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THE DARK SIDE OF MEDIEVAL SUSTAINABILITY: THE SOCIAL CONSTRUCTION OF SUSTAINABLE PRACTICES IN WESTERN AND CENTRAL ALPS ITALIAN COMMUNITIES

El lado oscuro de la sostenibilidad medieval: la construcción social de las prácticas sostenibles en las comunidades italianas de los Alpes Occidentales y Centrales

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ABSTRACT: This article explores the ambivalent nature of «sustainability» in late-medieval Alpine communities, showing how communal statutes reveal a social rather than ecological logic behind environmental regulation. Through examples from the Western and Central Alps, it argues that practices designed to preserve forests and pastures primarily protected economic resources and reflected existing social hierarchies. Forest management and pasture access were regulated through fiscal mechanisms that often excluded poorer inhabitants, while animals were subject to discriminatory hierarchies and large carnivores systematically exterminated. The case of Arnad (1346), where goats were banned to protect woods and meadows, epitomizes the tension between social order, economic utility, and ecological disruption. Medieval «sustainability», essentially plant-based and utilitarian, thus laid the foundations for enduring conflicts between environmental control and social inequality.

Keywords: Sustainability; commons; Italian Alps; environmental history; Middle Ages; animal history.

RESUMEN: Este artículo explora la naturaleza ambivalente de la «sostenibilidad» en las comunidades alpinas de finales de la Edad Media, mostrando cómo los estatutos comunales revelan una lógica social más que ecológica detrás de la regulación medioambiental. A través de ejemplos de los Alpes occidentales y centrales, se defiende que las prácticas diseñadas para preservar los bosques y los pastos protegían principalmente los recursos económicos y reflejaban las jerarquías sociales existentes. La gestión forestal y el acceso a los pastos se

regulaban mediante mecanismos fiscales que a menudo excluían a los habitantes más pobres, mientras que los animales estaban sujetos a jerarquías discriminatorias y los grandes carnívoros eran exterminados sistemáticamente. El caso de Arnad (1346), donde se prohibieron las cabras para proteger los bosques y los prados, resume la tensión entre el orden social, la utilidad económica y la alteración ecológica. La «sostenibilidad» medieval, esencialmente basada en las plantas y utilitaria, sentó así las bases para los conflictos duraderos entre el control +medioambiental y la desigualdad social.

Palabras clave: sostenibilidad; comunales; Alpes italianos; historia medioambiental; Edad Media; historia de los animales.

SUMMARY: 0 Introduction. 1 Commons and sustainability. 2 Medieval sustainability against the animals. 3 No country for goats: the example of Arnad and the unsustainable competition between plants and animals. 4 Conclusions: first and foremost, plant-based sustainability. 5 Works cited.

0 INTRODUCTION

In the late Middle Ages, the environment was under pressure: population growth, deforestation, and the expansion of cultivated land were changing the face of the medieval landscape. In response to this emergency, medieval communities organized themselves to develop management practices that we might call «sustainable». Starting with some examples from the Italian Alps, I will show why medieval sustainability is largely a social construct and certainly not —anachronistically— an ecological one. In particular, I will show that the form of sustainability practiced by Alpine communities was guided by principles aimed at ensuring the durability of economic resources which, rather than protecting the environment, selectively favoured certain components of it —for instance, those species that were particularly useful— at the expense of others, starting with wild animals. In other words, the forms of sustainability practiced by medieval societies did not take into account the environment and ecological networks as a whole, but only those parts that offered economic returns. From this perspective, the animal world was regarded either as a resource to be exploited —above all in the case of game and domestic animals— or as a threat to be eliminated, particularly in the case of large carnivores, rather than as a balance to be preserved. In this sense, it can certainly be said that late medieval sustainability practiced by Alpine communities was essentially plant-based. A new historiographical sensibility that, in recent decades, has focused attention on the animal world now makes it possible to better grasp the extent to which the latter has been disadvantaged by the environmental policies of late medieval Alpine communities¹.

Thus, I would like to explore the dark side of late-medieval sustainability. I will show, in fact, not only that the sustainability practices of late-medieval Alpine communities had a strong negative impact on certain components of the environment, but also

¹ See at least the recent historiographical synthesis by Vandersommers, Aiello and Nance, «Animal History».

that they offered, at least in some cases, only limited benefits in terms of social inclusion. Indeed, the very concept of sustainability embraced by these communities was consistent with the social hierarchies that governed access to environmental resources.

To demonstrate the dark side of medieval sustainability, I will rely mainly on sources produced by the communities themselves —particularly statutes and council resolutions— which are well suited to revealing the forms of management adopted by those same communities². Historians have mainly regarded statutes as a privileged source for understanding the construction of systems for protecting environmental resources³. It is enough to recall the penalties —frequently mentioned in the statutes— imposed on those who set fire to the woods, for example in Ostana, in the Western Alps, in the Val di Scalve, in the Orobic Alps, and in Darfo, in the Camonica Valley⁴. For this reason as well, statutes have been valued as sources for investigating forms of medieval sustainability⁵. While this approach is certainly valid, I would like to show here how the statutes also reveal certain contradictions in establishing these forms of sustainability: on the one hand, by favouring certain segments of society; on the other, by promoting animal exploitation to the detriment of ecological balance.

1 COMMONS AND SUSTAINABILITY

The first point I would like to focus on concerns commons. Commons fully responded to the need to ensure the long-term management of certain environmental resources by establishing rules for their use. This effort has a lasting impact on the European landscape: in various parts of the continent, commons have survived to the present day as environmental assets of high ecological value, particularly in less urbanized areas. Thus, they represent a fundamental cultural heritage with historical roots⁶. In the late Middle Ages, the regulation of commons therefore produced particularly strict rules for the use of Alpine forests and pastures, which undoubtedly contributed to the preservation of these resources. For example, the statutes of Biella and Pinerolo (thirteenth-beginning fourteenth century), in Piedmont, prohibited deforestation practices in the communal forests, which must still have been common at least until the mid-fourteenth century⁷. In even greater detail, the statutes of Bormio (fifteenth century) established the office of the *advocati nemorum* (literally, «forest advocates»), in charge of the safeguarding

² In general, on the environmental policies of Alpine communities as reflected in the statutes, see, for the Western Alps, the recent Basso, «Le comunità e l'ambiente».

³ On the problems related to this kind of source, which is strongly ideal, see at least, for the Italian Alps, Chiappa Mauri, «Statuti rurali e autonomie locali in Lombardia»; Della Misericordia, *Figure di comunità*, chapter 1; Varanini, *Studi di storia trentina*, 623-33.

⁴ Bertorello and Bernardi, «Gli statuti di Ostana», 125; *Statuti ordini et leggi municipali di tutta la Val di Scalve*, 80, § 218-9; Vaglia, *Statuti rurali di Anfo, Darfo e Darzo*, 117.

⁵ I am referring to Annette Kehnel's brilliant book: Kehnel, *The Green Ages*.

⁶ With regard to the debate on the commons, including their dimension as cultural heritage, see at least, within a broad scholarly discussion, the studies by De Moor, *The Dilemma of the Commoners*.

⁷ Segato, *Gli statuti di Pinerolo*, 37-8, 43-4, 97; Gabotto, *Gli statuti di Biella*, 374-9.

and conservation of the communal woods⁸. In order to ensure the sustainability of the woodland, the trees to be felled were mostly distributed across several forests and had to be marked one by one by these officers. In this way, the careful management of forested areas ensured that the population's need for timber did not cause irreversible damage to the woodland. In many mountainous areas, such regulations helped to preserve the agro-forestry heritage. The situation in Bormio is a common one: the statutes of many late-medieval Alpine communities established bans on the use of forests and alpine pastures, restricting their exploitation quite strictly to the inhabitants of the territory⁹.

The protection of the forest, however, was also subordinated to the economic priorities of the communities. Especially during the first half of the fourteenth century, when demographic pressure was still high, even common woodlands were transformed to meet the needs of the population, for example, by increasing the area devoted to chestnut trees¹⁰. At the same time, statutory legislation shows particular concern for chestnut trees, imposing rather severe penalties on those who damaged them, as is especially evident in the statutes of the Piedmontese Alps and Prealps¹¹. From an environmental point of view, this aspect can be interpreted in two ways. Replacing beech and oak trees with chestnuts increased overall biodiversity and also introduced a pollinating species for bees¹². However, it also had a significant impact on the original forest. Moreover, the statutes themselves prohibited herds of pigs from entering the woods during the chestnut harvest season¹³. Even from this example, one can observe an initial form of exclusion of animals from the plant landscape protected by the statutes.

Medieval communities were well organized and socially stratified. Their management of the commons therefore transformed the environment and reflected their social hierarchies. Another example may be found in the case of Ormea, in the Ligurian Alps. The thirteenth-century statutes specifically regulated the use of each tree species, establishing a functional and value-based hierarchy of trees. More than one in ten regulations was dedicated to the forest, making it the most controlled and protected asset in the area. Penalties for felling fir and cultivated trees were five times higher than those for

⁸ Credaro, «Lo statuto dei boschi della contea di Bormio», 120-1.

⁹ By way of example only, one may mention the statutes of Limone Piemonte (Genta, *Statuti e Bandi di Limone Piemonte*, 48-9) and Teglio (Zoia, *Teglio terra dell'arcivescovo*, 97). In general, see Della Misericordia, *I confini dell'economia*.

¹⁰ For example, in Mondovì, on which see Rao, *Comunia*, 181.

¹¹ See, for example, the statutes of Pamparato: Barelli, *Statuti di Pamparato*, 71, § 110, which punish anyone who cuts in the communal woods *nucis, maylum, pirrum, castaneas, quercuos seu alias arbores portantes fructum*. For the Saluzzo area, again by way of example, see *Gli statuti di Riffredo e Gambasca*, 71. For the Valsesia, see Mor, *Carte valesiane*, 225 (statutes of Crevola, 1346).

¹² By way of example, one may cite a lease contract that required the delivery of wax, thus implying the presence of beekeeping: the delivery concerned the lease of land with meadows and chestnut trees in Stabello, in the Val Brembana (Biblioteca Civica Angelo Mai di Bergamo, Collezione di Pergamene, n. 0006, 12 March 1304). On the central role of the chestnut in the economy of medieval Italy, there is a vast bibliography: see at least Comba, «Châtagneraie»; Cherubini, «La civiltà del castagno». For the Early Middle Ages, see Squatriti, *Landscape and Change*.

¹³ Barelli, *Statuti di Pamparato*, 78, § 143, 80, § 152, 91-4, § 181; Gullino, *Gli statuti di Dronero*, 148, § 241; Motta, *Codex Demontis*, § 91.

oaks. Conifers, oaks, apple trees, cherry trees, birches, and chestnuts all received special protection due to their usefulness. Fir trees, in particular, were used for the construction of masts for Genoese ships, and their felling was permitted only to certain professional woodsmen who paid a fee to the community: the commercial value of each fir was codified in the statutes based on its length. Apart from that, the local inhabitants were allowed to use the wood only to build their houses.

In the lower areas, Ormea's statutes required chestnut trees to be planted (eight for each sestarium of land). The foliage of oaks and walnuts was used as winter fodder for livestock, unlike birch leaves, which were forbidden for this purpose since birches were primarily used for wickerwork. The pruning of beech branches (*scalvatura*) was also strictly controlled. Specifically, cutting trees cultivated near homes for protection was prohibited. Producing wooden objects in the forest, an activity likely involving various farmers during the winter, was allowed only after paying the *boscagium*. Each forest was individually surveyed and protected, with severe penalties for those who cut wood indiscriminately. Repeatedly issued regulations also suggest that deforestation and the conversion of communal forests to farmland were widespread at the time, as they explicitly prohibited such actions. The local governor (*podestà*) was even granted special powers to investigate forest violations.

In short, despite the restrictions imposed by the statutes, the forests were under attack, and it is significant that in 1350 (two generations after the statutes were enacted) the community issued a new rule prohibiting the felling of fir trees in certain forests for ten years, likely to allow regeneration, with substantial penalties—30 times higher than for cutting down oak trees¹⁴. These regulations, reflecting sustainability practices, viewed the environment as a set of heavily human-modified and intensively exploited resources.

But that's not all. The strict regulation—or rather, hyper-regulation—of pastures and woodland in late medieval Italy was largely designed for the benefit of those who profited from the commons: the local inhabitants, and especially those with enough resources to pay taxes or own property. It was primarily this group that demanded rules to protect exclusive access to the commons, gradually marginalizing the free grazing and wood gathering activities of the poorer population. Late medieval regulations could exclude immigrants and those who paid taxes. I am not suggesting that the sustainability of the commons in late medieval Alps was for the wealthy, but it's clear that this system of rules and sustainable practices had a social background: it was designed with a social hierarchy in mind, which varied from place to place but was consistently driven by social competition. Let us consider the cases of Garessio, Gambaasca, Rifreddo, and Demon-te—localities in the south-western Piedmont Alps: the commune's statutes established a complex system to prevent forest depletion. Wood-cutting operations were strictly supervised by communal officers. This was certainly a «sustainable» system. However, the forests were allocated on the basis of citizens' declarations in the tax register, the so-called

¹⁴ Barelli, Durando and Gabotto, *Statuti di Garessio, Ormea, Montiglio e Camino*, 155, § 42-3, 162-3, § 78-80, 165, § 90, 93, 171, § 127-34, 176, § 153, 179, § 167, 180, § 173-4, 182, § 181, 189, § 211, 192, § 225, 227, 201-2, § 250, 204-5, § 255, 209, § 270, 210, § 274, 213, § 285. On the use of fir trees as masts, see Comba, «Momenti di vita economica», 206-7; Ciliot, «Gli abeti di Garessio».

estimo. In this way, sustainable forest management was achieved by limiting access to those who paid direct taxes¹⁵.

Let's move on to another Alpine community: Ardesio, near Bergamo. The late medieval statutes of this locality established a system of sustainable management of alpine pastures and fir forests, with limited access for livestock to the pastures and strict control over the felling of firs. What is unique about these regulations, however, is that access to coniferous forests and alpine pastures—the main local assets—is managed indirectly through contracts. The whole system was essentially privatized and «sustainability» was ensured by requiring those accessing the pastures and forests to pay fees in addition to following the strict regulations of the statutes. For example, the statutes stipulated that only those who paid a fee could access the alpine pastures with their animals for more than three nights¹⁶. Even the amount of hay collected in the pastures had to be weighed and paid to the tax contractor¹⁷. The valuable coniferous forests (primarily red fir, white fir, and larch) were under extremely strict protection, with no one allowed to cut down, prune, or make charcoal. Each forest was demarcated with precise boundaries to prevent encroachment. Wood cutting in these forests was only granted to a limited number of contractors: the commune restricted cutting to a regulated number of trees, numbered individually by local consuls¹⁸. In practice, however, the resource was largely limited to private investors with substantial economic resources. Local inhabitants—only those who paid taxes—were allowed minimal use of these forests, limited to collecting timber for building houses, and only with the commune's authorization¹⁹.

Although Ardesio's solution was particularly radical, requiring payment even from residents of the community, similar rules can be found in many Alpine statutes, usually aimed primarily at outsiders. Even with indirect taxation, sustainable management of pastures involved a process of fiscalization of the environmental resources here as well. For example, the statutes of Darfo, in the Camonica Valley—like most statutes of the Central Alps—allowed the access of foreign animals to the pastures upon payment of a duty. They also established different payments for those who practiced summer transhumance, depending on whether they grazed cattle, goats, or sheep. In Darfo too, moreover, the statutes pay particular attention to conifers, which in the late Middle Ages increasingly became a valuable commodity requiring special care²⁰.

The fifteenth-century statutes of Onore also contain particularly strict regulations governing the use of pastoral resources. The rules stipulated, first and foremost, that most pastures were to be leased out. On the most valuable pastures, in particular, there were communal alpine huts (*casine*), which were rented to shepherds during the summer. At that point, those who had secured the lease enjoyed almost complete control over the

¹⁵ Barelli, Durando and Gabotto, *Statuti di Garessio, Ormea, Montiglio e Camino*, 30-1; Tamagnone, *Gli statuti di Rifreddo e Gambasca*, 76, § 84; Motta, *Codex Demontis*, § 143.

¹⁶ Silini *et al.*, *Statuti ed ordini del Comune di Ardesio*, 92, § 107-10.

¹⁷ *Ibidem*, 92-3, § 111.

¹⁸ *Ibidem*, 121-34.

¹⁹ *Ibidem*, 139-40.

²⁰ Vaglia, *Statuti rurali di Anfo, Darfo e Darzo*, 108-9.

resource, although their herds were not allowed to encroach upon other pastures²¹. The statutes of Onore thus outline a clearly differentiated summer geography of communal and leased spaces, with certain areas explicitly closed to collective grazing²².

In Ardesio, as in Darfo, Onore and in many other Alpine communities, the statutes of the final decades of the Middle Ages did not reduce but rather increased the regulations governing the use of woods and pastures compared to the period of greatest demographic growth. In the fifteenth century, in fact, the Alps were characterized by dense economic exchanges, which made the protection of environmental resources increasingly urgent²³. Rather, the restriction of collective forests and pastures and the establishment of a «sustainable» system of access to resources —albeit one that discriminated on the basis of wealth or origin— laid the groundwork for numerous social conflicts within communities.

2 MEDIEVAL SUSTAINABILITY AGAINST THE ANIMALS

There is another dark side to medieval sustainability, and it concerns animals. It should first be made clear that the careful management of commons, pastures, and woodlands was not designed by medieval societies with animal welfare in mind. We have numerous examples that show that as the rules for access of the commons became stricter, the presence of animals was also strictly regulated and differentiated according to sex and species: there were pastures only for sheep and pastures only for cows²⁴. There were pastures where male animals were not allowed. Private and communal pastures are increasingly fragmented, often fenced in, restricting the free movement of both domestic and wild animals²⁵. The penalties set out in the statutes also established a precise animal hierarchy, which seems to reflect the internal social divisions of the societies of the time. Different fines were imposed depending on the animal species: for example, in Vertova, in the Orobic Prealps, according to the 1256 statutes, the fines for animals entering the commons were particularly severe for horses, moderate for cattle and donkeys, and

²¹ Silini, Previtali, *Statutum de l'Honore*, 47, § 11 (*prata grassa et amgregrassa sint in bando a kallendis aprilis usque ad festum Sancti Michaelis*), 70-1, § 74-6 (*ordinaverunt incantandi Montem Ramelli; incantatores dicti Montis Ramelli; quod consules dicti communis teneantur designare casinam si volunt pascolare in infrascriptis terminis*), 76-7, § 87-9 (*qui pasculaverint dictum montem Ramelli teneantur stare de nocte cum bestiis super dictum monte et alunge a Cornibus; quis habet medium suprascriptum montem possint pascolare vel segare sicut eis placuerit; et si volunt pascolare quod debeant petere consules quod designant casinam; intelligatur terminis stare alunge Cornibus incipiendo in festum Sancti Georgii ad dies octo septembris*).

²² For instance, see Silini and Previtali, *Statutum de l'Honore*, 74-5, § 85 (*ordinaverunt quod non sit aliqua persona cuiusque maniere stare possint cum bestiaminibus aliquibus de nocte prope Poram*).

²³ On the golden age of the medieval Alps between the fourteenth and fifteenth centuries, see at least Bergier, *Le cycle médiéval*. On the «forêt marchande»: Fabre, *Commerce et marchandisation du bois à Toulouse*; Braunstein, «De la montagne à Venise».

²⁴ For example, Barelli, Durando and Gabotto, *Statuti di Garesio, Ormea, Montiglio e Camino*, 176, § 154.

²⁵ For Bormio, see Rao, «Economic Sustainability».

modest for goats and pigs²⁶. Similar penalties, with only a slightly different animal hierarchy, are found at the end of the Middle Ages in Premia, in the Antigorio Valley (Piedmont): equines —horses but also donkeys— incurred the heaviest fines, followed by cattle and then *bestie minute* (small livestock, for sheep and goats)²⁷. These regulations, obviously aimed at more efficient livestock management, were certainly not intended to increase biodiversity. Moreover, we need only to look at what happened at the same time to wild species, which were significantly reduced, especially large carnivores: wolves, lynxes, and bears were severely culled and, in some cases, hunted to extinction. For example, the Alpine communities of Bormio, Ardesio, Bagolino, and Ormea all ordered the hunting of wolves and bears²⁸. Those of the Val di Scalve in the sixteenth century even offered rewards to anyone who killed lynxes²⁹. The extermination of large carnivores is just another aspect of the focus on the protection of high-value environmental resources that results from the rules governing the use of forests and pastures, and it is, in a sense, perfectly congruent.

But even other wild species almost disappeared. In Bagolino, in the Valle Sabbia, the statutes provided rewards for those who killed moles, which could cause damage to the owners of meadows. The same statutes also sought to protect the hunting rights of those who set traps in the woods from possible thefts³⁰. Also in the case of hunting wild species, the rules of medieval sustainability were based on a social hierarchy. Take the case of the Alpine partridge, now endangered due to climate change. In the late Middle Ages, it became a fashionable delicacy on aristocratic tables, probably because of its rarity. For this reason, despite the cold climate phase that should have allowed the population to increase, its range shrank nearly to the point of disappearance. In Bormio, the hunting of partridges with nets was forbidden, as it risked endangering the presence of the species, whereas hunting with birds of prey was tolerated, thus *de facto* favoring aristocratic hunting activities³¹.

It would be wrong to think that medieval societies had an ecological understanding in the modern sense. Nor would it make sense to expect them to adhere to the Five Freedoms for Animals, formulated by Roger Brambell in 1965 (1. Freedom from Hunger and Thirst; 2. Freedom from Discomfort; 3. Freedom from Pain, Injury, or Disease; 4. Freedom to Express Normal Behavior; 5. Freedom from Fear and Distress). However, the strict «sustainable» management rules for pastures and woods set out in the statutes ultimately compromised animal welfare. It is perhaps also telling that from the late fourteenth century onward —at least in late medieval Lombardy— mentions of epizootics became more frequent. In Ardesio, for example, statutes established numerous rules regarding sick animals, including the provision to kill guard dogs in case of infection.

²⁶ Rosa, *Statuti di Vertova del 1235, 1248, 1256*, 27.

²⁷ Bustico, *Gli statuti di Premia in Valle antigorio*, 10, § 28.

²⁸ Silini et al., *Statuti ed ordini del Comune di Ardesio*, 151, § 294; Barelli, Durando and Gabotto, *Statuti di Garesio, Ormea, Montiglio e Camino*, 196, § 236; Archivio storico del Comune di Bormio, *Statuta seu leges municipales communitatis Burmii*, § 216-7; Fusi, *Gli statuti di Bagolino del 1473*, 139.

²⁹ *Statuti ordinati et leggi municipali di tutta la Val di Scalve*, 80, § 220.

³⁰ Fusi, *Gli statuti di Bagolino del 1473*, 127, 134.

³¹ Archivio storico del Comune di Bormio, *Statuta seu leges municipales communitatis Burmii*, § 214.

Similarly, in Ormea, in September 1347, the communal council amended the statutes to require shepherds to remove dead animals, possibly indicating the presence of disease³².

3 NO COUNTRY FOR GOATS: THE EXAMPLE OF ARNAD AND THE UNSUSTAINABLE COMPETITION BETWEEN PLANTS AND ANIMALS

In 1346, the community of a small Alpine village, Arnad (Aosta Valley), gathered in the cemetery of the local church of Saint Martin to elect twelve representatives entrusted with «making decisions about the necessary improvements». Reading what these «necessary improvements» were, one is rather surprised. As in many similar texts found across the Alpine arc, one encounters provisions that strictly regulate the use of environmental resources, which at the time were under growing pressure from demographic expansion and the development of economic activities. It is therefore not surprising that several rules carefully regulate the use of forests —establishing their boundaries, specifying the times of year and the methods by which they could be exploited for firewood and other purposes. Nor is it unusual that other measures are devoted to the careful management of pastures and of the animals allowed to graze there, or that fines are prescribed for the damage caused by livestock roaming freely, especially in vineyards.

What is truly exceptional, however, are the first measures enacted by the twelve men, which concern the elimination from the village territory of a particular domestic species: goats. To achieve this goal, the twelve were remarkably thorough. They granted the inhabitants only a few months to get rid of their goats, so that thereafter, for at least twenty-five years, no one —neither rich nor poor— could keep such animals. The exceptions were almost nonexistent: merchants passing through were allowed to keep a goat for a single night, and butchers could do so only for the brief time necessary to slaughter goats they intended to sell. Only the sick ones were exceptionally permitted to keep a goat for one month, so that they might cure themselves by drinking its milk. But even if they had not recovered after thirty days, no further extension was allowed.

In short, the people of Arnad sought to eradicate goats altogether. But why? Undoubtedly, goats were regarded as an environmental menace, and it is likely that their proliferation had been encouraged not only by the choices of their owners but also by the fact that, as we have seen, their natural predators—the wolves—had by then been largely exterminated.

In Arnad, goats —widespread especially among poorer families— were therefore seen as the main cause of damage to woods and pastures, which were already under pressure from late-medieval practices of intensive woodcutting and trade, as well as from the growing expansion of cattle breeding. After all, we have seen that those same woods and pastures had been placed under special protection by the twelve men. It is particularly telling that their forest regulations provided differentiated protection according to species —birch, oak, and chestnut— and explicitly referred to «cultivated» or «nurtured» woods. In other words, at the very moment when botanical hierarchies were being

³² Silini *et al.*, *Statuti ed ordini del Comune di Ardesio*, 148–49; *Libro degli statuti di Ormea*, 201, § 246.

defined according to the economic value of trees —forests turned into cultivated and closely monitored spaces— it became necessary to intervene in an equally exclusive and discriminatory way against the animals that could enter those spaces³³.

The example of Arnad —located in the heart of the Alps— clearly illustrates how late medieval people conceived of their relationship with the animal world. For medieval men and women, the presence of animals within the ecosystem was understood simply as a resource —something that could be selected, controlled, moved, or eliminated. But there is more: this example also shows that, by the mid-fourteenth century, environmental balances were breaking down to such an extent that forests and pastures required special protection. In some respects, we might even say that the measures enacted by the twelve men were intended to ensure the sustainability of forests and pastures by protecting them from the damage caused by the presence of goats. At this point, however, we must better understand the social implications of this measure. From the lists of goods and livestock in Alpine populations of the period, we know that goats were widespread among all social groups: the rich, but above all the poor, owned at least one goat, whose meager milk production could help feed the family. It is indeed possible that the widespread presence of goats caused some damage to forests and pastures —but mainly insofar as these had by then become, in late-medieval Alpine society, one of the pillars of a true *mountain capitalism*. Forests had to be regularly cut both to supply firewood for the winter and to sustain the large-scale commercialization of timber. Pastures, moreover, were under growing pressure due to the increase in cattle herds throughout much of the Alpine arc. The decision of the twelve men of Arnad thus reveals a precise economic, social, and ecological vision of the forest: one that expresses the will to protect the economic interests of the local ruling classes engaged in the intensive exploitation of forests and pastures, while penalizing the poorest segments of the population and excluding from the environment those animals deemed incompatible with such a model of resource use.

In Arnad, then, we see the emergence of a long-standing opposition between humans and animals —an antagonism that would persist for centuries across the Alps— masked behind the façade of sustainability. Faced with Alpine forests overexploited to meet the growing demands for firewood and charcoal production, goats would be repeatedly blamed. Yet, as the Austrian government delegate in Lombardy, Antonio Lugani, lucidly observed in his 1842 report on the state of the forests of Valtellina, the damage caused by goats was negligible compared to the massive logging and to the very laws that permitted —and almost encouraged— the timber trade³⁴.

4 CONCLUSIONS: FIRST AND FOREMOST, PLANT-BASED SUSTAINABILITY

To address these apparent contradictions in the «sustainable» management of the medieval environment, we may need to reflect on the very concept of sustainability in

³³ The document is published in Perrin, *Franchises, statuts et ordonnances*, 65-72, no. 6.

³⁴ Archivio di Stato di Milano, Atti di governo, Acque p.m., busta 49. I owe the kind reference to Agnese Visconti.

medieval societies. Undoubtedly, medieval societies —perhaps especially early medieval ones— had extensive knowledge of many ecological relationships. However, rather than being driven by an ecological spirit, their approach to the environment was dominated by *utilitas* (utility). In other words, they intervened in the environment primarily to exploit economic resources. In fact, it could be said that late medieval societies transformed the environment into a set of economic resources that were strictly protected, but also deeply hierarchized on the basis of social use and animal species. The overall impact on biodiversity is ambivalent: for example, while the development of alpine pastures or transhumance could be seen as practices that increased biodiversity, the elimination of wild species had the opposite effect.

Finally, in order to understand medieval sustainability practices, I think it would be useful to ask what sustainability means to historians —and to medieval historians in particular. After all, medievalists were concerned with these issues long before the concept of sustainability was formulated in the 1970s. But the notion of sustainability used by medievalists has been linked to the durability of economic profit. From Postan's research on soil fertility to recent neo-institutional studies on the commons, they have thus focused more on economic and social sustainability than on environmental sustainability³⁵. Today, however, historians must engage with a concept that has evolved over time, forcing us to conceive of sustainability in the plural³⁶.

5 WORKS CITED

- Barbier, Edward B. «The Concept of Sustainable Economic Development». *Environmental Conservation* 86 (1987): 101-10. <https://doi.org/10.1017/S0376892900011449>
- Barelli, Giuseppe, ed. *Statuti di Pamparato*. Società Storica Subalpina 1965.
- Barelli, Giuseppe, Edoardo Durando and Erwig Gabotto, eds. *Statuti di Garessio, Ormea, Montiglio e Camino*. Società Storica Subalpina, 1907.
- Basso, Enrico. «Le comunità e l'ambiente: attività agropastorali in area ligure-piemontese nello specchio della normativa statutaria di età medievale». In *Gli statuti del Lazio meridionale. Confronti peninsulari ed europei*, edited by Gioacchino Giammaria and Sandro Notari. Istituto di Storia e di Arte del Lazio Meridionale, 2023.
- Bergier, François. *Le cycle médiéval: des sociétés féodales aux états territoriaux*. In *Histoire et civilisation des Alpes*, directed by Paul Guichonnet. Privat-Payot, 1980.
- Bertorello, Delia and Livia Bernardi, eds. «Gli statuti di Ostanta». *Bollettino della Società per gli Studi Storici Archeologici ed Artistici della Provincia di Cuneo* 121 (1999): 99-129.
- Braunstein, Philippe. «De la montagne à Venise: les réseaux du bois au xv^e siècle». *Melanges de l'École Française de Rome. Moyen Age-Temps Modernes* 100 (1988): 761-99. <https://doi.org/10.3406/mefr.1988.2988>

³⁵ Postan, «The Fifteenth Century» and «Some Economic Consequences». See Hoffmann, *An Environmental History of Medieval Europe*, 158-68. The concept of «sustainability» began to be explicitly used in historical studies from the 1990s onward, particularly in research on soil fertility and commons: Pretty, «Sustainable Agriculture»; De Moor, Shaw-Taylor and Warde, *The Management of Common Land*.

³⁶ On the distinction between environmental, economic, and social sustainability, see Barbier, «The Concept».

- Bustico, Guido, ed. *Gli statuti di Premia in Valle Antigorio*. La Cartografica, 1913.
- Cherubini, Giovanni. «La civiltà del castagno in Italia alla fine del medioevo». *Archeologia medievale* 8 (1981): 247-80.
- Ciliot, Franco. «Gli abeti di Garesio e dell'alta valle Tanaro nel medioevo: una materia prima per le costruzioni navali». *Bollettino della Società per gli Studi Storici, Archeologici ed Artistici della Provincia di Cuneo* 102 (1990): 157-70.
- Comba, Rinaldo. «Châtagneraie et paysage agraire dans le vallées piémontaises (XII^e-XIII^e siècles)». In *Castrum 5. Archéologie des espaces agraires méditerranéens au Moyen Âge*. École Française de Rome, 1999.
- Comba, Rinaldo. «Momenti di vita economica. I secoli XII-XIII». In *Storia di Mondovì e del Monregalese. I – Le origini e il Duecento*, edited by Rinaldo Comba, Giuseppe Griseri and Giorgio M. Lombardi. Società per gli Studi Storici, Archeologici ed Artistici della Provincia di Cuneo, 1998.
- Credaro, Vera. «Lo statuto dei boschi della contea di Bormio». In *Mons Braulius. Studi storici in memoria di Albino Garzetti*. Società Storica Valtellinese, 2000.
- Chiappa Mauri, Maria Luisa. «Statuti rurali e autonomie locali in Lombardia (XIII-XIV secolo)». In *Contado e città in dialogo. Comuni urbani e comunità rurali nella Lombardia medievale*, edited by Maria Luisa Chiappa Mauri. Cisalpino, 2003.
- Della Misericordia, Massimo. *Figure di comunità*. Ad Fontes, 2008.
- Della Misericordia, Massimo. «I confini dell'economia, Dividere le risorse e delimitare il possesso nella montagna lombarda del tardo medioevo». In *Nell'età di Pandolfo Malatesta. Signore a Bergamo, Brescia e Fano agli inizi del Quattrocento*, edited by Giorgio Chittolini, Elisabetta Conti and Nadia Covini. Morcelliana, 2012.
- De Moor, Tina. *The Dilemma of the Commoners. Understanding the Use of Common-Pool Resources in Long-Term Perspective*. Cambridge University Press, 2015. <https://doi.org/10.1017/CBO9781139135450>
- De Moor, Martina, Leigh Shaw-Taylor and Paul Warde, eds. *The Management of Common Land in North West Europe, c. 1500–1850*. Brepols, 2002. <https://doi.org/10.1484/M.CORN-EB.5.105947>
- Fabre Camille, *Commerce et marchandisation du bois à Toulouse à la fin du Moyen Age*. Garnier, 2021.
- Fusi, Giuliano, ed. *Gli statuti di Bagolino del 1473. Vivere a Bagolino e sul Pian d'Oneda 500 anni fa*. Comune di Bagolino, 2009.
- Gabotto, Ferdinando, ed. «Gli statuti di Biella secondo il codice originale del 1245». In *Documenti biellesi*, edited by Pietro Sella, Francesco Guasco di Bisio and Ferdinando Gabotto. Società Storica Subalpina, 1908.
- Genta, Enrico, ed. *Statuti e Bandi di Limone Piemonte*. Società per gli Studi Storici, Archeologici ed Artistici della Provincia di Cuneo, 1992.
- Gullino, Giuseppe, ed. *Gli statuti di Dronero (1478)*. Società per gli Studi Storici, Archeologici ed Artistici della Provincia di Cuneo, 2005.
- Hoffmann, Richard C. *An Environmental History of Medieval Europe*. Cambridge University Press, 2014. <https://doi.org/10.1017/CBO9781139050937>
- Kehnel, Annette. *The Green Ages. Medieval Innovations in Sustainability*. Profile Books, 2024. <https://doi.org/10.2307/jj.17331618>
- Motta, Paolo. *Codex Demontis. 1305-1505*. Premiata scuola tipografica Michelerio, 1908.
- Mor, Guido, ed. *Carte valesiane fino al secolo XV. Conservate negli Archivi Pubblici*. Società Storica Subalpina, 1933.

- Perrin Joseph-César, ed. *Franchises, statuts et ordonnances des seigneurs de Vallaise et d'Arnad (XIV^e-XV^e siècle)*. Itla, 1968.
- Postan, Michael M. «Some Economic Consequences of a Declining Population». *Economic History Review*, 2nd Series 2 (1950): 221–47. <https://doi.org/10.2307/2590120>
- Postan, Michael M. «The Fifteenth Century». *Economic History Review* 9 (1939): 160–7. <https://doi.org/10.1111/j.1468-0289.1939.tb00002.x>
- Pretty, Jules N. «Sustainable Agriculture in the Middle Ages: the English Manor». *The Agricultural History Review* 38 (1990): 1–19.
- Rao, Riccardo. «Economic Sustainability vs. Environmental Sustainability: The Commodification of Environmental Resources in the Central Alps in the Late Middle Ages and the Animal Crisis (Upper Valtellina, 1300–1500)». *Journal of Interdisciplinary History* 56, num. 3 (2026), forthcoming.
- Rosa, Gabriele, ed. *Statuti di Vertova del 1235, 1248, 1256*. Tip. Lit. F. Fiori e C, 1869.
- Segato, Davide, ed. *Gli statuti di Pinerolo*. In *Leges municipales*, IV. Stamperia Valdonesa, 1955.
- Silini, Giovanni and Antonio Previtali, eds. *Statutum de l'Honore. Sec. XV-XVI*. Presservice 80, 1997.
- Silini, Giovanni, Antonio Previtali, Guido Fornoni and Vincenzo Marchetti, eds. *Statuti ed ordini del Comune di Ardesio*. Provincia di Bergamo, 2000.
- Squatriri Paolo. *Landscape and Change in Early Medieval Italy: Chestnuts, Economy, and Culture*. Cambridge University Press, 2013. <https://doi.org/10.1017/CBO9781139540759>
- Statuti ordini et leggi municipali di tutta la Val di Scalve*. Giovanni Santini, 1781.
- Tamagnone, Anna, ed. *Gli statuti di Rifreddo e Gambasca*. Società Storica Subalpina, 1969.
- Vaglia, Ugo, ed. *Statuti rurali di Anfo, Darfo e Darzo dei secoli XV-XVI*. Geroldi, 1969.
- Vandersommers, Dan, Thomas Aiello and Nance Susan. «Animal History: A Brief Introduction to Its Past and Future». *Animal History* 1 (2024): 1–18. <https://doi.org/10.1525/ah.2024.1>
- Varanini, Gian Maria. *Studi di storia trentina*, edited by Emanuele Curzel and Stefano Malfatti. Università degli studi di Trento, 2020.
- Zoia, Diego, ed. *Teglio terra dell'arcivescovo. Statuti ed ordini del comune e della castellanza di Teglio*. Tipografia Poletti, 1996.