Part Two

BIOTIC COMMUNITIES

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Abbildung des vnbarmhertzigen/ abschewlichen/ grausam- vnd grewlichen Thiers/

Welches in wenig Jahren/ den grösten Theil Teutschlandes erbärm- vnd jämmerlichen verheeret/ außgezehret vnd verderbet. Beneben einem Bericht/ woher dasselbe seinen Vrsprung/ wer solches erzogen/ ernehret/ rc. Endlich durch was Mittel seiner wieder loß zu werden. Männiglich an Tag gegeben.

EInem Wolffe/ im Walde grünn/ vnd auff breiter Heydt/
Der Menschn vnnd Vieh' zerreist im Grimm vnd die Schaf' zerstreut/
Einem Löwn/ Einem wilden Roß/ man sehr wenig trawt/
Jngleichn einm Menschn zornig böß/ der sein Sin beraubt/
chlangē/ Eydern/ Ratten vnd Kröttn/ man sehr fürchtē thut
ringen die Menschen oft in Nöthn/ auch vmb Leib vnd Gut
Jhrs gleichen ander schädlich Vieh/ vntrm Himmel hoch/
Welche den Menschn spat vnd frühe/ zu Schadn schleichen nach/
llich seynd diesen Bestien alln/ die Menschn feindlich gram/
ines man leben lassen soll sie tödten wo man kan/
Wer abr solche lieben thut/ auffzeucht vnd ernehrt/
Demselbn ist an Leib vnd Gut/ viel Vnglück beschert
er Mensch' so nun auf dieser Welt/ sein Creutz vnd Vnglück/
it allem Fleise selber holt/ vnd tregts auff dem Rück/
Ob er sich dessn kunt entschlagen/ b'gehrts aber nit zuthun/
Wem wil er dann sein Schadn klagn/ den er bkömbt davō/
le man dān auch jetz in Teutschland/ dergleichn Leute findn?
Gott es ist zusagen ein Schand/ daß s' voll fern vnd hindn/
Dān wie gschwind ist komn herfür/ in vnsr liebs Teutschlād/
Von allen Qualitetn/ ein Thier/ der Bestien vorgnant.
 Thier laufft aufgerichts einher/ mit zornigm Gesicht/
e, ein Löwe/ Wolff vnd Beer/ keins Menschen schonet nicht.
Mit Furcht vnd Schreckn/ in der Zeit/ die armn Leut mit Haussn/
Machn sich zu der Flucht bereit/ dem Thier zuentlauffn/

Was nun diß Thier ergreiffen thut/ Städ Dörfr Land vñ Leut
Ja die Menschen mit Leib vnd Gut/ macht es jhm zur Beut/
Dann es einen Wolffsrachn hat/ der nicht ist zufülln
Mit Gold vnd Geld früe vnd spat/ muß man sein Geitz stilln.
Zur Seitn/ hat es eins Menschen Hand/ mit Fewr/ Büchs/ Spieß/ Degn/
Verheert verderbet Leut vnd Land/ was jhm kömbt entgegn.
Des Löwens Klau zur linckn Seit/ thut scharff vmb sich greifn/
Macht viel arm' in kurtzer Zeit/ mit durchziehn vñ Streiffn
Wer sich jhm wiedersetzen thut/ muß es schwerlich büssn/
Verleurt zugleich Leib vnd Gut/ wird vntergetretn mit Füssn
Die Frucht' so kaum auß der Erd/ in vollr Blüete stahn/
Verderbt es wie ein wilds Pferdt/ das niemand halten kan.
Es hat ein giftign Ratenschwantz/ mit viel Würmern vnrein/
Die im Abzug verderbn gantz/ was noch könt nutzlich seyn.
Jhm folgt auf dem Fuß geschwind/ Hungersnoth vnd die Pest/
Die raumn weg biß auff den Grund/ was sich noch finden lest.
Wie nennet man dann dieses Thier? Es wird Krieg genant/
Von wannen kommet es dann her? Auß vnserm Vatrland/
Der Menschn Sünde in gemein/ diß bös Thier gebährn/
Welchs selbst thut die Eltern sein/ vnbarmhertzig verzehrn/
Wer hat abr diß schrecklich Thier/ biß daher aufferzogn?
Es hat/ sag ich gewiß allhier/ vnsr allr Brüst' gesogn/
Wer hat diesem Thier grausam/ geholfn auff die Bein/
Thüer vnnd Thor weit auffgethan? wir all groß vnd klein/

Aber wenig diß recht verstehn/ daß Gotts Straff nit vnter/
Die Welt dencket es thut geschehn/ ohngfehr/ was ists wundr.
Weil die Menschn in Sünd' verharrn kein Besserung zu spüern
Daß außg'reckt bleibt Gotts Arm/ die Strafn continuirn
Würd nun die Sünde nicht erkent/ Gott vmb Gnad gebethn/
Vnd bessert sich ein jeder Stand/ wie es hoch von nöthn/
Würd Gott/ wie er g'than gar vieln/ dem Thier sein Willn lahn/
Mit vns den gar auß zuspieln/ welchs niemand hindrn kan/
Alleine wahre Rew vnd Buß/ wer ein Mittel gut/
Daß Gott von seinem Zorn abliese/ wänd von vns sein' Ruth'/
So könten wir ein gnädign Gott/ durch from werdn erlangn
Würdn bald diß Thier sehen todt/ verdorbn vnd vntrgāgn/
Es würde sich mit seinem Schwerdt/ selbst würgen vnd tödtn/
Also Teutschland geholfn werdn/ aus diesm Jammer vnnd Nöthn
Datzu alls/ was es verschlungn/ heuffig wieder außspeyn/
Drüber viel Arm verjagt vertrungn/ sich würdn hertzlich frewn
Durch diß Mittel würden wir bald/ von Gott Hülf erwerbn/
Wo nicht/ müssn wir gleichr Gestalt wie ander' gantz verderbn/
Der ist nun weis vnd welglehrt/ wird selig gehaltn.
Der sich an andr Leut Schadn kehrt/ habn g'sagt die liebn Altn.

ENDE.

Figure 17. Seventeenth-century pamphlet on the Thirty Years War (Dresden, SLSU, inv. no. 334171156: *Abbildung des unbarmhertzigen, abschewlichen, grausam- und grewlichen Thiers, welches in wenig Jahren, den grösten Theil Teutschlandes erbärm- und jämmerlichen verheeret, aussgezehret und verderbet*).

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Chapter 3

DISTURBANCES

Armies: An Ecological Disaster?

Consider a seventeenth-century German pamphlet depicting a "merciless, awful, horrible and atrocious animal that has destroyed, consumed and corrupted most of Germany in a few years time" (figure 17). It denounced the suffering and misery armed forces caused during the Thirty Years War (1618–1648). This beast combines features from different creatures: a wolf's head, a bear's rump, a rat's tail, a lion's paw, a human arm, an armoured foot, and a horse's leg. It carries weapons and a torch, while eating gold, trampling an armed man, and leaving a trail of burning buildings behind. Snakes, toads, locusts, and snails follow in its wake, and destroy the crops and vines depicted in the foreground. The woodcut represents armies as a destructive force, as a catastrophe, and serves as a leading thread throughout this chapter.

Studying disturbances means analyzing disruptive impacts of armies on ecological systems, in peace as well as war, thereby engaging prevailing arguments about the destructive role of armies directly. It also entails moving to a different level within the concept of an ecosystem: biotic communities, or interactions between living beings amongst themselves rather than with environmental factors (the landscape level). This should not be interpreted as a strict dividing line, but more as a shift in emphasis, as the ecosystem concept implies that living beings and their non-living environment are intrinsically connected to each other. The following chapter examines to what extent armies contributed to ecological change by disturbing biotic communities, in both the short and the long term; one has to take resilience into account, the ability of an individual, species, or system to absorb shocks without losing any of its essential characteristics. A distinction will thus be made between disturbances as temporary shocks and as contributing factors to long-term shifts in biological communities.[1]

A disturbance can be defined as "any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment."[2] Disturbances are a vital element in the functioning of an ecosystem and encompass everything from floods, storms, and volcanic eruptions to simple grazing. Ecosystems constantly change; there is no such thing as a delicate "balance" that can be upset by external events. The calcareous grasslands for which the Meuse valley itself has become famous, for instance, can only be preserved through regular disturbances, in practice mowing and grazing.[3] The maintenance of fortifications is also a series of disturbances, for it involves the removal of vegetation from ditches and walls.

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1 Campbell, "Nature as Historical Protagonist," 307–10.

2 Pickett and White, *The Ecology*, 6–9.

3 van Dijk, Graatsma, and van Rooy, *Droge stroomdalgraslanden*, 6–10.

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Figure 18. Miniature from a fourteenth-century French Bible depicting warfare disturbances (Paris, BnF, MS français, 160: *La Bible hystoriaus*, fol. 203v).

Drawing attention to the multiple functions of disruptions is vital for challenging current assumptions about army–ecosystem interactions. The study of "environmental destruction" during warfare has been a major stimulus in bringing about a rapprochement between military and environmental history, but it also suffers from the vague terminology most scholars employ. Many analyses, whether they concern historic events, or contemporary effects of warfare, use the term "destruction" indiscriminately, thereby obscuring different gradations of damage. The word destruction should be reserved for a specific kind of disturbance; those instances when a community or ecosystem has disappeared or is permanently degraded.[4]

Establishing exact distinctions between different degrees of disruption is problematic, however, since comparatively few historical sources allow a detailed study of the

4 See especially Brauer, *War and Nature*, 19–26.

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actual extent of damage caused. Administrative sources (fiscal accounts, correspondence, court records, notarial acts) are generally more accurate than chronicles or literary works, but they still tend to focus on the economic value of destroyed property rather than giving explicit evidence about the area of land affected or the number of plants and animals stolen or killed. Many of these documents were created to prove that a settlement, institution, or individual should receive some sort of support or was unable to pay taxes or rents.[5] As early as the Central Middle Ages rulers or cities could be obliged to recompense their former adversaries as part of a peace settlement. In 1179, for example, the bishop of Liège agreed to make peace with the count of Loon on condition that he did not owe the count anything for damage caused to the count's lands. This suggests that paying some sort of compensation was the norm. Such practices might not only have provided a strong motivation for keeping records, but also encouraged fraud.[6]

What these sources do provide is ample evidence about the diverse forms of disturbance: armed forces cut down or burned trees, shrubs, and vines, mowed or trampled grasslands, harvested, trod or burned agricultural fields, damaged ponds and took the fish, stole or killed livestock and game, demolished buildings, and caused human communities to experience a sharp demographic decline. Contemporaries, particularly those involved in agriculture, portrayed warfare as a catastrophe, and more importantly as a shock that had similar effects to a natural disaster. A fourteenth-century miniature leaves little doubt about the nature of medieval warfare (see figure 18). It portrays a party of men-at-arms burning a castle, stealing sheep, and cutting down a tree. A notarial act from Sautour, near Philippeville, in 1597 provides an equivalent portrait in writing, for it included a clause that the tenant of a major forge was not obliged to pay rent when affected by war or another kind of disaster.[7]

While warfare in general did have a similar role to a natural disaster, there were still major differences, depending on the exact geographical and chronological context. As argued in the introduction, armies evolved from forces that primarily aimed to damage property, often relatively small groups of a few dozen or several hundred men, to massive entities of tens of thousands of people who generally refrained from attacking local populations, but still caused considerable damage because they required food and shelter and built or attacked fortifications. These changes reflected a growing divergence between armies and general society, but also mounting problems regarding the basic maintenance of the former. Early modern rulers raised larger forces than their medieval predecessors, and also kept them in the field for longer periods of time. This put a heavy burden on their administrative apparatus, so much pressure in fact that warfare could only be conducted by outsourcing it almost entirely (especially the recruiting and supply). By the early seventeenth century medieval extortions under threat of burning down property (*brandschatting* / *Brandschatzung*) had developed into a complex sys-

5 Goorts, *War, State, and Society*, 290–91, 299–300; Gutmann, *War and Rural Life*, 66; Theibault, "The Rhetoric of Death and Destruction"; van Houtte, *Les occupations*, 1:44–47.

6 de Borman, *Chronique*, 1:78–79.

7 Sautour, 6931: February 18, 1597 (transcript Généamag).

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Figure 19. Cavalrymen gather *fascines* and make *gabions* (left foreground), late seventeenth century (Guérard, *L'Art militaire*).

tem of contributions according to which local populations had to supply passing armies with everything they needed or face reprisals.[8]

Let us now analyze the first aspect of the horrible animal depicted on the seventeenth-century woodcut: the burning, killing, and pillaging. Such activities are closely associated with warfare in general, regardless of its exact geographical and chronological context, but need to be broken down into their constituent parts. This section will accordingly examine warfare's ecological effects in terms of cutting down wood, loss of harvest, raiding of livestock, poaching, and demographic decline.

It would be very difficult to overstate the significance of woody plants in premodern Europe, for basic survival, as fuel, raw material, or for their fruit. Armed forces continued to slash or burn them, whether individually or in groups, whether forests, hedges, orchards, or vineyards, throughout the period from 1250 to 1850. Still, when chronicles or administrative sources declared that combatants cut wood or damaged forests they did not necessarily mean that entire trees were destroyed. In 1636, for example, the steward of the lordship of Rijckholt near Maastricht looked into complaints about sol-

8 Bothe, "How to 'Ravage' a Country"; Gutmann, *War and Rural Life*, 41–46, 61–66; Parrott, *The Business of War*; Strickland, *War and Chivalry*, 268–77.

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diers and their wives leaving the forest with oak branches. While cutting them off one of them fell down the tree.[9] Forty years later, in 1677–1678, French troops felled woodlands near Charleroi claiming that Dutch troops had used them earlier as cover when attacking the fortress. In 1684 the woodlands still did not yield any returns because pigs could not be sufficiently fed with their acorns. In other words: the woodlands were not destroyed, but they did need time to recover.[10]

These men and women contributed to more general processes of overexploitation, which is why these infringements on entitlements were so significant to contemporaries, but the ecological damage of their actions was in itself quite limited. From the Middle Ages onwards most trees and shrubs in the Meuse Region were managed as pollards or coppice wood. The former practice involved the removal of a tree's crown, the latter cutting down the plant at ground level. Both forms of management encourage the regrowth of a multitude of new branches that could be harvested every few, typically seven, years.[11] Soldiers certainly took advantage of these practices since manufacturing *fascines* (bundles of branches) or *gabions* (cylindrical wicker baskets filled with earth) was a basic prerequisite for building temporary fortifications from at least the fifteenth century onwards. It is depicted in Guérard's seventeenth-century *L'Art militaire* (see figure 19), as well as in photographs made on the eve of the First World War, and appears regularly in military handbooks.[12]

This does not diminish the extensive harm done to woodlands in other circumstances, but does draw attention to the fact that there is considerable variety behind vague expressions such as "damaging" or "cutting down" woodlands.[13] The amount of wood required by garrisons and mobile armies alike certainly must have been enormous: the fiscal accounts of the counts of Hainaut reveal that the defence of Binche in 1334 necessitated at least 1786 *fascines*, or the felling of seventy-two large oak trees, for the construction of small forts or large barricades (*fortéreches*), another six hundred *fascines* for the men of war who stayed in the city, and four hundred and seventy-six *merrains*, wooden staves, for the making of *hourds* (wooden battlements built as an exten-

9 Maastricht, RHCL, 16.0502 Familie de Bounam de Ryckholt, inv. no. 598.

10 Hasquin, *Une mutation, le "Pays de Charleroi"*, 233–34.

11 Warde, *Ecology, Economy and State Formation*, 76–77; Vera, *Grazing Ecology*.

12 de Keralio, Lacuée, and Servan, *Encyclopédie méthodique. Art militaire*, 2:345, 2:489–80; Fallot and Lagrange, *Cours d'art militaire*, 157–70; Guérard, *L'Art militaire*.

13 Geldern, Stadtarchiv, G9 Stadtrechnung, fol. 67v (1586–1587) (transcript Rien van den Brand, http://www.scriptoriumempeje.nl); Grave, SLC, Archief Gemeente Grave, inv. no. 218, fol. 291r (transcript Rien van den Brand); Adriaenssen, *Staatsvormend geweld*, 106; Bouwer, *Een notabel domein*, 106; Delcourte Debarre, "Espaces forestiers," 107, 138, 372–75; de Stavelot, *Chronique*, 251; Douxchamps-Lefèvre, *Inventaire*, 1:194, 2:177, 3:23, 3:280, 4:231, 4:419; Habets, "Drie chronijkjes," 407–8; Kaisin, *Annales historiques de la commune de Chatelineau*, 217–24; Marchal, *Inventaire*, 77, 162, 272, 315, 316; Petitot-Bellavène, "Verdun," 86–87; Pionnier, *Essai sur l'histoire*, 257, 270; Poncelet, "Nouveaux documents," 501–2; Remmers, "Een schadelijst"; Rorive, *La guerre de siège*, 159, 163, 166, 177, 203–4; Stévenin, "Une fatalité," 169; Teunisse, *Onderdaan in Oranje's oorlog*, 69, 77; van den Brand and Manders, *Vesting 't Genneperhuys*, 376–77.

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sion of walls or towers).[14] This consumption grew even worse in later centuries. The defence of Geldern in 1701 required the procurement of seventy thousand pallisades and thirty-four thousand *fascines*.[15] Preparing a fortification for a potential attack further entailed the destruction of any vegetation within bowshot, and later cannon range (see chap. 2). Demand of firewood could also be very substantial: accounts from the general receiver of Limburg and Outre-Meuse specify that the nobleman Carselis de Eupen and his retinue of eleven men stayed in the fortress of Argenteau, between Liège and Visé, from the end of August 1410 to the first of February 1411 to defend it. They consumed thirty-six wagonloads of firewood, taken from the lordship's own woodlands.[16]

Contemporaries particularly dreaded the harming of the few remaining trees with a full crown (in orchards, high forests, or as isolated individuals). This was undoubtedly a less common occurrence than the harvesting of coppice woods or pollards, but then these trees were also relatively rare because of the constant pressure on wood as a limited resource. The citizens of Fosses near Namur, for instance, had to declare in a 1276 charter that they had only cut down trees belonging to the collegiate church of Saint-Pholien because they had had to strengthen the city's defences and no suitable trees could be found in their own woodlands.[17] Wenceslaus, Duke of Brabant (1355–1383), similarly declared in a 1365 charter that the citizens of Aachen could keep a siege tower with battering ram (*ein evenhoge ende ein catte in einem werke*) because they paid for its construction, but since the wood came from his forests in the Duchy of Limburg, he reserved the right to borrow the tower.[18]

These needs are fairly practical, in the sense that they are connected to a combatant's health (firewood) or core activities (combat). Yet army members also burned or cut down woody plants and vines to punish their owners and affect their economic base, as in 1393 when Jan Uten Campe saw his house (castle), orchard, and willows, located near Woudrichem, destroyed. This was an act of retaliation for Uten Campe's support of Willem van Oostervant against his father, Albert of Bavaria, Count of Holland (1358–1404).[19] Early modern soldiers saw wood as a commodity that could be easily appropriated for their own ends, for instance to gain some extra income. The Spanish government singled out its own soldiers as perpetrators in legislation issued to protect woodlands in the Netherlands, and Louis XIV issued similar regulations for his own forces in the late seventeenth century.[20]

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14 Devillers and Pinchart, *Extraits des comptes*, 12–13; Raynaud, "Défenses annexes."

15 van den Brand, "Spaanse vestingbouwwerkzaamheden," 102–8.

16 Gaier, "L'approvisionnement," 573–74.

17 Poncelet, "Nouveaux documents," 501–2. See also Roland, "Les seigneurs de Morialmé," 58–59.

18 Berens, *Territoriale Entwicklung & Grenzbildung*, 163.

19 De Boer, Faber, and van Gent, eds., *De rekeningen, 1393–1396*, 4. See also de Stavelot, *Chronique*, 111; Douxchamps-Lefèvre, *Inventaire*, 4:342, 4:372; Girardot, "La guerre," 6; Lefèvre, "Documents relatifs aux dégâts," 44; Maguin, "Economie, politique et viticulture," 196; Richer, *Abrégé chronologique*, 212; Servais, *Annales historiques du Barrois*, 2:329; van Doorninck, "Inneming," 230.

20 Maastricht, RHCL, 01.004 Hof van Gelder te Roermond, inv. no. 1636; *Reglements et ordonnances du roy pour les gens de guerre*, 9:228 (August 28, 1695); Delcourte Debarre, "Espaces forestiers,"

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Such disturbances are meaningful because they were part of long-term infractions resulting in the overexploitation of forests and the obstruction of regrowth. Villagers in effect took advantage of the turmoil armies created, and the resulting breakdown of authority, to evade the laws regulating the conservation of woodlands: regulations passed in 1559, regarding the use of woodlands in the County of Namur, explicitly mentioned that earlier legislation was being ignored because of the war with France. The year 1747 saw a similar renewal of legislation in the principality of Liège, during another French invasion.[21]

The widespread practice of villagers taking refuge in the most inaccessible locations when confronted with an invasion (often forests, but caves, hedges, ditches, marshes, and islands are also mentioned) exacerbated the disruption of combat itself. It caused a sudden and very substantial rise in human presence in areas that were normally left more or less alone. The seventeenth-century County of Namur, for example, saw several lawsuits about damage done to privately owned woodlands and meadows by refugees and their livestock. In one instance the barriers protecting a forest were broken down in order to gain access. In 1686 Gilles Marteleur, fifty-eight years of age, testified during his interrogation by the councillors of Pesche, near Couvin, that he had grown up in woodlands, in a house separated from the village by an hour's walk, because of the wars.[22]

In a few instances quite precise data is available and these sources make it clear exactly how much damage premodern armies could inflict, even with the relatively basic tools at their disposal. French armies of about twenty-five thousand men settled near Tongres/Tongeren in 1746 and 1747 to build field fortifications. This involved the digging of trenches and the construction of batteries, but also procuring firewood. During their two stays, which lasted about a month each, every tree in the direct neighbourhood of the encampment seems to have been cut down, including those on the walls of Tongres and local orchards. The priors of the local hospital (*gasthuis*) claimed in their institution's narrative of the events to have lost more than a thousand trees, mostly poplars and birches. In the nearby village of Overrepen, which encompassed one of the few remaining woodlands in the area (the forest of Kolmont), French soldiers took one thousand trees as well. Because the French king promised to compensate the popula-

374; Laurent et al., eds., *Receuil des ordonnances des Pays-Bas*, 2:24; Berkvens, *Plakkatenlijst Overkwartier*, 1:228–29; Bodard, ed., *Receuil des ordonnances du Duché de Bouillon*, 7; Goblet d'Alviella, *Histoire des bois et forêts*, 1:344–47; Jacquet-Ladrier, "Vivre à Namur," 178; Rorive, *Les misères de la guerre*, 347; Schoetter, "Etat du Duché de Luxembourg," 398–99; van Zuijlen, *Inventaris*, 2:1155.

21 's-Hertogenbosch, BHIC, 5121 Schepenprotocollen Sint-Michielsgestel, inv. no. 45, fol. 240r; Hasselt, RAH, Notariaat, Rekem, Caenen (microfilm no. 1462471, item 9): act October 26, 1748; Boosten et al., *Bosgeschiedenis*, 211–18; Goblet d'Alviella, *Histoire des bois et forêts*, 2:229; Laurent et al., eds., *Receuil des ordonnances des Pays-Bas*, 8:35–36; Marchal, *Inventaire*, 154; Rouche, "Journal de l'entréé," 70–72.

22 Pesche, 6361: May 22, 1686 (transcript Généamag); Douxchamps-Lefèvre, *Inventaire*, 3:195–96, 3:217, 4:106, 4:117, 4:123, 4:132, 4:186, 4:275, 4:346; see also Tongeren, SAT, inv. no. 1, fol. 46r–v; Cuppens, "Opoeteren," 85–96; Delcourte Debarre, "Espaces forestiers," 101, 333; Faujas de Saint-Fond, *Histoire naturelle*, 40–41, 43, 50; Jacob, *Bruyères*, 105; Marchal, *Inventaire*, 166

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tion for their losses, an exact survey was made. This reveals that in the forest itself three hundred and eighty-four oaks and ash trees had been cut down. The other major loss concerned the village's fruit-bearing trees, with willows and coppice wood being considered less valuable.[23] Still, even though the French army acted as a disaster, a shock, they did not destroy the local ecosystems. If the term destruction is appropriate, it is only in the short term, for the 1777 Ferraris map indicates that the area had by then recovered from this disaster.[24]

One should indeed be careful to distinguish theory from actual practice: commanders may have given orders to procure a certain amount of palisades or cut down a particular number of trees, but that did not necessarily mean that these orders were carried out, at least not to their full extent. This can be proven by letters kept in the prefect's archive in Maastricht regarding the preparation of the fortresses of Grave, Venlo, and Maastricht for the Allied invasion in December 1813. French engineers calculated that this required between eighty-five and ninety thousand palisades as well as tens of thousands of *fascines* and storm poles, or the cutting of about five thousand four hundred trees. Initially, they intended to use oak trees as well as conifers, but in order to preserve the remaining oak forests, and because transportation would be too expensive, these edifices were to be made from pinewood. Despite the use of more than two hundred wagons and a multitude of labourers, and to the growing frustration of the French director of fortifications, the desired production rate of three thousand palisades a day was never reached and large numbers of felled trees had to be left behind. Accounts from the forest administration in 1814–1815 comment on the selling of wood left by the French in Rekem and by the Swedes, who blockaded the fortress of Maastricht, in Gronsveld.[25]

Military officers were well aware of the problems affecting the supply of wood, especially in periods of crisis. This is one of the reasons why they started taking control over woodlands and planting trees themselves (see chaps. 1 and 2). If possible, timber was brought from other areas and stored. The Meuse itself was after all a major transportation route for wood. During the siege of Utrecht in 1345, for example, the count of Holland bought thousands of planks and poles of different sizes in Dordrecht, a significant part of which came from the Meuse Region. The construction of pavises alone consumed hundreds of planks which put together would have been more than three thousand metres long.[26] Records kept by the chief engineer in the fortress of Maastricht in the second half of the eighteenth century reveal that several thousand to tens of thousands of palisades were kept in store and that about two thousand were planted each year in the fortifications to replace rotten ones. In case of necessity, major entrepreneurs were

23 Tongeren, SAT, Schepenbank Overrepen–Kolmont III; De Harzé, "Manuscrit relatif aux batailles de Rocour et de Lafeld," 265–67, 287–88.

24 Brussels, KBR, Cartes et plans, MS IV 5.567: Carte de Ferraris. See also Buridant, "Le rôle des forêts," 238; Verbois, *Rekem*, 315.

25 Liège, AEL, Fonds Hollandais, inv. no. 396; Maastricht, RHCL, 04.01, inv. no. 81; 07.E01, inv. no. 17; Frans Archief, inv. no. 1177.

26 Pavises are large shields behind which crossbowmen could hide while reloading. Hamaker, *De rekeningen*, 3:457–65, 3:476.

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contracted to supply thousands of palisades, *fascines*, poles, or *gabions* in a matter of weeks.[27] The demands armed forces placed on wood as a scarce resource could certainly have devastating results, but they were in themselves rarely sufficient to cause long-term damage.

While woodlands are relatively well studied and their disturbances significant, the same cannot be said about a very different kind of community: grasslands. Grasslands had a central role in contemporary agricultural systems either for pasture or for producing hay (meadows). Chronicles, fiscal accounts, and notarial or court records sometimes remark that these were trampled or mowed by, or for, passing armies but provide no further specifications. Often, they simply comment that an army "foraged."[28] In a charter from 1286 Jan, lord of Cuijk, declared that he would not raid the lands of the count of Guelders that lay west of the Meuse River, on condition that his lands were not damaged either. "Damage" is specified here as burning, stealing, and taking forage (*voderigge*).[29] Providing for an army's animal component was plainly a factor of major importance.

A horse can be fed with green forage (freshly cut grass, herbs, grains) or dry fodder (hay, oats, straw). Procurement of the latter is an important requirement to keep up a horse's strength or get it through the winter. A single horse needs about twenty-five kilograms of forage or twelve kilograms of fodder each day.[30] The area that this forage is procured from would of course differ according to local circumstances but seems to be quite considerable. The marquis de Puységur (1665–1743), a French marshal, calculated in the first half of the eighteenth century that a single horse required about one hundred and fifty square metres of grassland each day. One half was needed for forage and the other half was trampled and eaten in the process of collecting it, or simply left on the field.[31] Even a small raiding party, or a cavalry company of a few dozen horses, could therefore have significantly affected a village's grass and agricultural lands. Still, grasslands recover faster than any other aspect under consideration here. Unless they were damaged repeatedly, because soldiers used them as training grounds or sources for the grass blocks incorporated in fortifications, these disturbances only lasted weeks or months. Besides, during the eighteenth century provisions of dry fodder, from supply depots or local villages, increasingly replaced "foraging," at least until the army entered enemy territory.[32]

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27 Maastricht, RHCL, 01.E01, inv. no. 1; Berens, *Territoriale Entwicklung & Grenzbildung*, 163; Suttor, *La Meuse*, 404–6.

28 Geldern, Stadtarchiv, A, no. G9, Stadtrechnung, fols. 48r, 75v,76r (transcript Rien van den Brand); Gonrieux, 4087: July 13, 1636 (transcript Généamag); Douxchamps-Lefèvre, *Inventaire*, 1:250, 1:276, 3:171, 4:35, 4:239, 5:28, 5:120; Habets, *Chronijk*, 39–40; Richer, *Abrégé chronologique*, 192, 195; Vandewal, "De kroniek," 233; Verschure, *Overleven*, 138.

29 van Helen, *Rymkronyk*, 444–45. See also Boffa, *Warfare*, 189–90; Gaier, "L'approvisionnement," 556, 563–64; Servais, *Annales historiques du Barrois*, 1:460.

30 Bachrach, "Animals"; Haldon, "Introduction"; Harari, "Strategy and Supply," 305; Perjés, "Army Provisioning," 14–17.

31 de Puységur, *Art de la Guerre*, 1:398–402 and 2:63–65.

32 Engelen, "Stokkem," 68–69; Lhoist-Colmon and Gabriel, "La colline," 40; van Houtte, *Les occupations*, 1:70–71; van Nimwegen, *De subsistentie*, 11–12, 58–60.

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The disturbance of agricultural fields, most of which are also considered as grasslands from an ecological perspective, was in many ways related to the aforementioned meadows and pastures, but being more valuable, they are better documented. Harvests were stolen, burned, or trampled by armies simply passing through, using scorched earth policies, procuring food for men and horses, or protecting themselves from the elements (see chap. 5).[33] A particularly striking case is a letter written by a farmer living near Maastricht in 1794 to his son, a corporal in a Dutch cavalry regiment. He responded somewhat angrily to his son's earlier comment that he was looking forward to war by listing its effects on the villagers. He wrote that they had to seek refuge with their livestock in the quarries of the Sint-Pietersberg and that "no green leaf" was left in the fields. French and Imperial troops had trampled the "potatoes, clover, oats, vetches and other crops."[34]

Agricultural fields illustrate that the sources under consideration here do not just focus on economic concerns, but show that military disturbances primarily cause economic rather than environmental damage. The role of warfare as a major cause of harvest losses is well known within the history of agriculture, but burning agricultural fields or leaving them fallow for a few months or years also enriches the soil.[35] Historical studies that reflect on agricultural systems in a long-term perspective agree that they normally recuperated fairly quickly from disturbances brought about by warfare, often within a few years or a decade at most. Farmers could go hungry or use their remaining financial reserves in order to plant again, but their ability to withstand shocks was permanently reduced if forced to sell equipment, which affected their ability to work the land. Major landowners might also resort to reducing rents or share cropping to ensure the continuous occupation of their farms.[36]

Numerous lawsuits have been preserved from the County of Namur in the late sixteenth and seventeenth century regarding tenant farmers no longer able to pay their rent due to external circumstances, often a combination of warfare and undesirable weather. Most agricultural systems do seem to have experienced their worst crises when several factors, such as the aforementioned two, coincided. These lawsuits also show, however, that landowners did not necessarily accept depredations by armies as an excuse for failing to pay rent. They apparently did not recognize their tenants' predic-

33 Adriaenssen, *Staatsvormend geweld*, 131–35; Cauchies, *La législation princière*, 369; De Cauwer, *Tranen van bloed*, 110–11; Engelen, "Stokkem," 235–36, 253, 258; Foullon, *Chronique*, 216; Genicot, *La crise agricole*, 9–10, 19–20, 98; Gutmann, *War and Rural Life*, 75; Hasquin, *Une mutation, le "Pays de Charleroi"*, 233; Richer, *Abrégé chronologique*, 235; Rorive, *Les misères de la guerre*, 353–54; Servais, *Annales historiques du Barrois*, 1:178; Sivery, *Structures agraires et vie rurale*, 2:379; Thielemans, "Une source d'histoire rurale," 409–10.

34 The Hague, MC, Collectie Doesburg, letter no. 45–83. I am grateful to Renaat Gaspar for providing me with a transcript of this letter.

35 Thoen, "Oorlogen en platteland." See also Driessen, *Emundt van Oeteren*, 740.

36 Campbell, "Nature as Historical Protagonist"; Driessen, *Emundt van Oeteren*, 744–52; Genicot, *La crise agricole*, 109–11; Gutmann, *War and Rural Life*, 75–102, 197–200; Hoffmann, "Warfare, Weather, and a Rural Economy"; Jansen, *Landbouw en economische golfbeweging*, 82–101, 154–61, 185–90, 195, 205; Slavin, "Warfare and Ecological Destruction". See also Hanson, *Warfare and Agriculture*.

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aments as "unprecedented calamities," which historians often associate with the seventeenth century.[37] Armies' devastations must have had a tragic impact on farmers' lives, but their effects on agriculture as a whole were mostly transitory.

The trampling and burning of agricultural fields is closely connected to the ecological consequences of livestock raiding. Livestock theft remained a general feature of warfare up to the late seventeenth century, to supply armed forces with food, and because it represents a very considerable, and mobile, form of wealth. After 1700, references become increasingly rare, which is connected to the changing relationship between armies and local populations.[38] The records kept by the prévôt of Longwy regarding his income and expenses during the *chevauchée* against Verdun in 1318 reveal, for example, that of the 481 sheep eaten by his followers, only about one in four was purchased. According to a book of fiefs from the County of Namur, written down in the 1340s, the count's marshal was similarly entitled to all kinds of animals with greyish hair (*touttes manieres de vaires bestes*) taken in enemy territory, to half the compensation paid for horses given up to the count because they were sick or wounded, and to the skins of the horses that died while in the count's care.[39]

Particularly instructive is a fiscal account kept by Willem IV van Egmont (1412–1483), brother of the Duke of Guelders, on his income and expenses in 1435, when campaigning in the area around the fortress of Herzogenrath during the war between Guelders and Jülich. It provides a good example of the maxim that "war feeds itself," for Willem's income included extortions under threat of fire, ransoms, and stolen goods (*geroefder haven*). His men had taken one hundred pigs at the village of Baesweiler, "some pigs" and "two skinny cows" near Linden and Hoyngen (to the north of Aachen), and seven bags and three casks of salt. His expenses mostly concerned the purchase of food for man and horse. As revealing as this source is, the information it provides is rather incomplete. The account in fact explicitly states that part of the second herd of pigs, taken near Linden and Hoyngen, was eaten. The amount booked suggests that about thirty-six animals were sold.[40]

37 Douxchamps-Lefèvre, *Inventaire*, 1:178, 1:181–86, 1:188, 1:190, 1:192–93, 1:196, 1:198–207, 1:210–26, 1:230–44, 1:261–80, 1:299–314, 1:325–41, 2:20–22, 2:29, 2:41–45, 2:49–50, 2:64–65, 2:73–77, 2:84, 2:103–4, 2:112, 2:154, 2:181, 3:56, 3:90, 3:252, 4:24, 4:65, 4:130, 4:133, 4:212, 4:228, 4:258, 4:269, 4:419–20, 5:21–22, 5:33, 5:37; Parker, *Global Crisis*.

38 Arlon, AEA, 062, 1121: Correspondance entre le Conseil de Luxembourg, le duc de Lorraine et le capitaine de Sedan; Maastricht, RHCL, 01.075 Landen van Overmaas, inv. no. 1487; Couvin, 529: May 26, 1636 (transcript Généamag); Adriaenssen, *Staatsvormend geweld*, 146–47; Bormans, Lahaye, and Brouwers, ed., *Cartulaire de Dinant*, 4:186; Borgnet, *Cartulaire*, 12–13; Deloffre, "Guerres et brigandages," 358–59; de Stavelot, *Chronique*, 363, 555, 569, 588; Girardot, "La guerre," 7, 9, 10, 26; Hagendorf, *Tagebuch*, 60; Helmich, *Journaal*, 248, 255; Hoeckx et al., eds., *Kroniek van Molius*, 178–79; Jenniges, *Das Land zwischen Venn und Schneifel*, 67; Kraus, *Regesten*, vol. 6, no. 481; Le Bouvier, *Le livre*, 112; Lefèvre, "Documents relatifs aux dégâts," 42–43, 48, 50, 53; Liégeois, "Compte de la recette de Chiny," 159; Macaré, ed., "Dagverhaal," 298; Mengels, *Chronyk*, 26–27; Richer, *Abrégé chronologique*, 194, 197, 250; Salzmann, "La petite guerre," 193–97; van Doorninck, "Inneming," 230; van Heiningen, *Tussen Maas en Waal*, 74.

39 Bormans, *Les fiefs*, 1:28–29; Collin, "Le travail," 27–28.

40 Arnhem, GA, Hertogelijk Archief, inv. no. 445, fol. 1. See also Luce, *Jeanne d'Arc à Domrémy*, 144–45, 171.

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Even if one takes this source-criticism into account, it is clear that a considerable part of livestock herds was traded rather than killed, and in some cases the original owners actually got the option of ransoming their animals back. An inquest made by the castellan of Stokkem has been preserved, which gives an exceptional insight into what happened to the livestock stolen by Imperial troops during the taking of the *schans* of Opoeteren in 1636. The investigation mainly concerned the attack itself, involving the taking of animals and goods, and the death of several villagers, but also included villagers' testimonies that they managed to get some of their livestock back by purchasing it from a local nobleman, tenant farmers, Spanish soldiers, and even one of the castellan's own men, named Peter Colen. It is unclear whether anyone was actually pursued for purchasing stolen goods. Colen still served in the garrison of Stokkem in 1655.[41]

Nevertheless, in many areas livestock decline was a substantial problem. This can be proven because the Spanish Habsburg government taxed livestock ownership. We thus have access to relatively good overviews of the number of horses, cattle, and sheep present in specific communities. In the Prince-Bishopric of Liège by contrast such information only became available after the French takeover in 1795. In Bastogne for example, in the Duchy of Luxemburg, the number of sheep decreased by eighty-two percent between 1624 and 1656, and the number of cattle and horses was reduced by about half. Villagers were forced to lend animals because their own flocks had been stolen or died of disease.[42]

Assessing the ecological consequences of the killing of fish and game is fraught with its own problems. The right to kill or own fish and game was carefully guarded by a small number of privileged persons, predominately nobles, which made poaching or illegal fishing a direct assault on their privileged status rather than just another form of pillaging. Army members therefore not only engaged in such practices to procure food, but were also asserting their social status and undermining a lord's authority by attacking the environmental symbols of his lordship.[43] The accounts of Grave mention for instance that swans were captured during a military expedition in 1463 to Herpen, a more or less independent lordship close-by. Given that the right to keep swans was a carefully guarded privilege, this action should be seen as symbolic for a larger conflict over jurisdiction. The specification that the count of Egmont, two high bailiffs, and the city council of Grave all attended this operation, confirms this impression.[44]

The close association of noble status with hunting is borne out as well by the fact that contemporaries repeatedly singled out military officers for their poaching activities. For officers, hunting was part of a noble lifestyle, but apparently they did not feel

41 Liège, AEL, Etats, inv. no. 3006: Muster list of the garrison of Stokkem, 1655; Cuppens, "Opoeteren," 85–96.

42 Jacob, *Bruyères*, 115–117.

43 Medieval rulers often brought their hunting dogs and falcons with them on military campaigns. See for instance Lyon, Lyon, and Lucas, *The Wardrobe Book*, 219, 225, 235. Bonet, *L'Arbre des batailles*, 96; De Dynter, *Chronique*, 3:860; Delcourte Debarre, "Espaces forestiers," 454; van Helen, *Rymkronyk*, 155; van Werveke, *Die Erwerbung*, 20.

44 Grave, SLC, Archief Gemeente Grave, inv. no. 218, fol. 136r (transcript Rien van den Brand).

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obliged to respect property rights.[45] The accounts of the high bailiff of Souilly specify that he investigated the killing of a "large deer" by a local squire and several captains of the garrison of Verdun in 1627.[46] This example demonstrates that local populations also played a role in unlawful hunting. It was quite common for citizens and villagers to offer game to commanders as a bribe or as part of a larger spectrum of services.[47]

Illegal fishing is similarly well attested in the immediate surroundings of military garrisons, and near armies' marching routes. Nicolas d'Ischen, citizen of Arlon and leaseholder of seven ponds near the town, petitioned the Conseil de Luxembourg on August 30, 1624 because soldiers of the garrison took fish from his ponds on a daily basis. He already asked their commander to intervene, but this request was apparently ineffective. He now sent a more or less veiled threat, arguing that if no effective measures were taken he would be obliged to end his lease, which would be particularly unfortunate in light of the government's already precarious finances.[48] Because freshwater fish and game were often kept in carefully controlled, but isolated, locations (ponds, rabbit warrens, and hunting parks), they were very vulnerable to the "shocks" warfare brought about.[49]

At the same time, the effects of these poaching activities should not be overestimated. The argument of Jan Hendrik de Rijk, for instance, that the Eighty Years War caused the extinction of the common crane (*Grus grus*), great bustard (*Otis tarda*), and black grouse (*Tetrao tetrix*) in large parts of the Northern Netherlands as early as the 1570s is tenuous because it is only based on indirect evidence provided by the withdrawal of their names from hunting regulations. If these birds became extinct only a few years after the start of the Eighty Years War, then they must already have been on the verge of extinction when the fighting started. The famous Dutch hunting treatise *Jacht-Bedryff* from 1636 blames habitat changes as a result of changes in agriculture rather than warfare for the disappearance of many species.[50] The disastrous impact of warfare is on its own insufficient to explain permanent changes in animal populations.

Moving from animal to human demographics, it is worth noting that even though more reliable sources are available for the latter, it is still very difficult to pinpoint exact causes. Battlefield losses could be massive, particularly if involving locally recruited armies, but they were also relatively exceptional events. A surviving tax record suggests, for example, that the city of Liège might have lost more than half its adult male popu-

45 's-Hertogenbosch, BHIC, 178, inv. no. 193, fol. 86v; Maastricht, RHCL, 01.01. Staten van het Overkwartier van Gelre, inv. nos. 552, 556; Berkvens, *Plakkatenlijst Overkwartier*, 1:167; Bouwer, *Een notabel domein*, 102; Helmich, *Journaal*, 289; Illaire et al., eds., *Les cahiers de doléances*, 589.

46 Bar-le-Duc, ADM, B 1280, fol. LXXVIIV.

47 Jappe Alberts, "De eerste Bourgondische bezetting," 63; Kaisin, *Annales historiques de la commune de Chatelineau*, 153, 164, 191, 235; Verschure, *Overleven*, 198.

48 Arlon, AEA, 062, 1287: Plainte de Nicolas d'Ischen. See also Vandermarliere, *De troebele jaeren*, 57. See also Maastricht, RHCL, 04.01, inv. no. 81; Aimond, *Les relations*, 58; Ceyssens "Les premières hostilités," 90; d'Haynin, *Mémoires*, 1:136; Girardot, "La guerre," 3; Lefèvre, "Documents relatifs aux dégâts," 48; Neirinckx, "A Letter," 10–11; van Zuijlen, *Inventaris*, 2:796; Verbois, *Rekem*, 312.

49 Delcourte Debarre, "Espaces forestiers," 448, 451, 454; Marchal, *Inventaire*, 166, 180.

50 de Rijk, "Vogels en mensen," 64–65; van Heenvliet, *Jacht-Bedryff*, 1.

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Figure 20. Plan of the village of Biercée, 1699 (Brussels, ARA, Cartes et plans manuscrits, 116). Reproduced with permission of the Algemeen Rijksarchief/ Archives générales du royaume.

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lation at the battle of Brustem (1467).[51] Furthermore, the armies under consideration here rarely engaged in large-scale massacres outside the battlefield. The few references to mass killings come from very specific circumstances, such as fortifications taken by storm or rulers setting an example (e.g., Dinant in 1466), contexts where armed resistance was perceived as illegitimate or unnecessary.[52]

Such spectacular examples do tend to obscure the fact that, compared to other factors, major battles had a relatively limited long-term impact (if we ignore the possible exception of chapels or cloisters built on the site of medieval battlefields).[53] It is well established in historical studies that warfare-induced demographic decline was related to disease, migration, and reduced fertility rather than fighting in the strict sense of the word. Warfare caused widespread insecurity, increased financial pressures, and encouraged the spread of epidemics (see chap. 5), but it was not the only factor influencing such patterns. The relative importance of warfare compared to economic conjunctures or the weather in particular is far from clear, especially before we are able to consult parish records. Assessing demographic developments up to the middle of the seventeenth century largely depends on hearth lists, that is, numbers of households in a specific year.[54]

Given the fiscal nature of these sources and the ambiguous meaning of the term household, calculating population growth can be difficult. A comparison between hearth lists from the Duchy of Brabant in 1480 and 1496, a period of political instability and warfare, indicates for instance that 's-Hertogenbosch grew by eighteen percent, while the number of households in nearby villages and towns declined. Helmond and Eindhoven lost almost seventeen and fifteen percent of their population in the same period. This suggests the demographic decline in the countryside during armed conflicts is at least partially caused by massive emigration to (larger) cities, where mortality rates are on average higher.[55] Hearth lists from other areas confirm this pattern for the 1570–1715 period. They also demonstrate that communities in the worst affected areas, such as the Duchy of Bar–Lorraine, typically lost between thirty and sixty percent of their inhabitants, compared to their population levels before a particular war. These losses could be even higher for single settlements. Recovering from this decline was often a drawn-out process, lasting at least several decades.[56]

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51 Balace and Gaier, "Catalogue," 128–29.

52 Brouwers, "La reconstruction"; Kroener, *Les routes*, 114; Kroener, "Antichrist, Archenemy, Disturber of the Peace"; Lemoine, "L'enceinte de Liège," 80–83.

53 Nijsten, *In the Shadow of Burgundy*, 377; van den Brand, "Oprichting van een Augustijns klooster," 51–54; Villa-Sébline Nicole, *La sénéchaussée*, 51.

54 Girardot, *Le droit et la terre*, 2:501–4; Gutmann, *War and Rural Life*, 149–95; Jenniges, *Das Land zwischen Venn und Schneifel*, 50–52, 122–26; Mertens, "Oorlog, epidemie en emigratie," 129–35; Miart, "La population," 84–108; Outram, "The Socio-Economic Relations"; Rorive, *Les misères de la guerre*, 65–70; Van Caulaert, "Domaine de Golzinnes," 18–19.

55 Cuvelier, *Dénombrements de Foyers*, CXVI–CXXIII, CCXXXVI–CCXXXVII.

56 Adriaenssen, *Staatsvormend geweld*, 269–277; Arnould, *Les dénombrements de foyers*, 198–201, 245–51, 257–58, 268–71; Dahm, "Verluste der jülich-bergischen Landmiliz"; Gutmann, *War and Rural Life*, 142–50; Jacob, *Bruyères*, 112; Kroener, *Les routes*, 206; Laperche-Fournel, *La Population*, 109–33, 162–84; Mertens, "Bank van Pelt," 95–106; Miart, "La population," 126–60; Schoetter, "Etat du Duché

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These demographic developments have also to be interpreted in the context of the destruction of buildings. Setting fire to buildings was a significant impact from warfare because it contributed to an already extensive overexploitation of wood. The duke of Burgundy, for instance, allowed villagers from the County of Namur in 1439–1440 to cut no fewer than two thousand oaks and eleven hectares of high forest to rebuild their houses, destroyed by forces from the Prince-Bishopric of Liège in 1430.[57] This example is significant because it provides precise data. Many sources mention that buildings were set on fire, arson being a core element of warfare up to the seventeenth century, but they are rarely specific about the number of houses affected. Furthermore, one also has to take into account that extortion under threat of fire was an important source of income for armed forces (for example, the account of 1435 cited above). Fiscal accounts do show that raiders often targeted mills: mills represented wealth, had a crucial energy function, including the grinding of grain for passing armies, and were vulnerable because of their location on the edge of or outside their settlements.[58]

Fortunately, there is one source that provides very detailed information: a report from 1657 written by lieutenant colonel Jean Ernest de Terwel about the resources of each settlement in the governments of Reims, Rethel, and Sainte-Menehould. This document would serve as the basis of a tax reform, intended to apportion the tax burden more equally. It indicates that in frontier areas, such as near Rocroi, houses had been burned down in almost every settlement, but also that few communities had no houses left. Here villagers lived in huts or their fortified church. A handful of settlements, mostly hamlets, had been abandoned completely.[59]

Still, it is revealing that de Terwel did not necessarily advise a significant tax reduction. In some instances he actually believed taxation should be increased. This suggests that he considered this war damage to be a merely temporary phenomenon. How representative this report could be for other areas and periods is unclear, but hearth lists from the Hohes Venn and Ardennes from the same period confirm this image of partial destruction (around fifty percent of the houses). This also goes some way in explaining why complaints or petitions emphasize the economic cost of the destruction rather than its exact nature. A depiction from 1699 of the village of Biercée, between Maubeuge and Charleroi, ruined during the Nine Years War (1688–1697) has still been preserved (see figure 20). The houses had been demolished, but the hedges and even a few trees near the church remained standing.[60]

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de Luxembourg," 344–45; Stévenin, "Une fatalité," 163–65, 168–77; Terwel, *Les notices cadastrales*.

57 Brouwers, "Indemnités pour dommages de guerre," 89, 92.

58 Carolus-Barré, "Benoit XII," 186–190; Engelen de Stavelot, *Chronique*, 112, 116; Douxchamps-Lefèvre, *Inventaire*, 1:183, 1:185, 1:187, 1:191, 1:220, 1:281, 1:341; 2:21, 2:43, 3:260, 3:269, 3:284, 4:44, 4:378; Girardot, "La guerre," 3, 5; Hoeckx et al., eds., *Kroniek van Molius*, 212–213; Hoppenbrouwers, "Een middeleeuwse samenleving," 26; Jenniges, *Das Land zwischen Venn und Schneifel*, 72; Kroener, *Les routes*, 142; Luce, *Jeanne d'Arc à Domrémy*, 84–86; Marchal, *Inventaire*, 91, 105, 155, 164, 167–168; van de Venne, *Het beleg*, 11; Verschure, *Overleven*, 174.

59 Terwel, *Les notices cadastrales*.

60 Brussels, ARA, Cartes et plans, no. 116: Plan du village de Biercée, détruit par la dernière guerre, du 2 may 1699.

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While deliberate disturbances such as these became more and more rare from the eighteenth century onwards, damage done during sieges seems to have increased because of technological developments. Bombardments with incendiary missiles were common in the Middle Ages, but it is unlikely that they were as devastating as eighteenth-century artillery fire.[61] In 1794, during the siege of Grave, French besiegers shot about two thousand and four hundred cannon balls and bombs into the city, killing only eight people and wounding another six, but damaging every single building.[62] Several cities in the Prince-Bishopric of Liège experienced major fires in 1672–1714, either because soldiers set buildings on fire (e.g., Huy and Tongres/Tongeren) or bombarded them with incendiary devices (Liège). In all cases legislation was passed to ensure that houses were rebuilt in stone. Nearby Maastricht and Roermond, both of which had permanent garrisons, issued similar legislation several decades earlier since they ran a higher risk of being besieged.[63] Warfare destroyed people's and animals' lives and homes, but it was rarely able to overcome the resilience exhibited by biotic communities as a whole.

Wolves and the Creation of Wilderness

Given that disturbances make nutrients available, one should keep in mind that for every species being affected negatively, there could be another taking advantage. The image at the beginning of this chapter depicts a beast that combines features of different animals (wolf, bear, lion/leopard, rat), and is associated with toads, locusts, snails, and snakes. All these species shared an association with negative traits, or even symbolized evil. This pamphlet suggested that armies' depredations were a direct assault on human control over their environment, whether this was a deliberate act or not, and consequently gave unwanted species a chance to migrate and reproduce. In other words: warfare encouraged the spread of wilderness or uncontrolled nature.[64]

The association between warfare and wilderness was particularly strong for one of the creatures depicted here, not coincidently the animal that became the model for the beast's head. Chronicles in particular comment on an increased presence of wolves as the result of armed conflicts. The famous *Journal d'un bourgois de Paris* (1421–1423), which recounts that wolves entered Paris and attacked humans, is one of the best-known examples, but this association is much older than the fifteenth century.[65] The *Dialogus miraculorum* by Caesarius of Heisterbach, dating to the early thirteenth century, tells

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61 The Count of Holland, for example, bought one thousand three hundred fire arrows for the siege of the house (castle) of Altena in 1393. De Boer, Faber, and van Gent, eds., *De rekeningen, 1393–1396*, 56; Hoeckx et al., eds., *Kroniek van Molius*, 154–55.

62 Sabron, *De oorlog*, 2:81–96. See also De Cauwer, *Tranen van bloed*, 223–26; Roland, ed., "Chronique Namuroise," 125, 131.

63 De Rycke, "L'architecture," 204–5; Douxchamps-Lefèvre, *Inventaire*, 5:252; Martin, "Maastricht," 63; Rorive, *Les misères de la guerre*, 85–90; van Beurden, *De handelingen*, 129; Vandewal, "Tongeren," 179–83.

64 These effects are also recognised in modern wars, but tend to be neglected in favour of the detrimental effects of warfare. Brauer, *War and Nature*, 166–68.

65 Moriceau, *Histoire du méchant loup*, 21; Siemer, "Wölfe in der Stadt."

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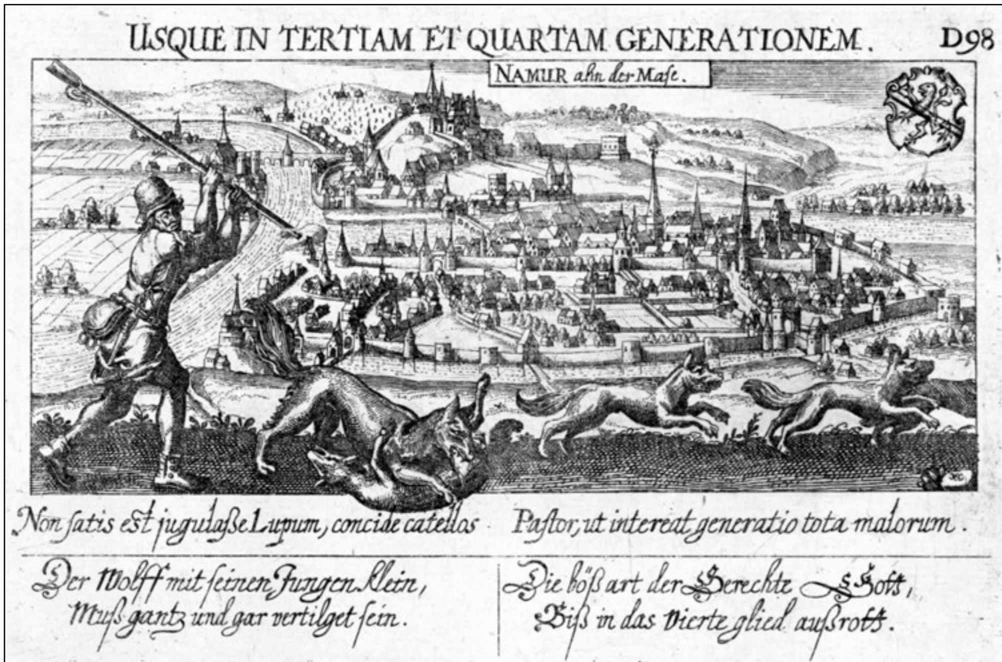

Figure 21. Shepherd killing a wolf and its young, mid-seventeenth century (Meisner, *Sciographia Cosmica*, Namur).

the tale of a man who lived near Aachen and had three children, all killed by wolves. The connection between wolves and warfare is made twice. The narrator claimed that at the time Philip of Swabia was crowned, in 1198 and 1205, a time of major political unrest, there were many wolves in the area around Aachen. The third child also disappeared during a war, when his parents left him to guard the house and fled to Aachen, and it was assumed that wolves took him.[66]

The *Dialogus miraculorum* might just be a collection of stories to educate novices of the Cistercian Order, but hunting treatises confirm this perception: according to Gaston Phoebus' famous hunting treatise, *Livre de la chasse* (1387–1389), unburied corpses in war-affected lands gave wolves a taste for human flesh resulting in real attacks on humans. Edward Duke of York wrote an English translation of this work between 1406 and 1413, *The Master of Game*, to which he added his own observation that wolves also follow armies to scavenge for the horse cadavers they leave behind.[67] Wolves do feed on human remains if given the chance, the most famous example of which is the body of

66 Heisterbach, *Dialogus miraculorum*, 2:260–261; Ortalli, *Lupi genti culture*, 69–70.

67 Cummins, *The Hound and the Hawk*, 132–33; Phoebus, *Le livre de la chasse*, 66; See also De Lisle de Moncel, *Méthodes et projets*, 47–49; Moriceau, *L'Homme contre le loup*, 50–59.

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Charles the Bold, discovered two days after the battle of Nancy in 1477.[68] The same can be said about dogs, however. The priest Petrus Treckpoel observed in one of his chronicles that the citizens of Bilzen were very afraid of local dogs in 1483, because they ate the corpses left there after the massacring and burning of the town in February that year. The surviving citizens had in fact left the town, and only started to come back in June.[69]

It is often unclear whether the associations made in these sources provide evidence about the ecological impacts of armies or are simply part of a rhetoric of destruction. The above-mentioned woodcut portrays warfare as both natural and social disorder. There is a clear religious undertone in these narratives, which is made very explicit in the image of "Namur ahn der Mase" by Daniel Meisner (1642), depicting a shepherd killing a wolf and its young "to the fourth generation" (see figure 21). It was also a clergyman, Egbert of Liège, who wrote down in the early eleventh century one of the oldest versions of a folk tale now known as "Little Red Riding Hood." In this account the girl's baptism protected her from wolves.[70] Jean-Jacques Moriceau, who studied historical wolf attacks in France, argues that the fear that a single attack generates goes far beyond the actual damage done. It is quite possible that the climate of insecurity brought about by war fed this fear. His findings for the *départements* of the Meuse and Ardennes indeed indicate that rabies, rather than predation, was responsible for the majority of attacks.[71]

Most of Europe's largest animals, symbols of wilderness, had already become extinct in the Meuse Region by 1250, or were on the verge of extinction: aurochs disappeared in the Early Middle Ages, and bears, already very rare around 1250, were gone by 1500. Wild boar and red deer enjoyed protection because their killing was a noble prerogative but were also restricted to major hunting parks. The Capitulary of Quierzy (877) suggests in fact that game had been severely depleted in the Carolingian heartland (citing Hesbaye and the Ardennes) by the late ninth century as result of overhunting.[72] The wolf was the only large animal still present in most of the Meuse Region as late as the 1700s, despite centuries of intensive hunting by humans. Hunters killed the last wolves in the Meuse Region only about a hundred years ago in the Ardennes and Argonne and only now is the animal making a tentative comeback.[73]

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68 Vaughan, *Charles the Bold*, 432.

69 Paquay, "Kroniek der stad Bilzen," 39.

70 Ziolkowski, "A Fairy Tale."

71 Consider also the study of Jay M. Smith, which makes a direct connection between the mythic status of the "Beast of the Gévaudan" and France's defeat in the Seven Years War. Kling, "War-Time, Wolf-Time," 19–27; Moriceau, *Histoire du méchant loup*, 492–98, 511–12; Siemer, "Wölfe in der Stadt," 353–65; Smith, *Monsters of the Gévaudan*.

72 Boone, De Cupere, and Van Neer, "Social Status," 1393; Boretius and Krause, eds., *Capitularia regum Francorum*, 2:355 (no. 281); Ervynck, "De bruine beer"; Garnier, "La peau de l'ours," 264–69; Gautier, Hoffsummer, and Vanguestaine, "Faune médiévale," 78; Gautier and Fiers, "Restes animaux," 87; van Vuure, *Retracing*, 56–59.

73 Butzeck, Stubbe, and Piechocki, "Der Wolf," 280–91; Delcourte Debarre, "Espaces forestiers," 441; Luyts, *Met vryaerts en resoelen*, 41–51, 240–57; Molinier and Molinier-Meyer, "Environnement et histoire," 236–37.

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Moreover, the connection between armies and wolves went further than the idea that warfare leads to an increase in wolf populations: not only were combatants themselves sometimes compared to raving wolves, but in seventeenth-century Lorraine gangs of armed men who used the woods as cover were referred to as *loups du bois* ("wolves of the woods"). Wolves and outlaws were already associated with each other during the Middle Ages because they lived in the same spaces: woodlands and border-areas.[74] There were also many similarities between the defence mechanisms directed against armies and wolves: the seventeenth-century accounts of Maastricht called pits dug out under the drawbridges *wolfskuilen* or "wolf pits," hedges protected villagers against wolves as well as raiding parties, and hunting wolves was the last surviving medieval form of armed service, being still required of the general population as late as the nineteenth century. Peasants also used the presence of wolves as a pretext for walking around armed.[75]

Remarkably enough, soldiers did not have a significant role in hunting wolves. Nicolas de Moncel's extensive account of officers from the garrison of Verdun chasing a wolf that approached the city walls in 1766, published in his hunting treatise from 1768, says more about his ambitions for the military in this regard, himself a former cavalry captain who became a lieutenant of the *louveterie*,[76] than it does about the contribution French soldiers made to wolf hunting. His proposal to create a special corps of trained hunters to exterminate wolves was likewise inspired by his military background. Members of the *maréchaussée* or *gendarmerie* did occasionally kill wolves or led hunting parties in the eighteenth and nineteenth century, but their role was generally of minor significance.[77] The *sous-préfet* of Roermond's request for soldiers in 1810 to hunt down a predatory wolf, or wolves, primarily reflects the general panic that these attacks generated as well as the traditional association of such assaults with warfare. He apparently believed that this wolf came from Germany where she had grown accustomed to human flesh during the recent wars. At some point a plan was made that involved the mobilization of no fewer than six thousand local men and more than two hundred soldiers. Military officers did not even consider using their soldiers for such a purpose.[78]

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74 Barbier, "La Grande Pitié," 256; Habets, *Chronijk*, 30; Helsen, *De woorden*, 10–15; Isaac, "Le loup et le mercenaire"; Laperche-Fournel, *L'Intendance de Lorraine et Barrois*, 116, 191–92; Pluskowski, *Wolves and Wilderness*, 185–90; Siemer, "Wölfe in der Stadt," 359–64; Toureille, *Vol et brigandage*, 54–56, 162.

75 Adriaenssen, *Staatsvormend geweld*, 405; Delguste-van der Kaa, *Histoire des loups*, 67, 78–88; Geerlings and Schrijnemakers, "Wolvenplaag," 118–21, 127–35; Kolodziej, "La louveterie," 295–97; Moreau, *Bolwerk der Nederlanden*, 17, 66; Verschure, *Overleven*, 227.

76 From the Middle Ages onwards rulers in the southern half of the Meuse Region (southwards from Hainaut and Namur) designated a specific official with the task of organizing wolf hunts: the *louvetier*. These officials also served briefly in the northern half of the Meuse Region during the French Republic and Empire (1795–1814).

77 Delguste-van der Kaa, *Histoire des loups*, 20, 72; De Lisle de Moncel, *Méthodes et projets*, 30–31, 115, 135; Kolodziej, "La louveterie," 291–94.

78 Geerlings and Schrijnemakers, "Wolvenplaag," 134–37.

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There are additional sources, however, that provide stronger grounds for assessing whether the link between wolves and warfare is based on actual ecological impacts. Regulations regarding wolf hunting are well known from the reign of Charlemagne onwards. Because humans perceived wolves as a threat to livestock, game authorities paid bounties for each confirmed kill. This means that one can reconstruct the historical presence of wolves and their numbers in a way that is impossible for most animals before the nineteenth century. This approach has its difficulties: an increase in bounties does not necessarily prove that the population grew, just that more wolfs died by hunting. Moreover, hunters often went around settlements near the location the animal was killed to claim a reward. In this way, an examination of accounts from neighbouring villages is likely to inflate the real number of wolves in the area, at least until the French government completely reorganized the issuing of bounties in 1795.[79]

Despite these problems, it is still possible to establish a direct link between warfare and increased presence of wolves. In 1486 Emperor Maximilian granted the inhabitants of the Meijerij district of 's-Hertogenbosch special permission to hunt down wolves (normally only ducal hunters being allowed to chase them) and organise a call to arms by sounding the church bells. This suggests that wolves became a major problem in the Campine/Kempen during the period of warfare following the death of Charles the Bold in 1477. There is no record of a wolf presence near the Meuse estuary during the late Middle Ages or sixteenth century, but in 1598, during the Eighty Years War, dozens appeared in the Langstraat, the area between Geertruidenberg and 's-Hertogenbosch, on the Brabant–Holland frontier. Local fishermen had to make nets in order to catch them.[80]

Evidence from outside the Meuse Region, from the kingdom of France in the 1430s, the area around Bruges in the 1490s and late 1500s, the Veluwe (Guelders) in 1596–1630, and Ireland in the 1650s, confirms this connection. Despite assertions of contemporaries about unburied corpses, this expansion of wolf populations mainly ties in with the ceasing of wolf hunting during periods of intensive warfare. Hunting wolves was a labour-intensive activity and could include digging pits, making nets, or weaving hedges, using poison, maintaining packs of specially trained dogs, and mobilizing local villagers. These activities either stopped during armed conflicts or became much reduced.[81] The *Journal official du Grand-Duché de Luxembourg* (October 19, 1815) explicitly attributed the more prominent presence of wolves to military movements, which is confirmed by a sharp decrease in the number of bounties claimed during the invasion years of 1813–1814.[82]

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79 Bernays, "Les loups"; Delguste-van der Kaa, *Histoire des loups*, 68–72, 93–94; Devillers and Pinchart, *Extraits des comptes*, 36, 58, 86–87; Luyts, *Met vryaerts en resoelen*, 68–80; Moriceau, *L'Homme contre le loup*, 67–72, 253–78, 349–61.

80 Lith-Droogleever Fortuijn, Sanders, and Van Synghel, eds., *Kroniek*, 261; Verschure, *Overleven*, 262–68.

81 Contamine, "Scènes de chasse"; de Rijk, "Wolven op de Veluwe"; De Schepper, "De geschiedenis," 57–67; Hickey, *Wolves*, 68–70; Luyts, *Met vryaerts en resoelen*, 174–84; Moriceau, *L'Homme contre le loup*; Ott, *Die besiegte Wildnis*, 128–32; Rheinheimer, "The Belief in Werewolves," 41–42.

82 Delguste-van der Kaa, *Histoire des loups*, 34, 166; Molinier and Molinier-Meyer, "Environnement et histoire," 239–40.

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The ability of wolves themselves to adapt to different circumstances and grasp the opportunities brought about by warfare should not be underestimated either. The capability of wolves to cover hundreds of kilometres in a matter of days is well known. It is likely that the Meuse Region, and more particularly the Ardennes and Argonne, had an important role as a reserve from which wolves could spread to other regions. This is at least argued by Louis Gruau in his 1613 hunting treatise.[83] Wolf populations reached their highest density in France in the Ardennes and Argonne in 1795–1815, as proven by the surveys of wolves killed in a specific département, recently made on the basis of the French government's extensive records, and these areas also figured prominently among their last places of refuge in Western Europe.[84] Wolves can thrive in very varied environments, but likely started to favour more secluded spaces, such as woodlands, because of constant pressure from hunting.[85]

Nevertheless, this link between the spread of wolves and warfare was not universal: an examination of accounts from the Campine/Kempen in the eighteenth century reveals that wolves were killed on an almost yearly basis, but warfare did not have any significant effect on this pattern. This might have something to do with the changing character of warfare, but the available evidence from the seventeenth-century Campine is too incomplete to support or deny this hypothesis.[86] In nearby Hesbaye toponyms referring to "wolf pits" confirm the existence of (relict) wolf populations in the Late Middle Ages, but there is no substantial evidence that its inhabitants perceived wolves as a major problem in subsequent centuries. The testimony of Petrus Treckpoel about fear for local dogs in Bilzen is noteworthy in this regard. Apparently, in this densely populated area, wolves were more or less exterminated during the Central Middle Ages and never managed to re-establish themselves afterwards.[87] While wolves profited from warfare to spread and multiply on many occasions, there were still limits to their agency.

The emphasis on wolves is of particular interest because wolves were one of the few animals in Western Europe, aside from bears, which considered humans as prey, albeit in exceptional circumstances. This actually reinforced their general perception as symbols of wilderness. The role of wolves in the Meuse Region was in this sense quite similar to that of tigers in Southeast Asia, a species that is known to have profited from warfare as well.[88] Many historical sources, hunting treatises as well as chronicles, indi-

83 Gruau, *Nouvelle invention de chasse*, 47. See also De Lisle de Moncel, *Méthodes et projets*, 49–50, 62–63.

84 Molinier and Molinier-Meyer, "Environnement et histoire," 232–33; Moriceau, *L'Homme contre le loup*, 35–45.

85 Ott, *Die besiegte Wildnis*, 128–32; Pluskowski, *Wolves and Wilderness*, 11.

86 I am grateful to Leon Engelen for providing me with an overview of bounties paid for killed wolves in the accounts of Stokkem (1748–1759), Achel (1684–1779), Bocholt (1680–1780), and Bree (1679–1779). The originals are kept in the state archives of Hasselt. Cremers, "De wolf," 157–58; Luyts, *Met vryaerts en resoelen*, 232–35.

87 Mengels, *Chronyk*, 9–10. Helsen, *De woorden*, 5–10; Ulrix and Paquay, *Zuidlimburgsche plaatsnamen*, 15, 16, 24, 47, 62, 69, 78.

88 Boomgaard, *Frontiers of Fear*.

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cate a general belief that warfare not only stimulated the spread of wolf populations, but also caused an increase in wolf attacks. The data published by Jean-Jacques Moriceau do show a rise in wolf attacks during some war years, but more research is required to confirm this link.[89]

Still, it is significant that contemporaries sometimes attributed attacks to werewolves because this kind of behaviour was considered abnormal, even unnatural. Wolves generally avoid humans, a fact people who lived side by side with wolves would be well aware of. The few trials concerning werewolves that occurred in the Meuse Region all date to the late sixteenth and early seventeenth century, a period of intensive warfare, and come from areas where wolves were common: Arlon, Namur, Limbourg, Liège, and Maaseik. This was of course also the heyday of witch trials in the Meuse Region, werewolves being treated as a specific kind of witch or sorcerer.[90]

The association between wolves, or wolf attacks, and warfare points to a specific influence of armies on ecological systems: the ecology of fear. This concept refers to the idea that predators, such as wolves, influence ecological systems in ways that go far beyond the actual number of prey taken. Their presence ensures that potential victims are on constant alert, which reduces damage done to local vegetation. In other words, the presence of wolves stimulates the regrowth of woodlands because it reduces the time deer or other herbivorous animals can spend grazing. The sources examined here in effect suggest the same thing: the anxiety caused by armies reduced the pressure of local populations on their environment. To what extent this reduced pressure was offset by the ravages of armies themselves, is open to debate, but it is an effect that cannot be ignored.[91]

Wolves were only one species in a long list of "nuisance animals," species that were considered unwanted or harmful and could therefore be killed with impunity and by any means possible. In some instances one could actually get a bounty. Changes in wolf populations may not always have been representative for other animals, but theoretically every species on this list, which shows considerable local variation but generally included all members of the *Mustelidae* (badgers, weasels, etc.) and *Corvus* (crow) genera, most rodents, foxes, birds of prey, owls, sparrows, moles, caterpillars, and even woodpeckers, could have profited from warfare.[92] It is no coincidence that the merciless animal described at the beginning of this chapter has a rat's tail. In the government of Bastogne, part of the harvest had to be left on the fields in 1636, during an invasion, due to a lack of manpower. Mice invested the fields the following year. A plague such as this also gave expanded wolf populations a more secure food base than corpses left on the battlefield.[93]

89 Moriceau, *Histoire du méchant loup*, 25–26, 300–329.

90 Briggs, *The Witches of Lorraine*, 123–126; Brouette, "La sorcellerie," 374; Moriceau, *Histoire du méchant loup*, 311–19; Vanhemelryck, *Het gevecht*, 178–80.

91 Ripple and Beschta, "Wolves and the Ecology of Fear."

92 De Schepper, "Geschiedenis," 88–93, 96; Kolodziej, "La louveterie," 67–84; Verbois, *Rekem*, 164, 264.

93 Jacob, *Bruyères*, 119–22; Laperche-Fournel, *L'Intendance de Lorraine et Barrois*, 123, 186.

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Warfare also allowed harbour seal populations in the North Sea to recover, simply because seal hunters did not dare to leave port.[94]

Aside from a reduction in wolf hunting, one of the most widespread effects of warfare was agricultural land left uncultivated because farmers were too afraid or not numerous enough to work their fields. The afore-mentioned chronicler Petrus Treckpoel notes that in the County of Loon the land was left fallow for four years during the 1490s due to the depredations of Evrard de La Marck's horsemen, and this resulted in the fields being overgrown with "thistles, hedges, hedgerows and thorns, foul herbs; it turned into a wilderness."[95] A species such as hawthorn is certainly capable of rapidly colonizing abandoned land, and can actually hinder the growth of coppice wood, particularly if already present as hedges on the edges of those properties.[96] When Bartholomaeus Macharii, a clergyman from Tongres/Tongeren, requested Charles the Bold in a poem from 1466–1467 to refrain from destroying his patria's garden, and only remove the enemy thorns, he might therefore be referring to actual ecological consequences of the ongoing war.[97] The Dutch word *verwildert* ("become wild") is again used in accounts from the same area dealing with farmland still left fallow in 1623, after having been deserted during the siege of Maastricht in 1579.[98]

Fiscal accounts from the Duchy of Bar in the mid-seventeenth century similarly mention fields overgrown with shrubs, and ponds turning into dry land for want of maintenance. Foresters patrolled with armed guards or postponed the felling of trees because of the general insecurity. They also suspended the planned fishing of ponds or moats.[99] In the area around 's-Hertogenbosch by contrast the term *vogelweide* denoted agricultural fields left fallow, a reference to the fact that wild birds, such as geese, used them for grazing or foraging. These changes could have long-lasting effects: in 1618 a man got permission to construct a bird trap on his lands, which had been left fallow for more than forty years. This was probably an *eendenkooi*, a rather complex trap to catch ducks, very common in the area, comprising a large pond, associated brooks and fences, all surrounded by woodland. Such traps could easily occupy several hectares, and so significantly altered the local landscape.[100]

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94 Martens, *De zalmvissers*, 171–74; 't Hart, "Zeehondenjacht," 77–78, 89–107, 151–68.

95 "*Ende binnen dien vier jaren en waert nie vele corns noch vruchten geseit, soe dat het lant verwassen was met distelen, heggen, haghen ende dornen, quaet cruyt oft een wildernisse geweest hadde.*" Paquay, ed., "Kroniek der Luiksche Oorlogen," 240–41.

96 Delcourte Debarre, "Espaces forestiers," 356; Douxchamps-Lefèvre, *Inventaire*, 3:127; Molemans, "Graafschap Loon," 139–40.

97 Boeren, *Twee Maaslandse dichters*, 31.

98 Tellingly, the connection between warfare and the creation of wilderness was still being made during the American Civil War. Brady, *War Upon The Land*, 130–37; Nijssen, Vanderbeken, and Wouters, *Loonse ridders*, 50–51.

99 de Terwel, *Les notices cadastrales*, 60; Marchal, *Inventaire*, 76, 89, 90, 137, 182, 205, 274, 293, 349, 372, 408; See also Delcourte Debarre, "Espaces forestiers," 101, 106, 320, 321, 398, 472; Douxchamps-Lefèvre, *Inventaire*, 3:47; Servais, *Annales historiques du Barrois*, 1:233.

100 Adriaenssen, *Staatsvormend geweld*, 294–98; Karelse, "Eendenkooi en kooibedrijf."

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Contracts passed between landowners and their tenants are very informative in this regard as well: the commandery of Alden Biesen, near Maastricht, consented in a 1581 contract that the new occupant of one of its major farms was allowed to cut wood and pasture pigs in its forest. In this way the coppice wood around his farm could be left standing, which made it less vulnerable to attacks from marauding soldiers. In 1650 Anne Pennas from Vireux (near Givet), who owned the right to fish in the Meuse, asked for a reduction of her rent because her employees had been unable to fish in 1635. A French cavalry regiment had been encamped next to the Meuse at that time and stationed guards at strategic points. The best time to fish, according to this testimony, was before sunrise and after sundown, but when fishermen approached the river under cover of darkness, the sentries unsurprisingly raised the alarm and shot at the intruders. A similar request, dating to 1322–1323, has been preserved from Namur, which suggests that armed conflicts regularly led to declining rates of catch.[101] Warfare thus encouraged the spread of wilderness through the widespread fear it generated as well as through its direct action.

The spread of wilderness serves as a remarkable counterweight to armies' depredations examined earlier, but it still does not illustrate long-term ecological effects. Precisely because wolves figured as symbols of wilderness and disorder, their extermination became a top priority as soon as peace returned. The French government passed special legislation to this end after the Wars of Religion (1583, 1597, 1600, and 1601) and in Champagne in 1660. Regulations concerning the reestablishment of wolf pits in Bar–Lorraine and Luxemburg in the second half of the seventeenth century can also be read in this light.[102]

The above-mentioned revival of wolves in the Langstraat, on the Brabant–Holland frontier, was likewise short-lived: seventy-seven of the ninety-five bounties were disbursed in 1609–1621, during the Twelve-Years Truce. Although war broke out again in 1621, no more than two bounties were paid; the last one in 1631. The hunting treatise *Jacht-Bedryff* from 1636 indeed notes that there were no more wolves in the County of Holland. In the Campine/Kempen so many wolves were killed in 1611 that the authorities reduced the amount of the bounties. From a more practical viewpoint, the financial rewards paid for killed wolves were probably a welcome addition to the income of local villagers, often impoverished by the war. One could argue, however, that without the constant warfare in the Meuse Region up to 1714 wolves would have disappeared centuries before they actually did.[103]

The consequences of these military disturbances can therefore be overstated. There is little evidence for instance to support the statement made by J. R. McNeill that warfare

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101 Namur, AEN, Chartier des comtes de Namur, inv. no. 448; Majewski, "Pêches contrariées"; See also Hoppenbrouwers, "Een middeleeuwse samenleving," 23-24, 270-271; Thoelen, "Damereis," 112–13.

102 *La vie quotidienne dans les Ardennes*, 40–41; Delguste-van der Kaa, *Histoire des loups*, 18; Kaisin, *Annales historiques de la commune de Chatelineau*, 125, 134, 192, 199, 217, 226, 272; Kolodziej, "La louveterie," 300; Moriceau, *L'Homme contre le loup*, 82–93, 365–82.

103 Luyts, *Met vryaerts en resoelen*, 71–72; van Heenvliet, *Jacht-Bedryff*, 1; Verschure, *Overleven*, 269.

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could lead to a spontaneous resurgence of forests.[104] This is a literary topos typical of chronicles and petitions.[105] Alain Girardot's study of the late medieval Prince-Bishopric of Verdun documents hedges evolving into woodlands during the fourteenth and fifteenth centuries, but these were cleared again in the early sixteenth century. Furthermore, many of these changes were very localized: in the 1480s the cathedral chapter of Verdun refused a squire's request to turn lands of the uninhabited village of Forbeuvillers into a rabbit warren, because it feared that these rabbits would damage nearby fields. The squire released some rabbits anyway, which consequently multiplied and caused considerably damage. In 1501 the woodlands were cut down and the rabbits put in an enclosed warren next to the castellan's house (castle). Girardot claims in effect that in the Prince-Bishopric of Verdun the entire landscape structure changed as a result of wartime disturbances, with agricultural fields, ponds, and forests being established in places most suitable for them.[106]

Not only does the pressure on woodland appear to increase rather than decrease, trees also mature much more slowly than shrubs or bushes. The seventeenth-century inhabitants of Bastogne and Chaumont thus had to use heath as fuel due to a lack of wood, even though many fields lay deserted. The adminstrative sources examined here indicate that lands were brought under cultivation again as soon as possible, and that changing agricultural practices prohibited the growth of forests. The villages of Romerée, Hanzinelle, and Cornelle, near Givet, saw several disputes during the first half of the seventeenth century about farmers keeping sheep on common land for commercial gain. The village of Sevenum, near Venlo, likewise saw a massive increase in the number of sheep (from 1579 to 3037) in the period 1595 to 1680. This was probably an economic response to a declining population, abandoned fields, and an increasing demand for meat from armies themselves.[107]

The combination of armies' mobility and their disruptive force could have had another ambiguous effect on ecosystems, an influence that is well known in twentieth-century wars. As early as the Franco-Prussian War of 1870–1871 botanists remarked that warfare caused the introduction of new species, species that could become invasive. Making similar observations about the pre-1850 period is very difficult, because of the nature of the evidence: while it is possible to trace the appearance of a species to a general period or area, by historical or archaeological sources, the exact manner of this migration is open to interpretation. The crusades are traditionally credited with the introduction of herbs from the Eastern Mediterranean to Western Europe, but a recent archaeological study about the spread of spinach indicates that Muslim Spain, and trade, would have been at least as important factors. The fact that most armies operating in the Meuse Region came from similar ecosystems does not help either, because it means that any plants transported in their wake would have served to promote genetic diversity

104 McNeill, "Woods and Warfare," 401.

105 See for instance Deloffre, "Guerres et brigandages," 336, 411–12.

106 Boutruche, "The Devastation"; Girardot, *Le droit et la terre*, 2:518–20, 2:524, 2:799–801, 2:830, 2:834.

107 Billen, "Het Waalse platteland," 264; Jacob, *Bruyères*, 112; van den Munckhof, "Jeneverbessen," 192.

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Figure 22. Print of a failed Dutch attempt to isolate Spanish troops on an island in the Meuse in December 1585, made by Frans Hogenberg in 1586 (Amsterdam, Rijksmuseum, RP–P–OB–78.784–250).

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rather than become new introductions. Tracing genetic diversity is an important part of ecological studies but is next to impossible to do based on historical sources.[108]

In 1814, for example, Russian troops carried seeds of *Corispermum Marschallii* westwards, to Baden and Fontainebleau. To what extent they are responsible for the establishment of warty cabbage (*Bunias orientalis*) in the fortress of Namur is far less clear. The botanist André Devos noted the abundance of this plant in the grasslands of the citadel of Namur in 1870. He concluded that Russian soldiers brought seeds with them when they stayed in Namur during the 1813–1814 campaigns against France, but also claimed that the plant was deliberately introduced as forage in the Southern Netherlands in the 1820s. Given that studies from later wars are quite consistent in arguing that most of these exotic species disappear as soon as the disturbances to which they are related cease, warfare does not seem to be the main factor in the spread of this species. Dutch or Belgian troops might instead have introduced the plant in a more peaceful manner.[109]

The destruction of dikes by contrast makes a strong case for long-term effects. Breaching dikes is a well-known phenomenon of medieval warfare near the Meuse estuary. The accounts of the high bailiff of 's-Hertogenbosch specify, for instance, that he ordered the breaching of the dike at Maasdriel to force troops from Guelders to stop the siege of the fortress of Ammerzoyen in 1387.[110] It is a very good example of army-induced disturbances functioning as a disaster as well as the spread of wilderness. After all, damaging dikes results in rivers adopting a more natural behaviour, which includes flooding. In December 1585 the Dutch army managed to isolate several thousand Spanish infantrymen, the elite of the Army of Flanders, on an island in the Meuse by breaching the dikes and conducting patrols with warships. The trapped soldiers would have either had to surrender or die from exposure and lack of food, but were eventually saved through the intervention of Count Peter Ernst von Mansfeld and the garrison of 's-Hertogenbosch, who used artillery to drive off the Dutch ships. The freezing of the Meuse complicated the latter's retreat, however, and several were destroyed (see figure 22).[111]

It should be emphasized, nevertheless, that larger conflicts about water management were often more important than strategic considerations, especially when it came to repairing war damage.[112] The count of Holland, for example, prohibited extracting peat near the sea dikes of the Meuse–Rhine estuary (the Grote Waard) in 1375 because it increased the risk of flooding. All noblemen, cities, and settlements received permis-

108 Hallavant and Ruas, "The First Archaeobotanical Evidence"; Thellung, "Stratiobotanik"; Zeven et al., *De introductie*, 67–91.

109 Devos, "Les plantes naturalisées," 20, 62; Istasse, "Un mois"; Thellung, "Stratiobotanik," 330–31.

110 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. no. 2783, 7.1.1.7–7.1.1.11 (transcript Henk Beijers). See also Herborn, "Die sogenannte Fischmeisterei-Rechnung," 88.

111 Schulten, "De strijd bij Empel."

112 *Enqueste ende informatie (1494)*, 196; *Informacie up de staet faculteyt ende gelegentheyt*, 433; Adriaenssen, *Staatsvormend geweld*, 104, 372–75; Coun, *Geschiedenis*, 129–32; De Graaf, *Oorlog*, 237–41; Driessen, *Emundt van Oeteren*, 43–44; Hasquin, *Une mutation, le "Pays de Charleroi"*, 237; Helmich, *Journaal*, 177–78; Jacquet-Ladrier, "Vivre à Namur," 168; 't Hart, *The Dutch Wars*, 105–6; van Heiningen, *Tussen Maas en Waal*, 24, 105; Verbois, *Rekem*, 194–97.

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sion to destroy new dikes constructed to facilitate peat-cutting (*moerdijken*), and chase away the diggers. In 1379 the urban militia of Dordrecht actually launched an attack on the lord of Zevenbergen and destroyed his new dikes. Short-term financial gain proved to be stronger than security concerns, however, and the peat-cutting simply continued. This eventually contributed to the infamous St. Elizabeth's flood of 1421.[113]

Perhaps most enlightening about the nature of the disturbances examined here is that there is very little evidence to suggest that settlements were deserted permanently because of army-induced disturbances. Some individual farms, mills, and hamlets were abandoned for decades, probably never to be rebuilt again, but armies very rarely caused entire villages or cities to disappear.[114] There is one exceptional example: the fortress of La Mothe, the second largest city in the Duchy of Bar, which was besieged by a French army in 1634 and 1644–1645. It was systematically destroyed after its second surrender to set an example for anyone daring to challenge French authority in the area again. Its population dispersed; most settled in nearby parishes. The French government eventually divided the land between two neighbouring villages, but ruins continued to overshadow the plateau on which it was located for at least another century. Girardot's study from late medieval Verdun also demonstrates that the lands of "abandoned" settlements continued to be cultivated, either by landowners living somewhere else or by neighbouring villages. This was what actually prevented the rebuilding of the original settlement.[115] There are therefore few indications that warfare-induced wilderness had permanent effects.

Long-Term Consequences

Up till this point we have evaluated a wide range of disturbances caused by armies, but also the paucity of evidence regarding long-term impacts. Assessing such shifts in ecological systems will be the main subject of this section. Consider the woodcut described at the beginning of this chapter again and especially one particular detail still left unexamined: the beast eats gold. The idea that the economic consequences of these disturbances could have been more important than ecological ones has been noted before. This does not imply that armies' disturbances lacked long-lasting ecological effects, only that these impacts were often of a more indirect nature. The first factor that needs to be taken into account is the impoverishment brought about by warfare, or rather transfers of wealth.[116] Rising taxes, for instance, appear to have been a more important cause for permanent emigration from the Campine/Kempen during the Eighty Years War than insecurity.[117]

113 Gottschalk, *Stormvloeden en rivieroverstromingen*, 1:436, 1:452–55, 1:468–69, 2:35, 2:280, 2:731, 2:756, 2:785, 2:791, 3:238, 3:258.

114 Genicot, *La crise agricole*, 92–98; Girardot, *Le droit et la terre*, 2:520–34; Laperche-Fournel, *La Population*, 37–55, 133–36; Miart, "La population," 162.

115 Marchal, "Description"; Martin, *Une guerre*, 284–87; Villa-Sébline, *La sénéchaussée*, 98–100.

116 *Enqueste ende informatie (1494)*, 198, 214, 216; Adriaenssen, *Staatsvormend geweld*, 225–52; Carolus-Barré, "Benoit XII"; Engelen, "Financiële en fiscal repercussies"; Rorive, *Les misères de la guerre*, 219–61.

117 Mertens, "Bank van Pelt."

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Land represented a major financial reserve, especially woodlands because the right to cut wood could be sold separately from the actual ownership of the land. It comes as no surprise therefore that rulers, ecclesiastical institutions, and villages traded access to woodlands to pay off debts brought about by armies, generally through warfare.[118] The duke of Bar, for example, granted five of his fiefholders the product of two and a half hectares of forest in 1403, because they were wounded while serving him, and the town of Mouson gave up the profits of the annual cuttings in their woodlands for twenty-five years in 1730 in order to pay for the construction of barracks and stables.[119]

Actual selling of land was a more complex phenomenon. It affected common lands and peasants more than anyone else, but could produce very dissimilar results because there were significant differences in land ownership throughout the Meuse Region. Historical studies regarding the effects of warfare on agriculture note that major tenants were generally less affected than peasants. Landowners took care to ensure that their lands continued to be cultivated, for instance by resorting to sharecropping. They were far less willing to show comparable leniency for small tenants, unless these were in short supply. Peasants also had to bear a disproportional part of the tax burden, including wartime contributions, as absentee landlords owned a considerable part of agricultural land, but refused to pay their share. The previously mentioned report made by lieutenant colonel de Terwel was specifically meant to put taxation on a more secure and equal footing.[120]

In this way warfare actually reinforced or accelerated existing economic transformations resulting in the proletarianization of a significant part of the rural population. In the counties of Holland and Hainaut, villages and individual peasants were increasingly forced to sell their (common) lands to wealthy farmers or inhabitants of nearby towns during the seventeenth century. This resulted in the establishment of large commercial farms. The area around Namur likewise experienced an evolution towards enclosing common lands, very much to the displeasure of the governors of the city (see chap. 1). In the Campine/Kempen, the area between Liège and Maastricht, and the Ardennes, by contrast, peasants mostly managed to hold on to their (common) lands until the nineteenth century, the result of the dominance of small-scale land ownership in these areas. The fact that these peasants had various sources of income (cf. protoindustrialization)

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118 Dinant, Archives Ecclésiastiques, inv. no. 312, fol. 100: January 1, 1323; Gimnée, 3939: February 15, 1624; Grand conseil de Malines, Luxembourg, no. 400 c, August 14, 1636 (transcript Généamag); Tongeren, SAT, Sint-Jacobsgasthuis, charter June 9, 1491; Belhoste, "Une sidérurgie frontalière," 18–19; Bodard, ed., *Receuil des ordonnances du Duché de Bouillon*, 74, 208; Borgnet, *Cartulaire*, 107–8; Bouwer, *Een notabel domein*, 52–53; Desbrière, "Le bois," 248; Douxchamps-Lefèvre, *Inventaire*, 2:107–8, 4:43, 5:41, 6:49–50; Gutmann, *War and Rural Life*, 52; Illaire et al., eds., *Les cahiers de doléances*, 169; Jacob, *Bruyères*, 31–35; 48–49; Kaisin, *Annales historiques de la commune de Chatelineau*, 74, 78, 98; Lemoine, "L'enceinte de Liège," 37; Vera, "Gemene gronden," 219–20, 229–33.

119 Richer, *Abrégé chronologique*, 330; Servais, *Les Annales historiques du Barrois*, 2:339, 2:391.

120 Roosen, "De rurale economie," 53, 148, 153–61; Terwel, *Les notices cadastrales*, 23–24; Thoen, "Oorlogen en platteland"; van Bavel, *Goederenverwerving en goederenbeheer*, 331–32, 368, 376, 393–94, 401, 470.

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also gave them a stronger financial reserve to overcome calamities. Wealthy citizens buying land in the Campine/Kempen in the seventeenth and eighteenth century continued to exploit these as individual farms or turned heathlands into forests or parks, as part of a rhetoric of making such lands fertile again.[121]

Notarial acts and court records reveal how the selling of land in sparsely populated areas could have very divergent results: in the seventeenth-century Ardennes villages saw themselves forced to sell part of their common lands, often woodlands, to owners of forges or local noblemen. There can be no doubt that in the first instance trees were cut down and ended up in furnaces, but most noblemen had a vested interest in preserving these woodlands, for example as hunting parks. Some noblemen definitely took advantage of crisis periods to expand the environmental symbols of their lordship, such as forests or ponds (see the squire's rabbit warren above).[122]

Aside from contributing to transformations in landownership military disturbances also acted as a catalyst or contributor to other long-term processes, the most famous of which is the Meuse's declining importance as a transportation route. The Eighty Years War saw a multiplication of tolls and tariffs along the Meuse because of the need to finance states' military endeavours. Remarkably enough, these charges initially did not impede transportation. Traffic actually increased in the early seventeenth century, reaching far higher levels than before, because of the Dutch Republic's blockade of the Scheldt.[123] In the long run, however, these tolls contributed to a significant decrease of traffic along the Meuse, reducing it to a route of only regional importance by the early eighteenth century. Changes in the volume of transportation on the Meuse River had major ecological significance because efforts to ensure the continuous navigability of the river would have been either expanded or neglected. These included the construction and maintenance of dams and sluices, but also the clearance of vegetation next to the river. Boats could only move upstream along the Meuse, and sometimes downstream as well, when pulled by horses. These horses needed a towpath to walk on.[124]

The disappearance of vineyards from the northern half of the Meuse Region in the sixteenth and seventeenth centuries by contrast was primarily caused by climate change, and more specifically a relative decrease in average temperatures commonly known as the "Little Ice Age."[125] In 1469, for instance, Burgundian soldiers testified in the context of a judicial inquest opened to prove that a nobleman from Hainaut died

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121 Bouwer, *Een notabel domein*, 172–87; Brouette, "Notes," 109–10; Gutmann, *War and Rural Life*, 108–10; Krings, *Wertung und Umwertung*, 46–47; Peudon, "Le droit de clôture," 266–68; 't Hart, *The Dutch Wars*, 107–8, 113, 118–21, 178–81.

122 Gimnée, 3939: February 15, 1624 (transcript Généamag); Buridant, "Le rôle des forêts," 236; Douxchamps-Lefèvre, *Inventaire*, 1:298; Kaisin, *Annales historiques de la commune de Chatelineau*, 216; Jacob, *Bruyères*, 144–46; Krings, *Wertung und Umwertung*, 30–31.

123 Breuer, *Die Maas*, 78–86; Knoors, "Maasvaart en Maashandel," 20–29; Suttor, *La Meuse*, 536–41.

124 Driessen, *Emundt van Oeteren,* 214–31; Harsin, "Etudes sur l'histoire économique," 118–37; Steegen, *Kleinhandel en stedelijke ontwikkeling*, 39–52, 78–85; Suttor, *La Navigation*, 58, 116–17.

125 Vineyards have reappeared in the northern half of the Meuse Region in the last decades, an economic development made possible by global warming. Bormans, "Table des régistres," 12:13; Dinstühler, ed., *Die Jülicher Landrentmeister-Rechnung*, 91: Habets, "Over den wijnbouw," 386–92;

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during the siege of Liège (1468), and more specifically during the famous night assault on their encampment. A recurring aspect in these statements is the omnipresence of vineyards in the immediate surroundings of the city, which might have had an important role in hiding the attackers' advance from Burgundian sentries. The Burgundian army attempted to destroy these vineyards after the surrender of the city, but many of them had recovered as early as 1470.[126] Even though armed conflicts might have contributed to and accelerated the demise of vineyards, their impact was too limited to actually initiate their decay.[127]

The decline of the Dutch herring fisheries, a major activity in the Meuse estuary, on the other hand, can best be explained as a mixture of ecological, political–military and economic factors (tariffs). Technological developments (e.g., the herring buss) in the fifteenth century gave Dutch fishermen an advantage initially, because it allowed them to catch herring further from the coast. This is important given the migratory behaviour of the species as well as its changing geographical distribution due to climatic fluctuations. But this expansion on the North Sea also brought them into mounting conflicts with English and Scottish fishermen and made them more vulnerable to privateers. Fishermen from the Meuse estuary suffered major losses during the Eighty Years War and the three Anglo-Dutch Wars (1652–1654, 1665–1667, 1672–1674), and finally had to give way to their English and Scandinavian counterparts.[128]

As important as these combat-related effects were, there is another set of impacts that is often overlooked, but might have been more significant in the long run than any of the impacts analyzed so far: the ways that an army actually obtained its teeth, particularly arms manufacturing, gunpowder production, and ship building. The wood consumption of these activities was immense, and in contrast to the depredations mentioned before, did not act as an exceptional event, but as a constant in peace as well as war. Although it can be difficult to connect specific ecological impacts to the demands of armies (general iron production as opposed to arms manufacturing, for example), there is no doubt that most of the disturbances examined here were closely associated with military needs.

Arms production was a major economic activity in the Central and Late Middle Ages. The area between Givet and Maastricht in particular had a key role in this regard, and also exported weapons. The St. Odilia shrine, from the late thirteenth century, provides one of the oldest surviving depictions of the kind of flat-bottomed boats typically used for river transport in the middle of the Meuse basin (see figure 23). Customs regis-

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Halkin, *Etude historique,* 22, 24, 26, 27, 38, 42, 49, 81, 93, 101–2, 123–24; Pauls, "Zur Geschichte des Weinbaus," 242–48.

126 Halkin, *Etude historique,* 25–27; Poncelet, 'Le combat'; Lemoine, "L'enceinte de Liège," 67.

127 Douxchamps-Lefèvre, *Inventaire*, 1:218, 5:41; Genicot, *L'économie rurale*, 4:198–200; Girardot, *Le droit et la terre*, 2:551–58; Maguin, "Economie, politique et viticulture," 195–96; Pauls, "Zur Geschichte des Weinbaus," 194, 198; Rorive, *Les misères de la guerre*, 353–54. See also Hanson, *Warfare and Agriculture*, 68–71.

128 Poulsen, *Dutch Herring*, 33–34, 54–60, 141–42, 217–36; Sicking and van Vliet, " 'Our Triumph of Holland' "; van Vliet, *Vissers en kapers*, 108–16, 145–57, 165–69, 174–77, 215–18, 243–48.

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Figure 23. Detail of the Shrine of St. Odilia, made in the Meuse valley for the house of the Crosiers ("Crutched Friars") in Huy, late thirteenth century (© KIK–IRPA, Brussels, cliché X059109).

ters from fourteenth-century Dordrecht note single vessels carrying several hundred to two thousand lance or pike shafts downstream to the city. These ended up in the hands of combatants in Holland, Zeeland, or Flanders, and possibly even England. The fourteenth-century Tower of London stored several hundred pieces of armour made in Maastricht in 1337–1338.[129] The Meuse Region also started to export yew bows to England as early as the late thirteenth century, for a list of tariffs from Dordrecht (1287) already mentions bow staves.[130] Custom registers dating to the late fourteenth century mention the passage of ships carrying hundreds to more than a thousand bow staves, but only a minority of these originated from the Meuse Region, which means that yew trees must already have become very rare by this time.[131]

It is unclear to what extent armed forces within the Meuse Region used bow staves made of yew, given the predominance of crossbows, and the fact that other kinds of wood could be used as well. As far as crossbow bolts are concerned, some numerical data is available: in the late Middle Ages every city and fortress of some strategic importance had at least one crossbow and bolt maker at its disposal, who was primarily occupied with supplying local arsenals with weapons and ammunition. City accounts and castle inventories show that these specialized craftsmen produced several hundred to several thousand bolts a year in times of necessity, and that thousands of bolts were kept in

129 Niermeijer, *Bronnen*, 1:411, 1:419, 1:582, 1:589; Richardson, *The Tower Armoury*, 24–25, 55.

130 Gaier, *L'Industrie*, 212–16; Suttor, *La Meuse*, 406–14; van de Wall, *Handvesten … der stad Dordrecht*, 1:78.

131 Niermeijer, *Bronnen*, 1:210, 1:311, 1:475, 1:551–52, 1:601; Schnurmann, *Kommerz und Klüngel*, 129–47.

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store.[132] These numbers should be seen in light of the huge consumption of ammunition: Geldern sent three crossbowmen in 1387 to the siege of the fortress of Middelaar, near Cuijk, according to its accounts. They left the city for fifty-six days in total and spent eight hundred bolts.[133]

The environmental damage caused by arms production was thus already very substantial before the spread of gunpowder weapons. There are signs that craftsmen tried to limit wood consumption, for instance by making crossbow bolts out of old wine barrels. Technological changes further contributed to and transformed an existing overexploitation. The construction of a large gun weighing about four thousand seven hundred kilograms for the city of Mons in 1378 required no less than two thousand kilograms of charcoal (or six thousand kilograms of wood), and sixteen thousand kilograms of coal. In this context it is hardly surprising that Gilles le Bouvier, also known as the herald Berry, notes the scarcity of woodlands in Namur and Liège, especially near the Meuse River, as early as 1451. Most people were forced as a result to use coal for fuel.[134]

Given the need for woodlands or coalmines as a source of energy, mineral deposits for raw materials, and streams as a source of biopower and for transportation, metallurgy, including arms manufacturing, became concentrated in the southern parts of the Meuse Region, from Liège to Lorraine. By the early seventeenth century major entrepreneurs, such as Jean Curtius and Louis de Geer, dominated this trade. Liège and Charleville stood out as major arms-manufacturing centres. Liège profited from the neutrality of the Prince-Bishopric to supply arms to both sides, while Charleville became the heart of French arms production from the late seventeenth century onwards. The Charleville musket, the standard infantry weapon of Napoleon's infantrymen, was developed here in the 1770s.[135]

While the area around Liège, especially Herstal, retained its key role long after the 1850s, most forges in the principalities of Namur and Liège reached their heyday around the mid-seventeenth century, after which they suffered from increasing international competition, including the newly founded Charleville. The Dutch Republic, for instance, replaced its arms imports from the Prince-Bishopric of Liège through prefabricated iron parts during the late sixteenth and early seventeenth century, before shifting to iron imported from the Baltic. While this competition is often seen in economic or political terms, including the destruction of forges by armies, the ecological contribution can-

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132 Grave, SLC, Archief Gemeente Grave, inv. no. 217, fol. 248r; inv. no. 218, fol. 31r (transcript Rien van den Brand); de Groot, *De stadsrekeningen*, 1384 fol. 16, 1385 fols. 7 and 42, 1387 fol. 7, 1388 fol. 6, 1390 fol. 29, 1391 fol. 5, 1398 fol. 12, 1399a fol. 9, 1403 fol. 10; Dinstühler, ed., *Die Jülicher Landrentmeister-Rechnung*, 76–77; Drooghaag, "Visitation en Limbourg et Outre-Meuse," 196, 203–4, 208, 215; Gaier, *L'Industrie*, 66–85, 98–104, 141–56. See also Bachrach, "Military Industrial Production."

133 Kuppers, "De stadsrekeningen," 23–24, 39.

134 Gaier, *L'Industrie*, 207; Le Bouvier, *Le livre*, 109.

135 Belhoste, "Une sidérurgie frontalière," 12–15; de Jong, *"Staat van oorlog"*, 46–49, 87–90; Gillard, *L'Industrie de fer*, 47–49; Suttor, *La Meuse*, 441–52; Parrott, *The Business of War*, 196–202; 212–19; Yernaux, *La métallurgie liégeoise*, 33–61; Zunckel, *Rüstungsgeschäfte*, 61–77.

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not be forgotten either.[136] Deforestation had already reached such an extent by the early sixteenth century that authorities in Liège, Bouillon, and Namur passed legislation to oblige forge owners to replace the trees they cut down or leave a certain percentage of woodlands standing. They also increased the penalties for illegal cutting down of wood. In the seventeenth century the production of four to five kilograms of iron required twenty kilograms of charcoal, or one hundred kilograms of oak wood.[137]

In practice damage done to forests seems to have been limited more by environmental constraints than legal action. The Ferraris map (1777) clearly shows the deforestation along navigable rivers such as the Meuse, Sambre, and Ourthe. Trees were spared simply because the transportation costs became too high. It is no coincidence that in the Duchy of Luxemburg, with a very different hydrography, woodlands still occupied relatively large areas of land. In this context the testimony of a weapon-smith from Chiny who lived in Namur in 1648 becomes especially relevant: he stated before a notary that in Luxemburg it was common practice to use charcoal rather than coal for arms production, because the resulting iron was of better quality.[138] It is because of the constant need for fuel that the remaining woodlands in Namur and Liège were increasingly reduced to coppice wood, which in turn made the soil more vulnerable to erosion. It is worth noting that the seasonal floodings of the Meuse became more frequent during the early modern period.[139]

Gunpowder weapons not only also worsened existing processes of deforestation by stimulating iron production, but also because they required large amounts of saltpeter (potassium nitrate). In the late fourteenth century gunpowder was still made with approximately equal amounts of sulphur, charcoal, and saltpeter, whereas by the late sixteenth century gunpowder makers mixed six parts of saltpeter for one each of charcoal and sulphur.[140] This growing importance of saltpeter presented a challenge, for in the Meuse Region it could only be found in small quantities. Rulers certainly attempted to obtain natural saltpeter: a charter from the County of Namur specifies that the lord of Han-sur-Lesse gave saltpeter makers permission in 1487 to gather it in rocks (caves) situated within his lordship. This saltpeter served the needs of the guns kept in the fortress of Namur. The high bailiff allowed them likewise to work in the cellars and stables of this fortress. Efforts to produce saltpeter from domestic sources were also made in Jülich, Bouillon, and Liège in the sixteenth century.[141]

136 de Jong, *"Staat van oorlog"*, 182–217, 230–32, 244–52; Harsin, "Etudes sur l'histoire économique," 73–80; Pirotte, "L'industrie métallurgique," 160–61, 182–83; Yernaux, *La métallurgie liégeoise*, 109–88.

137 Liège, Chambre des Comptes, Couvin 656: January 14, 1570 (transcript Généamag); Caffiaux, *Essai sur le régime economique*, 291–94; Douxchamps-Lefèvre, *Inventaire*, 1:317, 4:358; Gaier, *L'Industrie*, 206–8; Hoffmann, *An Environmental History*, 222–25; Jacob, *Bruyères*, 85; Suttor, "Les ressources forestières," 26–27, 34.

138 Brussels, KBR, Cartes et plans, MS IV 5.567: Carte de Ferraris; Bouvignes, Notaire Waulthier, Act January 16, 1648 (transcript Généamag); Charruadas and Deligne, "Cities Hiding the Forests."

139 Tomsin, "Frequence des crues de la Meuse," 297–302.

140 Gressy, *Saltpeter*, 11–12; Hall, *Weapons and Warfare*, 67–104.

141 Bouvignes, 1200, fol. 90: April 14, 1543; Namur, Haute cour de Namur, inv. no. 27, fol. 178

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From an ecological perspective, the main issue is that these natural quantities were far too meagre to satisfy a rising demand for gunpowder. By the fifteenth century, saltpeter makers therefore attempted to extract saltpeter from earth rich in decaying organic matter, an environment that allows the bacteria responsible for the occurrence of nitrates to thrive. Such refinement processes inevitably required large volumes of firewood, even more than for the refinement of natural saltpeter.[142] The need for large quantities of firewood provided the duchies of Bar–Lorraine with an opportunity to focus on the production and export of saltpeter from the seventeenth century onwards.[143]

This domestic production experienced increasing rivalry from the English and Dutch East India Companies, which started to import large quantities of saltpeter from India, where it could be obtained more easily. Yet the importance of this salt was such that many saltpeter makers continued their practices, especially in the kingdom of France, because their government loathed dependence on their enemies' overseas imports. Strategic considerations thus encouraged the further depletion of woodlands.[144] In response to these pressures French saltpeter makers began to experiment with using plants containing high nitrate contents. In 1794, when the republic was in particularly desperate need of saltpeter, hundreds of citizens and soldiers were sent out to the woodlands near Verdun to pull out suitable plants.[145] Overexploitation of woodlands to satisfy military needs for arms and gunpowder, in peace as well as war, was clearly one of the armed forces' most long-lasting ecological impacts.

The final disturbance that needs to be examined here is shipbuilding. This means once again stressing the importance of wood and its overexploitation, but in a very different way. Iron or gunpowder production mainly consumes wood as fuel. Managing woodlands as coppice wood or pollards is in these instances a common way to limit ecological damage and ensure the continuous supply of firewood. The building of ships required large quantities of timber, mostly trees managed as high forest.[146] Different pressures, economic or otherwise, could thus potentially have a major influence on forest management. The question is how these contrasting pressures related to each other.

The link between ships and armies might seem ambiguous, given that sharp distinctions between naval and other types of ships only become discernible from the late seventeenth century onwards, but this confirms rather than questions their close association. Up to the mid-seventeenth century few ships were kept permanently in service

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(transcript Généamag); Bodard, ed., *Receuil des ordonnances du Duché de Bouillon*, 33–34; de Jong, *"Staat van oorlog"*, 234–35; Gaier, *L'Industrie*, 181–87; Lejeune, *La formation du capitalisme*, 190–95; Pauls, "Wirtschaftsgeschichtliches aus dem Herzogthum Jülich," 325.

142 Cressy, *Saltpeter*, 15–25, 66–72; Hall, *Weapons and Warfare*, 74–79.

143 Laperche-Fournel, *L'Intendance de Lorraine et Barrois*, 184–85; Zunckel, *Rüstungsgeschäfte*, 80–100.

144 Cressy, *Saltpeter*, 34, 133–35, 145–51; de Jong, *"Staat van oorlog"*, 206–8; Le Moigne, "Le rôle économique," 211–12; Zunckel, *Rüstungsgeschäfte*, 103–5.

145 Cornette, *Mémoire sur la formation du salpêtre*, 7–9, 54–60; Pionnier, *Essai sur l'histoire*, 449–50.

146 Lake-Giguère, "The Impacts of Warfare."

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as warships, as most were used for trading or fishing and became part of a naval fleet when required. The main market for timber was Dordrecht, which procured a considerable part of its supply from the more forested areas of the Meuse Region, aside from the Rhine basin and the Baltic. Wood was after all one of the main commodities transported along the Meuse from the Early Middle Ages onwards. Customs registers from the fourteenth and fifteenth centuries demonstrate exactly how frequent the passage of ships loaded with planks or poles must have been. In some cases entire tree trunks were even bound together and floated down the Meuse from Sedan or Givet.[147]

Remarkably enough, the importance of this transport of lumber decreased from the late sixteenth century onwards, precisely when Dutch naval industries experienced a major expansion. Timber for shipbuilding was now mainly imported from Norway and to a lesser extent the upper Rhine Region. The reason for this development lies in the aforementioned expansion of the iron and arms industries as well as regulations against deforestation. Shipbuilding requires a very different form of forest management and had to make way for these expanding industries.[148] In the mid-eighteenth century the construction of a man-of-war of seventy-four cannon, a common type of warship, required almost two thousand one hundred cubic metres of wood. The Meuse Region did however retain a limited role in shipbuilding, especially in France from the 1730s onwards, when it became increasingly difficult to find suitable wood closer to the coast.[149] Most timber originating from the Meuse Region was floated down the Marne towards Rouen. The wharfs of Toulon obtained only one percent of their timber from Champagne in 1755–1769.[150]

The French takeover of the Southern Netherlands in 1795 could have served as a major turning point, because of the development of Antwerp as a major military port from 1810 onwards in combination with the massive expansion of state-owned forests. In absolute numbers the Rhine basin again supplied far more timber than the Meuse Region, but the remaining forests were still significantly affected. In June 1813, for instance, Napoleon ordered the extraction of no less than six to seven thousand cubic metres of wood from the woodlands near Namur and Dinant. In the long run this growing need for timber could have exerted a major influence on forest management throughout the Meuse Region, but given the abrupt ending of Antwerp's naval wharfs later that same year, it just seems to have contributed to the deterioration of the remaining high forests. The pressure on woodlands only ended in the 1860s, with the final demise of wooden warships.[151] The supply of timber for shipbuilding contributed significantly to

147 de Jong, *"Staat van oorlog"*, 64–70; Fanchamps, "Transport et commerce"; Niermeijer, *Bronnen*; Sicking, *Zeemacht en onmacht*, 185–96; Suttor, "Un grand exportateur"; Suttor, *La Meuse*, 380–88.

148 Buis, *Historia forestis*, 2:505–13; Nusteling, "Strijd om de binnenvaart," 155–59.

149 Belhoste, "Bois et fers pour la marine," 99, 108; Boudriot, "Chêne et vaisseaux royaux."

150 Buti, "Un arsenal méditerranéen," 494–98.

151 Herbin de Halle, *Des bois propres au service des arsenaux*, 193–240; Tallier, "Politique forestière et construction navale"; Todorov, "La géographie des ressources forestières" http://www.rgh.univlorraine.fr/articles/view/52/La_geographie_des_ressources_forestieres_et_les_ambitions_navales_de_Napoleon_apres_Trafalgar_l_example_du_bois_de_chene.

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the overexploitation of woodlands in the Meuse Region, but its long-term impact was relatively limited because arms and gunpowder production were considered to be more important.

Conclusion

The ecological damage that premodern armies could inflict was significant, even without the possibilities of industrial warfare, and with tools as simple as iron axes, spades, and torches. To what extent this damage is comparable to that inflicted by current military forces, in absolute or relative terms, certainly merits further analysis. Armies functioned like a natural disaster, but the "shocks" they brought about were in themselves rarely sufficient to bring about "shifts" in ecological systems. Outcomes might have been very different if not for the intervention of other actors, human or non-human. The strongest evidence for long-term effects comes in fact not from warfare as such, but its preparation and aftermath: arms production and destitution. Especially in these cases, making a distinction between armies and other, external or internal, influences is very problematic.

The key characteristic of military disturbances in the Meuse Region from 1250 to 1850, then, is that they put pressure on the substantial yet fragile control humans exerted over ecosystems. Survival strategies of the general population in wartime, especially rural dwellers, are quite meaningful from an ecological perspective because agriculture and livestock-raising dominated landscape use throughout the Meuse Region. Access to scarce natural resources, such as wood, fish, or game, was limited and carefully regulated. When armed forces challenged this control, wolves and other unwanted species could still take advantage of the resulting turmoil to reassert themselves. They no longer had such an opportunity during the World Wars, for wolves had been almost exterminated by 1914. The destruction these later conflicts brought about was in fact so extensive that it stimulated new forms of ecological conservation (such as the reforesting of the former battlefields of Verdun).

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Chapter 4

POLICING

Protecting Natural Resources

The conservation of Africa's large mammals, especially elephants and rhinos, has become dominated in the last decades by heavily armed men wearing military uniforms, who patrol the savannah to hunt down poachers. This bellicose defence of animals that have a central role in today's notions of "nature" is a key element in current armies' allegedly modern behaviour towards ecological systems. The military has become a protector of nature. Although many environmentalists support this kind of nature conservation, it is not without its opponents. Critics argue that declaring war on poachers simply means fighting symptoms rather than real causes (a lack of other means of income, the general political turmoil in many border areas, and a growing demand for ivory). It is only relatively recently that authorities recognised the need to cooperate with local residents to combat poaching.[1]

Such a situation has historical precedents. The U.S. army also had a major role in the creation and protection of the country's first national parks in the decades after the American Civil War (notably Yellowstone). The military was after all the government service best equipped to handle the difficulties connected to controlling such vast spaces. They had the necessary manpower and resources, and already had vital knowledge with frontier management (cf. cartography). These soldiers ran into regular conflict with both Native Americans and new settlers over poaching and illegal wood cutting, since the underlying assumption of national parks, then and now, is the idea that true "nature" is something that needs to be protected from human interference.[2]

The present chapter examines whether armed forces' safeguarding of specific types of animals and plants can be traced back to a far more distant past. It connects military conservation of biotic communities to an army's core function: organized violence. The examples just cited are all conflicts about entitlement or access to ecological systems. Military involvement goes further than preservation in the strict sense of the word, shielding biotic communities from disturbances. It is also about upholding a framework of law enforcement with the intention to control behaviour. For this reason the chapter specifically uses the term "policing."

The aim of this chapter, then, is to provide a new perspective on the history of state formation as well as contributing to a better understanding of past army–ecosystem interactions. The role of armies in the controlling of biotic communities has to be studied in the context of the historical evolution of armed forces themselves. It is

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1 Duffy, "Waging a War to Save Biodiversity"; Henk, "Biodiversity and the Military"; Lunstrum, "Green Militarization."

2 Jacoby, *Crimes against Nature*, 99–120; Meyerson, *Nature's Army*, 68–83, 106–17, 233–45.

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well established that a state's monopoly on the legitimate use of armed force is a relatively recent phenomenon.[3] As will be further referred to in subsequent sections, it is only in the (late) eighteenth century that states really appropriated the right to use organized violence against external enemies. It is at that point that "army" more or less became synonymous with "military." This evolution is closely related to another major development: increasing distinctions between external and internal organized violence, between organizations that are today called "the military" and "the police." A growing number of scholars consider soldiers as agents of repression in the early modern period, but so far no one has analyzed soldiers' involvement from an ecological perspective.[4]

In order to evaluate whether armies protected biotic communities in the past, a short overview has to be provided of the people who regulated access to natural resources in the medieval and early modern period. In the region in which we are concerned so-called high bailiffs, stewards, or castellans (*drossa(a)rd*, *hoogschout*, *Burggraf*, *chatellain*, *prévôt*), as well as ordinary bailiffs, were of central importance because these men represented a ruler or state in a given area. In this way they combined the duty of fighting internal or external threats to the maintenance of public order with the responsibility of enforcing environmental laws. High bailiffs often shared these latter duties with foresters and park keepers (*forestier*, *gruyer*, *Waldmeister*, *warandemeester*, *waldgraaf*, *houtvester*). Armed servants or wardens (*garde*, *sergent*, *bode*, *vorster*, *schutter/Schütze*) functioned as the main law enforcers at its lowest level and supported both bailiffs and foresters.[5]

Given that the military role of bailiffs is well known, it is useful to examine the connections between foresters and armies in more detail. In the Middle Ages foresters served in an army context simply because they were representatives of a potentate in a given area.[6] A 1278 charter for example, of the kind typically written during peace talks, lists a number of complaints made against subjects of the bishop of Liège by representatives from the County of Namur. It includes one entry alleging that the bishop's forester of Havelange, woodlands located on the Liège–Namur frontier, conducted raids and stole horses in Jallet. This note should be read in light of the fact that in this case jurisdictional disputes provided the *casus belli*.[7] A proclamation of the city council of Liège in 1486, on the other hand, called upon its citizens to identify the man who cut off two fingers of the forester of Visé at a muster of men-at-arms. The forester's exact role in this military review is unclear, given the absence of other administrative sources, but it is likely that he ran into a conflict with one of the soldiers.[8]

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3 Muchembled, *A History of Violence*; Ruff, *Violence in Early Modern Europe*. Late medieval feuding practices are especially well studied. See for example Glaudemans, *Om die wrake wille*; Stercken, *Königtum und Territorialgewalten*.

4 Antonielli and Donati, eds., *Corpi armati*; Denys, *Police et sécurité*; Emsley, "The Military."

5 Bartlett, "The Impact," 87; Denys, "Les sergents de ville"; Jacobs, *Justitie en politie*, 20–30, 103–4; Smolar-Meynard, *La justice ducale*, 118–27, 426–39.

6 Delcourte Debarre, "Espaces forestiers," 298, 322; Deloffre, "Guerres et brigandages," 344; Gresser, *La gruerie*, 207–9; Thompson, "Chaucer's Warrior Bowman."

7 Poncelet, "La guerre," 275–87, 322–24, 345.

8 Bormans, "Extraits des cris du péron," 168.

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The accounts of the high bailiffs of 's-Hertogenbosch, of which an almost continuous series has been preserved from the mid-fourteenth century onwards, also indicate that during the Late Middle Ages high bailiffs first mobilized other officials, including foresters and wardens, when faced with an internal or external threat to the maintenance of public order. Medieval notions of service had a strong connotation of armed service, and in this sense the participation of these men in warfare can hardly be considered surprising.[9] Perhaps most illuminating is a household inventory of Henrick van Boutershem, forester of the Nederrijkswald (wood- and heathlands located between the river Meuse and Nijmegen), in 1414. His posessions included a full set of armour (partially made of steel plates and partially of mail), three helmets (a steel one with a bevor, a hounskull, and a kettle hat), five crossbows (two with a cranequin, and three with a goat's foot lever), an "English bow," two quivers, and a mace. This might not even be a full overview of Henrick's weapon arsenal, for this list does not include a sword or dagger.[10]

The armed role of all the aforementioned officials decreased from the late sixteenth century onwards, in parallel with a shifting emphasis on mobilizing the general population for armed service, but never disappeared. The connections between foresters and armies transformed and adopted a different form (see further below). Mobilizing law keepers had in effect major drawbacks as their departure reinforced the breakdown of authority in war-affected areas. A particularly revealing example is the decision of the newly established Belgian government in 1831 to mobilize its foresters to fight off a potential invasion from Luxemburg. These men could have brought special skills, such as sharp shooting, to the military, and were familiar with the local terrain. The experiment was terminated after a few months because they simply served as garrison troops while locals plundered abandoned woodlands in their absence. It is significant that the French army picked up the idea of militarizing foresters again in the late nineteenth century, but took care to stress their role in woodland defence.[11]

The role of armies in the protection of biotic communities was ordinarily aimed at supporting these officials, when confronted with a superior force, rather than the other way round. The participation of different kinds of armies, armed members of the general population versus soldiers, derived from the specific contexts in which these conflicts occurred. A court record from Roermond, from the late fifteenth century, concerned an incident which involved villagers from Echt, in the lordship of Montfort, taking up arms and rushing to nearby woodlands in order to chase away outsiders cutting wood. A nobleman who rode ahead was killed in the encounter.[12] A record of this homicide has been preserved because the local court found itself unable to judge the

9 Brussels, ARA, 137.01, inv. nos. 2779, 2784, 2785, 2788, 2789, 2793, 2795, 2800, 2803, 2657, 2818, 12991, 3015b (transcript Henk Beijers Archiefcollectie, http://www.henkbeijers-archiefcollectie.nl).

10 Thissen, "Städtischer Alltag."

11 See Maastricht, RHCL, 01.187E Hoofdgerecht Thorn, inv. no. 1386 for a forest warden who claimed exemption from guard duty in 1793 because of his function. Breton, *Du role des forêts*; Leconte, "Le Corps des Guides Forestiers," 67–69.

12 Janssen de Limpens, *Geldersche Wyssenissen*, 218–20.

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case and had to ask the councillors of Roermond for their opinion. In such conflicts, fatalities were probably quite rare. Fiscal accounts from high bailiffs in the Duchy of Bar also indicate that they paid guards to protect falcon nests. These men had to make sure that no one stole the chicks, valuable for falconry. The accounts of the high bailiff of Etain from 1504 to 1505 mention, for example, that in a nearby high forest a nest of lanner falcons, a species that rarely breeds in the Meuse Region, received protection for six weeks, day and night.[13]

Soldiers acted in a very similar support role, but their interference served the interests of their paymaster. In this way they could operate against local populations. The accounts kept by the high bailiff of La Mothe, near Neufchâteau, specify that in 1658 the depredations of villagers reached such an extent that dragoons, mounted infantry that often served in policing operations, had to restore order in the forest of Ozières. In this case the intervention of soldiers was facilitated by the fact that the same nobleman fulfilled the duties of high bailiff, general receiver, and forester.[14]

Yet soldiers also acted in other, less confrontational capacities, as in 1478 when the general receiver of Hainaut received permission to keep twelve soldiers in the fortress of Locquignol to help protect the Forêt de Mormal against French incursions. Two hundred years later, in 1648, a notarial act lists several testimonies regarding pasturing rights of the villagers of Daussois in the neighbouring village of Yves, near Philippeville. One of these witnesses was a soldier, sixty years old, who claimed that he had guarded the sheep of Daussois for the last fifteen years.[15] Eighteenth-century legal records confirm that soldiers patrolled agricultural fields or operated as gamekeepers at the behest of urban councils or major landowners.[16]

Hiring individual soldiers probably had its origin in changes within wartime safeguarding systems. From the late sixteenth century onwards it became not only common for military commanders to issue safeguards in writing, but also to station soldiers at the place requesting protection to guarantee that these safeguards were effectively respected. Once soldiers were stationed in a village they could perform related tasks at their hosts' request. In the early seventeenth century for example the villagers of Sprang, near 's-Hertogenbosch, asked the soldier staying there to arrest someone who had cut down newly planted oak trees.[17] Court records demonstrate that several decades later, during the Nine Years War (1688–1697), so-called partisan companies secured entry to the woodlands near Brussels and Namur, both against other soldiers and local vil-

13 Bar-le-Duc, ADM, B 1281, fol. LXXVIr; Marchal, *Inventaire*, 145–46, 163–64, 200.

14 Marchal, *Inventaire*, 334, 372; Driessen, *Emundt van Oeteren*, 57.

15 Philippeville, Notary Degeldre 122: Act July 6, 1648 (transcript Généamag); Delcourte Debarre, "Espaces forestiers," 321. See also Namur, AEN, Conseil provincial, inv. no. 4266: Court records regarding the stealing of a flock of sheep and the horse of the soldier who guarded them (Bolline, 1654–1659) and Adriaenssen, *Staatsvormend geweld*, 166.

16 's-Hertogenbosch, BHIC, 9 Raad en Rentmeester-Generaal, inv. no. 454, fol. 114; Maastricht, RHCL, 20.085B: Indivies laaggerecht Maastricht, 4487.

17 Verschure, *Overleven*, 50–51, 220–21, 259.

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lagers without travel permits ("passports").[18] Armed forces continued to participate in the safeguarding of natural resources until well into the nineteenth century, but only in exceptional circumstances, when the policing officials ordinarily tasked with this responsibility needed support.[19]

While armed forces only intervened in the protection of fauna and flora in exceptional circumstances, they did contribute to the preservation of unique landscapes in the context of frontiers and fortifications. As argued in chapter two, fortifications provided safety in a general sense, often by controlling access to specific areas. Defensive structures have little value, and one could even consider them counterproductive, if no one guards them. Guarding fortifications is the second major element of defence systems, and also had a key role in the preservation of biotic communities on a daily basis. Preparing for a potential attack invariably involved enforcing or expanding watch duties as well as paying permanent guards (often members of shooting guilds).[20] The city council of Maastricht, for instance, responded to a possible threat in 1403 by stipulating that one guild should stand guard every night, and by assigning each strategic gate or tower a complement of three or four crossbowmen and a gunner.[21]

The obligation for adult males to stand guard on fortifications (city gates and walls, fortresses, or defensive lines) survived in different forms until the French Revolution, but was a very unpopular one that was bought off whenever possible. The accounts from Venlo specify that in 1406 the *waeckgelde*, the charge paid by individual citizens to buy themselves out of this duty, brought in more than two hundred and twelve *gulden* (a paid sentinel would earn five *gulden* a year).[22] During actual threats, these mechanisms no longer applied and guard duty had to be performed in person; a clear indication that defence systems were only activated during armed conflicts. In fact, while some of the famous "watch and guard" (*guet and garde*) duties of rural populations can be traced back to the *corvées* of the Central Middle Ages, the majority only became established during periods of insecurity; either during the late Middle Ages, or the late sixteenth or early seventeenth centuries.[23]

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18 Cayron, *Jacques Pastur*, 33–46, 55, 73–84; Douxchamps-Lefèvre, *Inventaire*, 4:406; Philippart, "Conséquences socio-économiques," 274.

19 Van der Wal, *Of geweld zal worden gebruikt*, 46, 333–36.

20 Grave, SLC, Archief Gemeente Grave, inv. no. 218, fols. 172r, 183v, 184r, 193r, 225v, 260v, 275v, 294r, 299v, 304r, 316r (transcript Rien van den Brand, http://www.scriptoriumempeje.nl); Bormans, "Extraits des cris du péron," 173, 199; Bormans, "Table des régistres," 11:268 and 11:270; Devillers, "Documents relatifs," 92, 98; Koreman, *De stadsrekening*, 136–38; Kraus, *Die Aachener Stadtrechnungen*, 187, 191, 417, 421, 431–32, 435, 437, 448, 452, 455; Laurent, *Aachener Stadtrechnungen*, 104, 107, 147, 166, 176, 182, 187–88, 249; Piérard, *Les plus anciens comptes*, 1:185, 1:199, 1:285, 1:622–23.

21 van der Eerden-Vonk, *Raadsverdragen*, 162–63.

22 de Groot, *Stadsrekeningen*, 1386 fol. 2, 1404 fol. 27, 1405 fol. 2, 1406 fol. 2.

23 Borgnet, *Cartulaire*, 78–79; Bormans, Lahaye, and Brouwers, ed., *Cartulaire de Dinant*, 4:344–48; Coulson, *Castles in Medieval Society*, 285–90; Douxchamps-Lefèvre, *Inventaire*, 3:77, 3:173, 3:174, 4:154; Fruin, *De oudste rechten*, 1:20–21, 1:181–89, 1:302, 1:321–22; Girardot, *Le droit et la terre*,

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The most direct danger to most fortifications, especially before the establishment of several layers of earthen walls in the late sixteenth and seventeenth century, did indeed not come from a major army with specialized siege equipment, but from relatively small groups of armed men who simply scaled the walls or broke down the gates at an opportune moment, generally at night.[24] An inventory of the fortress of Rode (in Herzogenrath) from 1408 accordingly lists twenty-eight crowbars and twelve assault ladders among the items stored. In 1404–1405 the high bailiff of Bassigny called upon a certain Naldenat, who "made ladders to assault fortresses and knows how to place them." Another option was to bribe or overpower the gatekeeper and simply storm through the gates. Johan van den Vogelsanck, member of the town council of Venlo, stood by the gates around 1486 to prevent such surprise attacks. When the sentinel made known that horsemen were approaching, he tried to close the gates, but the gatekeeper prevented him and his son gave them a sign. Johan was badly wounded as a result and later brought the pair of them to trial.[25]

Such examples are mostly neglected in studies about (medieval) siege warfare, a fact that is emblematic for the assumption that a certain scale is a prerequisite for using the terms "army" or "warfare."[26] These techniques were still of major use in the Eighty Years War, the fortress of Huy being taken in 1595, for instance, by Dutch soldiers who climbed through a window on Saturday night and took its occupants prisoner at Sunday mass.[27] A particularly remarkable testimony is a notarial act written in Mariembourg that very same year in which a soldier declared that his brother-in-law, also a soldier, fell out of a castle window and died during such an assault.[28] It is because of the threat these tactics posed that special officials, often men of some standing such as aldermen or noblemen, had to ensure that guard duty was carried out properly.[29]

Sudden assaults on fortifications ("coups de main") remained a viable alternative to formal sieges because the number of occupants tasked with defending them on a day to day basis was surprisingly small. Until far into the sixteenth century few fortresses or

2:476–78; Habets, "Costumen," 169–70; Hoeckx et al., eds., *Kroniek van Molius*, 250–53; Thewissen, *De gezworen schutterijen*, 107–60; Villa-Sébline, *La sénéchaussée*, 190–92.

24 "Attaque de Dinant"; Cleves, *Instruction*, 111–19; de Stavelot, *Chronique*, 362–63; Koreman, *De stadsrekening*, 131; Kuppers, "De stadsrekeningen," 72, 77; Laurent, *Aachener Stadtrechnungen*, 181–82; Raynaud, *A la Hache!*, 346–49; Toureille, *Robert de Sarrebrück*, 107, 118; Waale, *De Arkelse oorlog*, 123.

25 Janssen de Limpens, *Geldersche Wyssenissen*, 356–57; Servais, *Annales historiques du Barrois*, 1:63; 2:378; Uitterhoeve, *Burg Rode*, 23, 41, 43.

26 One of the few studies dedicated to this type of tactics is Harari, *Special Operations*. See also Rogers, *Soldiers' Lives*, 248–50.

27 Fréson, "Prise du château de Huy." See also Bourguignon, "La surprise d'Arlon"; Caldecott-Baird, *The Expedition in Holland*, 145–50; de Graaf, *Oorlog*, 404–7; Duyck, *Journaal*, 1:298, 1:350, 1:358, 1:526–27; Parker, *The Army of Flanders*, 7–8; Richer, *Abrégé chronologique*, 201, 203.

28 Mariembourg, Notary Lecomte, 11: Act November 6, 1595 (transcript Généamag).

29 Bormans, "Table des régistres," 12:34–35; de Groot, *Stadsrekeningen*, 1388 fol. 8; Meisen, "Brabant, Limburg und die Übermaaslände," 180; Servais, *Annales historiques du Barrois*, 1:43; van de Venne, *Het beleg*, 16.

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cities housed a "garrison" of more than ten men (gatekeepers, sentinels, watchmen or sergeants or soldiers, a crossbow maker, or a gunner), as stipulated in their accounts.[30] When the *prévôt* of Longwy mobilized the duke of Bar's fiefholders to pursue raiders who invaded his jurisdiction in 1346–1349, he paid three horsemen (*sergents à cheval*) to stay in the fortress so it was not undefended in his absence. They resided there for five weeks, and presumably served alongside the fortress's normal household. The *prévôt*'s next account, covering the years 1349–1352, specifies that he called upon six local noblemen or four *sergents à cheval* to guard the fortress for a few days whenever a threat presented itself.[31]

The term garrison is used here for want of a better word since these men were urban officials or members of noble households. Actual garrisons only appeared during major conflicts with the activation of defence systems. The 1435 accounts from the fortress of Hambach (Jülich) make a very clear distinction between its five permanent guards and a temporary garrison of more than fifty horsemen who only stayed for a few weeks.[32] Such reinforcements could also include local citizens or nearby villagers; in the Central Middle Ages some charters of liberties were granted for precisely this purpose.[33]

In the same way as fortifications provided safety in a general sense, guard duty had multiple functions that went beyond discouraging violence. Paid watchmen or citizens on guard duty had a central role in fire prevention in medieval and early modern cities for instance. This role also applied to sentinels positioned on strategic locations (towers). Appointments of a permanent guard for one of the watchtowers of Aachen's *Landwehr* in 1458 and 1497, specifically read that he had to make sure that no foreign livestock entered the territory of the city.[34] Officials in charge of guarding fortifications, such as shooting guilds in fifteenth-century Dordrecht or the newly appointed castellan of Geldern in 1497, were entitled to the income provided by a certain part of the fortifications (fishing and pasture rights) as an incentive to ensure that they did their duty.[35]

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30 The medieval terminology regarding sentinels (*eskerwaite*, *torenwachter*) and watchmen (*waite*, *wachter*) is somewhat confusing. Sentinels had to stand on the lookout, typically on a tower, while the armed men who patrolled the fortifications, especially at night, were denoted as watchmen. Guard duty of rural populations generally encompassed both functions (the duty of *guet et garde*). Balon, "L'organisation militaire," 12–16, 30, 46–48; Bodard, *Receuil des ordonannces*, 6, 44, 85; Bormans, "Table des régistres," 11:263; Burgers and Dijkhof, eds., *De oudste stadsrekeningen*, 10, 42; Den Dooven, "Les émoluments," 98–99; Kraus, *Die Aachener Stadtrechnungen*, 441, 465–66; Meisen, "Brabant, Limburg und die Übermaasländer," 160, 162, 166–67, 180, 208–9, 247–48; Mougeot, "De la périphérie à la frontière?," 160–62; Salamagne, "Les garnisons," 707–11.

31 The word *sergent* derives from Latin *serviens* and could refer to any armed man who did not have a knight's title. In some contexts it specifically denoted a low ranking official (such as a forest warden). Bar-le-Duc, ADM, B 1853, fol. 10; B 1854, fols. 16v–29v.

32 Dinstühler, ed., *Die Jülicher Landrentmeister-Rechnung*, 76–78, 81, 90.

33 See, for instance, Lejeune, "La charte."

34 Pick, "Verpflichtungsurkunden," 224–25, 246–47.

35 Fruin, *De oudste rechten*, 1:264; Jacobs, *Justitie en politie*, 161; Laurent, *Aachener Stadtrechnungen*, 242, 379; Salamagne, "Les garnisons," 720; Thewissen, *De gezworen schutterijen*, 108–9.

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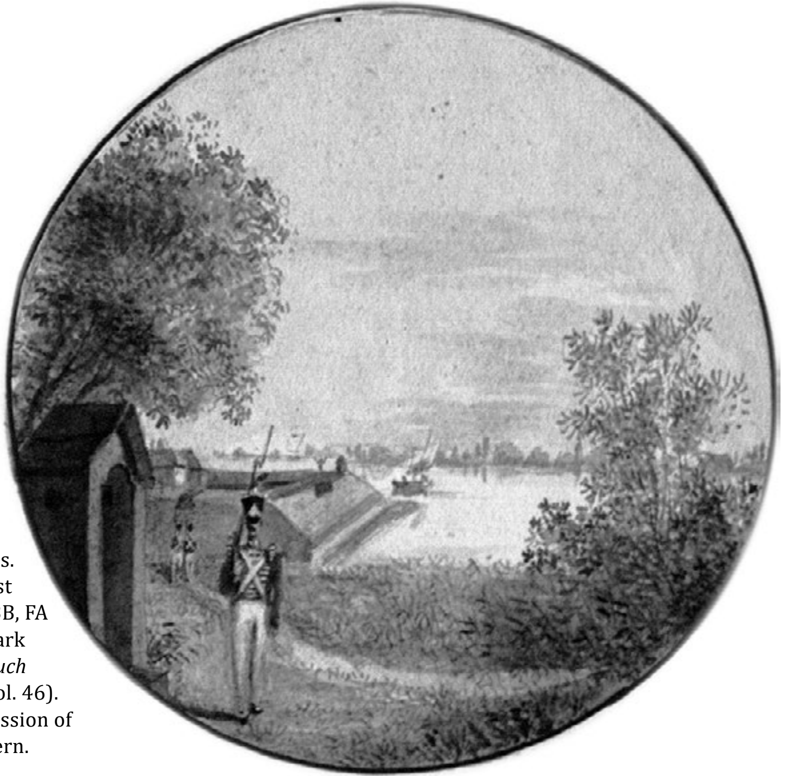

Figure 24. Guard post on the fortifications of 's-Hertogenbosch, 1820s. Sketch by captain August von Bonstetten (Bern, BB, FA von Bonstetten–shelfmark EK 2008/400: *Skizzenbuch August von Bonstetten*, fol. 46). Reproduced with permission of the Burgerbibliothek Bern.

Medieval guards had multiple functions, in the same way as the fortifications they had to protect, and were relatively well integrated into general society.

These observations apply to a much lesser extent to military guard systems, referring to the military as an organization, which became established from the late sixteenth and seventeenth centuries onwards. These were far more extensive than their predecessors and can be studied through a more detailed corpus of sources: garrison orders and regulations. There is in fact a significant upsurge in legislation from the last decades of the seventeenth century onwards regarding the maintenance and policing of fortifications. It is unclear whether this reflects changes in effective management, implying that guard duty was laxer earlier, or simply demonstrating increased state involvement. Military control over fortifications was hardly unchallenged, as we have argued above, which means that guard duty should be seen as a key method by which the military tried to safeguard its interests (the conservation of what they perceived as desirable biotic communities and landscapes).

The number of soldiers on guard duty in permanent garrisons was vast. The garrison orders of Namur, which are very specific in this regard, indicate that at the end of May 1759, four hundred and eighty-eight soldiers on guard duty were spread throughout the city at any given time, of which a hundred and twenty-one actually stood guard by day and a hundred and fourteen at night. A remarkable notebook, kept by the eighteenth-century private soldier Michael Andrist, who served in the Swiss regiment Stürler from

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1779 to 1784, demonstrates that such forces were quite typical. It lists the guard posts for Maastricht and ’s-Hertogenbosch for respectively 1780 and 1783. In Maastricht five hundred and fifty-five soldiers were on guard duty, and in ’s-Hertogenbosch two hundred and thirty-seven.[36] Soldiers who were not standing guard or on patrol had to remain within guardhouses from where they could quickly come to their comrades’ aid. Such an organization is without equal in the history of premodern policing,[37] as most early modern governments had to depend on a handful of police officials, shooting guilds, and the general population to arrest offenders.[38] Guard duty was not without its risks, however: records of the French Invalides reveal that one wrong step or a strong current could entail a fall of several metres down into the moat leading to crippling injuries or even death.[39]

This display of force was meant to ensure that surprise attacks of the kind described above became impossible, but also fulfilled a major role in the maintenance of public order, by ensuring that curfew was respected. Anyone walking the streets at night without a legitimate reason was liable to get arrested. These sentries moreover had to prevent members of the garrison from deserting and regulated entrance to the fortifications.[40] According to eighteenth-century garrison regulations, citizens were only allowed to walk on the main wall by day and children were forbidden to play there. They needed written permission, a permit (“passport”), from the governor in order to access the outworks (the fortifications lying beyond the main wall). At night no one was allowed in the fortifications, except the guards, the patrols, the garrison’s staff, and the engineers.[41]

A sketch made by the Swiss officer August von Bonstetten in the 1820s, when he served in the garrison of ’s-Hertogenbosch, provides a rare glimpse how fortifications might have looked like when military forces still managed them (see figure 24). It depicts the outworks as large green spaces, guarded by sentries. Because uninhabited lands in an urban context were relatively rare, military defences became the locale for a series of conflicts: bird catchers had to be chased off the glacis and counterscarp, no hunting was allowed in these same areas, and no one was to fish in the moats, cut grass or reed, and pasture livestock in the outworks without written permission.[42] If domestic animals

36 The Hague, NA, Raad van State, inv. no. 2087; Soesterberg, NMM, inv. no. 00216132: Notebook of soldier Michael Andrist, fols. 63r, 64r. See also G. Vallée, “Le journal du marquis de Langeron,” 161.

37 With the possible exception of the eighteenth-century Garde de Paris, but this is very much a military unit in everything but name. Chagniot, *Paris et l’armée*, 117–57.

38 Denys, *Police et sécurité*, 51–64, 156–62, 398–401.

39 Vincennes, SHD, GR, 2Xy09: Pierre de la Vergne; 2Xy14: Alexis Loir, Simon Remy; 2Xy18: François d’Armagnac; 2Xy20: Pierre Beaumont, Remy Ronseme; 2Xy23: Jean Gillot; 2Xy24: Jean Baptiste Reuter; 2Xy26: Johannés Scherumpf; 2Xy45: François Camus (transcript www.hoteldesinvalides.org). See also The Hague, NA, Raad van State, inv. no. 2088: order November 27, 1771; Teunisse, *Onderdaan in Oranje’s oorlog*, 40–41.

40 Augoyat, *Aperçu sur les fortifications,* 82–83; Isambert, Decrusy and Taillandier, eds., *Receuil Général des anciennes lois françaises*, 20 (1830) 611–14; Berkvens, *Plakkatenlijst Overkwartier*, 1:234.

41 *Ordonnance du roi (June 25, 1750)*; *Reglement en orders Maastricht (1786)*; *Reglement en ordres ’s-Hertogenbosch (1770).*

42 The glacis refers to the open fields lying around the outer fortifications, within cannon shot

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were found within the fortifications without permission they were, theoretically, confiscated (horses, cows, sheep) or simply shot (dogs, poultry). The trees and hedges could not be damaged in any way either. Such a range of restrictions can perhaps best be summarized by a nineteenth-century saying from the French Meuse department: "whatever falls into the moat, belongs to the soldier."[43] Given that a garrison's staff was entitled to the fishing and pasture/hay benefits in the fortifications, in a similar way to their medieval predecessors, they must have had a direct socio-economic interest in ensuring that these regulations were carried out.[44]

The garrison orders of Namur, which regulated everyday life in this fortress, indicate that the garrison's own members were quite often the very people against which sentries had to intervene. Officers and their attendants were repeatedly singled out for breaching the hunting regulations. Disregard of fishing rights in the fortifications, the Meuse, Sambre, and local ponds, seems to have been commonplace, as was the taking of wood from nearby forests by soldiers as well as their families. The same applied to digging loam in the fortifications. In 1762 non-commissioned officers were tasked with inspecting the barracks for illegally procured wood, the normal policing mechanism, the guards at the gates, apparently being insufficient to prevent its smuggling into the city.[45]

In practice, enforcement might very well have been less strict than the regulations indicate. Personnel records of the eighteenth-century Dutch army reveal that running away from one's guard post was a popular way of deserting (representing nineteen percent of the deserters for whom the manner of desertion is provided).[46] A garrison order, dating to June 20, 1772, also forbad soldiers standing guard to cut young trees on the walls with their sabres.[47] Implementing garrison regulations must have been difficult if the sentries themselves were not always reliable. In the County of Namur peasants still conducted armed patrols in the countryside, and were encouraged to arrest desert-

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range. The counterscarp is the outer side of a moat. The Hague, NA, Raad van State, inv. no. 2079: Order March 23, 1714; *Ordonnance du roi* (June 25, 1750) articles DCLXV–DCLXX; *Reglement en orders Maastricht (1786)*; *Reglement en ordres 's-Hertogenbosch (1770)*.

43 *ç que cheu do l'foussé c' ost pou l'souldat*. Labourasse, *Glossaire abrégé*, 288.

44 Petitot-Bellavène, "Verdun," 91; Roebroeck, *Het land van Montfort*, 114; Rorive, *La guerre de siège*, 211.

45 The Hague, NA, Raad van State, inv. nos. 2079, 2081, 2087, 2088: Garrison Orders of Namur. Prohibitions against hunting by members of the garrison: February 1, March 15, July 31, October 15, 1714; January 27, April 13, June 11, September 31, November 1, November 20, 1716; March 17, May 1, 1717; May 21, 1739; June 15, August 16, 1759; July 28, 1761. Against fishing: January 26, February 21, July 21, 1714; May 27, August 2, 1715; May 28, August 13, and September 13, 1716; February 15, April 22, May 25, 1717; February 5, 1739; June 18, July 6, 1740; July 15, 1742; June 8, 1759. Against bringing wood into the city: November 28, 1714; July 4, October 15, 1715; September 8, 1716; November 13, 1738; November 7, 1741; June 2, 1760; October 10, 1762. Against digging loam: April 19, 1717; November 14, 1738; January 31, 1741. See also Philippart, "La pêche," 92.

46 Based on a database of 199 deserters, originating from the Dutch speaking part of the Prince-Bishopric of Liège who served in the Dutch army between 1770 and 1795. Govaerts, "'Fire-Eaters.'"

47 The Hague, NA, Raad van State, inv. no. 2088: June 20, 1772.

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ers and soldiers on leave who damaged their fields or hunting traps.[48] The commander of ’s-Hertogenbosch released several proclamations in 1835–1837 about the ban on livestock in the fortifications, before he lost his patience. He subsequently issued live rounds to a non-commissioned officer, ordered him to take one soldier on guard duty with him every week and shoot any poultry still found wandering about.[49]

Despite these problems, it does seem that such guard systems were overall quite successful in enforcing garrison regulations.[50] In 1803, for instance, the leaseholder of the fisheries in the moats of the fortress of Heusden petitioned the Batavian government for an extension of his contract. He had been unable to make good his initial investment as a result of overfishing. Because of the absence of a garrison everyone tried to fish at night.[51] Non-military forces in fact passed similar legislation to safeguard the maintenance of fortifications. Rules introduced in Campine/Kempen villages with regard to their refuge forts (*schansen*) in the seventeenth century, as well as orders given to Liège patriot troops in 1790, both include prohibitions regarding the damaging of the fortifications, fishing in the moats, discharging guns, and cutting wood or stealing crops.[52] Some garrisons, such as those of Liège in the eighteenth and Grave in the nineteenth century, went a step further, and used their guard system for disaster response. Soldiers fired cannons to warn citizens respectively of a fire and of flooding from the Meuse.[53] Guard duty was key to military forces’ control over garrison towns, but ironically enough the main threat came from their own colleagues.

Controlling Migration

The role of armies in the protection of biotic communities was clearly quite complex, because they acted simultaneously as agents of order and disorder. We will now examine how rulers or states responded to this issue, and to what extent they made efforts to control the movement and behaviour of the people and animals (horses) who served in their armies, or could potentially be incorporated into them. The protection of natural resources in the strict sense of the word is thus contextualized within larger policing issues. The symbolism of the garden (see chap. 1) in effect came to imply that the movements of every living being in this garden became subject to state control. Given that these processes are relatively well studied for conscription armies in the late eighteenth and nineteenth century, this analysis emphasizes their working in systems of voluntary recruitment and their medieval origin.

Passports as documents that specifically regulate movement originate in the Central Middle Ages. They evolved out of letters of safe conduct, and initially served to safe-

48 The Hague, NA, Raad van State, inv. no. 2079: August 30, 1714; inv. no. 2081: July 17, 1739; inv. no. 2088: May 30, 1773; Denys, *Police et sécurité*, 141–56.

49 Bruggeman, *Bestedingen dienst der Fortificatiën*.

50 Denys, *Police et sécurité*, 265–66; Tixon, “Une garnison en ville: facteur d’ordre ou de désordres?.”

51 *Besluiten van het staats-bewind der Bataafsche Republiek*, December 9, 1803, no. 28.

52 Hansay, “Documents inédits,” 162–64, 192–93; Molemans, “De Luikse Revolutie,” 79.

53 Lhoist-Colmon and Gabriel, “La colline,” 73–74; van Hoof and Roozenbeek, *Grave*, 63.

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guard the passage of a group of travellers or the transportation of goods. The mobility of the person(s) conveying these commodities was much less of a problem and to a large extent implied.[54] The accounts of the high bailiff of 's-Hertogenbosch from 1486–1487 specify, for example, that he fined five men because they demanded to see the passport of a soldier who passed through Vught with three horses. They claimed his passport was false and confiscated the horses.[55] The increasing use of such documents for people derived from several factors: prevention of epidemics, supervision of vagrants and beggars, but also a growing interest in the criminal activities of soldiers. Charles the Bold made sustained efforts to control the movements of his men, and instituted passports by 1473 at the latest.[56] In the late fifteenth century passports for soldiers must still have been quite exceptional, however, for at an unspecified date in 1459–1487 the councillors of Roermond had to judge a case in which three men from Lobberich claimed that the bailiff had given them oral permission to leave the army, a statement he denied.[57]

The lasting association of passports with soldiers, who were, for whatever reason, separated from their unit, came about in the first half of the sixteenth century. At that point there was a growing unease about the actions of soldiers who begged, extorted, and stole from the settlements they passed through, generally to overcome the period between their discharge and enlistment with another paymaster. Dutch and German sources use the word *ga(e)rden* or *garten* for this kind of behaviour. The word appears as early as 1494–1495 in the accounts of the high bailiffs of 's-Hertogenbosch.[58] Pensioned or discharged soldiers were common protagonists in early modern folk tales and were also increasingly linked to other mobile people associated with criminality, such as vagrants, beggars, and Roma. Repression of all these groups was stepped up during the same period.[59]

The study of passports is complicated because these were personal documents of a temporary nature, which means that those that have been preserved are often kept in family archives and personal collections. It is useful to have a look at one specific example, the passport of Gerard Vilansin, trumpeter in the French cavalry regiment Melac, garrisoning Maastricht in 1677 (see figure 25). It is one piece of paper containing a discharge from his captain and an actual passport from the governor. It was given to him because he left for the recently established Hôtel des Invalides. The passport is a simple text in which the governor states his destination and reason for travelling, while simultaneously asking anyone concerned to let him pass through. Eighteenth-century

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54 van Doorninck and Molhuysen, eds., *Briefwisseling*, 36–37.

55 Brussels, ARA, 137.01, inv. no. 12995 (transcript Henk Beijers Archiefcollectie).

56 Cauchies, "La désertion," 140; Groebner, *Der Schein der Person*, 117–19, 124–27; Scholz, *Borders*, 37–48, 134–45; Servais, *Annales historiques du Barrois*, 2:461; Verreycken, *Pour nous servir en l'armée*, 156–70.

57 Janssen de Limpens, *Geldersche Wyssenissen*, 140–41.

58 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. no. 12995; Behr, "Garden und Vergardung"; Burschel, *Söldner*, 88–96, 278–86, 311–17.

59 Bois, *Les anciens soldats*, 307–16; van Kappen, *Geschiedenis*, 121, 129, 139, 152–53, 155, 158–59, 161.

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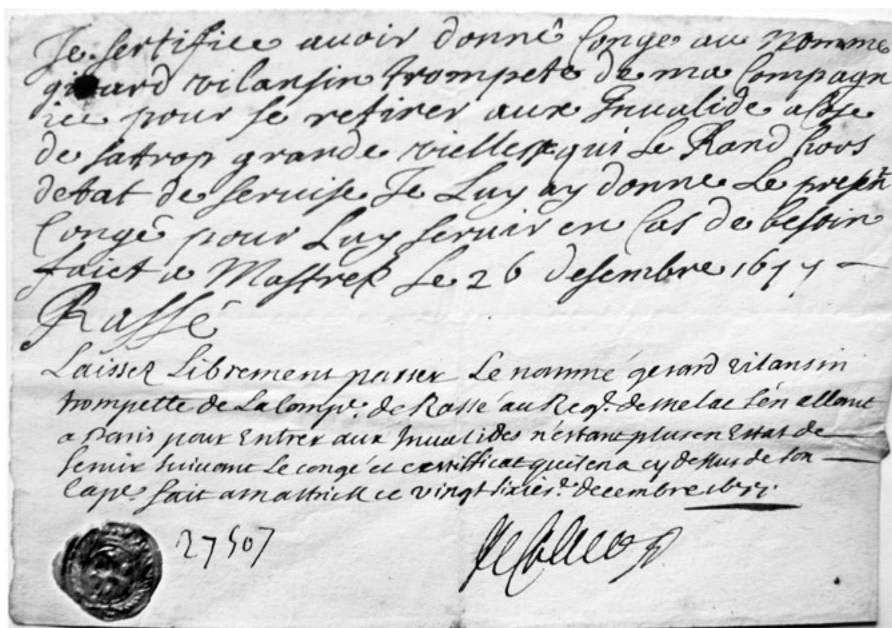
Je certifie avoir donné congé au nomme girard vilansin trompette de ma compagnie pour se retirer aux Invalides a cause de sa trop grande vieillesse qui le rend hors detat de service. Je luy ay donne le present congé pour luy servir en cas de besoin faict a Maestrech le 26 desembre 1677
Rasse

Laissez librement passer le nommé gerard vilansin trompette de la compe. de Rasse au Regt. de melac s'en allant a Paris pour entrer aux Invalides n'estant plus en estat de servir suivant le congé et certificat qu'il en a cy dessus de son cape. fait a maestricht ce vingt sixie. decembre 1677

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Figure 25. Discharge and passport for Gerard Vilansin (Maastricht, Private Collection).

passports became more elaborate with a pre-printed text in which features of the man's appearance were often included as well. The garrison orders of Namur from January 31, 1717 explicitly mention that soldiers could only go outside the gates with a printed passport signed by general du Portal.[60]

The practical enforcement of these regulations, or the repression of unwanted migration, remained the responsibility of (high) bailiffs and their counterparts until the suspension of all these officials at the end of the Ancien Régime. It is one of the specific contexts in which the general population was not only allowed to act in an army context, but even obliged to do so.[61] Soldiers assisted occasionally in hunting down deserters or as an exceptional government clampdown. During the eighteenth century, however, the patrols made by members of the general population were increasingly supported and taken over by uniformed police officials, of which the military police was a relatively small part.[62] The only soldiers for whom migration control became a core duty served in the small eighteenth-century army, one infantry regiment, of the bishops of Liège. This

60 The Hague, NA, Raad van State, inv. no. 2079: Orders January 31, 1717.

61 Tongeren, SAT, inv. no. 1, fols. 296v, 297r, 305r, 319r, 321; Berkvens, *Plakkatenlijst Overkwartier*, 1:167; Bodard, *Receuil des ordonnances du Duché de Bouillon*, 222, 304, 315–16, 342–43; Boonen, "Repressie van vaandelvluchtige soldaten"; Bormans, "Table des régistres," 12:14; Reiche, *Vom bewaffneten Hausmann zum Polizisten*, 20–46.

62 Berkvens, *Plakkatenlijst Overkwartier*, 2:110, 2:174; Desbrière, *Chronique critique*, 232–33; Piraux and Dorban, eds., *Douane, commerce et fraude*, 126–27; Verschure, *Overleven*, 50, 70–74,

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Figure 26. Fifteenth-century army on the march (Brussels, KBR, MS 9242: *Chroniques du Hainaut*, fol. 184r). Reproduced with permission of the Bibliothèque Royale de Belgique / Koninklijke Bibliotheek van België.

unit already started to provide villages in the Campine/Kempen with individual soldiers to chase away vagrants in the 1720s. This slowly changed into a deliberate government policy by the 1740s with major operations involving up to one hundred soldiers. The archives of the estates reveal that a special military tribunal was instituted in Liège to judge captured beggars and vagabonds.[63]

Authorities typically forced arrested vagrants or deserters into specific kinds of work because of their supposed idleness, including service as galley rowers or main-

221–22; van Kappen, *Geschiedenis*, 190–91, 197–98, 414, 440, 446, 451; Winter, "'Vagrancy' as an Adaptive Strategy," 256.

63 Liège, AEL, Etats, inv. nos. 268, 2974; Jamar, "Prinsesoldaten."

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taining fortifications. In this way the policing of biotic communities contributed to the maintenance of militarized landscapes and defence systems.[64] According to the accounts of the high bailiff of 's-Hertogenbosch these practices date back to at least 1463–1464, when twenty-five vagrants were arrested and sent to the galleys in Sluis (Flanders) at the request of Charles the Bold, Duke of Burgundy. Galleys, being of Mediterranean origin, are not well adapted to weather conditions in the North Sea, but they remained valuable for river defence. The presence of punished soldiers on a galley is still attested in Rotterdam as late as 1634.[65]

64 Dorreboom, "'Gelijk hij gecondemneert word mits deezen,'" 204–8; Petitot-Bellavène, "Verdun," 36; Roosens, "De invloed van de vestingbouw," 93–97; Thewes, *Stände, Staat und Militär*, 130; Vandewal, "De kroniek," 246–47.

65 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. no. 12993 (transcript

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Soldiers figured prominently among premodern migrants. The introduction of passports should therefore also be seen in the context of attempts to secure the supply of manpower for the armed forces. As argued in the introduction, an army could contain large numbers of people who were not expected to fight, or more precisely did not have a recognized combat role and the wages associated with it. This distinction is significant since it makes counting and identifying these people problematic, but also because efforts to secure army recruitment were primarily directed towards soldiers. During the Middle Ages combatants typically brought their own wagons with them, and ecclesiastical insitutions could also be expected to provide transportation (see figure 26). From the 1500s onwards armed forces increasingly had to rely on the communities they passed through, as well as contractors.[66]

Noteworthy in this regard is a charter from the village of Genoelselderen, near Tongres/Tongeren, written down in 1431, in the aftermath of a major attack on the County of Namur. It reads that in case of a military campaign (*heervaert*) the villagers and their lord each had to bear half the expenses made for the construction of an army wagon (*heerwagen*) pulled by three horses. The villagers were also allowed to put their travel bags and equipment on this wagon and could ride on it if they felt weak. A French military map from the Austrian War of Succession (1740–1748) by contrast depicts the Duchy of Limburg and the lands of Outre Meuse, and is accompanied by a list of these lands' resources (the acreage devoted to agricultural lands, grasslands, and woodlands, the number of adult males, horses and wagons/carts).[67]

As for soldiers, during the Central Middle Ages the concept of "foreign military service" did not even exist. One could fight for anyone or any cause, and accept wages, provided only that it was a "just" war. Noblemen for instance could, theoretically, not fight someone to whom they owned fealty. As long as military service was closely tied to land ownership, either in the context of feudal obligations or urban and rural militias (see the 1301 charter from Couvin in chap. 1) there was little need to control combatants' movements. This changed with the growing importance of a monetary economy from the twelfth and thirteenth centuries onwards. If rulers, noblemen, or urban councils could reward combatants by giving them fief rents or wages they could increase their military potential by cnlisting the aid of people living beyond the boundaries of their own lands.[68]

This development fits into a more general tendency to put less emphasis on obligatory military service, and only recruit people who were willing and able to wage warfare. Surviving fiscal accounts from the fourteenth and fifteenth centuries demonstrate that commanders first called upon "those who came voluntary," generally family members, friends or retainers. If this was insufficient, men "living nobly," fiefholders who

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Henk Beijers Archiefcollectie); Rotterdam, SAR, ONA, inv. no. 93, no. 286: May 29, 1634; Sicking, *Zeemacht en onmacht*, 189–90, 200.

66 Borgnet, *Cartulaire*, 10; Darquenne, *La conscription*, 48–49; Gaier, *Art et organisation*, 96–101; Gorissen, "De karweien"; Gutmann, *War and Rural Life*, 39–41; Kroener, *Les routes*, 82–83; Petitot-Bellavène, "Verdun," 44.

67 Lemoine-Isabeau and Helin, *Cartes inédites*, 47–63; Nijssen, "Een akkoord."

68 Govaerts, "From Knight Errants to Disloyal Soldiers."

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served on horseback, were mobilized. The same applied to members of shooting guilds, if these were available. The general adult male population was only called upon to serve if the former methods were inadequate.[69] When war broke out between Holland and Brabant in 1334, Daniel van der Merwede, bailiff of Zuid-Holland, consequently send a messenger to everyone living in his district that he thought was a fiefholder of the count. According to his fiscal account citizens of Heusden stole the warhorses of several of these noblemen when they made sure no supplies entered the Duchy of Brabant. This suggests that they patrolled the Meuse on a boat (possibly a cog).[70]

The increased emphasis on monetary rewards had one major drawback, however: it made these same men less dependent on one lord or employer. This was especially so in the politically fragmented Meuse Region. On June 24, 1297, for instance, Guy de Dampierre, Count of Flanders and Margrave of Namur, hired Warnier de Dave, a knight from the County of Namur, to serve in his campaign against the King of France with three other knights and twenty-one squires. The contract specified that Warnier would receive one thousand pounds in wages and did not have to enter the lands of one of his other lords (the bishop of Liège, the duke of Brabant, the count of Hainaut, and the lord of Valkenburg). This restriction did not apply to any of his men who were not fiefholders of those lords.[71] In order to gain more control over their soldiers, both rulers and urban councils thus started to develop new ways to link military service to land during the Late Middle Ages: living or being born in a certain area increasingly came to imply the existence of a personal bond between subject and potentate. So, the gradual development of a new concept, "foreign military service," can also be seen as a territorial practice, a practical way to maintain control over the relatively limited pool of men willing and able to engage in warfare.[72]

The accounts of the high bailiff of 's-Hertogenbosch, who controlled more or less the area encompassed by the current Dutch province of Noord-Brabant, provide an excellent starting point because they reveal to what extent military service for another potentate was a punishable offence on the Brabant–Guelders frontier. The only reference to an explicit prohibition comes from 1402. In that year the high bailiff sent messengers to proclaim in churches that it was forbidden to join either side in the war between the count of Holland and the lord of Arkel. He only prosecuted two men, however, because they pursued the war in his jurisdiction. The first had stolen horses from subjects of the count of Holland and brought them into Brabant, the second, Floris van der Aa, was one of the noblemen who took the lord of Arkel prisoner when he passed through the duchy in 1415.[73] We know that Duchess Johanna of Brabant (1355–1406) had earlier forbidden her subjects to join the Frisian expedition of the count of Holland in 1396, but the

69 Brussels, ARA, 137.01, inv. nos. 2779, 2781, 2784, 2785, 2786, 2787, 2789, 2790, 2800, 2803, 2805, 12991; Kuppers, "De stadsrekeningen," 23–24, 39, 62, 101, 128, 148, 160–61, 207, 328; Liégeois, "Compte de la recette de Chiny," 140–42, 151–54, 158–63; Villa-Sébline, *La sénéchaussée*, 32–46.

70 Smit, ed., *De rekeningen*, 54–56.

71 de Saint-Genois, *Chartes*, 266–67.

72 Govaerts, "From Knight Errants to Disloyal Soldiers."

73 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. nos. 2818, 44.1.2.3; 12991,

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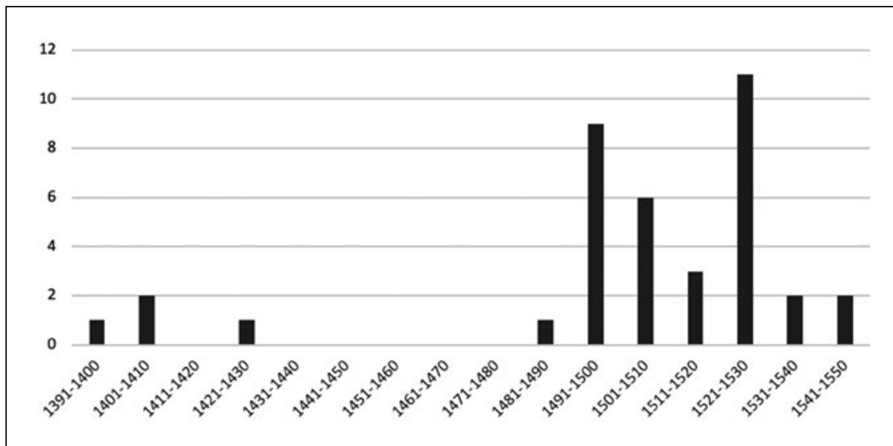

Figure 27. Overview of people prosecuted for foreign military service in the Meijerij of 's-Hertogenbosch, 1393–1550 (Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. nos. 2797, 12990, 12991, 12995, 12996).

Armorial Beyeren, which depicts the armorials of noblemen taking part, indicates that at least eleven attended.[74]

From 1393 until 1550, that is before the outbreak of the Eighty Years War, the accounts of the high bailiff of 's-Hertogenbosch include thirty-nine cases of "foreign" service (see figure 27). It is noteworthy that only a minority got punished, with a fine, for enlisting with a lord or ruler other than the dukes of Brabant, and even here there was a strong connotation of enemy service.[75] The others were prosecuted for treason (serving "against their natural prince"), frequently in combination with other offences, such as desertion from the imperial forces. In these cases execution was the most common form of punishment. The high bailiff pursued both men born and living in his jurisdiction and anyone who committed a crime there. According to his account from 1506–1508 he executed a soldier who was born in "the Indies." His name, "Christoffelen Myn," suggests that he might have been a native converted to Christianity. He was sentenced for deserting from the imperial army, serving the duke of Guelders, and pressing locals for food and drink after returning to the imperial forces.[76]

74.2.3.10; 75.4.3.10 (transcript Henk Beijers Archiefcollectie). For Floris van der Aa see Damen, *Prelaten, edelen en steden*, 100.

74 The Hague, KB, Medieval Manuscripts, Wapenboek Beyeren, part 3: Roll of arms of the battle of Kuinre, 1396; Janse, *Grenzen aan de macht*, 263.

75 Two men who fought in Frisia against the duke of Saxony, an ally of the Habsburgs, in 1497, and 1502–1503 respectively. A servant (*jongen*) was fined in 1491–1492 for participating in the feud against a certain Willem Trant.

76 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. nos. 2797, 12990, 12991, 12995, 12996. See also Bormans, "Extraits des cris du péron," 180, 195; de Lusy, *Le journal*, 348, 351–53, 370; Desbrière, *Chronique critique*, 49; Marchal, *Inventaire*, 296, 325; Richer, *Abrégé chronologique*, 147; Grauwels, ed., *Dagboek*, 62, 169; Sangers and Simons, *Geschiedenis*, 67.

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A particularly remarkable case is a twelve- or thirteen-year-old boy from Someren who was sent by his mother to the imperial forces near Mézières, presumably during the siege of 1521, to look for his sister, who served there with her partner. When the boy learned that this soldier had shortly before deserted to the French side with some comrades, he followed them there as well. He stayed in the French army for two months because he could not come back, and was fined along with two soldiers. Still, his sister, who probably acted in the same way, does not appear in the accounts. Given that this boy would have served as a soldier's servant, this case demonstrates that the ban on foreign service applied to any male serving in an army context, soldier or not, but not to women. There is another case of a *jongen* (servant) who was sentenced for joining the French. The fact that he did not receive any wages is explicitly stated.[77]

The emphasis on enemy service is important because serving in foreign armies as such did not really become an issue for at least another century, except in very specific circumstances, such as when governments raised or expanded their own armies and manpower became scarce. Former soldiers were actually encouraged to enlist with another potentate because it resolved the social problem of discharged veterans and released their paymasters from distributing their arrears in wages.[78] Notarial acts from Rotterdam dating to the first decades of the seventeenth century indicate that the armed forces of Venice, France, Denmark, Portugal, and Muscovy all sent recruiters to Rotterdam.[79] Even if officials wanted to enforce the law, evidence might have been difficult to come by. A miller from Roly, near Philippeville, declared before a notary in 1692 that he had not enlisted with the king's enemies in Charleroi (the Spanish army), and claimed that these allegations were based on village gossip.[80]

In the long run, the establishment of large standing (permanent) armies at the end of the seventeenth and the beginning of the eighteenth centuries turned out to be a key turning point. Now governments and commanders had a vested interest in keeping large numbers of soldiers with the colours. The kingdom of France also reorganized the military obligations of its subjects around this time and in effect introduced conscription, albeit only for militia regiments.[81] The resulting change in attitudes is well studied for the Austrian Netherlands, where the government adopted a much harsher attitude towards foreign service after the reorganization of their forces in 1725. Nevertheless, in

77 Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. nos. 12996, 080.1.2.3.6; 080.13.5.4.

78 Berkvens, *Plakkatenlijst Overkwartier*, 2:129; Bormans, "Table des régistres," 11:269, 12:63, 12:70–72, and 12:74; Brouwers, "Recrutements"; Douxchamps-Lefèvre, *Inventaire*, 3:28, 5:52; Helfferich, "A Levy in Liège," 481, 485, 490, 493–95; Kroener, "'Der Krieg hat ein Loch,'" 619–25; Leclercq et al., eds., *Liste chronologique*, 181–84, 188–90; Parrott, *The Business of War*, 95–100, 156–73; Sangers and Simons, *Geschiedenis*, 250; Sicking, *Zeemacht en onmacht*, 200.

79 Rotterdam, SAR, ONA, inv. no. 86, no. 344: February 11, 1645; 91, no. 97: November 13, 1619, 96, no. 147: March 27, 1648; 108, no. 217: November 15, 1631; 248, no. 93: July 24, 1641; 407, no. 206–207: March 18, 1658; 465, no. 191: May 7, 1645; 466, no. 14: February 8, 1646; 495, no. 218: November 27, 1646; 632, no. 80: May 27, 1658.

80 Roly, 6786: Act March 16, 1692 (transcript Généamag).

81 Lynn, *Giant of the Grand Siècle*, 380–96.

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practice enforcing regulations for soldiers serving below commissioned rank remained very difficult. Foreign recruiters were arrested when discovered and subjects joining other armies had to enlist in an imperial regiment in exchange for amnesty, but every year hundreds of men, often deserters, simply crossed the border and joined another army.[82] The Prince-Bishopric of Liège and a multitude of imperial immediacies in its close neighbourhood did assume a major recruiting role at a European level during the following decades precisely because they allowed foreign recruitment, sometimes openly, sometimes more clandestinely. A considerable part of the recruits gathered here had deserted from the Imperial, Dutch, and French armies, as proven by a systematic comparison of military personnel records. The bishops did sign cartels for the exchange of deserters, but enforcing these treaties was not in their interest.[83]

In historical studies, the introduction of conscription is often presented as a "solution" to these recruitment problems, a perception based to no small extent on the writings of Enlightment thinkers, but such a view does not take the ecological framework and perceptions of other contemporaries into full focus.[84] This can be clarified by taking the Bouillon regiment, raised in 1757 by the duke of Bouillon for the French army, as an example. Because every settlement had to provide able-bodied men for the militia, it is possible to get an idea of the principality's recruiting potential. The militia totalled 741 men in 1776. Furthermore, a small number of documents relating to the organization of the colonel's company have been preserved. This is a very senior company, theoretically commanded by the duke as colonel proprietor of the regiment, organized by taking soldiers from all the other companies. In this way, it gives a unique insight into the composition of the regiment. Of sixty-one men, only two came from the duchy itself. Even if one takes into account the age structure of the population, the exclusion of married men, and the physical standards required from soldiers at this time (see chap. 5), this percentage is surprisingly low.[85]

The duke could surely have filled a larger proportion of his regiment, or at least his own company, by recruiting his own subjects, but this was not in his or his unit's interests. His explicit instructions, namely that one half of the soldiers provided had to be "known and native," with the other half being "foreigners and deserters," reflects a practical problem of recruiting soldiers who met certain physical standards without destabilizing the demographic framework on which one's own government rested.[86] Only in

82 Berkvens, *Plakkatenlijst Overkwartier*, 2:238; Lorgnier, *La maréchaussée*, 2:86–91; Sonkajärvi, "Aperçu sur l'économie de la désertion"; Ruwet, *Soldats*, 24–26, 254–70.

83 Brouwers, "Soldatenwerving"; Govaerts, "'Fire-Eaters'"; Hélin, "Les Liégeois."

84 Kunisch, *Fürst—Gesellschaft—Krieg*, 161–202; Léonard, *L'Armée*, 215–37, 259–80; Theeuwen, *Pieter 't Hoen*, 226–31, 276–77, 291–93, 299, 643; Wilson, "Foreign Military Labour."

85 Maastricht, Private Collection, documents relating to the establishment of the colonel's company of the regiment Bouillon, 1757: Contrôles July 16, 1757.

86 It is unclear what "known and native" in this context means, given that the Duchy of Bouillon was originally part of the Prince-Bishopric of Liège, and forcibly ceded to the French noble family de la Tour d'Auvergne in 1676. In 1757 the regiment recruited most of its personnel in the northeastern part of the Kingdom of France (the Alsace), the Prince-Bishopric of Liège, and the Austrian Netherlands.

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1759 did the duke make an effort to recruit his own subjects, primarily to replace wartime losses. From 1763 to 1776 eighteen men from Bouillon served in the ranks of the colonel's company, of whom seven died during the unit's tour of duty in the Caribbean (Martinique). In 1788 the regiment still counted only twenty-seven soldiers from the duchy among more than one thousand men.[87] Even the widespread adoption of conscription in the first decades of the nineteenth century did not fully eliminate foreign recruitment, which continued to be the norm for colonial units, such as the Dutch Indies Army, and the navy. It is only from the 1850s onwards that the enlistment of foreigners truly disappeared, with the notable exception of the French Foreign Legion.[88] Governments had prohibited their subjects from joining foreign armies from at least the fourteenth century, but despite steadily increasing migration control they never fully succeded in suppressing it.

Armed forces did not just depend on people, however, but also included a sizeable animal component. How armies obtained the horses, on which so many of their functions depended, is a fundamental question, but also one that is often taken for granted.[89] In a similar way to human recruitment, a distinction has to be made between riding horses and draught horses. There is much more information available about the first type because these are the animals used by an army's combat element. Draught horses were before the nineteenth century exacted from the general population as part of a larger spectrum of services, or provided by contractors.[90] A list of fifty-eight horses requisitioned in the lordship of Grevenbroek, in the far north of the Prince-Bishopric of Liège, for the siege of Huy in 1695, provides an exceptional insight into this matter. This document is very detailed, provides a physical description of each animal, and makes clear that sixteen of the horses were old and worn out. The villagers likely selected their least useful animals for army service, though the state of these specimens might also simply reflect the general impoverishment of the Campine/Kempen at this time.[91]

Of special interest here is thus whether there existed a type of horse that was specifically raised for warfare, a "warhorse." Administrative sources classified horses according to many different types during the Central and Late Middle Ages, but only one of these referred indisputably to a warhorse, the *destrier*. This is the so-called "great horse" on which a fully armoured knight charged in battle. Because rulers were expected to recompense their combatants for horses lost in their service up to the late fourteenth century, it is possible to get some idea about the horses used by medieval armies. In

87 Maastricht, Private Collection, Arrangements pour la formation de la compagnie colonelle du régiment de Bouillon, 1757; Vincennes, SHD, GR 1Yc158: Contrôles of the Bouillon regiment, 1763–1776; Deschard, *L'Armée*, 113; Polain, *Ordonnances*, 193–95.

88 Bossenbroek, *Volk voor Indië*; Lucassen, "The International Maritime Labour Market."

89 See however Bachrach, "Animals"; Davis, *The Medieval Warhorse*; Moore-Colyer, "Horse Supply"; Robinson, "Horse Supply"; Stradling, "Spain's Military Failure."

90 De Bruijn, *De hoeve en het hart*, 223–33; Douxchamps-Lefèvre, *Inventaire*, 4:148; Gaier, *Art et organisation*, 96–102; Girard d'Albissin, *Genèse de la frontière*, 333; von Below, "Die Leistungen," 10–18.

91 Driessen, "De paarden."

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some ways these sources are even more informative than those of subsequent centuries, given that individual animals figure prominently among them.[92]

A comparison of two receipts for horse loss, both from horsemen serving the duke of Brabant, will be taken as an example because they show the diversity of horses used by medieval armies as well as the difficulty of establishing whether the horses used in war were effectively "warhorses." The first receipt concerns a reimbursement to Dietrich von Heinsberg and his men for seventy-six horses lost during the 1339 campaign of Edward III (1327–1377). Of these twelve are described as *destriers*, nineteen as *cavalli*, and forty-five as *equi*. *Cavallus* and *equus* both mean "horse" in general, but the term *cavallus* has a strong connotation of a horse used in warfare, especially in medieval Latin. It is likely therefore that in this document the word *cavallus* referred to a warhorse of lower value than a true *destrier* (possibly a "courser").[93] The second receipt sums up forty-three horses lost by horsemen from Namur who served Robert of Namur, marshal of Brabant, during the siege of Chaligny in 1363. Here three horses are described as coursers, high value riding horses used for warfare or hunting, seven as horses, thirty as rounceys, riding horses of low value, and three as draught horses.[94]

The sharp distinctions between these two groups may reflect the socio-economic status of their riders to some extent, but mainly derive from the environmental conditions in which these campaigns took place. Duke Jan III of Brabant (1312–1355) contracted Dietrich von Heinsberg (Count of Loon, 1336–1361) to serve with three hundred armoured horsemen, which entailed a force of at least six hundred horses, in the royal army of Edward III that raided through the fertile Scheldt and Sambre valleys. The horsemen of Namur served on a much smaller campaign led by the marshal of Brabant, directed against demobilized soldiers and required navigating the inhospitable Woëvre, in Lorraine. Bringing their best horses meant relatively little gain in terms of prestige at a much higher risk of loss.[95] It is noteworthy that late medieval fiscal accounts frequently note that horses had been "ridden to death."[96]

Medieval fiscal accounts also indicate that it was quite common for mounted combatants to lend or buy horses at the beginning of a campaign. This does not necessarily mean that someone did not own a horse or "warhorse," only that he did not have a horse fit for

92 Ayton, *Knights and Warhorses*, 39–51; Bennett, "The Medieval Warhorse Reconsidered"; Contamine, *Guerre, état et société*, 17–20, 103–6; Davis, *The Medieval Warhorse*.

93 The Wardrobe Book of William de Norwell (1338–1340) includes a compensation claim made by Dirk van Valkenburg (Thierry de Fauquemont), who also served in the English royal army in 1339. This list makes a distinction between *destriers* (*dextrarii*), coursers (*cursorii*), and horses (*equi*). Lyon, Lyon, and Lucas, *The Wardrobe Book*, 324–25; Verkooren, *Chartres*, 2:no. 667.

94 de Raadt, "Liste des hommes."

95 Comparable distinctions can be observed for English warhorses serving in France or Scotland. Ayton, *Knights and Warhorses*, 194–224.

96 Brussels, ARA, 137.01, inv. nos. 2805, 12991 (transcript Henk Beijers Archiefcollectie); Laurent, *Aachener Stadtrechnungen*, 371–72; Renes and Wessels, "Loen ende Werck," 127–28; van Doorninck, ed., *De tocht van Jan van Blois 1371–1372*, 121.

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the task at hand.[97] The accounts of lord Frank van Borselen, a close supporter of the Burgundian dynasty in Holland–Zeeland, demonstrate for instance that he bred horses on his estates, both for his own use and as gifts, but he still had to send a subordinate to buy one or multiple horses every time his bastard son went off to war in the 1460s.[98]

While commanders did have a role in the supply of horses, the main responsibility lay by the combatants themselves. This was possible because in the late Middle Ages service as an armoured horseman was one of the signs of noble status.[99] In the seventeenth century mounted military service still carried such prestige that bringing a horse could be a prerequisite for being accepted into a cavalry regiment. Lambrecht Claes, a soldier in Maastricht and native from Oostham in the principality of Liège, thus sold his share of his parents' inheritance in exchange for a horse, bridle, coat, shoulder belt, and spurs in 1638.[100] By 1666, such practices seem to have become more exceptional, for lieutenant John Grove specified before a Rotterdam notary the conditions under which Edward Feeck, an English nobleman living in 's-Hertogenbosch, enlisted in his cavalry company. He had to supply a good horse himself, but would receive double pay and could buy his own food.[101] Rulers also continued to call upon their fiefholders to serve in emergencies, until the last decade of the seventeenth century in France and Liège, but at that point the institution had visibly outlived its military usefulness.[102]

Nevertheless, delegating most of the responsibility to the combatants themselves, or increasingly to their commanders (captains and colonels), solved only part of the horse supply problem. Horses still had to be available for purchase at an acceptable price. Differences in agrosystems—the availability of grasslands (pasture)—became a key concern. The northern part of the Meuse Region, Brabant, Holland, and Guelders, exported horses and had access to major horse raising areas in Utrecht, Frisia, and Holstein. The kingdom of France, on the other hand, was a major importer of horses from at least the fourteenth century onwards, with the Southern Netherlands and Lorraine as facilitators. In the eighteenth and nineteenth century horse breeds from the north

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97 Brussels, ARA, 137.01., inv. no. 12990; Bolsée, ed., *La grande enquête*, 26–28, 31, 55, 85, 92–93, 108, 116, 128, 185, 191–93, 245, 252, 305, 307, 312, 327, 332; Herborn and Mattheier, *Die älteste Rechnung*, 45, 64; Kuppers, "De stadsrekeningen," 128, 130, 328; Laurent, *Aachener Stadtrechnungen*, 360; Marchal, *Inventaire*, 276; Martens van Sevenhoven, "Een betalingsordonnantieboek"; Servais, *Annales historiques du Barrois*, 2:315; van Doorninck, ed., *De tocht van Jan van Blois 1371–1372,* 110–11; van Doorninck, ed., *De tocht van Jan van Blois 1362*, 122–27, 133, 172; van der Eerden-Vonk, *Raadsverdragen*, 218; Verkooren, *Inventaire*, 1:no. 467.

98 Arkenbout, Frank van Borselen, 74–75, 77–78, 195–201.

99 Girardot, *Le droit et la terre*, 2:624–26, 2:719–22; Govaerts, "'Mannen van wapenen,'" 307–13, 321–23; Janse, *Ridderschap*, 79–80; Paravicini, "Adelskultur Europas."

100 Stevens, *Het land van Ham*, 3:22. See also Rotterdam, SAR, ONA, inv. no. 92, no. 272: May 23, 1628; Couvin, 1895: Act October 17, 1633; Namur, Haute Cour de Namur 392, fol. 54: Act July 28, 1614); Philippeville, 6433: Act January 28, 1659 (transcript Généamag).

101 Rotterdam, SAR, ONA, inv. no. 397, no. 340: December 1, 1666, no. 341: December 3, 1666.

102 Liège, AEL, Etats, inv. no. 2966: Reglement pour la paye generale des troupes de Son Altesse Evêque Prince de Liège, 1690; Lynn, *Giant of the Grand Siècle*, 369–71; Parrott, *Richelieu's Army*, 62–65.

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were also on average larger than those of the south because the latter were raised in a more extensive way.[103]

The Meuse Region's importance as a transit zone for the warhorse trade can be made clear by a document from 1389, which lists the rights of the duke of Limburg, the lord of Dalhem, and the lands of Outremeuse/Overmaas. It was written down in the context of the purchase by Philip the Bold (Duke of Burgundy, 1363–1404) of these lands from the heavily indebted Johanna of Brabant. According to this survey the duke of Limburg held the high justice on the main roads from Liège to Cologne, including the rivers Meuse and Rhine as far as he could ride a white warhorse (*blanc destrier*) into the water and still reach the bottom with his lance. Because of this obligation to safeguard the roads the duke was entitled to tax certain merchandise moving between the Meuse and Rhine, including warhorses (*destriers*).[104]

Because of the aforementioned environmental characteristics horse smuggling became a major problem in the sixteenth century with Dutch and to a lesser extent Spanish soldiers making sustained efforts to prevent horse exports from reaching their adversaries.[105] Marguerite and Catherine, wives of Jean and Martin le Rosseau, even had to appeal in 1580 to the councillors of Couvin to attest to the good fame of their husbands. The brothers had bought four horses at Tongres/Tongeren, an intermediary in the long-distance horse trade between Holland and France, but were taken prisoner at Bouvignes by members of the garrison who thought that they were soldiers of a foreign potentate. Few soldiers wore uniforms at this time so there was little to distinguish them from any other armed man.[106]

In 1691 Allied forces, which included the Dutch Republic, the Habsburg Netherlands, and the Prince-Bishopric of Liège, went a step further and devised extensive legislation to prevent horse imports from reaching the French army. Horses could only be sold in controlled circumstances, they could not be moved without a passport, and all fences and hedges had to be repaired so no horse dealer could divert from the main road.[107] These efforts intended to worsen their opponent's desperation for suitable mounts: earlier that year the French government had lowered the minimum height for cavalry horses from 1.50 m to 1.37 m (that is, almost 15 hands down to 13½ hands). Dragoons could take horses as small as 1.32 m (13 hands). Even though the legislation was renewed during the Spanish War of Succession (1701–1714), merchants from Brussels and Dinant

103 Bautier, "L'élevage du cheval," 68–69; Geisweit van der Netten, *Antwoord op de vraag*, 41–42; Laperche-Fournel, *L'Intendance de Lorraine et Barrois*, 190; Mulliez, *Les chevaux*, 15–25, 71–82; van Leeuwen, *Geschiedenis*, 39, 48, 63, 64–65, 83; van Oebschelwitz, *De Nederlandsche stalmeester*, 50–53.

104 Quicke, "Une enquête," 359, 376.

105 Rotterdam, SAR, ONA, inv. no. 46, no. 20: October 19, 1605; inv. no. 142, no. 145: April 8, 1637; inv. no. 204, no. 201: April 24, 1643; inv. no. 390, no. 256: November 30, 1639; Borgnet, *Cartulaire*, 74–75; Douxchamps-Lefèvre, *Inventaire*, 3:86, 3:221; Stradling, "Spain's Military Failure," 212–14; Verschure, *Overleven*, 66–70.

106 Wearing uniforms only became standard practice among soldiers in the second half of the seventeenth century. Couvin, 1969: Act May 31, 1580 (transcript Généamag).

107 Berkvens, *Plakkatenlijst Overkwartier*, 2:196, 2:238–39; Dibbetz, *Het Groot Militair Woordenboek*, 493–96.

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Figure 28. Two Ardennes horses in the service of the French horse artillery, drawing by Hippolyte Lalaisse, 1850 (Gayot, *Atlas statistique*).

still managed to supply the French army with thousands of Dutch and German horses.[108] Jean-Baptiste de Colbert and his successors had sought to avoid this reliance on imports by the distribution of stallions brought in from abroad, efforts that evolved in 1717 in the creation of the *haras*, a series of depots spread throughout the countryside housing stallions for breeding. This demonstrates the government's assumption that it was the task of farmers to supply the military with low-priced horses of good quality.[109]

The *haras* was very unpopular, appearing regularly in the 1789 *cahiers de doléances*, lists of complaints addressed in the Assemblée Nationale, because farmers felt they had to pay for the breeding of animals they did not need. The Revolutionary government consequently abolished them, only to be recreated in a reduced form by Napoleon's regime (including two in the Meuse Region: in the Ardennes and Roer departments). In the end, the problem of horse supply remained unresolved. France continued to be a major importer of horses throughout the nineteenth century. Napoleon's army managed to make good its immense losses of horses by a combination of requisitioning, purchase, and simply taking the horses of defeated enemies. Neither of these practices fundamentally changed France's structural lack of inexpensive and good cavalry mounts. The only development of note was the increased emphasis on so-called light cavalry in the late eighteenth and early nineteenth century, which led to a reappraisal of smaller indigenous horde breeds; especially from the Ardennes and Lorraine (see figure 28).[110]

108 Bogros, "Les chevaux de la cavalerie française"; de Bruijn, *De hoeve en het hart*, 237–45; de Peuter, "Paarden, geldhandel en haute finance," 351–62.

109 Mulliez, *Les chevaux*, 82–91, 106–9, 149–62, 167; van Leeuwen, *Geschiedenis*, 75–76.

110 The huge draught horses which are today closely associated with the Ardennes are the

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Throughout the premodern period armed forces continued to rely on agriculture to supply them with suitable mounts, which gave major horse raising regions a significant advantage over their counterparts.

Notions of Military Professionalism

The aspiration to limit access to certain biotic communities, as well as the need to ensure a continuous supply of those living beings that constitute an army, involved very basic problems. A constant tension existed between different human actors, different kinds of combatants, especially because of the varying ability to employ organized violence, so the capacity to raise armies remained diffuse into the late eighteenth and early nineteenth centuries. Soldiers brought both order and disorder and were therefore not completely reliable as policing agents. Let us turn now to how increased distinctions between armies and society at large, conceptions of military professionalism as a code of conduct and a practical social reality, evolved as result of these issues. The establishment of the military as an institution and a principal state actor came about because of these developments.

The first element in the changing distinctions between armies and the general population, the making of "civilians," was disarmament. In the Middle Ages every able-bodied adult male had, at least theoretically, to serve in a military context when required to do so. For that reason, they all had to own weapons and armour according to their means.[111] The accounts of Grave show, for example, that in 1438 members of the town council went from house to house to ensure that everyone owned appropriate weapons and equipment. This widespread ownership of weapons and armour created obvious concerns in terms of the maintenance of public order, but they also had an important ecological impact.[112]

Most missile weaponry, such as (cross)bows and guns, could be employed for both hunting and warfare. In this context the widespread adoption of gunpowder weapons from the latter Middle Ages onwards became a major issue. Medieval handguns, while not as accurate as early modern rifles, were used for hunting by the last decade of the fifteenth century at the latest.[113] The close relation between ownership of guns and hunting is confirmed by a list of armed men from the district of Dinant in 1570. Numerous documents of this kind have been preserved from the sixteenth century. They originate in governments' efforts to (re)enforce military obligations among the general popula-

descendants of horses introduced during the second half of the nineteenth century in the context of new breeding programs. Brun, "Le cheval"; Illaire et al., eds., *Les cahiers de doléances*; Le Bouvier, *Le livre*, 110; Mulliez, *Les chevaux*, 317–20; van Leeuwen, *Geschiedenis*, 99–130.

111 Registers van de Hollandse Grafelijkheid, WI 562 (online at www.resources.huygens.knaw.nl); Tongeren, SAT, inv. no. 1, fol. 5v, fol. 42; Bormans, "Extraits des cris du péron," 199; Gaier, "Pauvreté et armement individuel," 153–64.

112 Grave, SLC, Archief Gemeente Grave, inv. no. 217, fol. 195v (transcript Rien van den Brand); Glaudemans, *Om die wrake wille*, 112–14, 341–42.

113 Hall, *Weapons and Warfare*, 97–99.

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tion. What is noteworthy about this list is that differences in the arms carried by the men of these villages (the relative number of guns versus staff weapons) can be explained by the local availability of game. Communities with the largest area of woodlands are also those with the largest number of guns.[114]

For authorities the most obvious concern was indeed that men took advantage of their military obligations to poach or otherwise be a threat to public order. The regulations regarding the organization of the militia in the Prince-Bishopric of Liège in 1632 explicitly mention that the militiamen were under no circumstances permitted to shoot partridges, pigeons, hares, rabbits, or other game. In the district of La Mothe the weapons used by the *élus*, the men elected to provide military service, were kept in the castellan's fortress in the late sixteenth century in order to avoid misuse.[115]

Even though the military obligations of the general population were significantly reduced over time processes of disarmament were far from straightforward. One has to distinguish between the general population's contribution to rulers' or states' forces, which had by the late sixteenth century become reduced to sending manual labourers ("pioneers") and wagoners, and their continuous role in local defence. The latter included repression of unwanted migration and wolf hunting. Military obligations in a militia structure were in fact expanded during the late sixteenth and early seventeenth centuries, to deal with the problem of marauding soldiers. In the Germanic part of the Meuse Region such militias were generally denoted as "shooters" (*schutters*, *Schützen*), which suggests a link with medieval shooting guilds. These older associations continued to exist, but became submerged in larger militia structures, and more or less took over their policing role.[116]

The major turning point lay around the last decades of the seventeenth and early eighteenth centuries. At that time efforts to curtail assaults by soldiers on locals coincided with an increased emphasis on buying protection. It is useful to take the mobilization of the rural population by the French government as an example. Since 1644, attempts had been made to establish defensive lines along the Sambre and/or Meuse Rivers, mainly against raiding parties (see chap. 1). These had to be manned by villagers drawn from the area between the Meuse and Aisne Rivers. An inventory of guns owned by these men, dating to the 1740s, a list that also indicates whether someone had military experience, shows that the percentage of guns owned by former soldiers, 137 guns for 494 men, was lower than those owned by the population at large (1928 guns for 6122 men). This can be explained by the fact that gun ownership was a mark of status, being a reflection of the right to hunt. Noblemen included in this list often owned several guns. It is likely that most of the men on this list with military experience had served in

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114 Bormans, Lahaye, and Brouwers, ed., *Cartulaire de Dinant*, 4:109–11.

115 Hansay, "Documents inédits," 213; Polain and Bormans, *Receuil des ordonnances de la principauté de Liège*, 3:107–8; Richer, *Abrégé chronologique*, 206; Villa-Sébline Nicole, *La sénéchaussée*, 191, 230–31.

116 *La vie quotidienne dans les Ardennes*, 32–33; Borgnet, *Cartulaire*, 89–90, 221–23; Bormans, Lahaye, and Brouwers, ed., *Cartulaire de Dinant*, 6:238–39; Denys, *Police et sécurité*, 93–97, 118–23; Jacobs, *Justitie en politie*, 160; Verschure, *Overleven*, 222–27.

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militia regiments, recruited through conscription and generally associated with a low socio-economic status.[117]

In this way, the list represents a changed relationship between armies and society. Military obligations were not abolished, they were expanded, but the emphasis was gradually moved towards service in the military, which allowed much more control from the government's viewpoint. Attempts to re-arm and mobilize all able-bodied adult males in the traditional way were certainly made during the revolutionary years and major invasions (in 1784–1787, 1790–1794, 1809, 1813, and 1830) but they all produced very mixed results, and quickly gave way to either disbandment or incorporation in military structures.[118] Widespread ownership of arms remained both a military necessity and a threat to government control over natural resources until well into the eighteenth century. This ambiguity could not be durably solved until increasing distinctions between "military" and "civilians" made the latter's armament redundant.

Militias continued to function, despite their obvious threat to public order, in order to prevent the governments' own soldiers from pillaging the countryside. One of the reasons why these combatants proved so difficult to manage was their special status in contemporary justice systems. This gave them, or at least created a perception, of impunity. The high bailiff of 's-Hertogenbosch, for instance, declared in his account from 1423–1424 that he did not punish two malefactors to the full extent of the law because they had served the duke regularly, and lived "on the borders of the realm" (*de palen van de lande*).[119] The pressing need for men willing to serve in an armed capacity thus has direct repercussions on the maintenance of law and order.

Military justice in the proper sense of the word developed from the late fifteenth century onwards and had a direct impact on the capability of authorities to arrest soldiers. The High Bailiff of 's-Hertogenbosch explicitly stated in 1508–1509 that he was only able to fine a culprit because he was a soldier.[120] It also had a major influence on environmental crimes. A court record of Breust, dating to 1684, includes several witness statements regarding a certain Jan Lindekens and his son. The latter had been arrested for cutting wood illegally in the lordship of Rijkholt. After his release he became a soldier in Maastricht and used this status as a pretext for walking around armed and shooting the forester's pigeons. Given that no statements of the offender(s) themselves are included, it is conceivable that the son's military status shielded him from arrest. Authorities for their part were not completely powerless to pursue military offenders. In 1702 for instance the lord of Rekem started a lawsuit against Renier Schrammen because he had

117 Corvisier, *L'Armée française*, 1:197–251; Desbrière, *Chronique critique*, 30–31, 224–25, 230, 267–70.

118 Maastricht, RHCL, 04.01, inv. no. 18; Leconte, *La Révolution brabançonne dans le duché de Limbourg*; Rosendaal, *Tot nut van Nederland*, 41–53, 164–76, 197–208; Sabron, *De oorlog*, 2:12–14; Terlinden, *Les souvenirs historiques*, 81–105; Wanty, *Le Milieu militaire belge*, 10–16.

119 Brussels, ARA, 137.01, inv. no. 12990, fol. 179 (transcript Henk Beijers Archiefcollectie).

120 Brussels, ARA, 137.01, inv. no. 12996. See also Boonen, "Repressie van vaandelvluchtige soldaten," 30, 36, 41, 43, 46; Storrs, "Military Justice"; Verreycken, *Pour nous servir en l'armée*, 110–14, 188–99; Wilson, "Early Modern German Military Justice."

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cut wood on the village's lands and attempted to have his belongings confiscated. The latter, who served as a soldier in Maastricht, claimed that only a military court could judge him.[121] The impression that soldiers could transgress environmental laws with relative impunity is confirmed by the repeated assertions in the Habsburg Netherlands that military privileges did not apply when it concerned hunting offences.[122]

Another issue, of no less importance, is to what extent such environmental crimes were perceived as important within a military context. The high bailiffs of 's-Hertogenbosch fined a mere three combatants for environmental crimes over the course of more than one hundred and fifty years. One man was fined fifty *gulden* in 1495–1496 for multiple offences: fighting, threats, cutting down shrubs and a young nut tree, draining a pond and stealing the fish while serving with soldiers in the County of Loon. A soldier received a fine of six *gulden* in 1512–1513 for shooting an arrow in a beer barrel and cutting some willow branches for firewood, and one of his colleagues had to pay twenty *gulden* in 1514–1515 for *garden* (or *gaerden*, *garten*, that is, pillaging or begging in a violent manner) and cutting some oaks managed as coppice wood.[123]

Military officers, who were fond of hunting themselves, probably considered these offences above all as a form of insubordination. The garrison orders of Namur regularly mention that it was forbidden to fish in specific locations and that offenders were liable to lose their fishing equipment as well as risking some sort of undefined punishment. Nevertheless, they provide very few explicit references to the enforcement of these orders: one soldier had to ride the "wooden horse" for an hour in 1716 and two soldiers had to run the gauntlet seven times up and down in 1742.[124] Given that the latter punishment was carried out a month after one of the governor's prohibitions, they were probably being made an example of. A 1704 court record from the Dutch army similarly concerns a trooper, Willem Moens from Tongres/Tongeren, who had intercourse with a mare. The sentence leaves no doubt about the heinous character of the crime and the need to punish it accordingly, by executing and burning both man and horse, but it is still striking how it emphasizes that this soldier had transgressed the regulations on military discipline in particular (it was his captain's horse).[125]

The military court of Namur, which processed 2805 cases between 1815 and 1851, only considered two explicitly environmental crimes: two soldiers cutting wood in a royal forest in 1818, and a soldier who cut down trees and damaged fences in 1839.

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121 Hasselt, RAH, Schepenbank Rekem, inv. no. 938; Maastricht, RHCL, 01.176 Schepenbank Breust, inv. no. 1491. See also Bouvignes, 1340: Act August 25, 1649 (transcript Généamag).

122 Berkvens, *Plakkatenlijst Overkwartier*, 2:223; Lelièvre, "De la jurisdiction militaire," 133–34.

123 There are also a few entries about stealing horses or other livestock. Brussels, ARA, 1107 Rekeningen Hoogschout 's-Hertogenbosch, inv. nos. 12995, 12996.

124 The wooden horse is a punishment device in the shape of a horse with a sharp back on which the offender has to sit. It is typically located near the main guardhouse on the parading grounds. It might be a common punishment for this kind of offence since the main character of the semi-fictional Simplicius Simplicissimus (in the mid-seventeenth century) was also punished in this way. The Hague, NA, Raad van State, inv. no. 2081, August 12, 1716, July 15, 1742, August 16, 1742; von Grimmelshausen, *Der Abentheurliche Simplicissimus Teutsch*, bk. 4, chap. 9.

125 The Hague, NA, Hoge Krijgsraad, inv. no. 262: Trial Willem Moens.

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Military authorities could also hardly claim to have played a proactive role: forest guards arrested the former offenders, and the *gendarmerie* the latter.[126] Military regulations from at least the fifteenth century onwards encompassed a wide range of environmental crimes: cutting down woody plants, damaging gardens or fields, and shooting pigeons or rabbits, but if these were dealt with at all it would likely have been in a way that does not find reflection in military court records. One solution to this problem could be to examine monthly reports, which have been preserved for some eighteenth-century regiments and note minor punishments, but these too do not indicate a concern for environmental crimes.[127]

Archives of nineteenth-century military courts have the advantage that they included excerpts of a soldier's *livre de punition*, a list of earlier offences including those that did not involve a court martial. Louis Eeckhout, for example, deserted from the Belgian army in 1844 and joined the French Foreign Legion, but came back after his five-year enlistment. This was a fairly common practice at that time.[128] His records indicate that he received twenty-seven minor punishments in little more than five years before deserting. These included eight days' confinement for throwing stones at a citizen's apple tree, and another fifteen for breaking out of prison (the *cachot*) and stealing fruit from an enclosed garden.[129]

In this context the military court of Namur seems to have been surprisingly lenient towards the two German soldiers who cut down trees in 1818, claiming in effect that the minutes only provided sufficient evidence for the soldiers hacking down one tree with their sabres, not the other twelve firs the forest guards found felled. The defendants were consequently condemned to eight days in prison and the costs of the trial. The soldier arrested by the *gendarmerie* by contrast was punished more severely (one month's detention), but he had also been drunk and had caused a public outcry.[130] Military justice in general was therefore not particularly concerned with repressing environmental offenders.

Soldiers were not solely perpetrators. They were both enforcers and lawbreakers. Growing distinctions between armies and general society in 1250–1850 originated in the difficulty of enforcing military obligations as well as concerns about the maintenance of public order. Men who derived their main income from military service there-

126 Namur, AEN, Conseil de Guerre Provincial, inv. nos. 227, 1424.

127 Liège, AEL, Conseil Privé, 2634: Report from the regiment Royal Liégeois (French service) regarding punishments given in December 1788. *Militair Wetboek*, articles 175–182; *Reglements et ordonnances du roy pour les gens de guerre*, 9:228 (August 28, 1695); Berkvens, *Plakkatenlijst Overkwartier*, 2:249; Bikar, "Aperçus de l'état militaire," 239–44; de Laurière et al., eds., *Ordonnances des rois de France*, 13:307–8; Rase, Maréchal and Bodart, *Inventaire*, 23–84; Rorive, *Les misères de la guerre*, 344; Teunisse, *Onderdaan in Oranje's oorlog*, 29.

128 Bastin, *La justice militaire*, 186–88.

129 Eeckhout might have come into conflict with the Belgian military justice system again, for he became a French citizen in 1862, when serving as a grenadier corporal in the French Foreign Legion. Namur, AEN, Conseil de Guerre Provincial, inv. no. 2678; *Bulletin des lois de l'empire français, XIe série*, 20:267.

130 Namur, AEN, Conseil de Guerre Provincial, inv. nos. 227, 1424.

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fore gradually came to dominate an army's combat element from the Late Middle Ages onwards. The fifteenth century saw the creation of the first permanent military units in the Meuse Region: the famous *bandes d'ordonnance*. These were mostly mounted troops of noble origin. The transformation of these first units into the large standing forces of modern states is a core theme in the history of early modern Europe. This book specifically analyzes to what extent changes in the organization of military service influenced biotic communities.[131]

The growing emphasis on permanent armies came to a certain degree at the cost of the combatants themselves, as demonstrated by the detailed accounts of the castle of Blitterswijk near Venlo in 1584–1591. The local steward paid nine soldiers in 1584 to serve as guards, a number gradually reduced to two. As argued earlier, these men did not constitute a garrison, but fulfilled analogous roles to medieval sentinels and watchmen, officials that are notably absent from the accounts.[132] The towns of Dordrecht and Sedan also retained soldiers in their pay and they patrolled the city and enforced the council's police regulations during the sixteenth century. These men received different wages: either three or four *brabantse gulden* a month. It is a well-known feature of sixteenth-century armies that private soldiers could receive different pay rates depending on their equipment and/or experience.[133]

By 1586 only three soldiers were left, including one earning higher pay. He had to accept a uniform pay rate, but got two pair of shoes in return. More importantly is that this man performed all kinds of chores to complement his income: as a hunter, builder, miller, and field warden.[134] This is not an isolated incidence, but a reflection of processes occurring all over the Meuse Region. A considerable part of the ecological impacts of soldiers included in this study—working on fortifications, gathering or selling wood, and fishing—originate in these processes of standardization which lowered their social status.[135] A watchman certainly performed comparable chores in Venlo as early as 1386–1387, namely making fences and repairing roads, but the status of these officials was much lower than that of medieval soldiers. In fourteenth-century Aachen, *Soldeneren*, who invariably served mounted, earned ten to twenty-five times the wages of a watchman.[136]

Soldiers who performed their service well could conversely be rewarded in a way that was of direct significance to the policing of biotic communities. In 1418 Jan IV, Duke of Brabant (1415–1427), allowed Carselis de Eupen, who occupied the post of forester in the duchy of Limburg since 1411, to retain his function until the duke repaid his debts. These arrears had a military origin: de Eupen already appeared briefly in the previous chapter when his men garrisoned the fortress of Argenteau in 1411, and his

131 Contamine, *Guerre, état et société*, 278–90; Guillaume, *Histoire des bandes d'ordonnance.*

132 Dreiskämper, "Thonis Ongewassen en Johan Copper," 184, 190.

133 *Informacie up de staet faculteyt ende gelegentheyt*, 515; Philippoteaux, "Gages des soldats."

134 Dreiskämper, "Thonis Ongewassen en Johan Copper," 184, 190.

135 Bas van Bavel, *The Invisible Hand*, 177–206; Burschel, *Söldner*, 38–44; Swart, "From Landsknecht to 'Soldier'"; von Grimmelshausen, *Der Abentheurliche Simplicissimus Teutsch*, bk. 4, chap. 9.

136 de Groot, *Stadsrekeningen*, 1386 fol. 7, 1387 fol. 20; Laurent, *Aachener Stadtrechnungen*, 9, 218–19, 249, 256–57, 260, 314.

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father had been taken prisoner at the battle of Baesweiler (1371). Apparently, the family had, after more than forty years, still not received full compensation for losses suffered at this famous debacle.[137]

These medieval notions of service were expanded from the sixteenth century onwards in response to changing social realities. On January 10, 1559, for example, the governor of Chimay appointed a certain Yzaye Faucquesseau as forest warden. This man served as "archer" (heavy cavalryman) in the company of the prince of Chimay, part of the *bandes d'ordonnances*, but he also owned land in the area (Baileux). The prince thus rewarded a subject for his loyal military service by assigning him to a different kind of service, by making him a functionary with a central role in the management of his natural resources. Given the special status of these units, most soldiers did not have to remain with their company in peacetime, he did not even have to give up his military role, and he was still denoted as archer in 1563.[138]

During the early modern period former soldiers were gradually perceived as particuarly appropriate candidates for serving in other government functions, particularly if these involved arms. The bailiff of Kempenland, for instance, declared in 1651 that all his field wardens were former cavalrymen of the Dutch army, apparently because he could not find suitable candidates among the local villagers. This can be explained by the recent takeover of the mostly Catholic northern part of the Duchy of Brabant by the Dutch Republic, which required all state officials to be Protestant. At the same time it is emblematic for the position of soldiers as one of the oldest and most prominent servants of the state, which made them a model for other branches of government.[139]

By the eighteenth century military service had clearly become a desirable experience for police officials, for it gets explicitly stated in candidates' records. Former soldiers also constituted a significant minority among customs officials at that time. In 1825 the Netherlands government established an official list of government functions preferably given to former members of the military, including prison guard, servant of the provost (*stokkenknecht*), engineer with the department of water management, lock keeper, porter, provost, exciseman, mailman, and gamekeeper. The nineteenth-century French government also employed officials called *gardes forestiers de la marine* who had nothing to do with forest protection as such, but whose work involved selecting trees suitable for shipbuilding. They were recruited among members of the militarized craftsmen who built warships.[140]

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137 Govaerts, "'Mannen van wapenen,'" 302–6, 318–19; Yans, *Histoire économique*, 89–91.

138 Carnets du Major Lebrun 1507–Baileux 39 rouge 3m, p. 2: Act April 19, 1563; 24 rouge 2 X Pairie de Chimay, p. 91: Act January 10, 1559 (transcript Généamag); Guillaume, *Histoire des bandes d'ordonnance*, 104, 199. See also Bois, *Les anciens soldats*, 299–300; Burschel, *Söldner*, 276; Gresser, *La gruerie*, 144–51; Manning, *Hunters and Poachers*, 28.

139 's-Hertogenbosch, BHIC, 178 Resoluties Raad van State, inv. no. 187, fol. 822v; Hagen, *Van "Crouwaetz gewelt" tot "Fransche brandt"*, 18–20.

140 Bosch, *De nationale waterstaatsdienst*, 131–36; Denys, *Police et sécurité*, 82–85; Hardenberg, *Overzigt der voornaamste bepalingen*, 2:253–54; Piraux and Dorban, eds., *Douane, commerce et fraude*, 132–33; Tellès d'Acosta, *Instruction sur les bois de marine et autres*, 221–22.

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Figure 29. Arrest of a poacher (1813–1839), lithograph based on a painting by Horace Vernet. Note that the forest guard has only one arm (Art Institute of Chicago, 1927.5653).

The general idea behind these practices was to solve three problems at once: reward soldiers for their service, reduce violence while they are vagrant by helping discharged veterans find employment, and gain loyal subordinates (see figure 29). In practice, the situation was far more complex, partially because soldiers were not necessarily motivated to serve in these capacities and partially because they were not paid very well. The town of Maaseik, for example, appointed a new field warden on April 2, 1782. His nomination explicitly mentions that he was a former soldier to the point of naming his regiment, an Imperial unit. Three months later the town had to find a replacement because the man had enlisted again, this time in the Spanish army.[141] The recruitment of reliable field guards, the nineteenth-century successors to these wardens, also proved particularly difficult because of their low pay.[142] Still, a list of former soldiers resident in Maaseik, dating to 1815, reveals that three police officials (a field guard, *agent de police*, and guard of the fisheries) all had military experience.[143]

141 Maaseik, Stadsarchief, Oud archief, Magistrale Rol, fol. 91: Stadsrekening 1782–1783; Boonen, *Misdaad en straf*, 21–22.

142 Maastricht, RHCL, 04.01., inv. no. 30: letter of the mayor of Rutten (Tongres/Tongeren), March 22, 1814; *Receuil général des lois et ordonnances*, 11 (1841), 462; Kort, *Bromsnor in Zeeland*, 39–43, 50–56, 115–21; Parmentier, *Pays de Charleroi*, 268–69.

143 Maastricht, RHCL, 04.01., inv. no. 124.

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The uncertainty whether these men really were the models of discipline and loyalty that their military service supposedly guaranteed was an even more serious issue from the government's viewpoint. Cutting down wood in the forest of Rekem, meant to prepare Maastricht for an imminent Allied siege in December 1813 (see chap. 3), was considerably delayed because Lambert-Henri-François Frantzen, head of the forestry department and nominally in charge of the operation, was absent for several days. It is possible that his specific background, rising to officer's rank in the revolutionary years without prior military experience, did not qualify him as the prototype of a disciplined soldier. His second-in-command, who took charge of the operation, had served Napoleon as a non-commissioned officer and initially asked the prefect for a position as a court clerk.[144] Yet it is significant that an 1804 attempt to establish a French veteran camp near Jülich, based on Roman examples, also had to drop its military aspects because the veterans wanted to become ordinary farmers.[145]

Armies evidently had an important function in the policing of biotic communities during the premodern period. Still, incessant conflicts continued between the military as an organization that gradually came to represent the state and the ongoing ability of the general population to provide armed service, often in order to repress soldiers' own disorderly behaviour. This paradox eventually contributed to the rise of organizations that controlled both members of the military and civilians, still built on ideas about rewarding military service and cultivating a specific image about military professionalism. The best known of these organizations is the French *gendarmerie*, created in 1791 through a reorganization of the *maréchaussée*.

The *maréchaussée* was a medieval institution, founded in the fourteenth-century kingdom of France to deal with marauding soldiers within a changing context of military justice. Their creation was directly connected to the function of provost, the official specifically tasked with maintaining order among army members. This rather quickly evolved into a general obligation to provide safety on the road and the organization lost its specific association with warfare by the seventeenth century.[146] A major reform in 1720, not coincidently the same period that saw the consolidation of France's permanent armed forces, militarized the organization. It adopted uniforms, a strict hierarchy, and serving in the military became a prerequisite for obtaining an officer's commission. The French government expanded its military aspects during subsequent reforms, with the requirement of prior military service being extended to all ranks.[147]

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144 Maastricht, RHCL, Frans Archief, inv. no. 613: letter July 17, 1811; inv. no. 1177: letter December 21, 1813; 04.01, inv. no. 30: Lists of former soldiers receiving pensions; Terlinden, *Les souvenirs historiques*, 123.

145 Woloch, *The French Veteran*, 232–46. See also Meyrac, *Traditions*, 324.

146 For the role of the *prévôt des maréchaux*, see Bouvignes, 1197: Act May 21, 1495 (transcript Généamag). Brouillet, "La maréchaussée des origines à 1720"; Smolar-Meynard, *La justice ducale*, 356–61.

147 Emsley, *Gendarmes*; Iung, "La maréchaussée de Lorraine et Barrois"; Lorgnier, *Maréchaussée*, 1:89–102.

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It is easily overlooked, because of its later success, that the *maréchaussée* was just one of several examples during the eighteenth century. In the Habsburg Netherlands the armed followings of the *prévôt général*, the high bailiffs, and the forester of Brabant, were militarized as well at the turn of the seventeenth and the eighteenth century. In late eighteenth-century Jülich and briefly also Liège cavalrymen patrolled the countryside. These resembled the French *maréchaussée* in many ways, but prior military service was not a precondition for entry.[148] One can consider these horsemen as a sort of intermediary for they also adopted the green uniforms typical of police officials in other parts of the Holy Roman Empire. The use of the colour green reflects the hunter origin of today's German police forces. In the Thirty Years War the Swedish government had drafted its gamekeepers and forest wardens into special units that acted as military police, a practice that then quickly spread to nearby German territories, notably Hessen and Prussia (the military *Jäger*).[149]

A major issue proved to be the need to maintain a balance between the cultivation of military ideals and these units' role in policing. Looking specifically at one unit, the *flanqueurs-chasseurs* of Napoleon's Guard, illustrates this dilemma. The regiment was formed in 1812 and recruited hunters and/or woodsmen. Relatives of forest guards were especially encouraged to volunteer by promising them a position in the forestry department. The unit's personnel records show that a hundred and twenty-nine soldiers from the Meuse Region, and more specifically the *départements* with large areas of woodlands (the Ardennes, Meuse, and Roer) enlisted. The relative precision of military records from the Napoleonic period is of note here, because the professions of these men rarely point to a direct relationship with forests. It is the professions of their fathers, rarely included in earlier records, which makes all the difference (forty-four soldiers were indeed sons of forest guards). After the disastrous Russian campaign only nine of the original hundred and twenty-nine remained. They were consequently replaced with conscripts, which effectively put an end to the unit's special status. Napoleon did not draft any serving forest guards, so the forestry department continued to function, but the loss of so many potential successors and family members likely affected it in other ways.[150]

It is significant that the *maréchaussée/gendarmerie*, which eventually became the formula adopted throughout the Meuse Region, emphasized difference from regular military units. In terms of activities, they were in many ways remarkably similar to their medieval and early modern predecessors. A series of reports from the company *maréchaussee*[151] stationed in the province of Liège (1816–1830) suggest an emphasis on arresting deserters, vagabonds, thieves, and so forth, with references to poachers or

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148 Balace, "La maréchaussée"; Emsley, *Gendarmes*, 13–36, 149–54; Goblet d'Alviella, *Histoire des bois et forêts*, 2:30–31; Reiche, *Vom bewaffneten Hausmann zum Polizisten*; van Belle, *Le premier projet de police*, 15–23, 191–202.

149 Murk, "Rekrutierung und Ausbildung," 109–10; Nyrén, "Riksjägmästarambetet."

150 Vincennes, SHD, GR 20Yc99: Contrôles Régiment de flanqueurs chasseurs. For the insistence that the *Landdragoner* in the duchy of Jülich would not come under control of the military, see Reiche, *Vom bewaffneten Hausmann zum Polizisten*, 67–68, 76–78.

151 The newly founded kingdom of the Netherlands (1815–1830) adopted the name *marechaussee*

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woodcutters being quite rare (thirteen arrests in fifteen years). Environmental crimes only appear when members of the company intervened on behalf of forest or field guards or during exceptionally cold winter months, when large numbers of people were desperate for firewood. This is very much in line with the official policy of serving as support and supervisers of forest and fields guards.[152]

One of the oldest reports, from April 1816, is exceptional because it states that multiple nightly patrols conducted by the company put an end to the frequent thefts of wood in royal forests. It also specified that citizens refused to do their guard duty and that public officials set a bad example. In other words, the *maréchaussee* interfered because normal protection mechanisms were ineffective. This should be seen in the context of two regime changes in less than two years. The archives of the forestry department in fact include a complaint about the inhabitants of Malmédy taking advantage of the presence of Prussian soldiers in 1814 to plunder state forests. In this way the interference of this specific kind of armed force had to resolve the disarray brought about by disturbances caused by other armies.[153] This demonstrates the military police's core function as a controlling mechanism for both the military and the general population.

Conclusion

Protecting fauna and flora is hardly a prerogative of modern armies or of today's conceptions of nature, since the role of armed forces in the safeguarding of biotic communities is well attested from the Middle Ages onwards. Their contribution derives from the inherent connection between armies and organized violence. The precise ways in which armies intervened transformed markedly over the course of six centuries and demonstrate, more explicitly than any other chapter, how changing conceptions of what an army is or should be influenced the interactions between these groups and ecological systems. Distinctions between different kinds of organized violence (military versus police) or armed forces and society at large (military versus civilians), which are considered normal today, originated in these developments.

The essential characteristic of the Meuse Region from the thirteenth to the nineteenth centuries was one where soldiers gradually became the dominant type of combatant, but other forms of military service were not entirely abolished. This stimulated the formation of a group of people who depended on military wages as a primary source of income. They became both key actors in ongoing processes of state formation, and a constant source of problems, a paradox that was, from the governments' point of view, not satisfactory resolved until the nineteenth century.

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instead of *gendarmerie* because of the latter's association with the French Revolution and Napoleon's regime.

152 Liège, AEL, Fonds Hollandais, inv. no. 800; Delguste-Van Der Kaa, *Histoire des loups*, 89–92; Emsley, *Gendarmes*, 53–62, 91–92, 96, 109–10, 112; Iung, "La maréchaussée de Lorraine et Barrois," 355–79.

153 Liège, AEL, Fonds Hollandais, inv. nos. 396, 800.

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