CONTENTS

Introduction

ENVIRONCIDE, SOCIETY, AND TOTAL WAR

MOST BOOKS about total war *begin* with the First World War in the fields and forests of Flanders. This book about the impact of total war on society and the environment *ends* with the First World War in the woodland savannas of Angola and Namibia. In fact, by 1914, total war had been central to the practice of war across the globe for at least four centuries. The scorched landscape in Flanders depicted on the cover is an iconic photo that to many captures the devastation caused by war much better than a thousand words. But, like similar images, the photo typically is taken to symbolize the impact of total war as an entirely new 20th-century Western phenomenon, a product of the dark side of modern industrial society, science, and technology. The First World War, however, was not the first conflict that transformed the idyllic fields and forests of Flanders into a muddy and charred chaos, nor was such an experience unique to Flanders. Rather, total war as the indiscriminate and simultaneous destruction of society *and* environment marked armed conflict throughout the 16th and 17th centuries, from the Spanish conquests of the Aztec and Inca Empires to the Iroquois Wars, the War of Flanders/Dutch Revolt, and the Thirty Years War. The Age of Reason with its credo of limited war offered no respite from the practice of total war. To the contrary, such conflagrations as the Wars of the Spanish, Austrian, and Javanese Successions; the French and Indian Wars; and

the American Revolutionary War demonstrate a high degree of continuity in the ways of war across the globe. In many respects, 18th-century warfare actually constituted a bridge between 16th- and 17th-century so-called primitive or uncivilized war and 19th- and 20th-century modern war, including the French Revolutionary and Napoleonic Wars; the colonial wars in Latin America, Asia, and Africa; and the First World War.

This book revisits select early modern and modern era conflicts by examining the impact of war on the environment-society nexus. Nuclear proliferation, a resurgence of the Cold War, and escalating conflicts in the Middle and Near East, Eastern Europe, and Africa raise troubling concerns about the consequences of total and genocidal war, while climate change, pollution, emergent diseases, and extinctions raise the specter of global ecocide. Scholars, however, have rarely studied total war, ecocide, and genocide in constellation. Studies of the war-environment nexus and the war-society nexus remain largely separate: war *and* environment *and* society as an interrelated trinity has been relatively neglected.

War affects environment and society simultaneously because humans are shaped by and in turn shape the environments they inhabit. The human-shaped environment constitutes environmental infrastructure because it is neither fully Nature (thence the anthropocentric *infrastructure*) nor entirely an artifact of Culture (thence the qualifier *environmental*). Rather, environmental infrastructure, which includes homes and stables, fields, fences, soils, crops and weeds, granaries and food stores, animals, orchards, wells, dams, canals, and sluices, is a coproduction of human ingenuity and labor on the one hand and nonhuman actors (animals, insects, microbes, and plants) and forces (physical, chemical) on the other. Moreover, maintaining, repairing, and (re)producing environmental infrastructure is a process that can perhaps more easily be imagined as a verb: *environing*. Environing denotes that humans shaping their environment is a perennial project that is subject to and dependent on continuous investments of energy, capital, and knowledge in the face of ever changing conditions. It both grafts on and competes with biological, climatic, chemical, and geophysical dynamics. War interrupts environing, increasing societies' vulnerability to human-made and natural disasters.

Environcide consists of intentionally or unintentionally damaging, destroying, or rendering inaccessible environmental infrastructure through violence that may be episodic and spectacular (e.g., genocide or mass killing) or continuous and cumulative (e.g., everyday war violence). The unholy alliance between war, famine, and disease has been noted from biblical times to the present: the Four Horsemen of the Apocalypse often ride together. Targeting an opponent's environmental infrastructure, either directly by destroying homes, fields, orchards, food and seed stores, reservoirs, and dams or indirectly through population displacement, constitutes environcide because it undermines livelihoods and ways of life, increasing a society's vulnerability to drought and disease, and triggering epidemics and famines.

The concept highlights the how and the why of the simultaneous and interactive impact of war on environment and society. Environcidal strategies and tactics aim to deny the use of environmental infrastructure to the opponent through scorched earth tactics, sieges, and strategic bombing; by living off the enemy's land and making war pay through conquest and booty; and by weaponizing fire and water. Environcide typically manifests as total war because human societies and their environmental infrastructures are at once the object, the subject, and the instrument of war. Belligerents mobilize all available military and civilian resources for war through recruitment of soldiers and labor; war taxes and tribute; requisitions of food, animals, and shelter; and outright pillage and plunder. Premodern and modern heads of state, generals, and soldiers did not merely wage war about and in abstract and empty state territory. Rather, they fought wars about, with, and in what animates, fills, and enriches space: the environmental infrastructure that sustains populations, states, and armies. Combatants and noncombatants alike enacted and were affected by the deprivation of environmental infrastructure.

The four main arguments of this book are laid out in the sections that follow and are accompanied by an outline that explains how the various chapters contribute to the larger argument. The first section (*War, Environmental Infrastructure, and Environcide*) argues that the impact of war on the environment-society nexus is more comprehensively framed by highlighting *how* belligerents depend on, target, and weaponize

environmental infrastructure. Armies and soldiers undermine and destroy rural livelihoods and ways of life, effectively waging environcidal war. The second section (*Genocide, Ecocide, and Environcide*) explains how environcide is both derived from and different from genocide and ecocide. Genocide and other crimes against humanity are categories of legal action, rather than merely descriptive or analytical concepts. Ecocide is considered a heinous act against nature with an ambiguous legal status in international law. Environcide highlights how mass violence simultaneously affects environment and society: environmental warfare is a crime against humanity and a crime against Nature. The third section (*Perpetrators, Victims, and History*) focuses on *who* is involved in and affected by mass violence and addresses the implications for historical agency. Typically, the literature on mass violence identifies discrete categories of active perpetrators and passive victims, attributing the former's agency to a historically determined development of a specific way of waging (total) war, for example, a German *Sonderweg* or a Western way of war. But the practices of war discussed in this book suggest a much more dynamic positioning and repositioning of perpetrators and victims. The fourth section (*Environcide, Total War, and Resource Wars*) explains *why* environcide constitutes total war. Environcide treats a group's environmental infrastructure as a subject, object, and instrument of war, increasing the entire population's vulnerability to drought, flooding, hunger, thirst, predators, plagues, and pests, with the attendant risk of mass killing, ecocide, and genocide. Each chapter emphasizes different combinations of how environcide and other forms of mass violence were practiced and experienced in different eras and regions.

War, Environmental Infrastructure, and Environcide

Concerns about nuclear, biological, and chemical holocaust in the 1970s and 1980s, fueled by the fallout of Agent Orange in Southeast Asia and the global escalation of the Cold War, drew attention to the devastating direct impact of war on the environment and human health. The First Gulf War, with its blackened skies and soils, unexploded ordinance

scattered across the landscape, and exposure to nerve gases and low-grade nuclear ammunitions, renewed the debate.[1] Environmental historians turned to the study of conflict, while military historians highlighted the impact of war mobilization and warfare on ecosystems. The destruction of such environmental resources as forests during conflicts as a result of scorched earth tactics and the cratered moon-like landscapes of WWI Flanders and northern France battlefields dramatically illustrate the destructive impact of war on environment and society. Landscapes have been and continue to be "militarized" across the globe as they are drained of their natural resources or biodiversity to support military buildup during times of war and peace, from the deforestation caused by the construction of wooden warships to the massive mobilization of such resources as oil, metals, timber, and food during the World Wars and the Cold War.[2]

Frequently, however, the impact of war on human society and culture, as well as its impact on the environment as an ecosystem, are studied in isolation, reflecting the long shadow of the Nature–Culture dichotomy. Theoretically, the Nature–Culture paradigm has been rejected in the field of environmental history; in practice, however, it has proven to be tenacious. The Nature–Culture dichotomy is both embedded in and expressed through a closely overlapping and nested set of binaries: the non-Western/premodern versus the Western/modern. Presumed to be largely living in and by Nature, premodern and non-Western societies consequently are thought of as highly vulnerable to the caprices of undomesticated Nature. In Western/modern societies, however, science and technology are perceived to have domesticated Nature, replacing it with human artifact, that is, Culture.[3] In modern and Western perceptions, mass violence against human culture constitutes a crime against humanity or a war crime. War against Nature, for example, the destruction of forests, is considered an environmental crime at best, rather than a crime against humans.[4]

But war's impact on Nature and Culture can't be separated. What often is described as either Nature or a natural resource on the one hand and as Culture or technology on the other is, in fact, usually something in between, that is, a dynamic mixture of Nature and Culture:

environmental infrastructure. Environmental infrastructure sustains and facilitates human (and nonhuman) lives, livelihoods, and ways of life, but it is neither solely a gift from Nature nor exclusively a human Cultural artifact. It is the product of both human and nonhuman (including biological and geological) agency and processes. In the past as well as the present, most of the earth has been shaped by human use and management, resulting in, for example, the maintenance of savannas and prairies through fire regimes, domestic animals and plants, anthropogenic forests and soils, polder lands, mounds and terraces, irrigated and "cultivated" landscapes, and the "built environments" of villages, towns, and cities. Human shaping of the earth's environment often was and is a coproduction involving nonhuman animate and inanimate agency. For example, humans deployed the force of water and the principle of gravity to drain or irrigate lands or to generate energy. They also mined carbon deposits, including wood, peat, coal, and oil as fuel, and employed animals as companions, protection, and sources of power, food, fur, hides, and medicine. In turn, select animals, microbes, and crops and weeds exploited, shared, shaped, and thrived in the environmental infrastructures that sustain human societies.

Moreover, the discussion about global climate change highlights the fact that despite the greatly increased human mastery of science and technology in the Anthropocene, modern society remains embedded in and dependent on ecosystem earth, just as the future of ecosystem earth depends on humanity. The concept of environmental infrastructure explicitly acknowledges the role of human agency and nonhuman forces in managing and shaping the (natural) environment. The concept accepts that humans have neither conquered Nature nor replaced it by cultural artifact, and recognizes that having shaped premodern or traditional societies, Western and non-Western alike, the environment continues to shape modern societies as well.[5]

The indirect impact of war on human societies and the environments upon which they depend has received little attention.[6] Yet, the indirect impact of environmental warfare may be spatially and temporally even more significant than the intentional destruction effected by conscious scorched earth tactics or the "collateral damage" caused by actual armed

combat. The massive population displacements caused by war forcibly removed refugees from their homes and the environmental infrastructure that sustained them. These displacements affected not only the war zone but also the refugee safe havens as well as the corridors between home and refuge. In addition to being spatially significant, the population movements are also temporally significant given their long-term and cumulative effects. Human and nonhuman shaping of the environment is an ongoing process: in order to sustainably support lives, livelihoods, and ways of life, environmental infrastructure must be continuously maintained, repaired, re-created, and reinvented in the face of decay and ever changing circumstances, including global climate change. Otherwise, the environmental infrastructure deteriorates and collapses: animals go feral, crops re-wild, canals and wells silt up; orchards and plantations are swallowed by the forest; and villages and cities are overgrown by weeds and bush or covered by surging seas or sweeping desert sands. Although damaged or destroyed environmental infrastructure can be recovered and reconstructed, the costs are often enormous and sometimes prohibitive.

Genocide, Ecocide, and Environcide

In the context of poor sanitation, malnutrition, and exposure, armies constituted mobile and self-replicating arsenals of biological warfare. Mongol armies spread the plague to a medieval Europe wracked by famine and war, and the First World War unleashed the Great Influenza of 1918.[7] War caused famine and deadly diseases in 1940s Warsaw, Leningrad, Holland, and Bengal.[8] Typhus and rinderpest are known as "war plagues."[9] Nevertheless, although war, famine, and disease often feature in accounts of genocidal and mass violence, rarely are they identified as major factors.[10]

This is especially marked in the 15th- through 19th-century Americas, where distinct bodies of literature focus on the wars of conquest, the impact of epidemic diseases, and environmental transformations as largely isolated events. The conquest approach focuses on the politico-military dimensions and the attendant political, social, and cultural

destruction.[11] The disease approach emphasizes the virgin-soil epidemics that resulted in the indigenous American demographic collapse. Because the demographic collapse is attributed to ecological agency through contagion, the near extermination of these indigenous populations remains largely disconnected from the violence and displacement caused by military and political conquest.[12] The environmental transformation approach highlights the impact of invasive species, institutions, practices, and ideas. Buffalo and beaver were virtually hunted into oblivion following the introduction of guns, horses, and capitalism, and virulent alien plants unchecked by natural enemies overwhelmed vulnerable endemic species. The consequences of species extinctions and ecosystem collapse through habitat loss and overexploitation at times have been framed as ecocide.[13] Relatively recently, the concept of genocide has been invoked to understand the impact of the destruction of indigenous American populations (effectively linking mass violence to demographic collapse), but its use is highly contested. Moreover, the genocide argument focuses on direct (mass) killing without highlighting the context of the interaction between war, displacement, and disease.[14]

In legal terms, genocide, or the eradication of an entire population group, and ecocide, the destruction of one or more species or entire ecosystems, are both modern concepts dating from the post-Second World War era.[15] As practices, however, genocide and ecocide are much older. A key legal requirement for genocide is proof of the *intent* to exterminate a group. A perspective that segregates humanitarian atrocities from intentional environmental destruction, even if that environment sustains a specific population, would thus be considered *indirect* genocide, at best.[16] The premeditated destruction of environmental infrastructure, or displacing a population that depends on it, could constitute genocide if it imposes upon a population "conditions of life calculated to bring about its physical destruction," such as depriving people of food and homes. The destruction of the "environment," however, is one degree removed from the destruction of the group, complicating the requirement of genocidal intent: the environmental destruction is merely a tool to accomplish the premeditated physical annihilation of the group.[17]

Nevertheless, in depriving a group of such environmental infrastructure as shelter, agricultural lands, and food supplies, thereby exposing people to cold and hunger during a freezing winter, the perpetrator consciously and intentionally takes the risk that the exposed group might be exterminated. Moreover, for non-Western or premodern societies, an additional issue is the pervasive perception that they exist in and by Nature, that is, they lack environmental infrastructure. From such a perspective, displacing a group from one "natural" environment to another might not necessarily be deemed as an imposition of fatal "conditions of life," making it even more difficult to argue that extermination was the ultimate objective.[18]

Yet, some human rights scholars have argued that the intent to commit genocide can be derived from the acts of explicitly depriving a population of food, water, shelter, and other key resources that willfully exposes a group of people to cold, heat, hunger, or insecurity. The situation may result in circumstances that endanger human lives, health, and sanity, and ultimately jeopardize a group's ability to survive. The perpetrators can be expected to understand that their reckless use of such deadly weapons as scorched earth or the separation of a population from its environmental infrastructure might risk a group's extermination.[19]

Deploying the concept of environcide evokes both genocide and ecocide. Genocide is first and foremost a legal category. Ecocide is not currently acknowledged as an international crime, but it is under consideration to be defined as such, and several individual states have defined ecocide as a crime.[20] Moreover, ecocide resulting from human greed and abuse may involve a structural violation of ecosystems in the form of slow or silent violence that is gradual, cumulative, and almost imperceptible, in contrast to the highly visible and immediate impact of spectacular and dramatic acts of mass violence.[21] Finally, although large-scale environmental destruction and the obliteration of civilian infrastructure during mass conflict constitute war crimes, such concerns are frequently subordinated to and legitimized by the principle of military necessity.[22]

Environcide may employ the same spectacular acts of extraordinary mass violence that mark genocide. Unlike genocide, however, and like

ecocide, environcide may involve the everyday violence of war. These different forms of violence need not be compartmentalized, and spectacular and episodic violence, everyday war violence, and structural violence may occur simultaneously.[23] Kings and generals extorting annual war taxes, officers demanding monthly protection money, and soldiers exacting meals and money, as well as stealing a chicken or two every day, could bring farmers and villagers to the brink of despair even without overt deadly violence.

Perpetrators, Victims, and History

Highlighting humans as creators and destroyers of environmental infrastructure, as well as perpetrators and victims of genocide, ecocide, or environcide, raises the issue of historical agency. While victim agency is limited and constrained by perpetrator violence and the forces of Nature, the outcomes are neither predetermined nor linear. Moreover, a disregard for human agency in the perpetration of environcide privileges such structural and ahistorical defaults as human nature and the nature of war, as though these causal factors require little or no further explanation. One influential structuralist argument contends that a German culture of mass violence that developed during the 1870–71 Franco-Prussian War subsequently was refined during the German colonial experience in Namibia and East Africa, creating a distinctively German way of war that shaped the World Wars and caused the Holocaust.[24] Yet, British, Portuguese, French, North American, and Dutch colonial warfare were very similar to the German way of war.[25]

Settler colonialism in Africa and the Americas constituted a major source of genocidal violence. Yet, the Rwandan case in Africa suggests that while the context of colonial settlers was commonly a facilitating factor, colonial settlers were not necessarily always the perpetrators. The 1990s Rwandan genocide was a case of subaltern genocide in which Hutu groups launched a "pre-emptive" first strike at the minority Tutsi after repeated Tutsi "settler" mass killings of Hutu subjects. Colonial education and practices constructed the Tutsi as a race of alien Hamitic settlers who had conquered Rwanda.[26] Acknowledging the experience

of subaltern genocidaires, that is, acknowledging that fearful potential or actual past victims of mass killings may turn into mass killers themselves, as occurred in Rwanda, suggests that the division between perpetrators and victims is not clear cut.[27]

Nonsettlers were often perpetrators in exterminatory mass violence, and genocidal violence occurred in nonsettler colonial contexts, too. During the 1950s Mau Mau revolt in Kenya, British boots on the ground were few, and the colonial forces relied heavily on indigenous Kikuyu loyalists in a ruthless and inhumane counterinsurgency campaign.[28] Similarly, the perpetrators of the 1871 Camp Grant Massacre against a group of Apache, included not only Euro-American settlers but also indigenous American O'odham and Mexican American *vecinos* who had long suffered Apache raids.[29]

During the Rwandan genocide, neighbors and "upstanding" citizens, including clergymen, doctors, and intellectuals, frequently were among the perpetrators.[30] Similarly, the perpetrators of the Holocaust were not solely fanatic German SS but also "common" German fathers, Ukrainian guards, and at times even the victims' neighbors.[31] Perpetrators and victims of genocide are often constructed as "others" in racial, religious, cultural, political, social, or economic terms, but they can also be intimates. This discussion in the field of genocide studies is highly relevant for understanding environcide as a historical practice. Indeed, the chapters that follow demonstrate that even where outsiders practiced environcidal warfare, local allies frequently played a key role as facilitators and sometimes even as instigators. In addition, victims themselves sometimes perpetrated environcide.

Can victims of mass violence speak? Certainly, survivors can, however mediated and shaped by memory- and history-making their narratives might be. The history of the Holocaust relies on the limited and fragmented sources of survivors' and perpetrators' testimonies.[32] Chapter 10 is based heavily on oral histories of the survivors of two decades of war, famine, and deadly epidemics before, during, and following the First World War in southern Africa. Although introduced in the last chapter, the interviewees' experiences with environcidal war and their postconflict struggles to rebuild their communities and a viable

environmental infrastructure are the model and inspiration for the book. Other chapters similarly draw on testimonies by farmers and villagers—often submitted orally to local officials, detailing the impact of war on their lives, livelihoods, and ways of life—and offer a viable alternative to oral history and the court and inquisition records that inform social history.[33]

Throughout Western and Southern Europe, local, regional, and state administrations collected detailed accounts of the cost incurred by town and countryside as a result of the imposition of special cash war taxes ("contributions") and military requisitions of provisions, fuel, lodging, and transport; extortions of bribes and gifts; and the damage caused by soldiers to property. These documents served to support individual and community claims for tax reductions or restitution, submitted as oral or written testimony. Restitution cases often dragged on for years, sometimes even decades, creating a specific type of archive. These records ended up in a special subcategory of pre-Napoleonic-era local archives often labeled with the equivalent of the English term "war damage."

The records, of course, have their own biases.[34] For one, they are selective because war destroyed an incalculable number of documents. Moreover, because the documents served to support claims for restitution, the potential exists that they inflated losses, misidentified the perpetrators of the inflicted damage by attributing losses to soldiers as opposed to drought or disease, and emphasized the damage and the value of the losses of the rural elite who did the reporting. The war damage records thus understated the losses of the poor and marginalized (and illiterate) who had little or no wealth to lose beyond such ordinary possessions like a loaf of bread, a ham, a few chickens, or perhaps a mule or cow. In addition, women's testimonies are underrepresented overall and predominantly concern widows because only the death of their husband made them legible in the records as default heads of households. Last, but not least, the "war damage" records seem to underreport the occurrence of severe physical violence in the countryside. Accounts of soldiers inflicting serious bodily harm, including torture, rape, and murder, are relatively rare in the archive. Two factors may account for this. First,

the documents seek restitution for losses of and to movable and immovable "property" and do not relate to compensation for bodily harm. Second, the reports often were submitted to the (military) authorities that controlled the area during the war while the perpetrating soldiers and their commanders were still present, and the petitioners may have feared retaliation for making accusations of what were capital crimes.

Four chapters (1, 3, 5, and 6) are heavily based on such local "war damage" archives. To compensate for a Low Countries' environmental and historical bias, chapters 5 and 6 each compare the practices and experiences in the Low Countries with those of a different theater of war: eastern coastal Spain (the Kingdom of Valencia) and the Riviera coast of France and Italy, respectively. The rationale for a heavy reliance on Dutch archives is that, in comparison to other Western European sources, Dutch archival sources have been used relatively less frequently for publications in English. Still, the emphasis on Dutch sources does not mean that the chapters specifically highlight Dutch war practices. During the Dutch Revolt, the Thirty Years War, and the Wars of the Spanish and Austrian Successions, the Low Countries were the theater of transnational wars that drew in armies, generals, and soldiers from across Europe and were in many ways European wars.[35]

Histories of war, histories of societies, and environmental and climate histories tend to emphasize the larger abstract, structural, and conjunctural forces of history and reflect the views of the elite. History, however, operates at different scales simultaneously, though they are not necessarily in sync. This phenomenon is brought into sharp focus by the debate surrounding the Crisis of the 17th Century, an age of upheaval that marked the beginning of the modern world. Perhaps no case highlights the challenges and contradictions of the era more than that of the Dutch Republic. Despite being deeply embroiled in existential and destructive conflict, the Dutch Republic simultaneously experienced a Golden Age with a booming economy and a global empire that spanned the seven seas. It seems difficult to reconcile the Golden Age moniker with the fact that many people who lived in Dutch territories were subjected to the brutal destruction of the Thirty Years War. The paradox is partly attributable to scale. Studies of the Dutch Republic

heavily weigh the thriving economy of Holland, which was by far the largest of the provinces of the United Netherlands. Holland and most of the provinces of the republic did not experience the direct impact of war in the 17th and 18th centuries, while the inhabitants of Dutch Brabant and Dutch Flanders bore the brunt of the war's devastation. Because aggregating the economic output of the republic averages out the decline in Dutch Brabant and Dutch Flanders, the glare of Holland's Golden Age hides the destruction and trauma of war in the republic's periphery. Moreover, the Dutch Republic forced occupied enemy or neutral territories in the Spanish or Austrian Low Countries and France to sustain its armies and soldiers in the field through the exaction of contributions (the name used for special war taxes) and the requisition of provisions, supplies, labor, and transport, reducing the burden of war on its core economy and society.

Environcide, Total War, and Resource Wars

Environmental infrastructure was not only a tool and subject of war but frequently also an object and a prize of war. The product of continuous investments of capital, labor, and knowledge, and the means for sustaining lives, livelihoods, and ways of life, environmental infrastructure was a highly valuable resource, and capturing or exploiting it was as essential in war as it was in peace.[36] During war, in addition to pillaging, plundering, stealing, damaging, destroying, and alienating environmental infrastructure, armies and soldiers lived off the land; sheltered in farms, villages, and towns; and extorted food, drinks, forage, livestock, valuables, and money. France's revolutionary and Napoleonic armies lived off the land, as did the German army in Belgium and Northern France during the First World War.[37] It was only during the second half of the 19th century that armies developed their own logistical apparatus and consequently became less dependent upon foraging and pillaging.[38] In theory, modern armies no longer directly live off the countryside's environmental infrastructure through plunder, extortion, or tribute. In practice, of course, this has not always been true. Moreover, the importance of the strategy of denying access to and use of environmental

infrastructure to "the enemy" remains unchanged. In this sense, modern strategic bombing, however 20th-century the technology might be, echoes 16th-century scorched earth.

Resource wars are not merely a modern phenomenon. Across time, belligerents fought wars not only to destroy enemy resources but also to gain them.[39] Nazi soldiers and policemen as well as local police, civilians, and even neighbors pilfered Jewish victims' dead bodies, lands, homes, money, valuables, and clothes.[40] Confiscated royal domains and impounded Catholic church and loyalist properties were a key source of income for rebel authorities during the Dutch Revolt.[41] Having armies live off the opponent's land transferred part of the cost of waging war to the enemy: in that sense, war paid for itself. Extorting contribution (war tax) and tributes, as well as pillage and territorial conquest for resources, especially environmental infrastructure, made war profitable or at least helped defray its enormous cost. In fact, war was a business to many until at least 1700: colonels who commanded regiments were also entrepreneurs who used their own funds to raise and maintain the regiments that constituted early modern armies.[42] The profitability mechanism operated not only at the institutional level but also at the individual level: soldiers and civilians benefited through wages, plunder, booty, and black marketeering. Both ancient Rome and the early modern United States commonly used confiscated conquered land to pay its veteran soldiers.

Because humans were its cocreators, the destruction or alienation of environmental infrastructure constitutes a loss of proprietary resources rather than simply a loss of unimproved and bountiful natural resources. The fact that indigenous peoples' resources are often seen as natural and therefore as nonproprietary or communal complicates the prosecution of pillage as a war crime because pillage is defined as stealing the personal and individual property of civilians.[43]

The perception of an existential threat imposed by challenging material or immaterial conditions can also lead to environcide, ecocide, or genocide: famished refugees displaced from their own environmental infrastructure might use extreme violence against other people, animals, and plants in order to survive, and in the process, shape-shift from

victims to perpetrators.[44] The act of burning homes, fields, fences, villages, and towns, and the subsequent re-wilding of the landscape, erased all evidence of the violent appropriation and, in effect, created terra nullius. Killing former owners or driving them away, preferably beyond the territorial, social, political, or cultural space of the perpetrator, removed not only the owners but also contemporary witnesses and future claimants who could file for property restitution, damages, or justice. Writing the former owners out of history erased them from memory. Historical claims of genocide, extermination, and demographic collapse, or its denial, by both victims and perpetrators may constitute active memory cleansing, even if unintentional.[45]

Total wars are unrestrained resource wars: they target and employ all resources, both human and nonhuman. Total war sometimes is portrayed as a quintessential modern phenomenon that evolved from modern institutions, ideas, and technology.[46] But, total war and mass killings are not dependent on modern technologies. While many victims of the Holocaust perished in industrial gas chambers, numerous others were killed by regular firearms and villagers wielding improvised weapons. Similarly, the 1990s Rwandan genocidaires killed many of their victims with machetes.[47]

What defines total war is that anything and everything is the object, subject, and means of war. It involves the total mobilization of a society's resources to destroy the opponent, and the deployment and targeting of any people and resources by any and all means necessary. During the Second World War and the planning and practice of conflict during the Cold War, strategic bombing aimed to destroy the enemy's military and civilian infrastructure, including housing, energy, communications, water, and food production and processing, in order to deprive the enemy of all resources and break its will and capability to fight.[48] Scorched earth warfare, war taxes and tributes, and armies living off the land had the same intent and impact in premodern wars. Mass mobilization for the military may have been an 18th-century innovation, but the mass mobilization of civilian resources for war predated the French Revolution by far.[49]

Moreover, instigating massive population displacement is perhaps the most powerful weapon of total war in the past and present. Displacement deprives a population of its environmental infrastructure, exposing it to the elements, affecting the abandoned areas as well as taxing the host area's resources.[50] As illustrated by the current refugee crises in Europe and North America, a massive influx of refugees poses a severe challenge for any state, ancient or modern.

In brief, throughout human history, environcidal warfare has had a highly destructive impact on rural populations and landscapes, directly through murder, maiming, rape, plunder, and the destruction of homes, crops, and food stores, and indirectly through population displacement and the ensuing loss of access to key environmental infrastructure. Total war and environcide were common ways of war in the premodern era of the 16th, 17th, and 18th centuries. For armies that lacked a logistical apparatus, securing such rural resources as labor (to construct or undermine fortifications and transport army supplies), shelter, construction materials, food, and livestock, while denying the same to the opponent, was essential. For many peasants, farmers, hunters, and gatherers, securing lives and livelihoods, even under peaceful conditions, was a daily struggle with very narrow margins. Individually or as a group, the effects of exactions or plunder by passing, billeted, or camped soldiers and armies, and displacement or flight from the environmental infrastructure that sustained them, could easily spiral into catastrophic destruction, disease, and death.

War, Society, and Environment: Chapters and Cases

The argument for environcide is presented in ten chapters that navigate between different temporal and spatial scales. Six chapters (1, 3, 5, 6, 9, and 10) dissect the processes of interactions between war, society, and environment at the level of the lived experience in hamlets and villages over several years. Four chapters (2, 4, 7, and 8) operate at regional or continental levels across time periods ranging from multiple decades to a century or so. Chapters 1–2, 3–4, and 7–8 work in pairs: one chapter

is a detailed case study and the (New World) partner chapter offers a broader macroscale overview that demonstrates how the dynamics identified at the microscale may have played out elsewhere over much larger units of space and time. The trio of chapters 5, 6, and 7 demonstrate that total war as environcidal war was a global phenomenon, exposing the myth of the 18th century as an age of limited, rational, and scientific war. Total war did not emerge at the *end* of the 18th-century Age of Reason; rather, it *defined* the Age of Reason, despite being intellectually rejected as a relic of a bygone and primitive era. The last three chapters (8, 9, and 10) demonstrate that 19th- and early 20th-century conflicts in North America, Southeast Asia, and Southern Africa were not marked by a set of separate "petite guerre" practices of war. Rather, the wars shared fundamentally environcidal strategies and tactics with one another, through premodern 16th- through 18th-century warfare in general and contemporary European and "Western" warfare in particular, and therefore constituted total war.

The structure of this book's argument is largely chronological to allow for the identification of both continuity and change. The case of the late 16th-century Dutch Revolt precedes the chapter about the early 16th-century Spanish conquest of the Americas because it exposes in more detail how war, environment, and society interacted. Environcidal warfare did not originate in late 16th-century Holland. Rather, the Spanish conquistadors used it as a tactic and strategy in early 16th-century America. Many indigenous American societies in Central and South America relied on environmental infrastructure that included dikes, dams, polders, irrigation canals, and drainage works that equaled or surpassed that of contemporary 16th-century Holland. Living off the land through taxation, forced contributions, plunder, and scorched earth marked the Spanish campaigns in the Old and New Worlds alike, giving rise to the Black Legend that broadcast the ruthless and unbridled violence of the Spanish war machine.

Bringing the wars of conquest in the Americas in conversation with environcidal wars elsewhere suggests that war, environmental change, and societal transformations in the New World may have been much more intimately connected than has been acknowledged. War and

dislocation did not merely expose American indigenous populations to new diseases, as per the contagion model of the virgin-soil epidemics. Rather, war rendered indigenous human, animal, and plant species highly vulnerable to human and nonhuman invaders because it destroyed key indigenous environmental infrastructure or displaced indigenous Americans from their resource base.[51] War refugees exposed to cold, heat, hunger, and thirst were easy prey to invaders, be they human, animal, plant, or microbiological. To survive, desperate refugees intensified the exploitation of whatever resources were available, including animals (beaver, bison, horse) and humans (captives, slaves). In the process, neighbors often turned against one another, which triggered further displacement and destruction.[52] Displaced from their home environment and their social, economic, political, and cultural moorings, traumatized refugees were highly receptive to experimentation with new practices, beliefs, technologies, flora, fauna, and institutions, some creative, some destructive. The conditions provided an opening to introduce slave trading, wage labor, Christianity, guns, horses, livestock, wheat, commodity production, and commercial hunting. Physical and psychological displacement thus literally and figuratively opened the flood gates to invasive practices, mentalities, institutions, and species, including deadly microbes.[53]

The first chapter offers an in-depth case study of the late 16th-century Dutch Revolt, a conflict that blended with the Wars of Religion and that unveils the face of war in early modern Europe. Troops loyal to the Spanish Habsburg crown as well as rebel forces maneuvered to maximize opportunities to requisition or to raid for shelter, food, fodder, and other supplies, while simultaneously employing a scorched earth strategy in areas that they could not control in order to force the enemy to withdraw.[54] The chapter sketches an apocalyptic image of how environcide and total war transformed the heavily human-shaped polder lands of the County of Holland into a desolate swamp, crowding the survivors into urban islands where hunger and the Black Death ruled. Farms, fields, and entire villages were lost to the raging flood waters for three centuries. The close-up of the interaction between war, society, and the environment between the late 1560s and the early 1580s serves to help

identify the drivers and outcomes of similar dynamics at the macroscale of the 16th-century Spanish conquest of the New World. Thus, the elements and processes identified in chapter 1 serve to reframe the narrative of the Spanish conquest of the Americas in chapter 2.

Chapter 2 uses the rich literature on the conquest to trace how processes of environmental and societal change played out at macroscales of time and space in the first half of the 16th century. Spanish conquistadors targeted the larger societies of Central and South America because the elaborate and monumental environmental infrastructure, which included irrigation works and expansive agricultural terraces, could sustain their invading forces. Exploiting indigenous American environmental infrastructure through conquest, tribute, and pillage was essential to Spanish settlers in the Americas. In Central America, indigenous allies played a key role in the "Spanish" conquest, which raises a question about the extent to which some indigenous Americans were responsible for environcidal and genocidal warfare against other indigenous Americans. Spanish and indigenous conquerors alike were motivated by and rewarded with land grants. Deadly epidemics accompanied and followed the massive destruction and displacement caused by the wars of conquest.

Chapter 3 focuses on Brabant in the Low Countries from 1621 to 1648, when it was a major battleground for the Thirty Years War. The Thirty Years War has long been regarded as the last barbaric premodern war before the military-fiscal-political revolution that changed the face of violent conflict. The chapter highlights the everyday practices and experiences of war in the countryside. The major campaigns and sieges that occurred in Brabant during the 1620s, 1630s, and 1640s involved Spanish forces and their German Imperial allies on one side and the Dutch army and its German, English, Swedish, and French allies on the other. From the mid-1620s onward, both the Dutch state and their Spanish opponents tried to limit the extent of scorched earth campaigns, as well as exactions and extortions by officers and soldiers in the field, to prevent large-scale flight and the collapse of the rural tax base. The attempts, however, were only partially successful because armies continued to live off the land.

Chapter 4 shifts to the macroscale of 17th-century eastern half of North America and draws on the expansive literature on European and indigenous American contact. The history of the Dutch, English, and French conquest of North America's Atlantic Rim demonstrates that what their leaders rejected as a barbaric "Spanish Habsburg" way of war describes a widespread set of practices that they used themselves. Many settlers in 17th-century North America survived by exploiting indigenous American environmental infrastructure, either directly or indirectly emulating the Spanish conquistadors. Most European settlers were not so much after "land" as territory. Rather, they sought to appropriate indigenous American village and town sites, croplands, water sources, and hunting grounds, that is, cleared and fertile environmental infrastructure.[55] Dutch West India Company (WIC) officials and settlers destroyed indigenous American lives, livelihoods, and ways of life with the same methods and facility that had rendered their own Old World ancestors into refugees only a few generations earlier. Indigenous Americans responded in kind, and moreover, as in Latin America, seem to have drawn on a precontact suite of indigenous environcidal practices. The latter casts doubt on the extent to which a "Western" way of war simply crossed the Atlantic as perpetrators and victims of environcidal war migrated from Europe to the New World.

The trio of chapters 5, 6, and 7 offers a comparative and global sweep of war practices in the 18th century that demonstrates the enduring characteristics of environcide and total war. While publications and manuscripts about the art or science of war increasingly presented 18th-century "limited war" as the norm for war between "civilized" European states, the notion was far removed from the everyday lived experience of warfare. The rules of civilized war in the Age of Reason made such episodes of spectacular violence as the sacking and burning of towns and the massacring of garrisons and civilians after sieges less acceptable and thus they happened less frequently. But the rules of war did little to mitigate the cumulative erosive effects of the everyday violence of armies and the impact of soldiers' exactions and extortions on key environmental infrastructure. Based on local and regional archives in the Netherlands, France, and Italy, chapter 5 focuses on the early 1700s War

of the Spanish Succession in the Low Countries, northern France, and Spain. Chapter 6 focuses on the 1740s War of the Austrian Succession in the Low Countries, southern France, and northern Italy. Chapter 7 discusses 18th-century warfare in the Americas, Ghana, Sri Lanka, and Indonesia.

Because the prevalence of total war in modern Europe is uncontested, the last three chapters (8, 9, and 10) focus on wars fought outside of Europe. Chapter 8 ascends to the macrolevel of 19th-century North America, emphasizing how and why the indigenous populations in the North American West should be understood as war refugees. Western indigenous Americans overwhelmingly are depicted as living in, off, and by Nature as virtual primordial hunters and gatherers. For many groups, however, hunting, gathering, and raiding was a response to the loss of their homes and other environmental infrastructure. Many Western indigenous American groups had been displaced by war and were forced to create new and often dramatically different lives and livelihoods in challenging and alien environments west of the Mississippi River. Some groups created large empires based on commercial buffalo hunting and trade as well as raiding and tributes exacted from Spanish settlers and indigenous neighbors. For indigenous Americans and settler Europeans alike, however, and within the Spanish empire and beyond, living off the land often meant exploiting or alienating other societies' environmental infrastructure, as opposed to living off Nature's bounty.

The Aceh War on Sumatra, Indonesia, is the topic of chapter 9. The Dutch sought to add the Aceh sultanate to their southeast Asian empire, but met with fierce and sustained resistance. In response, Dutch forces systematically burned Aceh villages, driving the indigenous population into the mountains and forests of the interior and using hunger as a weapon of war, eerily echoing the US Army campaigns fought in the West during the same period. In conjunction, chapters 8 and 9 strongly suggest the existence of a wider consensus about the practices of war. Moreover, although 19th- and 20th-century armies by and large abandoned the custom of living directly off the land, the environcidal scorched earth and population displacement that marked 19th-century

wars in North America and Indonesia were fundamentally identical to the methods of warfare of the preceding centuries.

Focusing on the Portuguese and South African colonial conquest of the Ovambo floodplain in Southern Africa during the early decades of the 20th century, chapter 10 demonstrates that environcidal practices continued unabated into the modern era. Based on oral histories as well as colonial and missionary reports, the chapter reveals the human scale of environcide by identifying human and nonhuman historical agents, victims, and perpetrators. Taken together, the ten chapters provide a more comprehensive analysis of the interactive constellation of structures, processes, and individual and collective human and nonhuman dynamics that impact war, the environment, and society.

INDEX