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Commentary

Ecology and Esthetics, Esthetic Ecology and the Ecological Esthetic in the Landscape: Contributions to the Apparent TongueTwister

Alicia López-Rodríguez ^{1,*}, Ana-Belén Berrocal Menárguez ², Rafael Escribano Bombín ¹ and Simon Bell ³

¹ School of Forest Engineering and Natural Resources, Polytechnic University of Madrid (UPM), c/José Antonio Novais, 10, 28040 Madrid, Spain; rafael.escribano@upm.es

² Department of Transport, Urban and Regional Planning, Polytechnic University of Madrid (UPM), c/Profesor Aranguren, 3, 28040 Madrid, Spain; anabelen.berrocal@upm.es

³ Department of Landscape Architecture, Estonian University of Life Sciences, Kreutzwaldi, 1, 51006 Tartu, Estonia; simon.bell@emu.ee

* Correspondence: alicia.lopez@upm.es

Abstract: The interface between ecology and esthetics does not only exist but is often vaster than thought at first sight. The implications of one for the other are diverse and often subtle, but both dimensions share a link that is as elusive as it is significant because of its influence on human behavior and on the landscape itself. Therefore, it is increasingly viewed as one of the aspects in the complex human–nature reality that should receive serious consideration to better manage the landscape. However, this relationship can be approached in different ways, and each of these perspectives will shape certain outcomes and different ways of intervening in the landscape. This article presents a generic framework of the models of analysis and intervention in the landscape from the point of view of how they address the ecological and esthetic component, with the aim of defining the limits in which each one moves, the differentiating nuances, and the repercussions they can have on the landscape. Likewise, the strategy that would best incorporate a more effective and meaningful relationship between ecology and esthetics in landscape planning is suggested.

Keywords: landscape; ecology; esthetic; landscape planning; social research



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1. Introduction

“From Mediterranean cork forests; Central Europe’s great oak and beech woodlands to the evergreen taiga just below the Arctic Circle, these wild woodlands form some of the most secret, complex and beautiful habitats on the planet”. This phrase introduces the episode “Green Heart”, dedicated to European forests, of the documentary *Europe’s Great Wilderness* [1]. This reference to the beauty of nature can be found not only in this but also in many documentaries and environmental education materials. This phrase is therefore illustrative of a common perspective when speaking of the natural world. We refer to the idea of beauty, or esthetics in broader terms, as one of the significant and omnipresent variables recognizing the values of the natural landscape.

Indeed, the esthetic dimension of the natural environment is frequently presented as an argument for landscape management and conservation. Going back in time, we see how the romantic and preservationist perspective that endorses natural beauty was very present in the initiatives that culminated in the declaration of the American National Park System [2,3]. Inspired by this first experience, some other national parks were established on the same basis, in Canada, Sweden and Switzerland. Certainly, scientific and conservationist values, nationalism, commercial tourism and political interests played a significant role in their foundation. Interestingly, the scenery also served as a powerful idea to evoke a distinctive natural value and gain public and political support for their protection [4]. In Spain, for example, at the beginning of the 20th century, the recreational interests and the

consideration of beauty of the outstanding landscapes guided the preservation of their natural values more than the natural values themselves [5]. Protection regulation was clearly directed towards the patrimonial and esthetic qualities of the landscape, with an inclination towards mountain landscapes and “wild” forest, in which the preservation of the most natural landscape was certainly intended because of appreciation of the untouched and picturesque [6]. Very illustrative in this regard is the simple sentence upon which the goals for the creation of the Spanish National Parks were stipulated: “National Parks are, for the purposes of this Law, those sites or places that are exceptionally picturesque, forested or rugged in the national territory, that the State consecrates, declaring them such, with the sole purpose of encouraging their access through adequate means of communication, and to respect and ensure that the natural beauty of their landscapes, the richness of their fauna and flora and the geological uniqueness and hydrological systems encompassing them are respected, thus avoiding as effectively as possible any act of destruction, deterioration or disfigurement by the hand of man” [7] (p. 575).

The basis on which the power of the esthetic argument rests for effectively conveying a message and persuading of the goodness of an objective lies in what we could call its rhetorical capacity. The eloquence of the esthetic is that it is tangible and easily perceptible. Thus, it stands as an effective and captivating means to promote and support environmentally sensitive management [8]. Landscape esthetics complement ethics as they are a more seductive and less onerous approach to promoting pro-conservation behaviors [9]. The conservation of charismatic species, attractive for their beauty, strength or nobility, is one of the most obvious examples of the repercussions of considering esthetics in the management of ecological values [10]. The appearance of these species usually attracts economic resources for their own conservation with effects at ecosystem level [11].

Policy-makers and land managers seek to ensure ecological functionality of the landscape and maximize ecosystem services provisioning. Esthetics can be approached as one of the non-market benefits provided by ecosystems. As such, they are one of the aspects that managers consider when prioritizing the environmental initiatives with greatest impact on the aspects most valued by society [12]. Several authors have shown that the establishment of incentives or policies favoring certain practices have an impact on landscape esthetics [13,14] and conversely, the monetary valuation of esthetics as a component of the economic value of landscape should influence policy-making [12]. The philosophical discussion on the esthetics of nature has been about their foundations on pure emotion, judgments of taste, reasoning or knowledge; the objective or subjective nature of the experience; the esthetic categories; and their relationship with art (see for a comprehensive review [15,16]). The earliest source of esthetic considerations related to nature date from Greek philosophers. Plato and Aristotle related beauty with ethics and limited it to proportion, symmetry, harmony and unity. However, the esthetics of nature were not a central object of inquiry until the emergence of modern philosophy in the eighteenth century. They received their most important modern exposition in the philosophy of Kant, who positioned nature as the primary example of esthetic pleasure and developed a comprehensive philosophical framework: the theory of disinterestedness; that is, the pure esthetic experience disassociated from particular personal, religious, economic or utilitarian interests [17]. Kant also consolidated the esthetic categories of the appreciation of nature initiated by Burke: the beauty and the sublime. These kinds of esthetic judgments were complemented by Gilpin’s category of the picturesque, with strong influence at present. The interest in the esthetic appreciation of natural environments was renewed in the twentieth century following Hepburn’s essay and positive esthetics emerged, which consider nature as essentially beautiful insofar as it is untouched by humans. Nowadays the debate revolves around cognitive and non-cognitive views [18].

Humboldt, in his writings, full of esthetic notes and drawings of the natural systems, was one of the first scientists involved in the analysis of the feeling of nature and the esthetic qualities of the landscape [19]. Since then, there have been different reflections on the essence of natural esthetics and the search for the relationship between esthetics

and ecology in the landscape [16,20–24]. The authors of [25] explored the issue in their well-known article: “The shared landscape: what does esthetics have to do with ecology?” In it, the authors, from various disciplines, gather, discuss and form a kind of conceptual corpus on what has been called ‘ecological esthetic’, which they refer to as that which can “establish desirable relationships between esthetics and ecology” (p. 959).

Thus, until now, from the explicit or suggested approach of ecological esthetics, several theories and experiences have been generated on the relationship between ecology and esthetics in the landscape. At this point, it is worth reflecting on the different conceptions of this relationship that have served as the basis of the different contributions. In our opinion, there are important nuances in how to understand the nature of the relationship between both aspects and the intended purposes and repercussions. For this reason, in this article, the methods and proposals classified under one of the three identified epigraphs are first framed and illustrated with examples: ecology and esthetics, esthetic ecology and the ecological esthetic. It is not a question of evaluating the progress or quality of the contributions in each of the topics, since it is understood that each one has values associated with specific objectives or starting conditions. It is, however, about recognizing the nature of the proposals, identifying how they address the relationship between ecology and esthetics, and how this perspective leads to certain outcomes. Next, these three models illustrating ecological and esthetic relationships in the landscape and in the way of managing them are analyzed to finally outline some conditions that lead to a more meaningful and solid approach to ecological esthetics in research and landscape planning.

2. Models of the Esthetics–Ecology Relationship in the Landscape: A Conceptual Framework

2.1. *Ecology and Esthetics, Dual Values: Recognition of an Outcome, or the Esthetics of the Natural Landscape as an End in Itself*

In certain landscape treatment approaches, the esthetic dimension of the natural landscape is focused on in terms of outcome and of form. It ends up becoming an end in itself. Thus, ecology and esthetics are managed as dual values that coexist in the territory, which often leads to managing them separately.

Let us think of one of many models of landscape planning/management representative of this approach: the landscape catalogs and guidelines developed in the region of Catalonia, Spain [26]. The perspective of analysis is based on the landscape character assessment [27] and is a good example since this approach is one of the recognizable bases of the European Landscape Convention [28]. The model defines distinctive landscape units in which their own values and dynamics are defined from a qualitative perspective. Multiple values (natural, historical, social, esthetic, productive and symbolic) are analyzed in a related but separate way. This evaluation forms the basis for the integrative definition of landscape quality objectives and management proposals to be incorporated into land use planning.

Esthetic values are defined in the master document based on the “capacity of a landscape to convey a certain feeling of beauty” [26] (p. 43). To spell this out, it is explained that these values are not only related to the formal aspects of the landscape (texture, color, contrast, etc.) but above all to the acquired cultural base that associates the appreciation of beauty with certain patterns or models. An analysis of the documents that explain these values confirms that these are effectively treated quite independently of the ecological dynamics from which they are largely derived, often in formal visual terms or because of their cultural symbolism. For example, the visual impression, the steepness and the strength of the great formations of crags and peaks of the High Pyrenees, the mists that flood the Pyrenean mountain valleys, the harmony and the contrasts of colors, shapes and textures of agroforestry mosaics and characteristic farms in the fluvial terraces of the river Ebro, or the magnificence of unique trees stands out [29,30].

This seems to be the case for most practices in landscape planning. In such models, of course, the esthetic interest associated with the most natural landscape is recognized, and this is treated as one more value to manage among many others; among them, precisely,

the natural or ecological value. This is so, of course, due to the scale they manage and the purpose of these models, which is not the specific treatment of the relationship between the ecological and the perceived or esthetic dimension but a comprehensive arrangement of the landscape or, in certain cases, a treatment in purely visual terms. In this sense, they are effective and valuable methodologies. This example simply serves to recognize that the ecology and esthetic treatment approach is performed to preserve more or less objectifiable values coexisting in the landscape and that the deep connection between both dimensions is practically non-existent, nor is it sought nor exists the practical capacity to look for it. Finally, the apparent outcome of an ecological situation is simply recognized: this is the “ecology and esthetics” model.

2.2. *Esthetic Ecology, Combined Values: Approaches Based on Actively Harnessing the Joint Success*

Certain perspectives treat ecology and esthetics as values that must be actively combined, aspects whose sum can be conveniently optimized together, seeking a compatibility or even a synergy between them. The strategy for addressing the landscape would therefore be based on what could be called the harnessing of the joint success; that is, joyous cases in which ecology and esthetics align and enhance each other. Thus, improving the landscape is driven by achieving a common benefit. Depending on the prominence granted to each of the values, the sign of the treatment changes: either an action or situation that first meets all the ecological objectives is “beautified”, or more ecologically appropriate components are sought in an esthetically attractive design.

On numerous occasions, this perspective has been labeled the ‘ecological esthetic’. However, we feel that the most appropriate term would be esthetic ecology, because in essence it is about making use of the opportunities offered by an ecological dynamic that projects an image of beauty or attractiveness, and not an esthetic experience that is rooted in the ecological component.

One of the paradigmatic examples of this trend, frequently referenced under the term ecological esthetic, is the planning carried out by [31] in the Loop Road in Acadia National Park, a natural landscape, protected and considered by the author himself a “destination landscape” (p. 218). The landscape planning model was based on overall user preferences with the public treated as the consumer of the landscape. That is, it was assumed that the visitor harbored a preconceived notion of the landscape that he/she expected to find and to which, as far as possible, the landscape had to respond. Thus, the approach to landscape esthetics is through a predictive model of visual preference based largely on the scenic. The ecological evaluation is based on applying habitat suitability assessment. This model evaluates the capacity of landscape elements to provide potential habitat for the fauna species selected as indicators. From the comparison in each part of the territory of both models, the levels of congruence between both dimensions and the definition of the planning strategy elevate the outcome of the combined values as much as possible.

Another example is found in the proposal of [32], in which they offer a theoretical framework to unite ecological integrity and esthetic appeal which they themselves call “the landscape ecological esthetic” (p. 61). This union is understood as the common ground between the two notions; that is, a proposal aimed at detecting those circumstances in which the treatment of both the ecological functioning and the esthetics of the landscape meet their expectations. The authors first define the important areas for achieving this union to later provide certain illustrative solutions that move in this direction. In fact, the same authors emphasize that by considering the spatial configuration and temporal sequency of certain solutions at the landscape planning scale, “one finds many concurrences between ecological integrity and esthetic appeal” (p. 73). Some examples of their proposal reveal the underlying message of this statement: alternating patches of natural landscape with areas of higher intensity of human use create an attractive visual rhythm; the conservation of vegetated ridge tops and stream bottoms, including a variety of successional stages, provides an enhanced visual complexity, while ecological functionality can be achieved with riparian corridors; the presence of more open areas on one shore offers the opportunity

to contemplate the developed and well-preserved native vegetation of the other shore in a riparian landscape, etc.

Another example is found in the design model of sustainable forest landscapes by [33], which defines a deliberate design process of intervention in the patterns of forest landscapes based on integrating ecological and esthetic aspects. In the proposal, first, ecological analysis helps to define the desired future conditions; that is, an ideal ecological landscape. This pattern is used as a basis to accommodate the design strategy that pre-eminently meets the esthetic criteria, which in the proposal are visual and formal. In this way, the elements are rearranged until a solution is reached that ensures sufficient ecological adequacy while maximizing the benefits at the esthetic level (in addition to the social, economic, operational, etc.).

As seen in the brief description of these models, the underlying logic is the conjunction of values in search of an optimized solution, or at least a compromise. This is done based on the identification of existing or generally accepted (visual) preference patterns. Under this perspective, the intervention proposals they achieve are evidently improved, though incomplete.

2.3. The Ecological Esthetic, Integrated Values: Esthetics as a Means of Recognition and Improvement of the Ecological

One additional step up to deeply explore the relationship between both dimensions is understanding esthetics as a means of enhancement of the ecological functioning and not only as an added value or one of the summands that enables an optimized sum. This is, in our view, the perspective that should be clearly labeled under the title of ecological esthetic.

The perspective of the ecological esthetic conceives both dimensions as intertwined in such a way that interpreting the ecological cannot be treated completely without the involvement of the esthetic, and vice versa [25]. An even more relevant aspect in the practical field considers esthetics as a factor of opportunity that the manager can use. This factor can help make a landscape more accepted and also more valued by showing the function and functioning of ecology, its desirability and the beauty it contains [21,34], even if it is countercultural, in the sense that it does not fit into the predominating trends of appreciating the landscape [22,35]. The appreciation of ecologically rich environments will likely induce a positive change in landscape and, importantly, in people, since it can promote more environmentally aware attitudes or health benefits [36]. From this perspective, which is of course more complex, the esthetics of the natural are not sought in itself ???, nor are they a by-product of a situation or design that meets the objectives of ecological adequacy. They are not only focused on defining the cases in which it is possible to take advantage of common success, nor do they only try to embellish a circumstance derived from the natural dynamic to achieve greater social acceptance. Ecological esthetics address the degree and way in which ecology is shown (or not shown) in the landscape; they speculate on the way in which this fact conditions the esthetic experience and actively manage certain repercussions on its ecological functioning. Ultimately, they aim to make that situation valuable and attractive by intervening in that landscape, by changing the mentality or by calling for esthetic experiences that are not immediate or formal [25]. This perspective would connect with what [37] called justifying theory. The justifying perspective is one that not only identifies a fact and indicates its causes but also analyzes our ideas or concepts about it, clarifies them, indicates why they are so and seeks to justify our views about things; that is, to show what is appropriate and reasonable. In simple terms, the justifying perspective pursues a way of treating the landscape that caters more to what is desirable/preferable than to what is desired/preferred.

Aldo Leopold is frequently cited as one of the initiators of this type of esthetic [3,9]. Leopold's thinking effectively rests on the consideration of beauty always through the lens of ecological integrity of landscape and on the esthetic appreciation based on experience and the recognition of its evolutionary heritage and its ecological processes, which lead to a refined and profound taste through knowledge [38]. Examples that apply this perspective are also found in the studies of the ecologist González Bernáldez, in which he based his work on what he called deciphering the landscape; that is, on the opportunity offered by

the landscape itself to inform us of its own ecological functioning [39]. For example, in his empirical studies on the perception of the landscape of traditional users, Bernáldez denoted how livestock raisers based their esthetic valuation on functional, use and management characteristics, generally overlapping the consideration of good/bad in terms of pretty/ugly [40].

The work of González Bernáldez is linked with the approach of traditional ecological knowledge (TEK), which can be defined as the system of experiential knowledge gained by continual observation and transmitted among members of a community [41]. As an environmental knowledge system, TEK is relevant for the ecological esthetics, since it offers ecological insights to a community and also represents a particular way of organizing their understanding of their surroundings, and as such it includes esthetic considerations and conceptions of the proper relationship between humans and their environment. Frequently local or indigenous communities hold a perception of landscape based on a direct contact with the environment and a long history of living or working in a given area that is aligned with the ecological esthetic perspective. The authors of [42] described how the intimate interrelationship of the Australian Aboriginals and landscape is reflected in their paintings, which do not display scenes or views such as in Western cultures, but rather abstract, dimensional diagrams representing natural processes or events. Nassauer, after her seminal research on the esthetics of farmers in the American Midwest, made a solid theoretical stance around the “esthetic of care” [43] (p. 973). This theory stresses the importance of a well-cared for landscape to achieve cultural sustainability: landscapes with good ecological conditions that additionally enjoy social approval, based on the perception of clear signs of proper management and conditions, are more likely to receive appropriate and sustained care over time [21,44]. The work of [45], for example, proposes creating designs that more clearly show the impression that sustainable landscapes elicit and manifest the management actions aimed at achieving them to show people a more conspicuous experiential quality of these landscapes and thus get closer to appreciating true ecological beauty.

Much of the theory and practice based on the ecological esthetic model is aligned with the classical concept of *kalokagathós* [46], understood as the combination of esthetics and ethics, a crucial characteristic of this perspective. The *kalokagathós* term adapted to landscape, rather than only expressing the harmony between the beautiful and the good, unites the outward appearance (attractive, interesting, worthy of admiration) with an “inner” quality (well-cared for, ecologically rich, sustainable). Esthetics are more than just external appearance pleasing to the eyes and also express and are expressed by the intrinsic ecological virtues.

3. Coexistence of the Forms of Relationships between Ecology and Esthetics in the Landscape and Their Management

The examples and considerations presented highlight that the three forms of relationships between ecology and esthetics coexist in the same landscape and of course can (should) coexist in their analysis and management. In some types of landscapes, a certain relationship will occur more easily or will be more evident, while in others, that same relationship will not be predominant or simply will not be the most sought after. The prevalence of one form or another will depend fundamentally on the landscape and situational context; that is, on the characteristics of the landscape and on the social/cultural and personal factors of the observer who interprets it in one way or another [25]. In terms of landscape management, it would not be effective to prioritize one over another or attempt to balance the three forms in an artificial way. It seems that to enhance a certain landscape, it would be wise to try to develop the full potential offered by each of the possible relationships between ecology and esthetics, taking into account the nature of that landscape.

Let us take an illustrative example extracted from the territory of the Madrid region. Taking as a base point the city of Madrid, in less than an hour, the citizen can access two spaces protected for their natural values: the Sierra de Guadarrama mountains and the steppelands of the southeast. While the Sierra de Guadarrama is part of the mountain

landscape, forested and water-rich, the gypsiferous steppes form an undulating landscape, with an arid and dusty appearance spotted with sparse vegetation (Figure 1). Historically, and currently, Guadarrama has received more visitors and preference for its landscape than the type of landscape of plains with a mainly steppe-like appearance [5,47]. This may indicate that, in the exclusive framework of the enjoyment of landscape, users value more the ecological and esthetic characteristics of the former, but it may also be that they perceive and recognize these values more clearly.



Figure 1. Typical scenes of the two landscapes.

In the first case, it could be elucidated that the ecology and esthetics relationship or esthetic ecology would be the form of enjoyment mostly sought (the strong peaks, the magnificence and extensiveness of its mature forests, or the abundance and freshness of its waters). It is clear that the landscape of the second case could not “compete” with the first in terms of generally accepted beauty: the esthetic values related to its ecology are less recognizable or tangible, or if preferred, countercultural [35]. To strengthen its conservation and improvement, it is possible to resort to the existence of clear ecological values (recognized institutionally and legally with a protected status), but it would also be promising to follow the path of ecological esthetics, since there is fascination in recognizing the adaptation and survival strategies used by the biota against such a hostile environment, to verify the strategic role it plays as a refuge for migratory birds, or to perceive in a tangible way the evidence of recovery in an environment after an activity as disturbing as the extraction of aggregates in gravel. The esthetic pleasure associated with these latter characteristics is related to the ecological esthetic and is usually the least emphasized when managing a space or conveying its values in an environmental education program. However, the usefulness of this perspective is obvious as another element to be used to achieve better ecological conservation of the landscape. Thus, the treatment of the landscape from the so-called ecological esthetics perspective broadens the possibilities contemplated so far in the consideration of the relationships between ecology and esthetics and, for this reason, is an approach destined to transcend.

4. The Ecological Esthetic in Landscape Planning and Social Research

In the examples collected, the difference in scale at which the three types of ecology and esthetics relationships operate and how this scale determines to some extent the treatment that can be dedicated to them is also noted. The large territorial level is typical of the classic models of landscape planning, and from this perspective, it would not make sense to deepen this relationship. The proposals that are in line with esthetic ecology generally use a medium scale, in which it is possible to define the assumptions in more detail and move towards a scale of proposed guidelines or even landscape design. The scale of the scene, design or project is the scale at which the ecological esthetic has transcended the most.

At the landscape design level, there are already several proposals purely associated with ecological esthetics. Some are more generic in nature, such as the lines of action proposed by [3] to adopt a perspective of esthetic ecology in the sustainable management of forest ecosystems. Others are based on a theoretical elaboration of esthetics and allow

for designs that accommodate the cultural interpretation of sustainability [48]. Along these lines is the theory of visible stewardship [49], applied to the forest context, perhaps because it is the area in which the ecological and esthetic are sought or hoped to have more zeal. Others, in short, are based on a strategy of the transparent expression of ecological processes and the visible interpretation of the sustainability of the landscape (in case of the so-called ecologically revealing language) [35]. All these proposals are based on seeing ecological processes and providing the certainty that what is perceived is rich and ecologically adequate, or simply sustainable.

However, at the planning level, as far as we have been able to verify, the practical proposals so far do not fit neatly into the space of ecological esthetics. Some strategies lie in comparing both dimensions through the application of two evaluative models from both areas of research: subjective phenomenon assessment (usually based on a preference study with all the inherent limitations) is contrasted against the yardstick of objective reality measurable and evaluable by experts, using more or less sophisticated models from the ecological discipline (e.g., [50]). Other proposals aim to assess the acceptability of management actions in terms of esthetics (e.g., [51]). Other experiences try to elucidate and map the cognitive landscape, but with little connection with the understanding of ecology in the same landscape (e.g., [52]).

The rationale behind these approaches is that of esthetics as a complementary or competing value that can underpin or work against ecological qualities and management actions. Valuable and useful as all these experiences are, their explanatory power is limited since they are trying to clarify only one dimension of the ecology–esthetics interface. Their perspective is based on esthetics as a subjective phenomenon concurring in the same place with ecology, but not as an interpretative emotional driver explaining and directing (at least in part) the perception of the phenomenon of ecology. The rationale behind the latter analysis lies in the perspective of interdependent processes: the interpretation of ecology grounded in the esthetic experience.

How can this perspective be incorporated into decision-making on a broad scale, such as landscape planning? The first step would be to identify those structures or areas in which a potential exists for the ecological esthetic experience. For this, as many authors have revealed, it is essential to further develop our knowledge on how people interpret the characteristics and dynamics of ecosystems and how they relate to esthetics in the landscape [45,53–55].

In this regard, [56] presented a critical distinction: the distinction between the landscape people like (e.g., people in love with the beauty of old growth forests) and the mental construct of landscapes people like (e.g., people in love with the idea of old growth forests). We do not refer, therefore, to social research for the identification of places or characteristics in which ecology is already beautiful from the point of view of general preferences. We refer to evaluations that highlight and deeply explore the bases of the different valuation in terms of esthetics and ecology that landscapes receive and link these perceptions to physical features of the landscape, as it is carried out, for example, in [57]. This focus of inquiry is conceptually different from the experiences abovementioned, whose outcomes, on the other hand and without a doubt, are not lacking in interest and utility. That is, we must conduct a social investigation with greater interpretive and justifying power if we want to attend more to what is desirable than to what is desired [37]. This information may reveal a significance of the evaluations of landscape made in terms of simply liking/disliking that may be particularly useful to decision-makers. Qualitative research methods such as ethnographic or participant observation, discourse analysis, interviews or focus groups are particularly useful in making arise the participant's own experience and thoughts and obtain the maximum understanding of a phenomenon by discovering the underlying rationale.

5. Conclusions

When the question of landscape assessment, planning, management and design is addressed from the point of view of its ecological and perceptual components, it is necessary to ask first from which perspective the task is carried out. Thus, the apparent tongue twister between the ecology and esthetics approach, esthetic ecology and the ecological esthetic arises. It is advisable to clarify this aspect because the point of view from which ecology, esthetics and the relationship between both are understood completely bathes the purpose of landscape treatment and refines its outcomes.

This unavoidable exercise of putting into context can be undertaken by defining the degree and, above all, the nature of the relationship between both values in the landscape being analyzed. Its clarification and showcasing is very relevant because the three relationships coexist in the perception of landscape, but focusing on one approach can lead to overlooking the full range of possibilities for reinforcement it offers. To date, it has been observed that at the research level and in practice, esthetics and ecology have reached significant levels of development, and the esthetic ecology approach is beginning to consolidate. In landscape planning, however, ecological esthetics are just beginning to go beyond the limits of conceptual development.

To take advantage of the full range of possibilities offered by the relationship between ecology and esthetics in landscape planning, it would be advisable to define the entire range of factors with influence: what functioning and ecological values it presents, what formal esthetic values it projects, and the esthetic interpretation of the ecological in the landscape it has. A given landscape can be ecologically vulnerable not only due to the fragility of its own ecological dynamics but also because it is not the scenic image widely recognized by society that drives conservation and improvement actions. However, this condition may be nuanced because certain social groups do esthetically value certain features of the landscape for reasons that are not based on immediate esthetic reaction, in purely formal or beauty terms. Alternatively, it may be more vulnerable because that landscape does not effectively show its ecological dimension. Indirectly, education and environmental outreach programs fall short of fully appreciating their values in terms of ecological esthetics. Thus, a positive or negative attitude towards the landscape or a specific aspect of it can lead to a strengthening or weakening of its ecological quality for social reasons based on strict criteria of scenic beauty (pretty/ugly), an attraction derived from the knowledge of its ecological adequacy (good/bad), its function (useful/not useful) or because it is located within a conservation area (protected or not), or the perception of how well cared for the intervened landscape is (well managed/poorly managed), etc. The casuistry would be diverse, and all these factors acquire different weights depending on the landscape's character, but all offer the opportunity to achieve an improved treatment that the planning models should fully incorporate.

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