

Poisoned Grounds: Toxic Discourse in Barbara Kingsolver's Fiction and Nonfiction

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ABSTRACT

In his *Writing for an Endangered World* (2001), Lawrence Buell coins and defines the term “toxic discourse” as “anxiety arising from the perceived threat of environmental hazard due to chemical modification by the human agency” (31). Buell’s concept of toxic discourse offers a framework and four topoi: “the shock of awakened perception,” “a world without refuge from toxic penetration,” “the threat of hegemonic oppression,” and “gothicization” (35–42). Following this line of thought, the present paper addresses the intersection between ecocriticism and toxic discourse. Then it proceeds to explore how Buell’s four topoi are presented in the works of American essay writer, scientist, and novelist Barbara Kingsolver, in *Animal Dreams* (1990), *Holding the Line: Women in the Great Arizona Mine Strike of 1983* (1989), *Prodigal Summer* (2000), the essay “In the Belly of the Beast” from the collection *High Tide in Tucson* (1995), and three essays, “A Fist in the Eye of God,” “A Forest’s Last Stand,” and “The Patience of a Saint” from the collection *Small Wonder* (2003). Kingsolver’s fiction and nonfiction present how human-induced chemical toxicity destroys the planetary ecosystem. This study examines how Buell’s concept of “contaminated communities” is reinforced through Kingsolver’s depiction of the copper mining community in Arizona or the small farms exposed to chemical hazards from using pesticides. Buell’s tendency to “gothicize” toxicity resonates with Kingsolver’s works presenting grotesque images of nuclear waste dump/fallout and industrial pollution, and present the “hegemonic oppression” of the mining corporation (Phelps Dodge Copper Corporation in the USA) or the government policies using nuclear warheads and agricultural chemicals. (AP and VS)

KEYWORDS: toxic discourse, Anthropocene, ecocriticism, chemical toxicity, environmental hazards, Barbara Kingsolver



Introduction

The increasing pollution and toxicity of land and air have led scientists and environmental studies scholars to describe this current era as a “new age of toxicity” (B. L. Walker xi). The new age of toxicity is effectively Anthropocene because of its permanent, planetary-scale alternations with intimate effects (Liboiron et al. 332). The publication of Rachel Carson’s *Silent Spring* directed the reader’s attention, over sixty years ago, toward the literature of toxicity portraying realistic and more crisis-oriented images of environmental hazards and disruption: “pollution of the total environment of mankind” (Carson 38). *Silent Spring* focuses on the textual representation of the contexts of twin toxic hazards—chemical pesticides and radioactive fallouts. Carson effectively fused the pre-existent pollution concerns of urban and industrial reformers with the ecological sensitivities of resource conservation and wilderness preservation (M. J. Walker 322–25). Following *Silent Spring*, a range of new fictional and nonfictional narratives emerged to frame what Lawrence Buell defines as “toxic discourse” (639). The corpus offers intriguing possibilities for ecocritics and environmental studies scholars to engage with issues and themes related to environmental/toxicity crises presented in literary texts. Buell’s framework of toxic discourse, with an emphasis on the four topoi as postulated in his “Toxic Discourse” and *Writing for an Endangered World*, offers an interesting scope for studying the fiction and nonfiction texts of Barbara Kingsolver.

Given this background, this paper first addresses the connection between ecocriticism and toxic discourse, then it proceeds to study Kingsolver’s works, particularly *Animal Dreams* (1990), *Holding the Line: Women in the Great Arizona Mine Strike of 1983* (1989), *Prodigal Summer* (2000), the essay “In the Belly of the Beast” in *High Tide in Tucson* (1995), and another three essays, “A Fist in the Eye of God,” “A Forest’s Last Stand,” and “The Patience of a Saint” from the collection *Small Wonder* (2003).

Kingsolver is an evolutionary biologist, and her literary texts evidence how literature and science come together to address specific ecological issues and irresponsible environmental practices. Her fictional and nonfictional works are explorations that engage readers with individual stories and realistic viewpoints in narrations about toxic landscapes. These writings significantly contribute to contemporary literature on toxicity and present how human-induced chemical toxicity (such as copper mining, tobacco farming, insecticides/pesticides, nuclear waste, industrial pollution, and so forth) destroys the planetary ecosystem. Buell’s notion of “contaminated/poisoned communities” and “realities of toxic

contamination” (35–42) corresponds to Kingsolver’s portrayal of the copper mining community in the fictional village of Grace County in *Animal Dreams* or the women miners on strike against the Phelps Dodge Copper Corporation in *Holding the Line*. The dying small farms, such as the Widener farm in *Prodigal Summer*, are grappling with the chemical hazards of pesticide usage or the toxicity of plantation cash crop tobacco. Buell’s “gothicization” finds an echo in Kingsolver’s narratives, vividly depicting scenes of nuclear fallout, waste dumps, and industrial pollution in the essays of *High Tide in Tucson* and *Small Wonder*. Furthermore, the study sheds light on the pervasive influence of hegemonic oppression perpetrated by corporations like the Phelps Dodge Copper Corporation, or the fictitious Black Mountain Corporation, or government policies involving nuclear warheads and agricultural chemicals, among others.

Four waves of ecocriticism and toxic discourse: a theoretical overview

Ecocriticism as a literary theory coalesced in the 1990s. Cheryll Glotfelty, in *The Ecocriticism Reader*, defines it as the study of relationships between literature and the physical environment and states that ecocriticism takes an earth-centered approach (xviii). Additionally, Scott Slovic in “Ecocriticism: Containing Multitudes, Practising Doctrine” suggests that there “is no single, dominant worldview guiding ecocritical practice—no single strategy at work from example to example of ecocritical writing or teaching” (160), while ecocritical practices worldwide are continually revised and redefined by thousands of literary scholars. Ecocriticism emphasizes interdisciplinary theories and perspectives:

In its numerous methods and forms—encompassing or intertwining with feminist approaches and nature writing analyses, animal humanities and biosemiotics, environmental justice and postcolonial studies, petrocriticism and “toxic discourse”—ecocriticism invites us to see how world and texts are connected, how they meet and eventually combine. (Iovino 107)

A number of ecocritics—including Buell, Glotfelty, Greg Garrard, Carolyn Merchant, Ursula K. Heise, Serenella Iovino, Serpil Oppermann, and Rob Nixon—are engaged with the study of theoretical perspectives and literature on toxicity as an interdisciplinary combination of humanistic discipline and science. For Garrard, for instance, “ecocriticism is unique amongst contemporary literary and cultural theories because of its close relationship with the science of ecology” (5). In his examination of the

trope of environmental pollution and toxic discourse in *Ecocriticism*, he also refers back to Rachel Carson and the evolving definition of pollution. Exploring further the concept of toxicity, he also discusses the human perception of risk and risk society (Beck) and Buell's perception of toxic discourse as a cultural genre (*The Future of Environmental Criticism*).

Buell uses the metaphor of waves to trace the steady development/evolution of ecocritical theories, recognizing the cross-fertilization between various disciplines and approaches. In *The Future of Environmental Criticism*, he marks the evolution of the first and second waves of ecocriticism. The wave metaphor is adopted from the waves of feminism (Glotfelty and Fromm; Slovic, "The Third Wave", "Editor's Note"). Buell, however, suggests *palimpsest* as a better analogy than the *wave*. He goes on to explain that the definitive map of environmental criticism in literary studies remains subtle, yet, distinct trend lines can be identified, indicating an evolution from a "first wave" of ecocriticism to a "second—or more recent, revisionist—wave."¹

Slovic adds that "the waves do not simply end when a new wave begins" (5). For example, the first wave of ecocriticism (such as, for example, nature writing or ecofeminism) remains important even to the scholars of modern ecocriticism. However, Slovic, although he, similarly to Buell, prefers the idea of the palimpsest, finds the image of successive waves rolling ashore from the sea of ecocritical ideas more accessible than the palimpsest or layering of ecocritical trends (5). If we break down the four waves of ecocriticism based on Buell's work, we find that the focus of the first wave, from the 1980s to the present, is on nonfiction (nature writing), nonhuman nature or the wilderness, American and British environmental literature, and discursive ecofeminism. The second wave (Buell 17), from the mid-1990s to the present, referring to multiple genres (and green cultural studies), is multicultural, and focuses on local literature around the world, environmental justice, the urban and the suburban. Third-wave ecocriticism (Slovic "The Third Wave" 5), from 2000 to the present, puts multiple gendered approaches, material ecofeminism, and animality in its center. The fourth wave (Slovic "Editor's Note" 620–21), from 2008 to the present, emphasizes material ecocriticism, "trans-corporeality" (Alaimo), human-nature "symbiosis" (Karpouzou and Zampaki), "the environmentalism of the poor" (Nixon), and applied ecocriticism.

Tracing the trends of the four waves of ecocriticism and toxic discourse, we find a steady and distinct succession in the scholarship.

Historian Samuel P. Hays, in his *Explorations in Environmental History*, observes that writings on nature and conservation (in American environmentalism) from the early nineteenth century subtly address toxic discourse that may be included in the first and second waves of ecocriticism. Hays suggests that the growth of industrialization, rapid urbanization, and technological advances (the increased pollution rate, waste dumping, and contamination of soil, air, and water) made the countryside a site for dumping urban toxic wastes (164–65). Nature’s subtle but blatant contamination gave environmental thinkers an impetus to reflect on large-scale degradation due to toxic substances. The first and second waves of ecocriticism include Carson’s *Silent Spring* and early environmental writings like Aldo Leopold’s *A Sand County Almanac: With Essays on Conservation from Round River*. Edward Abbey’s *Desert Solitaire: A Season in the Wilderness* mentions industry polluting water bodies, prospecting, mining and pollution in urban places. The third and fourth waves shifted focus to toxic discourse and global aspects. Buell et. al observe that the intersection between scientific facts/findings and storytelling gains prominence in representing issues like chemical contamination and radioactive fallout. Writers, filmmakers, and science communicators document environmental contamination in their stories, plays, writings, and films and its consequences for humans and the natural world—ecocritics have investigated this rhetoric of toxic and radioactive pollution in detail (423).

In his *Writing for an Endangered World*, Buell defines toxic discourse as “anxiety arising from the perceived threat of environmental hazard due to chemical modification by the human agency” (31). He emphasizes that “the fear of a poisoned world is increasingly pressed, debated, debunked and reiterated” (30), and adds that toxic discourse challenges the traditional understanding of the environmental movement and insists on the interdependence of ecocentric and anthropocentric values (30–35). Buell, furthermore, elaborates that toxic discourse is hardly given the same attention as its chemical, medical, and legal aspects (“Toxic Discourse”, 639). He claims that in literary and rhetorical studies, ecocriticism acts as the major impetus to engage with environmental issues. Ecocriticism devotes major attention to two “ethico-political commitments”: the protection of the endangered natural world and the recuperation of a sense of how human beings have been reconnected with it (640). *Writing for an Endangered World* outlines four topoi of toxic discourse: “mythography of betrayed Edens” and “the shock of awakened perception”; “totalizing images of a world without refuge from toxic penetration”; “the threat of hegemonic

oppression”; and “gothicization” (35–42). To engage with these topoi, Buell begins with *Silent Spring*, which represents large-scale toxic poisoning: “an awakening to the horrified realization that there is no protective blanket” (36).

Buell points out in “Toxic Discourse” that the opening chapter of *Silent Spring* introduces one of the key discursive motifs. A town awakens to a birdless, budless, silent spring corresponding to the “rude awakening” to the “betrayed Eden.” What he emphasizes is that contemporary narratives retell the rude awakening from simple pastoral to complex (647), losing the “rose-coloured lens of pastoral utopian innocence” (648). The concept of Eden is rooted in the romanticized version of pastoral poetry and nature writing of Thoreau and Muir. This model, as Buell explains, is often favored by ecocriticism, presenting “ecological holism to which acts of imagination have the capacity to (re)connect us” (45). Therefore, the first topos offers an adverse anthropocentric perspective, engaging us with the realities of toxic contamination. This disenchantment from the pastoral or the “green oasis” is accompanied by totalizing images of a world without refuge from toxic penetration (649). The second topos presents the contaminated or poisoned communities without any protective blanket against global toxification, exposure to hazardous waste or polluted air, and nuclear fear originating from the Cold War era. Anne McConnel echoes Buell in that the threat of toxic penetration draws attention to the lack of reliable boundaries to contain the spread of poisonous chemicals. Therefore, the environment emerges as an interconnected mesh without any safety or certainty (292). Carson’s work propagates this sense of entrapment: “Every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death” (Carson 24). The third topos is an important constituent of toxic discourse: the threat of hegemonic oppression and the danger of corporate greed. Buell explains that Carson has made clear in her work that the common people are victims of military, corporate, and government arrogance. Finally, the fourth topos of “gothicization” documents a movement towards horror and grotesque images of toxification/contamination. Buell states that toxic discourse montages into gothic or becomes lurid when the victim has no choice.

Literature of toxicity: an overview

Ecocriticism’s recent engagement with toxic discourse includes a re-examination of a range of literary texts representing “situations of environmental risk” and “toxic bodies, polluted ecosystems, and the various

landscapes of risk in their multiple aspects” (Iovino 108). Later, Ursula K. Heise, in “Toxins, Drugs, and Global Systems: Risk and Narrative in the Contemporary Novel,” considers this corpus as textual and visual representations of exposure to hazardous chemicals. She states that these narratives foreground the way contemporary novelists use chemical toxicity as a trope to dissolve the boundaries between body and environment, public and domestic spaces, harmful and beneficial technologies (747–48). Heise discusses DeLillo’s *White Noise* and Richard Power’s *Gain* as fictional engagements of the risk theory and this trope of toxicity. She observes that attention to toxic discourse and risk theory helps us to better understand the environmental crises presented in the literary texts on toxicity. Within this context, it is recognized that German sociologist Ulrich Beck’s theory of risk society has become a significant perspective to examine the contemporary realistic study of environmental catastrophe. Risk theory explores the connection between humans and hazardous technological advances; it also highlights the threats associated with the production of toxic chemicals and nuclear power. These threats increase the risk of catastrophic events and disasters due to out-of-control technologies and environmental instability. Beck explicates that “[p]eople no longer correspond today with spirits residing in things, but find themselves exposed to ‘radiation,’ ingest ‘toxic levels,’ and are pursued into their very dreams by the anxiety of a nuclear holocaust” (Beck 14).

Toxic consciousness is treated in early literary texts as an environmental problem and concern. Cynthia Deitering’s “The Postnatural Novel: Toxic Consciousness in Fiction of the 1980s” refers to waste accumulation and toxicity. In the “Introduction” of *The Ecocriticism Reader*, Glotfelty maintains that Deitering finds contemporary novels to be littered with references to garbage, “a shift from a culture defined by its produce to a post-industrial culture defined by its waste” (xxx). Chemical/toxic/nuclear hazards have remained a dominant topic in literary works, fiction, nonfiction, and films in the 1990s and 2000s, as Ursula K. Heise claims in her book *Sense of Place and Sense of Planet*. She emphasizes that chemical pollution is a central issue in American environmentalism and, hence, is used as a crucial trope by writers and filmmakers. Works like Todd Haynes’s film *Safe* (1995), Theo Colborn’s book *Our Stolen Future* (1996), Sandra Steingraber’s nonfiction account *Living Downstream* (1997), Stephen Zaillian’s film *A Civil Action* (1999), Steven Soderbergh’s movie *Erin Brockovich* (2000), and Susanne Antonetta’s memoir *Body Toxic* (2001) engage with scenarios of toxic contamination and their consequences, with “the dual nature of

chemicals as toxins and medicines and the attendant fascination with altered physical and psychological states of various kinds have been a recurrent issue in American literature and culture of the last forty years” (Heise 160–61).

Terrell Dixon, in “The Literature of Toxicity from Rachel Carson to Ana Castillo,” surveys the growth of toxic studies in the literary works of Carson, DeLillo, Terry Tempest Williams, Jane Smiley, Rudolfo Anaya, and Ana Castillo. Dixon notes that the creation and manufacture of toxic materials have significantly increased. Various authors’ literary efforts to oppose these environmental degradations are multiplying and diversifying: “It is not surprising that we now have an important group of writers who fall into a grouping which should be called the daughters and sons of Rachel Carson” (256). Kingsolver is the latest addition to this group, as her fictional and nonfictional works resonate with these writers’ creations. She can be designated as one of the daughters of Rachel Carson as her works focus on the contemporary literature of toxicity similar to these writers mentioned above. In *Animal Dreams*, *Prodigal Summer*, essays from the collections *High Tide in Tucson* and *Small Wonder*, and her journalistic writing *Holding the Line: Women in the Great Arizona Mine Strike of 1983*, Kingsolver presents how chemical toxicity has challenged both the ecosystem and human health and has become a significant detriment in the efforts to manage and protect the environment for the wellbeing of the planetary ecosystem. Her works seek to “imagine and communicate the Nixonian slow violence of the world that we inhabit, the haunting and invisible violence that operates beyond our view or on a scale that exceeds our sensory abilities” (Slovic “Cultivating an Ability to Imagine” 159). Therefore, such writings present a confluence of scientific facts and the rhetoric of cultural studies: the basic proposition of ecocriticism, “an outcome of an interaction between ecological knowledge of nature and its cultural inflection” because “environmental problems require analysis in cultural as well as scientific terms” (Garrard 14).

Toxicity matters: Kingsolver’s fiction and nonfiction—the shock of awakened perception

Kingsolver’s *Animal Dreams* recounts the protagonist of the novel, Codi or Cosima’s return to her native country, to a small rural town, Grace County. She describes the *poisoned grounds* of Grace County polluted with the chemical extracts, sulfuric acid, from the copper mine, the Black Mountain Mine. Based on Kingsolver’s freelance journalistic writing *Holding the Line*, a

collection of interviews with miners and their families, particularly the women who face the strike challenge, the novel echoes with the toxic pollution of the environment caused by mining in Arizona. Linda Wagner-Martin emphasizes the essential connection between *Holding the Line*, which is also an account of the strike against Phelps Dodge Copper Corporation from June 1983 to December 1985, and *Animal Dreams*:

Kingsolver had learned well how to use oral history recordings from her research during the Phelps Dodge Copper Mining strike in the Arizona towns of Ajo, Morenci, Douglas, and Clifton. It was that non-fiction account of the tough women who “manned” the various strikes that had led to her finding a good agent: throughout *Animal Dreams* she drew from her years of covering that hopeless strike effort where the orchards of pecan, plum, and apple were poisoned out of existence by the sulfuric acid used in the copper mines’ leaching operations. (63)

In *Animal Dreams*, the river is contaminated, and the ground is infertile. Grace County, although a mining town, is set in a fertile valley. Therefore, people depended on their orchards for their livelihood, but now all the fruit trees are dying because of the industrial expansion in the area, rendering the locals helpless: “they’re getting gold and moly out of them tailing piles. If they weren’t, they wouldn’t keep running the acid through them” (Kingsolver 64). Mary Allen Snodgrass comments that the text depicts the slow strangulation of Grace, Arizona, and the willful acidification of the river from the leachate of copper tailing (33). The slow death of a fertile valley corresponds to the rude awakening to toxic realities—in line with Buell’s first topos. Kingsolver describes the town as an idyllic, magical place, an Eden which has its mythical origin related to the blue-eyed Gracela sisters, and then there is the slow, rude, and desperate awakening to the realization that there is “no protective environmental blanket” (Buell, *Writing for an Endangered World* 36): “I tried to include all the things that made Grace what it was: the sisters coming over with their peacocks; their blue-eyed descendants planting an Eden of orchards in the idyllic days before Black Mountain; the confetti-colored houses and stairstep streets—everything that would be lost to a poisoned river” (Kingsolver 221). The connection between the imaginary poisoned grounds of Grace County in *Animal Dreams* and the real mining town and community in Arizona presents what Buell describes as “disenchantment from the illusion of the green oasis” (*Writing for an Endangered World* 38). In

the fictional account, the contaminated landscape, river, and the “poisoned community” (35) are contrasted with the Navajo tribal land, Santa Rosalina, representing pastoral settings and values, to reinforce the sense of the poisoned grounds of Grace. Kingsolver echoes Rachel Carson as she describes the imaginary location, which is similar to the nonexistent “no-birds town” described in *Silent Spring*. Kingsolver explains that Grace County, the railroad depot, and Santa Rosalia are imaginary, but “other places, and crises, in the book, are actual” (*Animal Dreams* 4). Similarly, in her *Fable for Tomorrow*, Carson insists that the no-birds town does not exist, “but it might easily have a thousand counterparts in America or elsewhere in the world” (Carson 3). Wagner-Martin claims that “[u]nreal as Grace may seem to be at times, what is real is pollution, waters that have little ability to bring nourishment to trees and plants (and people), and a kind of lethargic disdain for the capacity of human beings’ power to change the corruptible landscape” (54).

In *Holding the Line*, Kingsolver presents the reality of the open-pit copper mine pollution turning the land dead and San Francisco River water into “vitriol”:

The Castanedas and their neighbors resent the pollution from the mine. Trace copper and other minerals can be extracted from mining waste by means of a leaching process wherein mounds of the waste-sometimes whole hillsides are saturated with a sulfuric acid solution. The runoff contains dissolved copper in the form of copper sulfate, a blue compound that is deadly to most living things. The sulfate should be recovered and processed, but according to Maggie, the waste stream Phelps Dodge puts into the San Francisco is deep, telltale turquoise. She cried indignantly, “They’re dumping that into our river!” (69)

The novel *Animal Dreams* describes similar conditions of the river in imaginary Grace County. Codi explains to the members of the Stitch and Bitch Club, a club formed by the women who are protesting and organizing demonstrations against the annihilation of their environment, how the river water is turned into vitriol by the toxic waste from the mine. Black Mountain Mine has been running the clear, corrosive, water-miscible acid—sulfuric acid, or blue vitriol through their tailing piles to recover extra copper. Usually, it is used to kill rats and pond algae. The river is full of straight sulfuric acid: “Your trees knew all this way before we did. Watering them from the river is just like acid rain falling on them, if you’ve heard of that. The acid-rain problem here in the West comes mostly from mine

smelters. It's the same acid, one way or the other. Sulfuric acid" (177). The government EPA (Environmental Protection Agency) is unconcerned about this environmental degradation in Grace County. However, *Holding the Line* documents that Phelps Dodge was fined for violating the Clean Water Act and the EPA agreement because of the growing acid rain problem and sulphur dioxide emissions at their Morenci smelter.

The pressing environmental concerns related to metal mining also apply to copper mining. Such mining operations physically disturb landscapes because of the mine workings, waste rock, and tailings disposal areas. Mining also increases the acidity of soils, making soils toxic to any vegetation, and such poisonous soils are a source of metals released to the environment. It also degrades surface and groundwater quality due to the oxidation and dissolution of metal-bearing minerals. It also accelerates airborne dust and other emissions, like sulphur dioxide and nitrogen oxides from smelters, thus polluting the atmosphere and surrounding areas. Kingsolver focuses on ecological degradation by reconfiguring toxic stories on a human scale. *Animal Dreams* resonates with all the severity of toxic concerns related to copper mining. The river pollution, the poisoned and infertile land, the loss of trees and fruit orchards, and the natural vegetation of the fictitious Grace County present the "pastoral betrayal" (Buell, *Writing for an Endangered World* 39). A similar rhetoric of pastoral betrayal is presented in "The Patience of a Saint" from *Small Wonders* that recounts Kingsolver's visit to San Pedro, a natural habitat protected since 1988 as the San Pedro Riparian National Conservation Area (Kingsolver 43). The image of the mythography of Eden is revoked in Kingsolver's depiction of San Pedro and her kids' happiness to "dance barefoot between sandbars, believing they have found the Secret Garden" (42). The Secret Garden is unquestionably an allusion to Eden, or to Buell's concept of "simple pastoral," and the contrarian vision of "complex pastoral" as well as to "retelling narratives of rude awakening from simple pastoral to complex" (*Writing for an Endangered World* 37): "But now, as the Sunbelt booms, farmers and environmentalists find their voices equally drowned out by a new, louder demand from urban consumers" (Kingsolver 46). The rich biodiversity—for example, the Huachuca leopard frog, the brush-prowling ocelot, and the bright-feathered birds that thrive in this hostile expanse of land across nearly half the river's hundred miles and fifty-eight thousand acres of the corridor—is threatened by the boomtowns whose economies lived and died because of copper mining. The toxic liquids are leaked into the river, leading to the decimation of aqua species.

Totalizing images of a world without refuge from toxic penetration

Kingsolver's essay "In the Belly of the Beast" from *High Tide in Tucson* narrates her visit to the atomic warhead and missile museum south of Tucson, the Titan Silo. She begins it by asking: "What could a person possibly learn from driving down the interstate on a sunny afternoon and descending into the ground to pursue the technology of nuclear warfare?" (208), then goes on to describe the defunct Titan II missiles and the nuclear warheads waiting underground quietly, "available on a moment's notice" (218). What seems inconceivable to Kingsolver is the potential holocaust: the lethal vapors that may escape through the vents during miscalculations or accidents can devastate the community of retiring folks just downhill. She suggests that the main reason behind the Pentagon's forced decommission of the Titans is the potential stupendous hazards to the US public. A group of civilian physicists in the 1960s stated that one possible explosion at a single silo surrounding Tucson would trigger a chain reaction among other Titans, destroying the city immediately. Kingsolver ends her essay by describing her trip to another bomb museum in Hiroshima, housing images from the nuclear disaster in 1945: "every nuclear weapon ever constructed was built for the purpose of ending life, in a manner so horrific it is nearly impossible to contemplate" (219). Her conclusion reiterates the anxiety of "a nuclear holocaust" (Beck 14) and the threat of chemical hazards, the second topos that Buell postulates as "totalizing images of a world without refuge from toxic penetration" (*Writing for an Endangered World* 38). Kingsolver evokes an analogous image as she describes the dumping grounds in Mexico in her essay "A Forest's Last Stand" in *Small Wonders*. The fields are dumping grounds for DDT and other toxic wastes and have the planet's most "chronically poisoned air" (78). In *The Anthropocene and the Humanities*, Carolyn Merchant describes the increase in toxicity and pollution due to uncontrolled waste dumping, industrial chemicals that pollute the ground and surface water, acid rain from coal-burning smokestacks, and smelting of metal mining. These all cross national boundaries, threatening the health and survival of human and nonhuman nature (150–52).

On the contrary, in the essay "A Forest's Last Stand," Kingsolver approvingly describes the ecological living of the Guatemalan refugees in the Mexican villages: "No snaking backpack sprayers will *pssst* in this Garden of Eden" (81). She visits the Mexican village, Nueva Vida, or "New Life", which she defines as the "Garden of Eden". The depiction of the

Mexican refugee village in the so-called dumping ground of the US represents what Buell terms as “part of an escape from the city to a rural idyll” (*Writing for an Endangered World* 37). Carmen Salgado, her host, tells her that the villagers (the Chol, Tzeltal, and other groups fleeing from Guatemalan repression) are not dependent on chemical fertilizers and pesticides: “Their reliance on organic methods of pest control and soil amendment allows these farmers self-sufficiency, while also ensuring that their notoriously poor tropical soil will improve with each crop, rather than deteriorate” (81).

The image of the “poisoned community” and the second topos (Buell, *Writing for an Endangered World* 35, 38) continues in *Prodigal Summer*, bringing in the context of increased use of pesticides/artificial fertilizers and growing cash crops like tobacco. Kingsolver explains in detail that tobacco farming and the use of insecticides promoted by the local US Agricultural Extension Service has exposed the southern Appalachian farming community to risks caused by chemical pollution of the environment. Tobacco farming leaves the inhabitants of the fictional town Egg Fork exposed to cancer. *Prodigal Summer* presents three interconnected plots: “Predators,” “Moth Love,” and “Old Chestnuts.” “Moth Love” is the story of Lusa Landowski, the lepidopterist. She marries the farm owner, Cole Widener, and moves to this farming community with him. Cole’s unexpected death leaves Lusa adjusting to her in-laws and the dying farm.

Suzanne W. Jones points out that the Widener farm is on the verge of extinction because of the governmental policies regarding tobacco, the high price of herbicides and insecticides, and the farmers’ resistance to change. But the farmers of Zebulon County, including the Wideners, fail to find any other profitable legal crop. Besides, Cole’s openness to new agricultural experiments (growing bell peppers and cucumbers) yielded no results (Jones 85). Cole’s sisters want to plant tobacco on his farm property, but Lusa rejects this option as she considers tobacco “a drug”: “We’re sitting on some of the richest dirt on this planet, and I’m going to grow drugs instead of food?” (*Prodigal Summer* 105). Like Cole, she decides to raise goats instead. The agricultural practice of growing tobacco and the family farms have a different context in the novel. An alternative and more sustainable way of farming, such as goat rearing, solves the farm’s weed growth problem and is a more environmentally friendly way of agriculture to save the dying farm. However, Kingsolver subtly hints at the environmental and human health risks of growing such crops that cannot be ignored. Lusa is well aware of these risks: “Why plant more tobacco

when everybody's trying to quit smoking? Or should be trying to, if they're not already. The government's officially down on it, now that word's finally out that cancer's killing people. And everybody's blaming *us*' (*Prodigal Summer* 106).

The practice of tobacco growing reduces the fertility of the soil rapidly as well as increases soil depletion. Forests are cleared for this agricultural practice, and deforestation contributes to greenhouse gas emissions, climate change, and widespread biodiversity loss. It is also associated with land degradation or desertification in the form of soil erosion, reduced soil fertility and productivity, and the disruption of water cycles (WHO Studies). Kingsolver emphasizes the environmental and health impacts associated with tobacco farming (such as Lusa's perception of the cash crop as a "drug") in her fictional storyline.

The third plot, "Old Chestnuts", presents two elderly neighbors, Nannie Rawley and Garnett Walker, and their opposing views on using pesticides. Walker sprays his chestnut trees with chemicals, pesticides, and herbicides to kill the unwanted weeds and insects, which affects the organic fruits in Nannie's orchard. Their exchanges and letter writing, in addition to providing important information on toxic pollution, are illustrative of the difference between anthropocentric and ecocentric thinking. Nannie has declared war on the county's Two-Four-D, the Sevin dust, and other insecticides Garnett sprays on his chestnut seedling trees to keep them from the army of Japanese beetles (*Prodigal Summer* 86). The reference to *Silent Spring* and Carson is prominent in *Prodigal Summer*. Apart from direct allusions to Carson—Nannie's daughter is named Rachel Carson Rawley; her cross-bred organic fruit is patented under the name "Rachel Carson"—the novel is replete with Carson-inspired "orations about keystone predators, evolution, and broad-spectrum insecticides" (Jones 94). The conversation between Nannie and Garnett evidences such a connection. Nannie's reference to dead songbirds, the use of manmade chemicals, and their effect on the environment and humans is precisely what Carson's *Silent Spring* envisions:

Garnett felt a pang of guilt about the shingles but let it pass. "It's the middle of July," he said. "The Caterpillars are on my seedlings like the plague. If I didn't spray, I'd lose all these year's new crosses".

"See, but you are killing all my beneficiais. You're killing my pollinators. You are killing the songbirds that eat the bugs. You're just a regular death angel, Mr. Walker." (*Prodigal Summer* 273)

The chemicals, though only aimed at eliminating targeted weeds or pests, kill both good and bad insects. These pesticides are “biocides” and are “substances of incredible potential for harm” (Carson 25). Kingsolver details the dangers of pesticides on beneficial insects in her essay, “A Fist in the Eye of God” (*Small Wonders*). She mentions the adverse effects of using pesticides on monarch butterflies. Human technological advances for genetically modified food and crop yielding are producing unforeseen consequences. She states that genetic engineers have spliced a bacterium, *Bacillus Thuringensis*, into a corn plant. This germ causes caterpillars’ stomachs to explode but does not harm humans, birds, or ladybugs. It is one of the most useful pesticides ever developed in human laboratories. This bacterium, however, is pushing Monarch butterfly population into extinction risk as it may explode the stomach of any butterfly larva. There are many other reasons for this decimation of the populations of monarch butterflies, but the destructive role of an engineered pesticide of these potentials is undeniable to any reasonable human imagination. Kingsolver echoes Carson when she emphasizes the limitation of human imagination about their responsibility for being the destructive force against nature:

Most people lived so far from it, they thought you could just choose, carnivore or vegetarian, without knowing that the chemicals on grain and cotton killed far more butterflies and bees and bluebirds and whippoorwills than the mortal cost of a steak or a leather jacket. Just clearing the land to grow soybeans and corn had killed about everything in half the world. Every cup of coffee equalled one dead songbird in the jungle somewhere. (*Prodigal Summer* 323)

The threat of hegemonic oppression

Kingsolver presents the third topos, “threat of hegemonic oppression” (Buell, *Writing for an Endangered World* 41), of corporate power on the poisoned community: the Black Mountain Mine in *Animal Dreams* and Phelps Dodge Copper Corporation in *Holding the Lines*. She tells of the women miners who “kept that mine going” while “hav[ing] to stand and collect mud and water and put it in a bucket for eight hours straight” (*Holding the Lines* 3), and also of the practices of the mining corporation and the history of the mining industry. She encapsulates the reality of “corporate greed” or “military, corporate and government arrogance” (Buell 40, 41): “In a place a few hours’ drive from where I live, the government, the police,

and a mining company formed a conspicuous partnership to break the lives of people standing together for what they thought was right” (Kingsolver, *Holding the Lines* xxii). The images of the government using nuclear warheads in “In the Belly of the Beast” highlight a significant environmental threat. In “A Forest’s Last Stand,” the dumping of toxic wastes in Mexico illustrates a form of waste imperialism.² Additionally, government agricultural policies to promote herbicides/pesticides in *Prodigal Summer* or the results of genetic-engineering, carefully preserve and reinforce an “us-versus-them dichotomy without absolving us of our acquiescence and complicity as chemical consumers—even as *Silent Spring* makes clear that ordinary citizens are victims of military, corporate and government arrogance” (*Writing for an Endangered World* 41).

Gothicization

Kingsolver’s works demonstrate several markers of the fourth topos, “gothicization,” which, as Buell points out, becomes most lurid when the victim has never had a choice (*Writing for an Endangered World* 42). Many communities are helpless victims of toxic dumping and diseases as a consequence of living too close to industrial wastes, or of exposure to toxicity, such as the mining community of Arizona, or the fictional Grace County and its small farming community. Kingsolver foregrounds images of toxic poisoning and disease rather than focusing on the “lurid.” For example, her narrative description of the nuclear fallout in the bomb museum in Hiroshima presents grotesque images of destruction and toxic contamination in “In the Belly of the Beast”. She describes the exhibits: melted watches, the brass Buddha figurine with a hole in place of the face, and the white eyelet dress of a schoolgirl named Oshita-chan, who was half a mile from the hypocenter of the blast. Kingsolver concludes that the horrifying missile museum should shake us out of our quotidian lives: “What they left out of the Titan Missile Museum was in plain sight in Hiroshima. Not a soundtrack with a politically balanced point of view” (218).

“Gothicization” is more evident in Kingsolver’s *Holding the Lines*, as she describes the “arsenic holes” in the Morenci. The miners wear protective clothing (paper coveralls) and respirators, but still, they are exposed to the arsenic fumes. The depiction resonates with “the Virgilian mode” as explained by Buell in “Toxic Discourse” (654). Buell quotes Eric Homberger in *Scenes from the Life of a City: Corruption and Conscience in Old New York* when he refers to “the guided tour of the underworld” slums that

are “the home of lost souls” (654). Kingsolver’s depiction of the “arsenic holes” in the Morenci are reminiscent of this Virgilian mode:

Both Margaret and Arlene have worked in the “arsenic holes”. “You wear a respirator”, Margaret said, “but even with the respirator I’d go home feeling sick every day. It doesn’t protect you. I felt like vomiting all the time”. (Lung damage from sulfur dioxide and arsenic fumes in the smelter and silica in the pit is the worst slow killer of miners in this type of operation.) “My skin is green where the arsenic got on me, because sometimes the paper would tear.” (81)

Conclusion

Buell defines “toxic discourse” as the anxiety arising from perceived environmental hazards. He outlines four topoi: the shock of awakened perception; a world without refuge from toxic penetration; the threat of hegemonic oppression; and gothicization. Kingsolver’s toxic narratives are explorations of how toxicity is perceived and made sense of, while Buell’s toxic discourse offers a useful lens through which to read Kingsolver’s writings by mobilizing the narrative to make the impact of environmental toxins intelligible (Buell et al. 423). Kingsolver’s fiction and nonfiction form a series of toxic encounters and hegemonic narratives that reveal the destructive impact of chemical toxicity on ecosystems. These stories are unique pieces of an integrated mosaic forming a bigger picture: stories of contaminated communities, the slow impact of chemical contamination and cross-boundary imagination of a future toxic world. Kingsolver portrays the copper mining community in the fictional Grace County depicted in *Animal Dreams*, or in her interviews of the women miners protesting against the Phelps Dodge Copper Corporation in *Holding the Line*. The dying small Widener farm in *Prodigal Summer* is struggling with the cultivation of toxic cash crops or drugs like tobacco as two ageing neighbors debate the hazards posed by pesticides. These writings present the far-reaching impact of hegemonic oppression of corporations such as the Phelps Dodge Copper Corporation, as well as of military and/or government arrogance in implementing policies entailing the deployment of nuclear warheads. Kingsolver’s concern is evident in her vivid descriptions of nuclear fallout, waste dumps, and chemical pollution causing the extinction of nonhuman species, as found in the selected essays from *High Tide in Tucson* and *Small Wonders*. They engage readers with their poisoned, contaminated landscapes, intense anxiety over the risk and consequences of toxic fallouts, perceptions

and narratives of individuals, and, especially, their author's deep understanding of living in the Anthropocene as a biologist and a novelist.

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Notes

1 This first-second wave distinction is not a neat, clear-cut succession; many currents initiated by early ecocriticism persist strongly, while second-wave revisionism often builds upon and contests its predecessors (*The Future of Environmental Criticism* 17).

2 For further reading, see Summers.

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