http://www.earthsave.org/newsletters/commag.htm> (last visited Nov. 10, 2003) (noting that “[a]s

num flowers and tobacco leaves were two of the earliest forms of pesticides.<sup>5</sup> In the United States, however, pesticides use proliferated after World War II, prompting Congress to enact FIFRA to regulate pesticides labeling and licensing.<sup>6</sup> In 1962, fifteen years after FIFRA's enactment, Rachel Carson's prophetic and provocative book, *Silent Spring*,<sup>7</sup> "single-handedly" elevated public awareness concerning the hazardous nature of pesticides and was a driving impetus behind the environmental movement.<sup>8</sup>

In the United States alone, approximately five hundred thousand kilograms of six hundred distinct pesticide chemicals are utilized every year, while the world applies 2.5 million tons.<sup>9</sup> Congress responded to the public's strident outcry following Carson's book by taking multiple steps, such as the creation of the Environmental Protection Agency ("EPA") and passing amendments to FIFRA, to control America's use of particularly harmful pesticides.<sup>10</sup> Many governmental actors abroad, however, have yet to execute comparable standards due largely to financial considerations.<sup>11</sup>

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people settled into established societies many centuries ago, they began looking for ways to protect their crops").

<sup>5</sup> *Id.* (acknowledging that "[i]n the 1600s nicotine compounds were extracted from tobacco leaves and used as insecticides" and that "[b]y the mid 1800s, the heads of chrysanthemum flowers were used to obtain pyrethrum, and rotenone was extracted from the derris plant").

<sup>6</sup> See Mary Lee A. Howarth, *Preemption and Punitive Damages: The Conflict Continues Under FIFRA*, 136 U. PA. L. REV. 1301, 1320 (1988) (recognizing that FIFRA was "primarily a licensing and labeling statute" (quoting *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 991 (1984))); see also Andrew P. Morriss & Roger E. Meiners, *Property Rights, Pesticides, & Public Health: Explaining the Paradox of Modern Pesticide Policy*, 14 FORDHAM ENVTL. L.J. 1, 9 (2002) (emphasizing that the federal government began examining existing pesticide regulation after World War II in response to concerns about varied state labeling requirements).

<sup>7</sup> CARSON, *supra* note 1.

<sup>8</sup> See Beth Cooper Benjamin, *Rachel Carson: Giving a Voice to Silent Spring* (May 9, 1996), available at <http://www.students.haverford.edu/wmbweb/medbios/bbcarson.html> (noting that although government and industry officials condemned *Silent Spring*, it was a best-seller for nearly a year and the chief catalyst that prompted the establishment of the Environmental Protection Agency and the environmental movement).

<sup>9</sup> David Pimentel et al., *Public Health Risks Associated with Pesticides and Natural Toxins in Foods* (1996), available at <http://ipmworld.umn.edu/chapters/pimentel.htm> (last modified July 30, 1996).

<sup>10</sup> Howarth, *supra* note 6, at 1320.

<sup>11</sup> See Jacques Diouf & Klaus Toepfer, *A First Line of Defense Against Chemical Hazards* (Sept. 9, 1998), available at <http://www.fao.org/News/1998/DGiht-e.htm> (recognizing that "many old and highly toxic pesticides that have been banned or severely restricted in

Consequentially, widespread use of pesticides produced devastating outcomes internationally, as “three million pesticides poisonings occur annually and result in 220,000 deaths worldwide.”<sup>12</sup> The Food and Agriculture Organization (“FAO”) of the United Nations released a study revealing that developing countries were stockpiling unused pesticides that were essentially “time-bombs,” posing impending threats to public health and the environment.<sup>13</sup> According to the study, “developing countries are holding stocks of more than 100,000 tonnes [sic] of obsolete pesticides . . . [and] “[l]eakage, seepage and various accidents related to pesticides are quite common and widespread.”<sup>14</sup> Equally troubling, from the standpoint of FAO, is the reality that the storage conditions fail to measure up to international standards.<sup>15</sup>

Although scientists are familiar with all of the risks to human and animal health associated with pesticides use, one fact remains: the global community undoubtedly will continue to apply pesticides to its crops to ward off unwelcome pests.<sup>16</sup> Despite several years of pesticide regulation in the United States and abroad, technological advancements, and increasing awareness of the dangers associated with pesticides, the environmental effects of pesticides use continue to pose substantial concerns.<sup>17</sup> This apprehension prompted the *William and Mary Environmental Law and Policy Review* (the “Review”) to invite renowned scholars from varied backgrounds to discuss pesticides matters of global concern. Recognizing and appreciating the unique opportunity to converse about pesticides issues, academics, scientists, policymakers, attorneys, and students converged on March 28 and 29, 2003, at the Review’s symposium entitled, *Pesticides: What Will the Future Reap?* The symposium focused on the effects of pesticides on human

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developed countries are still marketed and used in developing countries because of their low price”).

<sup>12</sup> Pimentel et al., *supra* note 9 (reporting that in addition to the maladies that afflict human beings worldwide, evidence suggests that pesticides are responsible for immune dysfunction, infertility, and other chronic conditions in animals).

<sup>13</sup> Food & Agric. Org. of the United Nations, *Unused Pesticides in Developing Countries: 100,000 Tonnes Threaten Health and Environment* (1996), available at <http://www.fao.org/News/1996/960607-E.HTM>.

<sup>14</sup> *Id.* (quoting Niek van der Graaff, head of FAO’s Plant Protection Service).

<sup>15</sup> *Id.*

<sup>16</sup> See Pimentel et al., *supra* note 9.

<sup>17</sup> See Diouf & Toepfer, *supra* note 11.

health, the land, our seas, and wildlife. Panelists also discussed the effectiveness of several regulatory measures governing pesticides use.

The first panel, moderated by Professor Donald Tortorice of William and Mary School of Law, consisted of the President of the Rachel Carson Council and Professor of Insect Ecology and Agricultural Sciences at Cornell University, Professor David Pimentel; Associate Professor of Law at the Cleveland-Marshall College of Law and Associate Professor of Environmental Studies at the Levin College of Urban Affairs, Professor Heidi Gorovitz Robertson; Senior Scientist at the Environmental Working Group and former Program Scientist at the World Wildlife Fund, Dr. Kristina Thayer; and the former Counselor for International Affairs and former principal negotiator for EPA on two international environmental treaties on pesticides, Mr. Pep Fuller. This panel discussed the human health effects associated with pesticides, including the high incidence of pesticides in the human body and their effects on human health.

Professor Linda Malone of the William and Mary School of Law moderated the second panel on national regulatory measures concerning pesticides and specifically, the challenges that the United States government faces with respect to these regulations. Participating panel members were the W. James Krozner Chair in Trial and Appellate Advocacy at the University of Texas Law School, Professor Thomas McGarity; Professor of Environmental Risk Analysis and Policy, Political Science, and Director of the Environment and Health Initiative at Yale University, Professor John Wargo; and Associate Dean of Research and Professor of Law at the University of Kansas, Professor Sidney Shapiro.

The third and final panel, moderated by Mr. Pep Fuller, was composed of head of the Pesticide Section at the National Wildlife Research Centre in Canada, Dr. Pierre Mineau; Galen J. Roush Professor of Business Law and Regulation, Associate Dean for Academic Affairs and Associate Professor of Economics at Case Western Reserve University School of Law, Professor Andrew P. Morriss; and Senior Marine Scientist at the Virginia Institute of Marine Science at the College of William and Mary, Dr. Anamarija Frankic. This panel discussed the effects of pesticides on our wildlife, land, and seas.

Issues 1 and 2 contain articles written by six of the symposium panelists. These panelists offer their unique viewpoints on the implications of pesticides use in humans, animals, the seas, and our land; the sufficiency of pesticide regulation in the United States and abroad; and lastly, a powerful glimpse into the future consequences of present pesticides use.

Mr. Pep Fuller and Professor Thomas McGarity co-authored an Article entitled *The Bush Administration's Cautious Approach to Listing New Persistent Organic Pollutants and the Future of the Stockholm Convention*.<sup>18</sup> This Article commences with an overview of the destructive nature of persistent organic pollutants ("POPs") and the impact that these toxic chemicals have had on the food supply.<sup>19</sup> According to the authors, the destructive effects of POPs are boundless, as they indiscriminately contaminate the food supply and wreak havoc on the human body.<sup>20</sup> In response to these dangers, several governments engaged in controversial multi-year negotiations designed to develop a global and legally binding instrument that would reduce and eliminate the emission and production of POPs.<sup>21</sup> The Stockholm Convention on Persistent Organic Pollutants ("Stockholm Convention") was the product of these intense negotiations and became available for signing in May of 2001.<sup>22</sup> The Article examines the United States' government's road to implementing the Stockholm Convention by examining two competing legislative bills<sup>23</sup> and the Office of Management and Budget's role in implementation.<sup>24</sup> The authors contend that the Stockholm Convention is a forceful instrument that, if implemented cautiously and effectively, is capable of keeping POPs out of our food supply.<sup>25</sup>

Professors Andrew P. Morriss and Roger E. Meiners co-authored their Article entitled *Market Principles for Pesticides*.<sup>26</sup> The authors contend that markets, property rights, and the common law offer alternative approaches to command and control the regulation of pesticides.<sup>27</sup> In this Article, the authors assert that historically, governments seek to regulate pesticides in a manner that was best for the individual.<sup>28</sup> In hindsight, however, those

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<sup>18</sup> Pep Fuller & Thomas McGarity, *The Bush Administration's Cautious Approach to Listing New Persistent Organic Pollutants and the Future of the Stockholm Convention*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 1 (2003).

<sup>19</sup> *Id.* at 1-2.

<sup>20</sup> *Id.* at 32.

<sup>21</sup> *Id.* at 3.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at Part II.

<sup>24</sup> Fuller & McGarity, *supra* note 18.

<sup>25</sup> *Id.* at 34.

<sup>26</sup> Andrew P. Morriss & Roger E. Meiners, *Market Principles for Pesticides*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 35 (2003).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

decisions ignored the impact of other governmental programs and resulted in a chaotic state of affairs.<sup>29</sup> The authors recommend that decentralized decision-making and an emphasis on government incentive programs will prove valuable in redressing this predicament.<sup>30</sup>

Professor Heidi Gorovitz Robertson's Article, entitled *How Many Times Do I Have to Tell You?!: EPA's Ongoing Struggle With Data from Third-Party Pesticide Toxicity Studies Using Human Subjects*, encapsulates EPA's ongoing battle with attempting to decide whether and how to assess data from third party pesticides investigative studies using human subjects, especially those not subject to the Common Rule for the Protection of Human Subjects.<sup>31</sup> The author explains that EPA sought advice from committees and other influential sources in its quest to answer the third party data questions that it grappled with for years.<sup>32</sup> Professor Robertson concludes that if EPA utilizes existing models, coupled with its own guidelines and the advice given by the committees, it is capable of establishing a policy that governs use of data from third party sources.<sup>33</sup>

Dr. Kristina Thayer and Ms. Jane Houlihan co-authored their Article entitled *Pesticides, Human Health and the Food Quality Protection Act*.<sup>34</sup> In this Article, the authors provide an overview of the Food Quality Protection Act ("FQPA")<sup>35</sup> and its significance with respect to the harmful effects of pesticides on infants and children.<sup>36</sup> While EPA had the opportunity to implement health-based standards that would protect infants and children, the agency failed to apply the full safety factors authorized by the Act.<sup>37</sup> In turn, the authors stress that these shortcomings inadequately protect children's health and should be rectified quickly to provide satisfactory protection.<sup>38</sup>

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Heidi Gorovitz Robertson, *How Many Times Do I Have to Tell You?!: EPA's Ongoing Struggle With Data from Third-Party Pesticide Toxicity Studies Using Human Subjects*, 28 WM. & MARY ENVTL. L. & POL'Y REV. (forthcoming Winter 2004).

<sup>32</sup> *Id.*

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

<sup>34</sup> Kristina Thayer & Jane Houlihan, *Pesticides, Human Health and the Food Quality Protection Act*, 28 WM. & MARY ENVTL. L. & POL'Y REV. (forthcoming Winter 2004).

<sup>35</sup> Food Quality Protection Act of 1996, Pub. L. No. 104-170, 110 Stat. 1513 (1996).

<sup>36</sup> Thayer, *supra* note 34.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

Dr. Pierre Mineau's Article, entitled *Birds and Pesticides: Are Pesticide Regulatory Decisions Consistent with the Protection Afforded Migratory Bird Species under the Migratory Bird Treaty Act*, addresses the destructive link between pesticides and birds.<sup>39</sup> The Article reveals the harsh, and indeed fatal, consequences that acute toxic pesticides have on birds.<sup>40</sup> Dr. Mineau asserts that while the United States is currently re-evaluating the toxic pesticides that are responsible for avian mortality under several national regulations, the reduction of avian impacts under such regulations lacks consistency.<sup>41</sup> Dr. Mineau offers numerous suggestions, such as promoting negotiations with individual industries and regulatory oversight agencies, to remedy these inconsistencies.<sup>42</sup>

These richly diverse and fascinating articles lend credence to the fact that Rachel Carson's highly controversial, yet telling message in *Silent Spring* resonates even forty-one years after its publication. The symposium was instrumental in encouraging a fruitful discussion that addressed the effects of pesticides on human health and the environment, and the *Review* anticipates that publication of these articles will expand the debate that commenced at the symposium.

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<sup>39</sup> Pierre Mineau, *Birds and Pesticides: Are Pesticide Regulatory Decisions Consistent with the Protection Afforded Migratory Bird Species Under the Migratory Bird Treaty Act?*, 28 WM. & MARY ENVTL. L. & POL'Y REV. (forthcoming Winter 2004).

<sup>40</sup> *Id.*

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

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