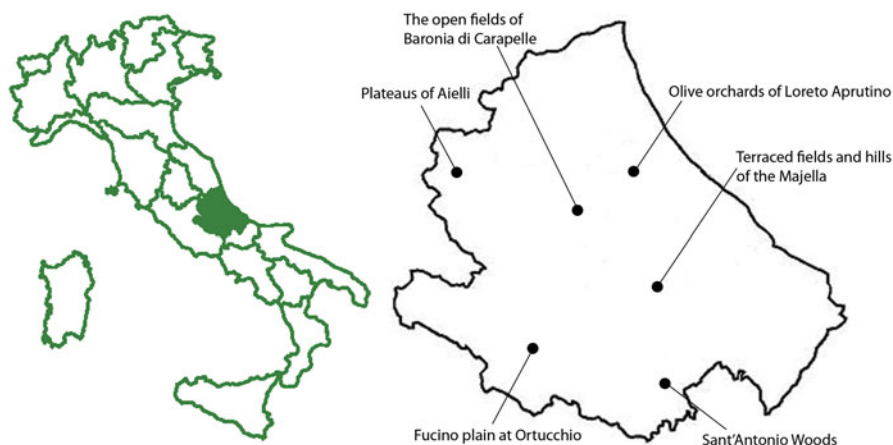


Chapter 18

Abruzzo

Piero Bevilacqua



18.1 Introduction

Abruzzo is the most mountainous region in peninsular Italy. 71 % of its surface consists of mountains rising almost as high as 3,000 m, 29 % of hills, and there are no plains. This has forced its inhabitants to develop special forms of adaptation of agricultural techniques to a difficult environment, and this accounts for the local landscape's distinctive features. Among the regions of the Italian South, Abruzzo is the one that has achieved the most satisfactory forms of economic modernization over the last half century, thanks to the spread of small and middle industry, the modernization

P. Bevilacqua (✉)
Dipartimento di Storia Moderna e Contemporanea, Università la Sapienza di Roma,
Rome, Italy
e-mail: pierobevilacqua@yahoo.it

of agriculture, and a more judicious land management than elsewhere in Italy. It is for this reason, as well as because of its prevalently mountainous character, that it is one of the southern regions that has best preserved its traditional landscapes, which are organized by altitude and include cultivated areas, woods and pastures, and historical testimonies dating as far back as the Roman period. Even today, in spite of the spread of small and middle manufacturing businesses, pastoralism and related agricultural activities are still the prevalent feature of the Abruzzan countryside. Seventy percent of the overall agricultural surface is given over to this agropastoral economy, with 38 % of permanent fields and pastures, 22 % of cereal fields, and 12 % of relay-cropped fodder fields. Forty percent of the region's surface is covered with woods. We have picked six areas as especially representative of the historical reality of this specific, traditional agricultural and landscape reality. The Sant'Antonio woods is one of the most significant example of woods called *difesa*, "defense"; areas reserved as wooded pastureland, all other forms of use being banned. In the Sant'Antonio woods are vestiges of a *lucus*, a sacred woods of Roman times. The employing of a form of pruning for fodder called *pollarding* resulted in peculiar shapes for the local beech trees. Today, unfortunately, this mixed pasture and woodland landscape is threatened by abandonment and the expansion of compact and homogeneous woods. Another representative area is that of the terraced fields of the higher hill slopes of the Macella. Terracing is a widely employed technique on the steep slopes of the traditional landscape of Abruzzo. The Macella terraces lie in the agropastoral area of Roccamorice, Lettomanoppello and Abbatiggio. They mainly consist of artificial meadows grading down to the valley below, alternating with crops such as spelt, olive trees, grapevine, and fruit trees. The most remarkable features of this agrarian landscape are the terraces themselves, and the dry-stone masonry used for enclosures and for the typical "tholos" stone huts of Abruzzo shepherds. Natural meadows and fodder fields characterize the landscape of Piani di Aielli. Here one can still see the so-called "ribbon-shaped" layout of the open common fields where cereals are grown; an ancient form of cultivation coexisting with the grazing of livestock on mown-grass fields (*campi da sfalcio*). Like other Abruzzan mountains, including the Gran Sasso itself, the Aielli landscape bears witness to the "cooperative" dimension of the Abruzzan countryside, where over the centuries farmers and shepherds have struggled to extract sustenance from sterile soils in a harsh climate. The fields of the Baronia in the Majella mountain range, instead, are an unusual example of an integrated, silvopastoral conception of the function of two different areas. Here the fields are divided in two "shifts" (*veci*). A "full shift" of barley is alternated with an "empty shift" of potatoes. The crops are rotated from one plot to the other according to a regular schedule including a long grazing period on fields where renewal crops are to be sown. The fields are thus economically interdependent one from the other. A significant example of the landscapes of the region are the olive orchards of Loreto Aprutino in the province of Pescara. Located in an inland hilly area, they are one of the most representative features of the Abruzzan agricultural landscape. Here the growing of often very large centenary olive trees, and hence the preservation of agricultural and habitat biodiversity, manages to coexist with high yields. The Loreto Aprutino area produces an excellent olive oil on an industrial scale. The choice of Ortucchio, in

the Fucino Plain, reflects a precise documentary intention. We chose the agricultural landscape of this small commune as a testimony of a “reclaimed” landscape, a result of the draining of the Fucino lake around the turn of the nineteenth century. This, as the historian Costantino Felice defined it, is the “pulp” of the Abruzzan Apennines: a vast plain once occupied by the third largest lake in Italy, and now making plain agriculture possible in the midst of the mountains. Since the agrarian reform started in 1950, an archipelago of small and middle sized farming businesses have sprung up here. Irrigation—now undermined by increasing water scarcity—has shaped the landscape, which is dominated by rectangular vegetable gardens intersected by roads and canals often flanked by high poplar trees. The draining of the lake had already been attempted by Claudius in Roman times. This dramatic and in some ways controversial transformation has generated a very special agricultural landscape.

18.2 Sant’Antonio Woods (41° 56′ 11″ N; 14° 02′ 03″ E)

This is a wooded landscape extending over about 500 ha in the commune of Pescocostanzo (AQ), partly owned by the municipality and partly privately. Today it lies within the Majella National Park, but a regional natural reserve was already created in 1985, recently a Site of Community Importance (no. IT711039, “Pizzalto Bosco di S. Antonio”) was also established. The landscape is protected also according to the landscape laws n. 431/1939 and n. 431/1985. It can be reached from Pescocostanzo by the SP 55 provincial road, 10 km; from Sulmona, by the SS 487 state road (via Cansano) and the SP 55 provincial road, 21 km; from the SS 17 state road, junction for Pescocostanzo, 13 km. The area is a karstic plateau (Piano Primo Campo) bordered and dotted with calcareous rises. It extends from NW to SE and is bounded by the crests of Mount Rotella (2,127 m a.s.l.) and Mount Pizzalto (1,969 m a.s.l.). Its altitude ranges between 1,290 and 1,420 m a.s.l.

The area owes its significance to its historical persistence and the peculiarity of its wood cover, characterized by pollarded beech trees, a traditional form of pruning to produce fodder. These are a typical, if little known, feature of many Abruzzan woods, whose importance as a landscape feature is underrecognized. One of the first landscape preservation battles in the history of the Italian Republic was fought in defense of the S. Antonio Woods and also Luigi Einaudi, former President of the Italian Republic (1948–1955) stressed the need to protect this forest. Elena Croce aptly characterized them as a “sanctuary of nature and pastoral civilization”. Today they are a very well-preserved example, and possibly the most significant both in Abruzzo and in the whole former Kingdom of the two Sicilies, of “*difesa*” woods (defense woods). “A *difesa* is an area where other uses are forbidden, because it is reserved for the grazing of equines and bovines, but not sheep”. *Difese* were wooded pastures serving as a *meriggio*, i.e., an area where livestock could graze in the shade in the hot hours of the day. The felling of trees was not allowed in *difese*; only pollarding for firewood and fodder. A typical feature of a *difesa* are pollard trees, the result of pruning about 2 m above the ground to produce shoots. In practice, this is an aerial form of coppicing suitable for the production of leaves for fodder high above

the ground, beyond the reach of grazing animals. The S. Antonio Woods housed a *lucus* or sacred grove of the Roman period or earlier, which stood along an important road connecting Sulmona, the Volturno valley and the upper Samnium. Traces of this road survive in the northern part of the woods (*Via Minucia* or *Numicia*). The woods derive their present name from a religious congregation of the Antoniani, engaged in hospital assistance. The congregation is devoted to S. Antonio Abate, protector of animals, and has a small church on the east edge of the woods. The presence of the nearby towns of Pescocostanzo, Rivisondoli and Roccaraso, in spite of the high altitude, and of farmhouses along the edges of the plateau, bears witness to the importance of the pastures and agricultural activities in this area. The S. Antonio Woods are especially remarkable for the size and composition of their trees, which include beech, Turkish oak, field maple and other species of maple, cherry, pear and holly trees growing to larger than average sizes. Over thousands of years the high altitude meadows were extended to provide grazing grounds for transhumant flocks, a trend that intensified in the twentieth century. Level areas, instead, were used as pastures for bovines and equines, as well as cereal growing, although not continuously. This land use has given rise to a spectacular landscape alternating woodland with open areas offering views of the highest summits of the Apennine. The landscape of the karstic plateau surrounded with wooded slopes is a still well-preserved fragment of the plateau complex of inland Abruzzo. Its articulation into several plateaus delimited by mountains contributes to the impression of integrity this landscape gives out, which it principally owes to the preservation of traditional forms of production. Indeed, the major plateaus of Abruzzo have been aptly characterized as “places of wise exploitation”. The local farmhouses bear witness to the more intensive use of the level areas.

The integrity of the area appears essentially intact, although there have been variations in the proportion of land devoted, respectively, to woodland and pasture, and in the characteristics of individual trees. Following the resistance of the local population to attempts to exploit the woods that would have disrupted their natural balance, and thanks to appeals by several intellectuals (Gaetano Salvemini wrote a heated article on the weekly journal *Il Mondo*), on 27 January 1953 the S. Antonio Woods were placed under landscape restrictions under the provisions of law n. 1947/1939, recently followed by the natural reserve, the national park and the SCI. The diminished pressure of sheep grazing is partially compensated by the growing population of wild ungulates. The woods have grown over the last few decades, while the integrity of the area has been only partially altered by buildings used as summer residences concentrated within a limited area. As to the portion of wooded pastureland that makes up the S. Antonio Woods proper, its traditional pastoral use and legal protection have allowed it to retain its ancient character of “sacred and domestic grove”.

For what concern vulnerability, the management of the woods is presently conditioned by the Park plan and regulations. The Park’s zoning map presently includes the woodland areas in Zone A (Integral Reserve). This kind of protection, while certainly appropriate for natural areas does not appear suitable for the preservation of the S. Antonio Woods, while the law n. 431/1939 and n. 431/1985 are also ineffective



Fig. 18.1 A huge pollarded beech tree in the Sant' Antonio wood. The lack of specific management practices is leading to the disappearance of important elements of the Italian forest landscape

to protect the internal structure of a rural landscape. An accurate examination of the woods indicates that over time the characteristic gaps in the forest cover have been disappearing, and, above all, the trees have been losing their peculiar shapes determined by the practice of pollarding. The reforestation of clearings is favoring beech to the detriment of the other species that play such an important role in characterizing and diversifying these woods. Detailed planning is hence called for to preserve the area's identity; a problem, unfortunately, that regards many Italian wooded areas which are presently losing their original landscape values (Fig. 18.1).

18.3 The Open Fields of Baronìa di Carapelle (42° 20' 32" N; 13° 39' 31" E)

The Piani della Baronìa di Carapelle are open fields lying in the Viano and Buto ("full" and "empty") plateaus, which together form an elongated 8-shaped valley extending over about 220 ha. The area is fully included within the Gran Sasso and Monti della Laga National Park, the landscape is protected also by the landscape law n. 1497 of 1936. It lies within the municipalities of Santo Stefano di Sessanio, Calascio,

and Castelvechio Calvisio, in the province of l'Aquila. These can be reached from l'Aquila by the SS 17 state road, taking the turn for Barisciano once near Campo Imperatore. The fields lie in tectonic depressions alternating with rounded parallel rises composed of marly limestone, calcarenite and breccia descending from the southern slope of the Gran Sasso towards the Aterno Valley. A single road runs along the longitudinal axis of the valley. The fields are lined up on either side of it, arranged so as to always face the road with one of their short sides, whose length is about 1/10 of the long sides. The area is modeled by superficial karstification. This phenomenon results in a lack of a superficial water network and an abundance of wellheads. It is also responsible for the morphology of the tectonic depressions, which form large hollows, known as *polije*, extending for several kilometers and lacking a developed hydrography because the water tends to seep deep down into the ground.

The area owes its significance to its historical persistence and the beauty of its pasture and open field landscape. As early as Roman times it was crossed by the Via Claudia Nova. By the late 1200s or early 1300s, the Barony of Carapelle was a vast and important feudal dominion where agriculture and pastoralism flourished. After it had changed hands several times, in 1579 the last heir of the Piccolomini was forced to sell the feud to the Grand Duke of Tuscany, Francesco de' Medici. In this period the Barony of Carapelle and the Marquisate of Capestrano reached the peak of their splendor. The Medici family established here their principal base of operations for the commerce of the prized *carfagna* wool, produced in the Barony's estates, worked in Tuscany, and sold in Europe. The pastoral economy is thus the dominating feature of this area, although not the only one, while agriculture was mainly practiced at the family level for subsistence purposes. The local open fields go back to an agronomic system founded on community practices connected to medieval obligations. Modern agriculture has led to the disappearance of such practices, which survive today only in very few places, such as the present area. Here the system owes its permanence to the need to balance the needs of agriculture with those of sedentary grazing. It seems to reflect a silvo-pastoral conception of economy that earned recognition especially from the 1970s onward. Even today, fields here are cultivated in two "shifts" (*veci*). A "full shift" of barley is alternated with an "empty shift" of potatoes. The crops are rotated from one plot to another according to a regular schedule including a long free-grazing period on fields where renewal crops are to be sown.

As regards integrity, the whole area still retains exceptional landscape values. The fields are surrounded with extensive pastures and woods, and are cultivated extensively employing traditional crops and practices. Especially prized crops include pulses (lentils, chickling vetch), cereals (spelt, Solina wheat, barley) and potatoes. The lentils of Santo Stefano di Sessanio are recognized as a Traditional Food Product by the Ministry for Agricultural, Alimentary and Forest Politics, and they also are a Slow Food Presidium. Most of the local food products, which are increasingly employed in the expanding local tourist business, are actively promoted and placed under legal protection. The open fields lie at a certain distance from inhabited centers. There are often still evident signs of the removal of rocks, which are piled in large mounds called *macerine*. Roads and paths are kept down to a minimum, the



Fig. 18.2 The open fields of the Baronia di Carapelle

plots still retain their elongated shape, usually perpendicular to the overlying slope to favor the descent of humus.

The vulnerability of the area is determined by the decline of agropastoral activities, which is leading to the abandoning of the cultivated fields and the consequent thriving of wild fauna. Notably, every year some of the higher altitude fields are relinquished. In the valley, instead, the main risk is crop homologation. Many minor man-made structures have completely disappeared. The momentum of the great emigrations of the early twentieth century is still not completely spent: between 1991 and 2001, the communes in this district registered an average emigration of 20 %. The rural economy is also gradually but evidently on the decline: In the same period, the number of farming businesses in the commune of Castelvecchio Calvisio was reduced by one half (Fig 18.2).

18.4 Terraced Fields and Hills of the Majella (42° 10' 58'' N; 14° 04' 16'' E)

This is a terraced silvopastoral landscape extending over about 700 ha. It is mainly composed of artificial meadows, some privately, others commonly owned, grading down to the valley. Crops include spelt, olive trees, grapevine and fruit trees. Cheese and honey are also produced. The area falls within the municipalities of Roccamorice, Lettomanoppello, and Abbatiggio in the province of Pescara, the landscape is protected according to the landscape law n. 1497 of 1939. It can be reached by exiting

Highway A25 at Alanno-Scafa and driving up towards S. Valentino in Abruzzo Citeriore and Roccamorice. From Roccamorice one drives further up in a SE direction, towards the Eremo di Spirito and Passo Lanciano.

The area is part of the Majella mountain range, a massive limestone formation that emerged 5 million years ago. The Majella is characterized by a series of summit plateaus with gently sloping profiles due to glaciation, and long, harsh valleys cutting through the mountains from summit to foot. Our area lies on a broad slope descending from the Maielletta (1,995 m a.s.l.) to the Pescara River Valley, between the Santo Spirito and Sant' Angelo Gorges. These are tectonic gorges bearing the marks of both fluvial and glacial action, with long, deeply incised ravines. The slope has a constant, moderate grade with emerging rocks and karstic morphologies.

The area owes its significance especially to its terraces and dry-stone enclosures and huts, which combine with the local natural features to make this area one of the most remarkable landscapes in Italy. It was known ever since remote times for the asphalt deposits of Lettomanoppello, where the Amalfi Republic procured bitumen for the caulking of its ships in the twelfth century. By the time of the Lombard invasions, transhumance towards the plains had already become a significant element of the local economy. Two important hermitages, San Bartolomeo di Legio and Santo Spirito, were built in the area around the year 1,000. Abbateggio was erected around the ninth century, while Roccamorice is apparently later. The anti-feudalism laws and Provisory Cadaster of the first half of the nineteenth century, along with demographic growth and the crisis of transhumant pastoralism, put a strong pressure on the poorer farmers to wring tiny commonly-owned holdings out of the mountain. The rocks gathered as part of the reclaiming of fields and pastures, to exploit the thin layer of fertile soil and the sparse grasses growing among the limestone outcrops, provided building material for a high number of constructions, including about 300 huts called "tholos". These dry-stone constructions are probably patterned after the *trulli* of the Puglia region, and hence a testimony of developing relations with Puglia in the nineteenth and twentieth centuries. Abruzzan shepherds sought refuge in these buildings during the transhumance period, as they led their flocks up from the Puglian countryside to the mountains of Abruzzo. The earlier ones are built hastily and cheaply, but soon their construction began to gain in order and precision. The initial small shelters gave way to buildings where whole families could spend the whole summer. These typically encompassed a two-story sleeping hut, a storehouse for produce and tools, and a milking area, preferably covered. The whole complex was enclosed within a high enclosure wall. The area was renowned for the working of Maiella white and black stone. Constructions in this material are widespread in the area and one of its most distinctive features.

The landscape still shows a high degree of integrity. The most significant and best preserved examples of terraces and huts can be found near the Civita Hill, where the most elaborate building types are found. Here the constructions are still in a good state of preservation. Agricultural activities are concentrated further downhill, the result being contrasting landscapes and different forms of economic and agricultural management, with a sharp transition from pasture to shrubland, and from shrubland to intensive cultivation. On the older terraces, pastoral activity is residual.



Fig. 18.3 The *tholos* of the Majella mountains are one of the many different types of stone buildings dotting the Italian rural landscape

The vulnerability of the area is mainly due to land abandonment, which began around the middle of the twentieth century, leading to a slow deterioration of the dry-stone structures and of the whole agricultural landscape. Rural tourism in the area does not appear to be having a negative impact on its integrity, partially because the area lies within the Majella National Park. However, in 2007 the commune of Roccamorice requested its removal from the Park area, accusing the Park management of hindering, with its excessively conservative attitude, the anthropization of the area. Notably, Roccamorice has challenged the Park management's decision to close off the car road from the junction at an altitude of 674 m a.s.l. leading to Colle di Fiume, Colle della Civita, Colle Remacinelli, and Fonte Tettone. The leaders of the local community regard this road as a fundamental resource for the socio-economic development of the area. The issue is up for debate in the Italian Parliament (Fig 18.3).

18.5 Olive Orchards of Loreto Aprutino (42° 26' 00'' N; 13° 59' 00'' E)

This area, extending over about 800 ha, lies at 294 m a.s.l. in an inland hilly zone, half way between the Adriatic Sea and the Gran Sasso d'Italia mountain range. The district, which extends all around the village of Loreto Aprutino, is characterized by olive cultivation, partly on terraces and adjoining vineyards.

The area owes its significance to an olive orchard landscape that retains traces of several historical transitions, from Italic settling in the area back in the fifth or fourth century B.C. to the industrial and mercantile transformation of the local agriculture from 1870 onward, which made this area one of the most productive in Abruzzo, where it is regarded as the main center of oil production. The earliest attestation of the settlement of Loreto dates back to the year 884, when it is mentioned among the holdings of the Abbey of Montecassino. In 1071 it became a Norman County. The first of a series of Counts who ruled the village was Taxio Normannus, known as Dragone Tassone. Part of the olive orchards are arranged rationally, with the trees placed at preordained distances from one another, which are the same all over the area and hence impart a sense of regularity to the landscape. The main crop of the ca. 40 agricultural businesses in the area is an olive tree of the “Dritta” variety, which spread at the beginning of the nineteenth century. “Dritta” olive trees have long outreaching branches and a not too dense foliage. They are of middle size and stoutness, and produce a limited amount of wood. The leaves are dark green and glossy, and have a prickly tip. Olive trees of this variety are one of the most ancient species in Abruzzo. The local intensive cultivation methods and business forms are rooted in the dynamic traditions of the local farmers, who watch over the evolution of the area with the objective of exporting their oil abroad. Being located in the Vestina area, in the Tavo basin, the olive orchards have the benefit of an elaborate irrigation system. Other elements adding significance to the area are the Castelletto Amorotti, which houses the Museo dell’Olio (where a nineteenth-century oil factory, one of the earliest in the commune, is displayed), and the church of St. Francis (thirteenth century). On a hill in front of the historical center is the church of S. Maria in Piano (twelfth century). Also remarkable is the Museum of Farming Civilization, with more than 900 artifacts from the Vestina area.

As regards integrity, the twentieth-century industrialization of agriculture had little impact on the local olive-tree landscape. Thanks to the persistence of old cropping systems, the presence of centenary olive trees, and the preservation of traditional land uses, the area manages to sustain a high-yield rural economic activity with a low landscape impact. The most significant innovations were the increase of olive trees per hectare and the replacing of animal-driven oil presses with hydraulic ones. The cultivation and pruning of the trees and the harvesting of the olives are largely carried out under the prescriptions of the “Aprutino Pescarese” Protected Designation of Origin regime (granted in 1996) for the production of extra-virgin oil, which include specifications of the physical characteristics of the olives, inter-tree distances, and maximum production (9,000 kg per ha), and also regulate the use of picking machines, prescribing that the olives should be picked directly off the tree.

As regards vulnerability, the area does not appear to be impacted by uncontrolled building. Landslides have occurred along some stretches, and a slow process of erosion is visible; these issues have been brought to the attention of the Consorzio di Bonifica Centro dell’Abruzzo. The 2009 earthquake also caused some damage. Studies on the waters of the Tavo, which gave rise to a debate between the WWF and the municipality, indicate pollution of groundwater and malfunction of local depurators. Irrigation from these sources may hence undermine the quality of local



Fig. 18.4 The landscape of Loreto Aprutino shows the persistence of old cultivations and centenarian olive trees

farm products. Further vulnerability could derive from excessive intensification in olive-growing involving the introduction of technologies that modify tree structure or orchard layout (Fig 18.4).

18.6 Fucino Plain at Ortucchio (41° 57' 54'' N; 13° 36' 43'' E)

The area encompasses a portion of the Piana del Fucino (Fucino plateau) within the commune of Ortucchio, a center of over 1,500 inhabitants lying southeast of the Piana, about 680 m a.s.l. The municipal territory extends over about 35.6 km², with an agricultural surface of at least 2,000 privately owned hectares. The Piana del Fucino is a plateau (650 and 680 m a.s.l.) surrounded by mountains, the most important being the mainly calcareous Velino and Sirente to the north. The Piana, which lies within the Marsica area, is a tectonic depression lying next to a fault. Its floor is mainly composed of loam and sand, which becomes increasingly clayish towards the center and coarser-grained towards the edges.

In the history of Italy, the draining of Lake Fucino, only completed in 1878, ranks among man's greatest efforts to establish a Promethean domination over nature. It was a controversial undertaking, but one that nevertheless produced significant historical and socioeconomic results. In the early ninth century B.C., the level of the Fucino rose markedly, submerging and causing the definitive abandonment of

Protovillanovan villages located at the present-day sites of Ortucchio and Luco, on the banks of the lake. The first attestation of the name “Ortucchio” dates back to the eighth or ninth century, when it appears as “Hortucla”, a term closely connected with the Latin *hortuculus/horticulus*. Lake Fucino was the third largest lake in Italy, extending over 150 km², and was rich in fish. The first plans to drain date back to Caesar, who promised to do this to provide a source of food for Rome. The emperor Tiberius allegedly also planned to drain the lake. It is the emperor Claudius, however, who finally decided to undertake the work, which required 30,000 slaves and 11 years. They did not, however, achieve the desired end. The effluent canal dug by Claudius’ men only managed to reclaim land from the water for a short period of time. Shortly thereafter, neglect and lack of maintenance of the canal allowed the lake to regain to its original extension. A homonymous castle was built near the village at the behest of Antonio Piccolomini, on the site of an earlier fortress some vestiges of which survive. The castle was finished in 1488, as proclaimed by the inscription above the main entrance. The village and castle stood on a small peninsula extending out into the waters of the lake, which in the following centuries turned into an island. In 1854, Alessandro Torlonia decided to start land reclaiming works. At the time the lake extended over a surface oscillating between 15,000–16,000 and 40,000 ha. The works included the draining of the lake and reclaiming of the land, as well as the digging of a dense network of canals with a total length of 285 km, 238 bridges, 3 locks, and 4 sluices. Following farmers’ protests after World War II, the agrarian reform of 1950 assigned the agricultural land of the Fucino to residents of the surrounding communes and to 5,000 landless families who had immigrated from the coast after the draining of the lake. The latifundist Torlonia was forced to relinquish his estates, and the Ente Fucino was established. The drained basin of Lake Fucino consists of 14,005.90 ha of farmland divided into 497 holdings of 25 ha each. The draining brought benefits, but also high environmental costs. Before the land reclaiming and the agrarian reform of 1950, the area had had a damp but not too cold winter climate allowing the cultivation of grapevine, and olive and almond trees. Since the late nineteenth century, the climate of the Piana has become continental, with harsh winters and frequent snowfall. The typical crops of Mediterranean-climate areas could hence no longer be grown. Wheat and especially sugar beet thus became the dominant crops in the drained area and in the areas near Ortucchio. Today, however, sugar beet farming is less important in the Fucino plateau than it used to be 20 or 25 years ago, ever since the major sugar refinery of Avezzano, established at the end of the nineteenth century, was closed in 1987. The area’s main crops today are the “Fucino Carrot” (Protected Geographical Designation), whose cultivation began in the 1950s, cultivated on more than 2,000 ha with a yearly yield of 150,000 t (30 % of Italian production, 1 % of world production); the “Fucino Potato” (Protected Geographical Designation), more than 3,000 ha; and garden vegetables (radish, lettuce, fennel and cauliflower), more than 4,500 ha. Thus, over the years the Piana made a transition from the fishing and orchard area it had been until the reclaiming to an area almost entirely devoted to vegetable-growing, a very profitable branch of the primary sector. Seventy percent of the farming businesses of the Piana are estimated to be of small to middle size (less than 15 ha of farmland), and only 5 % have surfaces between 50 and 100 ha. In spite of this fragmentation, the local agriculture is thriving and remunerative.



Fig. 18.5 The features of the Fucino plain are unique in the Italian landscape

As regards landscape integrity, the area is certainly unique in the Italian agricultural landscape, due both to its cohesion and to the clear-cut delimitation of its perimeter. Furthermore, such a level landscape is an anomaly in the Apennines. The surface devoted to cultivation appears extremely vast and harmoniously laid out. Especially from above, what strikes the viewer is the neat arrangement of agricultural areas into hundreds of almost identical rectangular plots divided by long rectilinear roads, which are sometimes dotted with trees in the proximity of canals. Finally, the types of crops, none of which is arboreal, are homogeneous, and this further enhances the uniformity of the landscape. Industrial buildings such as the Piero Fanti space center, opened in 1962, detract only slightly from this compact aesthetic appearance.

As regards vulnerability, the climate change caused by the draining of the lake led to a transition from traditional to intensive agriculture requiring a large quantity of water both for irrigation and for transformation and packaging processes. This has determined an unsustainable consumption of water not only at Ortucchio, but in the whole plateau, where the wells tend to go dry by the spring or summer. The feasibility of this kind of agriculture may thus be challenged in the future. Over the last few years the Abruzzo regional government has repeatedly sought to find a solution to this crisis. The strategy of improving of canal maintenance and opening of new wells, while commendable, seem inadequate to face the scarcity of hydraulic resources, as do existing plans to capture rainwater in artificial lakes, which appear contradictory when one looks at the history of this area. A rationally reprogramming of cultivation and the implementing of water-saving measures would seem to be a more viable strategy (Fig 18.5).

18.7 Plateaus of Aielli (42° 27' 05'' N; 13° 16' 59'' E)

This area is a vast plateau covered with meadows, fields and wooded pastures, extending over about 500 ha above the towns of Pizzoli and Barete, in the province of L'Aquila. The area is included in the Gran Sasso and Monti della Laga National Park, while the landscape is protected according to the landscape law n. 1497 of 1939 and n. 431 of 1985. The Piani di Aielli can be reached from either town. From Pizzoli, a narrow dirt road, as scenic as it is dangerous for its lack of guardrails, goes up more than 10 km and then down again towards Montereale. From Barete, instead, a narrow mule track goes through Pietra Liscia, Le Otarelle, Fondo dei Faggi, Grotta Nera, Sasso Rosso, La Madonnella, Piedi Le Prata, Lo Stretto, and Colle Liberato. The Aielli Plateaus are bounded by the Conca di Montereale to the north, the Cafasse Valley and Capannelle Pass to the east, and the Aterno Valley to the west and south. The area alternates natural meadows, usually small cultivated fields, uncultivated areas, and karstic zones. Here one distinguishes between “upper” and “lower” Piani, at different altitudes. The upper Piani, about 1,300 m a.s.l., are more arid and lack streams. Here livestock breeders, mainly from Pizzoli, graze their herds. The “lower” Piani, instead, about 1,180 m a.s.l., have abundant springs (Acquatina, Sbollente, Riola, Capo Croce) and drinking troughs used by the Barete shepherds for their flocks. In much of the area the soil is calcareous and has low fertility. Small karstic hollows called *fonnate* or *fonnatelle* are frequent. The erosive action of rain and snow and the exposure of the slopes have revealed the underlying rock in many points. The slopes of Mount Mozzano, instead, are covered with pine, Turkish oak and beech.

The area owes its significance to the historical persistence of a fascinating landscape of pastures and meadows connected with the transhumant breeding tradition of Pizzoli and Barete. Human presence in the area is documented from the Bronze Age (ca. 3,500 years ago) onward. However, it probably dates all the way back to the Paleolithic, since Neanderthal hunters are attested in the nearby Fucino area as early as 150,000/70,000 years ago. They came up from the Adriatic and Tyrrhenian coasts in the warm season to the high hunting grounds of the Marsica. The name “Aiello” is a common Italian toponym derived from the Latin *agellus*, a diminutive of *ager*, “field”, and bears witness to the area’s importance in Roman times. The vestiges of a road as early as the late third century B.C. are observable on the crags of the Aielli Ravines. Agricultural production in the fields of Aiello between the Valeria and Lake Fucino was boosted with a new centuriation in 149 A.D., a testimony that by then an agricultural and pastoral economy was well established in the area. In the twentieth century, from April to October the populations of Barete and Pizzoli grazed their sheep, cows and horses, and rotated crops such as barley, wheat, and medicinal herbs for the rest periods, or lentils, *cicerchie* (grass pea), chickpeas and potatoes. The area provides a significant example of “vertical migration”. In autumn the herds and flocks began their descent to the pastures at the bottom of the Aterno Valley. Cultivated plots were often delimited by foliage or dry-stone walls called *macere* or *macerine*, made from rocks cleared out of the fields. These enclosures protected the crops from the herds or flocks. Over the centuries a group of stone, brick and mortar



Fig. 18.6 The Aielli plateaus preserve a fascinating landscape of pastures and meadows connected with transhumance

houses, commonly known as the “Casali di Aielli”, grew along the winding road that runs through the Piani. They are rectangular in plan, with one or two stories, and unplastered outer walls. In the two-floor houses, the stable is on the first floor and the living quarters on the second. The two floors are not connected: Access to the second floor is provided by the natural slope or a dry-stone ramp. The ground floor includes a sheepfold, a stable, and a storeroom, while the hayloft is on the second floor, next to the living quarters. There was often also a small threshing floor. The single-story houses have an even simpler room arrangement. Some of the houses still have their characteristic small apertures for the aeration of the interior. Thus, the Aielli houses have essentially retained their traditional architecture, although today they are mostly uninhabited and some are going to ruins. Some are still used by shepherds as seasonal shelters. Along the road there are also some concrete fountains and drinking troughs. Movable wooden mangers for horses are placed at passages from one field to the next.

As regards the integrity of the Piani di Aielli, today the ribbon-shaped structure of the open common wheat fields is still visible, alongside the mown fields where livestock is raised and small potato and vegetable gardens. The boars living in the area, whose population is on the rise lately, often damage these cultivations and discourage farmers from extending them, in spite of fences and electric wires. The sparse tree covering, consisting of small groves and isolated specimens, enhances the charm and uniqueness of the area. The Piani di Aielli still retain the typical historical

structure of treed pastureland, which today is receding all over the Apennines. Cows left grazing free by their owners and herds of horses coming down towards the Barete plateau at the first winter snows ensure pasture maintenance, and animate a silent and awe-inspiring landscape.

As regards vulnerability, over the last few years the gradual abandonment of agriculture in the highland fields of the Apennines and of sedentary livestock raising in the mountain pastures of the Aterno has caused a decline of human presence in the Piani. Some plots have been abandoned and the dry-stone walls are no longer maintained. Until a generation ago, as the shepherds who are left recollect, all the houses were inhabited and almost all the plots were cultivated or used as pastures. The number of flocks has also diminished (Fig 18.6).

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