GREEN SPECULATIONS has addressed key works of environmental science fiction ranging from Olaf Stapledon’s 1931 Last and First Men through Kim Stanley Robinson’s 2005 Fifty Degrees Below. I want to end this book with a brief look at one of the most recently published works of environmental science fiction, not to activate a new line of inquiry, but instead to look forward to the future of environmental science fiction and its continued engagement with transformative movements. If Paolo Bacigalupi’s award-winning The Windup Girl (2009) is any indication, the subgenre will continue to bring to the forefront of our consciousness the various issues that have instigated transformative environmentalist critique for at least the past fifty years. Among the several interrelated plotlines of Bacigalupi’s ecodystopia is the story of Anderson Lake, an employee of the Des Moines, Iowa–based biotechnology company AgriGen. Anderson runs a factory in Bangkok, Thailand that produces kink-springs, which store energy and make it available for any number of uses in the novel’s post-oil future. But the factory is a cover for Anderson’s real reason for being in Thailand: to work his way into Thai politics and then to get access to the nation’s seedbank for AgriGen scientists.
Along with PurCal and Total Nutrient Holdings, AgriGen is a “calorie company” that secures its global food markets by selling patented seeds engineered to produce edible but sterile crops, preventing seed saving by farmers (2–3). In the book, Thailand’s near neighbors India, Burma, and Vietnam—all “starving and begging for the scientific advances of the calorie monopolies” to provide food amidst waves of crop plagues—have already been subsumed into the schemes of the calorie companies (3). But Thailand has remained fiercely protectionist in not allowing calorie company seeds to cross its borders and in employing the former AgriGen genetic engineer Gibbons to help the country stay ahead of new plagues, which Gibbons suggests are actually intentional attacks of corporate sabotage on Thai croplands. It is this protectionist policy that Anderson and representatives of other global corporations want to change in Thai politics. Due to corruption in the powerful Thai Environment Ministry, the outside pressures of business interests such as AgriGen, and other influencing factors, a Thai Trade Ministry once vehemently opposed to doing business with the calorie companies, but no longer so, ascends to power and ushers in a new era of commerce for Thailand—at least until the end of the novel.

The Windup Girl can be used effectively to sustain conversations from the perspectives of all of the environmental philosophies outlined in the previous chapters. This is not to suggest that the other works of environmental science fiction examined in this study cannot be successfully explored from a multitude of transformative environmentalist points of view, but instead to give readers a concise sense of the ways in which decades of carefully debated and formulated environmentalist philosophies continue to find their way into science fiction. Bacigalupi’s entire book is persistent in fleshing out the ecodystopian implications of Val Plumwood’s Illusion of Disembeddedness—my focus in chapter 1—and Gibbons provides the most succinct admission about the resulting new world of genetic manipulation: “Nature has become something new. It is ours now, truly” (247). But for us, today, nonhuman nature is not something entirely new, yet. It is not yet “ours now, truly” despite the decidedly second nature within which we live. The collective goal of environmental science fiction, and of our ecocritical analysis of it, is to contribute to a host of cultural efforts that aim to prevent the total realization of what Gibbons observes. Indeed, the very focus of ecocritical literary study is extratextual, challenging us “to bring to consciousness [our] views about the world, [our] sense of personal responsibility in that world, and to consider the impact of con-
temporary society on the environments in which everyone lives and dies” (Murphy, *Ecocritical* 6).

From the perspective of deep ecology *The Windup Girl* offers an interesting and complicating extratextual discourse about the transformative movement’s ecosystemic protectionism, bringing to consciousness an understanding both of ecological and community vulnerability and of the challenges that come along with efforts to liberate ecologies and communities from the less-than-ecological trajectory of modern history. Chapter 2 reviewed Arne Naess’s principle of ecosystemic vulnerability to outside influences and later examined the wats in John Brunner’s *The Sheep Look Up*—utopian enclaves trying unsuccessfully to fend off the dystopian intrusions of the external world. Ecotopian deep ecology admirably wants to maintain a strong localism in self-sufficient communities, and ecodystopian fiction raises important questions for deep ecology about the possibilities of doing so when the borders separating such ecologies and communities can only be imaginary. The corrupted outside world cannot be held at bay, to be sure. But what about the world inside the separatist ecotopia? For Bacigalupi this world is likewise corrupted. Together with being easily bribed, the Thai Environment Ministry’s “white shirts” are brutally nationalistic, and along with their laudable policies against calorie company foods comes their unethical stance against Others, whether genetically modified Japanese “windup girls” or Chinese immigrants. In no way does *The Windup Girl* come across as a conservative cry of ecofas-cism against preservationist efforts, though. Instead the novel imagines a future when, due to a combination of global poverty and hunger, the private control of biology, risen seas, geopolitical strife, intranational political infighting—in short, the phenomena whose seeds are germinating in the modern world today—the deepest ecology might regrettably turn out to be the most vicious.

An ecofeminist look at *The Windup Girl* also produces valuable extratextual observations and critical commentary. The nonfictional, near-future equivalent of the book’s AgriGen is the St. Louis, Missouri–based agricultural biotechnology corporation Monsanto, “the Big Brother of the new world agricultural order” (Robin 2). As Marie-Monique Robin details in her book *The World According to Monsanto*, by 2007 Monsanto legally possessed patented genetic material in the crops growing on about 225 million acres of farmland around the world (4). Further, with its 2006 acquisition of the cottonseed supplier Delta and Pine Land Company, Monsanto now holds the patent on the control of plant gene expression technology, otherwise known as Terminator technology, which
makes it possible to alter a plant’s genetics so it produces sterile seeds.¹ For Vandana Shiva these legal and biotechnological apparatuses, which are employed by AgriGen in Bacigalupi’s novel and also receive critical treatment in his short story “The Calorie Man,” epitomize the patriarchal colonization of biological regeneration. In Biopiracy Shiva replicates the cultural ecofeminist argument, reviewed in chapter 3 above, by asserting that “The continuity between regeneration in human and nonhuman nature” was “the basis of all ancient worldviews” (43). The emergence of patriarchal dualism and its association of women with a passive nonhuman nature severed this continuity, leading to a devaluing of biological regeneration without which, Shiva argues, “there can be no sustainability” (43). About seed technologies, Shiva continues, they “reproduce the old patriarchal divisions of activity/passivity, culture/nature. These dichotomies are then used as instruments of capitalist patriarchy to colonize the regeneration of plants” (45).² Shiva’s hope is that ecofeminist analysis will lead to the decolonization of regeneration and the reclaiming of a “non-patriarchal mold” (45).

Finally, while AgriGen’s (Monsanto’s) presence in The Windup Girl provides a clear opportunity for an ecosocialist critique of particular capitalist strategies of global conquest, in this case its agricultural sector’s biotechnological, legal, and political tactics, the novel also encourages two related but more general economic criticisms. The first of these is of capital’s tendency to turn ecological, social, and political traumas—many of which the economic system directly or indirectly begets, often with state support—into economic opportunities. We have seen this issue foregrounded in Brunner’s novels, in The Space Merchants, in The Word for World Is Forest, and in the Mars trilogy, and real life has its examples, too. Referencing the most recent U.S. war with Iraq, Bill McKibben highlights a case in point: “In Iraq, one of the first laws adopted by the U.S.-led transition government in 2003 protected the patenting of plants and seeds, even though 97 percent of Iraqi farmers used seeds saved from their own crops or from local markets to grow their own food” (Deep 193). While Iraqi farmers can still save traditional seeds, the postinvasion law “‘facilitate[s] the penetration of Iraqi agriculture by the likes of Monsanto, Syngenta, Bayer, and Dow Chemical’” (quoted in McKibben, Deep 193). This capitalist propensity to provoke and then take advantage of distress is highlighted in The Windup Girl with both AgriGen’s and the global shipping company CARLYLE & SONS’ involvement in fomenting the civil war that ultimately topples the Environment Ministry. Tellingly, at the very moment of the latter’s surrender, AgriGen ships arrive in Bangkok.
to unload the corporation’s rice and soy products, as well as the team of AgriGen employees who will be exploiting the seedbank.

To contextualize another one of The Windup Girl’s economic criticisms we can turn to Slavoj Žižek, who counters the common myth that capitalism is sustained by the greed of the owner class, observing instead that greed is “subordinated to the impersonal striving of capital to reproduce and expand” (Living 132). Rather than serving his or her own self-interest, the individual capitalist has an ethical responsibility to serve “the capitalist drive,” “to put everything, including the survival of humanity, at stake . . . simply for the sake of the reproduction of the system as an end-in-itself” (Living 335). While in The Windup Girl one character does read greed in the eyes of AgriGen’s recently arrived employees, and while Anderson does promise his colluders on several occasions that a new era of trade will change their fortunes, in its entirety the book supports Žižek’s assertion. The world of the novel is suffering through a post-oil “Contraction” (62) and all of the postapocalyptic repercussions of such an end to what Imre Szeman deems our history and our ontology: oil (Szeman 34). But rather than striving to reactivate the era of “Expansion” for his own selfish interests, Anderson does so to keep Des Moines “alive a little longer,” as he admits to himself (86). A most frightening prospect is that capitalism is not motivated by the greed of the owner class but by an absolute duty to perpetuate the reproduction of the economic mode indefinitely, even—or especially—in the face of overwhelming evidence that capitalism is unequivocally incapable of surviving forever.

With its multifaceted environmentalist critiques, The Windup Girl is one of the latest works in a history of involved environmental science fiction texts, a handful of which have made up the analytical emphases of the foregoing chapters. I do not suppose that the subgenre itself will change the world. Yet, if students, teachers, and scholars of (inter)disciplines such as ecocritical literary studies, science fiction and utopian studies, environmental humanities, environmental studies, and more begin—or in some cases continue—to read, teach, and write about environmental science fiction and the value of its cultural commentary, then we can at least expect that the subgenre will become firmly embedded in the canon of fiction and nonfiction environmental writing. It is this canon, made stronger by science fiction’s presence, that provides the tools for thinking and building a new way forward.