

LAWYERS AND SAWYERS: VENETIAN FOREST LAW AND THE CONQUEST
OF *TERRAFERMA* (1350–1476)

Michael S. Beaudoin

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DEFENSE COMMITTEE AND FINAL READING APPROVALS

of the thesis submitted by

Michael S. Beaudoin

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of *Terraferma* (1350–1476)

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The following individuals read and discussed the thesis submitted by student Michael S. Beaudoin, and they evaluated his presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

Lisa M. Brady, Ph.D. Chair, Supervisory Committee

David M. Walker, Ph.D. Member, Supervisory Committee

Leslie Alm, Ph.D. Member, Supervisory Committee

The final reading approval of the thesis was granted by Lisa M. Brady, Ph.D., Chair of the Supervisory Committee. The thesis was approved for the Graduate College by John R. Pelton, Ph.D., Dean of the Graduate College.

DEDICATION

Pella mia colomba

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ABSTRACT

Throughout the fourteenth and fifteenth centuries, Venice played a direct role in shaping the future of Northeastern Italy. The standing scholarship views Venetian involvement on the mainland as either an abandonment of the city's maritime tradition or as a buffer zone against rival powers, like Milan. Venice's western mainland empire, *Terraferma*, provided Venice with many commercial products that the Eastern Mediterranean did not. One mainland product, timber, was a central focus of Venetian expansion into *Terraferma* and has thus far been neglected by historians. This thesis argues that the Venetian Republic manipulated mainland legal traditions in order to obtain direct control over the forest resources of *Terraferma*.

The pressures placed upon Venice by timber shortages and rival powers in the fourteenth and fifteenth centuries instigated a departure from Venice's passive management of mainland cities and encouraged the city to strengthen its defenses through territorial expansion and forest conservation policies. Timber acquired from *Terraferma* was one of the vital sinews that bound the Venetian military and mercantile machine together. In order to directly control the mainland's timber resources, the Venetians inserted their usufructory claims into the legal traditions of mainland communities.

Archival sources and primary histories illustrate that Venetian forest policy evolved from cordial requests for timber into legal statutes that controlled local communities' access to timber stands. The fall of Constantinople in 1453 and Negroponte

in 1471 opened a window of opportunity, into which the Venetians inserted the mainland legal concept of “right to reserve,” *diritto di riserva*, in order to expand and formalize their legal claims to *Terraferma* common forestland. The promulgation of six forest laws in 1476 punctuated the development of Venetian forest law in the fifteenth century. The laws governed the usage of forest resources and placed the Venetians in direct control of all of *Terraferma*’s community forests.

The Venetians answered the question “Who owns the forest?” through the development of forest laws that placed timber ownership directly with a centralized government. The question easily expands into “Who owns the land, and all of its natural resources?” American natural resource managers and NGOs continue to develop the American answer to the question. The Venetian forest narrative provides us with one possible answer to the question that elicits further conversations. Understanding Venice’s domination of mainland cities for ship-timber may also elicit further insight into how and why modern states dominate their neighbors for natural resources.

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INTRODUCTION

“Venice invincible, the Adriatic wonder, admired of all the world for power and glory, whom no ambitious force could yet bring under, is here presented...”

~ Maurice Kiffen (1599)¹

Four warhorses of gilded copper arrayed in the quadriga stand as proud sentinels of St. Mark’s Square. The horses symbolize much more than a piece of inspiring art for visitors within St. Mark’s Basilica. Their story is the story of Venice. St. Mark’s horses, like Venice, began their journey as a Byzantine possession. The saffron chargers witnessed the apex and collapse of the Byzantine Empire. The Venetians captured the quadriga from Constantinople’s Hippodrome when crusaders sacked the city in 1204 C.E. The horses most likely originated on the Island of Chios and symbolized Byzantine control over the Aegean Islands and the larger Hellenic world.

As the Classical embodiment of victory, the horses are not only a symbol of Venice’s liberation from the Byzantines, but also symbolize Venice’s replacement of Constantinople as the dominant force in the Eastern Mediterranean. Warfare and commerce produced St. Mark’s horses and the Venetian Empire. Venice dominated the Adriatic and the Eastern Mediterranean in the fourteenth and early fifteenth centuries by controlling the waters of the Adriatic and the Eastern Mediterranean. Secure mainland supplies of timber contributed to the maintenance of Venetian maritime power.

¹ Gasparo Contarini, *The Common-Wealth and Gouernment of Venice*, trans. Lewes Lukanor (London: Imprinted by John Windet for Edmund Mattes, 1599), 4.

Safeguarding stands of timber required Venice to establish a land-based empire that dominated mainland polities. Yet, the prevailing historical scholarship grants the basis of Renaissance Venetian power to its eastern maritime empire.²

Venice's Aegean and Adriatic possessions were an essential part of the Republic's empire, but this limited focus on Venice's vast web of eastern maritime possessions leaves out a part of the Venetian narrative. Venetian scholarship highlights Venice's naval empire and neglects its role in shaping Northern Italian history.

Terraferma, Venice's western mainland empire, provided Venice with many commercial products that the Eastern Mediterranean did not. One of the more important *Terraferma* products was ship-grade timber for the Arsenale. Most of the existing historical scholarship on Venetian *Terraferma* views Venice's expansion onto the mainland as an extension of the Republic's political and commercial power, yet it was also an extension of Venetian legal tradition.

The Venetian annexation of mainland polities did not grant Venice direct control of *Terraferma* timber supplies. The incorporation of a timber polity into *Terraferma* reaffirmed the Arsenale's usufructory rights to a given city's timber and laid the foundation for future legal claims. The Venetians began to move towards directly controlling the timber resources of *Terraferma* in the early fifteenth century by establishing a legal precedent for the Arsenale's claim to timber. Venice ultimately gained legal control of *Terraferma* common forests by building upon this legal precedent and by using the advance of the Ottoman Empire to invoke the "right to reserve" (*Dirrito*

² Roger Crowley, *City of Fortune: How Venice Ruled the Seas* (New York: Random House, 2011); F. C. Lane, *Venice: A Maritime Republic* (Baltimore: Johns Hopkins University Press, 1973).

di riserva) forest stands for the defense of *Terraferma*'s liberty. Venetian acquisitions of mainland common timberlands came at the expense of local inhabitants, but resulted in positive forest conservation measures.

Several Venetian specialists successfully illustrated how the Venetians interacted with their natural environment.³ Historians tend to focus on Venice's unquestionable connection to water. Water is a contradictory element for Venice and historians acknowledge that the Venetian natural environment is defined by hydrological dichotomies.⁴ The lagoons simultaneously provided the Venetians with a constant sense of anxiety and an overwhelming feeling of security. The *acqua alta*, or "high water," periodically flooded the city, whereas the lagoons also provided the city with its strongest defense against land-based assaults.

However, submerged under Venice and within the historical scholarship is a natural resource that also molded the Venetian narrative. Timber in the form of wooden stilts provides the foundation for Venice. It was one of several natural resources that supported the Venetian Empire. Wood was quite simply the undisputed monarch of natural resources in the preindustrial age.⁵ Timber acquired from *Terraferma* was one of the vital sinews that bound the Venetian military and mercantile machine together. Yet, few scholars acknowledge Venice's dependency on wood products and even fewer

³ F. C. Lane, *Venetian Ships and Shipbuilders of the Renaissance* (Baltimore: Johns Hopkins University Press, 1934); Elisabeth Crouzet-Pavan, *Venise Triomphante: Les Horizons d'un mythe* (Seysssel: Les éditions Champ Vallon, 1997); Karl Appuhn, *A Forest on the Sea: Environmental Expertise in Renaissance Venice* (Baltimore: Johns Hopkins University Press, 2009).

⁴ The most prominent studies on the Venetian perception of water can be found in the collection edited by C. A. Fletcher and T. Spencer, *Flooding and Environmental Challenges for Venice and its Lagoon: State of Knowledge* (Cambridge: Cambridge University Press, 2005).

⁵ Karl Appuhn, "Environmental Politics and State Power in early modern Venice, 1300–1650" (PhD dissertation, Northwestern University, 1999).

examine the role ship-timber played in the development and maintenance of the Venetian empire.

Terraferma refers to the Venetian mainland territories between the Adda River in the west and the Julian March. It is the term historians employ to refer to Venice's mainland Italian possessions. *Terraferma* is simply an abbreviation of the Venetian title *Domini di Terraferma*, "the mainland dominions." Venice's Italian mainland possessions centered north of the Po River formed the bulk of *Terraferma*. The lucrative eastern trade routes certainly filled Venetian coffers, yet timber served as the vector of Venetian commerce. Establishing that Venice acquired most of its ship-timber from *Terraferma* provides some insight into the Venetian mind.⁶ An exploration of Venice's motivations for establishing *Terraferma*, coupled with studying how Venice dominated periphery polities for ship-timber, reveals a corpus of forest law and a form of governmental control of a natural resource that were unparalleled throughout Renaissance Italy.

Venice's forest control is unparalleled among the Italian maritime republics because no other Italian power succeeded at manipulating forest law and designating forest reserves as successfully as the Venetians. The four maritime republics of Italy, Venice, Genoa, Pisa, and Amalfi depended upon timber for securing and defending commercial ties throughout the Mediterranean. The Genoese Republic did not control its string of forests along the Ligurian coast and relied upon private shipbuilders for their naval needs.⁷ Amalfi controlled portions of the timber market, but the relative aridity of

⁶ The existing Venetian forest history scholarship clearly establishes that it was highly likely that Venetian timber supplies came from *Terraferma* and Istria: cf. Appuhn, *A Forest on the Sea*; Lane, *Venetian Ships*; Russell Mieggs, *Trees and Timber in the Ancient Mediterranean World* (New York: Oxford University Press, 1982); and John Perlin, *A Forest Journey* (New York: W. W. Norton, 1989).

⁷ Appuhn, *A Forest on the Sea*, 31–32.

Campania limited local timber supplies.⁸ Even during Pisa's era of naval dominance in the eleventh century, the Pisans did not designate timber reserves to conquered regions. Pisa concerned itself with the export of timber to wealthy Islamic ports on the Northern African coast in the Levant.⁹

Focusing on Venetian forest policy in *Terraferma* is an excellent avenue for studying Italian Renaissance natural resource management for several reasons. The breadth of available primary sources is a major consideration for studying Venice. Both Pisa and Amalfi based their commercial livelihood on maritime trade and required supplies of timber for ship construction, but would be less suitable for an inquiry into timber management techniques because of the lack of primary accounts of forest laws and policies. Venetian forest history is well documented in the Venetian State Archives (*Archivio di Stato di Venezia*, henceforth referred to as ASV), mainland communal archives, and in numerous primary sources.¹⁰

Secondly, *Terraferma* forest regulation is an example of preindustrial natural resource conservation that contributes to the established environmental historical scholarship. Many environmental histories are modern histories that strictly examine the exertion of economic pressures upon environmental systems. William Cronon examined how American capitalism shaped Colonial New England's environment, and Carolyn

⁸ Tommaso Astarita, *Between Salt Water and Holy Water: A History of Southern Italy* (New York: W. W. Norton and Company, 2006), 62.

⁹ David Jacoby, *Commercial Exchange across the Mediterranean: Byzantium, the Crusader Levant, Egypt, and Italy* (Burlington, VT: Ashgate Publishing, 2005), 106.

¹⁰ The best records of Venice's forest history can be found in: *Amministrazione Forestale Veneta 1116–1811*, Fondo IT ASVe 0615 003, *Archivio di Stato di Venezia*, Venice; and the *Esecutori delle Deliberazioni Senato del Terra*, Fondo IT ASVe 0710, *Archivio di Stato di Venezia*, Venice.

Merchant illustrated capitalism's role in the mechanization of America's environment.¹¹

As Karl Appuhn successfully argues, this capitalistic interpretation does not apply well to Renaissance Venice.¹² He argues that this capitalistic interpretation blames western rationalism for wide-spread environmental change throughout the world and in colonial enterprises. Venice provides an example of environmental change wrought by modifications to legal codes prior to the rise of western rationalism.

Alfred Crosby called for an ecological explanation for environmental change in the "Neo-Europes."¹³ Crosby asserted that the Europeans conquered the "Neo-Europes" through ecological imperialism. Crosby challenged environmental historians to contemplate how biological agents modified nature. The scientific rationale is an important aspect of environmental change, but the modification of environmental systems is a combination of ecological and cultural factors. Law is another expression of culture that directly influences nature. Venice's seizure of *Terraferma's* ship-timber was a form of legal imperialism through the enactment of legal statutes that placed restraints on forest usage by *Terraferma* polities. Such a notion makes Venice not only an intriguing case study, but also a study that contributes to more clearly established environmental narratives.

Lastly, Venice's unique geography required the Venetians to modify their natural surroundings from the foundation of the city. The Venetian Lagoon's role as the estuary

¹¹ William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Macmillan, 1983); Carolyn Merchant, *Ecological Revolutions: Nature, Gender, and Science in New England* (Chapel Hill: University of North Carolina Press, 1989).

¹² Appuhn, "Environmental Politics," 11.

¹³ Alfred Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900 2E* (New York: Cambridge University Press, 2004).

of the Sile and Brenta rivers and its position as a bay within the Adriatic posed hydrological obstacles throughout Venetian history. The Venetian Republic's survival rested solely upon the city's ability to control the hydrology of the lagoons and the Po River watershed. Venetian environmental policy was directly tied into the livelihood of the city. The Venetians often implemented timber in order to solve the dangers of living in the middle of an ever-changing, live hydrological system. Timber was one of several crucial natural resources that Venice dominated in order to sustain its insular position. The control of wheat and salt also played a prominent role in the maintenance of the Venetian Empire, but as of yet, no historian has examined how Venice manipulated legal tradition to control timber.

This new legal history of Venice's timber resources follows the accepted chronology of the Venetian Empire, but ends with Venice's legal domination of all common *Terraferma* timberland in 1476. The chronology of the Venetian empire is typically organized into three different phases. The first phase (1204-1380) is defined by Venice's expansion of influence over the Adriatic. Venice's involvement in the dismantlement of the Byzantine Empire in 1204 cemented Venice as an international power. Economic rivalry with Genoa dominated the narrative after 1204. This antagonism between Genoa and Venice resulted in the War of Chioggia in 1378. The victory over the Genoese in 1380 granted Venice control over the Adriatic and Eastern Mediterranean whilst severely handicapping the naval capabilities of their staunchest rival. The War of Chioggia served as a springboard for Venetian expansion onto the Italian mainland and Venice's eventual control of timber resources.

A long fifteenth century (1380–1509) serves as the focal point of the second phase of Venetian history. Venice departed from its passive management of the mainland by the execution of the Carraresi in 1406. This demonstrated Venice's commitment to the security of the mainland and its timber resources. Venice extended its control over *Terraferma* with the annexation of Bergamo in 1428. The Venetian expansion into *Terraferma* incited anxiety in other mainland powers. Florence, Milan, and Hungaria all came into direct conflict with Venice over its expansion onto the mainland. This anxiety culminated with the War of the League of Cambrai in 1509. Although not covered in this thesis, the third phase of Venetian imperial history began in 1509 and extended to the war of Candia and the loss of Crete to the Ottoman Empire in the 1570s.

The development of Venetian forest law centers upon Venice's conquest of *Terraferma* and the development of mainland forest law in the late fourteenth through the fifteenth century. Venetian forest policy provides scholarship with a unique periodization of Venetian *Terraferma*. This inquiry divides the narrative of Venetian *Terraferma* into two periods. I begin with how conflict with Genoa and surrounding rival states encouraged Venice to promulgate the earliest forms of timber management in the middle of the fourteenth century. The work then transitions into an overview of the Venetian conquest of *Terraferma* between 1378 and 1428. The steady growth of Venetian intervention into mainland affairs dominates the narrative. The promulgation of forest law was part of a larger pattern of increasing Venetian influence over the mainland. The execution of the Carraresi family in 1406 serves as the turning point for the first chapter and clearly marks the beginning of Venice's commitment to *Terraferma*. The annexation

of Bergamo in 1428 established the boundaries of *Terraferma* and concluded the first period of Venetian forest history.

The second section of Venetian forest history serves as the focus of the third chapter of this thesis. This section is defined by the development and implementation of Venetian forest policy between 1410 and 1476. Firm transition dates must be used with caution, yet 1410 marks the beginning of Venice's attempt to directly control *Terraferma's* ship-timber supplies. Venetian forest policy evolved from cordial requests for timber into legal statutes that controlled local communities' access to timber stands. Doge Michele Steno first requested timber from Belluno in 1410. Venetian timber policy evolved into six 1476 forest laws that directly controlled how local communities could use forest resources.

This thesis is divided into three parts. The first section examines the Venetian expansion into *Terraferma* in the late fourteenth and early fifteenth centuries. The annexation of *Terraferma* polities did not grant full authority over timber resources to the Venetians. The Roman legal tradition of the mainland required the Venetians to insert their timber interests into mainland legal codes, thus the second part of this thesis examines how Venetian forest policy and law developed to control the timber supplies of Venice's newfound mainland empire. The brief conclusion reveals how this thesis might inform future research and proposes that the Venetian forest law possesses valuable lessons for modern forest users and policymakers.

Ship-timber was a constant military necessity for Venice and its state-operated shipyard, the Arsenale. Although Arsenale-grade timber came from Istria and the

Dalmatian coast, *Terraferma* stands supplied Venice with most of its ship-timber.¹⁴

Therefore, Venice's military expansion into *Terraferma* is the appropriate starting point for examining the Republic's system of state controlled forests. The Venetian push onto the Italian mainland in the early fifteenth century was likely due, in part, to a need of steady timber supplies for the Arsenale. The requirement of a steady supply of Arsenale-grade timber may not have been the most crucial reason, and certainly was not the only driving force behind the Venetian expansion into *Terraferma*. Yet, the historical discussion on *Terraferma* has thus far excluded timber.

Unlike capitalism in New England or biological colonization in the Neo-Europes, the Venetian Republic's control of ship-timber resources illustrates how the decline of natural resources does not have to possess negative undertones. Venice provides an example of a society that noticed deforestation and attempted to implement positive conservation policies. My discussion of Venice's conquest of *Terraferma* will be followed by an inquiry into how Venice inserted its interests in timber into the *Terraferma*'s legal heritage. Venice secured stands of Arsenale-grade timber largely through enacting environmental public policy. Shortages of *Terraferma* timber throughout the fourteenth and into the early fifteenth century resulted in the opening of a policy window.¹⁵ Venetian forest policy was a progressive attempt by an Italian Republic

¹⁴ Lane, *Venetian Ships*, 224–226; cf. Appuhn, *A Forest on the Sea*, 44.

¹⁵ A policy window or window of opportunity is a phase of policy formulation. A random problem window is a type of policy window that describes the Venetian timber situation. These occur when a jarring or traumatic event causes policy-makers to focus their attention on remedying the cause of the calamity. A good definition comes from Melody Hessing, Michael Howlett, and Tracy Summerville: "random events or crises open unpredictable windows that can allow opportunities for new actors to influence the policy formulation process." Melody Hessing, Michael Howlett, and Tracy Summerville, *Canadian Natural Resource and Environmental Policy: Political Economy and Public Policy* (Vancouver: University of British Columbia Press, 2005), 172.

to conserve a natural resource for military use that resulted in the creation of Italy's first state forest reserves.

The story of St. Mark's horses closely mirrors the Venetian narrative. Venice's preference of a quadriga of horses, terrestrial animals, instead of the traditional animal that denoted sea power, hippocampi, embodied Venice's domination of not only the Eastern Mediterranean, but also the communities of *Terraferma* and the Po River Valley. It is quite fitting to mark the ultimate decline of Venetian prominence with the seizure of the quadriga by French forces in 1797. Ultimately the central purpose of this inquiry is to examine what modern scholars and policymakers can learn from the Venetian forest narrative.

CHAPTER I: “MUCH NEW GROUND CAN BE WON”:
VENETIAN HISTORIOGRAPHY

This thesis fits into two traditions of Venetian historiography. The first, and broader of the two traditions, focuses on Venetian *Terraferma*. Although more Venetian histories grant the Republic’s maritime ventures primacy, a growing number of histories strictly examine Venetian *Terraferma*. The second tradition is the legal history of the Republic. Venetian legal histories chart the origins of Venice’s legal heritage, and examine how the Republic applied this heritage within the city itself and to its dominions. The historiography for Venetian law is quite limited, thus this thesis will contribute forest law to the greater discussion of Venetian history.

The narrative of Venetian forest law and policy in fourteenth and fifteenth century *Terraferma* is also a forest history. The arguments of this thesis contribute to the field of forest history by illustrating how Venice shaped the ownership of *Terraferma* forests. Very few forest histories examine pre-industrial forests and even fewer examine how legal traditions shaped arboreal ownership. Furthermore, many forest histories illustrate how ecological processes modify forests whilst neglecting the influence of cultural systems, such as law.

Venice: The Myth and Antimyth

Historians have mused over the city of St. Mark for numerous generations. The earliest histories of Venice originated in the mediaeval period.¹⁶ Historians penned these early histories in the classical style and were commissioned by the Venetian patriciate.¹⁷ Written in Latin, very few Venetians held access to the narrative of their own culture. Although state-sponsored political histories were most common, Marino Sanuto's late fifteenth to early sixteenth century *Diarii* chronicled the daily lives of Venetians from all ranks in society. The commissioned "official" Venetian histories dominated the Venetian narrative well into the nineteenth century.¹⁸

The origin of modern Venetian historiography lies with the Venetian histories written just after the collapse of the Republic in 1797. The opening of the ASV after the 1848 revolutions resulted in a proliferation of Venetian historians. Sameuele Romanin penned a multi-volume Venetian history in 1861. Romanin, a product of Venice's historical Jewish population, is a notable example of a Venetian-born historian defending the myths of Venice. Romanin viewed the fall of Venice as "an inescapable consequence

¹⁶ See for example: Giovanni Diacono, *Cronaca Veneziana*, ed. Mario de Biasi, 2 vols. (Venice: Ateneo Veneto, 1988), which is thought to have been written in c. 1053; Andrea Dandolo, *Chronicon Venetum*, eds. Ludovico Muratori and Filippo Argelati (Milan: Societas Palatina, 1728), which covers the years 1200–1339 and is believed to have been written in 1339.

¹⁷ This is especially the case for: Marc Antonio Coccio "Sabellico," *Rerum Venetarum ab urbe condita libri* (Basel: Joannis König, 1556); Pietro Giustinian, *Rerum Venetarum ab urbe condita* (Venice: Ludovico Auantium, 1575); cf. T. Livius, *Ab Urbe Condita*.

¹⁸ Examples of state commissioned historians abound: Marino Sanuto, *Diarii*, eds. Guglielmo Berchet, Nicolò Barozzi, and Marco Allegri (Forni: Federico Visenti, 1908) believed to have been written in 1533; Pietro Bembo, *Historiae venetae* (Venice: Aldus Fils, 1551); and Paolo Paruta, *Historia venetiana* (Venice: Domenico Nicolini, 1605).

of the autonomies and rights that, regrettably, Venice granted its subjects.”¹⁹ To Romanin, the Venetians were too benevolent and granted too many rights to annexed polities. This notion of Venice granting rights to dependent polities is explored further below within the discussion of Venice’s administration of state forests within its Italian domains.

F.C. Hodgson published his multi-volume history of Venice in the early twentieth century.²⁰ Heinrich Kretschmayr, an Austrian historian, produced three volumes of Venetian history from 1905 to 1933.²¹ Kretshmayr focused on Venetian religion, culture, industry, and law. His work granted the German-speaking world its initial insight into Venetian history. The Byzantine historian Charles Diehl published a Venetian History in French in 1915. Diehl examined the relationship between Venice and its mother city, Constantinople.²² Hodgson, Kretshmayr, and Diehl signify the branching out of Venetian historiography during the early twentieth century.

Hodgson, Kretshmayr, and Diehl all upheld the “myth of Venice.” The myth of Venice is a form of Venetian exceptionalism. The myth asserts that the Venetian Republic is a model for all Republics. Likewise, the myth holds that the city strictly upheld its Republican virtues of liberty, unity, and guardianship. The Venetians established their city upon maritime capitalism with liberties present in no other Italian

¹⁹ Claudio Pavolo, “The Creation of Venetian Historiography,” in *Venice Reconsidered: The History and Civilization of an Italian city-state 1297–1797*, eds. John Martin and Dennis Romano (Baltimore: Johns Hopkins University Press, 2002), 503.

²⁰ F. C. Hodgson, *The Early History of Venice: From the Foundation to the Conquest of Constantinople* (London: G. Allen and Sons, 1901), and *Venice in the Thirteenth and Fourteenth Centuries, 1204–1400* (London: G. Allan and Sons, 1910).

²¹ Heinrich Kretschmayr, *Geschichte von Venedig: Bd. Die Blüte*, vol. 1 (Gotha, DE: Friedrich Andreas Perthes, 1905). Followed by volume 2 in 1920 and volume 3 in 1933.

²² Charles Diehl, *Venise: Une république patricienne* (Paris: E. Flammarion, 1915).

city and never witnessed foreign domination. The Venetians were a “unified and civic-minded patriciate.”²³ Lastly, the Venetian Republic served as the protector of the liberties of *Terraferma* polities. Venice as the protector of the mainland is the most important concept for this inquiry because the Venetians used their role as guardian of the liberties of the mainland in order to enact forest law that stripped some of the freedoms previously enjoyed by mainland cities.

The interpretation of the myth of Venice provided by Venetian histories is divided into two camps: the historians who bolster the anti-myth and the scholars who support the myth. The anti-myth camp, established by Vincenzo Marchesi, asserted that the imagery of the political freedom within the Venetian Empire was false. Marchesi claimed that Venice behaved like “Italy’s other major powers, that is, in treating the conquered cities as subjects while leaving them their ancient constitutions and autonomies. The Republic contented itself with making of the cities friendly subjects but never allowed them to participate in its life, or never shared power with them.”²⁴ Marchesi’s interpretation of the Venetian-*Terraferma* relationship is a bit hyperbolic, but it is an interpretation that still holds merit. The Venetians never granted citizenship to the residents of an annexed polity and only rarely allowed mainland ruling families to become citizens, most notably Francesco Novello of the Carraresi family.

Pompeo Molmenti, a native Venetian, established the other camp. Molmenti was a staunch nationalist and the *Risorgimento* of 1860’s Italy influenced his substantial

²³ James S. Grubb, “When Myths Lose Power: Four Decades of Venetian Historiography,” *The Journal of Modern History* 58, no. 1 (March 1986): 44.

²⁴ Vincenzo Marchesi, *Settant’anni della di Storia di Venezia: 1798–1866*, trans. Paolo Squatriti (Rome: L. Roux, 1892), 505–507.

work. He argued for Venetian Republican exceptionalism. Like Rawdon Brown, Molmenti perceived Venice as an organism. He divided its history into “*Le origini*,” the genesis of the city, “*Le splendore*,” Venice’s era of imperial dominion, and “*Le decadimento*,” the era of decadent decline. Molmenti’s periodization of Venice can still be seen in how modern Venetian historians organize Venetian history. Molmenti’s work veered away from the traditional political narrative of Venice and focused on Venetian cultural and social themes.²⁵

Many of the early nineteenth century Venetian histories that upheld the myth of Venice were nationalistic tracts. Bruno Dudan, in his *Il dominio veneziano di levante*, incorporated Venice’s former imperial possessions in Illyria as a justification for a modern Italian colony in Dalmatia.²⁶ The interwar narratives largely ignored the role of Venice’s natural environment and instead glorified Venetian political and legal domination of mainland polities. Many Italian historians “prostituted their pens to the cause of ultranationalistic history.”²⁷ Roberto Cessi was one of the few Italian historians who did not allow ultranationalism to influence his interpretation of Venice. Cessi cast a more critical eye upon the Venetian Republic and viewed Venetian expansion on the mainland as a distraction from the city’s lucrative eastern possessions.²⁸

Subsequent historians in the twentieth century interpreted the myth of Venice in a unique manner. During Mussolini’s rule over Italy, fascist party members honored the

²⁵ Margaret Plant asserts that Molmenti focused on Venetian Arts in *Venice: Fragile City 1791–1997* (New Haven: Yale University Press, 2002), 103.

²⁶ Bruno Dadan, *Il dominio veneziano di levante* (Bologna: N. Zanichelli, 1938), 149–152.

²⁷ Charles F. Delzell, “Italian Historical Scholarship: A Decade of Recovery and Development, 1945–1955,” *The Journal of Modern History* 28, no. 4 (Dec. 1956): 374.

²⁸ Roberto Cessi, *Storia della Repubblica di Venezia* (Florence: Giunti Martello, 1981), 74.

Venetians for their commitment to the state and their unwavering legal code.²⁹ During the Cold War, some American historians viewed Venice as analogous to the United States. F.C. Lane highlighted Venice's similarities to the American Republic in his presidential address to the American Historical Society in 1965.³⁰ Brian Pullan's work in *Crisis and Change in the Venetian Economy* viewed the Venetian patriciate as the binding element in the Republic and upheld the myth's ideal of Venice as guardian of political freedoms.³¹

Lane's encomium of Venice's Republican virtues greatly differed from the anti-myth historians. These scholars challenged the myth of Venice after the dismemberment of the Venetian Republic in the late eighteenth century at the hands of Napoléon Bonaparte. Authors critically questioned Venice's expansion into *Terraferma*. Pierre Daru's early nineteenth century work, *L'Histoire des Républiques de Venise*, questioned the central myths of the Venetian Republic. Daru critiqued Venetian Republican exceptionalism and the myth of the "good republic." Both Daru and Ugo Foscolo's *Storia di Venezia* viewed Venice not as the protector of mainland polities, but as an aggressor that manipulated mainland communities.³² Both authors questioned Venetian virtues likely as an extension of their defense of the French dismantlement of the Venetian

²⁹ Pavolo, "The Creation of Venetian Historiography," 491.

³⁰ F. C. Lane, "At the Roots of Republicanism," *The American Historical Review* 71, no. 2 (Jan. 1966): 404–406.

³¹ Brian Pullan, introduction to *Crisis and Change in The Venetian Economy in the 16th and 17th centuries*, ed. Brian Pullan (London: Methuen and Co., 1968), 6–14.

³² Eric R. Dursteler, "A Brief Survey of Histories of Venice," in *A Companion to Venetian History, 1400–1797*, ed. Eric R. Dursteler (Boston: Brill Publishers, 2013), 8.

Republic in 1797. Gaetano Cozzi questioned the principle of equality within the Venetian ruling class and asserted that Venice was more of an oligarchy than a Republic.³³

The rejection of the myth of Venice is most clearly seen in how historians shifted their focus from Venice's maritime empire to *Terraferma*. In the mythical representation of the Republic, Venice was purely a maritime republic.³⁴ The virtues of the Venetian Republic came from its isolation from the mainland and its connection to the sea. The Venetians bolstered their imagery as a maritime republic with state ceremonies, such as Ascension Day. Every May 29, the Doge ventured out into the Adriatic and cast a golden ring into the water to symbolize Venice's marriage to the sea. Although Ascension Day held specific Christian significance on the Italian mainland, for the Venetians the holiday was an illustration of maritime and political dominance of the Adriatic.

Viewing *Terraferma* timber policy as an important facet of the Venetian Empire places this thesis directly into the anti-myth camp. That is, this thesis challenges the traditional view (myth) of Venice as a benevolent maritime republic in several ways. Venice was not strictly a maritime empire and possessed an important land-based western empire. Likewise, asserting that the Venetians passed forest legislation at the expense of mainland communities critiques Venice's claim as protector of *Terraferma* liberties. This thesis questions the myth of Venice by placing greater significance on the Republic's mainland empire and contributes to the historiography of Venetian *Terraferma* by inserting law into the mainland narrative.

³³ Gaetano Cozzi, "Authority and the Law in Renaissance Venice," in *Renaissance Venice*, ed. J. R. Hale (Totowa, NJ: Rowman and Littlefield, 1973), 295.

³⁴ Grubb, "When Myths Lose Power," 72.

Terraferma

Several pertinent themes dominate the historical narratives of Venetian expansion onto the Italian mainland and the establishment of *Terraferma*. This thesis inserts itself into three ongoing debates on *Terraferma*. The first theme questions the centrality of Venice's maritime empire. As briefly mentioned above, after the decline of Venetian State histories, historians began to acknowledge the importance of the mainland within Venetian history and governmental institutions. The Italian mainland is an important facet in Venetian history because mainland timber sustained Venice's Eastern maritime Empire and played a role in shaping the history of the Po River Valley.

Writing in the middle of the twentieth century, Roberto Cessi focused on Venice's maritime empire. In his *Storia di Venezia*, Cessi portrayed the Venetians as a maritime people, similar to Genoa or Pisa, but unique in its Republican system of government.³⁵ In Cessi's appraisal, expansion into *Terraferma* weakened Venice's hold on eastern maritime possessions. Expenditures on continued mainland wars diverted funds necessary to stem the ascendancy of the Ottomans.³⁶ Cessi's history followed the myth of Venice by placing more importance on Venetian maritime possessions.

More recent historians bolstered the myth of Venice and continued to place an emphasis on Venice's maritime exploits. Jan Morris proposed a certain inevitability of Venetian maritime prominence by stating that "Venice was clearly destined to be something special among the nations."³⁷ Morris labeled Venice as the commercial and maritime hub of the Mediterranean Sea. John Julius Norwich echoed Morris's focus upon

³⁵ Cessi, *Storia della Repubblica di Venezia*, 234.

³⁶ *Ibid.*, 325.

³⁷ Jan Morris, *The Venetian Empire: A Sea Voyage* (London: Penguin Books, 1990), 18.

the sea by beginning his study of Venice with Alcuin's question "*Quid est Mare?*-What is the Sea?" Alcuin's answer, "*Refugium in periculis*-A shelter amidst danger," summarizes Norwich's appraisal of Venice's connection to the sea.³⁸ Venetian maritime success makes it tempting to view the Republic as strictly a naval empire, but such a perception neglects Venice's mainland empire. By using forest law as an avenue into *Terraferma*, this thesis seeks to add the mainland perspective to the narrative of the Venetian Republic.

The trend of focusing on *Terraferma* began with late nineteenth century. Molmenti situated the Venetian expansion into *Terraferma* in the early fifteenth century as the beginning of the downfall of the republic. He stated that Venetian expansion into *Terraferma* "exhausted the accumulated wealth which should have gone to aid her sea power."³⁹ Molmenti may not have considered how timber, a land-based resource, influenced Venice's maritime fortunes. In order to sustain its maritime power, Venice was required to build and administer a land-based empire in *Terraferma*. Molmenti simply did not incorporate how timber supplies may have influenced the Venetian perception of the strategic importance of their mainland territories.

F. C. Lane began to bridge the gap between Venice's maritime focus and the narrative of the mainland in his *Venetian Ships and Shipbuilders of the Renaissance*. Lane connected *Terraferma* timber to the security of Venice's maritime empire. He stated "Venice was dependent upon access to terrestrial products from which the ships were

³⁸ Alcuin, *Catechism*, quoted in Horatio Forbes Brown, *Venetian Studies* (London: Keegan Paul Trench and Co., 1887), 1. M. Beaudoin translation.

³⁹ Pompeo Molmenti, *Venice, Its Individual Growth from the Earliest Beginnings to the fall of the Republic*, trans. Horatio Forbes Brown (Chicago: A. C. McClurg and Co., 1907), 2-3.

made.”⁴⁰ Lane largely focused on Venice’s naval prowess, but by noting the connection between timber and naval security he started to connect the “Venetian Myth” and “Anti-myth” interpretations of Venice’s role as a maritime Republic. This inquiry complements Lane’s work as it adds the development of forest law into the discussion of Venetian timber resources.

The second theme attempts to parse why the Venetians expanded onto the mainland and how the expansion changed the Venetian government. Two approaches developed within the historiography. The first approach views Venetian expansion as an unplanned set of opportunistic annexations. M. E. Mallett summarized this approach by stating that Venetian *Terraferma* annexations were haphazard and uncoordinated.⁴¹ The second approach sees Venetian annexation as a coordinated expansion of Venetian commercial ties to the mainland. D. S. Chambers best articulated this second position. He stated, “Venetians in the Italian mainland expressed no sudden ambition to gain territory, revenues and jurisdiction, but were more concerned with the security of traditional lines of commerce.”⁴² Timber was one of the first commodities Venice extracted from the mainland and the mainland timber trade bolstered the connections between Venice and mainland communities. The Venetians adapted their methods of annexation to the city being incorporated into *Terraferma*. This second approach fits well within the development of Venetian forest law because the forest laws developed to initially regulate commerce then evolved to dominate usufructory rights.

⁴⁰ Lane, *Venetian Ships*, 217.

⁴¹ M. E. Mallett and J. R. Hale, *The Military Organization of a Renaissance State: Venice c. 1400–1617* (New York: Cambridge University Press, 1984), 161.

⁴² David S. Chambers, *The Imperial Age of Venice* (London: Thames and Hudson, 1970), 54.

The third theme examines Venice's claim as protector of the mainland. The "anti-myth" historians, who question the myth of Venice, accuse the Venetians of reducing the rights of *Terraferma* communities and excluding them from the Republic's government. This vein of *Terraferma* historiography often argued that Venice inconsistently governed mainland polities.⁴³ The historians who attempt to uphold specific parts of the myth of Venice, acknowledge that Venice subjugated some polities but claim that such measures were atypical. Scholars of this vein could, but do not, cite Venice's ruthlessness in deposing of the Paduan Carraresi family as one of the few cases of Venetian subjugation.

S. J. Woolf examined Venetian institutional control of small polities in *Terraferma*. Woolf argues that a division between Venice and the provinces widened during the middle of the fifteenth century.⁴⁴ Venice's relationship with mainland polities kept the early Venetian forest legislation less intrusive. The 1476 laws granted the Arsenale an extensive amount of power over *Terraferma* polities and possibly contributed to the division between Venice and mainland communities. Venice was utterly dependent on mainland communities for its charcoal, wooden pilings, and ship-timber. The relationship between Venice and its mainland possessions was always tenuous.

Nicolai Rubinstein argued that Venice's expansion into *Terraferma* led Florence and the Papal States to believe that Venice was positioning itself to establish an Italian

⁴³ Giorgio Chittolini, "The Private, the Public, and the State," in *The Origins of the State in Italy: 1300–1600*, ed. Julius Kirshner (Chicago: University of Chicago Press, 2009), 37–41.

⁴⁴ S. J. Woolf, "Venice and the Terraferma: Problems of the Change from Commercial to Landed Activities," in *Crisis and Change in the Venetian Economy in the Sixteenth and Seventeenth*, ed. Brian Pullan (London: Methuen and Co., 1968), 190.

Empire.⁴⁵ Notable humanists, such as Machiavelli and Guicciardini, echoed this appraisal. Rubinstein's assessment of Venetian-Italian relationships pinpoints one of the major reasons why the Italian polities targeted Venice. Machiavelli's claim that Venice was seeking the "monarchy of Italy" was unwarranted.⁴⁶ One of the driving forces for the expansion into *Terraferma* was Venice's need for the timber resources of the region and not simply imperialism. I will contribute to Rubinstein's work by inserting the Venetian need for timber into the continuing historical dialogue on the Venetian expansion.

The timber supplies of *Terraferma* provided an incentive for Venetian expansion into the region during the fourteenth century. However, it would be foolish to assume that timber was the only reason for Venetian claims to the Northern Italian mainland. The acute need for ship-timber was possibly combined with a desire to maintain a buffer zone between Venice and several of its bitter rivals. As M. E. Mallet and J. R. Hale suggested, the War of the League of Cambrai revealed Venetian vulnerabilities and prompted the city of St. Mark to maintain a buffer zone between Florence, France, the Papal States, and the shores of its lagoon.⁴⁷ Yet, earlier wars with Genoa and Hungaria demonstrated a need for Venice to maintain a defensible frontier. The necessity of a buffer zone did not detract from Venice's exploitation of *Terraferma*'s timber resources. Most likely the Venetians used *Terraferma* in a multi-use capacity. The land served as a string of defenses whilst supplying the Venetian Arsenal with ship-timber.

⁴⁵ Nicolai Rubinstein, "Italian Reactions to Terraferma Expansion in the Fifteenth Century," in *Renaissance Venice*, ed. J. R. Hale (Totowa, NJ: Rowman and Littlefield, 1973), 197.

⁴⁶ Niccoló Machiavelli, *Le Legazioni e Commissarie*, ed. Sergio Bertelli (Florence: Feltrinelli, 1964), ii, 676.

⁴⁷ Mallet and Hale, *The Military Organization of a Renaissance State*, 19.

Venetian forest law inserts itself quite well into the debate over Venice's role as protector of the mainland. Venice granted annexed cities a wide range of freedoms, including the right to maintain the polity's legal tradition. However, the development of Venetian forest law illustrates a gradual change in Venice's passive management of the legal traditions of *Terraferma*. Therefore, this thesis contributes to this branch of *Terraferma* historiography by bringing the forest law into the debate. Venetian *Terraferma* forest law illustrates Venice's evolving management of the mainland in the late fourteenth century and administration of *Terraferma* throughout the fifteenth century.

Venetian mainland forest law lends itself into the three historiographical branches of *Terraferma* history. The annexation of mainland polities in the late fourteenth and early fifteenth centuries demonstrates that Venice was not only a maritime but also a land-based empire. Like the hydrological connection between the Po River Valley and the Adriatic, Venice's maritime and terrestrial empires depended upon one another and should not be excluded from each other within the Venetian narrative. The steady development of forest law from simple market control measures upholds Chambers's interpretation of a coordinated Venetian annexation of the mainland. The execution of the Carraresi family in 1406 signified Venice's commitment to the Italian mainland. Venetian forest law also belongs in the discussion of the Republic's claim to the title of *Terraferma's* protector. Although the forest laws dispossessed mainland communities from some of their forests, the laws also promulgated positive conservation reforms to mainland harvest practices.

Law: Roman vs. Byzantine Legal Foundations of Venetian Law

Adding the narrative of forest law to previous discussions of Venetian legal systems contributes to the historiography in four ways. First, Hazlitt, Kretschmayr, and Hodgson mistakenly placed Venice's legal heritage solely with mainland Roman institutions. Venetian forest law possessed both Byzantine and Roman legal elements. Second, it is also inappropriate to discard any Roman influence in Venetian law. The Venetians implemented Roman legal concepts such as *res publica*, *ager publici*, and *civitas* to formulate the legal precedence for new restrictions on forest use.⁴⁸ Third, a study of Venetian forest law complements previous examinations of Venice's legal control of natural resources. Venice's legal domination of Adriatic wheat markets displayed the Republic's willingness to use law to control natural resources. Lastly, the development of Venetian forest law demonstrates that the Venetians structured their laws within the mainland's legal traditions.

The historiography of Venetian law fits within the larger discussion of the myth of Venice. Although Venetian historians often included a discussion on law within their broader surveys of Venetian history, none specifically focuses on the overall development of Venetian law. One of the earliest authors to comment on Venetian law was William Carew Hazlitt. Writing in the nineteenth century, Hazlitt connected the "remarkable institutions" of Venetian law to the city's Republican nature.⁴⁹ By doing so, Hazlitt did not critique the myth of Venice.

⁴⁸ *Res publica*- "Matters of the public," *ager publici*- "Public fields/land," *civitas* "citizenship, membership in a city"

⁴⁹ William Carew Hazlitt, *History of the Venetian Republic: Her Rise, Her Greatness, and Her Civilization* (London: Smith, Elder and Co., 1860), 293–297.

F. C. Hodgson and Kretschmayr also coupled the Venetian legal system into the myth of Venetian Republican virtue.⁵⁰ Hodgson tied Venetian law into the Roman legal tradition.⁵¹ Such an assertion falls into the ongoing debate around the origins of Venetian law. Most scholars conclude that Venetian law was the product of Roman, Byzantine, and various mainland legal traditions, but disagree on which legal heritage influenced the city the most.⁵² Attaching Venice to the Roman legal tradition upholds an aspect of the myth of Venice that viewed the Republic as a successor to the Roman Republic/Empire.

William Bouwsma asserted that part of Venice's legal uniqueness stemmed from its rejection of medieval imperial law.⁵³ The incorporation of mainland Italian communities into the Holy Roman Empire bolstered their Roman legal tradition. In roughly the same time period (eighth to tenth centuries C.E.), Constantinople dominated Venetian cultural and political systems. As a result, Venetian law incorporated the flexibility of Byzantine legal systems. Bouwsma asserted that the Venetians never cited Roman law.⁵⁴ Yet, *Terraferma* forest law is an excellent example of the Venetians manipulating Roman legal tradition to secure a natural resource and it is therefore most appropriate to see Venetian law as the product of Byzantine legal traditions and, with exposure to the mainland, also influenced by Roman legal code.

⁵⁰ Kretschmayr, *Geschichte von Venedig*, vol. 1, 325.

⁵¹ Hodgson, *The Early History of Venice*, 344.

⁵² Roman and Byzantine Law are often seen as synonymous, but their development on the Italian mainland and in Byzantine dependencies differed drastically. See George Mousourakis, *The Historical and Institutional Context of Roman Law* (London: Ashgate, 2003), 420–423.

⁵³ William James Bouwsma, *Venice and the Defense of Republican Liberties: Renaissance Values and the Defense of Republican Liberties* (Berkeley: University of California Press, 1968), 56–8.

⁵⁴ *Ibid.*

William McNeill contributed to the debate surrounding Venetian legal traditions as well. Although McNeill is best known for his works in world history and epidemiological history, his contribution to Venetian historiography should not be overlooked.⁵⁵ McNeill examined how the Venetians implemented a system of commercial laws in order to dominate the Adriatic's wheat trade. Venetian law required any exportation of wheat to first pass through Venice before reaching its final destination.⁵⁶ Lane also noted that the Venetians established a regulatory system to fine merchants who did not first unload their wheat in Venice.⁵⁷ Therefore, this thesis contributes another example of the Venetian implementation of law as a means to control a natural resource.

McNeill's work is also noteworthy for this inquiry because he proposed that from the thirteenth century to the eighteenth century Venice was the cultural hinge of the Eastern Mediterranean. He stated that Venice and the Venetians were the "principal mediators and links between the Adriatic, Aegean, and Black Sea regions."⁵⁸ It is important to remember that Venice was not only one of the cultural conduits of the Eastern Mediterranean, but it was also the cultural center for its mainland Italian possessions. Forest law provides a window into how Venetian legal systems served as a mediator of *Terraferma* communities.

⁵⁵William H. McNeill, *A World History* (New York: Oxford University Press, 1967), cf. William H. McNeill, *Plagues and People* (New York: Anchor Books, 1977).

⁵⁶ William H. McNeill, *Venice: The Hinge of Europe 1081–1797* (Chicago: The University of Chicago Press, 1974), 135.

⁵⁷ Lane, *Venice: A Maritime Republic*, 59.

⁵⁸ McNeill, *Venice*, xvii.

Although Roman law served as the foundation for mainland Italian legal traditions, legal diversity typified *Terraferma* community statutes (*contadi*). Gaetano Cozzi suggested that a “legal diaphragm” existed between Venice and *Terraferma* communities. Mainland legal traditions were technical, rigid, and not predisposed to adapting to empirical review, whereas Venetian law adapted to fit the legal diversity of the mainland and was flexible enough to incorporate regulatory systems for mainland commerce including timber. Cozzi’s “diaphragm” could be more accurately labeled as a tension between *Terraferma* and Venetian laws. The structure of early fifteenth century Venetian forest law indicates that Venice was aware of this tension and molded their legal claims to mainland timber to fit within the mainland’s legal traditions.⁵⁹

Venice used the legal traditions of the mainland in order to dominate the key natural resource for the production of ships. The Venetians exploited the forest resources of the mainland. Venetian mainland forest law developed from the Republic’s Byzantine legal heritage, but incorporated Roman legal elements when the Venetians manipulated mainland *contadi*. Venetian forest law illustrated the Republic’s adaptability to *Terraferma* legal traditions and provides a new perspective on the Venetian expansion on the mainland.

Forests: Grafting Timber into the Venetian Narrative

Forest histories are a recent development, and very few forest law histories exist. More recently the historical scholarship on forests has thrived. Forest history is, as Russell Meiggs once mused, “a field which is too important to be ignored and in which

⁵⁹ Gaetano Cozzi, “Introduction,” *Venezia. Itinerari per la storia della città*, ed. Stefano Gaspari (Bologna: Il Mulino, 1997).

much new ground can be won.” By contributing my Venetian forest narrative to the well established histories of Venice I hope that I can conquer a small portion of this untaken ground.

In the inter-war period, French and American historians began to examine how the environment of Northeastern Italy influenced the Venetian historical narrative. One of the originators of the *Annales* school, Lucien Febvre, began the modern tradition of Venetian forest histories. Febvre believed that the forests of the Mediterranean rapidly declined in the classical era.⁶⁰ He asserted that the oak forests of the Po River Valley, which supported the Venetian Empire, were numerous before the Roman era.

According to Febvre, the aptitude for a culture to take up the “maritime spirit” depended largely on their natural environment. Timber was a natural mainland product that sustained the Venetian “maritime spirit.” Such a suggestion can be very easily labeled as deterministic. However, Febvre’s approach to Venetian maritime prowess is not a form of environmental determinism because he asserted that the Venetian expansion along the Dalmatian coast was not geographically inevitable.⁶¹ Febvre cited the lagoon-hamlet of Poitevin Marais, in France’s Aunis province, as an example of another, less successful marshland community. Febvre credited the discovery of new trading routes by the Portuguese as the dominant cause of the decline in Venetian fortunes in the sixteenth century.⁶² This argument fits well within Febvre’s larger assertion on the importance of maritime trade routes. The discovery of new spice trade routes by the Portuguese

⁶⁰ Lucien Febvre, *La Terre et l'évolution humaine: introduction géographique à l'histoire* (Paris: Albin Michel Publisher, 1922), 160.

⁶¹ *Ibid.*, 223.

⁶² *Ibid.*, 323.

certainly influenced the decline of Venice, but it was not the sole cause of Venetian decline. In fact, Venetian trade spiked for several decades after De Gama's voyage in 1498.⁶³ The scarcity of *Terraferma* timber resources must be accounted for in a discussion of Venetian decline.

In addition to Febvre, some of the first scholars who examined the role of the forests in the Venetian narrative were geographers. Ellen Semple articulated the role of the environment on the historical narrative in her 1911 book, *Influences of Geographic Environment*. She asserted that "all historical development takes place on the earth's surface, and therefore is more or less molded by its geographic setting."⁶⁴ Semple echoed the assertion of Immanuel Kant that "Geography lies at the basis of history."⁶⁵ Semple's German education, under Friedrich Ratzel, informed her discussion of Mediterranean forests.

F. C. Lane produced the definitive Venetian forest history in 1934. His book, *Venetian Ships and Shipbuilders of the Renaissance* is part of this larger trend of non-Italian Venetian historians. Lane devoted an entire chapter in his book to the timber supplies of the Venetian Arsenal. Through his examinations of Marino Sanuto's journals (*Diarii*), Lane concludes that oak, larch, and fir were the primary species used by the Venetian Arsenal.⁶⁶ Oak served as the core of Venetian ships. According to Lane, the Venetian sources of oak were located near the Piave River, well within Venice's mainland possessions. Lane stated that early Venice held access to plentiful supplies of

⁶³ This was first asserted in Lane, "Venetian Shipping During the Commercial Revolution," *The American Historical Review* 38 (1933): 219–239.

⁶⁴ Ellen Semple, *Influences of Geographic Environment* (New York: Henry Holt and Co., 1911), 17.

⁶⁵ Quoted by Semple in *Influences of Geographic Environment*, 21.

⁶⁶ Lane, *Venetian Ships*, 217.

timber and exported timber resources from at least the tenth century.⁶⁷ Lane, like Ellen Semple did for the classical world, argued that suitable specimens of oak rapidly depleted with Venetian use.⁶⁸ Lane charted the development of Venetian forest law beyond the temporal parameters of this inquiry. This thesis serves as an expansion of Lane's brief overview of Venetian forest law within the fourteenth and fifteenth centuries, and asserts that forest law is a neglected facet of Venice's conquest of the mainland.

J. Donald Hughes, J. V. Thirgood, and Russell Mieggs all focused on the Classical era, yet provided some insight into the timber supplies of Venice. Hughes argued that Greek and Roman shipbuilding resulted in the deforestation of sections of the Mediterranean. For the Romans, the loss of forests was "the most widespread and most noticeable change made in the natural environment."⁶⁹ The scarcity of classical sources makes it difficult to be as definitive as Hughes. It is uncertain, yet highly unlikely, that Roman timber harvests modified future Venetian state forests. The Romans harvested much of their ship-timber from Sicily.⁷⁰ Mainland Italian stands of Arsenal-grade oak declined with continued Venetian use, however Hughes's approach leaves little room for the eventual recovery of forests.

Brian Pullan understated Venice's access to mainland timber in his *A History of Renaissance Venice*. He argued that Venice and Genoa lacked the natural resources that were readily available for the Pisani. According to Pullan, Venice's only natural

⁶⁷ Lane, *Venice: A Maritime History*, 8.

⁶⁸ *Ibid.*, 220–230.

⁶⁹ J. Donald Hughes, *Ecology in Ancient Civilizations* (Albuquerque: University of New Mexico Press, 1975), 99.

⁷⁰ Lukas Thommen, *An Environmental History of Greece and Rome* (New York: Cambridge University Press, 2012), 40.

resources were “salt and fish.” This lack of resources forced the Venetians to “concentrate on maritime trade and expansion seawards.”⁷¹ Venice could not have dominated the waters of the Adriatic without first dominating its hinterland. In order to maintain maritime might, ancient and Renaissance powers were forced to control a land-based commodity (timber) through trade or political domination. This thesis asserts that Venice extended its control into *Terraferma* in part for its timber resources.

In *Venice: A Maritime Republic*, F. C. Lane reiterated his arguments on the decline of Venetian oaks by stating, “The oaks grown in the Venetian Dominions did not suffice for the demands of the Arsenal and those of private shipbuilders.”⁷² Lane’s interpretation of the sources holds merit, but can be strengthened by addressing the policy measures the Venetian Republic implemented to stymie the oak shortage. Venetian forest conservation measures were partially the result of timber’s role in the defense of Venetian trade and Venice itself.

John Perlin directly examined Venetian timber conservation policies in his survey of forest history. Perlin grants his reader a brief overview of Venetian timber conservation measures and discusses Venice’s relationship with mainland polities. Perlin correctly asserted that Venice pressured Verona into enacting several ship-timber conservation measures.⁷³ Verona complied on paper, but like many other mainland polities, could not change local forest use in order to conserve the Arsenal’s prime oaks. This lack of Venetian institutional control was a contributing factor to the decline of prime timber stands.

⁷¹ Brian Pullan, *A History of Early Renaissance Italy* (New York: St. Martin’s Press, 1973), 98.

⁷² Lane, “Venetian Shipping,” 40.

⁷³ Perlin, *A Forest Journey*, 147.

Elisabeth Crouzet-Pavan situated Venetian history within its natural setting of the lagoons. The domination of water resources makes up the bulk of her argument for Venice acting upon its natural surroundings.⁷⁴ Security from natural and man-made dangers required Venice to control and dominate the waters of the lagoons, the Adriatic, and eventually the Eastern Mediterranean. Crouzet-Pavan cemented Venice's intimate relationship with water to the city's unique approach to naval warfare. She argued that prior Venetian histories have portrayed the Venetians as wary and timid in the face of opposition.⁷⁵ The quadriga echoes the countless spoils won by Venice. These military victories, especially naval, were the foundation of the Venetian Empire. The Venetian fleet "was, and remained, its primary basis of its power."⁷⁶ Steady timber supplies were essential to maintaining Venice's naval basis of power.

Crouzet-Pavan briefly examined the timber supplies of the Venetian navy. She asserted that much of the oak supply came from *Terraferma*.⁷⁷ As the oaks of the mainland became denuded with continual use in the fifteenth century, the Venetians incorporated several stands of oak from Istria. Like Lane, she asserted that the timber supplies of *Terraferma* became depleted, and thus the very "foundation of Venetian power was threatened."⁷⁸ Her assertions align themselves closely with the proposals for this thesis. However, she only briefly discussed Venice's relationship to *Terraferma* through timber. Much more can be learned about Venice's relationship with its mainland

⁷⁴ Crouzet-Pavan, *Venise Triomphante*, xiv.

⁷⁵ *Ibid.*, 84.

⁷⁶ *Ibid.*

⁷⁷ Crouzet-Pavan, *Venise Triomphante*, 123.

⁷⁸ *Ibid.*, 125.

polities through the Venetian need for timber. The Arsenal's constant need for ship-timber shaped the manner in which Venetian administrators perceived the forest resources of the Veneto. Crouzet-Pavan's work is an excellent start in formulating a Venetian environmental narrative, but the importance of *Terraferma* timber needs to be addressed at further length.

Karl Appuhn recently produced the first exclusively Venetian forest history in 2009. Appuhn's book, *A Forest on the Sea: Environmental Expertise in Renaissance Venice*, is an extension of his doctoral dissertation. Appuhn concluded that the Venetians established some of the first forest conservation laws. The Venetians established "a set of effective rational tools for enforcing the law and controlling the resource."⁷⁹ Venetian forestry was a remarkable development, Appuhn suggested, but did not succeed in conserving essential ship-timber specimens. New Venetian forest laws struggled to reshape centuries of forest use practice and perceptions. The forest conservation laws were ultimately unsuccessful because Venice could not regulate the small polities of *Terraferma*. Appuhn explored this notion through market regulations and cultural perceptions. Placing timber as one of the driving forces for Venetian expansion into *Terraferma* not only adds to Appuhn's work but also provides insight into how and why Venice formulated these forest conservation laws.

Appuhn's book explored the development of Venice's professional foresters (*Provveditori sopra boschi*). Venetian forestry evolved out of a "perceived" shortage of Arsenal-grade oak by Venetian legislators.⁸⁰ He argued that Venice's mainland oak

⁷⁹ Appuhn, "Inventing Nature," 888.

⁸⁰ Appuhn, *A Forest on the Sea*, 53–55.

supplies were not really declining, but a combination of mainland work shortages, the harvesting cycle, and local forest use practices produced the symptoms of a timber shortage to Venetian policymakers.⁸¹ Perceived shortage or real, the alarm felt by Venice opened a policy window for the implementation of forest conservation policies. Appuhn expertly examined the development of Venetian forest laws and reserves through his bureaucratic and political history. However, Arsenal timber was a war materiel and Venetians treated it as such. Thus, it is imperative that scholars attempt to understand how timber as a war resource shaped the Venetian perception of *Terraferma*'s environment.

Venice's treatment of the environment was decidedly different than its Northern European contemporaries. The shortage of oak inspired the Venetians to implement a scientific conservation program first and seek foreign supplies only under desperation. Yet, several prominent environmental historians claimed that Early Modern Europe's scientific worldview supported a culture of environmental manipulation and dominance throughout the continent.⁸² As Appuhn suggested, Merchant and Crosby "assume that there was a monolithic European view of the relationship between humans and the natural world."⁸³ Renaissance perceptions of the environment were as diverse as the polities of the Holy Roman Empire. The Venetians and Genoese both relied on mainland timber and were maritime republics, yet reacted differently to similar environmental constraints.

⁸¹Ibid.

⁸² Crosby, *Ecological Imperialism*, cf. Merchant, *Ecological Revolutions*.

⁸³ Appuhn, *A Forest on the Sea*, 10.

This thesis provides an example of a culture that noticed deforestation and attempted to implement positive conservation policies. The end result was a system of forest policies that were far more advanced than any other natural resource policy system in sixteenth century Europe. The sudden rise of the Ottoman Navy in the fifteenth century suggests that decline of forests were not as widespread in the Mediterranean as Hughes asserted. Instead of seeing a widespread collapse of Mediterranean forests, it is best to see the denudation of Venetian timber as an environmental issue within its cultural and political context. In order to control the Adriatic and Eastern Mediterranean, the Venetians were forced to exploit the timber resources of the Po River Valley. The direct modification of timber distribution by the Venetians was focused on one specific region, rather than the entire Eastern Mediterranean.⁸⁴

An inquiry into the relationship between timber and Venetian law will grant a more complete understanding of how the Renaissance maritime republics managed their natural resources. Charting Venetian expansion into *Terraferma*, examining the origins of Venetian law, and parsing how Venice manipulated Roman legal traditions may seem trivial and purely academic, but environmental scholars and the general public can garner many valuable lessons from the Venetian narrative. A new Venetian timber history may provide an example of applicable history that not only informs the reader, but provides lessons on forest management and law.

⁸⁴ This is argued for Pine species by David M. Richardson, *Ecology and Biogeography of Pines* (New York: Cambridge University Press, 2000), 415.

CHAPTER II: BRIDLING SAN MARCO'S HORSES: EARLY TIMBER
 LEGISLATION AND THE EXPANSION INTO *TERRAFERMA*

Milan, the Carraresi family of Padua, Hungaria, and the Genoese all challenged Venice's role as the central power of Northeastern Italy. Venice's commercial rivalry with Genoa dominated the narrative of the fourteenth century and illustrated a need for Venice to expand onto the mainland in order to supply the Arsenale with more secure supplies of timber. The Venetians experienced a series of defeats in the late fourteenth century, which inspired the city to strengthen its defenses through expansion and forest conservation policies. The pressures placed upon Venice by Padua and the Hungarians instigated a departure from Venice's usual passive management of mainland cities. Active Venetian management of mainland polities preceded the direct domination of forest resources and began with the execution of the Carraresi family.

The annexation of *Terraferma* extended from Venetian commercial ties to the mainland. Vital trade routes, agricultural products, and timber supplies linked Venice to the mainland since its foundation. The first historical record of Venice comes from the early sixth century. Cassiodorus, a Roman under the service of Theodoric, labeled the Venetians as harvesters of salt and fish-eaters.⁸⁵ The salt and fish trade on the Italian mainland was the basis of the earliest Venetian commerce. The protection of Venice's

⁸⁵ Cassiodorus, *Variae Epistolae*, trans. S. J. B. Barnish (Liverpool: Liverpool University Press, 1992), 177–179.

early monopoly on the salt trade inspired one of the earliest Venetian military interventions on the mainland. In 822, and again in 933, the Venetians sacked their greatest competitor in the salt market, Commacchio. The seizure of Commacchio illustrated Venice's willingness to implement military force to control natural resources from a very early era.

Timber not only factored directly into the manufacture and transportation of early Venetian salt supplies, but the Republic also traded timber as a commodity alongside salt and fish.⁸⁶ The expansion of Venice in the eleventh and twelfth centuries required the acquisition of timber supplies for the transportation of commercial goods and the physical foundation of the city. Oak pilings, known as *tolpi* in the Venetian sources, supported the foundation of the city. The most readily available supplies of *tolpi* were the mainland oak forests adjacent to Venice.⁸⁷ The harvesting of tens of millions of *tolpi* strengthened Venice's connection to the mainland.⁸⁸

The Venetians were still under the sphere of the Byzantine Empire in the eleventh and twelfth centuries, even after the *Pax Nicephori* (Peace of Nicephorus) granted Venice political independence. Venice's political and cultural ties to Constantinople were reflected in the Venetian admiration for Byzantine architecture and political systems. Byzantine law found its way into Venetian legal practices as well. The Venetian-Byzantine connection can also be seen in Venice's focus on maritime ventures in the east. The Venetian commercial connections to the Italian mainland were strong, yet Venice

⁸⁶ Lane, *Venice: A Maritime Republic*, 8.

⁸⁷ The primary sources for this era are dominated by Byzantine sources and do not blatantly state that the early timber supplies came from the Italian mainland. Here I agree with Karl Appuhn and F. C. Lane.

⁸⁸ Appuhn, *A Forest on the Sea*, 27.

specialized in monopolizing the trade of luxury goods out of the Aegean and Black Seas. Competition over the latter placed Venice in direct conflict with Genoa.

At the instigation of Doge Enrico Dandolo, the Venetians and the Frankish crusaders permanently diminished the viability of the Byzantine Empire with the sacking of Constantinople in 1204. Venice and Genoa benefitted directly from the sudden power vacuum in the Aegean and Black Sea. Venice gained control over three-eighths of the Byzantine Empire.⁸⁹ In the wake of the dismemberment of the Byzantine Empire, the Venetians acquired key shipping depots on the Dalmatian coast, Negroponte, and Crete. The Venetians also gained a large swath of Constantinople, centered on the city's docks and shipbuilding infrastructure. Venice based its newly-found prominence in the Eastern Mediterranean upon maritime prowess, especially ship-building.⁹⁰ However important a role eastern trade served for Venetian commerce, Venetian trade was still very much dependent upon mainland timber. The timber for Venice's early thirteenth century expeditions likely came from nearby Mestre.⁹¹

The decline of Byzantine power granted the Genoese unfettered access to the Black Sea trade routes. Crimean wheat supported the burgeoning population of Genoa, Venice, and their trading partners. The rivalry between Venice and Genoa over Black Sea trade caused several wars between the two republics. A deadly brawl between the Venetians and Genoese over the monastery of Saint Sabas in Acre ignited the War of

⁸⁹ A Doge's title after 1204 included "Lord of a quarter and a half quarter of all of the Roman Empire." This comes from the original title granted to the Doge: *Dominator quartae partis et dimidia totius imperii Romaniae*.

⁹⁰ Lane, *Venice: A Maritime Republic*, 45.

⁹¹ Adolfo di Berenger, *Saggio storico della legislazione veneta forestale dal secoli vii al xix* (Venice: Ebhardt, 1863), 25.

Saint Sabas in 1256.⁹² The Venetians displayed their unmatched talent for diplomacy by gaining the aid of the dominant maritime republic of the eleventh century, Pisa.

The commercial rivalry between the Venetians and Genoese served as the background to Venice's early involvement in the politics of the Italian mainland. The direct annexation of mainland polities was not the objective of Venice's first intervention on the mainland, however; Venetian mainland policies sought to maintain favorable commercial ties with the markets of the Po Valley and the German markets beyond the Carnic Alps. The Venetians intervened against inland dukes or polities that hindered the passage of goods, including timber, out of and into Venice. An example of direct Venetian intervention on the mainland occurred in 1256 when the Venetians dispatched Marco Badoer to remove Ezzelino III de la Romano from power in Padua.⁹³ Venice implemented indirect diplomatic connections to mold the political climate of the Po River Valley.

Venice crippled rival polities on the mainland with the city's diplomatic connections. The Veronese della Scalla family disrupted Venetian mainland commerce by imposing tolls on Venetian trade. Venice targeted Verona through an alliance with Florence in 1336. The Veronese placed themselves in an extremely strong position with the conquest of Padua and Treviso. However, the della Scalla family failed to defend their state from the combined forces of Venice, Florence, and the Milanese Visconti family. The Venetians, Florentines, and Milanese all benefitted from removing an

⁹² Competition over the lucrative trade of the Levant more likely caused the Venetian-Genoese rivalry rather than the dispute over the monastery of Saint Sabas.

⁹³ Mallet and Hale, *The Military Organization of a Renaissance State*, 8.

ascending state in the Po River Valley. The alliance allowed Venice to acquire Treviso in 1339.

The direct annexation of Treviso was Venice's first permanent mainland acquisition and signified the first abandonment of the Republic's passive management of the mainland. Venice primarily managed mainland states through diplomacy. Venice's treatment of Padua in the 1230s serves as an example of typical Venetian mainland diplomacy. The Trevisans signed a *capitulum*, a legal statement incorporating Treviso into the Venetian Commune. The transfer of Venetian political institutions to Treviso formalized Venice's first commitment to *Terraferma*. Venice installed a *podestá*, an appointed official with mayoral powers, to govern Treviso and established a large council akin to the Venetian Council of Ten.⁹⁴ The Venetians allowed the Trevisans to keep their legal customs and provided the city with the freedom to elect lower officials. The motivations for the Venetian annexation of Treviso were primarily economic.⁹⁵ Dominating Treviso afforded Venice control over the exchange of goods on the Sile River and allowed the Venetians to control the timber resources of the Sile and Lower Piave.⁹⁶

The Venetians waged war against the Genoese over eastern trade in 1350. Control of Crimean commerce was still at the heart of conflict between the cities of St. Mark and St. George. The Crimean ports of Kaffa and Soldaia provided the rival maritime powers with marketable luxury goods such as Baktrian Silk, Far Eastern spices, and Russian furs.

⁹⁴ Crouzet-Pavan, *Venise Triomphante*, 128. The Capitulum can be found in: ASV, *Atti provenienti dall'Archivio di Stato di Treviso 1220–1671*, Fondo IT ASVe 3030 003, buste 5, registri 80–82, Archivio di Stato di Venezia, Venice.

⁹⁵ Crouzet-Pavan, *Venise Triomphante*, 108.

⁹⁶ Appuhn, *A Forest on the Sea*, 38.

Yet, neither republic was in the position for a prolonged engagement over the Black Sea in the 1350s. An epidemic of bubonic plague, which likely originated from the Crimean ports, struck Venice in 1348. The plague claimed sixty percent of the Venetian population by 1350 and left the Venetians reeling.⁹⁷

In 1350, the Genoese seized several Venetian vessels near Kaffa. The Venetians attacked Genoese trade in retaliation and the hostilities of the third Venetian-Genoese War commenced. Both sides attacked commercial ships and ports. The disruption of commerce was often a major aim for warfare between the two republics and for fourteenth century warfare in general.⁹⁸

Fighting over the strategic Galata Tower, the Genoese inflicted massive casualties on the combined Venetian/Aragonese fleet during an engagement in the Bosphorus in 1352. The Venetians lost well over 1600 men.⁹⁹ The loss of so many able-bodied mariners was catastrophic for the Venetians after the Black Death. The Genoese also lost a good portion of their fleet, but still held Galata Tower. After defeating the Venetians in the Bosphorus, the Genoese exacted trading rights from the Byzantine Emperor John VI Cantacuzenus that granted the Genoese a monopoly on the Black Sea trade. The Venetians partially relied on the Black Sea for wheat and could not allow the Genoese to possess unfettered control of the region.

Wars with Genoa stifled Venetian commerce with the Italian mainland. Venice's mainland markets stalled whilst the Arsenal placed pressure on the timber resources near

⁹⁷ John Julius Norwich, *A History of Venice* (New York: Alfred A. Knopf, 1982), 216.

⁹⁸ William P. Caferro, "Warfare and Economy in Renaissance Italy," *The Journal of Interdisciplinary History* 59, no. 4 (Winter 2006): 174.

⁹⁹ Norwich, *A History of Venice*, 217.

Treviso. Under normal circumstances, Venetian galleys lasted nearly a decade, yet the Venetians lost a good portion of their eastern fleet in the Bosphorus.¹⁰⁰ Venice prioritized securing stands of timber on the mainland. To make matters worse, the Venetians experienced a timber shortage in the 1340s.¹⁰¹ The exportation of timber and usage by the Arsenale contributed to the shortage of Sessile Oak in that decade.¹⁰² The Arsenale's acute need for timber required the Venetians to regulate the mainland's timber market. The Venetians did not yet possess the authority to regulate mainland forests. Thus, in order to secure timber supplies for the Arsenale, the Venetians were required to control the importation of ship-timber into the city.

Only the Great Council (*Maggior Consiglio*) possessed the authority to regulate incoming commerce into the city. This body of fifteen-hundred men formed the core of the legislative branch of the Venetian government and were the patricians of the city. All major policy decisions ultimately rested on the Great Council. The Senate (*Pregadi*) controlled day-to-day legislation and consisted of one hundred and twenty men with numerous *ex officio* members.¹⁰³ The Doge oversaw the entire legislative body with his six councilors, the Minor Council (*Minor Signoria*). However, the councilors did not play a minor role because the Doge was essentially powerless without their approval. The

¹⁰⁰ Lane, *Venetian Ships*, 263. A decade is rather short in comparison to the twenty-five year service period for an Athenian Trireme. J. R. Hale, *Lords of the Sea: The Epic Story of the Athenian Navy and the Birth of Democracy* (New York: Penguin Books, 2009), 25.

¹⁰¹ de Berenger, *Saggio Storico*, 11. Here de Berenger quotes Doge Bartolomeo Gradenigo's letter to the *podestà* of Treviso- Feb. 8, 1341- ASV.

¹⁰² The Venetians exported timber throughout the Mediterranean in the thirteenth and fourteenth centuries. This timber trade include the Levant; Eliyahu Ashtor, "Observations on Venetian Trade in the Levant in the XIVth century," in *East-West Trade in the Medieval Mediterranean*, ed. Benjamin Z. Kedar (London: Variorum Reprints, 1986), 545–547.

¹⁰³ Norwich, *A History of Venice*, 282.

Great Council, the Senate, the Doge, and his councilors formed the basis of the Venetian government, known as the *Commune Veneciarum* in the primary sources. The *Commune* encapsulated the government's authority to administer the *Sestieri*, the six cities of Venice. As the Venetians expanded onto the mainland the language of rule changed.

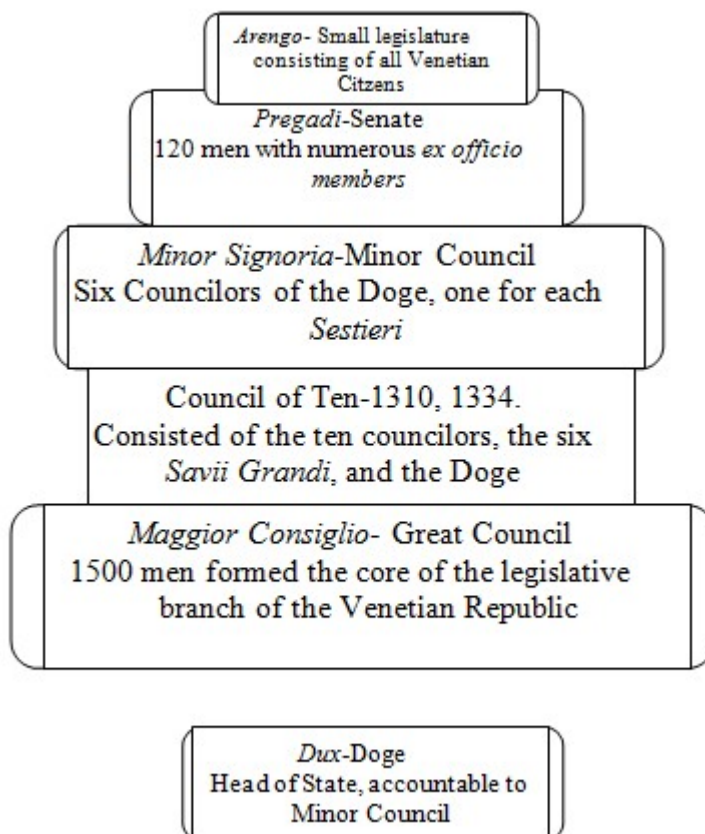


Figure 2.1: *Commune Veneciarum c. 1350.*

Another important Venetian political body that formulated forest policy was the Council of Ten. The Great Council established the Council of Ten in July of 1310 as an emergency measure against the Tiepolo family.¹⁰⁴ Bajamonte Tiepolo attempted to overthrow the Great Council in June of 1310.¹⁰⁵ The Great Council permanently

¹⁰⁴ Lane, *Venice: A Maritime Republic*, 115–116.

¹⁰⁵ *Ibid.*

established the Council of Ten in 1334. The Council of Ten consisted of the ten councilors, the six ministers (*Savii Grandi*), and the Doge. In the fifteenth century, the Council of Ten administered the security of *Terraferma* and eventually enacted several important pieces of forest legislation. Timber was a crucial component for Venetian security and the Council of Ten's authority to manage mainland forests was an extension of their primary responsibility to maintain the security of the Republic.

The Great Council addressed the timber shortage of the 1340s through the passage of a law that regulated the oak trade within Venice. Enacted in 1350, the law granted the Arsenal its choice of the finest specimens of oak in the Venetian market.¹⁰⁶ This measure was an indirect attempt on the part of the Great Council to control the quality of timber produced on the mainland. No legal precedence existed for Venice to dictate forest management policy to Treviso in 1350. The inconvenient timing of the oak shortage with the Genoese war inspired an epiphany among the Venetians. The timber resources of the mainland were finite and could very well disappear without regulation. This sudden realization spurred the Venetians into developing a policy of conservation and domination of mainland timber resources.¹⁰⁷ Venetian forest laws of the fourteenth century serve as the most tangible object of Venice's policy of forest conservation.

Venice, Milan, and Florence dominated the politics of late fourteenth century Northeastern Italy. Venice's role as a major player came from its commercial ties to the Italian mainland and the city's vast trading empire in the Adriatic and Aegean Seas.

¹⁰⁶ ASV, *Compilazione Leggi*, Busta, 102, c. 45. This law can also be found in ASV, *Provveditori e Patroni all'Arsenale*, Busta. 5, c. 65.

¹⁰⁷ Appuhn asserts that a "perceived" and not an actual oak shortage sparked a strategy of limiting access to mainland timber. Herein I assert that an actual shortage occurred. Appuhn, *A Forest on the Sea*, 53.

Situated in the upper watershed of the Po River, Milan sought to expand south under the leadership of Gian Galeazzo II Visconti. The Visconti family dominated Milan since the early fourteenth century and constituted a more traditional lordship (*Signoria*) than Venice.¹⁰⁸ Milanese expansion in the south placed them in direct conflict with the Florentines, who sought to protect their interests in Romagna. Although the Florentines distrusted the Venetians, they found a common enemy in Milan.

During the second Venetian-Genoese war, Genoa came under the protection of the Milanese Visconti family. Milan's proximity to Treviso placed Venice's only direct mainland possession in a precarious position during this war. Nevertheless, the Milanese threat and the timber shortage exposed two vital weaknesses in Venice's position on the mainland. One source of timber was not only insufficient for the production of warships in the Arsenal, but was dangerous as well. The Venetians flirted with disaster by relying on one vulnerable city for their timber supply. Likewise, the Milanese also revealed to Venice and its rivals that the Republic lacked a buffer between its lagoons and rival mainland powers like Milan and Florence.

The Genoese recommenced hostilities with the Venetians in 1354. Paganino Doria attacked Venetian cities along the Dalmatian coast and disrupted Venetian trade throughout the Adriatic. Paganino was part of the long line of the Dorias that produced learned and skilled commanders throughout the history of the republic of St. George. After his success in the Adriatic, Doria shifted his focus to the Aegean Sea. The Venetians pursued Doria with fifty-six ships, however Doria ambushed the Venetians and

¹⁰⁸ Jane Black, *Absolutism in Renaissance Milan: Plenitude of Power under the Visconti and Sforza, 1329–1535* (New York: Oxford University Press, 2009), 52.

captured them near the harbor of Sapienza in November of 1354. The Genoese caught the Venetians resupplying and attacked them while their vessels were beached.¹⁰⁹

The Venetian defeat at Sapienza placed a heavy burden upon Venetian commerce and the Arsenale's timber supplies. The defeat also illustrated that continued war with Genoa required the Republic to maintain multiple secure sources of timber. Dalmatia and the Italian mainland were the most likely sources during the second Venetian-Genoese war. The Arsenale required properly seasoned timber reserves in order to replace the lost vessels. The Venetians knew the dangers of ships built of green timber.¹¹⁰ As Vegetius, the fourth century Roman strategist, noted, "nothing is more dangerous for sailors than fresh timber."¹¹¹ Green timber was prone to cracking in saltwater and made ships slower. The timber shortage on the mainland left the Venetians and the Arsenale in no place to continue hostilities with the Genoese in the winter of 1354-55. In June 1355, the Venetians brokered a truce with the Milanese through an agreement that barred the Venetians and Genoese from trade in the Black Sea for three years.¹¹²

In 1356, Hungaria and the Genoese both attacked the Venetians. Venice's direct domination of Trevisan politics allowed the Venetian *podestá* to foil a plot to hand over the city to the Hungarians. Treviso bogged King Lajos's forces down and allowed the

¹⁰⁹ Daniele di Chinazzo, *Cronaca della guerra di Chioggia*, ed. V. Lazzarini. Deputazione di Storia Patria per le Venezie: Monumento Storici. Nuova serie xi (Venice: 1958), 1.100–103.

¹¹⁰ The Genoese were well aware of the dangers of green timber too. Paul W. Bamford, *Fighting Ships and Prisons: The Mediterranean Galleys of France in the Age of Louis XIV* (Minneapolis: University of Minnesota Press, 1973), 80.

¹¹¹ "Nam quae virides conpinguntur...quo nihil est periculosius navigantibus," Vegetius, *De Rei Militari*, 4.36. The Latin Library. Digitized in Latin Online, Accessed June 2, 2013, <http://www.thelatinlibrary.com/vegetius.html>. M. Beaudoin translation.

¹¹² Diehl, *Une Republique Patricienne*, 67; cf. Norwich, *A History of Venice*, 231.

Venetians to negotiate a truce in the late months of 1356.¹¹³ However, Treviso crumbled in 1357 and the Hungarians controlled the mainland shores of the lagoon. The Venetians dispatched envoys to the Magyar king to sue for peace. Venetian possessions on the Dalmatian coast served as the pretext for the Hungarian War and King Lajos sought to ruin any opportunity for Venice to recover its position in Dalmatia. Thus, he demanded Venice's Dalmatian possessions as the cost for peace.

Losing the Dalmatian cities would impede Venice's access to a ship-timber conifer that the forests around Treviso lacked. Trade upon the Adriatic united the Latin Venetians and Slavic Dalmatians more than it separated them.¹¹⁴ Zara (Zadar), Ragusa (Dubrovnik), and Fiume (Rijeka) provided the Venetian fleet with crucial stops along the way to the Aegean and granted Venice trade in precious metals, slaves, and timber. Norwich suggests that Dalmatian Pine was the "chief source of timber for Venice's fleet."¹¹⁵ Such an assertion is problematic because Sessile Oak was the primary species that the Arsenale and private shipwrights consumed. The construction of ships primarily with species of the *Pinus* genus was more prevalent in the Ancient Era.¹¹⁶ The Arsenale acquired Silver Fir from Dalmatian cities for the production of masts and spars.

¹¹³ Pál Engel, *Realm of St. Stephen: A History of Medieval Hungaria* (New York: I. B. Taurus, 2005), 162.

¹¹⁴ Viktor Novak, "The Slavonic-Latin Symbiosis in Dalmatia during the Middle Ages," *The Slavonic and East European Review* 32, no. 78 (December 1953): 11.

¹¹⁵ Norwich, *A History of Venice*, 233.

¹¹⁶ The dominance of Oak in the Renaissance is in stark contrast to the widespread use of conifers for trireme and quinquereme construction in the ancient world. The Athenians and other Aegean powers constructed their triremes predominately out of Aleppo Pine (*Pinus halepensis*). The light grainweight of Pine allowed ancient powers to construct lighter and faster ships for the purpose of ramming enemy vessels. Theophrastus, *Historia Plantarum*, trans. Sir Arthur Hort - Leobs Classical Library (Cambridge: Harvard University Press, 1916), 5.7.1-2. cf. Mieggs, *Trees and Timber*, 44; Hugo Blümner, *Technologie und Terminologie der Gewerbe und Künste bei Griechen und Römern* (Munich: B. G. Tuebner, 1875), 255–261.



Figure 2.2: *Dalmatia*. Source: C. I. Gable, *Dalmatia Pirates* (<http://www.boglewood.com/timeline/pirates.html>).

The Hungarian war only magnified Venice's concern about the security of Treviso. The Venetians acquiesced to the peace terms with the Hungarian King because very few alternatives existed for the struggling Republic. The Hungarians firmly controlled Treviso, the "final bastion, on which the safety of the Republic itself depended."¹¹⁷ The Venetians sacrificed their Dalmatian provinces for the safety of Treviso. Repeated assaults upon the Venetian mainland required Venice to shift some of its focus onto securing Treviso and its valuable timber market. Although the Venetians lost their Dalmatian possessions, the Hungarians afforded them access to Istrian timber. Venetian presence in Istria dates back well into the ninth century and did not hinder King Lajos's aspirations in Dalmatia.¹¹⁸ Yet, access to Istrian Fir was always problematic due to a general lack of labor and the peninsula's precariously close position to Dalmatia.¹¹⁹ A revolt in Trieste in 1369 hindered Venetian access to Istrian timber by halting timber

¹¹⁷ Norwich, *A History of Venice*, 233.

¹¹⁸ On the Venetians in Istria see Suzanne Mariko Miller, "Venice in the East Adriatic: Experiences and Experiments in Colonia Rule in Dalmatia and Istria c. 1150–1348" (PhD dissertation, Stanford University, 1997).

¹¹⁹ On a lack of Istrian labor, see Appuhn, *A Forest on the Sea*, 40.

harvests. The loss of Dalmatia made it crucial for Venice to strengthen its commercial and political ties to the mainland in order to bolster the security of the lagoon and safeguard valuable mainland commerce, including timber.

The Carraresi family is one of the lesser-known Italian families of the fourteenth century, yet they played a direct role in instigating Venetian expansion onto the Italian mainland. The family seized control of Padua from the della Scalla family in the early fourteenth century.¹²⁰ The family looked to capitalize on Venice's weakened position after the Hungarian war and agitated anti-Venetian sentiments in Padua. Francesco da Carrara raised an army and besieged the city in the autumn of 1369. The Venetians successfully defended the mainland from the Carraresi family until the Hungarians intervened once again in 1373. The combined forces of the Carraresi and the Hungarians handed the Venetians two swift defeats. The war turned in Venice's favor when the Venetians captured the nephew of the King Lajos near a Venetian fortification on the Brenta River. Venice forced the Hungarians out of the war and isolated Francesco from his allies.

The Carraresi attacked Venetian fortifications on the Brenta River in order to acquire the nearby saltworks, yet the Brenta played a crucial role in Venetian mainland commerce. The economy of the mainland and the Venetian timber suppliers utilized the region's major rivers for the transportation of goods. Treviso's economic importance and proximity to the Sile River was no mere coincidence. Each mainland timber river presented the Venetians with unique challenges, but the Piave watershed supported the

¹²⁰ John Kenneth Hyde, *Padua in the Age of Dante* (Manchester: Manchester University Press, 1966), 168–170.

growth of the four essential ship-timber species: Sessile Oak (*Quercus sessiliflora*), European Beech (*Fagus sylvatica*), Silver Fir (*Abies alba*), and European Larch (*Larix decidua*). The Venetians also harvested Wych Elm (*Ulmus glabra*) and Persian Walnut (*Juglans regia*) for the construction of mastheads and rudders, respectively.¹²¹ However, both species played a secondary role in ship production.



Figure 2.3: Sessile Oak. Source: Hesse, Germany - Wikimedia Commons (http://upload.wikimedia.org/wikipedia/commons/8/89/Quercus_petraea_06.jpg).



Figure 2.4: European Beech. Source: Wikimedia Commons (http://upload.wikimedia.org/wikipedia/commons/5/5b/Grib_skov.jpg).

¹²¹ Lane, *Venetian Ships*, 218. The Romans likely introduced the Persian Walnut into the Po River Valley from Greece in the 2nd century B.C.E. Hemp was also a crucial component for riggings.



Figure 2.5: Silver Fir. Source: Thüringer Wald, Germany-Wikimedia Commons (http://upload.wikimedia.org/wikipedia/commons/8/8e/Abies_alba_Schleus_Berg_b_Suhl_ThW_Th_Dreger.jpg).



Figure 2.6: Wych Elm. Source: California State Polytechnical University-SLO SelecTree (<http://selectree.calpoly.edu/photos.lasso?rid=800>).



Figure 2.7: European Larch. Source: U.C. Berkeley. CalPhotos (http://calphotos.berkeley.edu/imgs/512x768/0000_0000/0613/2030.jpeg).



Figure 2.8: Persian Walnut. Source: Persian Walnut. Oregon State University. Department of Horticulture (<http://oregonstate.edu/dept/ldplants/images/jure6888.jpg>).

The Venetians consistently experienced shortages of the two deciduous hardwood species: oak and beech. Sessile Oak, also referred to as Durmast Oak, was the most important tree species for the Venetian Arsenal. Oak provided Venetian vessels with a solid, rot-resistant keel and “accounted for over three-quarters of the timber in a Venetian ship.”¹²² The Arsenal also utilized Oak’s decurrent and branching growth pattern by fashioning odd angled branches into knees for deck beams and solid ribs. Sessile Oaks prefer the large swath of alluvial soil near the Venetian Lagoon and the lowlands of the Po River Valley. The Arsenal harvested beech at intermediate altitudes for the construction of oars. Beech’s affinity for well-drained soils allowed the species to thrive only in a limited section of the mainland.¹²³ Prominent beech stands appear in the lower montane zone at 1,300 feet. Venetian industries placed pressure on the Arsenal by consuming the limited beech forests on the mainland for the production of charcoal.

In the 1320s Marino Sanuto the elder remarked to Pope John XXII that the best fir and larch in the world could be found in Venice.¹²⁴ Fir and larch are softwood species

¹²² Appuhn, *A Forest on the Sea*, 54.

¹²³ The range of *Tetraferma* beech is similar to the distribution of the Carta Ecopedologica’s Soil Region 3.40–49. “Po River Valley” European Soil Data Centre (ESDAC), Accessed January 23, 2014. <http://eusoils.jrc.ec.europa.eu/wrb/>.

¹²⁴ Lane, *Venetian Ships*, 219.

that prefer higher elevations than both oak and beech. Silver Fir thrives in the cool, moist air of Dolomites and avoids the relative warmth of the Po River valley. Thus, the Venetians ventured into the Dolomites to acquire appropriate fir specimens. A mature tree served as the best material for masts. A Venetian shipwright could hone several masts out of a 180-foot tall mature Silver Fir. The Arsenale constructed interior molding and beams from larch.¹²⁵ Like fir, larch also thrives in cold conditions and required well-drained montane soils. Although larch played a secondary role to fir and oak, secure access to the species required the Venetians to extend their control into the tree's habitat.

Tree species distribution, available labor, and proximity to rivers helped to determine the location of Venetian timber harvests. Each ship-timber species favored specific climactic and soil conditions.¹²⁶ Conifers' proclivity for cold and moist environs forced the Venetians to look for fir at higher elevations in the Alps, whereas oak thrived in the alluvial lowlands of the Po River Valley. Available manpower was a real concern for Arsenale tree harvests.¹²⁷ Harvests often occurred in February or March to coincide with higher water flows in rivers and the labor market. Available labor for timber harvest was contingent upon the mainland agricultural cycle and labor was often available after the planting of the winter wheat crop. Population density also influenced the amount of available labor. Luckily for the Arsenale, oak stands thrived along the densely populated Po River. However, mountain settlements with access to conifers possessed smaller pools

¹²⁵ Venetian source for species of timber: Senato Mar, reg, 21, ff. 20, 32. Larch is a bit of an oddity in the tree world because it is a deciduous conifer.

¹²⁶ Herein there is little need to present the Köppen Classification of the Veneto. This general principle of soil and climate applies to most forests: Karl F. Wenger, ed., *Forestry Handbook* (Hoboken, NJ: Wiley and Sons, 1984), 98.

¹²⁷ Appuhn, *A Forest on the Sea*, 46.

of labor. Manpower dissipated as harvests moved further north into the Alps or moved east of the Piave River. Territories farther east, such as Istria, consistently lacked available labor for harvests.

Deep rivers with consistent spring flow rates allowed the Venetians to transport timber out of the Po River Valley and the Alps for final production at the Arsenal. The Venetians planned their harvests to focus on the timber nearest to rivers in order to ease transportation and reduce cost. Fine timber reserves existed along the Quieto in Istria, yet the Quieto possessed inconsistent flow rates, which made Istrian timber expensive.¹²⁸ Timing the harvest with the snow melt played a crucial role in a successful timber harvest for the Arsenal. Years with low precipitation posed serious limitations on the transportation of timber to Venice. The vicissitudes of conditions imposed by the labor force and the weather made it impractical for Venice to base its entire timber supply on just Treviso and the Sile River. Control of *Terraferma*'s rivers would allow the Venetians to manipulate the exchange of timber on the mainland.

Out of the six important timber watersheds, the Piave produced Venice's richest supply of harvestable timber and all the species necessary for ship production. The Piave is an important river for this inquiry because the Venetians established their first Arsenal reserves along the Piave at Belluno and Montello. The Piave originates in the Carnic Alps near the foot of Mount Peralba at an altitude of 8,500 feet. The forests of the Upper Piave fall within the upper montane Mediterranean zone and are dominated by conifers with intermittent beech stands.¹²⁹ Cadore and Belluno provided Venice with timber supplies

¹²⁸ ASV, Amministrazione Forestale Veneta, B.7.

¹²⁹ Ioannis Vogiatzakis, *Mediterranean Mountain Environments* (Hoboken, NJ: Wiley and Sons, 2012), 119.

out of the Upper Piave. The conifer dominated forests of Cadore and Belluno give way to a mixture of conifers and deciduous trees near Asolo. This middle stretch provided the Venetians primarily with beech, but also supported stands of oak. The Lower Piave nourished excellent stands of oaks and settlements near the river possessed abundant amounts of manpower.¹³⁰ The Piave emptied near the Venetian lagoon and was ideal for it provided a deep flowrate for the transportation of lumber.

The Isonzo and Tagliamento allowed the Venetians to harvest timber from Friuli. Both rivers originate in the Alps and harbored good stands of oak and beech. The decrease in population density along the Isonzo made it difficult for successful harvests. Harvesting along the Tagliamento was also not ideal because of the river's unpredictable flowrate.¹³¹ The Venetians floated timber from the Isonzo's mouth some eighty miles away from Venice to the Arsenale. Despite the limitations of the Tagliamento and the Isonzo, the Venetians extracted timber from Venzone and Gorizia.

¹³⁰ Marino Sanuto, *Diarii*, 27.2.

¹³¹ Gregory H. Sambrook Smith, James L. Best, Charlie S. Bristow, and Geoff E. Petts, *Braided Rivers: Process, Deposits, Ecology, and Management* (Hoboken, NJ: Wiley and Sons, 2009), 330–335.

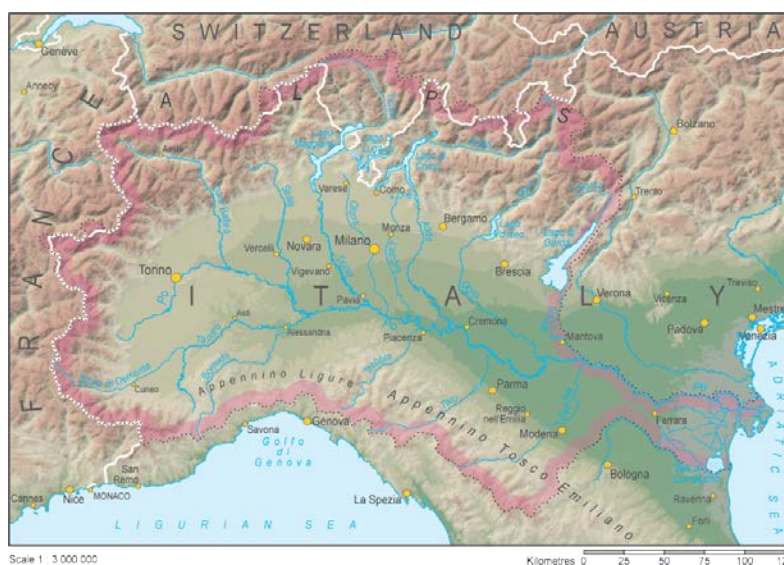


Figure 2.9: Timber Rivers within the Po River Watershed. Adapted from the Eastern Kentucky University Department of Geography (<http://people.eku.edu/davisb/geo100/Poriver.htm>).

The location of rivers and the distribution of ship-timber species also affected Venetian rivals. Venice's proximity to the steady gradation of the vegetative zones of the Po Plain and the Alps afforded the Venetians more timber species to work with than their rivals. Liguria offered beech and abundant supplies of chestnut to the Genoese. Yet, Genoese supplies of ship-timber were spread along thin Ligurian coastal shelves. The Po River watershed granted the Venetians several avenues for timber transportation that Liguria lacked. It is undeniable that the unique geography of Venice upon the lagoon afforded St. Mark's Republic certain advantages that its rivals lacked.

The ongoing Venetian-Genoese rivalry rendered Venice's foothold on Treviso and the timber trade of the Piave untenable. A fight over precedence during the coronation of Peter II of Cyprus instigated yet another war with Genoa in 1378.¹³² The

¹³² Steven A. Epstein, *Genoa and The Genoese: 958–1528* (Chapel Hill: University of North Carolina Press, 1996), 236.

fight over precedence was simply a proxy for tensions over eastern trade. The fight started the War of Chioggia. This new war was much different from previous conflicts between Genoa and Venice. The Genoese used the war to attack Venice's exposed mainland territory and the war served as a springboard for Venice's conquest of *Terraferma* and the mainland's timber resources.

The Venetians also struggled to find steady supplies of beech during the latter half of the fourteenth century. The 1350 regulation on oak trade within Venice responded to a shortage of prime oak. The Venetians referred to the oak shortage as a *carestia*, a famine. Such language in the primary sources is often paired only with a shortage of wheat or salt.¹³³ Wheat and salt were the other two natural resources that Venice managed through the manipulation of legal codes. The Great Council passed a regulation in 1372 that imposed a nine *grossi* fine upon ship captains per lost oar.¹³⁴ The *grosso* was a measure of silver Venetian coinage equivalent to 4% of the value of a *ducat*.¹³⁵ Commanders often lost several dozen oars at a time. The fine could increase quite quickly, so many ship captains avoided the fine by leaving excess oars with the Arsenale. The oar policy attempted to conserve beech supplies with Venice and did not directly address timber

¹³³ This language can be found in Marino Sanuto, *Diarii*, 56.276; 56.357.

¹³⁴ ASV, Provveditori all'Arsenale, Busta 5. Also mentioned by Appuhn, *A Forest on the Sea*, 51.

¹³⁵ Alan M. Stahl, *Zucca: The Mint of Venice in the Middle Ages* (Baltimore: Johns Hopkins University Press, 2000), 35. The value of one fifteenth century Venetian Ducat is best measured by its weight of 3.560 grams in Gold. cf. Phillip Grierson, Mark A. S. Blackburn, and Lucia Travaini, *Medieval European Coinage: Italy, South Italy, Sicily and Sardinia* (New York: Cambridge University Press, 1998), 460. To put this figure into perspective, the value of nine Venetian *grossi* was comparable to the purchasing power of \$71 in 2014. Formula for value of a Venetian Ducat = 5 year average of Gold in US\$ between 2014 and 2010 (\$1512) x the ratio of 3.56 grams to one ounce (.13). Thus, one Venetian Ducat = 1512(.13) = \$196.56 U.S. Dollars. Formula for the cost of an oar = 9 (*grossi*) x .04 (value of *grossi* compared to a Ducat) = .36. Thus, 9 *Grossi* equaled 36% of the value of one Ducat. Therefore, the cost of one oar = 196.56(.36) = 70.76↑= 71. See London Bullion Market Association for 5 year average of gold prices (<http://www.lbma.org.uk/pricing-and-statistics>).

consumption on the mainland. Only an extension of Venetian political authority onto the mainland would allow Venice to govern and direct forest resources.

A Venetian ship could not operate without beech oars. The construction of each large Venetian galley required 180 oars and consumed, at a conservative estimate, forty mature beech trees.¹³⁶ Thus a small fleet of fourteen galleys required over 2,500 oars and consumed 560 trees. Such a figure does not consider the additional pressure placed upon timber resources by Venetian firewood and industrial needs. The scarcity of beech made oars a valuable commodity for the Arsenale and the general shortage of timber, coupled with demographic losses to the plague, reduced the size of fleets in the War of Chioggia.

In preparation for another naval fight with Genoa, the Great Council placed Vittorio Pisani and Carlo Zeno in control of the Republic's naval forces. In May of 1378, Zeno began a raiding campaign on Genoese vessels in the Aegean and Pisani led a Venetian fleet of fourteen galleys to attack the Genoese in the Tyrrhenian Sea.¹³⁷ Pisani's expedition found early success with his defeat of a Genoese fleet south of the mouth of the Tiber. The Venetians turned their attention to reacquiring cities along the Dalmatian coast. Pisani captured Cattaro (Kotor) and Sebenico (Šibenik) before retiring at Pola for the winter of 1378-79. The bitterly cold and damp conditions of the quarters at Pola weakened the Venetian fleet. The Genoese caught the Venetians in port in May 1379 and captured most of Pisani's ships. The Venetians killed the Genoese commander, Luciano

¹³⁶ On the Oars figure: Lane, *Venetian Ships*, 24. On the tree figure: Appuhn, "Environmental Politics," 57.

¹³⁷ The number of vessels fluctuates. 14 is given by Lane, *Venice: A Maritime History*, 191.

Doria, but lost complete control of the Adriatic Sea and imprisoned Pisani for neglecting to patrol Pola's harbor.¹³⁸

Venice emerged from the defeat at Pola in a defenseless position. The Genoese secured alliances with the Carraresi and the Hungarians. The Genoese navy cruised through the Adriatic with impunity and the Carraresi shut Venice off from its mainland. The Genoese, Carraresi, and Hungarians planned to choke Venice into submission. Venice's policy of noninterference in the politics of the mainland allowed Genoa to quickly blockade the city. Genoa took the island of Chioggia in August and prepared to assault the city directly. Venice sued for peace, but Pietro Doria, the Genoese commander, replied, "You will never have peace from the lord of Genoa until we bridle the unreined horses of Saint Mark."¹³⁹ The death of Pietro Doria's nephew at Pola doubtlessly still vexed him and the Genoese acted in a manner that suggests that they intended to indefinitely ruin Venice's naval and commercial capabilities.¹⁴⁰

The seizure of Chioggia prompted the Venetians to release Pisani from jail. The Venetian populace believed that the Senate erred by not allowing Pisani's fleet to winter in Venice, instead of Pola.¹⁴¹ Pisani avoided direct conflict and raided Genoese supply lines in the lagoon while the city anxiously awaited the return of Carlo Zeno from the east. Zeno wreaked havoc upon Genoese shipping by seizing merchant vessels off the coast of the Levant. However, he returned to grant his home city aid in January 1380.

¹³⁸ Chinazzo, *Cronaca*, 1.40–42.

¹³⁹ Samuele Romanin, *Storia documentata di Venezia* (Padua: P. Naratovich, 1855), 3:276.

¹⁴⁰ Lane, *Venice: A Maritime Republic*, 194.

¹⁴¹ Chinazzo, *Cronaca*, 1.54. The public was only satisfied with the release of Pisani, "Veneziani per soddisfare al suo popolo cavarono di prigione e liberarono Vettore Pisani con molti sopracomiti che erano prigionieri i quali uscirono alli 19 agosto con gran concorso e molta allegrezza di tutti Questo gentiluomo."

Zeno quickly surrounded the Genoese forces in Chioggia. The Venetian counterattack on Chioggia is noteworthy in naval history as the first known use of gunpowder to bombard a city from ships.¹⁴² Venetian bombards killed the ever confident Pietro Doria.¹⁴³

The Venetians turned the tables on the Genoese and starved them into peace negotiations in June of 1380. Padua and the Hungarians faded from Genoa's side and Venice secured its adjacent mainland. However, the Venetians "avoided defeat" rather than secured victory at Chioggia.¹⁴⁴ Venice narrowly escaped a Genoese occupation and did not possess the manpower nor a sufficient supply of seasoned timber to continue a naval offensive. The war concluded with the signing of the Treaty of Turin in 1381. The provisions of the treaty were unfavorable to Venice. The Venetians granted Trieste its freedom under the condition of a yearly tribute and ceded the economically important and strategic island of Tenedos to Genoa.¹⁴⁵ The war itself left Venice without allies and in order to broker an alliance with Austria, the Venetians gifted Treviso to Leopold III. The Venetians lost direct control of the resources of the mainland, including timber.

Wars with Milan, Hungaria, Genoa, and the Carraresi family resulted in a series of defeats that made Venice reevaluate the security of Treviso and its mainland timber supply. These defeats only strengthened the Venetian resolve. After the Genoese occupation of Chioggia, the Venetian citizens declared, "Let us arm ourselves; let us equip and mount what galleys we have in the Arsenale. Let us go forth; it is better to

¹⁴² John Dotson, "Venice, Genoa, and Control of the Seas in the thirteenth and fourteenth centuries," in *War at Sea in the Middle Ages and the Renaissance*, eds. John B. Hattendorf and Richard W. Unger (Woodridge, UK: Boydell Press, 2003), 133. cf. Lane, *Venice: A Maritime Republic*, 195.

¹⁴³ Chinazzo, *Cronaca*, 2.77

¹⁴⁴ Crowley, *City of Fortune*, 229.

¹⁴⁵ Chinazzo, *Cronaca*, 6.181.

perish in the defence of our country than to perish here through want.”¹⁴⁶ The most direct repercussion of wars with Genoa, Milan, and Hungaria was Venice’s abandonment of a passive system of management of the mainland. The establishment of new ministers and the direct confrontation with the Carraresi illustrated Venice’s newfound commitment to the mainland.

The War of Chioggia not only eliminated the Venetians from the timber trade of Northeastern Italy, but also reshaped the Venetian government. The Venetians formed the *Collegio* in 1380 in an attempt to truncate the formulation of war policy. The *Collegio* consisted of six ministers (*Savii Grandi*) of war, finance, and maritime possessions.¹⁴⁷ The ministers expedited policy-making on matters of small consequence, but deferred to the Great Council on more important policy issues.¹⁴⁸ The establishment of the *Collegio* was a form of Venetian reactive policy. Venetian timber policy in the fourteenth century was also reactive because the timber legislation of 1350 and 1372 attempted to remedy an existing problem.

The Peace of Turin largely ignored the wishes of the Carraresi family. Francesco de Carrara sought to extend Padua’s influence over Treviso. Carrara besieged Treviso in 1382 and the Austrians, rather than fund an expensive defense of the city, sold the city to Padua.¹⁴⁹ The purchase of Treviso granted the Carraresi control over the most lucrative

¹⁴⁶ Hazlitt, *History of the Venetian Republic*, 279.

¹⁴⁷ Donato Giannotti, *La Repubblica Fiorentina e la Veneziana* (Venice: Company'tipi del gondoliere, 1840), 354. Google Books, Digitized Online, Accessed October 1, 2013, http://books.google.com/books?id=67BBAAAACAAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false.

¹⁴⁸ On the *Collegio* settling small policy matters: Anonymus, *Description ou traictié du gouvernement ou régime de la cite et seigneurie de Venise* (Perret 1896, II), 272. In Chambers, Fletcher, and Pullan, eds., *Venice: A Documentary History*, 43–45.

¹⁴⁹ Kretschmayr, *Geschichte von Venedig*, 244.

trade route on the mainland. The Carraresi also acquired important timber-producing settlements like Belluno and Feltre. In one move, Padua purchased the entire Venetian mainland for 100,000 ducats.¹⁵⁰ The Carraresi purchase of Treviso and Cadore irritated the Venetians.¹⁵¹ The family consistently challenged Venetian presence on the mainland and disrupted the flow of goods from the mainland into the city. Reacquiring control of mainland timber markets required the elimination of Padua's ascending power and, if need be, the Carraresi family.

The Venetians lacked the financial means to prevent the seizure of Treviso and allowed the city to fall under the influence of Padua. The Carraresi looked to expand their influence west in 1378 with an alliance with Gian Galeazzo of the Milanese Visconti.¹⁵² Both families attacked Verona and Vicenza under an agreement to split the territories after the campaign. Milan, however, reneged on the agreement and occupied both cities. The Venetians likely realized that Milan was also anxious about a strong mainland power centered at Padua.¹⁵³ Venice reluctantly accepted Milanese proposals for an alliance against Padua. Venetian Galleons attacked Padua by sailing up the Brenta and, with the aid of the Milanese, deposed Francesco in 1388. His son, Francesco Novello, succeeded him as *signori* of Padua.¹⁵⁴

¹⁵⁰ This figure equates to a little over 19.5 million US Dollars (2014). 1 Venetian Ducat (\$196.56) x 100,000 = \$19,656,000 U.S. Dollars. Norwich, *A History of Venice*, 263.

¹⁵¹ Hazlitt, *History of the Venetian Republic*, 722.

¹⁵² Benjamin G. Kohl, *Padua Under the Carrara* (Baltimore: Johns Hopkins University Press, 1998), 222–225.

¹⁵³ Chinazzo alludes to this in *Cronaca*, 1.53–57.

¹⁵⁴ For the Milanese-Venetian Alliance and the abdication of Francesco il Vecchio, see: Romanin, *Storia Documentata*, 315–320. A note on Francesco Novello, his last name differs not because he was a bastard. He changed his name in order to assume control of Padua without Venetian interference.

Novello completed Venice's task for them by retaking Padua from the Milanese in 1390. The Venetians admitted Novello into the Venetian nobility and provided him with full citizenship.¹⁵⁵ Venice rarely granted mainland families admission into the Venetian nobility and Novello was an exception. The Republic clearly viewed the Novello-led Carraresi family as an ally in the 1390s.¹⁵⁶ Novello did not hinder the timber trade near Padua and Treviso and was more concerned with confronting Milanese expansion. The Venetians used Padua and the Carraresi as a buffer between themselves and Milan.

Venice ultimately regained Treviso in a peace settlement between Milan, Padua, and Florence in 1392. Keen Venetian diplomacy allowed the Republic to regain the important timber city of Treviso without engaging in a costly war. After regaining Treviso, the Venetian Republic demonstrated a ruthless, but systematic, calculus in their treatment of the Carraresi. The death of Gian Galeazzo in 1402 weakened Milan and diminished Venice's obligation to maintain its relationship with Padua and Francesco Novello. The Carraresi still wished to amend the conditions of the Peace of Turin and Novello attempted to expand westward. Novello only needed to give the Venetians the slightest excuse for the Republic to move against him. The disfigurement of a Venetian envoy by Novello prompted the Venetians to turn on the Carraresi family. The Republic invested in a campaign of "diplomacy, bribery, terror, and war" to eliminate the Carrresi.¹⁵⁷ After much political maneuvering, the Venetians attacked and quickly sacked

¹⁵⁵ Kohl, *Padua Under the Carrara*, 304.

¹⁵⁶ Galeazzo Gatari, *The Fortunes of Francesco da Carrara, Lord of Padua*, trans. David Syme (Edinburgh: Constable and Co., 1830), 126.

¹⁵⁷ Kohl, *Padua Under the Carrara*, 332.

Padua in 1404. Venice captured and imprisoned Novello and his sons during the siege of Padua.

The capture of the Carraresi family provided the Venetians with several options. They could cloister Novello and his sons, but his influence in Padua made such a choice problematic. The Carraresi consistently interfered with Venetian commerce and the security of the mainland. The offenses of the Carraresi line fell upon Novello and his sons. The elimination of the family allowed the Venetians to solidify the security of Treviso and the mainland timber trade. Thus, the Venetians terminated the Carraresi line by strangling Novello and his sons with a crossbow string in January of 1406.¹⁵⁸ The execution of an entire family was an entirely new tactic of Venetian diplomacy and signified Venetian commitment to the mainland and its timber resources.

The wars with Padua, Hungaria, and Genoa required Venetian involvement in the politics on the mainland, yet the destruction of the Carraresi line was a stark departure from traditional Venetian diplomacy and served as a turning point for Venetian relations with the mainland. As noted, Venice usually settled political conflicts on the mainland by peaceful means.¹⁵⁹ With the execution of Novello, Venice illustrated its commitment to the security of Treviso and the city's commercial connections. The Venetian treatment of the memory of the Carraresi was also unprecedented. The Council of Ten declared *damnatio memoriae*, "a condemnation of memory," on the Carrara name in Padua. The Venetians removed family memorials and replaced them with St. Mark's Lion. Dead men

¹⁵⁸ Krestchmayr, *Geschichte von Venedig*, II, 255 & 600. cf. Gatari, *The Fortunes of Francesco da Carrara*, 185.

¹⁵⁹ Mallett and Hale, *The Military Organization of a Renaissance State*, 8.

not only wage no wars, but also do not interrupt commerce.¹⁶⁰ The beginning of Venice's conquest of *Terraferma* rests with the execution of the Carraresi.

Venetian expansion into *Terraferma* in the beginning of the fifteenth century followed a concerted plan with two objectives. The first objective was bolstering the security of the lagoon. An expanded *Terraferma* provided Venice with added security against mainland powers. The second objective was the expansion of commerce on the mainland. Fortresses on the region's major rivers not only provided protection to *Terraferma*, but also monitored Venetian commerce. Controlling the mainland granted the Venetian patriciate more opportunities for economic expansion. Venetian patrician families invested in the mainland since the eleventh century and the conquest of *Terraferma* granted these families more connections to the mainland through government posts and marriages.¹⁶¹

In the beginning of the fifteenth century, timber and foodstuffs were the most important commercial products of the mainland.¹⁶² The addition of Padua, Verona, and Vicenza in 1404 through 1406 granted the Venetians direct access to the timber trades of the Adige and Brenta. The Venetian administration of Padua was in stark contrast to other *Terraferma* polities. When the Venetians first annexed Treviso in 1339, Venice allowed the city to keep most of its political customs and laws. Venice dismantled Padua's political system and imposed Venetian law upon the city. Venetian timber

¹⁶⁰ On the death of the Carrara, the Venetians purportedly exclaimed: "*oumo morto non fa guerra*"- "Dead men wage no wars." Lane, *Venice: A Maritime Republic*, 227.

¹⁶¹ Gian Maria Varanini, "*Proprietá fondiaria e agricoltura*," in *Storia di Venezia*, eds. Alberto Tenenti and Ugo Tucci (Venice: ASV, 1991).

¹⁶² Lane, *Venice: A Maritime Republic*, 225.

legislation followed a similar pattern of first granting concessions and later, in the fifteenth century, obtaining direct control of the mainland's timber resources.

The Venetians also managed their mainland armies in a different manner after the conquest of Padua, Vicenza, and Verona. Instead of disbanding mercenary troops in the winter, Venice maintained troops in Vicenza for several years after 1406. A brief war with Hungaria in the 1410s demonstrated Venice's shift to a permanent standing force in *Terraferma*.¹⁶³ The *Terraferma* army was composed of mercenaries who proved their reliability, at least to the Venetian Senate, with the seizure of Rovereto in 1416. Rovereto not only possessed excellent stands of beech for use in the Arsenale, but also allowed the Venetians to control the commerce of the middle portion of the Adige. The Venetian employment of mercenaries differed from other Italian cities. Venice established a "cadre of permanent *condottieri*," unlike the temporary mercenary commanders employed by Milan and Florence.¹⁶⁴

Conflict with Milan in the 1420s also resulted in the acquisition of prime timberland for the Venetian Arsenale. Milanese expansion into Romagna forced Florence to seek an alliance with Venice in 1423. The three cities dominated Northern Italy, yet the rapid expansion of the Visconti dominions under the late Gian Galeazzo illustrated Milan's potential to dominate Northern Italy. An alliance with Florence would allow the Venetians to stymie Milan's power on the Western border of the new acquisition on the mainland. Yet, not all Venetians favored the recent expansion into *Terraferma*. Tommaso Mocenigo, the ailing ex-doge, cautioned against further expansion on the mainland. He

¹⁶³ Mallett and Hale, *The Military Organization of a Renaissance State*, 29.

¹⁶⁴ *Ibid.*

acknowledged the commercial prosperity of the mainland, but warned the Venetians against turning their back upon the sea.¹⁶⁵ The newly elected doge, Francesco Foscari, concluded that Milan represented a real threat to *Terraferma* and the Venetians allied with the Florentines. The alliance with Florence allowed the Venetians to check Milanese power and acquire Bergamo and Brescia in 1428. Bergamo and Brescia were well within Milan's sphere of influence and served as the western terminus of Venetian *Terraferma*.

The annexation of Bergamo and Brescia concluded a coordinated effort by the Venetians to secure their mainland frontier and its commercial products. Although *Terraferma* evolved out of Venetian commercial connections to the mainland, the War of Chioggia served as the springboard for Venetian expansion. Wars with Genoa, Padua, and Hungaria in the late fourteenth century illustrated the fragility of the city's commercial ties to the mainland and also revealed Treviso's vulnerability to foreign interference. Setbacks against these rival powers induced Venice to develop a foreign policy that coupled frontier security with resource conservation.

Firewood and timber shortages also placed pressure on the Venetian government. Combined with constant foreign conflict, these timber shortages opened a policy window for forest regulation in the 1350s and 1370s. The forest laws of 1350 and 1372 were limited to market regulations because the Venetians lacked the legal precedence to control mainland timber resources. The ultimate conquest of *Terraferma*, between the executions of the Carraresi in 1406 and the annexation of Bergamo in 1428, granted Venice control of all of the six important timber rivers. In a matter of thirty years, the

¹⁶⁵ Marino Sanuto, *Le Vite dei Dogi*, in *Rerum Italianarum Scriptores*, ed. Ludavico Antonio Muratori (Milan: n.p., 1733). Some scholars agreed with his appraisal including Pierre Daru, *Histoire de la république de Venise* (Brussels: N. J. Gregoir, 1840), 1.523.

Arsenale's access to forest resources expanded from a near-permanent closure of the market to a selection of the best timber of the Po River watershed. However, an incorporation of a mainland polity into Venetian *Terraferma* did not entitle Venice to direct control of the polity's timber resources. Many *Terraferma* cities willingly incorporated themselves into the Venetian Republic in exchange for protection from other mainland powers.¹⁶⁶ The conquest of *Terraferma* served only as the foundation for direct Venetian control of the timber resources of the mainland. The key to Venice's dominance of *Terraferma* forests rested with the development of Venetian forest law in the fifteenth century.

¹⁶⁶ The interpretation of Venice as the protector of mainland cities from "oppressive" *signoria*, like Milan, is grantedly skewed by the myth of Venetian Republicanism.

CHAPTER III: THE LEGAL CONQUEST OF *TERRAFERMA*'S TIMBER
RESOURCES

In 1569, a Florentine visitor to the city of St. Mark gibed that Venetian laws “are often altered and fundamentally changed-- hence the truth of the saying, *Parte venetiana dura una settimana*. Seven days suffice before time obscures a Venetian law.”¹⁶⁷ The anonymous Florentine placed little faith in the Venetian legal system and was quite possibly vexed at Venice’s success in comparison to the dismantled Florentine Republic. The Florentine’s comments on Venetian law in the middle of the sixteenth century serves as a nice lens into the development of Venetian forest law during the fifteenth century. The Florentine questioned the efficacy of the Venetian legal system, yet Venetian forest law developed into an efficient system of state-owned forest reserves. By the end of the fifteenth century, Venice’s forest laws dominated the timber of communal forests in *Terraferma* and ultimately illustrated the fallacies of the Florentine’s critique.

Early Venetian forest legislation addressed timber market conditions within Venice. The 1350 and 1372 laws focused on oak and beech; the two most important and most scarce timber species for Arsenale ship production. In the fourteenth century, the Great Council and the Council of Ten only possessed the authority to regulate timber market conditions within the *sestieri*. These market controls laid the legal foundation for

¹⁶⁷ *Relatione di Venetia divisa in tre parti*, c. 1569: Bodleian Library, Oxford, Bodley ms. 911, f. 413r-v, in *Venice: A Documentary History, 1450–1630*, eds. David S. Chambers, Jennifer Fletcher, and Brian Pullan (Toronto: University of Toronto Press, 2001), 102.

more substantial Venetian forest policy in the fifteenth century. Venetian forest policy evolved from these market edicts into the 1476 Forest Laws, which controlled local communities' access to timber stands. However, Venice's role as protector of the mainland required Venice to first modify the language of its dominion over *Terraferma* before claiming legal dominion over the mainland's forests. Likewise, acquiring legal rights to mainland timber resources required the Venetians to insert themselves into *Terraferma* legal traditions.

The Venetians' first attempt to control *Terraferma* timber occurred in June 1410. The Doge, Michele Steno, reminded the Venetian *podestá* of Belluno to promote the flow of timber out of the Upper Piave and into the Arsenale.¹⁶⁸ Steno's remarks to the *podestá* questioned who legally owned the forests around Belluno. Many of the *Terraferma* polities, including Belluno, possessed very little legal precedence to dictate who or what entity could control their forest resources. Steno's request signified Venice's initial attempt to fill the legal vacuum on forest ownership left by local Roman-based civil codes, *statuti*. The Bellunese *podestá*'s compliance on the matter did not indicate that Venice possessed sole ownership of Belluno's forests. Rather, the letter revealed that the Venetian government possessed a concerted interest in the forests around Belluno and wished to secure usufructory rights for their timber merchants.

In the early fifteenth century, the relationship between Venice and its mainland possessions was not clearly defined. In the 1420s the Venetians began to cement their

¹⁶⁸ Michele Steno to the Bellunese *Podestá*, June 17, 1410 in Pellegrini Francesco, *Documenti trascritti riguardanti la storia della provincia di Belluno dall'anno 1380 al 1420*. MS.495, Pagina 709. This is both a paper document and is digitized at the library's e-archives. Reference Url: http://collezioni.comune.belluno.it/greenstone/collect/bibstori/index/assoc/HASH013e.dir/ms495_0709_screen.png

superior position over *Terraferma* polities. As Michael Knapton claimed, the “language of dominion” in *Terraferma* changed in the early 1420s.¹⁶⁹ Venice no longer referred to itself as a *commune*.¹⁷⁰ The use of *commune* in Renaissance law and correspondence signified Venice’s nearly equal stature in dealing with Treviso in the fourteenth century. During the 1420s, the Venetians started to refer to their state as a *dominium* or *signoria* (Lordship).¹⁷¹ The fifteenth century Venetian mind associated *dominium* with Roman ideas of *imperium*.¹⁷² The often cited Ciceronian definition of *imperium* (“without which they [the Roman State] cannot wage war, govern military affairs, possess armies...”) does not suffice to describe Venice’s new language of dominion in the 1420s.¹⁷³ Republican Roman law, specifically the *Lex Curiata*, conferred the power of *imperium*. The Venetians followed a similar path in the fifteenth century to gain control over the timber resources of *Terraferma* polities. The shift from *Commune* to *Signoria* expressed Venice’s sovereignty over *Terraferma* and formalized Venice’s authority over mainland polities.

¹⁶⁹ Michael Knapton, “The *Terraferma* State,” in *A Companion to Venetian History, 1400–1797*, ed. Eric R. Dursteler (Lieden: Brill, 2013), 92.

¹⁷⁰ A *commune* was a government ruled by the *maiores* (“better”) classes over the *pedites* (“lesser”) classes. P. J. Jones, “Communes and Despots: The City State in Late-Medieval Italy,” *Transactions of the Royal Historical Society* 15 (1965): 75.

¹⁷¹ *Ibid.* *Signoria* is roughly a lordship. The term signified Venice’s superiority over mainland *communes* and is used in the primary sources to label the Venetian Government after 1423, but should not be confused with the familial lordships of mainland Italy. Crouzet-Pavan, *Venise Triomphante*, 133.

¹⁷² *Dominium*, from which we receive dominate, signified ownership over a province. *Imperium* originally was the power given to a Roman consul by the Senate to wage war and administer corporal punishment. Hence, the consuls right to bear the *fasces* and retain lictors.

¹⁷³ “...sine quo res militaris administrari, teneri exercitus, bellum geri non potest.” M. Tullius Cicero, *Philippics*, 5.45. M. Beaudoin translation.

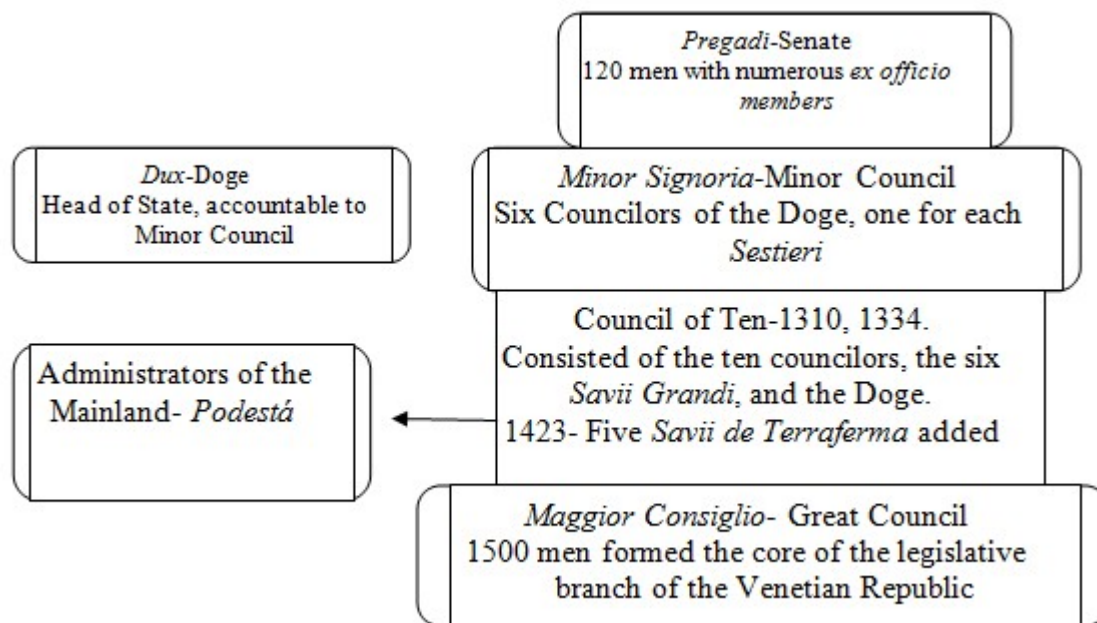


Figure 3.1: *Serenissima Signoria c. 1423*

Venetian expansion at the beginning of the fifteenth century influenced the structure of the Venetian government in a similar fashion as the War of Chioggia. In 1420, the *Savii Grandi* expanded by adding five secretaries of the mainland (*Savii de Terraferma*). The addition of five *Terraferma* secretaries granted the *Collegio* a steering committee for *Terraferma* legislation, including timber laws. The expansion of the *Collegio* to incorporate the *Savii de Terraferma* not only illustrated Venice's commitment to the mainland, but also clearly demonstrates how the annexation of mainland polities changed the composition of the Venetian government. The *Savii de Terraferma* funneled legislation related to the security of the Republic directly to the *Collegio*. Such important legislation included forest legislation because the Venetians tied timber directly into the sovereignty of the *Signoria*.

Venetian policymakers understood timber in a very different manner than modern historians and foresters.¹⁷⁴ *Legname* (timber) “simply meant ships” to the Venetian legislative bodies.¹⁷⁵ The Venetian Republic limited its definition of timber to the specific species necessary for ship production. Timber language in the Venetian sources articulates the connection between oaks and beech to the stability and security of the Republic.¹⁷⁶ In Venice, it was accepted knowledge that “oak is the first importance to our republic.”¹⁷⁷ The Venetians did not separate the security of the Republic and forest legislation. The Venetian perception of timber and security partially explains why the powers associated with *Terraferma* forest laws grew incrementally in the fifteenth century.

The Venetians issued a statement (*capitulum*) upon the annexation of a mainland city that often upheld the community’s local laws (*statuti*). However, the Venetians modified the laws of cities that proved to be problematic, like the aforementioned Padua. The Venetians allowed many of the timber-rich settlements to keep their local legal traditions after their incorporation into *Terraferma*. Timber-rich polities like Treviso and Belluno kept their local laws after Venetian annexation. Venice and its mainland cities differed on what legal powers incorporation into *Terraferma* entitled Venice to absorb.

¹⁷⁴ The fourteenth and fifteenth century Venetians understood several phrases and words in a unique manner. Words or phrases such as the *Domini di Terraferma* or *Legname* held very specific meanings in the Venetian mind. For example *Legname* only referred to timber suitable for ship construction, whereas *Bosco* often referred to the entire forest. I kept my translations as close to the original Venetian meaning of the word or phrase as possible. The plethora of Latin sources made this somewhat challenging as words like *civitas* or *res publica* possess modern connotations that the Venetians did not necessarily hold. Likewise different mainland Italian polities also differed in the manner in which they defined Latin terms. In translating the Latin, I specifically provided the classical meaning of words because of their origin in Republican Roman law.

¹⁷⁵ Appuhn, *A Forest on the Sea*, 54.

¹⁷⁶ Krestchmayr, *Geschichte von Venedig*, 1.179; Perlin, *A Forest Journey*, 152.

¹⁷⁷ Appuhn, *A Forest on the Sea*, 55.

The conflict originated in the differences in Northeastern Italy's Roman legal heritage and Venice's more flexible Byzantine legal code.

The Venetians possessed a well-defined written system of laws. Like Venice itself, Venetian law comprised both Byzantine and Roman elements. Yet, Byzantine law formed the greater part of the Venetian legal system. The Venetians adapted their early legal system from Justinian's *corpus juris*. The Justinian Code primarily addressed *jus civile*, "citizen law," but also included important examples of law that governed natural resources. The closest example of what scholars would consider environmental law was Justinian's public trust doctrine of coastlines. The public trust in Venice was most clearly articulated in the Venetian treatment of the waters of the lagoons and not in the timber resources of *Terraferma*.¹⁷⁸ Venice's Byzantine legal heritage provided the Republic with an adaptable system of laws.

In comparison, Roman law was rigid and lacked the ability to modify with empirical evidence. Roman law should be classified as rigid because the Romans, and their successors, attempted to apply universal legal statutes to myriad Mediterranean cultures.¹⁷⁹ Roman law addressed timber from as early as the establishment of the Twelve Tables.¹⁸⁰ Yet, most of the timber laws found in the Republican era governed residential construction timber and not ship building timber. The Venetians implemented Roman legal concepts on sovereignty and citizenship as a means to insert their claims to mainland timber.

¹⁷⁸ Justinian, *Codex Justinianus*, 2.1.1–4.

¹⁷⁹ Agostino Valier, *Dell' utilità che si puo ritrarre dale cose operate dai Veneziani libri XIV* (Padua, 1797), 127; as quoted in Bouwsma, *Venice and the Defense of Republican Liberty*, 57.

¹⁸⁰ *Lex Duodecim Tabularum*, Table 6, Law 9.

Venetian expansion onto the mainland required the city to become more familiarized with *Terraferma*'s Roman legal tradition. Unlike the rigidity of Roman law, based on codified precedence, Venetian law easily adapted to the mainland's legal plurality.¹⁸¹ The Roman legal heritage of many mainland cities did not specifically address the ownership of common forestland, but did illuminate which entity held jurisdiction over a community's natural resources. Venice was familiar with the administration of cities that possessed gray areas in their legal codes. Crete and Coron (Koroni, Greece) both lacked a written code of laws before the Venetians annexed them in the thirteenth century.¹⁸² Venice established legal systems in Crete and Messenia, whereas the Italian mainland already possessed written bodies of law. The strong legal tradition of mainland cities required the Venetians to manipulate Roman legal concepts in order to assert their interests in mainland timber supplies.

Civitas was the most important legal concept brought forth from the Roman era for the legal relationship between Venice and its *Terraferma* polities. *Civitas* included the citizens (*cives*) of a sovereign polity, and is best defined as a settlement's authority to enact laws, administer justice, and tax its *cives* without the approval of suzerain. Many of Venice's fifteenth century *Terraferma* cities referred to themselves as a *civitas*.¹⁸³ The title granted the mainland settlements jurisdiction over a district and its natural resources. However, in the early fifteenth century, the Venetians began not to recognize the rights to timber resources associated with *civitas*. Upholding the *civitas* of mainland cities would

¹⁸¹ Here I agree with Bouwsma's assertion that Venetian law was much more flexible than Roman Law. Bouwsma, *Venice and the Defense of Republican Liberty*, 57.

¹⁸² Monique O'Connell, *Men of Empire: Power and Negotiation in Venice's Maritime State* (Baltimore: Johns Hopkins University Press, 2009), 77.

¹⁸³ Knapton, "The *Terraferma* State," 92.

reinforce a local community's claim to the administration of usufructuary rights of their natural resources, including timber. Steno's 1410 letter was the first in a series of steps that challenged the ownership of mainland forests and divested the control of timber resources from local mainland communities.

Polities that possessed a clearly defined *Civitas* challenged the Venetians on the mainland. The rapid expansion of Venetian *Terraferma* brought the Republic into conflict with the Milanese in 1425. Filippo Maria's string of victories over Florentine armies in Romagna encouraged the Florentines to seek Venetian aid once again. The Florentine envoy to Venice relied on sophistic rhetoric and bolstered claims that if Milan was left unchecked, the Visconti Viper would strip the liberty away from mainland cities. Their rhetoric would make their fellow Florentine Petrarch proud, but only vexed the Venetians. The always pragmatic Venetians curtly responded that "there are several reasons which render it undesirable to launch out into hostilities."¹⁸⁴ Yet Lorenzo Ridolfi, one of the Florentine diplomats, won over Doge Francesco Foscari by warning that Milanese expansion threatened *Terraferma*. Foscari asserted to the *Collegio* that it was Venice's responsibility to defend the liberties of the mainland. Foscari asked, "Is it not our place to aid the distressed and jeopardized power? Shall we allow Filippo to lay a finger on the liberties of Florence...I say that the Venetian Empire ought not to remain a passive spectator of the present contest."¹⁸⁵ Foscari's remarks on defending Florentine liberty enhanced the myth of Venice and contradicted Steno's manipulation of Belluno in 1410. The Venetians certainly protected *Terraferma* polities, but these polities sacrificed

¹⁸⁴ Hazlitt, *History of the Venetian Republic*, 8. Here Hazlitt quoted Vespasiano Da Basticci, *Vita di Lorenzo Ridolfi*, 4.318.

¹⁸⁵ Basticci, *Vita di Lorenzo Ridolfi*, 4.318.

certain liberties for Venetian protection. With Steno's request to Belluno, one of these sacrificed freedoms was a community's ownership over forest resources.

The 1425 Florentine alliance precipitated a series of wars between Venice and Milan in the 1420s and 1430s. Venetian expansion onto the mainland strengthened a "natural hatred" between St. Mark's Republic and Milan.¹⁸⁶ The Milanese-Venetian wars in Lombardy quickly became a naval conflict. Venetian galleons, specifically designed for riverine warfare, patrolled the Adige and Adda rivers. Armed with cannon, the Venetians captured several strategic forts along the Adige and relieved the besieged Brescians by bombarding the Milanese from Lake Garda.¹⁸⁷ Not to be outdone, Filippo Maria attempted to destroy Venice's naval capacity by setting the Arsenale ablaze. Fortunately for Venice, the Arsenale workers prevented the burning of the Arsenale and quickly caught the arsonist. Marino Sanuto related that the Venetians tortured him to death because of the Arsenale's central importance to the Venetian Republic.¹⁸⁸ The Venetian galleons on Lake Garda contributed to the success of the Florentine-Venetian siege of Brescia and forced the Milanese to sue for peace in 1426.

The first Lombard war with Milan concluded in 1428 with the peace of Ferrara. Milan ceded Bergamo and Brescia to Venice in 1428. The Venetians granted the Brescians a wide range of freedoms that it withheld from the timber cities of Treviso and Belluno. Indeed, Brescia lost control of its civil offices, but unlike Belluno, retained

¹⁸⁶ Vespasiano Da Basticci, *Vita di Agnolo Acciaiuolo*, 4.348.

¹⁸⁷ Lane, *Venice: A Maritime Republic*, 230.

¹⁸⁸ Marino Sanuto, *Diarii*, fol. 987.

jurisdiction over its rural hinterland (*contadi*).¹⁸⁹ Brescia possessed stands of oak and beech that were appropriate for the Arsenale, but posed transportation difficulties. The accessibility of timber in the *contadi* of Treviso and Belluno granted the Venetians some incentive to control how both settlements governed their rural districts.

Brescia's position near the western terminus of *Terraferma* and its proximity to Milan allowed the Viscontis to besiege the city in 1438. The Brescians repelled the Milanese siege with the aid of Venetian commanders. Brescia viewed the Venetians as liberators, whose "virtues equaled, if not surpassed, those of the Romans."¹⁹⁰ Such statements by distant *Terraferma* polities aided Doge Foscari's vision for Venice as the protector of *Terraferma* liberty. Maintaining the image as protector required the Venetians to implement tactful and less intrusive timber policies in the early fifteenth century. Steno's 1410 letter is an example of Venice's approach. Steno requested, "on account of the complaints having been made by our timber merchants... We request ye [the Cadorini] to accept my recommendation concerning the timber merchants by yielding to their requests."¹⁹¹ Venetian timber policy was a reflection of the changing political relationships between Venice and *Terraferma* polities. As Venice defined its

¹⁸⁹ Stephen D. Bowd, *Venice's Most Loyal City: City Identity in Renaissance Brescia* (Cambridge: Harvard University Press, 2010), 70.

¹⁹⁰ *Ibid.*, 39.

¹⁹¹ Michele Steno to the Bellunese *Podestá*, June 17, 1410, in Francesco, *Documenti trascritti*,. MS.495, Pagina 709. Reproduced verbatim as follows:

- Michael Steno dey gracia Dux Veneciarum etc.

Nobili et sapient viro Benedicto Trivisanode suo mandato Podestati et Capitaneo Cividadi fideli dilecto salute et dilectionis affectum. Cum sicut exposuere nobis Provisores Comunis, propter querelam sibi factum per nostris mercatores lignaminis quod de novo feceratis ordinem, quod zate sue deberent conduci ad portem Cividadi, et quod cives nostri Cividadi accipere posint quicquid velint de dicto lignamine...

political control of the mainland more concretely in the middle of the fifteenth century, the formulation of timber policy became more fully articulated and intrusive.

Venice's role as liberator of *Terraferma* contradicted the Republic's manipulation of law for timber resources, thus maintaining positive relations with mainland communities was a component of Venetian timber policy. Other mainland powers closely examined Venetian annexations of mainland settlements. Although the extermination of the Carraresi family was an unprecedented move by the Venetians, the Carraresi thoroughly irritated the Florentines as well. Some Florentines concluded that Da Carrara earned his fate.¹⁹² Milan and Florence annexed neighboring polities in a similar fashion and it was hypocritical for both cities to criticize Venice. Such claims contradicted Florentine actions, because the Florentines often required their subjects to conduct elaborate acts of homage.¹⁹³ The Florentine and Venetian Republics justified their conquests as a means to protect "one's own *libertas* against real or hypothetical attacks."¹⁹⁴ The Venetians and Florentines allied against Milan to protect their civic and political freedoms. Florence slew its Goliath in Milan, but was unable to capitalize on the war like the Venetians. The Florentines questioned the necessity of Venice's annexation of Brescia and asked themselves if Venice intended to annex Milan next.¹⁹⁵ Venice's relationships with other mainland powers directly influenced the security of *Terraferma*.

¹⁹² Rubinstein, "Italian Reactions to *Terraferma* expansion," 199.

¹⁹³ John E. Law, "The Venetian Mainland State in the Fifteenth Century," *Transactions of the Royal Historical Society* 6, no. 2 (1992): 162.

¹⁹⁴ *Ibid.*

¹⁹⁵ Giovanni Cavalcanti, *Storie Fiorentine*, ed. F. Polidori (Florence: Tipografia All'Insegna Di Dante 1838, I), 253.

Likewise, Venice's relationships with timber polities was important for maintaining the Arsenale's timber supply.

Venice developed its relationships with each mainland polity separately. The Venetians incorporated settlements into *Terraferma* generally by three methods. Each method greatly dictated the city's future relationship with Venice. Cities often willed themselves to Venice for military protection and commercial ties. Treviso and Belluno both voluntarily relinquished their *civitas* and Venice incorporated these polities into *Terraferma*. Direct conquest during wars with neighboring powers served as the second method of Venetian annexation. The Venetians annexed Venzone, Udine, and other important timber centres in Friuli in wars with Hungaria. The outright purchase of cities served as the third method Venice used to incorporate cities into its mainland holdings. Buying cities was less expensive than hiring *condottieri* to take the city by force. The Venetians often applied this method to annex cities outside of *Terraferma*. For example, Venice purchased Corfu in 1384 and, as previously mentioned, Dalmatia in 1409.¹⁹⁶

Sigismund's contestation of Dalmatia forced the Venetians to legitimize their purchase with force. After a protracted war, Venice wrested Dalmatia from Sigismund in 1437. The conquest of Dalmatia granted the Arsenale another avenue for timber resources. Venice claimed an interest in Dalmatian forests relatively quickly by the right of conquest. Venetian political language clearly portrayed Venice as holding legal possession over important Dalmatian timber ports.¹⁹⁷ Yet, Dalmatian timber was

¹⁹⁶ On Corfu: F. Thiriet, *Régestes des délibérations du Sénat de Venise concernant Romanie* (Paris: Mouton, 1958, I), 634. On Dalmatia: Kenneth Meyer Sutton, *The Papacy and the Levant. 1204–1571: The Thirteenth and Fourteenth Centuries*, (Philadelphia: American Philosophical Society, 1976), 404; cf. Chambers, *The Imperial Age of Venice*, 55.

¹⁹⁷ Miller, "Venice in the East Adriatic," 225.

expensive and Venetian shipbuilders considered it “to be of lesser quality.”¹⁹⁸ The Venetians developed a policy of acquiring legal ownership of mainland forests, partially because Dalmatia could not supply all of the Arsenale’s ship-timber needs. *Terraferma* polities provided the Venetians with the least expensive and most readily accessible Arsenale-grade timber.

A timber shortage in the 1430s and 1440s encouraged the development of new forms of timber policy. The shortage included ship-timber, but centered upon firewood for heating and Venetian industries. The Council of Ten commissioned several patricians to monitor the conditions of forests along the Piave, Sile, and Tagliamento.¹⁹⁹ One of the inspectors, Marco Corner, published an important treatise on the conditions of *Terraferma*’s forest in 1442. Corner’s treatise opens a window into how the Venetian mind understood *Terraferma* timber and forest conservation. Corner also illustrated that the Venetians possessed relatively accurate knowledge of the health of *Terraferma*’s riparian forests.

Appuhn described the document as remarkably technical, but flawed in its interpretation of *Terraferma*’s timber landscapes. He also stated that Corner’s treatise “clearly demonstrates that after nearly four decades of mainland rule, the Venetians still knew relatively little about the sources of the city’s timber and fuel.”²⁰⁰ Such an assessment is an unfair appraisal of Venetian forest knowledge. Venetian correspondence to the *podestás* of timber settlements indicates the Venetian government’s familiarity with the sources of Arsenale and fuel timber. Steno’s 1410 letter specifically addressed

¹⁹⁸ Appuhn, *A Forest on the Sea*, 286.

¹⁹⁹ Crouzet-Pavan, *Venise Triomphante*, 126.

²⁰⁰ Appuhn, *A Forest on the Sea*, 58.

the relationship between Belluno and Venetian timber merchants. Appuhn questioned whether the Venetian policymakers comprehended the issues facing their *Terraferma* forests. Corner's treatise and the anonymous 1413 work on *Terraferma* timber indicate that Venetians knew much more about their forests than other Renaissance naval powers.

In 1413, an anonymous treatise detailed the deteriorating condition of *Terraferma* forest resources.²⁰¹ Deforestation was the most pressing concern for the Arsenale's ship-timber supply. The treatise asserts that mainland deforestation occurred with the Venetian conquest.²⁰² The author illustrated the Venetian patriciate's technical knowledge of *Terraferma*'s forests by connecting the denudation of forest resources with the siltation of rivers. The 1413 work demonstrates a comprehension of the connections between unsustainable timber harvest techniques and water-induced soil erosion. The Dalmatian timber ports experienced a similar spike in soil erosion due, in part, to timber harvests.²⁰³ Widespread soil erosion induced by forest use was not just limited to *Terraferma*.²⁰⁴ The anonymous report also suggested replanting the mainland's riparian corridors as a policy solution. The Venetian government possibly recognized deforestation, but the *commune* possessed no legal authority to dictate conservation measures to cities along the Piave or Tagliamento in the 1410s.

²⁰¹ Unnamed, anonymous treaty located at: Biblioteca Nazionale Marciana, *It VII*, 395 (8648). c. 3. As quoted in Appuhn, *A Forest on the Sea*, 70, f. 18.

²⁰² This 1413 manuscript is attested by Appuhn in "Inventing Nature," 868. The document itself is in the Biblioteca Nazionale Marciana.

²⁰³ Norman J. G. Pounds, *An Historical Geography of Europe: 450 B.C.–A.D. 1330* (New York: Cambridge University Press, 1976), 18; cf. Michael F. Hendy, *Studies in the Byzantine Monetary Economy: c. 300–1450* (New York: Cambridge University Press, 2008), 60.

²⁰⁴ Other regions along Venetian trade routes experienced soil erosions induced by timber harvests. Tjeerd H. van Andel and Eberhard Zangger, eds., *Beyond the Acropolis: A Rural Greek Past* (Palo Alto: Stanford University Press, 1987), 6.

Marco Corner's 1442 report on *Terraferma*'s forests echoed similar problems with deforestation of the anonymous 1413 treatise. Corner also emphasized the deforestation of the mainland's forests. When he presented his findings to the *Collegio*, Corner suggested two policy solutions to address the denudation and subsequent siltation of *Terraferma*'s watersheds. The first solution, dredging, was already in practice.²⁰⁵ Corner proposed replanting the watersheds as a second solution. Corner recognized how siltation adversely affected Venetian mainland commerce, including the timber trade. The shallow bed of silted rivers would block the transportation of timber. An example of the siltation of a *Terraferma* river occurred in the modern era. Deposits in the Tagliamento in the past 200 years caused the river to become more shallow and braided.²⁰⁶ Corner prompted the *Collegio* to take more intrusive steps in order to secure timber for the Arsenale.

Firewood shortages and Corner's report spurred the Venetian government into a policy of direct control of *Terraferma*'s forests.²⁰⁷ By 1442, Venice controlled the important timber watersheds and the Venetian government expanded in order to cement its hold over the mainland and expedite *Terraferma* policy measures. The market controls on *Terraferma* timber of 1350 and 1372 did not grant Venice control over the mainland's

²⁰⁵ The practice of dredging the lagoon and Venetian canals certainly began soon after the foundation of the city. However, the Great Council did commission the dredging of canals and ponds in 1301. Bartolomeo Cecchetti, *La Vita Dei Veneziani nel 1300* (Venice: ASV, 1898), 16.

²⁰⁶ Surian, "Effects of Human Impact on Braided Rivers," 331–333.

²⁰⁷ The *Collegio*'s response to Corner's presentation was not as "silent" as Appuhn asserts in *A Forest on the Sea*, 78. Appuhn quite rightly states on the same page that the Venetians "had no legal tradition of their own for the regulation of usufruct rights." The Venetian senate was not silent and was in the midst of developing their legal usufructory rights to the timber of *Terraferma* polities. Steno's letter requested and secured the usufructory rights of Belluno's forests for the Arsenale. Indeed, the annexation of *Terraferma* required the Venetians to grant a wide range of local autonomy to mainland cities, but Northeastern Italy's political landscape changed drastically between 1410 and Marco Corner's era.

forest resources.²⁰⁸ However, Venice expanded its dominance over *Terraferma* in the 1440s and 1450s. In 1444 the Venetians removed the local military governor (*Capitano*) of Cadore from his post and replaced him with a Venetian official.²⁰⁹ The installation of a Venetian to govern the *contado* of Cadore expanded Venice's access to the Silver Fir forests of Cadore and challenged the original *capitulum* to Cadore from 1424. The *capitulum* left Cadore's municipal council alone and granted the city relief from commercial tariffs and taxes.²¹⁰ Cadore accepted the new military administrator because the city depended on Venice for trade and defense. The seizure of the Cadore's *contadi* extended to Belluno and established the precedence for future Venetian revisions of Cadorini and Bellunese local law and seizures of mainland forests.

Venetian manipulation of local laws and offices made rival Italian powers suspicious of Venetian intentions for the mainland. Venice, Milan, and Florence continued to dominate the politics of Northeastern Italy in the 1440s. The death of Filippo Maria in 1447 threatened to upset the balance of power between the three cities. The Florentines quickly grew suspicious of the Venetians and Cosimo de Medici (*il Vecchio*) stirred up anti-Venetian sentiments in Florence. Cosimo's initial outcries against Venetian imperialism set the foundation for generations of scholars to criticize Venice's involvement in *Terraferma*. The contemporary humanist scholar Poggio

²⁰⁸ Appuhn argues that the market controls "failed to resolve timber and firewood issues..." Appuhn, *A Forest on the Sea*, 80–83.

²⁰⁹ Antonio Ronzon, *Archivio Storico Cadorino: periodico mensile* (Lodi: Tipo- litografia dell' avo, 1898), 67.

²¹⁰ Alexander Robertson, *Through the Dolomites* (London: Allen and Sons, 1903), 5–7.

Bracciolini blamed Venetian ambition for causing conflict between Milan and Venice.²¹¹ Pope Pius II feared that the Venetians “would attack all of Italy” if given the chance to annex Milan.²¹² Accusations of Venetian imperialism undermined Venice’s persona as protector of *Terraferma*. In response, the Venetians pointed at the imperialistic actions of Florence and Milan. Venice expanded to ensure its own *libertas* and to combat “force with force.”²¹³ In the absence of a strong Milan, rivalry between Florence and Venice colored the contemporary interpretation of Venice’s growing power in *Terraferma*. *Terraferma*’s timber resources were a part of Venice’s ascending influence on the mainland and any outright seizure of forest resources would color the arguments over Venetian imperialistic ambitions.

²¹¹ Poggio Bracciolini, *Historia Florentina*, ed. J. B. Recanati (Venice: Joseph G. Hertz, 1715), 366. Bracciolini penned his history in early-middle 15th century.

²¹² Rubinstein, “Italian Reactions to Terraferma Expansion,” 207–08.

²¹³ *Ibid.*

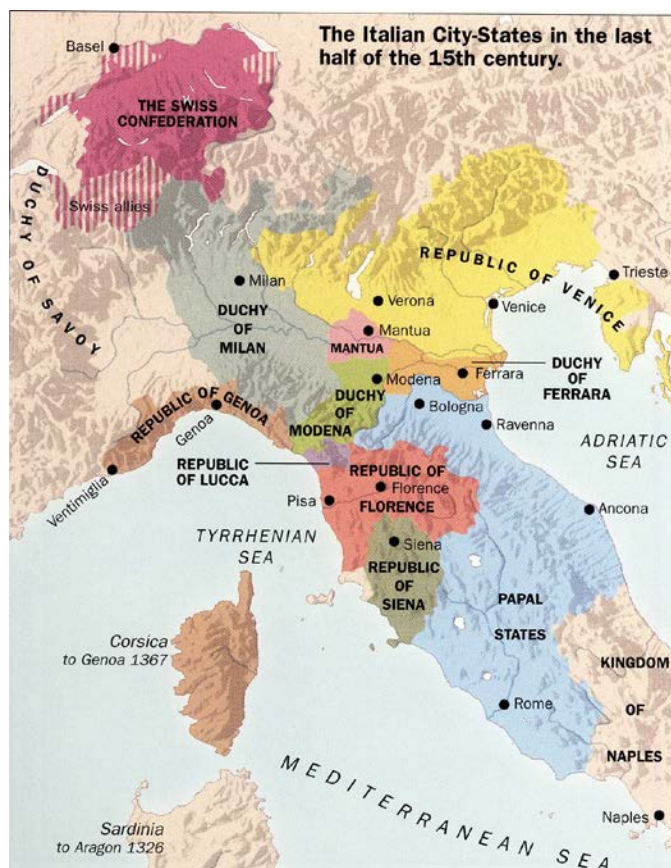


Figure 3.2: Venetian Terraferma c. 1450. Adapted from the University of Oregon Mapping History site (http://pages.uoregon.edu/mapplace/EU/EU19%20-%20Italy/Maps/EU19_128.jpg).

The Venetians expanded their rights to Cadore's forests in 1453. The Venetian Senate requested that the local city council deliver a large supply of Silver Fir to the Arsenal. Venice noted that the Republic continually granted Cadore protection and that any assistance rendered by the alpine community would be greatly appreciated.²¹⁴ The Senate's tone illustrates that the local Cadorini government still controlled its forest resources and they granted the Venetians usufructory rights. Cadore complied with the Senate's wishes and illustrated Venice's growing influence over the distant timber polity. The arrangement was not entirely imperialistic because both cities benefitted from the

²¹⁴ Ronzon, *Archivio Storico Cadorino*, 87.

association. Cadore granted Venice access to the German markets across the Alps and supplied the Venetians with timber and iron. The Venetians provided the Cadorini with an outlet for their marketable goods. Mainland cities saw protection and stability in Venetian rule, but events in the Eastern Mediterranean changed Venice's approach to mainland timber policy.

Successful Ottoman advances in Bulgaria and the Peloponnesus encouraged Constantine XI to seek aid from the western Latins. The approach of the Ottoman forces prompted several Venetians to disobey orders from the Senate in February 1453 to stay and support the defense.²¹⁵ Likewise, the leading Venetians in Constantinople voted to remain and support the Byzantines in their defense of the city.²¹⁶ The Venetians demonstrated a stronger commitment to the security of the Byzantines than all other Western Christian powers. The Senate seized the initiative and ordered five ships to the defense of the city in April.

Two men fashioned Venetian strategy for the Eastern Mediterranean in the middle of the fifteenth century. Doge Tomaso Mocenigo in his famous 1421 oration warned against an expansion of Venetian involvement in mainland affairs and advocated for a renewed focus on maritime exploits. Mocenigo's successor, the aforementioned Francesco Foscari, supported mainland expansion and likely did not equate mainland wars with the ruining of the Eastern Empire. Although Foscari served as Doge during the 1450s, Venetian strategy took elements of both Mocenigo's and Foscari's vision for Venetian strategy.

²¹⁵ Donald M. Nicol, *Byzantium and Venice: A Study in Diplomatic and Cultural Relations* (New York: Cambridge University Press, 1992), 396.

²¹⁶ *Ibid.*

Venice's strategy in protecting the Byzantines served several purposes at once. First, protecting Venetian trade inlets into the Black Sea required the Venetians to maintain the tractable Byzantine leadership in Constantinople. Secondly, several hundred Venetian merchant families resided in Constantinople. The Venetians often implemented military force outside of Italy to protect Venetian citizens, as evidenced by their treatment of the Native Greeks in several revolts on Candia (Crete). Lastly, a secure Eastern Mediterranean bolstered the Trans-Alpine *Terraferma* trade routes.

Venice's role as guardian of the Eastern Mediterranean's trade networks made *Terraferma* and its timber a crucial component in Venetian strategy. The *Stato da Már*, or Venetian Maritime Empire, formed a symbiotic relationship with Venetian *Terraferma*. Eastern markets, such as Constantinople, benefited from the Trans-Alpine trade in iron and raw materials that hinged upon Venice.²¹⁷ *Terraferma* oak, fir, and beech provided the materials for Venetian state trade vessels that conveyed luxury goods to German markets.

A single ship silenced the entire Venetian Senate on the morning of July 29, 1453. The ship carried news of the fall of Constantinople. The *Collegio* suspended the morning session and the Venetians released courier pigeons to spread the news throughout Northern Italy.²¹⁸ The sacking of Constantinople by the Turks placed Venetians and citizens of *Terraferma* polities directly in danger. The news utterly shocked the Venetians

²¹⁷ Harry A. Miskimin, *The Economy of Early Renaissance Europe, 1300–1460* (New York: Cambridge University Press, 1975), 70.

²¹⁸ Roger Crowley, *1453: The Holy War for Constantinople and the Clash of Islam and the West* (New York: Hachette Book Group, 2013), 272–73.

who could not “believe that the Turks could bring a fleet against Constantinople.”²¹⁹ The request for Cadore timber was part of the preparation for war with the Turks in the east. Likewise, the promulgation of *Terraferma* timber law dominates the narrative of Venice’s relationship with the mainland in the late fifteenth century.

Timber management and policy is an underappreciated aspect of the Venetian-Ottoman wars. The naval engagements of Sapienza, Djerba, and Lepanto required the consumption of at least several thousand trees. Both the Venetians and Ottomans maintained specific policies for the acquisition of timber. The Ottomans faced similar challenges in procuring timber as the Venetians, but it was clear to contemporary observers that the conquest of Anatolia granted the Ottomans fine reserves of ship-timber.²²⁰ In the 1450s, the Ottoman timber supplies seemed infinite to Christian observers.²²¹ The Ottomans made the Venetians apprehensive about the security of their Eastern Mediterranean Empire and prompted the Arsenale to stockpile ship-timber. The Arsenale outfitted the Venetian “limes,” the string of coastal resupply ports, with oars, gunpowder, wheat, and men.²²² The Arsenale required properly seasoned timber and called upon the forests of *Terraferma* to supply it.

In 1463, the Venetians once again requested finished Silver Fir from Cadore and Belluno. The Venetians implemented the right to reserve (*diritto di riserva*) in order to

²¹⁹ Ibid.

²²⁰ On some of the restraints placed on Ottoman timber harvests see: Alan Mikhail, *Nature and Empire in Ottoman Egypt: An Environmental History* (New York: Cambridge University Press, 2011), 100; cf. Stanford J. Shaw and Ezel Kural Shaw, *History of the Ottoman Empire and Modern Turkey* (New York: Cambridge University Press, 1977, II), 235.

²²¹ Perlin, *A Forest Journey*, 150.

²²² Ferdinand Braudel, *La Méditerranée et le Monde Méditerranéen à l'époque de Philippe II* (Paris: A. Colin, 1949), 845.

claim rights to a prime stand of Belluno fir near the Piave. Mainland Italian republics often used the *diritto di riserva* to muster any unused natural resources for the defense of the *res publica*.²²³ Invoking the *diritto* expanded the previous timber rights granted to Venice by Belluno in 1410 and Cadore in 1453, and created a mast reserve, called the Bosca della Vizza, for the Arsenale. The act did not exclude other users from the forest but the *diritto* guaranteed Venice's usufructuary rights to Cadore's forests. The *diritto* served as Venice's legal formalization of Steno's 1410 letter and other similar concessions by the Cadorini. The Bosca della Vizza reserve granted the Venetians a guaranteed source of ship masts for future naval conflicts. The *diritto* served as an important precedent for future claims to *Terraferma's* timber.

The right to reserve likely originated with the Republican Roman concept of *Ager occupatorius* (land annexed after victory). Land that the Roman Republic conquered fell into the collection of *Ager publici* (public lands) but the Republic retained the right to claim the land back at any time.²²⁴ Roman land law divided usable timberland in *Silvia caedua*, harvestable woodlands, and *Silvia pascua*, oak woodlands suitable for rangeland.²²⁵ The *Terraferma* polities inherited transmuted versions of Roman land law. Like Roman law, the mainland settlements possessed *contadi* that primarily consisted of agrarian laws, with very limited laws to govern harvestable timberland. In contrast, the Venetian legal tradition did not incorporate agrarian laws, but addressed timber from the

²²³ Appuhn, *A Forest on the Sea*, 101.

²²⁴ The Roman Republic often reasserted their ownership over the *Ager occupatorius* for the settlement of veterans.

²²⁵ A. Burdese, *Studi sull' ager publicus* (Torino: G. Giappichelli, 1956), 117.

foundation of the city. Consummate lawyers, the Venetians implemented the *dirrito di riserva* to fill the vacuum in *Terraferma* timber law.

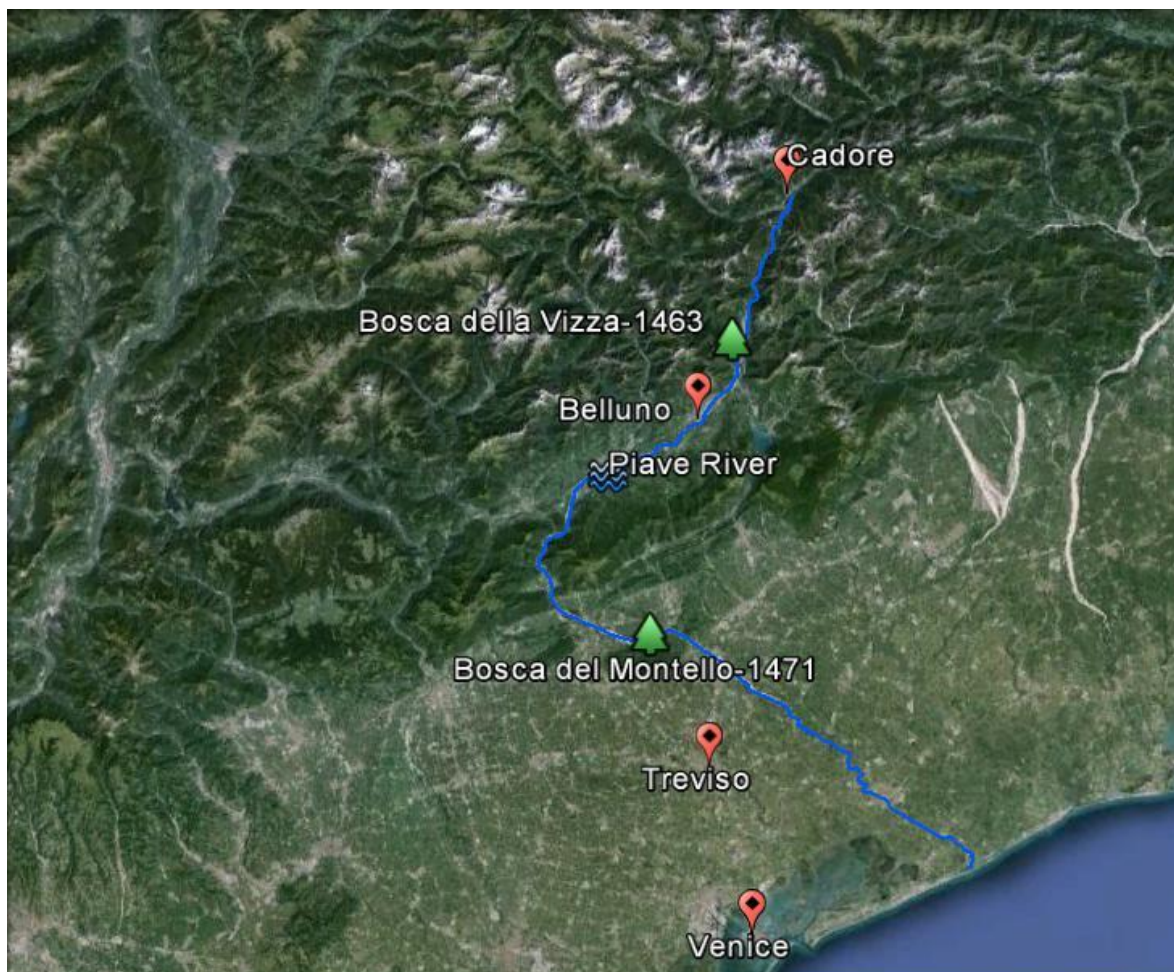


Figure 3.3: Vizza and Montello Forest Reserves. Source: Google Earth.

The *dirrito di riserva* only allowed the Venetians to consume unused natural resources for the defense of the *res publica* during acute emergencies. Any outright attempt to confiscate Cadore's forests would not only irritate the Cadorini, but also damaged Venice's image as protector of *Terraferma*. In order to successfully use the *dirrito*, the Venetians defined the terms unused and *res publica*. Several local communities also used Cadore's timber resources, but no legal mechanism existed that explicitly denoted who owned Cadorini forests. The Venetians and cities incorporated

into *Terraferma* distorted the meanings of *res publica* to secure legal rights. Some polities, like Vicenza, claimed more local autonomy by labeling themselves a *res publica*.²²⁶ Venice followed a similar pattern by recognizing a city's claim when it was most convenient for the Republic.

Venice's implementation of the *dirrito di riserva* in 1463 was legally justified for three reasons. First, the timber harvested at Cadore directly contributed to the defense of the Venetian and *Terraferma* polities' *res publica*. Secondly, the Venetians adhered to legal conditions set to enact the *diritto*. Finally, the rapid expansion of the Ottomans granted the Venetians a legal justification for enacting the *dirrito*. The Ottoman conquest of the Peloponnese constituted a state of emergency and the *Collegio* essentially framed the legal question of who owns Cadore's forests by linking it with the naval security of the Eastern Mediterranean.²²⁷

The Venetians developed a pattern of using Ottoman successes in the east as an excuse to denote ship-timber reserves in *Terraferma*. Ottoman victories fit well within the definition of an acute emergency and gave the Venetians the excuse to exercise the *dirrito*. The Ottomans engulfed Wallachia in 1462 and Bosnia in 1463.²²⁸ In 1469, a Venetian merchant, Piero Dolfín, tipped off the Venetians to an imminent attack on Negroponte by the Ottomans.²²⁹ The Senate ordered the Arsenale to prepare the Venetian

²²⁶ Edward Muir, "Republicanism in the Renaissance Republics?," in *Venice Reconsidered: The History and Civilization of an Italian City-State, 1297–1797*, eds. John Martin and Dennis Romano (Baltimore: Johns Hopkins University Press, 2002), 145.

²²⁷ Appuhn, *A Forest on the Sea*, 103.

²²⁸ The following year, the Venetians invaded the Peloponnesus with some success. In a move reminiscent of Carthage's Truceless War, the Venetians neglected to pay their mercenaries and the invasion stalled.

²²⁹ Domenico Malipiero, *Letter di Piero Dolfín a Candian Bollani (1469)* in *Annali Veneti: dall'anno 1457 al 1500*, ed. Francesco Longo (Florence: G.P. Vieusseux, 1844), 46.

navy. The Arsenale drew upon *Terraferma*'s forests to fulfill the Senate's orders. The Arsenale supplied beech oars and fir masts for reserved ships and organized the distribution of gunpowder to active ships.

The production of a Venetian vessel from harvest to outfitting was a highly organized process that required the Arsenale to maintain secure, steady supplies of oak, fir, and beech. The Arsenale also demanded supplies of hemp and wine, but timber was the primary concern for Venetian suppliers.²³⁰ Although the Arsenale possessed the capability to crank out one fully battle-ready vessel within several hours, ship-timber required at least several months to several years to season correctly.²³¹ Shipwrights ventured into the forest to select the trees for the Arsenale. Once selected, local laborers felled the trees and the Venetians negotiated for the transport of the specimens down one of the major *Terraferma* timber rivers. Once fully seasoned, ship carpenters supervised the cutting of the timber by the Arsenale's sawyers.²³² Thus, the mobilization of Negroponte's defense placed the most pressure on *Terraferma*'s forests several months to a year after 1469, once the Arsenale required green timber for the seasoning process.

²³⁰ F. C. Lane, "The Rope Factory and Hemp Trade in the Fifteenth and Sixteenth Centuries," *Journal of Economic and Business History* 4 (1932): 830–47; cf. Robert C. Davis, "Venetian Shipbuilders and the Fountain of Wine," *Past and Present* 156, no. 3 (August 1997): 55–86.

²³¹ In 1557, the Arsenale reportedly built a fully-rigged war galley within one hour. McNeill, *Venice*, 6. On Seasoning, Paul W. Bamford suggested the Venetians seasoned timber for a decade before producing ships in *Fighting Ships and Prisons*, 79.

²³² Lane, *Venetian Ships*, 88.



Figure 3.4: Venetian Euboea. Adapted from Texas A&M University Nautical Archeology 2005 Euboea Season (<http://nautarch.tamu.edu/pwss/2005%20Season/2005%20Season.html>).

Negroponte was the political centre of the island of Euboea and served as the base of operations for Venetian commercial and naval operations in the Northern Aegean. The Ottomans began their assault on Negroponte in June 1470. Venetian witnesses described the sheer magnitude of the Ottoman navy as “a forest upon the sea.”²³³ Upon hearing Mehmet’s initial demand for the surrender of the city, the Venetians responded “go and eat *marranos* (piglets) and we shall meet you in the ditch.”²³⁴ The Ottoman Bombards served as Mehmet’s response to the insult. Led by the gifted lawyer Niccolò Da Canal, a Venetian navy of 71 ships arrived to relieve the city in July. However, Da Canal was indecisive in his attack on the vulnerable Ottoman position and fled once the Ottomans took the city.

²³³ Lane, *Venice: A Maritime History*, 358; Appuhn, *A Forest on the Sea*, 6.

²³⁴ Morris, *The Venetian Empire*, 58.

The loss of Negroponte shook Venetian forest policy more than the loss of Constantinople. Upon receiving the news, the *Collegio* immediately replaced Da Canal with Pietro Mocenigo. The Venetians also sent envoys throughout Italy in order to form an Italian-wide alliance against the Ottomans. Doge Christoforo Moro wrote to the Milanese *signori*, Galeazzo-Maria Sforza, to encourage Christian unity in the face of the virulent rise of the Muslim Ottomans.²³⁵ Moro's gesture allowed the Venetians to secure the western border of *Terraferma* by renewing the terms of the Peace of Lodi. Negroponte illustrated that Venice could not afford to toy with the ascending Ottoman naval presence in the Eastern Mediterranean. The *Collegio* also expanded the operations of the Arsenale. In order to supply timber for the growth of the Arsenale, the *Collegio* exerted more control over *Terraferma*'s forests.

The Venetians implemented the *dirrito di riserva* to gain direct access to fir resources, but did not yet claim legal rights to an oak forest. In 1471, the Senate invoked the *dirrito* to claim a substantial oak forest near Treviso.²³⁶ The new oak reserve was situated on Montello, a hill ten miles west of Treviso. Montello possessed a readily available supply of oak and its proximity to the Sile River aided the transportation of timber to the Arsenale. The Montello ban granted the Arsenale control of a nearby supply of their most crucial tree species and allowed the *Collegio* to legally claim a forest previously owned by a *Terraferma* polity.

The 1471 Montello ban illustrated the change in Venice's relationship with *Terraferma* timber settlements since Steno's letter in 1410. Steno suggested to the

²³⁵ Archivio Segreto Vaticano, Arm. 39, Tom. 12, quoted in Crowley, *City of Fortune*, 343.

²³⁶ ASV, *Senato Terra*, Reg. 6.

podestá of Cadore to aid Venetian timber merchants, whereas the *Collegio* claimed direct authority over Montello in 1472. The use of the *dirrito* to claim Montello also differed from the 1453 claim of the Bosca della Vizza near Cadore. The mast reserve at Bosca della Vizza did not exclude other users from the fir forest. The new oak reserve at Montello gave the Arsenale exclusive rights to the forest. The Venetians later reinforced the Arsenale's sole ownership of Montello by fining or whipping anyone caught entering the forest with felling instruments.²³⁷ Using the *dirrito* again allowed the Venetian government to reinforce their legal claim to *Terraferma's* forests and broadened the authority of the *dirrito*. However, the broadening of the *dirrito* in Treviso resulted in problems with the local populace.

The citizens of Treviso were not fond of the Venetian seizure of the Montello. The *dirrito* severely limited a Trevisan's access to the hill. Settlements around Montello collected firewood and green fertilizer and pastured their animals there. In order to produce firewood, villagers coppiced maturing trees.²³⁸ Coppicing a tree permanently rendered that specimen useless for the Arsenale. Villagers pastured their animals in the Montello because of the forest's abundance of chestnuts. They also pollarded trees to produce fodder for their livestock.²³⁹ The *dirrito* ended these firewood and pastoral privileges of nearby communities. Communities could still petition the Arsenale for the collection of firewood, but the Arsenale firmly controlled all access to Montello.

²³⁷ Lane, *Venetian Ships*, 226.

²³⁸ Coppicing is achieved by using a saw to cut a maturing tree down to its stump in order to make a stool (a living stump). If properly cut, the stool will then grow back with many shoots that mature into excellent firewood. A forester's definition can be found in: Wenger, *Forestry Handbook*, 420.

²³⁹ Pollarding is a form of pruning to encourage the growth of leaf material.

The Venetians interpreted the “unused resources” clause of the *dirritto di riserva* to justify the seizure of Montello. The Arsenale viewed Montello as strictly an oak reserve, and not a public rangeland for Trevisan peasants. Allowing livestock, especially pigs, to graze in the Montello was ruinous for oak seedlings. In the minds of Venetian administrators pasturing animals in the forest made the forest an unused resource, because making ship-timber was the best use of forest resources.²⁴⁰ Certainly the local communities used the forest resources, but the Arsenale’s goals did not support a multi-use forest model. The Arsenale intended to use Montello as the nursery for growing an armada to face Venice’s rivals, including the Ottomans.

Almost immediately after the establishment of the Montello oak reserve, local inhabitants resisted the Arsenale’s authority. Villagers were unwilling to relinquish the usufructory rights to the common forest that their ancestors held since before Treviso’s incorporation into *Terraferma*. Resistance took the form of cutting down Arsenale-grade oaks, letting livestock out into the Montello, or deliberately coppicing oaks for firewood. A monastery that dispensed alms in the middle of Montello provided more clever individuals a handy excuse when caught in the forest by Venetian officials. Offenders often claimed they entered into the forests to receive alms, rather than to fell timber.²⁴¹ The resistance encouraged the Venetian Senate to establish fines for trespassers in the Montello. One Draconian fine required an unauthorized forest user to pay *25 lire di piccolo* and serve two months in prison for every piece of wood cut.²⁴² The fines were

²⁴⁰ Appuhn, *A Forest on the Sea*, 106.

²⁴¹ Lane, *Venetians*, 226.

²⁴² Appuhn, *A Forest on the Sea*, 106. It is difficult to put the fine in perspective, but in the fourteenth century, *25 lire di piccolo* provided several days of rations for one Venetian rower or constituted nearly a

stopgap measures that only addressed issues with local users near Montello and did not extend to other *Terraferma* forests. The Venetians used the Montello fines as a model to regulate all forests capable of producing Arsenale timber.

The Senate implemented the legal precedence of the *diritto di riserva* to enact six forest laws in 1476. The laws governed the usage of forest resources and placed the Venetians in direct control of all of *Terraferma*'s community forests. It is best to examine each law separately in order to more efficiently parse what each law achieved.²⁴³ The first law provided statutes for sustainable timber harvests. The Senate required *Terraferma* community forests to annually rotate timber harvests throughout ten coupes. Thus, the Arsenale only harvested each section of a forest once every decade. Corner's 1442 treatise reinforced the notion that ship-timber was a finite resource. The division of mainland forests illustrates that the Venetian government earnestly examined Corner's proposal, but needed to establish a legal precedence to administer all *Terraferma* forests.

The first law is an example of how Venetian timber policy evolved into positive conservation measures for *Terraferma*'s forests. Forestry developed as "a graft on the great rootstock of European agronomy."²⁴⁴ The rotating harvest statute allowed the Arsenale to manage *Terraferma*'s community forests as a sustainable crop. In a similar fashion as a Crimean wheat crop, the Venetians protected mainland forests until specimens matured into a harvestable size. Corner and the anonymous 1413 treatise

quarter of a day's salary . See F. C. Lane, "Diet and Wages of Seamen in the Early Fourteenth Century," *Annales: économies, sociétés, civilisations* (Jan–Feb 1963): 133–138.

²⁴³ The six laws are located in ASV, *Amministrazione Forestale Veneta*, B. 35 c. 3. An incomplete list of the laws can be found in ASV, *Deliberazioni Senato della Terra*, R. 7. P.199–204.

²⁴⁴ Stephen Pyne, *Tending Fire: Coping with America's Wildland Fires* (Washington, DC: Island Press, 2004), 34.

raised alarm at the deforestation of *Terraferma*'s forests and connected deforestation with soil erosion. The Senate attempted to fix deforestation and soil erosion by mandating the division of forests into coupes with the 1476 law.

The second law addressed the selling and purchasing of common forests. The Senate forbade the sale or abandonment of any *Terraferma* community forest. Prior to 1476, a mainland polity could sell sections of the commons to a group of users or a single individual.²⁴⁵ The second law also built upon the regulatory fines put into place after the Montello ban. The Venetian Senate imposed a 100 ducat fine on any polity caught selling its common timberland. The fine was sizable for any polity, but the Venetians provided amnesty to polities who reneged on any sale of public forests within a month of the enactment of the 1476 laws.²⁴⁶ The Venetians fully realized the difficulty in dealing with private forest owners during timber purchases. Consolidating the ownership of forests into the hands of local polities expedited the acquisition of ship-timber by the Arsenale.

The third law banned several destructive agricultural practices. Community members could no longer use common forests to pasture their livestock. The law also barred the practice of assarting forest lands.²⁴⁷ The spike in population and subsequent expansion of agricultural intensity in *Terraferma* contributed to the deforestation of Arsenale timber species. Assarting timberland was a major concern for the Venetian Arsenale because the practice permanently removed timberlands and their associated ship-timber. The law prescribed substantial fines for any person caught assarting common

²⁴⁵ Gabriella Corona, "The Decline of the Commons and the Environmental Balance" in *Nature and History in Modern Italy*, eds. Marco Armiero and Marcus Hall (Athens: Ohio University Press, 2010), 92.

²⁴⁶ Appuhn, *A Forest on the Sea*, 112.

²⁴⁷ Assarting is the traditional name for burning forest away to make cropland.

forests. The typical fine was a payment of 100 ducats and six months of service as rower.²⁴⁸ Such punishments encouraged adherence because either the fine would indebt the offender or the rowing would kill him.

The Venetians sought to stymie the deforestation of *Terraferma's* forests with the ban on pasturing livestock and burning off sections of the forest. The conversion of timberland into fields increased soil erosion and aggravated the impact of precipitation.²⁴⁹ The loss of the mainland forests impacted every facet of the Venetian economy. Firewood was already a scarce commodity by the 1440s, and Venetian industries utterly depended upon mainland charcoal producers. Soil erosion, if left unchecked, would make portions of the mainland rivers unnavigable for trading vessels. The 1476 laws served as positive conservation measures that attempted to halt anthropogenic environmental degradation.

The fourth law bolstered Venice's authority over the oak reserve at Montello. The law required timber suppliers from Montello to transport timber directly to Venice without stopping along the Sile to sell portions of their harvest. The law was a commodity control measure and the Senate likely modeled it after the earlier Adriatic cereals laws and the 1350 Arsenale selection law. Statutes of the law also provided guidelines for fines that left offenders literally up the stream without a paddle, or in their case, a boat. The Venetian dominance over *Terraferma's* forests included control over the exchange of timber resources. Because the Venetians closely associated timber with the

²⁴⁸ 100 Venetian Ducats was equal to \$19,656. $100(196.56) = 19,656.00$ in 2014 U.S. dollars.

²⁴⁹ Faruk Tabak, *The Waning of the Mediterranean 1550–1870: A Geohistorical Approach* (Baltimore: Johns Hopkins University Press, 2008), 201.

defense of *res publica*, manipulation of the mainland timber market fell within the parameters of the *diritto di riserva*.

The fifth law expanded Venice's firewood warehouse near the Arsenale. The expansion of the firewood warehouse did not directly impact the Arsenale's forest reserves, but the acquisition of steady supplies of firewood was necessary. The firewood supply was a form of social welfare because the *provveditori alle legne* (Firewood managers) distributed firewood in the winter to poor residents. The Venetians experienced a shortage of firewood well into the beginning of the fifteenth century. The third law that prohibited assarting and pasturing livestock in forests also prevented the loss of firewood reserves. However, the Arsenale reserves managed *Terraferma* forests for ship-timber, and did not implement cutting techniques, like coppicing, to promote the growth of firewood. No firewood managers participated in the management of *Terraferma* forests.²⁵⁰ The exclusion of any regulation of the firewood market within the six 1476 laws is indicative of the Arsenale's firm control of *Terraferma* forest policy.

The sixth law possessed the most pervasive legal repercussions for *Terraferma*'s forests. The law declared that the Arsenale's requirements for any ship-timber species takes precedence over any of the prior five laws.²⁵¹ Providing the Arsenale jurisdiction over the mainland's forests shaped how the forests of Northern Italy developed. Although it would be difficult to determine the connection between Arsenale activities and future forest growth patterns, Venetian forest law developed to favor a specific management approach. The Venetian government protected oak, beech, and fir stands in order to

²⁵⁰ Appuhn, *A Forest on the Sea*, 147.

²⁵¹ Appuhn, *A Forest on the Sea*, 113.

provide for the defense of the *res publica*. The Venetians marginalized species unsuitable for ship-timber and quite possibly contributed to the decline of endemic flora species, like the Padua Rue.

The genesis for the 1476 forest laws resided with Venice's initial connection to Treviso in 1339. In the early fourteenth century, the Venetians exhibited a passive system of management of the mainland. The Venetians afforded a wide breadth of legal rights to Treviso. Conflict with Genoa hindered Venetian trade and induced Venetian expansion onto the mainland in order to protect the Republic's mainland commercial ties. Wars with Padua, Hungaria, and Milan encouraged the Venetians to abandon their previous passive management of the mainland and to develop a policy of resource conservation. Venice clearly demonstrated its abandonment of its passive system of management through the termination of the Carraresi family. Although Venetian annexations were often the result of mainland wars, the Republic's *Terraferma* policy followed a concerted plan to secure mainland commerce and to bolster its mainland frontier. Timber was a strategic commercial mainland resource that Venetian expansionistic policies protected.

The conquest of *Terraferma* did not grant Venice direct control over the mainland's timber resources. Dominating community forests required the Venetians to first insert themselves into the mainland's Roman legal heritage. In the early fifteenth century, the Venetians began asserting their legal claims to timber into mainland law by modifying the language of dominion, using Roman legal concepts to their advantage, and by implementing the *dirrito di riserva*. Ottoman victories at Constantinople (1453) and Negroponte (1471) granted the Venetians an appropriate excuse to extend their control of

Terraferma timber. The *dirrito* allowed the Venetians to establish a beech reserve near Belluno and Cadore in 1453 and an oak reserve at Montello near Treviso in 1471.

The six forest laws of 1476 were a continuation of the Arsenale's successful attempts to expand its legal rights to mainland forests between 1410 and 1471. The six laws provided the guide for all future Venetian forest laws. The Florentine who remarked that Venetian laws last for seven days was certainly not a student of Venetian forest laws. Venetian law afforded the Arsenale legal authority over key ship-timber stands that lasted well into the eighteenth century. The dispossession of the rights of previous local forest users always handicapped the Arsenale's ability to procure appropriate timber specimens, but nevertheless throughout the late fourteenth and fifteenth centuries the Venetians developed a corpus of forest laws that granted the Arsenale legal control of forest resources.

The origins of the 1476 laws resided with two Venetians decisions in the fourteenth century. First, the decision to annex Treviso in 1339 signified Venice's willingness to solidify market connections to the mainland. Although Venice did not annex Treviso simply for the mainland's timber trade, Treviso's favorable role as conduit of the Sile and lower Piave timber trade was a crucial benefit afforded to Venice. Second, Venice veered from its passive management of Treviso and the mainland with the execution of the Carraresi family in 1406. The execution was unprecedented in Venetian history and serves as the most appropriate starting point for periodizing Venetian *Terraferma*. Conflicts with the Carraresi, Genoa, and Milan illustrated chinks in the Venetian mainland armour and, in response, Venice formulated a program of mainland protection and resource conservation.

Venetian expansion onto the mainland did not directly divest local communities' ownership of forest resources. The Venetian Republic acquired rights to mainland timber by inserting its claims into *Terraferma's* legal heritage. The manipulation of local statutes for the domination of natural resources was not a new Venetian tactic and was likely perfected with the development of Venice's legal control of the Adriatic wheat trade in the eleventh century. Venice's role as protector of the mainland required the Republic to modify its language of dominion in order to grant the city a firm legal grounding for outright seizures of timber in 1463 at Vizza and in 1471 at Montello near Treviso. The bans at Montello and Vizza resulted in positive forest conditions for the Arsenale, but upset disenfranchised local forest users.

EPILOGUE: “WHO OWNS THE FOREST?”

Ultimately, the narrative of Venetian forest law provides modern foresters and policymakers with valuable lessons in forest policymaking. In 1910, the European-trained father of American Forestry Gifford Pinchot declared that America was experiencing a timber *carestia*, or famine. “America has already crossed the verge of a timber famine so severe that its blighting effects will be felt in every household in the land.”²⁵² Pinchot echoed the sentiments of Marco Corner’s 1442 report to the Venetian Senate. Venetian timber shortages in the 1340’s and 1440’s disrupted fire fuel supplies and in part, encouraged the promulgation of timber regulations. Venice’s first timber regulations targeted the timber market within Venice because the Republic did not yet possess the legal authority on the mainland.

The Venetian conquest of *Terraferma* and the Republic’s manipulation of mainland law slowly answered the same question facing American forests in the early twentieth century: “Who owns the forest?” Pinchot’s utilitarian vision for America’s forests served as America’s response. That is, “using the forest first for the greatest good of the present generation, and then for the greatest good of succeeding generations.”²⁵³ Fifteenth century Venetians reached a conclusion through in an entirely different mode of thinking. Venice valued timber for its role in the defense of the Republic and

²⁵² Gifford Pinchot, *The Fight for Conservation* (New York: DoubleDay, 1910), 15.

²⁵³ Gifford Pinchot, *The Training of the Forester* (Philadelphia: Lippincott, 1917), 24.

implemented the *dirrito* to assert that the Arsenale legally owned common timberland for the defense of *Terraferma*. The manner in which the Venetians and twentieth century utilitarians defined forest ownership provides modern foresters and policymakers with valuable lessons.

That societal needs often influence forest conditions is the first valuable lesson. Modern foresters often fall back upon their scientific training to fix forest problems and neglect the societal conditions that first caused the problem. The dominance of the Arsenale within Venetian forest law was a reflection of timber's direct role in the Republic's security. Likewise, the purpose of Venetian silviculture was to produce a forest with specimens suitable for the Arsenale. The Venetians fixed their timber problem by manipulating mainland law at the expense of local timber users.

Local communities immediately reacted to Venetian timber policies by skirting around the 1476 law. As aforementioned, forest users near the Montello used the church within the reserve as an excuse to enter the forest with felling tools. As Appuhn asserted, if the Venetians upset local communities enough, harvesters simply sabotaged the harvest.²⁵⁴ The distrust of the Venetian reserve system by local forest users illustrates that all forest users should be incorporated within the development of forest policy. American foresters encountered a similar problem in the early twentieth century when an elite class of technically trained scientists governed the usage of Western national forests.

Like the Venetians, early Americans concerned themselves with specific species of oak. Ship-timber was a key resource for the newly founded Republic. Shipwrights

²⁵⁴ Appuhn, *A Forest on the Sea*, 168.

specifically sought out suitable specimens of Southern Live Oak (*Quercus virens*).²⁵⁵

Congress also reserved stands of timber in the early nineteenth century in order to provide timber to the naval yards at Philadelphia and Boston.²⁵⁶ Although the conservation of timber resources in America began well before the twentieth century, the first federal system of American forest reserves did not develop until the late nineteenth and early twentieth centuries.

The creation of America's forest reserves in 1891 also came at the expense of local forest users. Industry's reaction to the creation of National Forests is well documented by historians, but little scholarship examines how the new forests affected localized forest usage.²⁵⁷ The Forest Management Act of 1897 (Organic Act) restricted grazing, harvesting, and mining, all of which were typical usage patterns for western forests of the late nineteenth to early twentieth centuries. The new timber policy disgusted miners and, especially, ranchers who secured concessions within the Organic Act.²⁵⁸

In a similar fashion to fifteenth century Trevisans, American ranchers refused to allow bureaucrats to modify their rights to timberland. "Eastern college men," like William Greeley, now dictated forest usage to ranchers.²⁵⁹ Here the question was not

²⁵⁵ Ian W. Toll, *Six Frigates: The Epic History of the Founding of the U.S. Navy* (New York: W. W. Norton and Co., 2008), 60.

²⁵⁶ Harold H. Sprout, *The Rise of American Naval Power, 1776–1918* (Annapolis: Naval Institute Press, 1990), 126.

²⁵⁷ George A. Gonzalez chronicles industry's reaction to the creation of National Forests in his *Corporate Power and the Environment: The Political Economy of U.S. Environmental Policy* (Lanham, MD: Rowman and Littlefield, 2001).

²⁵⁸ Duane A. Smith, *Mining America: The Industry and the Environment, 1800–1980* (Lawrence, KS: University of Kansas Press, 1987), 55–57.

²⁵⁹ Karen R. Merrill, *Public Lands and Political Meaning: Ranchers, the Government, and the Property Between Them* (Berkeley: University of California Press, 2002), 78.

“Who owns the Forest?” but “Who can use the Forest?” Livestock owners far outnumbered commercial harvest operations during this era.²⁶⁰ However, American ranchers succeeded where Trevisan peasants could not by securing grazing rights to federal forestland with a permit system. Such broad comparisons are often problematic, but can serve as a viable avenue for future directions of research.

Examining the history of American forests elicits some similarities between the *Terraferma* narrative and the American colonial experience as well. The British of the seventeenth and eighteenth centuries essentially used the American colonies for timber in a similar fashion as Venice utilized *Terraferma*'s timber resources. Robert Albion's *Forests and Sea Power* examined the role forests and forest policy played in the English Navy from the military dictatorship of Oliver Cromwell to the battle of Hampton Roads.²⁶¹ The preservation of American oaks and pines concerned the British Naval Board. Parliament, according to Albion, passed several laws to preserve American timber for the production of war vessels in Boston.²⁶² The loss of the American colonies forced the British to look to other sources for shiptimber. One of these foreign sources was Italy. During the Napoleonic wars, the Italian states harvested their timber for the British and French fleets.²⁶³ British reliance on Italian timber was so crucial that by 1814 “nearly

²⁶⁰ Samuel P. Hays, *The American People and the National Forests* (Pittsburgh: University of Pittsburgh Press, 2009), 28.

²⁶¹ Robert G. Albion, *Forests and Sea Power: The Timber Problem of the Royal Navy - 1655–1862* (Hamden, CT: Archon Books, 1926), vii.

²⁶² The specific act Albion cited was: “An Act for the Preservation of White and Other Pine trees Growing in Her Majesty's Colonies - 1711,” Albion, *Forests and Seapower*, 249.

²⁶³ Albion, *Forests and Seapower*, 400.

half of the oak on hand in the dockyards was from Italy.”²⁶⁴ The British sought timber from abroad due to the mismanagement and denudation of its native oaks.²⁶⁵

Investigating the Arsenale’s role in the denudation of the Po River Valley is another future avenue for further research. A subsection of forest histories devote themselves solely to examining the occurrence of denudation of Mediterranean forests. J.V. Thirgood asserted that the exploitation of forest resources for ship-timber resulted in regional deforestation.²⁶⁶ The major focus of Thirgood’s study was the Levant and Cyprus, yet he addressed the importance of timber in the ascendancy of Venice by stating, “the Italian maritime states of Venice, Genoa and other cities...were launched at the expense of Mediterranean forests.”²⁶⁷ More specifically, Venetian maritime might was launched at the expense of *Terraferma* communities. Control of the timber supplies of the Po River Valley was essential to Venetian power. Studying the Arsenale’s dependency on mainland supplies of timber can answer questions about Venice’s political relationship with the polities of *Terraferma*.

Russell Meiggs’s *Trees and Timber in the Ancient Mediterranean World* established a solid foundation for recent inquires into forest histories. Mieggs’s work on ancient timber builds upon the research of Lionel Casson and R.C. Anderson by adding

²⁶⁴ Ibid.

²⁶⁵ After the Revolutionary War, Indian Teak served as an alternative to North American Oak. Ronald Utt, *Ships of Oak, Guns of Iron: The War of 1812 and the Forging of the American Navy* (Washington, DC: Regnery Publishing, 2012), 126.

²⁶⁶ J. V. Thirgood, *Man and the Mediterranean Forest: A History of Forest Depletion* (London: Academic Press, 1981), 5.

²⁶⁷ Thirgood, *Man and the Mediterranean Forest*, 47.

forest history into the narrative of trireme construction.²⁶⁸ He does not blame the classical civilizations for overharvesting most of the Mediterranean forests. Certain regions like Attica and Sicily were deforested, but Mieggs asserts that wide portions of the Mediterranean Basin were well forested after the Classical era.²⁶⁹ He argues that ship-building and land conversion in the Renaissance and Early Modern periods resulted in more wide spread deforestation than during the classical era. This regional approach to Mediterranean forests is a more appropriate way to examine Venice's impact on its mainland forests.

One of the best models of forest history is found altogether outside of European history. Conrad Totman charted the progression of early modern Japanese forest law in *The Green Archipelago*. Early modern Japan is an excellent example of a non-European state responding to forest issues in a similar manner to Venice. Like Venice, Japan did not fit the capitalist-driven environment of colonial New England put forth by William Cronon and Carolyn Merchant.²⁷⁰ Totman asserts that changes in agricultural practices resulted in an increased use of forest products.²⁷¹ A similar pattern occurred in Venice and was coupled with deforestation. Totman correctly asserts that “excessive deforestation manifests itself in two ways: as wood scarcity and as environmental deterioration.”²⁷² The Venetian sources suggest that ship-timber was a scarce resource

²⁶⁸ Lionel Casson, *Ships and Seamanship in the Ancient World* (Princeton: Princeton University Press, 1971); R. C. Anderson, *Oared Fighting Ships: From Classical Times to the Coming of Steam* (London: Percival Marshall, 1962).

²⁶⁹ Mieggs, *Trees and Timber*.

²⁷⁰ Cronon, *Changes in the Land*; cf. Merchant, *Ecological Revolutions*.

²⁷¹ Conrad Totman, *The Green Archipelago: Forestry in Preindustrial Japan* (Berkeley: University of California Press, 1989), 35.

²⁷² Totman, *The Green Archipelago*, 24.

that required protection for the sake of Venetian security. Environmental deterioration is much harder to wring out of the sources.

A. T. Grove and Oliver Rackham staunchly oppose the basin-wide model of Mediterranean deforestation. Grove and Rackham propose that the purported deforestation in the Classical era and the Renaissance is part of a larger Mediterranean “ruined landscape” myth. The ruined landscape myth can best be summarized as thus: in the classical era, human use and pastoral livestock permanently deforested virgin stands of Mediterranean forest. The deforestation caused severe soil erosion and the former lush forestlands became as sterile as the thin soils of Illyria.²⁷³ Although grossly simplified, Grove and Rackham directly challenge J. Donald Hughes’s narrative of classical environmental history.²⁷⁴

Grove and Rackham challenged the basin-wide deforestation narrative through their examination of ship-timber harvests throughout the Mediterranean in the Renaissance era. They assert that the evidence for the decline in oaks in *Terraferma* is inconclusive. The Venetians were simply outcompeted due to their outdated ship designs, “poor dock layout, corrupt workforce, and inefficient management.”²⁷⁵ Grove and Rackham are excellent scholars and produced praiseworthy scholarship on environmental change in England and Crete, but their assertions on Venice do not match what the primary sources elicit about Venice’s timber situation. The Venetians were at the

²⁷³ A. T. Grove and Oliver Rackham, *The Nature of Mediterranean Europe: An Ecological History* (New Haven: Yale University Press, 2001), 9–11.

²⁷⁴ Grove and Rackham critique several of Hughes’s works but focus on: J. Donald Hughes, *Pan’s Travail: Environmental Problems of the Ancient Greeks and Romans* (Baltimore: Johns Hopkins University Press, 1994).

²⁷⁵ Grove and Rackham, *The Nature of Mediterranean Europe*, 178.

forefront of new ship designs, and possessed an extremely efficient dock layout.²⁷⁶ Grove and Rackham have neglected many of the Venetian primary sources that bluntly state that Venice was experiencing a famine of ship oak.²⁷⁷

My initial research suggests that regional deforestation of ship-timber is the most appropriate model for pre-industrial Italy. Since the Venetian sources almost exclusively focus on ship-timber, it is extremely difficult, if not impossible, to extrapolate overall forest health. Deforestation of ship-timber certainly occurred in the Venetian hinterland, but it is unwise to underestimate the resiliency of Mediterranean forests. The regional deforestation of Venice's timber resources is an overlooked factor that determined the longevity of the Republic. However, larger economic and agricultural forces shifted the Mediterranean trade networks against Venice. Silk's movement west and the introduction of maize removed Venice's role as the middleman of the Mediterranean.²⁷⁸

Recent scholars have also argued that regional deforestation in Renaissance Italy is part of a widespread scarcity of oak throughout the Mediterranean basin. Faruk Tabak asserted that regional deforestation of ship-timber species in *Terraferma* forced the Venetians to seek timber from further afield. The scarcity of Venetian oaks was a smaller part of a general decline in oaks throughout the Mediterranean basin.²⁷⁹ According to Tabak, deforestation was largely caused by new eastern crops changing agricultural land

²⁷⁶ I am specifically referring to Venice's development of the successful Galeass. John Guilmartin, *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century* (New York: Cambridge University Press, 1974), 232–234. For the efficiency of the Arsenal, see F. C. Lane, "The Management of the Arsenal," in Lane, *Venetian Ships*, 146–175.

²⁷⁷ ASV, Amministrazione Forestale Veneta, B.7–9.

²⁷⁸ Tabak, *The Waning of the Mediterranean*, 303.

²⁷⁹ Tabak, *The Waning of the Mediterranean*, 191–192.

use patterns throughout the basin, coupled with a spike in population in between 1450-1560.²⁸⁰

Studying the development of Venetian forest law also illustrated a need for more inquiries into how forests influenced earlier historical narratives. The aforementioned work by Russell Meiggs is the definitive work on ancient forests and timber. More recently, Eugene Borza successfully illustrated that Athenian dependency of Macedonian timber revealed the economic and political ties between Athens and Macedon.²⁸¹ Likewise, Lukas Thommen incorporated chapters devoted to Ancient forests in his *An Environmental History of the Ancient Greece and Rome*.²⁸²

Access to suitable supplies of timber appears to have encouraged the Athenians to involve themselves with Macedon between the end of the second Greco-Persian War and the start of the Second Peloponnesian War (the *pentekontiaetia*). According to Theophrastus, the best species of conifers for all uses was the Silver Fir (*Abies alba*).²⁸³ The Athenians constructed their triremes largely from conifers. The Spartans targeted Athens' supply of timber in a similar fashion as they destroyed Athenian wheat crops.²⁸⁴ Brasidas' decision to harvest timber near the Strymon for Spartan ships exacerbated the defeat at Amphipolis in 422 BCE.²⁸⁵ Jason, the capable cavalry commander of Pherai,

²⁸⁰ Ibid.

²⁸¹ Eugene N. Borza, "Timber and Politics in the Ancient World: Macedon and the Greeks," *American Philosophical Society* 131, no. 1 (March 1987): 32.

²⁸² Thommen, *An Environmental History of the Ancient Greece and Rome*.

²⁸³ Theophrastus, *Historia Plantarum*, 5.1.5.

²⁸⁴ Victor Davis Hanson argued that the Peloponnesian War was a war against Athenian agriculture. I assert that the Spartans also targeted Athenian timber resources. Victor Davis Hanson, *The Western Way of War: Infantry Battle in Classical Greece* (New York: Oxford University Press, 1990), 34. cf. Victor Davis Hanson, *Warfare and Agriculture in Classical Greece* (Berkeley: University of California Press, 1998).

²⁸⁵ Perlin, *A Forest Journey*, 90.

later summarized Athenian timber needs by stating, “Consider now if I estimate rightly in these matters also. For if we possess Macedon, the place from which the Athenians obtain their timber, we will be able to build many more ships than they can.”²⁸⁶ Although the environment did not shape the ancient narrative alone, natural resources, especially timber, exerted a perceivable influence on human actions.

A new environmental history of Venice is required to fully understand the Venetian narrative. The domination of timber, water, salt, and wheat allowed Venice to control *Terraferma* and the Adriatic. Each resource cannot be written out of the Venetian narrative. The strategic outlook of the Venetian Empire cast its guise not only on the rich waters of the east, but also the fertile forests of the Po River Valley.

Venetian wars with mainland polities and the Ottoman Empire helped to shape the composition of Northeastern Italy’s forests. The Venetian forest narrative illustrates that warfare directly impacts environmental systems. Modern warfare in troubled regions such as Syria, Iraq, and Afghanistan also shapes the sustainability of natural resources. War is a constant theme in the human narrative and the development of Venetian forest law provides historians with another window into how the environment and natural resources can possess agency in historical events. Although there is an undeniable loss of human life in conflicts, historians must also consider how military conflicts affect resources that sustain societies.

²⁸⁶ Xenophon, *Hellenika*, 6.11.1., ed. Robert B. Strassler, trans. John Marincola (New York: Knopf Doubleday, 2009).

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