The rural landscape of Eastern Iberia Iron Age:

agricultural intensification and sociopolitical dynamics

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ABSTRACT

This paper focuses on the rural landscape during the Iberian Iron Age in the Valencia Region (Eastern Spain). This paper deals with two main issues. The first is to integrate and analyze the results of archeological fieldwork to understand the systems of settlement and land-use intensification during the Iberian Iron Age. The second issue addresses socio-economic aspects related to changes in the observable spatial patterns. These processes are characterized by the dynamics of urbanization and emergence of Iberian Early States.

KEY WORDS:

Iron Age; Iberia; Land-use; Agricultural Intensification; Manuring; Early States.
INTRODUCTION

The development of archaeological surveys and landscape analysis in the last three decades has permitted the incorporation of the Iberian Peninsula into the research on Mediterranean ancient landscapes. Despite the development of landscape research, Iberian case studies are underrepresented in comparison to the better studied regions of Italy, Greece and the Mediterranean Islands (Alcock et al. 2004). The limited presence of Iberian examples is only broken by a small number of studies as for example the research developed in the Region of Alcoi (Alicante, Spain). From the 1980s onward, M. C. Barton (Arizona State University) and J. Bernabeu (University of Valencia) have directed an archaeological survey program (Barton et al. 1999; 2001; 2004) centered on the landscape dynamics of late prehistory and expanding to later periods, which has yielded interesting results (Martí and Mata 1993; Espí 2001) and data for potential further research.

The present article is based in part on the results of the previous investigations and it incorporates my own research carried out in the Valley of Alcoi during the last decade (Grau Mira 2002; 2003; 2011), which was conducted to understand dynamics during the Iberian Iron Age period (henceforward IIA) between the 6th and 1st centuries B.C., within the context of the Mediterranean landscape. This paper deals with two main issues. The first is to integrate and analyze the results of archeological fieldwork to understand the systems of settlement and land-use intensification during the Eastern IIA. The second issue addresses socio-economic aspects related to changes in the observable spatial patterns. These processes are characterized by the dynamics of urbanization and emergence of early states during the IIA culminating with the incorporation of Iberia into the Roman Empire.
This paper focuses on the Region of Alcoi, a geographical unit in the central-southern part of the modern Valencia region (Eastern Spain). This area constitutes a moderately mountainous area between 400 and 1300 m in altitude, located in the northern portion of the modern-day Alicante province, close to the eastern coast of the Iberian Peninsula (FIG. 1). The valleys form a series of folds running southwest to northeast, the typical direction of the Betic ridges, which define a landscape of calcareous mountains dominating narrow and irregular valleys that lead into small coastal plains (FIG. 2). The direction of these mountain ridges is a vital element that determines the possible routes between the coastal area and nearby regions, which are only traversable through a series of mountain corridors, control of which is strategically important. Due to these natural features, human settlement has concentrated in the valleys where the most important sites and the main pathways are found.

This study focuses on the analysis of a geographical unit in the central part of the Region of Alcoi where important archeological fieldwork has been undertaken through excavations and surveys (FIG. 3). This is the ancient territory of the IIA town of La Serreta, a site that has been almost entirely excavated (Llobregat 1992, with previous bibliography; Grau Mira 2002: 104-109) and its territory intensively surveyed (Martí and Mata 1993; Espí 2001; Grau Mira 2002: 313-326). The intensity and quality of this fieldwork allow a refined analysis of settlement and land-use. In the last section, this territory is integrated into the regional setting and discussed in relation to the IIA landscape dynamics.

**Historical Background**

Research relating to the organization of the IIA landscape has highlighted a certain common regional dynamics regarding the emergence of hierarchical settlement
patterns. A series of medium-sized sites acquired remarkable importance; these were generally fortified and built in prominent locations that facilitated visual control over the surrounding countryside and nearby subordinate rural sites. To use classical terminology, these sites were *oppida*, a term adopted to describe these nuclei, where large parts of the population and the Iberian elites resided. The emergence of these sites is clearly linked to the dynamics of centralization and urbanization, which were affected by regional differences, in a large part of Mediterranean Iberia during the Iron Age (Ruiz 2000; Grau Mira 2011; Bonet *et al.* 2008; Sanmartí 2004).

The hierarchical organization of these settlements is associated with complex social development related to early states, in which an aristocracy based its power on the possession of land and the control of trade. Strategies mobilized by Iberian elites included patron-client relationships, prestige goods systems, aristocratic control of rituals and commensality or competitive feasting. (For examples of these strategies at work see Ruiz and Molinos (1998)).

This type of landscape has been analyzed in detail in several areas of Iberia. Significant variations appear in the way these territories were structured, particularly with regard to differences in the way the social groups that lived in these areas were organized and how the lands were exploited (Ruiz and Molinos 1998).

In our study area, the Iberian period was characterized by processes of centralization and urbanization, which appeared in two stages. The first was the creation of local polities centered in each valley of the region where an urban center, the *oppidum*, was established, controlling the surrounding rural farmsteads. Rural sites depended on the protection provided by fortified *oppida*.

The second stage was directed toward the union of the different polities to create a large political community presided over by the Iberian town of La Serreta in the 3rd
century B.C. This polity extended its power over the entire region of Alcoi, around 700 sq km in extension, and it aggregated the territories of seven oppida (Grau Mira 2003).

The Roman conquest of the Iberian Peninsula, begun in the late 3rd century B.C., introduced important changes to the territorial organization of the Iberian landscape. The Roman conquerors used part of the existing network of Iberian centers but dismantled others. Some areas developed political centralization while others suffered territorial disarticulation. As a result, the new political landscape of Roman Hispania was transformed (Abad et al. 2006).

In this historical context, the aim of this paper is to analyze the process of agricultural intensification related to the dynamics of socio-political organization during the Iberian Iron Age. Iberian leaders like the ones that emerged in the Region of Alcoi mobilized social strategies to create, maintain and develop dependencies, as I have explained in other works (Grau Mira 2011). As I will argue in the following pages, I propose that the political rulers of Iberian society living in the oppida, exploited the peasantry dispersed in farmsteads and encouraged agricultural intensification. Rural populations probably were independently managing their land use, but were closely linked to the urban elites through social and political ties. These social strategies explain the economic dependence underlying the land-use intensification.

**APPROACHING AGRICULTURE AND LAND USE IN EASTERN IBERIA IRON AGE**

Recent research on Iberian agriculture has established a model of the general uses of land in the eastern part of the Iberian Peninsula by incorporating different sources of archaeological, historical and ethnographical information.

The palaeobotanical remains recorded during archaeological fieldwork permit the general characterization of Iberian agriculture (Buxó 1997; Pérez et al. 2007),
though some regions lack available data. The general trend shows evidence of cereal cultivation, with barley as the predominant crop in Iberian agriculture. The predominance of barley in the IIA period has not been satisfactorily explained, but the most likely reason for its predominance seems to be its perfect adaptation to the calcareous soils of Mediterranean Iberia, making it the most productive cereal (Buxó 1997: 279). Barley in dry landscapes is chosen for its greater ability to cope with aridity in contrast to wheat. Traditionally, barley is employed mainly as food for cattle, although human consumption also can be attested (Buxó 1997: 279). However, a problem with barley is that it is only possible to prepare a loaf of heavy bread that is less digestible and nutritious than wheat bread. Barley is more appropriate for the production of fermented beverages (beer), well attested in the IIA, or consumption as crackers or purée.

Other cereals are documented in the palaeobotanical record, especially wheat and millet that accompany the predominant barley. Wheat is the best cereal to produce bread for human consumption (Buxó 1997: 278-279). Millet allows the adoption of a system of extensive cultivation in which winter cereals—barley and wheat—are alternated with spring cereals—millet. This regime, alternated with fallow periods, permits the expansion of dry cereal production through the reduction of fallow periods. This model of increased dry cereal agriculture is based on the expansion of cultivated soils as a result of the development of iron technology during the IIA (Buxó 1997: 301).

Generally, cereal production is alternated with legumes, mainly beans and peas, which fertilize the soils by incorporating atmospheric nitrates (Buxó 1997: 232). It has been proposed that in the Iberian period an intensive exploitation of these products was organized in the proximity of the settlements (Buxó 1997: 301).
Cereal agriculture constitutes half of the palaeobotanical record of IIA agriculture in the Eastern Region with most of the other half composed of fruit cropping, above all vineyards. Fruit cropping was introduced to the region during the 6th century B.C. and characterized the agricultural model of Mediterranean Iberia (Buxó 1997: 290; Pérez et al. 2007: 335, fig. 7).

In sum, IIA agriculture mainly focused on cereal, especially barley, which was possibly cultivated in combination with other grains, including wheat and millet. Agriculture also included vineyards, along with other cultvars like almonds and olive-trees. Finally, legumes and other products were also produced.

Iberian agricultural iron tools are important for understanding the agricultural practices in this period. An important assemblage of twenty iron instruments has been discovered in the study area (FIG. 4). The tools have been found in the excavations of domestic contexts of four local Iberian oppida and one farmstead dated to between the 4th and the 1st centuries B.C.

Traditionally attributed to the development of Iberian agriculture is the critical importance of the introduction of iron metallurgy for agricultural tools during the 5th century B.C. The use of iron tools has been related to the extension of agricultural terrains through the increased ability to break up hard soils. Iron tools for clearing land and work on the farm also assist overall productivity. The extension of the fields and the increase of productivity have been proposed as the key development of the Iberian economic system (Ruiz and Molinos 1998: 176-179).

In the study area, an important assemblage of twenty iron instruments from the mentioned five Iberian sites has been discovered and the practices in which they were employed can be inferred through their functional analysis. This repertoire can be
classified into two groups of instruments: the tools used to prepare the soils and those utilized in harvesting the crops (Moratalla 1994).

The iron tools used in the preparation of the land include one plow, one yoke, one rake, two hoes, two adzes, one spade and four specific hoes (legón in Spanish) for irrigated land. Most of the instruments are related to extensive dry farming agriculture. For example, the plough enables the preparation of hard flat soils and the hoes permit the extension of farming on the soils of steeper slopes where it is not possible to use the plough. The spades and adzes are more appropriate for working hard soils and deep digging for planting trees and bushes. Intensive agricultural practices are verified archaeologically by the finding of four hoes specifically used for digging in irrigated fields. These instruments permit us to suppose the existence of irrigated orchards (Moratalla 1994: 122-123).

The tools for cropping are six sickles and four pruning-tools, which corroborate the proposal that the main base of agriculture was the cultivation of cereals, whose harvest would be carried out with sickles, the most commonly used tool. The pruning-tools are related to the harvest of fruits of bushy and arboreal species, such as vineyards, well verified in the palaeobotanical record (Moratalla 1994: 122-123).

The most important information gained from the incorporation of crops and Iberian tools is the corroborations of both extensive and intensive agricultural practices in Iberian times. During the IIA, the general model of agricultural production was based on three different activities. First, extensive practices were based on dry farming cereal. This strategy was founded on plow agriculture with the incorporation of fallow periods. Secondly, intensive practices existed that were oriented toward legume production, cereal production and vineyards. This agriculture was based on crop rotation in intensive orchards, generally located within proximity of farms to facilitate the intensive
input of labor. Finally, forested areas were used for sheep keeping, beekeeping, gathering, etc… (Pérez et al. 2007).

The synthetic panorama of IIA agriculture is similar to the general rural economy in the Mediterranean proposed by ethnoarchaeological studies (Halstead 1987) and descriptions of agriculture in pre-industrial times in the region (Cavanilles [1795-1797] 1992). Ethnohistorical sources present similar rural landscapes covered by diverse extensive, intensive and non-cultivated fields that constituted a dispersed mosaic. With necessary caution, these testimonies offer greater understanding of ancient agricultural practices conditioned by similar geographical and technological constrictions to those in pre-modern time.

Related to labor organization, I characterize Iberian agriculture as a peasant activity organized around households and oriented toward subsistence and surplus production. This surplus was employed to maintain the rulers, support specialized artisans, and used in exchange activities (Ruiz and Molinos 1998). According to the settlement patterns it is possible distinguish two models of land-use. The urban centers, located on hilltops, had difficulty accessing the fields so residents dedicated themselves to extensive practices of cereal and other crop production, such as vine and fruits. On the other hand, the series of small farmsteads used more intensive practices based on cereal-pulses rotation and possibly fruits. This aspect has been addressed in other work through the use of cost surface analysis with GIS (Grau Mira 2006), and is beyond the scope of this paper.

This general structure changed through time and space to transform the distribution of actual agricultural production in each region. In the following section, I investigate the processes of land use intensification and the transformation of the systems of production in the local landscape of the study area.
IBERIAN AGRICULTURAL INTENSIFICATION

In the previous section I established the general structure of agricultural practices during the Iron Age in the study region. To discern the more specific models that sustained ancient society in the study area, I developed a program of archaeological fieldwork and analysis to extract relevant information by applying GIS-techniques.

The first step was to map all archaeological evidence corresponding to the IIA occupation (FIG. 5). The documentation provided by different archaeological projects was integrated into high-quality GIS maps. These maps show the area covered by survey and excavation, the different densities of artifact scatters and other landscape features.

The data used in this study derive from systematic, intensive surveys, conducted since 1989, in the Penàguila Valley in Region of Alcoi (Barton et al. 1999; 2002; Grau Mira, 2002). A patch-based survey strategy was employed, instead of the more common site-based approach.

This methodology focused on recording information on and collecting artifacts from “patches” of land rather than seeking sites. Small, terraced agricultural fields were used as patches, serving as the basic spatial data collection unit. In the Penàguila Valley, contiguous areas were completely covered (this approach is explained in detail in Barton et al. 1999; 2002).

The Iron Age artifact collections were dominated by pottery dated from the 7th to the 1st centuries BC (Martí and Mata 1993). The iron age remain were studied seeking for rural sites. High level of apparition and concentrations of pottery and constructive remains were interpreted as hamlets and farmsteads and dated in correspondence of the Iron Age phases (Espí 2001). However, several patches with dispersed scatters were no interpreted.
As it has been already quoted in other works, interpreting dispersed material is difficult, particularly in distinguishing concentrations which indicate habitation and those produced by other activities (See e.g. papers in Haselgrove et al. 1985; Schofield 1991). In this study-case, the points of high-density scatters have been delineated to outline the extent of ancient inhabited farms. I interpret the high-density surface scatters as residential places where types of pottery assemblages suggesting a domestic function were found—cooking pottery, coarsewares, fine vessels, storage and transport pottery (FIG. 5).

The data provided by these surveys documented the existence of an important number of small settlements located in the fields and oriented toward agricultural production. This settlement pattern was an important change in relation to the previous Bronze Age period, when people lived exclusively in small villages located on hilltops, but closer to the agricultural fields than in the later Iron Age oppida.

More problematic was the interpretation of areas with a low density of pottery. The high-density areas are associated with other large surfaces with a low density of remains, which also have been mapped. The result is the presence of surrounding halos of dispersed artifact scatters. This particular distribution of ancient materials, basically Iberian coarsewares, is similar to that observed in other classical Mediterranean landscapes. Generally, these dispersed scatters have been explained as the result of post-depositional processes of erosion and displacement of original archaeological deposits by ploughing and weather events. Nevertheless, the intermittent and complex distribution pattern of the scatters invalidates the simple explanations of erosion and natural transportation processes and requires more detailed analysis and scrutinization. It is possible to suggest that these dispersed scatters were formed by repetitive processes of deposition. These extensive sherd carpets are a rare phenomenon in time and space.
and seem to be due to deliberate manuring of household rubbish into the cultivated landscape (Wilkinson 1982; Bintliff and Snodgrass 1988; Nuninger 2002: 159-174 Bintliff 2012: 274-276).

According to this hypothesis, the scatters distributed around the sites were formed during the distribution of organic refuse from the settlement. This process has been described in detail in other works (Wilkinson 1982). Manuring has been a common practice in small properties like orchards and irrigated fields of the study area, as has been established from ethnographic evidence.

In order to explore the “manuring hypothesis” I analyze the spatial distribution of scatters through GIS-modeling. The intensive practices were based on high inputs of labor devoted to the recuperation of soil fertility through irrigation and manuring. These tasks allowed the development of a triennial cycle of winter crops (cereal), spring crops (pulses or cereals) and fallow and additionally the possible existence of orchards and vineyards. This rigid system was exclusive to fields in near proximity to the settlement for various reasons: manuring was limited by the amount of available organic refuse and the transport capacity around the settlement and the availability of more labor input close to the settlement, where there was no additional labor cost of displacement to the fields.

Consequently, these conditions resulted in a coherent spatial pattern in which there is a strong correlation of farmsteads and intensive fields, which I presume had been located in the more accessible lands in the proximity of the settlements. In order to analyze the location of the fields close to Iberian sites I developed a GIS-based cost analysis of accessibility. Cost Surface Analysis is one of the most common GIS techniques used to analyze circulation and movement across the landscape. In the scientific literature, different Cost Analysis approaches have been developed, which
allow us to assess the accessibility of some points based on the characteristics of the terrain (Van Leusen 1999; Wheatley and Gillings 2002). In this analysis I use the formula proposed by Marble and Machovina (1997) because it takes into account the variables that I consider to be relevant in our case study.

The resulting cost-surface map is compared with the distribution map of dispersed archaeological remains (FIG. 6). I want to make some remarks here. First, the distribution of dispersed scatters ignores topographical barriers, such as ravines, as can be observed in the northern and southern sectors of the survey area. Second, during the IIA, 82% of the rural sites have dispersed scatters in their more accessible land and only 18% of the total surface of dispersed scatters is located outside of the more accessible lands from the Iberian sites.

Therefore, I can conclude that there is a close relationship between the fields susceptible to intensive farming practices and evidence of artifact scatters, and I suggest that intensive field manuring caused this pattern. The resulting morphology of islands of artifact scatters due to intensive agricultural/farming practices is a characteristic landscape signature of this agricultural practice.

This general map of the complete Penàguila Valley was tested in a pilot project centered on one of the sites and its surrounding terrain to further elaborate on the evidence of the pattern of dispersed scatters. The selected site is the western-most farmstead of the valley that was the subject of a refined archaeological survey carried out by the author in Spring 2011 (FIG. 7).

The selected pilot area was completely covered. In all, 22 terraced agricultural fields were used as the basic spatial collection units amounting to 18,000 sq m. Each field was fieldwalked at 5 m intervals after they had been ploughed. All pottery from these units was counted in each unit, to create density maps and returned to fields. In
this area, I counted 2530 ceramic fragments consisting of 76% Iberian pottery fragments (1915 items), 11% Roman (272 items), 4% Modern (110 items) and 9% building materials of uncertain chronology (233 fragments).

In order to refine this distribution, I mapped the diagnostic material composed of fragments of vessels with identifiable shape and fabric. I registered the accurate position of 610 items with hand-held GPS classified by chronology (FIG. 7). The diagnostic material was composed of 43% Iberian pottery fragments (260 items), 23% Roman (138 items) and 34% Modern (212 items).

The main objection to the use of hand-held GPS is that the signal cannot be corrected for possible locational errors. However, the use of WAAS-EGNOS system reduces the signal reception inaccuracy to less than 3 meters, a distance acceptable for the scale of mapping employed (Mayoral et al. 2009). The main advantages are the low-cost, agility, facility to collect and ease of integration with GIS management to create archaeological maps.

Finally, I used the IIA diagnostic material in order to understand the dispersed pattern and the different land-uses. I mapped the IIA scatters in two ways, first by the location of each point of individual Iberian vessels (FIG. 8A) and second by a map of densities (FIG. 8B) that displays more comprehensive surfaces. I made this density map using kernel interpolation which describes the intensity of each point in correlation with a fixed radius (Wheatley and Gillings 2002: 186). The radius of the kernel used in this study is 10 m.

The resulting map displays a clear distribution of an archaeological record that offers interesting information related to settlement and land-use. In our opinion, the pattern clearly shows the existence of a dense concentration of materials (dark colors in FIG. 8B) that can be related to the decomposition of the IIA settlement due to plowing
the fields. The extended areas to the east and south-east probably are formed by horizontal displacement of the archaeological record. The movement of scatters is both due to natural gravitational displacements and human removal of sediment by traditional rural practices, such as terracing or field modification.

Yet, the existence of scatters in some areas does not seem to reflect plough and weather dispersal of underlying deposits. This is the case in the northern part of the site, on the other side of the ravine where dispersed pottery testifies to the deposition of domestic refuse in the fields during the IIA period. The pottery located in the lands close to the settlement is related to the ancient manuring outlined above.

**Sociopolitical Dynamics and Agricultural Intensification**

During the Early Iberian period, the region was structured in a series of small Iberian territories presided by *oppida*. These urban centers controlled the dependent farming settlements of different sizes that existed in each valley, ranging from what may have been family farmsteads to larger villages and hamlets (Grau Mira 2002: 119-121) (FIG. 9). These subordinate sites intensively exploited the agricultural resources of the areas to maintain the urban centers.

This settlement model had its origins in the Early IIA (6th century B.C.) and lasted during the entire period but with a dynamic trajectory. As it has already been stated, in the 3rd century B.C. one of those *oppida*, La Serreta, increased its size and functions as a religious and political nucleus, and was raised to the category of capital town of the region. However, on the basis of the territorial organization, the *oppida* continued to be the local centre for each valley and the surrounding rural sites increased their number to sustain the Iberian Early State (Grau Mira 2003).
The appearance and first development of intensive practices in the agricultural landscape of the area during the IIA are linked to the process of increasing sociopolitical complexity. This was a period of deep economic and political changes related to the development of a class society and the Iberian early states (Ruiz and Molino 1998; Sanmartí 2004). In this context, we find a series of settlement and technological changes that allowed for agricultural development. In particular, the development of rural settlement and the introduction of iron metallurgy to make agricultural tools enabled increased productivity of rural labor and the expansion of agricultural land. From a culture-historical theoretical basis, this technological innovation, along with other changes, was the key aspect in sustaining the later economic transformations among the Iberians. Iron metallurgy arrived in the Iberian Culture from the Phoenicians who had settled in the Iberian South and South-Eastern Coast during the 8th to the 6th centuries B.C. The importance of Mediterranean contact in the development of Iberian Culture is clear, however, the refined scrutiny of this process allows us to sequence this dynamic. The chronological point of departure for change occurs during the centuries of the Early IIA, when the initial settlement in the valley is documented, which I relate to intensive agricultural practices associated with the Iberian political economy. At that moment, the agricultural production was based on traditional technology of the Bronze Age as iron metallurgy employed to make agricultural tools was generalized later, during the late 5th century B.C. (Moratalla 1994). The rural producers were not able to increase production through expansion of the agricultural terrain with iron tools. The solution for increasing production was to use the same land more intensively. Later on, the generalization of iron metallurgy increased the productivity of rural labor and the expansion of cereal agriculture based on the extensive model, but intensive production remained as it was, improved by iron tools suited for intensively irrigated land. In sum,
the agricultural regime was based on combined intensive and extensive strategies during the IIA.

In our opinion, two key aspects of this process must be outlined. First, if the first transformation were due to increasing agricultural production by means of intensive practices, then the social contingencies were more relevant to the initial modification of Iberian agriculture than the functional optimization due to technological change. Second, it is not possible to infer the intervention of political rulers either in the investment of landscape transformation, or in the control of iron technology to produce this agricultural intensification.

These economic changes were interrelated with sociopolitical development. The population increases and also the social inequality that were characteristic of the Bronze Age Chiefdoms, led to the emergence of Archaic States and the development of the Iberian tributary society, described in other studies (Ruiz and Molinos 1998; Sanmartí 2004). A key point in this process is the integration of the local communities of the area into the circuits of interregional redistribution of the Western Mediterranean through the commercial activity of the Phoenicians operating on nearby coasts since the 8th century B.C. The opening of local economies to the Mediterranean markets introduced new perspectives that were employed by local elites for their own benefit. In particular, exchange gave them access to prestige-goods, especially wine, used to develop such social strategies as redistribution, feasting and commensality, that played a relevant role in the political economy. This process led to the transformation of domestic modes of production characteristic of the regional Bronze Age toward a surplus economy and reinforced the social stratification characteristic of the Iron Age (Ruiz and Molinos 1998).
The surplus created by intensification was used by Iberian leaders to trade Mediterranean luxury goods, mainly imported wine and fine vessels used in ritual feasting. These items were used to create and maintain the social networks of the Iberian clienteles (Grau Mira 2011). The imported items were largely redistributed as proved by their appearance in most of the farmsteads of this period (Grau Mira 2002: 122-123). This is a conspicuous ideological element of the period used to create and negotiate new links based in the patron-client relationship. In this sense, in our study region, the exchange activity was channeled by local elites in order to assure their preeminent position in the society.

In addition, the surpluses were used to create and maintain the fortifications and other constructions of the oppidum, outlining the importance of the urban center in structuring the landscape. Fortifications were the most important public buildings among the Iberians (Moret 1998) and must be acknowledged not only for their functional defensive role but also as vital to the framework of the Heroic Iberian Ideology, evidenced in the representation of the Iberian rulers as warrior aristocrats (Quesada 1997). The importance of this warrior categorization is shown in the archaeological record by the arms and panoplies recovered in the main tombs of the local Iberian necropolis and in Iberian art, reinforcing the Aristocratic ethos.

The elite groups living in the fortified oppida based their power on the control of agricultural land and the regional exchange of luxury goods. Iberian peasants had to produce enough to satisfy their subsistence needs as well as to pay tributes and obtain items from the specialized artisans and exchange networks.

In accordance with the scheme presented here, it is possible to assume that agricultural intensification involved the increase of labor input through manuring practices developed at a household level. The peasant families worked the land more
intensively in order to increase agricultural output. In this sense, I propose the existence of a group of intensive farmers induced to satisfy tribute demands in the framework of the patron-client relationship of Iberian society (Ruiz 2000). For this reason farmers developed this system of agricultural production, but they organized their work at an autonomous level without higher interference. The intensification was induced by ruler’s impositions but not state level intervention. No irrigations channels, large land modifications, and other great-scale interventions have been attested. In this sense, the political centralization linked to the Iberian Period caused agricultural intensification but only indirectly. This increase of agricultural production was motivated by social and political needs covered by the ideological constructions.

The Roman conquest in the late 3rd century B.C. upset the established local Iberian polities and caused a remarkable change to previous settlement patterns. The political center, the Iberian oppidum of La Serreta, which articulates the Iberian landscape in the study area, was abandoned as a result of the Roman occupation. Other oppida in the region maintained their population during the Late IIA, under Roman domination, but were abandoned before the 1st century A.D. The new Roman towns were located in the coastal areas and the main valleys of the region. Consequently, the political structure of the study area disintegrated and the Valley of Alcoi remained as a rural periphery, far away from the main Roman towns of the area.

Despite this political decentralization, it is possible to observe the continuity of rural settlement based on farmsteads and small settlements and a spatial pattern of dispersed remains similar to that observed in the previous period. Again, in this socio-historical context I cannot allude to the local rulers’ direct actions over the peasantry as an explanation for the intensive practices adopted to increase production. Political leaders and urban centers were too far away to control and transform the agricultural
production in the area. In addition, neither considerable landscape modifications nor
state interventions are documented in the area.

During the Late IIA, the new political Roman power was established in other
areas and acted directly to organize the landscape and agricultural production. But in the
study areas the same farming systems with intensive practices remained. I interpret this
continuity as a result of two coordinate forces: (1) The intensification of farming and the
stable association of particular plots with individual families since the Early Iberian
period that could have developed into private land rights based on claims of original
possession and on improvements or continued labor investment (Earle 2000). The
disintegration of Iberian power and the disappearance of Iberian rulers facilitated the
claims of the farmers; (2) Roman power used the Iberian social system to obtain tributes
and extract profits from the newly conquered territories. New Roman rulers utilized the
Iberian elites at the top of a patron-client relationship to obtain tributes and taxation.
Also, the Romans encouraged local elites to become Romanized, a large proportion of
which did so and hence did not disappear. This type of governance by the Romans
could have been the best way to operate at a distance without direct intervention in the
planning and organization of agricultural labor.

**Final Remarks**

Iberian agriculture was based both on extensive cereal agriculture and intensive
agricultural practices operating at the household level, a system that was very stable.
This system operated at different political-levels of organization. In the Early and
Middle IIA periods (6th-3rd centuries B.C.), I relate the agricultural intensification to the
dynamics of political centralization at the regional scale. Later on, in the Late IIA period
(2nd-1st centuries B.C.), political decentralization at the regional scale occurs. No urban
and political centers are located in the Region of Alcoi, but they are strongly developed in nearby areas. Roman rule was exercised through distant and subtle forms of control, specifically using Iberian social networks and interchange systems.

Despite the major political realignment, small landholders maintained intensive land use based on traditional practices and knowledge of the surrounding landscape in a way similar to that reported in other case studies (Wilkinson 2006). In this sense, this case study is another example of intensive farming production (Netting 1993) operating in different social contexts.

The model proposed here is the first approach to an interesting phenomenon that has received attention only recently. I am aware of the necessity of more analysis and more detailed explorations of the archaeological record. In particular, it is necessary to recognize the structural characteristics and chronology of the rural farmsteads, currently known only by surface collections and a few excavated examples. Future work will address this and other aspects of the intensification of the Iberian landscape and specifically will contribute to interpreting Iberian archaeology within the framework of Mediterranean landscape modeling.

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BIBLIOGRAPHY


Figure 1 Map showing the Alcoi region in eastern Spain

Figure 2 View of the landscape of the Alcoi region.

Figure 3 View from the east of the study area: the territory of the IIA oppidum of La Serreta.
Figure 4 Iberian agricultural iron tools from the study area. Scale is in cm. Photo courtesy of the Archaeological Museum of Alcoi.

Figure 5 Map of the IIA settlements (dark gray) and dispersed artifact scatters (light gray). Contour interval is 20 m. Redrawn from Espí Perez 2001: fig. 1 using data from the author.
Figure 6 Digital elevation model of the area showing the relationship of GIS-derived high accessibility areas (black outlines) and dispersed scatters (white areas). The refined survey area is indicated by dashed lines.

Figure 7 Aerial view of the refined survey area showing diagnostic pottery locations. White dots 5 IIA sherds; black dots: Roman sherds; gray dots: modern sherds.
Figure 8 A) Aerial view of the refined survey area showing IIA sherd locations. B) Interpolation of points to emphasize densities (the dark areas are the densest).

Figure 9 Map of the Alcoi region with the IIA settlement pattern. Black dots: urban centers (oppida); white dots: villages and farmstead.