Ecosystem Services 8 (2014) 207–215

Contents lists available at ScienceDirect

Ecosystem Services

journal homepage: www.elsevier.com/locate/ecoser

Cultural ecosystem services as revealed through short stories from residents of the Swabian Alb (Germany)

Claudia Bieling*

University of Freiburg, Tennenbacher Str. 4, D – 79106 Freiburg, Germany

ARTICLE INFO

Article history:
Received 21 March 2013
Received in revised form
14 December 2013
Accepted 9 April 2014
Available online 9 May 2014

Keywords:
Cultural landscape
Grounded theory
Hermeneutics
Landscape values
Narrative analysis
Sense of place

ABSTRACT

Nonmaterial benefits related to ecosystems, termed cultural ecosystem services (CES), are the least understood element of the now widely applied ecosystem services framework. Providing an inductive view on CES, this paper presents a hermeneutical in-depth analysis of 14 short stories in which local residents articulate their thoughts on life in the Swabian Alb biosphere reserve (Germany).

The stories reveal rich evidence regarding connections to identity, heritage values, inspiration, esthetic values and recreation. They underline, most importantly, that nonmaterial benefits are actively created by people. This engagement with place involves a broad range of practices and sense experiences. Simultaneously, the study highlights that CES are explicitly connected to specific biophysical features. Therefore, as an outcome of human perception and valuation attached to attributes of the material world, CES equally depend on human and biophysical variables. These findings have several implications for possible reconceptualization, investigation and management of CES in cultural landscapes.

1. Introduction

The manifold interrelationships between humans and nature are a key topic for several scientific communities (e.g., human ecology, rural sociology, land change science) and have, consequently, been addressed via a multitude of concepts and methods. However, in the past few years, with the Millennium Ecosystem Assessment (MA, 2005) the concept of ecosystem services has become the most dominant paradigm in this general research field. According to this most basic framework that served as a starting point for numerous further developments and refinements, ecosystem services are defined as "the benefits people obtain from ecosystems" (MA, 2003: 3) and are grouped into three types of direct benefits (MA, 2003: 57):

- provisioning services: products obtained from ecosystems, e.g. food and fiber;
- regulating services: benefits obtained from regulation of ecosystem processes, e.g. climate regulation and water purification; and
- cultural services: nonmaterial benefits obtained from ecosystems, e.g. recreation and esthetic values.

At the heart of the ecosystem services approach is the aim of fostering systematic valorization of nature as a means towards conservation and human well-being. This concept is now being extensively taken up in policy and management, with one among many examples being the European Union's biodiversity strategy for the period up to 2020, which requires all member states to map and assess the full range of their ecosystem services at national scale (European Commission, 2011).

However, implementation of this approach is a great challenge and involves a variety of open questions. Aside from ethical considerations (e.g. the danger of focusing attention towards economically accountable values; see Kosoy and Corbera, 2010), several conceptual and methodological problems are at stake, which result in many attempts at advancing and operationalizing the framework, e.g. in the course of the CICES project (EEA, 2013). The challenges are particularly evident regarding cultural ecosystem services (CES) and may stem from the ecosystem services concept having been developed within natural sciences-based disciplines, whereas exploring CES requires a firm knowledge in fields such as sociology, anthropology or psychology (Daniel et al., 2012; Tengberg et al., 2012).

In terms of conceptual issues, there have for instance been calls for removing CES entirely from the ecosystem services framework, as they can be seen as evolving from the other types of services and not as direct ecosystem benefits (Fisher et al., 2009), and a debate around the clear definition (and delineation) of such services, benefits and values is underway (see e.g. Chan et al., 2011, 2012). Furthermore,

* Tel.: +49 761 2039484.
E-mail address: claudia.bieling@landespflege.uni-freiburg.de

http://dx.doi.org/10.1016/j.ecoser.2014.04.002
2212-0416/

social scientists inspired by constructivism have proposed that humans create meaning and values, rather than describing these as fixed properties or services of ecosystems (cf. Glaser, 2006; Ernstson, 2013). Not less challenging than these issues is the question of how to empirically assess CES, particularly in their specific linkage to biophysical features. Many studies on ecosystem services simply neglect nonmaterial benefits, as documented by a literature review and bibliometric analysis (Schaich et al., 2010). A recent systematic review reveals that indicators for CES have up until now been unsatisfactorily developed (Hernández-Morcillo et al., 2013). Nonetheless, more and more empirical studies, especially from the scientific community established around the concept of cultural landscapes, are being published and providing profound insights on the character and significance of CES (e.g. Gee and Burkhard, 2010, Kerr and Swaffield, 2012; Norton et al., 2012; Tengberg et al., 2012). Such studies have applied various and often innovative approaches, ranging from participatory mapping (Plieninger et al., 2013) through interview techniques which have been combined with walking exercises (The Research Box et al., 2009) to phenomenological approaches (Bieling and Plieninger, 2013).

This paper aims to contribute to such current efforts towards understanding and identifying nonmaterial benefits connected to ecosystems. It does so by taking what might seem a step 'backwards', that is, looking behind the conceptual understanding of CES, and by offering an inductive view on the topic at the case of a human-shaped cultural landscape. Taking into account that research is not possible without any paradigmatic premises, however, the basic ecosystem services idea depicted in the Millennium Ecosystem Assessment has been used to frame the following research questions and structure the subsequent empirical investigation:

- What nonmaterial benefits do people attach to ecosystems, landscapes, and rural environments, and how do they describe these benefits in their own words?
- Where do nonmaterial benefits originate from, particularly regarding connections to biophysical features?
- What are the implications of these insights for the conceptualization, investigation and management of CES?

Taking a qualitative social-empirical approach, these questions are investigated here via the case of 42 short stories written by residents of a biosphere reserve in south-western Germany. With its focus on the ways in which people perceive, understand and mentally structure their biophysical surroundings, the paper is rooted in landscape studies, particularly in an approach that stresses a cognitive dimension (cf. Jones, 2003).

2. Material and methods

2.1. The Swabian Alb biosphere reserve in south-western Germany

This study focuses geographically on the Swabian Alb region, a low mountain range of Jurassic origin. Differences in geological formations and topography have created a north–south sequence of differing biogeographical regions. Many prominent and highly valued landscape features, including juniper heathlands and orchard meadows, have been shaped by traditional land-use forms. However, intensive and more ubiquitous land-use practices, such as the cultivation of energy-production crops or creation of urban sprawl, are also a common feature of the region. With the sparsely populated Alb plateau and the densely populated area of the prosperous foreland in the metropolitan region of Stuttgart, the Swabian Alb exhibits a strong rural–urban divide. The more rural parts of the region are an important destination, especially for short-term local visitors, but also for tourists who travel longer distances for activities such as hiking or visiting the numerous castles and caves.

An area of 85,000 ha within the Swabian Alb region was declared a UNESCO biosphere reserve in 2009, built upon a multitude of green development initiatives that had already been carried out, especially for the land-use and tourism sectors. The process of establishing the biosphere reserve was organized in a highly participatory way, including the involvement of the local population in the development of a management plan.

2.2. Short stories and their analysis

In the context of this participatory approach to the development of management goals for the area, in winter 2010–2011 the biosphere reserve management team initiated a short-story contest geared towards Swabian Alb residents. In the course of a campaign communicated to the general public, which sought to identify values and wishes concerning the region and obtain concrete ideas for the development of lighthouse projects (MLR, 2012), people were asked to submit short stories taking up the following questions:

- What is special about the Swabian Alb (yesterday, today and tomorrow)?
- Which places within the region are special?
- What are the people of the Swabian Alb like?
- How will life be in the Swabian Alb region in the year 2020?

In response, 42 short stories were submitted and published for several months on the biosphere reserve web site. For the present study, they were used as material to investigate values attached to the region.

First, using a relatively rough quantitative approach, all short stories submitted were analyzed in terms of the types of benefits mentioned therein. This was done by reading through each story and listing all ecosystem services dealt with, no matter whether they were referred to in a cursory or in-depth manner. The ecosystem services categories used followed those of the Millennium Ecosystem Assessment (MA, 2005) as the most basic outline and were interpreted in a very inclusive way. Created for all stories, these lists resulted in an overview of the various types of benefits mentioned by their authors.

In the investigation's key step, 14 stories were analyzed more profoundly regarding the nonmaterial benefits mentioned. To be selected for this in-depth analysis, a story had to comply with each of the following criteria:

- have at least five sentences of text (exclusion e.g. of short poems or drawings combined with some text);
- address at least one type of CES;
- involve a connection to biophysical features of the Swabian Alb (exclusion of stories e.g. exclusively dealing with social practices, like local customs);
- refer to the current situation or a future vision thereof (exclusion of stories exclusively dealing with historical issues); and
- be a narrative about human beings (exclusion e.g. of animal fables).

To simplify the processes of data organization and analysis, all stories selected for detailed analysis were transferred into the qualitative data analysis program MAXQDA 10 (VERBI, 2010). Text analysis was carried out according to an integrative hermeneutical approach (Kruse, 2014) mainly built upon Grounded Theory (Bryant and Charmaz, 2007; Strauss, 1987). Central to this was a partly open and partly structured coding process. Open coding

with evolving codes, such as for agency attached to nature or specific semantic structures, was accompanied by a procedure that took up the following CES categories as codes, in accord with the detailed outline of CES done for the Millennium Ecosystem Assessment (De Groot and Ramakrishnan, 2005: 457):

- cultural identity (that is, the current cultural linkage between humans and their environments);
- heritage values ('memories' in the landscape from past cultural ties);
- spiritual services (sacred, religious or other forms of spiritual inspiration derived from ecosystems);
- inspiration (the use of natural motives or artifacts in arts, folklore, and so on);
- esthetic appreciation of natural and cultivated landscapes; and
- recreation and tourism.

The six types of CES were not used in the sense of strictly defined fixed codes, but as broadly labeled 'containers' that, when analyzing text sequence after text sequence, are filled and substantiated in order to reveal repeating structures and central motives. In the beginning, these pre-defined codes thus served as very rough heuristic devices and, during the analysis process, with subsequently developing sub-codes became condensed to more specific patterns of interpretation. For presentation of the following results, quotations from the stories, originally written in German, were professionally translated into English.

3. Results

3.1. Quantitative overview of ecosystem services addressed in all submitted stories

The stories address the various types of ecosystem services to a widely differing extent. In 57% of all stories, authors write about provisioning services, though mostly in a rather cursory way. Examples include activities related to agricultural production, such as picking cherries or hoeing beets or typical products and dishes of the Swabian Alb, like lentils, edible snails or 'black porridge'. Regulating services are addressed as marginal aspects in 2% of the stories, for instance by pointing out that forests purify air and water. Climate change is an issue in several stories; however, ecosystem features are described as showplaces and sites affected by climate change, but not as carriers of services relevant in this context. CES are addressed by 93% of the stories, with most of these being almost exclusively focused on such services. As Fig. 1 shows, the spectrum of CES is covered to a varying extent. Identity is the topic most frequently addressed (in 74% of all stories), followed by recreation (64%), esthetic values (57%) and cultural heritage aspects (50%). About every fifth story (21%) points to inspiration derived from landscapes, while in 14% the authors write about an ethical dimension or spiritual or religious values attached to the Swabian Alb region.

3.2. CES in selected stories

Table 1 gives an overview of the 14 stories selected for in-depth analysis of their mention of CES. The stories range in length between 136 and 1864 words and exhibit quite different narrative strategies and topics. Some stories highlight personal experiences and reflections, others tell a fictive story. Half of the stories uses the active voice (first person), whereas in the other half the narrative is in third person or kept neutral.

In the following subsections, nonmaterial benefits as mirrored in these 14 stories are presented in more detail, structured according to the basic types of CES and, for each of these aspects, providing a summary across all stories. For this, original key citations are used wherever possible. Special attention is given to patterns and motives that are repeated by several authors. If an issue is addressed or elaborated in more depth by only one author, this is also presented, as are, likewise, contrasting views. The numbers given after each citation correspond to story numbers indicated in Table 1.

3.2.1. Identity

Several stories point to a close correspondence between landscape and human beings. For instance, one story describes a hike along a creek and draws parallels between the creek and life as a whole: "an allegory of life" (12). Another example is a story that deals with the topic of boundaries which parallel in evolving personal as well as cultural identity and landscapes:

> "What shifted were the borders, which had expanded spatially, emotionally, and intellectually. During childhood and youth, they had been more tightly confined: one's own constrictedness to immediate impressions created a familiar connectedness in Seeburg and another derived, geographically, from the shadowy valley. In the small, often sheer-faced valleys, this constriction could be felt almost bodily. In contrast was the

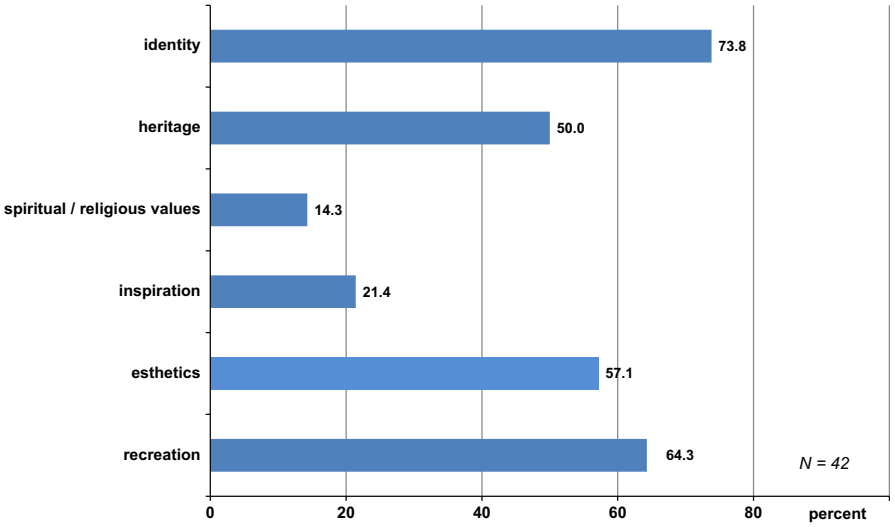

Fig. 1. Overview of cultural ecosystem services addressed in all submitted stories.

Table 1
Overview of short stories used for detailed analysis.

No.	Author (Sex)	Title	Topic	Narrative voice	Number of words[a]
1	Tanja Pappelau (f)	Heimat	Growing up in a place in the Alb area, living away from and later returning to it	Third person	1418
2	Ingeborg Jaiser (f)	Ode an mein Dorf	Living in a rural village and its meaning for being an artist	First person	860
3	Monika Heller (f)	Unser Lieblingsplatz "Rietheimer Bänkle"	A sitting bench as a particular place for family and friends	First person	136
4	Stefan Kuhn (m)	Biosphärengebiet – Chance oder Fluch	A local farmer's fictive presentation of a biosphere reserve area to visitors (in an unspecified future)	Third person	789
5	Werner Kemmler (m)	Von Wasserfrauen, Deutschen Riesen und anderen Schätzen	Personal memories and thoughts regarding places and characteristics of the area, including linkages to local writers, historic persons and tales	First person	1432
6	Elke Ewert (f)	Mein Traum vom Biosphärengebiet Schwäb. Alb 2020	Trip into the countryside in the year 2020 by a young man and a women becoming a couple	Third person	608
7	Peter Elwert (m)	Die Schwäbische Alb erfahren – gestern, heute, morgen	Comparative description of a trip into the countryside in the years 1930, 2000 and 2020	Third person	1163
8	Christian Ludwig (m)	Albtraum – Alb Träume	Life, thoughts and wishes of a girl/woman growing up and living in the Alb area	Third person	1131
9	Margit Felkel (f)	Maja Käfer flieg	Story of a (canceled) wedding during a balloon flight across the Alb, with reflections on life in the area and scenarios for the future	First person	1473
10	Armgard Dohmel (f)	Erinnerungen an mein Lautertal	Memories of an often undertaken bicycle trip in a Swabian Alb valley	First person	683
11	Ulrich Krehl (m)	Beutenlay – südliche Träume	Description of and reflections on a particular nature reserve area	Mainly neutral	744
12	Johannes Stockmayer (m)	Der Weg nach oben	Observations and reflections during a hike from the foothills to the Alb plateau	First person	1864
13	Brigitte Hartmaier (f)	Die spröde Schone	Reflections on experiencing a central part of the Alb area	Neutral	358
14	Ursula Langhof (f)	Die neue Heimat auf der Schwäbischen Alb	Moving to the Swabian Alb and experiencing it via hiking and skiing	First person	338

[a] Body of text, excluding title and author.

> breadth of the high plains. To reach the top of the plateau, a millions of years old border needs to be overcome – the Alb escarpment – and vice versa on the way into the valley or the foothills, with their fruit meadows and their economic and cultural centers, such as Reutlingen or Bad Urach. Thus the renewed fascination of stories and people who have conquered these borders, wandering between them, thereby broadening one's perspective, expanding boundaries." (5)

Central to all text sequences dealing with identity is the issue of home (*Heimat*) as a place people feel they belong to. This is expressed in several stories, for instance:

> "I, by contrast, am a child of the Swabian Alb - through and through (…) I'm at home here, I belong here" (9)

Landscape as a manifestation of home creates a firm basis for life. This is described both by people who grew up in the area and by newcomers. It is striking that both groups use expressions that give strong agency to the landscape and even describe nature or place, in analogy to human actions and feelings, as actively embracing them:

> "Here I'm familiar with every tiny spot and have the feeling that nature recognizes and welcomes me warmly." (10)
> "Our family arrived in Bad Urach in 1988 (…) and, since then, this place won't loosen its grip on us." (3)
> "After clambering up a cliff in Bottental and taking in all of the valley's winterly splendor, I was overcome by such a great feeling of joy that I shouted 'yippee!' From the other side of the valley came an echo – and I felt myself properly welcomed into this new home." (14)

Some stories elaborate in more detail on the interaction between landscapes and identity. They commonly highlight the significance of being directly engaged for receiving positive feelings, meaning and values, as can be exemplified by the following citations:

> "They combed throughout their environs and felt big and strong when they created fishing poles out of branches with their pocketknives or carried a heavy stone back home. They climbed trees and saw the world from above, feeling light as a bird and at times thinking that they could almost fly." (1)
> "Why do you actually live in this village? Some who spend days or even weeks with us can comprehend this. That's because here one lives more nearly, directly, and unconditionally to everything: to life, to death, or to the indifference of time." (2)

One story deals extensively with home as a product of personal experiences and memories evolving over time and, in sum, forming the basis for a close attachment to the place in question:

> "A person, a house, a village, a landscape. These all spur memories from my childhood, are a part of my roots. Places of longing and nostalgia – underpinned with emotions, images, scenes of good and not so good. And probably these are all puzzle pieces that have, to a great extent, allowed me to be indigenous to the Swabian Alb. As the scene of my childhood – the sanctuary of yearnings and desires – a projection screen out of which my innermost being grows." (5)

However, as another story highlights, a long-lasting attachment to a specific place is not mandatory for a feeling of home and belonging, but can also be the outcome of a decision in which landscape may play a crucial role:

> "While picnicking on the Fauser heights, with its broad view over gently rolling hills and horse and cow meadows of the Swabian Alb she suddenly knew: yes, I want to stay here, put out roots, and thrive." (6)

One story emphasizes the power of the rural landscape for health and happiness. The protagonist's current blank life in the city is contrasted to the experience of returning to the place where he grew up:

> "Slowly Jacob started to feel more himself again, even sensing a hint of happiness, being back in his homeland after such a long time away. (…) He became conscious that he had missed his home so much that he had almost become sick (…) To be back again gave him new courage to live." (1)

3.2.2. Cultural heritage

Renowned cultural heritage elements dotting the landscape of the Swabian Alb region, especially its old castles, receive attention in many of the stories. These are usually rather casually mentioned as simply belonging to the landscape, but are clearly appreciated. Cultural heritage is not, however, only related to the buildings handed down from the past, but also to stories and kinds of knowledge that have sprung from the area and awaken certain thoughts and images:

> "The long-time residents (…) can still tell stories – tales of nepotism, family tragedies and inheritance intrigues. They still remember the names and have the images in their minds that can make us wonder and draw upon our entire lives." (2)

Often elements of cultural heritage are depicted as impinging on the present. This can represent a sort of legacy such as in the case of a now built up former orchard:

> "Since then, the rubble of the new, modern settlement has buried the fallen fruit of years past; in the gardens of the row houses, the roses, gladiolas and asters seem to grow unwillingly, as if the soil is refusing them in memory of better days." (2)

Aspects of the region's heritage may also act as a kind of voice out of the past that can be directly experienced in the landscape:

> "One only needs to open the eyes and nature already speaks, telling stories of a long-lost age. In the enchanted, shadowy and narrow Wolfstal, an elemental force can be felt that transports us back to a time when humans still lived in caves and, wearing fur over their shoulders, gathered berries and went off hunting animals. The proud Hochberg tells of generations of peasants casting a searching glance across the heavens in order to see what the weather would bring; of simple natural scientists observing the stars (…)." (9)

Reaching back towards the past is often depicted as a key to a good future. A farmer explains in a story that his concept of sustainable regional development can succeed "if we recollect in what ways our area has always been strong. With this in mind, we sometimes search out old grain varieties, which had been planted here a hundred or more years ago and are quite resistant, that means adaptable to our climate and soil conditions."(4) Another story spotlights a deep understanding of the past as a hallmark and virtue of the region (7). Particularly the revival of old railway lines is envisioned a number of times as an ideal connector between regional heritage and a sensible path to future development.

Cultural heritage, in the form of technical developments and discoveries but also in literature and painting, can find deep ties to the natural world from which it springs, which is crucial to more personal developmental histories as well. In a number of stories, the meaning of such personal "roots" (8) or relationship to one's native region are represented, such as the following:

> "Everyone needs a homeland from which a piece remains, unchanged, because it provides each of us a grounding for our lives (…)." (1)

3.2.3. Ethical dimension, spiritual and religious values

Some stories express the way that ethical beliefs are closely tied to the ways in which nature is approached:

> "Our motivation for being considerate to the natural environment springs from the desire to leave good livelihood chances for our offspring. They should also have the same possibility to cultivate these fields as fruitfully, successfully and sustainably as we have." (4)

The connection between landscape and ethical, spiritual, and religious values is also thematized. One author somewhat offensively formulates the idea that an ethically conducted life – standing apart from war, environmental devastation, and injustice – is only possible through a close relationship with nature:

> "When people are in contact with themselves and with nature, then they can, once again, recognize what is good and, consequently, act in a way that is a blessing to all." (8)

In one story – symbolically entitled "The way up" – the author takes a hike from the foothills to the Alb's high plateau and realizes, through reflecting on nature, more clearly where he himself fits into the greater scheme of things:

> "If I stop being impatient and try to blend into the surroundings, not being so loud and assertive as usual, I might be able to encounter a marten slinking through his homeland. He pauses and looks at me with interest. I stand still and gaze back. Who's observing whom? In this brief moment time stops breathing. Then my mysterious companion turns away and slinks unhurriedly off, as if his inspection of me yielded nothing of great meaning. He's right. Humbled, I too move on." (12)

A bit later, the hiker reaches the plateau and once again makes clear how his own existence is subordinated to the forces of the landscape now being revealed to him:

> "Then I reach the top. What breadth of vision I gain, as the plateau opens up an almost endless vista: The world really is enormous! I look around and see the landscape below from another perspective. Where I come from now lies behind me, miniscule and manifold, and I realize that all that is mine is simply a very small part of the greater whole. There's much more!" (12)

3.2.4. Inspiration

Several stories describe how observation of the landscape, especially during walks, spurs inspiration, in the sense of stimulation of thought:

> "What peace and quiet reigns throughout the forest! This forces the rambler to ponder – about him- or herself, the hectic everyday world, and the undisturbed surrounding nature." (11)
> "In other respects it is wonderfully meditative, as the pathway, a faithful companion, leads upwards – undistracted yet continually indicating to me noteworthy curiosities." (12)

This process of inspiration is more precisely described and put in center stage by an author who characterizes herself as an artist:

> "When I return home, sated by the green of the ferns, intoxicated by the smell of wild garlic, something wells up out of me: no, not a song praising nature, but rather something more distant, abstract, as if the state of nature has discretely awoken a process within, me proliferating and firing my thoughts. When I close my eyes, out of the powerful green streams a pulsing, invigorating red, turning in blurred circles, vibrating, billowing, surging. Words grow, become interwoven,

combining themselves, flooding forth from me in a stream that only needs to be absorbed." (2)

Trying to explain why she has consciously chosen to live in the Swabian Alb, she reveals:

"The city, however much I do love its inspiration, chokes my lifeblood, wraps me in a concrete corset. There I lack the air breezing through my brain. No, it's no secret: I can only work and write here (…)." (2)

Many-sided discovery as point of departure for inspiration lies at the center of several stories. "There was always something to do and daily discoveries to make. Not a boring day to be had", is the exemplary formulation of a story remembering growing up in the Swabian Alb (1), which finds parallels in other stories hovering around the word "discovery". Regarding the personal meaning of this relationship between inspiration and region, refer again to the quotation from story 5 explained in the Section 3.2.1 on identity, which describes the biogeographical contrasts of the Swabian Alb and the related element of conquering barriers also as a basis for social development. This story also mentions numerous examples of artists, poets, and thinkers who are portrayed as intimately connected to the region. The potential of the landscape to stimulate creativity through such processes of discovery is, according to one author, a goal that needs to be supported for the region's further development:

"There needs to be room for creativity in order to spur discovery and invention. (…) There should be places for people to paint, produce felt, make pottery, create drama, make music (…)." (8)

3.2.5. Esthetics

Beauty is, in a somewhat idealized manner, referred to as a general feature of the Swabian Alb, articulated for example as "the beauty of nature" (8) or "the magnificent landscape of the Swabian Alb" (9). In many cases, also particular places, views, or landscape elements are singled out, such as the "gorgeous Echaz Valley" (6), "a lovely view towards Lichtenstein" (6) or "the wonderfully formed pasture beeches" (11). Key attributes mentioned in connection with beauty are diversity (e.g., "a mysterious diversity", 11) and an opulent "abundance" (e.g., 8). Capaciousness and panoramic views are likewise stressed, and particularly the "view of the Alps" is emphasized in various ways.

Several authors portray beauty not simply as a visual criterion, but rather as an all-embracing integral experience:

"With all of their senses they experienced how beautiful life in the Swabian Alb was." (1)

Such a perspective leaves a distanced-observer relationship to the region far behind it, releasing instead deeply felt, even intimate emotions:

"I love the landscape, with its great forests. I love the rustling when I walk over the soft forest floor, covered with innumerable leaves. I love the forest in spring, when the sun lights up the fresh green leaves. I love the thick shade-giving dark green of summer and the wild, warm coloring of fall. I love it when the naked, leafless trees sway in a fall storm, and I also love the peaceful winter forest, when thick snowflakes settle down into soft masses on the branches and also create a glittering carpet on the forest floor, upon which the meandering tracks of the forest animals can be seen." (9)

As can already be heard in the ubiquitous German word *wunderschön* (lovely, beautiful, gorgeous), many authors describe beauty as something mysterious and full of wonder (*wunderbar*), something that provokes astonishment and within which an elemental force (*Urkraft*, 9) can be felt:

"The voices of innumerable wanderers from hundreds of years past hover through the gray cliffs of (…) the Lauter Valley, whispering about its beauty." (9)

In connection with beauty, a number of stories place the changing of the seasons as a theme. The changes taking place throughout the year are appreciated as an aspect of the region's manifold beauty:

"Depending on the position of the sun and time of year, the Lauter Valley shines forth in a new, charming robe." (9)

All of these changes during the year are seen as a part of the identity of the landscape and, therefore, do not alter its essence:

"Always changing, yet always itself." (9)

Beauty is often tied to contrasts – "the allure of the contrasts is indescribable" (9) – and dichotomies. This is expressed regarding the "cliffs of the wild yet, at the same time, seemingly soft Lauter Valley" (9), "it is so beautiful that it almost hurts" (10) or "it was almost at times eerie, but most of all, eerily beautiful" (1).

Many stories portray beauty as something that a person cannot close themselves off from:

"The Beutenlay (nature reserve) offers a manifold beauty, a mysterious diversity that surrounds the visitor like a melody to which no one can remain immune." (11)

A similar feeling is expressed in another story as well – "all of this beauty lies at my feet" – with the author speaking in another place about "being immersed in an idyllic, breathtaking beauty" (9). One story, however, presents an approach to beauty that is somewhat more demanding:

"The Münsinger Alb area is a demure beauty that desires to be patiently conquered and revealed. This is best done by wandering through it in all seasons, preferably in different conditions of sun, wind, rain, and snow. Then, if you aren't afraid of leaving the beaten path, you can make the most joyous discoveries, each day something new." (13)

3.2.6. Recreation

Taking the role of an observer, some authors describe tourism as a way to experience the special features of the region:

"Tourists happily come here to take part in the life of the Alb region for a time and to experience many new things." (8)

A visit to the Swabian Alb can even somewhat resemble visiting one of the idealized vacation areas, such as the warm and sunny climes of the South (e.g., the Medditeranean): "A walk through Beutenlay (nature reserve) leads one directly into the South!" is how one story puts it (11). Either through one's own experiences or those of others, a visit to the Swabian Alb is often seen as a counterpoint to "life in the city", such as in the story of the man who had left, and later in the tale returned to, the area:

"Too often Jacob could barely stand living in the city. He repeatedly thought about taking a few-day trip to the Alb for vacation. (…) He felt terrible in the city – he had to get out." (1)

Another story formulates this perspective as follows:

"In the Alb (…) the noisy world seems quite distant; and yet this silent, peaceful place is only an hour by car from the densely urban areas of the lowlands." (13)

At the center of the analyzed depictions of life in the Swabian Alb stand a series of activities, foremost among them hiking, train riding, and leisurely walking. Neither peace and quiet nor idleness are seen as the goals of such recreational forms, but rather exploration, discovery, and new experiences, as typified by this passage:

> "A special experience always awaits the weekend traveler taking the mountain train ride from Honau to Lichtenstein, prior to which the steam-driven locomotive is moved from the front to the rear of the train, which it then pushes from behind. With the engine chuffing away and its gears and pistons cranking powerfully along, the colossus pounds its way up the steep mountain, enrobing the cliffs of the Traifelberg in white steam. Arriving at the top, most of the excursioners leave the train and, fitted out with skis or toboggans, are off to the nearby downhill run; explore the area, and eventually turn back to the inns and taverns near the train station (…)." (7)

Recreation is quite strongly focused on being active, and idleness is only occasionally mentioned as an accompanying phase of activities:

> "Should I take a short rest on the bench at the forest edge before I attack the steep ascent?" (12)

Another author describes a bike tour:

> "During the rapid descent, I let the cool air stream refresh me after the strenuous ascent." (10)

In this story, bike riding is represented as a source of restoration for the author, a female senior citizen:

> "My bike leads me easily along (…). And I feel fit, ageless, and full of zest for life." (10)

Especially important aspects depicted concerning exploring and experiencing the Swabian Alb are, on one hand, its diversity and rich variety, and, on the other hand, its distinctive features. In this context, even the regularly chosen bench presents itself "in an ever changing way" (3).

Often a social component is very important to recreational activities, such as when one author, who had recently moved into the area, presents her joining the local hiking club as a means of coming into contact with people. Another story portrays the annual grilling party held in the great outdoors as a fixed element of community life. Sunday jaunts, shared picnics, or nature walks serve towards the building and intensification of personal contact and are seen in a number of stories decisive steps in the formation of intimate partnerships. "Thus this particular Sunday outing became a special memory for Heiner and Toni, something which they often repeated during their life together" (6), is how one typical couple commemorate their finding each other on such an occasion.

4. Discussion

4.1. Material and methods

It is not possible to tell just how far the perceptions and values of the story authors match those of the general population in the area, because the authors did not provide any personal information apart from their names. As a general limitation to the representativity of this study, it has to be considered that writing stories as a way of expressing views is likely to appeal to some types of people more than to others. However, it is striking that the stories lead to several insights that are substantiated by the vast majority or even all of the stories. Within the central results presented, there are no clearly contested views, but rather merely different degrees of acknowledgment and elaboration by the respective authors. I therefore argue that this study goes beyond singular insights and reveals processes and characteristics regarding values attached to ecosystems that are valid at least for a considerable group of people living in and with central European cultural landscapes.

As examined in detail in the previous section, the subjects of this analysis were texts written by people living in the investigated area, the Swabian Alb. In contrast to most common interview or questionnaire techniques that are used to elicit CES, there was no pre-structuring of specific questions, response options or terms used. The questions used as triggers for the stories were very open and not connected to the ecosystem services debate. People were free to address all kinds of perceptions, wishes, concerns and values related to the region – in their own words and in the form they considered most appropriate. Formulating a complex written text demands a high degree of reflection and engagement with a topic. These characteristics suggest that the kinds of stories examined here provide high-quality material, particularly for an inductive qualitative approach. Moreover, the stories were also highly suitable for investigating the topic of benefits connected to the area, as documented by the rich source of relevant textual citations presented.

The chosen approach for data analysis worked out very well, particularly regarding the combination of open and semi-structured coding. Using the CES categories as loose heuristic tools guaranteed a close connection to the research questions and helped to efficiently organize the analysis process. At the same time, these pre-defined codes were, together with the open codes, broad enough to elicit new insights which do not necessarily match the CES concept, as will be discussed in the following.

4.2. Nonmaterial benefits attached to the Swabian Alb

In the quantitative analysis of all 42 stories, CES turned out to be of overwhelming significance, particularly in comparison to provisioning and regulating services. This is in line with the notions of authors who emphasize the role of nonmaterial benefits in human-shaped environments, so-called cultural landscapes (Schaich et al., 2010; Daniel et al., 2012). Evidence of all six types of CES was found in the stories, and, vice versa, all aspects related to perceived nonmaterial benefits could be assigned to one of the categories – a finding which confirms the Millennium Ecosystem's basic concept of CES. However, several text sequences were associable with more than one type of CES, which supports findings on the interrelated and overlapping character of CES (e.g. Tengberg et al., 2012).

Quantitative analysis across all studies revealed the particular importance of identity (addressed in almost three fourths of the stories), recreation, esthetics and cultural heritage. This matches the results of a study also conducted in a Swabian Alb community, which took a completely different approach by mapping visible manifestations of CES (Bieling and Plieninger, 2013) yet also found most indicators to point towards recreation and identity.

The in-depth analysis of the selected short stories presented provides an excellent opportunity for comparing the academically developed and used CES conceptual outlines and terminology with the ways people actually perceive and express nonmaterial benefits related to a particular area. Here, several insights provided by this study should be taken into account:

- In the stories, people refer to 'landscape' or features thereof (a hill or a specific place), partially also to place in general, but

never to 'ecosystems' as it is formulated by the ecosystem services conception.

- The scientific debate increasingly distinguishing between 'services', 'benefits' and 'values' (e.g. Fisher et al., 2009; for a recent contribution particularly addressing cultural values see Chan et al., 2012) can hardly be connected with the stories, where none of these general terms is used. Respective issues are rather described in concrete ways (e.g. the beauty of a view) and with emphasis on the ways of experiencing and appreciating them, instead of 'using' or 'benefitting' from them. Here, a clear delineation between more and more sophisticated scientific tools and concepts and the ways in which people mentally structure their relationships with their biophysical surroundings becomes evident.
- For the category of identity – a term which does not actually show up in any of the stories – the issue of feeling and experiencing home and belonging occupies center stage: an issue which, in this central role, is not considered within the basic CES concept.
- The stories reveal ethical norms connected to landscapes, foremost opinions on how engage with them. Moreover, a few authors express that being in connection with nature leads to an appropriate perspective on the relevance of human existence and may result in 'good' behavior. This is far less pronounced than the CES framework formulated in the Millennium Ecosystem Assessment, which describes spiritual services in terms of belief systems or spiritual values placed on certain ecosystem features.
- For inspirational services, the basic CES conception highlights contributions to literature, art or folklore. What is depicted in the short stories examined here goes in a slightly different direction, as inspiration tends to be described in terms of triggering thinking and personal development.
- Regarding esthetics, landscape beauty in the stories is not solely related to visual aspects but rather to the whole range of sense perception.
- Recreation is an important topic in the stories, wherein attention is given to the numerous ways of actively experiencing landscapes, often together with other persons, but rarely to passive forms of relaxing or recovering from the strains of daily life.

4.3. Origin of nonmaterial benefits

Throughout the stories, nature is assigned a strong agency role. Going beyond the ecosystem services concept that ecosystems actively 'provide' benefits, landscapes or features thereof are portrayed by these stories in a way that even attributes a human-like personality. At the same time, the stories emphasize the role of human activity for the formation of CES. People engage with the landscape by hiking, cycling or other forms of actively experiencing their surroundings, which results in the generation of meaning and values. In this way, concrete landscape features, places or biophysical attributes are explicitly addressed, providing evidence of a close interrelationship between humans and their environment, instead of the mono-directional model of an ecosystem that delivers benefits to society as envisaged by the initial ecosystem services concept. These findings underline the merits of attempts at integrating the "social production of ecosystem services" (Ernstson, 2013) and is much in line with recent developments like the CICES project that re-conceptualizes cultural services in terms of interactions rather than services (EEA, 2013).

As portrayed in these stories, CES result from the interplay between human perception and valuation and specific landscape features, as the object thereof. Consequently, both biophysical and human variables need to be considered or, as Stedman (2003: 685) concludes based on a comprehensive survey on sense of place in Northern Wisconsin, "landscape attributes matter a great deal to constructed meanings; these constructions are not exclusively social".

As framed by the stories, for getting in touch with and experiencing landscapes, the whole range of sense perceptions plays a crucial role, as does knowledge regarding the place in question. From this perspective, activities, rich sensual impressions and knowledge related to specific landscapes or features thereof make up the multifaceted experiences that are formative for CES. Acknowledgment of CES is most commonly depicted as a result of a long history of being engaged with the place in question, but it may also derive from a single profound experience. These findings, with their highlighting of specific landscape features and places, human activities and sensory impressions, strongly parallel a study by Stephenson (2008) which led her to develop a general 'landscape values' model, comprised of the three components of 'forms' (e.g. natural landforms), 'practices' (e.g. human activities) and 'relationships' (e.g. sensory responses, feeling of belonging). Stephenson concludes that acknowledgment of each of these dimensions is necessary to fully understand the values people attach to their surroundings.

5. Conclusions

The findings of this study involve implications for the conceptualization, investigation and management of cultural ecosystem services in cultural landscapes:

- CES conceptions should consider humans not as mere beneficiaries or users of ecosystem services but rather pay attention to the two-directional linkages between the natural and human realms. For this, particularly the processes of how people perceive and create values out of the material world should be integrated and respective attempts at further developing and operationalizing the concept, e.g. as carried out in the course of the CICES project, should be enhanced. This could also find expression in moving from 'ecosystems ' to 'landscapes', as landscapes are by definition shaped both by biophysical features as well as human perception and action (see European Landscape Convention, Council of Europe, 2000). Termorshuizen and Opdam (2009: 1043) take this idea up and point out: "Contrary to 'ecosystem', 'landscape' may be appealing to non-ecological scientific disciplines and may be associated with people's local environment, with the place for which they feel responsible, and with distinct spatial elements that they can change to improve the ecological, social, and economic value." Therefore, the corresponding concept of landscape services developed by Termorshuizen and Opdam (2009) could be used as a specification of ecosystem services, particularly in the context of local-scale assessments, as is shown by Fagerholm et al. (2012).
- Due to the intimately interlinked character of human and natural factors, CES can be investigated only via truly interdisciplinary approaches which consider both biophysical and human variables, with no supremacy of one discipline over the other. When using pre-structured questionnaires and interview guidelines, attention should be given to using a framework and terminology that corresponds with the ways in which people talk and think about the aspects being addressed. In the light of this study, it may be particularly problematic to directly transfer increasingly complex scientific outlines into surveys and confront respondents with a distinction between services, benefits and values. Again, the landscape services framework

(Termorshuizen and Opdam, 2009) should be considered as a tool to facilitate transdisciplinary approaches.

- This study underlines that humans actively engaging with landscapes is the most formative process for the establishment of CES. Consequently, management that aims at fostering CES should strive towards making landscapes accessible for the multitude of different ways of experiencing and enjoying them. Beyond classical offerings like setting up hiking trails mainly targeting tourists, other activities should also be considered which address local residents and their deeper connections to a place – an approach for which the short story contest carried out in the Swabian Alb is an excellent example. Encouraging people to become engaged with the landscapes they live in and fostering thinking about their world and its development, expressing themselves for example through artistic and creative practices, may, moreover, contribute towards a culture of sustainability (Kagan, 2011).

Acknowledgments

This research was funded by the Social–Ecological Research Program of the German Federal Ministry of Education and Research (FKZ 01UU0904 B). I thank Christopher Hank for translation and language proofreading and two reviewers for helpful comments.

References

Bieling, C., Plieninger, T., 2013. Recording manifestations of cultural ecosystem services in the landscape. Landsc. Res. 38 (5), 649–667.
Bryant, A., Charmaz, K. (Eds.), 2007. The SAGE Handbook of Grounded Theory. Sage, London.
Chan, K.M.A., Goldstein, J., Satterfield, T., Hannahs, N., Kikiloi, K., Naidoo, R., Vadeboncoeur, N., Woodside, U., 2011. Cultural services and non-use values. In: Kareiva, P., Tallis, H., Ricketts, T.H., Daily, G.C., Polasky, S. (Eds.), Natural Capital – Theory and Practice of Mapping Ecosystem Services. Oxford University Press, Oxford, pp. 206–228.
Chan, K.M.A., Satterfield, T., Goldstein, J., 2012. Rethinking ecosystem services to better address and navigate cultural values. Ecol. Econ. 74, 8–18.
Council of Europe, 2000. European Landscape Convention, Treaty Series no. 176. ⟨http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm⟩ (accessed 28.01.13).
Daniel, T.C., Muhar, A., Arnberger, A., Aznar, O., Boyd, J.W., Chan, K.M.A., Costanza, R., Elmqvist, T., Flint, C.G., Gobster, P.H., Grêt-Regamey, A., Lave, R., Muhar, S., Penker, M., Ribe, R.G., Schauppenlehner, T., Sikor, T., Soloviy, I., Spierenburg, M., Taczanowska, K., Tam, J., von der Dunk, A., 2012. Contributions of cultural services to the ecosystem services agenda. PNAS 109, 8812–8819.
De Groot, R., Ramakrishnan, P.S., 2005. Cultural and amenity services. In: Hassan, R., Scholes, R., Ash, N. (Eds.), Ecosystems and Human Well-being: Current State and Trends, The Millennium Ecosystem Assessement series, vol. 1. Island Press, Washington D.C., pp. 455–476.
EEA (European Environment Agency), 2013. Towards a Common International Classification of Ecosystem Services, CICES version 4.3. ⟨http://cices.eu/⟩ (accessed 10.12.13).
Ernstson, H., 2013. The social production of ecosystem services: A framework for studying environmental justice and ecological complexity in urbanized landscapes. Lands. Urban Plan. 109, 7–17.
European Commission, 2011. Our Life Insurance, Our Natural Capital: An EU Biodiversity Strategy to 2020. Brussels.
Fagerholm, N., Käyhko, N., Ndumbaro, F., Khamis, M., 2012. Community stakeholders' knowledge in landscape assessments – mapping indicators for landscape services. Ecol. Indic. 18, 421–433.
Fisher, B., Turner, R.K., Morling, P., 2009. Defining and classifying ecosystem services for decision making. Ecol. Econ. 68, 643–653.
Gee, K., Burkhard, B., 2010. Cultural ecosystem services in the context of offshore wind farming: a case study from the west coast of Schleswig-Holstein. Ecol. Complex. 7, 349–358.
Glaser, M., 2006. The social dimension in ecosystem management: strengths and weaknesses of human-nature mind maps. Hum. Ecol. Rev. 13 (2), 122–142.
Hernández-Morcillo, M., Bieling, C., Plieninger, T., 2013. An empirical review of cultural ecosystem services indicators. Ecol. Indic. 29, 434–444.
Jones, M., 2003. The concept of cultural landscape: discourse and narratives. In: Palang, H., Fry, G. (Eds.), Landscape Interfaces: Cultural Heritage in Changing Landscapes. Kluwer Academic Publishers, Dordrecht, pp. 21–51.
Kagan, S., 2011. Art and Sustainability. Connecting Patterns for a Culture of Complexity. Transcript, Bielefeld.
Kerr, G.N., Swaffield, S.R., 2012. Identifying cultural service values of a small river in the agricultural landscape of Canterbury, New Zealand, using combined methods. Soc. Nat. Res. 25 (12), 1330–1339.
Kosoy, N., Corbera, E., 2010. Payments for ecosystem services as commodity fetishism. Ecol. Econ. 69, 1228–1236.
Kruse, J., 2014. Qualitative Interviewforschung. Ein integrativer Ansatz. Beltz Juventa; Weinheim.
MA, 2003. Ecosystems and Human Well-being: A Framework for Assessment. Island Press, Washington, DC (Millennium Ecosystem Assessment).
MA, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC (Millennium Ecosystem Assessment).
MLR (Ministerium für Ländlichen Raum und Verbraucherschutz Baden-Württemberg), 2012. Das Rahmenkonzept. Band 2: Unsere Strategie – Leitbilder, Entwicklungsziele, Leitprojekte (Kurzfassung). Stuttgart. ⟨http://www.biosphaerengebiet-alb.de/InterneDownloads/15-Rahmenkonzept/Band-2-Unsere-Strategie-24.08.2012-endgltig.pdf⟩ (accessed 21.01.13).
Norton, L.R., Inwood, H., Crowe, A., Baker, A., 2012. Trialling a method to quantify the 'cultural services' of the English landscape using Countryside Survey data. Land Use Policy 29 (2), 449–455.
Plieninger, T., Dijks, S., Oteros-Rozas, E., Bieling, C., 2013. Assessing, mapping, and quantifying cultural ecosystem services at community level. Land Use Policy 33, 118–129.
Schaich, H., Bieling, C., Plieninger, T., 2010. Linking ecosystem services and the cultural landscape. GAIA 19 (4), 269–277.
Stedman, R.C., 2003. Is it really just a social construction? The contribution of the physical environment to sense of place. Soc. Nat. Res. 16 (8), 671–685.
Stephenson, J., 2008. The cultural values model: an integrated approach to values in landscapes. Landsc. Urban Plan. 84, 127–139.
Strauss, A.L., 1987. Qualitative Analysis for Social Scientists. Cambridge University Press, Cambridge.
Tengberg, A., Fredholm, S., Eliasson, I., Knez, I., Saltzman, K., Wetterberg, O., 2012. Cultural ecosystem services provided by landscapes: assessment of heritage values and identity. Ecosyst. Serv. 2, 14–26.
Termorshuizen, J., Opdam, P., 2009. Landscape services as a bridge between landscape ecology and sustainable development. Landsc. Ecol. 24, 1037–1052.
The Research Box, Land Use Consultants, Minter, R., 2009. Experiencing Landscape: Capturing the Cultural Services and Experiential Qualities of Landscape, Natural England Commissioned Report NECR024. ⟨http://naturalengland.etraderstores.com/NaturalEnglandShop/NECR024⟩ (accessed 02.02.12).
VERBI, 2010. MAXQDA 10. VERBI GmbH, Berlin.