

## Article

# Conservation and Education in Spanish Geoparks: Exploratory Analysis of Land Stewardship Experiences and Valuation Proposal through Outdoor Education

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**Abstract:** Advances in research on environmental problems and public awareness of them have led to renewed concern about the need to establish mechanisms and figures to protect and manage sites so that geocological processes remain outside the dynamics of anthropic occupation. This research has been approached from an inductive and qualitative perspective based on case studies to examine the articulation of the Spanish geoparks, their dynamics, and the experiences of private valorization in them. Geological heritage is seen as a lever for the promotion of the territory. In all cases, although the geological–geomorphological–paleontological–environmental resources must be significant, this designation aims to enhance the value of all assets, both natural and cultural, conceiving the geopark not as a figure of environmental protection but as a “figure to promote local development”. A total of 48 land stewardship initiatives were identified in 11 of the 15 Spanish geoparks. The most significant presence of initiatives was found in the geoparks of Catalonia, followed by the Lanzarote Geopark. No nature-based schools are located within geoparks, except for Wild Me in Central Catalonia. However, the presence of nature-based schools in biosphere reserves (BRs) seems to be more common. Framing alternative proposals, such as nature-based schools in these areas and using land stewardship in their operation, can become an opportunity to protect a region’s geological and cultural heritage and improve local communities’ quality of life through sustainable and responsible economic and tourism activities. Early-years education in the natural environment facilitates the acquisition of long-term pro-environmental skills, competencies, and behaviors that last into adulthood and act as multipliers for others.

**Keywords:** Spanish geoparks; land stewardship; outdoor education; forest kindergartens; territorial development



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## 1. Introduction

Advances in research on environmental problems and public awareness of them have led to renewed concern about the need to establish mechanisms and figures to protect and manage sites so that geocological processes remain outside the dynamics of anthropic occupation. Thus, the systematic declaration of protected areas has been consolidated as a strategy of environmental policy [1,2]. However, it should be remembered that nature conservation’s origin does not lie in public action. On the contrary, the conservation movement arose thanks to the interest of naturalists. Concerned about biodiversity loss, they began to propose private conservation initiatives by acquiring land and developing the physical protection, management, and regeneration of habitats [3]. But this work required government support and legal regulation, which has materialized at different speeds depending on the state or region, with the establishment of categories of natural protected

areas (hereinafter NPAs), such as parks, reserves, marine areas, natural monuments, or protected landscapes, all depending on the assets to be protected and the management objectives to be achieved.

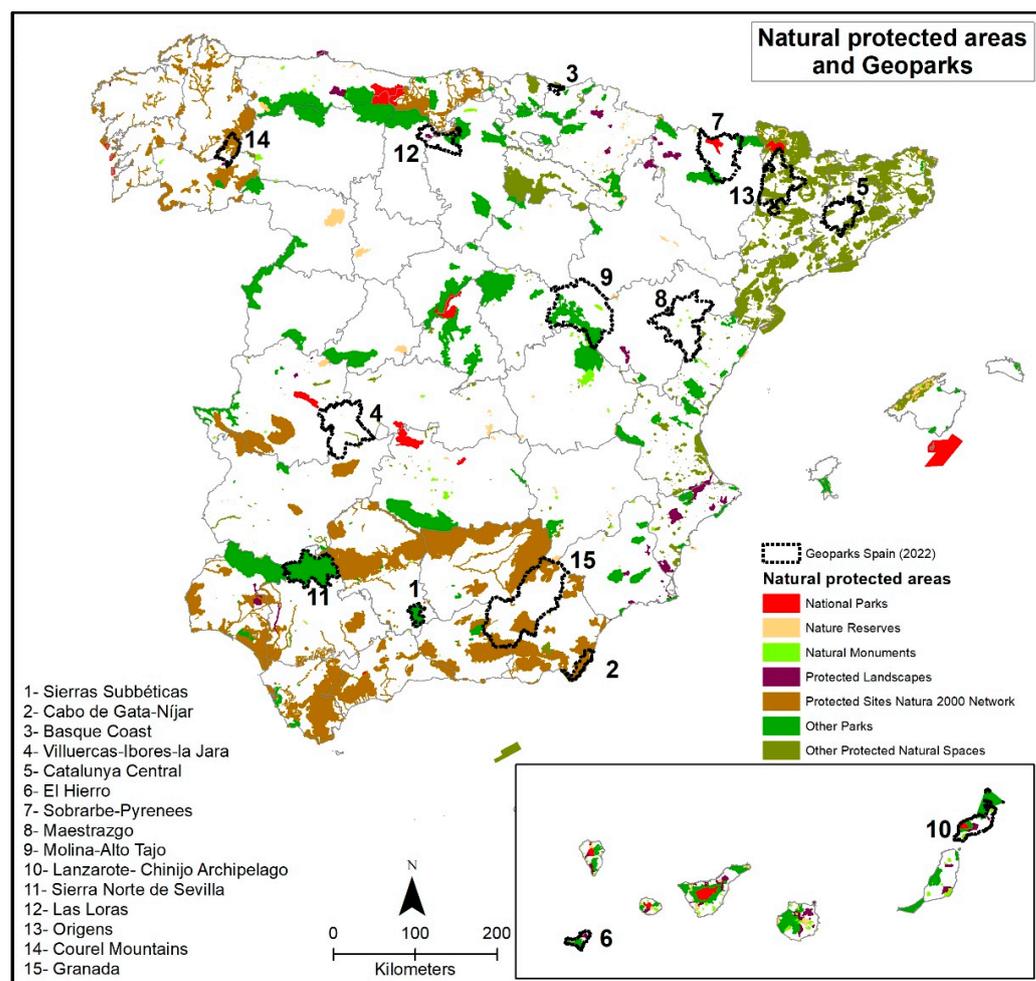
Under the new light of environmental preservation and sustainable development, states, regions, and international organizations have promoted protection strategies through the delimitation of relevant enclaves to ensure the preservation of their geocological and heritage values. It is understood that they are our natural capital and the basis of environmental sustainability as they are the sources of resources that provide (ecosystem) services that must be understood and unaltered (or resilient) in the most effective way possible. The protection and management of these sites depend on different international, national, or regional legal figures, which are only sometimes adequately coordinated with each other [4]. A new concept that is gaining ground, thanks to UNESCO initiatives, is that of the geopark. It corresponds to an international figure that has been integrated into the legislation of different countries, although its potential has yet to be popularized [5,6].

Since 2015, UNESCO, with the designation of UNESCO Global Geopark, has been recognizing outstanding and unique enclaves from the point of view of their geological structure as habitats of flora and fauna and framework of life of local communities. These sites constitute, together with biosphere reserves and World Heritage Sites, areas with exceptional qualities, whose values must be conserved both to ensure the maintenance of environmental processes and to constitute wealth for society. They bring recognition, contribute to the knowledge of the landscape and its functions, and promote dynamics for the socio-economic development of the sites [6–9]. The network consists of 177 geoparks distributed in 46 countries. The geological richness of Spain, its varied geomorphology, and the landscapes resulting from the anthropic management of these areas explain the recognition of 15 areas as UNESCO Global Geoparks.

The territories delimited as geoparks are not only areas of high geocological value. They also include intervene (anthropize) landscapes among which, in addition to forest or agricultural resources, are also the communities that manage and exploit them. This is why different management strategies are needed according to the dynamics and character of each geopark, trying to coordinate the policies and legal protection figures linked to these areas. Although geoparks are not a legal figure of protection, the sites or elements within them must necessarily be protected at the local, regional, or state level [10]. In fact, in Spain, in some of the geopark, areas there are other natural protected areas (Figure 1). According to Law 42/2007, of 13 December 2007, on Natural Heritage and Biodiversity, all those natural areas formally designated as per the provisions of international conventions and agreements of which Spain is a party are considered protected areas by international instruments. This regards, in particular, the following: wetlands of international importance of the Ramsar Convention; natural sites on the UNESCO World Heritage List of the Convention Concerning the Protection of the World Cultural and Natural Heritage; protected areas of the Convention for the Protection of the Marine Environment of the Northeast Atlantic (OSPAR); Specially Protected Areas of Mediterranean Importance (SPAMI) of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean; geoparks, declared by UNESCO; biosphere reserves, also declared by UNESCO; and the Council of Europe's Biogenetic Reserves.

Environmental, outdoor, and nature-based education have a long tradition within NPAs; it is also relevant in the dynamics of geoparks. These educational approaches, which have been gaining prominence in recent decades [11], seek places with a series of environmental values for its development, which makes geoparks an excellent setting for developing educational projects. Their didactic value must be added to the interest of their environmental, cultural, scenic, and recreational values. Although aspects of the relationship between NPAs and ecosystem services, including educational services, that they provide to society have been studied in detail [12,13], there are fewer studies on geoparks [14]. Furthermore, there needs to be more research on the role of citizen initiatives in the safeguarding of these areas. Participatory movements, in defense of

specific collective interests, are a fundamental element of modern societies to facilitate the relationship between administrators and the initiatives administered and to promote good practice through effective governance [15]. Protecting and managing these enclaves must inevitably involve the participation of those who own land or live in it. Land stewardship has been shown to be an effective strategy for conserving the natural and cultural values of landscapes. To this end, it uses a series of mechanisms, such as voluntary land transfer agreements; direct acquisition of land ownership by private organizations; technical advice; economic incentives for the implementation of sustainable practices; and environmental education [16].



**Figure 1.** Natural protected areas and geoparks in Spain. Own elaboration.

This paper reflects on the potential of NPAs and geoparks as a framework for educational action, as well as on the role played by civil society in their management through the mechanism of land stewardship. Land stewardship is conceived as a tool for direct intervention, in which groups join forces to maintain specific sites with unique values [17–21]. One of the research questions raised in this paper is whether private conservation–management initiatives (land stewardship) are an attractive option for the management of geoparks. And another is whether, linked or not to land stewardship initiatives, nature-based education projects are identified as an opportunity in the framework of Spanish geoparks. The objectives of this paper are to present the explanatory factors of the articulation of Spanish geoparks and to explore whether there are land stewardship experiences in the field of geoparks in Spain, particularly experiences that are linked to nature education initiatives based on geocological resources, which value the potential of these areas. As a secondary

objective, the paper discusses the opportunities that a nature education project based on land stewardship can generate for the affirmation and projection of a geopark.

Based on case studies, the results are obtained through an exploratory qualitative research design. The most relevant dynamics that help understand the structure and functioning of the Spanish geoparks have been identified. The land stewardship initiatives implemented in their territories are studied and the state of stewardship in these enclaves have been assessed. Nature-based education experiences linked to protected areas are located to point out the possibilities in the interaction between geoparks–land stewardship–nature education.

## 2. Conceptual Framework

### 2.1. Spanish Geoparks

Geoparks are geographic areas defined with a three-fold purpose: the conservation of geological, geomorphological, and landscape heritage; scientific study and education; and the sustainable development of their territories. Geoparks seek to conserve geological formations and unique landscapes. But they also promote knowledge and understanding of geology, environmental processes, and human uses. They offer opportunities to learn about a territory's natural and cultural history. In addition, through good sustainable management of their resources, the promotion of educational/cultural activities, product development, and the provision of services can become an engine for local development [5,22,23].

The Spanish geography has four geological domains (Iberian Massif, Alpine Chains, Cenozoic Basins, Volcanic) at the base of a complex and unique geomorphology. Its landscapes are a magnificent territorial resource to promote the reconnection of people with nature, to generate identity and a sense of belonging, and of course, to promote sustainable local development. It is no coincidence that Spain is in second place worldwide, after China, in the ranking of countries with the most geoparks recognized by UNESCO and in first place among European countries [6,24]. The valorization of sites for their geological heritage started in Spain during the first third of the 20th century. It was always linked to the conservation of nature and the scenic values of their landscapes, and not so much for strictly scientific criteria. Only in the last twenty-five years have geosites been identified thanks to participation in international projects [25], and geoconservation proposals have been promoted, mainly thanks to the protection of Law 42/2007 on Natural Heritage and Biodiversity [22].

The origins of the European and global networks for the safeguarding of geological heritage can be found in Spain. The European Geoparks Network (EGN) was created in 2000 by four geoparks from France, Germany, Spain, and Greece, aiming to protect the geological heritage and promote sustainable development in their territories. The EGN Charter remains the basic document that inspires the functioning and development of the European Geoparks Network. In 2001, the network signed an agreement with UNESCO, and in 2004, the Global Geoparks Network (GGN) was founded to implement actions and establish quality standards for the territories involved. The European Geoparks Network was recognized as an official branch of the UNESCO Global Geoparks Network in 2005. In 2014, the GGN became a non-profit organization subject to French law. All in all, it aims to generate and consolidate regional structures, facilitate the exchange of experiences, and develop joint initiatives and projects. The European Geoparks Network is the Regional Network of the GGN and follows its statutes.

Geoparks seek to balance conservation and education with the region's economic development, working closely with local communities to develop sustainable tourism and business activities. In Spain, the 15 UNESCO Geoparks in order of declaration date and province in which they are located are as follows: 1, Sierras Subbéticas (Córdoba), 2006; 2, Cabo de Gata-Níjar (Almería), 2006; 3, Basque Coast (Guipúzcoa), 2011; 4, Villuercas-Ibores-la Jara, (Cáceres), 2011; 5, Catalunya Central (Barcelona), 2012; 6, El Hierro (Tenerife), 2014; 7, Sobrarbe-Pyrenees (Huesca), 2015; 8, Maestrazgo (Teruel), 2015 (although in 2017, it was excluded from the World Network, rejoining in 2020); 9, Molina-Alto Tajo (Guadalajara),

2015; 10—Lanzarote-Chinijo Archipelago (Las Palmas), 2015; 11, Sierra Norte de Sevilla (Seville), 2015; 12, Las Loras (Palencia-Burgos), 2017; 13, Origenes (Lérida), 2018; 14, Courel Mountains (Lugo), 2019; and 15, Granada (Granada), 2020.

Geoparks in Spain can be classified according to their geological and landscape characteristics. For example, Cabo de Gata-Níjar, Lanzarote-Chinijo Archipelago, and El Hierro stand out for their coastal character and volcanic geology. The Basque Coast Geopark is also coastal in nature, although geologically, it is characterized by its sedimentary rocks (flysch) and karst processes. Other geoparks in which karst is a protagonist, although located in the interior of the peninsula, are the Sierras Subbéticas, the Loras, or the Maestrazgo with outcrops of Paleozoic rocks, especially rocks belonging to the Mesozoic and Cenozoic eras. The Sobrarbe-Pyrenees Geopark presents an alpine landscape, with glacial and periglacial formations; meanwhile, Origenes showcases Pyrenean landscapes of carbonate rocks. And in the Courel Mountains, mountain landscapes with various rock formations stand out: sedimentary rocks, such as slate, quartzite, and sandstone, and igneous rocks, such as granite and rhyolite.

## 2.2. Private Management Initiatives: Land Stewardship in Spain: Theoretical and Legal Framework

### 2.2.1. Land Stewardship as a Land Conservation and Private Management Initiative

Consolidating non-regulatory territorial distinctions, legal instruments, and protection figures for enclaves with environmental or heritage values originate in private conservation initiatives [19,26,27]. Although, at present, it is the areas regulated under some legal protection figure that focus the attention of administrations and public opinion, some enclaves are being managed by civil society through complementary conservation mechanisms and strategies, which are successfully contributing to the safeguarding of natural and cultural heritage [28,29]. Public administrations only sometimes have the necessary economic or human resources to address biodiversity and heritage conservation in its entirety [28]. This is when the sense of complementary mechanisms, such as land stewardship, becomes clear.

Land stewardship is defined as the responsible care and management of land to maintain its environmental and cultural values and long-term productivity. Its practice involves the participation of civil society, organized in collectives or entities, in managing land, cultural assets, and landscapes sustainably [19,20], while always considering the environmental, social, and economic impacts of their actions. Land stewardship is a strategic instrument of territorial and environmental management, aimed at conserving biodiversity, enhancing the landscape, and safeguarding natural and cultural heritage [19,20,30]. It is a mechanism through which civil society can become involved in the protection of the environment, collaborating with public action [16] in what has been called shared governance of resources and territory, involving “power” with the administrations [31].

Its practice has a long tradition, especially among Anglo-Saxon countries. It is a strategy that was applied even before some of the state or regional protection instruments and figures appearing in the 20th century. It should be noted that, at the beginning, the promoters of land stewardship did not recognize themselves in their safeguarding work [32]. It was at the end of the 19th century when the first land stewardship entity for safeguarding lands of high ecological interest was founded in the United States. The Trustees of Reservations emerged as the first non-profit organization aimed at the preservation and conservation of enclaves and landscapes in Massachusetts, and soon after, the initiative spread to other countries and continents [32,33]. The first initiatives emerged in Europe in the United Kingdom and the Netherlands. In the United Kingdom, the role played by the National Trust was and is fundamental in stewardship strategies. Currently, public-private collaboration in conservation is very important. In France, the public administration has promoted the implementation of land stewardship strategies. The work of the French Conservatoire du Littoral has been fundamental. In addition, there are also examples of private conservation initiatives, such as the Conservatoires d’Espaces Naturels. Land stewardship experience in Latin American countries is trying to be boosted by the growing

number of NGOs involved in private conservation. However, the legal framework needs to be further developed to enable the action of conservation entities [28].

In each location, the terms of agreement have been adjusted to their legal conditions, but the original spirit has been maintained. In Spain, except for isolated experiences, land stewardship took root in the first decade of the 21st century [34]. Land stewardship was introduced in Spain in 1999 [35] and began in Montesquiú, Catalonia [36]. Nature protection and management tasks have fallen mainly on the administrations. Legislation has been passed, and legal and technical instruments have been developed. However, public action presents economic and human limitations to achieve the objectives of resource and habitat conservation. It is for this reason that the participation of citizen groups is necessary in the challenge of safeguarding the environmental and heritage values of the territory [37]. In this context, land stewardship emerges as a valuable and timely tool. Some authors define it as a strategy involving landowners and land users (whether public or private) in conserving habitats and landscapes [38]. Through stewardship, conservation practices are expanded beyond conventional legal agreements.

Land stewardship is implemented through the signing of voluntary agreements or contracts between one or more landowners and one or more stewardship entities. The purpose of this is to carry out conservation projects and actions, to sustainably manage the land and its ecosystem services, and to enhance the value of resources, preferably in places with sensitive habitats, unique landscapes, or heritage sites. Landowners can implement these projects with different levels of involvement: from an indefinite cession of the land to co-participation in the management work with a long-term commitment [39–41]. Some stewardship organizations use revolving funds to acquire land and resell it to other landowners with clauses so that the latter can only use the land in accordance with conservationist principles. In this way, they reinvest, giving continuity to the protection cycle [40].

There is no single method of understanding and implementing land stewardship globally, especially in complex territories [41,42]. Often it is the entities (associations, cooperatives, NGOs, foundations) that directly manage lands ceded by their owners, carrying out safeguarding projects in them that can present different formats according to the entities' objectives. When landowners are directly involved in stewardship initiatives, it is either because they have decided to be part of an agreement, or because they have acquired the property with an agreement already signed. In both cases, the landowners' motivations are similar: environmental sensitivity and a sense of belonging to the land, as well as access to technical support for management and even financial or fiscal incentives obtained in some states or regions by participating in this mechanism [43]. There is research that indicates that satisfaction predominates among landowners who have signed stewardship agreements. However, when they transfer the land to new landowners who must continue the agreement, their satisfaction decreases and may compromise the achievements made [41].

### 2.2.2. Legal Framework of Land Stewardship in Spain

In Spain there is legislative support for land stewardship mechanisms. Law 42/2007 of 13 December 2007, on Natural Heritage and Biodiversity, calls for the promotion of voluntary agreements between entities concerned with the conservation of environmental, landscape, and cultural values with landowners and owners of cultural assets located on them, within areas declared as specially protected. Thus, this law is committed to incorporating agreements between public and private agents to safeguard natural areas under protection [28]. However, stewardship is not a strategy that is limited exclusively to officially protected sites.

There are numerous projects by private entities aimed at maintaining the ecosystem services of a site, which have been initiated regardless of its level of administrative protection. The spirit of land stewardship is not to replace but to supplement public action and its conservation mechanisms by civil society. The Spanish conservation groups and associations that opted for land stewardship to contribute to safeguarding natural, cultural,

and landscape heritage often did not have the technical and economic capacity to achieve the desired objectives. For this reason, groups of entities have been formed to connect, advise, and make them visible to strengthen their collaborative conservation work through more solid structures [44]. In addition, there are forms of cooperation between public administrations and groups through grants and agreements. After the Montesquiú Declaration (2000), a document that formalized the concept and movement of land stewardship in Spain, networks and platforms of stewardship organizations began to be established at regional and supra-regional scales [19]. Examples include the Xarxa de Custòdia del Territori in Catalonia, Avinença in the Valencian Community, the Rede Galega de Custòdia do Territorio in Galicia, and the Red Transcantábrica de Custòdia del Territorio formed by individuals, companies, organizations, and foundations from Asturias, Cantabria, the Basque Country, and the mountainous north of Castilla y León.

The increase in the number of groups oriented to stewardship and the consolidation of networks of organizations at the regional level led to the creation in 2007 of the Platform for Land Stewardship at the Spanish state level. Its objective as a platform is to support organizations in their projects and to energize the stewardship movement. This platform has been promoted by the Biodiversity Foundation (Ministry for Ecological Transition and Demographic Challenge), founded in 1998 to contribute to the protection of the natural heritage of Spain. In addition, in 2011 the Forum of Networks and Entities of Land Stewardship (FRECT, in its Spanish acronym) was created, a representative entity of the collective of land stewardship entities in Spain whose purpose is to promote stewardship at the institutional, legal, and social level and to ensure its incorporation in land management.

### 2.3. Nature-Based Education

Everyday use of natural heritage in general, and geological heritage in particular, is educational. This is a sustainable activity because it is based on its intangible value, which does not impact this resource, its educational value, and capacity to raise awareness of its long-term protection. Although there is a long tradition of using natural areas as a setting for environmental education, another educational model stands out as a more recent appearance on a global scale, called nature-based education. It consists of “learning based on regular, direct and permanent contact with the natural environment”, which takes advantage of the territory and the resources it offers, always based on respectful relationships between people and the environment [45]. Unlike environmental education applied in informal and non-formal contexts, nature-based education is comparable to formal education, i.e., education that is offered in schools. It occurs in a stable group of children (generally boys and girls in the pre- or primary school stages) who regularly remain in the natural environment, constituting their site of reference and developing their learning daily. The activity, in this educational model, consists fundamentally of (free) play in nature and with the elements offered by nature itself. However, occasionally, there may be few teaching proposals, also with generally natural materials. Given its affinity for formal education, the accompaniment of students, the facilitation of educational processes, the monitoring of children’s development and well-being, the recording of evidence of the acquisition of competencies and skills, and tutorial action are essential. All these aspects are very relevant when it comes to understanding the depth and transcendence of the bond children acquire with the natural environment and the consequences that this entails in the short, medium, and long term.

For two reasons, children engaged with regular nature-based education sessions tend to present pro-environmental attitudes in adulthood. On the one hand, because the significant experiences that occur in the natural environment have a tremendous evocative power both in the short and long term, the intense sensations that arise during these experiences generate a strong emotional bond with the place where they have taken place and incite an intimate and genuine desire to protect it. On the other hand, the permanence in nature, i.e., a vast, open, diverse, and changing environment, generally friendly but sometimes hostile, forces the development of autonomy, tolerance, resilience, empathy, and

leadership skills, which are more challenging to attain when the educational experience takes place within the confines of a classroom. These skills, in adulthood, can be used to promote activism in favor of the natural environment, as has been repeatedly demonstrated, even in the case of prominent activists who today practice land stewardship [46,47].

There are multiple benefits to staying regularly in nature. In the educational field, it is worth mentioning the acquisition of skills and competencies, such as those mentioned above, as well as others of a social and emotional nature that are so highly valued in today's liquid society, as described by Bauman [48]. Learning in the natural environment occurs on site and is hands-on, with the materials and scenarios in synchrony with the cognitive processes that lead to it. In addition, nature gives countless benefits for the physical and mental health and well-being of children and their educators [13]. Within the natural elements that offer opportunities for learning and well-being, geological heritage constitutes a relevant asset. It is the substrate that gives coherence and identity to the landscape and the living beings that inhabit it, supports the activities that take place on the ground, provides spaces of mystery, refuge, and shelter from inclement weather, and gives rise to countless questions of a philosophical and transcendent nature even among the youngest children ("who put those mountains there?", "how are the stones held together?", pers. obs.). Some geomorphological elements also have incentives for developing fantasy (for their peculiar shapes, textures, and colors), psychomotor skills (to climb them), or aesthetic appreciation. One of the great treasures that children collect in nature and awaken their interest in science is stones and minerals. Stones in general are also excellent companions for games and experimentation, with which they can create characters, build, or even acquire curricular skills in the field of science (arithmetic, geometry, weight, volume) or the arts, either by painting (e.g., storytelling stones) or creating installations with them (mandalas, land art, stacks).

This type of nature-based school has experienced a major global boom in the last decade, with various variations. These include three main models: nature schools, where pupils spend a large part of the day outdoors (nature-based schools *sensu stricto*); regular outdoor sessions for pupils in mainstream schools; and blended learning systems, where pupils spend part of their time in mainstream schools and part in nature schools. Although it is difficult to provide accurate figures for the number of such schools in Europe, it is estimated that there are about more than 3000 (data from the International Congress of Children's Forest Schools, held in Prague in 2017), with there being about 60 in Spain [49].

Thanks to the regular permanence in the natural environment, nature-based schools maintain a very intense relationship between the educational experience and the space they inhabit. The choice of location is not trivial. Their promoters must strike a balance between offering a natural environment as varied and diverse as possible and one that is located in a practical and accessible place for families who must take their children there daily. On the other hand, they must comply with current regulations on the use and occupation of land (authorized activities in rural areas, requirements for educational settings), safety, compatibility of uses with other activities (hunting, livestock raising, forestry), and education (facilities, curriculum). Given the novelty of the approach, the legislation regulating the creation of schools does not usually facilitate their existence outside urban centers. It requires facilities that will be underutilized (since most of the time, they are outdoors) and obliges teaching in a way that makes adapting to the outdoors difficult. In Spain, most nature-based schools are forced to look for alternative accreditation models to offer contact with nature to children within the framework of quality education [50].

Once the site where the project is to be located has been chosen, it is necessary to agree on the terms of use with the landowners. The most common types of agreements are rental, cession, or simple occupation, in the case of public land. Educational initiatives based on land stewardship agreements are yet to be common, despite the opportunities they can offer, and agreements tend to be short term and without much further commitment to conservation. In the first case, renting generally implies a very high cost for the schools because not only do they need to have the land almost exclusively at their disposal (given

the incompatibility with most other uses), but it is also necessary to have a built site that acts as a shelter from inclement weather and as an educational facility as required by the regulations. The legal requirements make it very expensive to rent and maintain the outdoor space, as well as indoor facilities. For this reason, many schools choose to enter into a lease agreement with a public entity (usually a municipality) or a private individual (e.g., former schools, in exchange for minimal maintenance) or landowner (which, for example, they perceive as unproductive). These are informal agreements with some uncertainty in their implementation, conditions, and duration. In the case of the occupation of communal, public, and similar woodlands, the projects are designed without the setup of infrastructures, so the educational project must look for a nearby location to use as a shelter and school.

Land stewardship combines the advantages of some of these options. Establishing a long-term agreement allows for continuity in exchange for a symbolic cost and collaboration in maintaining the ceded or rented property. For the owner, the transferred asset maintains or even increases its value in terms of both the land and the built property it includes. Not many educational projects in nature have availed themselves of this option, although some are already exploring it. This paper presents the case of the Edunat Cooperative in Bunyola, Mallorca (Balearic Islands) as an example of the advantages that a land stewardship case can offer to the agents involved in a nature-based educational project.

### 3. Materials and Methods

The research was approached from an inductive and qualitative perspective based on case studies to examine the articulation of Spanish geoparks, their dynamics, and the experiences of private valorization in them. It used exploratory analysis to identify conservation, educational, or recreational initiatives not directly linked to public administration and to understand the contextual conditions that are the basis of these experiences.

The identification of experiences in geoparks was carried out by exploiting different sources of information. Firstly, the Land Stewardship Platform of the Biodiversity Foundation (Ministry for Ecological Transition and Demographic Challenge) database was consulted. Secondly, various online thematic directories on nature education were consulted, contrasting the information, when necessary, with the entities identified. Thirdly, interviews were carried out with crucial territorial stakeholders and managers–directors of nature education centers.

Managers and technicians of the geoparks of Villuercas-Ibores-La Jara, Maestrazgo, Granada, Courel Mountains, Origenes, Las Loras, and Sobrarbe-Pyrenees were interviewed. Additional interviews were carried out with managers and directors of nature-based schools and members of land stewardship organizations operating within the framework of the geoparks. Sixteen interviews were carried out, ten with geopark managers, four with nature-based school managers, and two with members of land stewardship organizations. The interviews, which lasted approximately 45 min, were recorded and transcribed for processing using CAQDAS (computer-aided qualitative data analysis).

Given the exploratory nature of the research, the interviews that were carried out were of focused or centered types, which allows, with the information obtained, the explanatory factors of the dynamics of the valorization of the resources of the geoparks to be pointed out. They also helped raise new questions and perceptions about the role of these enclaves [51,52].

The information obtained from the interviews were codified by establishing a codification and categorization [53] necessary to analyze the nature of the experiences and the motivations of their promoters. Atlas Ti software (<https://atlasti.com/> (accessed on 22 June 2023)) was used for this purpose. To increase the reliability of this exploratory analysis, a triangulation process was finally carried out with experiences identified in well-established natural protected areas, such as national parks or natural parks (regional-scale protection). Part of this analysis was carried out through secondary data (online information from the services of the NPAs, land stewardship entities, and tourist offices). To determine the spatial

relationships between geoparks, natural protected areas, biosphere reserves, nature-based schools, and land stewardship projects, spatial overlap analysis was carried out using a geographic information system (GIS). To this end, the necessary layers were obtained or created. Likewise, synthesis cartography was made with the spatial analysis results.

## 4. Results

### 4.1. Structural and Alternative Processes for the Dynamization and Territorial Development in Spanish Geoparks: From Conservationism to Participative Management

Analysis of the development dynamics generated in the geoparks was based on the perception of the crucial territorial stakeholders interviewed. One of the ideas expressed is that geoparks arise as initiatives to make geographic areas with unique geological characteristics visible and to promote them socio-economically. Several studies point to the idea that the ultimate purpose of the geopark is the socio-economic revitalization of the reference area [22–24]. This idea was confirmed after the interviews. Based on geological heritage, they are more a figure of territorial socio-economic promotion than of nature conservation. Although each geopark is forged uniquely, the local–rural development groups play a relevant role in its start-up, collaborating with public administrations of scales close to the citizen.

Geological heritage is seen as a lever for the promotion of the territory. In all cases, although the geological–geomorphological–paleontological–environmental resources must be significant, this designation aims to enhance the value of all assets, both natural and cultural, conceiving the geopark not as a figure of environmental protection but as a “figure to promote local development”. The conservation of nature is an important issue. However, in this context, a more dynamic and progressive safeguarding approach is chosen to address environmental challenges effectively, with solutions based on the responsible use of territorial resources [23].

Geoparks behave as participatory management entities with an open and integrative structure and a bottom–up approach, in which management does not necessarily depend on a public administration. The role of public administrations in the functioning of the entity varies depending on the geopark, given the differences between them (some geoparks only host 3 municipalities, with a surface area of 578 km<sup>2</sup> and a population of 5406 inhabitants, such as Courel Mountains, while others host 47 municipalities, with a surface area of 4722 km<sup>2</sup> and a population of 100,000 inhabitants, such as Granada). Many of them are taking advantage of pre-existing structures and entities (associations of municipalities, local action groups, local or regional associations of different types). They are committed to joining business associations so that they have the geoparks as a frame of reference. Scientific activity in the geoparks is another of their pillars. Therefore, there is a scientific committee in all of them that proposes research and conservation actions. This is where universities, research centers, scientific societies, and NGOs are involved in the functioning of the geopark. However, conservation is not the primary purpose of geoparks. It is an alternative figure to the NPAs included in European directives and state or regional legislation.

The local territorial stakeholders have observed the figure of the geopark as an alternative to the problems derived from the crisis of the rural environment or the mountain areas. The stakeholders interviewed point out that the geopark has been the most accepted among the possible ways for territorial promotion since it is not based on a restrictive regulation with the activities and uses typical of rural areas. The incorporation of use restrictions to those already existing, and sometimes controversial for the inhabitants of these areas, would imply social disagreement and the proposal’s failure. However, the declaration of geoparks, after territorial valorization and acceptance by the population, requires a significant amount of previous, careful, and sensitive work on the part of their promoters. Explaining the opportunities derived from the declaration honestly and convincingly to avoid internal resistance is essential. The geopark cannot be presented as a panacea for the structural problems of a disadvantaged rural area (aging, depopulation, lack of facilities

and services). However, it can be presented as a vector for the generation of new businesses, the maintenance of some existing ones, the creation of some quality jobs, etc.

For the management of these geoparks, participatory strategies are proposed for three or four years, which are implemented through annual action plans. The entities that comprise the Geopark Council or Executive Committee seek funding to develop projects and activities using European, regional, or local funds. One of the premises is to take advantage of synergies and only generate a little public expenditure than is strictly necessary. The strategies and lines of action revolve around recurring themes: conservation, research, tourism, environmental education, entrepreneurship, and local empowerment.

Many of the projects proposed revolve around tourism since it is a phenomenon that has a territorial, social, and economic dimension. Tourism becomes an economic engine in the municipalities of the geoparks, generating income for existing businesses (not only in the tourism sector) and encouraging the emergence of new ones. Without entrepreneurs and businesses, generating dynamism and settling inhabitants are difficult. The arrival of visitors who value the resources of the geopark is increasing, which acts as a revulsive, not only economically but also in terms of identity. It generates pride and a sense of belonging that empowers the rural community, which is historically undervalued. Residents have begun to internalize that they live in a territory recognized by UNESCO, which, through these senses of pride and empowerment, serves as an incentive to promote the development of other initiatives. The geopark acts as a catalyst for the territory, a dynamization tool manifested in creating more associations and companies. They have succeeded in initiating structuring processes in communities that were previously less cohesive.

However, the research shows that the involvement of civil society in the dynamics of the geopark is still a challenge. Local communities still need to be better organized and the low population density and especially its aging do not help to involve the residents in the structure and daily management of the area. Some avenues, such as volunteer activities, work camps, and even land stewardship initiatives, are being explored.

In the perception of the geopark managers, analyzed in more detail, the land stewardship mechanism is underutilized, despite its potential. There is agreement that it has a long way to go and needs to be promoted within geoparks for three reasons: 1. The local community is organized around a project, increasing participation and social cohesion. Alternatively, in the worst case, people from outside the territory become involved in the development of initiatives, bringing new human capital to the area; 2. These initiatives are self-managed without needing, a priori, the impulse of the public administration; 3. Abandoned land is recovered for conservation or regeneration, and the landscape and cultural heritage are enhanced.

Land stewardship is presented as an opportunity to support participatory management, considered in the guiding principles of the geoparks. In some cases, such as the Geopark of Granada, although land stewardship is currently barely present, it will be addressed within the framework of the Tourism Sustainability Plan. Funding will be provided for a project whose aims are as follows: to identify plots of land for the implementation of land stewardship initiatives; to establish the most appropriate type of stewardship project in each area; and to identify groups—entities interested in implementing projects to safeguard the environmental and cultural values of the geopark. Other geoparks, such as those in Catalonia, the Canary Islands, or Aragón, already have stewardship experiences. Finally, some geoparks, such as Las Loras or the Basque Coast, do not present stewardship initiatives as such for the moment, but see their development as valuable and are already implementing projects close to land stewardship approaches. For example, in the Loras, there is an agroecological project of the geopark that works with local farmers and ranchers to enhance the value of local organic products. The aim is to develop more sustainable production, distribution, and consumption models while recovering land abandoned by landowners.

However, one of the problems observed is the need for more communication between land stewardship organizations and geopark management bodies. The study has verified

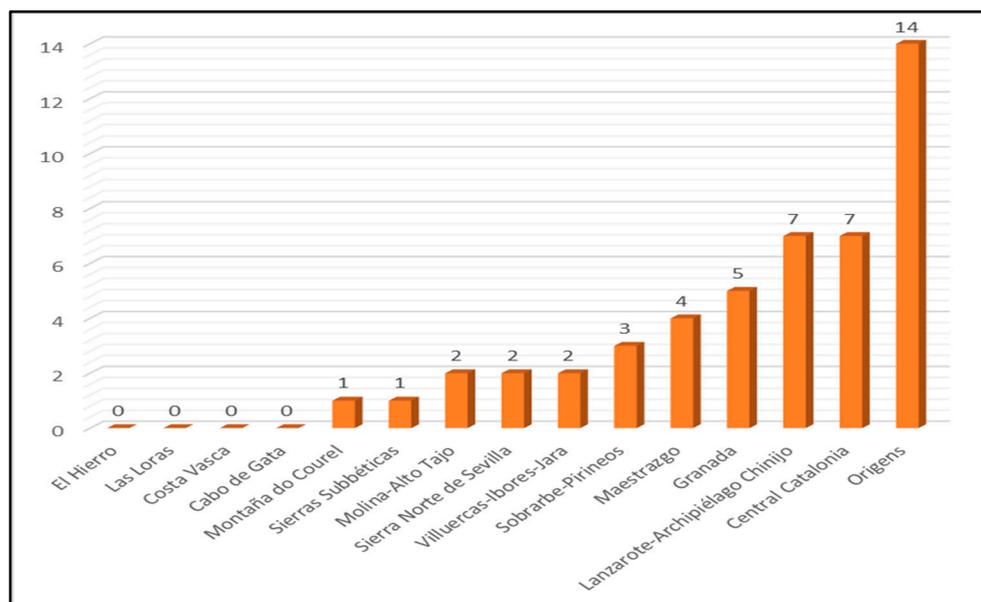
how there are stewardship projects within a geopark of which the Geopark management is unaware.

#### 4.2. Identification of Land Stewardship Experiences in Spanish Geoparks and Nature Education: An Opportunity to Be Developed

##### 4.2.1. Inventory of Stewardship Experiences in Spanish Geoparks

The inventory of experiences was carried out by consulting national and regional databases on land stewardship and the information provided by local stakeholders. To increase the reliability of this exploratory analysis, a triangulation process was carried out with experiences identified in consolidated natural protected areas, such as national parks or natural parks (regional-scale protection instruments). Part of this analysis was carried out using secondary data (online information from the services of the NPAs, land stewardship organizations, and tourist offices).

Table 1 shows 48 land stewardship initiatives identified in 11 of the 15 Spanish geoparks (Figure 2). The most significant presence of initiatives is found in the geoparks of Catalonia, which is explained by the following: the tradition of this tool in the region, with a well-established regional stewardship network; the social cohesion existing in Catalonia; and the strong roots of citizens in the territory. The Lanzarote Geopark, with seven initiatives, also stands out, although the conservationist motivation linked to other existing protection figures prevails over the question of identity.



**Figure 2.** Number of land stewardship agreements per geopark in Spain.

In the rest of the geoparks, the number of initiatives is reduced, and even in Cabo de Gata, Costa Vasca, Las Loras, and El Hierro, no projects have been detected within the framework of the stewardship mechanism.

The 48 land stewardship initiatives depend on 23 stewardship entities, both public (municipalities) and private (associations, foundations, financial institutions, etc.). As shown in Figure 3, private entities, in the form of civil associations, are the ones that have developed or are developing more projects in the Spanish geoparks, followed by foundations and local administrations. This distribution of initiatives according to the type of entity is very similar to that which occurs in Spain as a whole [54].

**Table 1.** Inventory of stewardship experiences in Spanish geoparks.

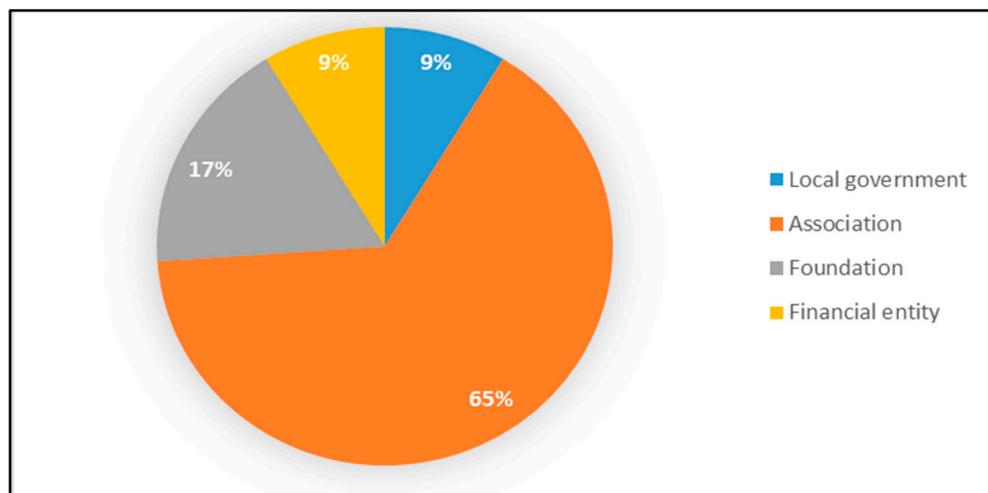
Geopark	Name of the Initiative	Municipality	Entity	Goal of the Initiative
Catalunya Central	Coaner	Sant Mateu de Bages	Minyons Escoltes i Guies de Catalunya	Sustainable use of resources
	Camí de la Gavarresa	Avinyó	Associació Hàbitats-Projecte Rius	Habitat restoration and recovery
	Bosc de Cal Cuques	Manresa	Fundació Catalunya la Pedrera	Habitat restoration and recovery
	Custodia fluvial riu Cardener	Manresa	Ayuntamiento de Manresa	Ecological processes
	Aiguamolls de la Bóbila de Santpedor	Santpedor	Obra Social Caixa Catalunya	Habitat conservation
	Bosc de Mas Lluca	Santpedor	Fundació Catalunya la Pedrera	Habitat restoration and recovery
	Món Sant Benet	Sant Fruitòs del Bagés	Fundació Catalunya la Pedrera	Sustainable use of resources
Origens	APC Gavet de la Conca	Gavet de la Conca	Associació Amics Natura 2000 Pirineu	Favouring specific species
	Els Plans d’Aguiró	Aguiró	Associació Marques de Pastor	Conservation of traditional land management
	Tremoluga de Naens—Foradada 1	Naens (Senterada)	Associació Marques de Pastor	Habitat conservation
	Tremoluga de Naens—Foradada 2	Naens (Senterada)	Associació Marques de Pastor	Habitat conservation
	Tremoluga de Naens—Foradada 3	Naens (Senterada)	Associació Marques de Pastor	Habitat conservation
	PAS del Codó	Senterada	Associació Trenca	Favouring specific species
	Les Feixes	La Pobla de Segur	Associació Amics Natura 2000 Pirineu	Ecological processes
	Seixos	Talarn	Ajuntament de Talarn	Ecological processes
	Vedat	Talarn	Ajuntament de Talarn	Ecological processes
	Roques 1	Talarn	Ajuntament de Talarn	Ecological processes
	Roques 2	Talarn	Ajuntament de Talarn	Ecological processes
Farratge	Talarn	Ajuntament de Talarn	Ecological processes	
Siall	Isona	Associació Trenca	Ecological processes	
Congost de Mont-rebei	Sant Esteve de la Sarga	Fundació Catalunya la Pedrera	Conservation of traditional land management	

Table 1. Cont.

Geopark	Name of the Initiative	Municipality	Entity	Goal of the Initiative
Granada	Coto de caza De Castril	Castril	Fundación GYPAETUS	Promotion of the sustainable use of resources
	Viveros Ponce Lajara	Galera	Asociación para la Custodia del Territorio y el Desarrollo Sostenible ACUDE	Conservation of traditional land management
	Los Isidoros	Castillejar	Asociación para la Custodia del Territorio y el Desarrollo Sostenible ACUDE	Conservation of traditional land management
	GRA-1	Gorafe	Fundación de Amigos del Águila Imperial, Lince Ibérico y Espacios Nat de Carácter Privado	Preservation of fauna
	Olivares Vicos +	Guadix	Seo Birdlife	Habitat restoration and recovery
Montaña do Courel	Microrreservas da Serra do Courel	Folgozo do Courel	Asociación Galega de Custodia do Territori	Preservation of flora
Sobrarbe-Pirineos	Estación Biologica Mte. Perdido (EBMP)	Bielsa	Fundación para la Conservación del Quebrantahuesos	Preservation of fauna
	Ayuntamiento de Ainsa-Sobrarbe	Ainsa	Fundación para la Conservación del Quebrantahuesos	Sustainable use of resources
	Refugio Natural de la Peña Montañesa	Pueyo de Araguas	Fundación para la Conservación del Quebrantahuesos	Conservation of traditional land management
Maestrazgo	Reforestación de zonas afectadas por incendio	Ejulve	Asociación para el Desarrollo del Maestrazgo	Habitat restoration and recovery
	Guardianes del territorio	Molinos	Asociación para el Desarrollo del Maestrazgo	Habitat conservation
	Escuela de Actividades de la Naturaleza S. L.	Castellote	Asociación para el Desarrollo del Maestrazgo	Sustainable use of resources
	Mejora de hábitats y recursos turísticos con hides fotográficos.	Montoro de Mezquita	Asociación para el Desarrollo del Maestrazgo	Habitat restoration and recovery
Molina-Alto Tajo	La Huerta Rigüela	Valhermoso	Asociación Nacional MICORRIZA	Others
	La Sarga del Masegar	Pinilla de Molina	Asociación Nacional MICORRIZA	Others
Sierras Subbéticas	Las Quebradillas	Zuheros	Fundación Internacional para la Restauración de Ecosistemas	Conservation of traditional land management

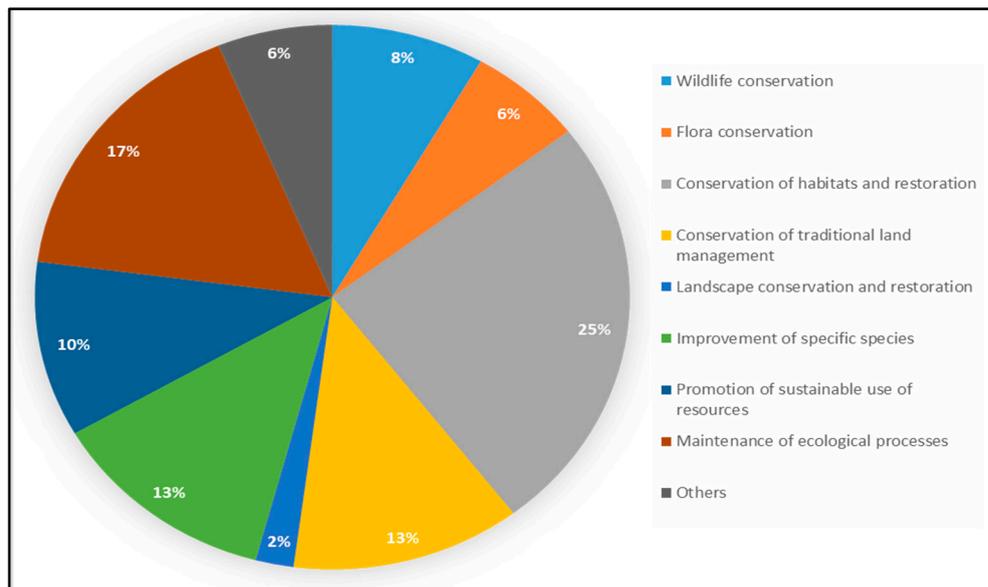
Table 1. Cont.

Geopark	Name of the Initiative	Municipality	Entity	Goal of the Initiative
Sierra Norte de Sevilla	SEV-2	Alanís	Fundación de Amigos del Águila Imperial, Lince Ibérico y Espacios Nat de Carácter Privado	Preservation of fauna
	Almadén de la Plata	Almadén de la Plata	SEO/BirdLife, Sociedad Española de Ornitología	Favouring specific species
Villuercas-Ibores-Jara	Conservación integral de valores medioambientales	Navatrasierra	Sociedad Extremeña de Zoología	Preservation of flora
	CC-1	Alia	Fundación de Amigos del Águila Imperial, Lince Ibérico y Espacios Nat de Carácter Privado	Preservation of fauna
Lanzarote-Archipiélago Chinijo	Muladar en PEÑA HUMAR	Teguise	Asociación de defensa medio ambiental vientos del noreste	Favouring specific species
	La Cuestita	Teguise	Asociación Paisajes Atlánticos	Habitat restoration and recovery
	Surte Gorritz	Teguise	Asociación de defensa medio ambiental vientos del noreste	Favouring specific species
	Sembrando para hubaras	Teguise	Asociación de defensa medio ambiental vientos del noreste	Favouring specific species
	El Higueral	Teguise	Asociación Paisajes Atlánticos	Conservation and improvement of landscape
	Vivero Ferrovia	Arrecife	Asociación Ambiental Arrecife Natura	Preservation of flora
	Huerta Vieja	Tinajo	Asociación Cultural y Social Trib-Arte	Conservation of traditional land management



**Figure 3.** Distribution of agreements in geoparks per type of stewardship entities.

Regarding the purpose of the stewardship initiatives identified in the geoparks (Figure 4), a disparity is observed, although conservationist objectives predominate, such as those related to habitat conservation and restoration, the maintenance of ecological processes, the enhancement of specific species, and wildlife conservation. However, these purposes coexist with others beyond the most classic conservationism. Thus, initiatives linked to conserving traditional uses of the territory and promoting the sustainable use of territorial resources also exist.



**Figure 4.** Goal of the stewardship initiatives identified in geoparks.

The land stewardship projects identified in the framework of geoparks do not originate from UNESCO but were initiated by stewardship organizations and landowners (sometimes also municipalities) according to conservationist objectives or to safeguard environmental/cultural values. They are not a direct instrument promoted by the managing entities of the geoparks, but they act as an indirect instrument that contributes to the proper functioning of the geoparks. However, the managers of some geoparks, such as Granada or Villuercas-Ibores-La Jara, are exploring the possibility of directly promoting land stewardship initiatives. Entities that carry out stewardship projects within the geoparks, such as the Foundation for the Conservation of the Bearded Vulture in the Sobrarbe-Pyrenees Geopark or the Spanish Ornithological Society SEO Birdlife in the Granada Geopark, act

within them or have joined them as collaborating entities. However, they have yet to sign stewardship agreements directly with the managing bodies of the geoparks. Notwithstanding, the interest of the stewardship initiatives of these entities that have agreements with landowners or municipalities within the geoparks is that they involve the local society. They also mobilize human capital, knowledge, and external economic resources that positively impact geoparks. The associative fabric is improved with collaborations that increase social cohesion. And it contributes to both environmental management and local development.

In the present work, no stewardship projects directly related to safeguarding geological resources have been detected. As can be seen in Figure 4, there are no initiatives related to environmental education or nature education either. Although many of the stewardship proposals indeed incorporate strategies for the dissemination, interpretation of the natural environment, and awareness of the values they protect, these actions are secondary to the primary purpose and are carried out sporadically. Nature-based education, contrary to traditional environmental education, is an activity that requires full-time dedication and would be a protagonist in its execution, something that is not observed here.

#### 4.2.2. Land Stewardship and Nature-Based Education

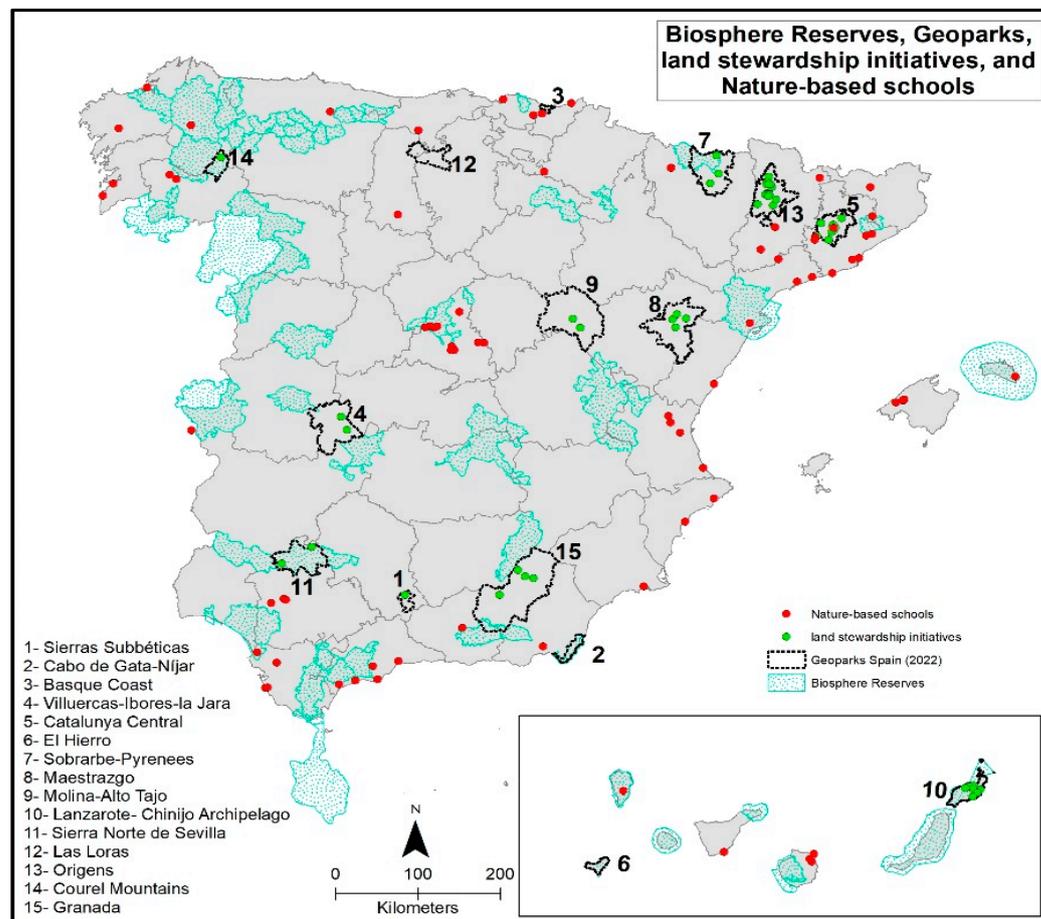
Figure 5 shows that no nature-based schools are located within geoparks, except for Wild Me in Central Catalonia. However, the presence of nature-based schools in biosphere reserves (BRs) seems to be more common, as is the case of *Amadahi* in the Mariñas Coruñas e Terras do Mandeo BR, *Nenea* in the Terras do Miño BR, *Grupo de Juego en la Naturaleza Saltamontes* and *Aúlla* in the Cuencas Altas de los ríos Manzanares, Lozoya y Guadarrama BR, or *El Huerto de los Girasoles* and *Laboratorio Lululand* in the Intercontinental Reserve of the Mediterranean, to name a few examples. Interesting is the *Bosque Escola Avelãs* school in Marvão, Portugal, which acts as a transboundary initiative and is located in the international Tagus-Tejo Biosphere Reserve.

While there is some interest in land stewardship initiatives in the geoparks, no nature education proposals exist in them, except in one case. In Castellfollit del Boix, Barcelona, the Wild Me project is located within the Central Catalonia Geopark. During the interview held with the person in charge, it does not seem that the existence of the geopark was a determining factor in the choice of location since they are far from the most characteristic geocological landmarks of the site and the children move a short distance from their daily meeting point, so they do not get to know them. Instead, in Wild Me, they perceive that the management regulations of natural protected areas restrict public use activities and hinder the implementation of nature-based education initiatives, so it is not usually a criterion for their choice. This perception is shared by other project managers, both those interviewed for this work and those of whose opinion the authors have direct knowledge.

The main difficulty encountered by nature-based education initiatives is that being centers that function as schools, children must attend daily, or at least regularly, throughout the week. This means that the location, while it must be close to or in nature, should be close to where the children live and where their parents or caregivers work. Many protected areas, including geoparks, are found far from towns. However, since nature is the common thread of their pedagogical approach, many are in fact located in or near other natural protected areas.

A case in point is the *Amadahi* school in Oleiros, A Coruña, found within the Costa de Dexo natural monument and in the Mariñas Coruñas e Terras do Mandeo Biosphere Reserve. Its manager indicates that the school's setting was based on other criteria but that the location in these areas is essential for the quality of the contact with the natural environment. It actively collaborates with the authorities and landowners in the dissemination and good use of its values. *Amadahi* offers training courses to nature education professionals and emphasizes the importance of preserving the natural treasures they enjoy (P. G., pers. comm.). On the other hand, the *Grupo de Juego en la Naturaleza Saltamontes*, in Collado Mediano, Madrid, is located at the gates of the Sierra de Guadarrama National Park within the Cuencas altas de los ríos Manzanares, Lozoya y Guadarrama Biosphere

Reserve. The first NPA type, despite the school being only within its area of socio-economic influence, has been the most attractive for the project, being the second relatively unknown NPA among those interviewed and its educational community. Many families approaching this project are residents who have recently settled in the municipality or even moved there to participate. The main reason for residing in the area is the environmental quality of the surroundings. The presence of an educational project that takes advantage of it is, for them, a very logical step and an added value (EC, pers. comm.).



**Figure 5.** Location of the biosphere reserves, geoparks, land stewardship initiatives, and nature-based schools in Spain.

Nature-based initiatives that wish to obtain formal recognition as schools have a difficult time due to incompatibility between conservation regulations in protected areas, land and urban planning, and education-related regulations. While educational legislation requires a permanent building or construction for the location of classrooms and auxiliary facilities, land-use and urban planning legislation in rural areas and environmental legislation, such as that on the conservation of protected areas, do not allow the installation of buildings for these purposes. In countries such as Germany, the Czech Republic, or Italy, this obstacle is overcome because nature education is recognized as a different (or innovative) educational modality within the system, and what is required, precisely, is that no permanent construction should be used as part of the school facilities. Only mobile structures (such as construction-site-style containers) or ephemeral structures (such as yurts, wagons, or similar) are allowed, as long as they provide the services needed (shelter and storage, mainly) under the health and safety conditions required for any other educational space. This adaptation of the regulations has led to an explosion of nature-based education centers in these countries. Germany has several thousands of them, and the Czech Republic and Italy have over a hundred.

Despite these difficulties, there are two approved nature-based schools in Spain. According to the managers interviewed, this recognition and the acceptance of its implementation often depends on the attitude and flexibility of the official in charge of its processing. This was the case of *Bosquescuela* in Cerceda, Madrid, located in the Cuenca Alta del Manzanares Regional Park, a fact publicly acknowledged by the person in charge of its homologation. In the second case, *Bosqueko Forest School* in Gran Canaria, the school has been approved thanks to strict compliance with current regulations, which has involved oversizing the necessary facilities, given that teaching takes place mainly outdoors. Of the rest of the nature education initiatives in Spain, many have applied for other recognition types (e.g., leisure clubs or similar) that allow them to operate within the current regulations.

#### 4.2.3. The Case of Edunat Cooperative in Bunyola (Mallorca)

Land stewardship is a handy tool for initiatives with a low economic capacity that wish to carry out low-impact projects or positively impact the territory. It is also advantageous for landowners, who obtain maintenance and improvement services for their land in exchange. This is precisely the case of the *Edunat Cooperative* of Bunyola, in Mallorca (Balearic Islands), an entity dedicated to nature-based education on privately owned land, whose owners have signed a stewardship agreement for ten years. The estate has an area of 4.5 hectares and consists of pasture, agricultural land, and Mediterranean forest of holm oaks, carob, and almond trees. There was also some livestock in the past, although the owners were not farmers. It also has a small building, which the cooperative can use. Contrary to what usually happens in the Balearic Islands, the owner family did not wish to sell their property to large investors, generally foreigners, for fear that its rustic use would be distorted towards a more touristic one and that the benefits of this use would not revert to the local community. According to the informant, the property treasures “the memories of the family, the experiences, the laughter of the children [...] that continue to resonate there” (G. V., pers. comm.).

For this reason, after long deliberations, the *Edunat Cooperative's* proposal fell on fertile ground. Their main activity is the educational use of the farm, with children from 2 to 6 years of age visiting the area from Monday to Friday. They also have a playgroup and a bushcraft school for older children, which occur during the afternoons and weekends. In addition, the cooperative manages an organic vegetable garden. The building has been adapted as a shelter in case of bad weather, for the storage of materials and tools, and as an educational and services space (kitchen, toilets). In exchange for using the land and the building, the cooperative maintains the estate, repairs damages, waters the fruit trees, installs nesting boxes and feeders for wild animals, and generally watches over it.

The cooperative's founders have extensive experience with nature-based education, having worked on public land for more than ten years in a similar project in the area. Thanks to this experience, they appreciate the advantages of staying on private land, which allows them to develop their proposal with greater flexibility, adding activities, such as the vegetable garden or the possibility of keeping poultry, planned for the future. It also allows them to collect rainwater, which can be used for irrigation and for recreational and educational purposes. Having control over the space also makes it possible to leave materials, infrastructure, and play elements installed on site without dismantling, moving, or storing them every day. By not coexisting with other users of the space, the possibility of conflict or even accident is minimized in the event of activities incompatible with educational activities (e.g., forestry work, motorized sports, hunting). The area's spaciousness also facilitates the drop-off and pick-up of children, as there is space for parking.

According to the informant, the experience and seriousness of the proposal have been considered in the custody agreement, which includes the guarantee of compliance with regulations, especially concerning insurance and employee contracts. On the other hand, unambiguous agreements have been established for conflict prevention, communication, and transparency between the parties. They are very grateful to the owners for their open and interested attitude and the possibility of developing their activity in exchange for

maintenance tasks. The economic conditions are, therefore, favorable, but they require a large investment in time and effort. The cooperative must not only develop its activity daily but must also meet the commitments made with the property. It is an investment in time and effort that must be considered before signing such a custodial agreement.

## 5. Discussion and Conclusions

According to Roskamp and Valdati (2023), geoparks are a tool for local development, supported by concepts such as geoconservation, geotourism, and geoeducation [55]. Beyond differentiating geographic areas with significant geological heritage, they play an essential role in promoting sustainable tourism, the conservation of natural and cultural heritage, and the promotion of economic and social development of local communities [56,57]. After studying how the managers of eight of the fifteen Spanish geoparks perceive the internal dynamics, we observed that, in the face of different casuistry related to their territorial features, different surface area, population, and number of settlements, they share approaches, organizational structures, and even problems. Geoparks act as a distinguishing mark; taking advantage of geological and geomorphological characteristics, this instrument makes disadvantaged rural territories visible. Their declaration encourages the stimulation of local economic activity, the promotion of sustainable tourism, the improvement of essential services and connectivity, the rooting of the population, and the revitalization of community life [57,58].

Assuming geoparks are considered not as a figure of protection of geological heritage, but as an instrument of territorial promotion, implementing the land stewardship mechanism is seen as a stimulating option to help achieve both conservation and development objectives. Land stewardship promotes sustainable land use by involving civil society in land-use management and decision making [16]. Stewardship projects promote the conservation of environmental resources and the practice of activities that respect the health of ecosystems, seeking collaboration and implementing the most appropriate actions for each context [16,19,35].

So far in Spain, land stewardship projects to protect the geological heritage of geoparks, promoted by civil society, still need to be explored. For example, in four of the fifteen geoparks, no experiences have been identified; in two, only one has been detected; and in three, only a couple have been identified. However, as seen in the results, there are some experiences, and it is necessary to recognize the work that specific conservation organizations and groups are implementing through the mechanism of land stewardship to complement the conservation of these enclaves' geological heritage, biodiversity, and culture. However, these are projects that are born outside the geoparks' management. In other words, they are private stewardship entities that work within the scope of the geoparks even before their existence. The initiatives analyzed in this paper show that there are alternatives to managing nature conservation. These are more flexible, participatory, and cooperative formulas that incorporate strategies for socio-economic development and identity strengthening for these territories.

But on the other hand, land stewardship presents challenges and problems that hinder its implementation. There are still land managers and landowners who are unfamiliar with this mechanism, which is a drawback for its use. In addition, the legal and administrative framework still needs to be improved, which can generate bureaucratic obstacles and a lack of confidence regarding the implications related to ownership. Another area for improvement is linked to project financing and human capital since stewardship is promoted by private entities (generally non-profit associations based on volunteerism) that do not have high economic resources to sustain the proposals over time [42,59].

Land stewardship is a tool that is not equally rooted throughout the Spanish territory. In some regions, this mechanism has been more widely used than in others. This is the case of Catalonia, the region with the highest number of land stewardship entities in the state (63) and the highest number of agreements (710), according to the Report of the 6th Inventory of Land Stewardship Initiatives in Spain [54]. This is also reflected within the

geoparks. Origenes and Central Catalonia are the areas where more stewardship projects have been identified. The reason for this is to be found in the region's strong territorial identity and the solid associative network present. Associations in Catalonia are a vital characteristic of the region's civil society. It promotes cultural and territorial identity, the defense of rights, citizen participation, and collaboration to develop projects and activities for the benefit of the community. In addition, Catalonia has consolidated a network of organizations and institutions that participate in the stewardship process, in which an organization, such as the Xarxa per a la Conservació de la Natura (XCN), contributes to promoting the mechanism, weaving alliances between actors and providing technical assistance and support to associations [42].

Geoparks are spaces of interest for learning about environmental processes and transmitting territorial values. They have the necessary ingredients to propose new educational methods based on direct contact with nature. Environmental education activities are carried out in most of the Spanish geoparks. There are different educational materials and projects of different formats through which schoolchildren approach these enclaves' geological and landscape values and socio-economic reality. These experiences are closely linked to what is known as environmental education. However, only one experience has been detected within the geoparks of what is called an outdoor or nature-based school. It has been shown that these schools have an indirect relationship with the presence of natural protected areas, but this is limited to those that protect their biotic values. Geoparks, or geological values in general, are not usually considered when choosing a site. However, these elements are very important in shaping the landscapes and, therefore, the identity of the residents. Geoparks can be excellent scenarios for education and connection with the natural environment through tools such as land stewardship. Given the flexibility in their management, installing equipment for educational use, as required by sectoral regulations for this type of initiative, should be fine. Perhaps the most significant weakness lies in the sensitivity of the entities managing these educational projects, whose training and priority is linked to education (they are mainly people with degrees in teaching, early childhood education, social work, and psychology) and not so much to geology, biology, or rural development. They may likely lack the necessary information about the geocological values and the opportunities for public use provided by the geoparks, and it may be necessary to disseminate this information to this group.

Another area for improvement of the nature-based schools is their managerial structure. They are small projects, usually managed by associations or cooperatives, with little financial power and a high staff turnover. They need help to finance and manage the rental or purchase of land to carry out their activities. For this reason, due to its flexibility and adaptability to different social agent profiles, scenarios, and situations, land stewardship is a valuable tool that can be applied to nature-based education initiatives in geoparks.

In summary, encouraging the articulation of civil society through structures that use land stewardship mechanisms can contribute to consolidating the triple purpose of any geopark: nature conservation, education, and sustainable development. Framing alternative proposals, such as nature-based schools in these areas and using land stewardship in their operation, can become an opportunity to protect a region's geological and cultural heritage and improve local communities' quality of life through sustainable and responsible economic and tourism activities. Early-years education in the natural environment facilitates the acquisition of long-term pro-environmental skills, competencies, and behaviors that last into adulthood and act as multipliers for others. This, in turn, would reinforce the objectives of the conservation and dissemination of the values of the geoparks from one generation to the next.

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## References

- Adams, V.M.; Mills, M.; Weeks, R.; Segan, D.B.; Pressey, R.L.; Gurney, G.G.; Groves, C.; Davis, F.W.; Álvarez-Romero, J.G. Implementation strategies for systematic conservation planning. *Ambio* **2019**, *48*, 139–152. [CrossRef] [PubMed]
- Tiebel, M.; Mölder, A.; Plieninger, T. Small-scale private forest owners and the European Natura 2000 conservation network: Perceived ecosystem services, management practices, and nature conservation attitudes. *Eur. J. For. Res.* **2021**, *140*, 1515–1531. [CrossRef]
- Sayer, J.A. Science and international nature conservation. *CIFOR Occas. Pap.* **1995**, *4*, 14.
- Florido, G.; Lozano, P.J. Las figuras de protección de los espacios naturales en las comunidades autónomas españolas: Una puesta al día. *Boletín Asoc. Geógrafos Españoles* **2005**, *40*, 57–81.
- Nikolova, V.; Sinnyovsky, D. Geoparks in the legal framework of the EU countries. *Tour. Manag. Perspect.* **2019**, *29*, 141–147. [CrossRef]
- Pérez-Calderón, E.; Prieto-Ballester, J.M.; Miguel-Barrado, V. Perceived Rural Development in UNESCO Global Geoparks in Spain. *Land* **2022**, *11*, 1086. [CrossRef]
- Farsani, N.T.; Coelho, C.; Costa, C. Geotourism and Geoparks as Gateways to Socio-cultural Sustainability in Qeshm Rural Areas, Iran. *Asia Pac. J. Tour. Res.* **2012**, *17*, 30–48. [CrossRef]
- De Castro, E.; Loureiro, F.; Patrocínio, F.; Gomes, H.; Castel-Branco, J.; Cezar, L.; Fernandes, M.; Azevedo, P. The Estrela UNESCO Global Geopark Territorial Development Strategy: A Holistic Vision for the Twenty-First Century. In *Economics and Management of Geotourism Tourism, Hospitality & Event Management*, 1st ed.; Braga, V., Duarte, A., Marques, C.S., Eds.; Springer: Cham, Germany, 2022; pp. 19–46.
- UNESCO. UNESCO Global Geoparks (UGGp). Available online: <https://en.unesco.org/global-geoparks> (accessed on 22 June 2023).
- Pásková, M.; Zelenka, J. Sustainability management of Unesco Global Geoparks. *Sustain. Geosci. Geotourism* **2018**, *2*, 44–64. [CrossRef]
- Peris Reig, L. *Outdoor Education. Una forma de Aprendizaje Significativo*, 1st ed.; Punto Rojo Libros: Sevilla, Spain, 2017; p. 138.
- Troitiño Vinuesa, M.A. Espacios Naturales Protegidos y Desarrollo Rural: Una Relación Territorial Conflictiva. *Boletín Asoc. Geógrafos Españoles* **1995**, *20*, 23–37.
- Hueso-Kortekaas, K. *Educación en la Naturaleza*, 1st ed.; Plataforma Editorial: Barcelona, Spain, 2021; p. 256.
- Hueso-Kortekaas, K.; Iranzo-García, E. Salinas and “Saltscape” as a Geological Heritage with a Strong Potential for Tourism and Geoeducation. *Geosciences* **2022**, *12*, 141. [CrossRef]
- Sending, O.J.; Neumann, I.B. Governance to governmentality: Analyzing NGOs, states, and power. *Int. Stud. Q.* **2006**, *50*, 651–672. [CrossRef]
- Brown, J.; Mitchell, B. The stewardship approach and its relevance for protected landscapes. *Geogr. Wright Forum* **2000**, *17*, 70–79.
- Mitsos, M.; Ringgold, P.C. Testing Stewardship Concepts on Federal Land. *J. Sustain. For.* **2001**, *13*, 305–320. [CrossRef]
- Mumaw, L. Transforming urban gardeners into land stewards. *J. Environ. Psychol.* **2017**, *52*, 92–103. [CrossRef]
- Basora Roca, X.; Sabaté i Rotés, X. *Custodia del Territorio en la Práctica. Manual de Introducción a una Nueva estrategia Participativa de Conservación de la Naturaleza y el Paisaje*, 1st ed.; Xarxa de Custodia del territori, Fundació Territori i Paisatge—Obra Social Caixa Catalunya: Barcelona, Spain, 2006; p. 80.
- Pietx, J. Custòdia del territori a Catalunya. *Medi Ambient Tecnol. Cult.* **2008**, *42*, 34–43.
- Iranzo-García, E.; Puig Lanás, M.L. La custodia del territorio: Un instrumento para la puesta en valor colaborativa del paisaje: El caso de Castielfabib. In *Objectius de Desenvolupament Sostenible en el Territori Valencià: Trobada 2020*; Universitat de València: Valencia, Spain, 2020; pp. 151–163.
- Carcavilla, L.; Durán, J.J.; García-Cortés, A.; López-Martínez, J. Geological heritage and geoconservation in Spain: Past, Present, and Future. *Geoheritage* **2009**, *1*, 75–91. [CrossRef]
- Brilha, J. Geoheritage and geoparks. In *Geoheritage: Assessment, Protection and Management*; Reynard, E., Brilha, J., Eds.; Elsevier: Amsterdam, The Netherlands, 2018; pp. 323–335.
- Hilario, A.; Carcavilla, L. Twenty Years of Spanish Geoparks: Analysis and Future Prospects. *Geoheritage* **2020**, *12*, 87. [CrossRef]
- García-Cortés, A. Spanish Geological Frameworks. In *An Approach to Spanish Geological Heritage of International Relevance*; Instituto Geológico y Minero de España: Madrid, Spain, 2009; p. 215.

26. Álvarez, S.; Hernández, S. La custodia del territorio como instrumento complementario para la protección de espacios naturales. *Rev. Catalana Dret Ambient.* **2011**, *2*, 1–22. [CrossRef]
27. Jackson, S.F.; Gaston, K.J. Incorporating private lands in conservation planning: Protected areas in Britain. *Ecol. Appl.* **2008**, *18*, 1050–1060. [CrossRef]
28. Barreira, A.; Rodríguez-Guerra, M.; Puig, I.; Brufao, P. *Estudio Jurídico Sobre la Custodia del Territorio*; Plataforma de Custodia del Territorio de la Fundación Biodiversidad: Madrid, Spain, 2010; p. 277.
29. Capdepón, M.; Durá, C.J. Introducción al concepto de la conservación privada: «nuevas» herramientas para la conservación de la biodiversidad. *Ciudad Territorio. Estud. Territ.* **2019**, *51*, 27–42.
30. Brown, J.; Mitchell, B. Extending the reach of national parks and protected areas: Local stewardship initiatives. In *National Parks and Protected Areas: Keystones to Conservation and Sustainable Development*, 1st ed.; Nelson, J.G., Serafin, R., Eds.; Springer: Berlin/Heidelberg, Germany, 1997; Volume 40, pp. 103–116.
31. Borrini, G.; Farvar, M.T.; Kothari, A.; Pimbert, M.; Renard, Y. *Partager le Pouvoir: Cogestion des Ressources Naturelles et Gouvernance Partagée de par le Monde*; International Union for Nature Conservation (IUCN): Gland, Switzerland, 2009; p. 548.
32. Fagan, S.M. An Analysis of the Evolution of Theory and Management in the Trustees of Reservations. Master's Thesis, University of Pennsylvania, Philadelphia, PA, USA, 2008.
33. Brewer, R. *Conservancy: The Land Trust Movement in America*; Dartmouth College Press: Lebanon, PA, USA, 2003.
34. Durá Alemañ, C.J. La Custodia del Territorio y sus Nuevas Técnicas Para la Conservación del Patrimonio Natural, el Paisaje y la Biodiversidad: Un Invento Norteamericano y su Expansión al Resto del Mundo. Ph.D. Thesis, University of Alcalá de Henares, Alcalá de Henares, Spain, September 2013.
35. Pietx, J. Custodia del territorio, una nueva estrategia de conservación. *Quercus* **2000**, *169*, 20–23.
36. Declaración de Montesquiu. 2000. Available online: <https://www.custodia-territorio.es/content/declaraci%C3%B3n-de-montesquiu-2000> (accessed on 8 March 2023).
37. Ruiz, A.; Navarro, A.; Sánchez, A. *Libro Blanco Construyamos el Futuro de la Custodia del Territorio*; Foro de Redes y Entidades de Custodia del Territorio: Madrid, Spain, 2018.
38. Racinska, I.; Barratt, L.; Marouli, C. LIFE and Land Stewardship. Current Status, Challenges and Opportunities. Report to the European Commission. 2015. Available online: <https://www.landconservationnetwork.org/node/9535> (accessed on 17 January 2023).
39. Kamal, S.; Grodzińska-Jurczak, M.; Brown, G. Conservation on private land: A review of global strategies with a proposed classification system. *J. Environ. Plan. Manag.* **2015**, *58*, 576–597. [CrossRef]
40. Hardy, M.J.; Bekessy, S.A.; Fitzsimons, J.A.; Mata, L.; Cook, C.; Nankivell, A.; Smillie, K.; Gordon, A. Protecting nature on private land using revolving funds: Assessing property suitability. *Biol. Conserv.* **2018**, *220*, 84–93. [CrossRef]
41. Groce, J.E.; Cook, C.N. Maintaining landholder satisfaction and management of private protected areas established under conservation agreements. *J. Environ. Manag.* **2022**, *305*, 114355. [CrossRef] [PubMed]
42. Quer, B.; Asensio, N.; Codina, J.; Chalard, L.; Pietx, J.; Rodríguez, P. *Study of the Development and Implementation of Land Stewardship in the Different Participation Regions*; LANDLIFE: Girona, Spain, 2012; p. 125.
43. Horton, K.; Knight, H.; Galvin, K.A.; Goldstein, J.H.; Herrington, J. An evaluation of landowners' conservation easements on their livelihoods and well-being. *Biol. Conserv.* **2017**, *209*, 62–67. [CrossRef]
44. Ruiz, A.; Arias, F.; Navarro, A. *El Tercer Sector Ambiental: Un Enfoque de las Entidades Ambientales no Lucrativas*; Colección Cuaderno de Campo; Asociación de Fundaciones para la Conservación de la Naturaleza: Madrid, Spain, 2016; Volume 1, p. 20.
45. Asociación Nacional EDNA. Guía de escuelas en la naturaleza. In *Información Práctica Sobre la Vida y Organización de Experiencias en la Naturaleza en España*, 1st ed.; La Traviesa Ediciones: Málaga, Spain, 2020; p. 112.
46. Chawla, L. Childhood experiences associated with care for the natural world: A theoretical framework for empirical results. *Child. Youth Environ.* **2007**, *17*, 144–170. [CrossRef]
47. Matsuba, M.K.; Pratt, M.W. The Making of an Environmental Activist: A Developmental Psychological Perspective. *New Dir. Child Adolesc. Dev.* **2013**, *142*, 59–74. [CrossRef]
48. Bauman, Z. Educational challenges of the liquid-modern era. *Diogenes* **2003**, *50*, 15–26. [CrossRef]
49. In Natura. Available online: <https://escuelainnatura.com/directorio-escuelas-en-la-naturaleza-espana/> (accessed on 5 February 2023).
50. Hueso-Kortekaas, K. A critical view on the strengths and challenges of outdoor preschools and nature-based education. In *Regenerative Design in the Latin-Mediterranean Context. New Visions, Emerging Practices and Perspectives*; Cobreros, C., Giorgi, E., Cattaneo, T., Eds.; Springer Nature: Cham: Switzerland, 2023; in press.
51. González Río, M.J. *Metodología de la Investigación Social*; Aguacilar: Alicante, Spain, 1997; p. 300.
52. Saldana, J. *Thinking Qualitatively: Methods of Mind*, 1st ed.; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 2014; p. 240.
53. Miles, M.B.; Huberman, A.M.; Saldana, J. *Methods of Predicting Qualitative Data Analysis: A Methods Sourcebook*, 4th ed.; SAGE Publications, Inc.: Thousand Oaks, CA, USA, 2014; p. 408.
54. Prada, O. *Informe del 6º Inventario de Iniciativas de Custodia del Territorio en España*; Fundación Biodiversidad, Ministerio para la Transición Ecológica y el Reto Demográfico: Madrid, Spain, 2019; p. 223.
55. Eder, E.W.; Patzak, M. Geoparks-geological attractions: A tool for public education, recreation and sustainable economic development. *Episodes* **2004**, *3*, 162–164. [CrossRef] [PubMed]

56. McKeever, P.; Zouros, N.; Patzak, M. The UNESCO global network of national geoparks. In *Geotourism: The Tourism of Geology and Landscape*; Newsome, D., Dowling, R., Eds.; Goodfellow Publishers: Oxford, UK, 2010; pp. 221–230.
57. Roskamp, D.; Valdati, J. Geoparks and Sustainable Development: Systematic Review. *Geoheritage* **2023**, *15*, 6. [[CrossRef](#)]
58. Zouros, N. The European Geoparks Network. *Episodes* **2004**, *27*, 165–171. [[CrossRef](#)]
59. Sabaté, X.; Basora, X.; O'Neill, C.; Mitchell, B. *Caring Together for Nature. Manual on Land Stewardship as a Tool to Promote Social Involvement with the Natural Environment in Europe*, 1st ed.; xct in partnership with Eurosite, CEN L-R, Legambiente and Prysma: Barcelona, Spain, 2013.

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