

# 1 **Cultural Ecosystem Services and the Challenge for Cultural Geography**

## 2 **Abstract**

3 Cultural ecosystem services are one of four services identified by the Millennium  
4 Ecosystem Assessment (2005) as critical to the support of human life on earth  
5 and therefore in need of proper valuation and protection. Cultural services seem  
6 to embody the objects of enquiry for cultural geographers interested in  
7 landscape, identity and place. However, potentially insurmountable  
8 epistemological challenges face the participation of cultural geographers in: a)  
9 the identification and evaluation of CES; and b) the operationalization of  
10 environmental governance. One challenge for cultural geographers is to make  
11 the relevance of their theoretical and conceptual insights felt in a field dominated  
12 by the natural sciences and scientific epistemologies. Meanwhile, the problems of  
13 defining and identifying cultural services in ways that make them compatible  
14 with provision, regulating and supporting services, even threaten the continued  
15 inclusion of cultural services in the ecosystem services approach. The concept of  
16 landscape seems to provide a shared intellectual terrain over which cultural  
17 geographers can work with others interested in cultural ecosystem services.

18

## 19 **Introduction**

20 There has never been a better time or a greater necessity for cultural  
21 geographers to get involved in the emergent politics and operationalization of  
22 the ecosystem services (ES) approach to the management of nature and the  
23 environment.<sup>1</sup> Whilst it is true that geographers of many different types have  
24 something to contribute to emerging debates about mapping and evaluating ES

25 and Cultural Ecosystem Services (CES) (Portman, 2013), it is cultural  
26 geographers interested in topics like landscape, identity, sense of place,  
27 belonging, and dwelling who I wish to mobilise because rarely do we find the  
28 object of our research at the heart of new policy directions. But the risks are  
29 great: geographers schooled in nearly three decades of intellectual effort to  
30 understand people's complex relationships with landscape and place will not  
31 easily find their voice in the multi-disciplinary clamour that surrounds the work  
32 of identifying, defining, measuring, and evaluating ES.<sup>2</sup> This is especially so when  
33 geography is characterised as useful only because "one needs to know where  
34 [ecosystem] services are located" (Portman 2013 p.187; Potschin & Haines-  
35 Young 2011; Ruhl 2010). Cultural geographers also share with colleagues  
36 interested in the politics of nature a trenchant critique of environmental  
37 governance in general and ES in particular (Robertson 2012; Yusoff 2011).  
38 Further, potentially insurmountable epistemological challenges face  
39 participation in: i) the identification and evaluation of CES; and ii) the  
40 operationalization of environmental governance. This, to summarise, presents  
41 two problems which I explain in this paper (along with a history and critique of  
42 ES and CES): the ability of cultural geography to make its relevance felt and the  
43 continued inclusion of CES in the ES approach.

44

## 45 **Ecosystem Services**

46 There is much debate over the definition of ES (Daily, 1997; Fisher et al. 2009;  
47 Gómez-Baggethun, 2010; Nahlick et al. 2012) which drawn attention to the  
48 semantic messiness around terms like 'services', 'goods', and 'benefits', which  
49 has a bearing on the place of CES within ES.

50

51 A widely used definition of ES comes from the Millennium Ecosystem  
52 Assessment (MA), which attempted to establish the scientific evidence for the  
53 conservation and sustainable use of ecosystems and identify their contributions  
54 to human well-being (Millennium Ecosystem Assessment 2005, p.v). Ecosystem  
55 services are:

56 the benefits people obtain from ecosystems. These include provisioning services  
57 such as food, water, timber, and fiber; regulating services that affect climate,  
58 floods, disease, wastes, and water quality; cultural services that provide  
59 recreational, aesthetic, and spiritual benefits; and supporting services such as soil  
60 formation, photosynthesis, and nutrient cycling (Millennium Ecosystem  
61 Assessment 2005, p.v).

62 Provisioning, regulating, supporting and cultural services are linked to the broad  
63 concept of human 'well-being' which goes beyond the necessary conditions of  
64 existence (security, livelihood, food, shelter, clean air and water) to embrace the  
65 lofty aims of "good social relations" (social cohesion, mutual respect, and the  
66 ability to help others), and "freedom of choice and action" which provide the  
67 opportunity to be able to achieve "what an individual values doing and being"  
68 (see figure 1). This quadumverate of services and the link to well-being has  
69 subsequently become shorthand for a complex range of functions, relations, and  
70 objects of study (Fisher et al 2009; Daniel et al. 2012a).

71

72 INSERT FIGURE 1 HERE

73

74 ES as a dominant concept steering environmental governance has already  
75 generated a hefty academic and policy literature (Fisher et al. 2009; Gómez-

76 Baggethun, 2010; Portman 2013), although this tends to neglect the way the  
77 history of ES has conditioned its development and application (Portman 2013).  
78 Gómez-Baggethun et al. (2010) chart how the concept of ES emerged from the  
79 work of Ehrlich and Ehrlich (1981) (Figure 2), drawing on earlier ecological  
80 literature which was attentive to how human societies were served by nature  
81 and critical of the Neoclassic economic view that nature's resources could be  
82 replaced by capital.

83

84 Schumacher (1973) was probably the first author to use the concept of natural  
85 capital, whereupon the notion of ES gained momentum (Gómez-Baggethun et al.  
86 2010). Norgaard (2010) maintains that 'ecosystem services' was intended to  
87 work as an "eye-opening metaphor" to build support for conservation amongst  
88 "a public deeply embedded in a global economy and distant from natural  
89 processes" (p.1219). In the space of about 15 years this metaphor was  
90 "transformed into a dominant model for environmental policy and management"  
91 (p.1219). Thus, as Ernstson and Sörlin (2013) note, the ES approach is dynamic,  
92 plastic and swiftly evolving, the product of human intellect and effort rather than  
93 an *a-priori* way of knowing the world. Notwithstanding the volume of work on  
94 ES, a fundamental definitional ambiguity goes unresolved, to which I now turn.

95

96 INSERT FIGURE 2 HERE.

97

## 98 **Benefits and Services**

99 As noted, the MA definition of ES has become dominant (Millennium Ecosystem

100 Assessment 2005, p.v; Daniel et al 2012a). One problem with the definition,  
101 however, is that it conflates benefits and services: “the *benefits*... include  
102 provisioning *services*...” (emphasis added). The vexed relationship between  
103 benefits and services across a range of definitions is illustrated by Nahlik et al.  
104 (2012: 28) (figure 3). In any given definition, ES can either lead to, or are the  
105 same as, benefits (see also Satz et al. 2013; Chan et al. 2012). Different  
106 definitions identify entirely “different suites of either purely ecological (equated  
107 to ecosystem attributes) or purely anthropologic (equated to benefits) services”  
108 (Nahlik et al. 2012, p.28).

109

110 INSERT FIGRURE 3 HERE.

111

112 Fisher and Turner (2008) and Wallace (2007, p.235) agree that the MA definition  
113 mixes “processes (means) for achieving services and the services themselves  
114 (ends) within the same classification category”, compounding a flaw in the work  
115 of leading practitioners such as Costanza et al. (1997), De Groot et al. (2002), and  
116 Farber et al. (2006). The solution seemed to lie in greater definitional clarity  
117 (Fisher et al. 2009) to allow for “meaningful comparisons across different  
118 projects, policy contexts, time and space” (p.644). However, it is also possible to  
119 glimpse in Fisher et al’s (2009) assertion an attempt to shut out the messiness  
120 and ambiguity in the MA definition. The problem with defining ES as the “*benefits*  
121 people obtain from ecosystems” (emphasis added) is that these ‘benefits’ might  
122 include “things outside of ecological systems such as imputed cultural meanings,  
123 recreation, and spiritual fulfilment” – potentially transient, ephemeral, illusive,  
124 contingent things that threaten to disrupt orderliness and comparability. To

125 create a more “transparent way to organize ecosystem services for use”, Fisher  
126 et al. (2009, p.644) and Boyd and Banzhaf (2007) have argued that ES are *not* the  
127 benefits that humans obtain from ecosystems. Rather, ecological phenomena  
128 must have human beneficiaries if they are to be considered services.

129

130 These semantic refinements have, to a large extent, not taken hold, overcome by  
131 the scramble to start identifying, mapping, measuring, assessing and – most  
132 importantly – *valuing* ES. Nahlik et al. (2012, p.28) suggest that the volume and  
133 ambiguity of definitions has meant that the term ‘ecosystem service’ has become  
134 “a catchall phrase that is now used to refer to anything from or within an  
135 ecosystem that is beneficial to any living thing” (see also Seppelt et al. 2011). The  
136 widely repeated maxim (see, for example, Daniel et al 2012a) that *services*  
137 *generate/are benefits* that contribute to *well-being* (themselves relatively poorly  
138 defined in the MA – see Fish 2011) somewhat underplays a complexity that is  
139 semantic, epistemic and methodological.

140

141 The ES approach is rapidly moving into applied policy contexts (e.g. through The  
142 Economics of Ecosystems and Biodiversity project and a new EU toolkit, both  
143 aimed at decision-makers (TEEB 2013; European Commission 2013). The  
144 ambiguity remains unresolved, though ES proponents continue to strive to be  
145 exhaustive in compiling a “comprehensive set of services and value dimensions  
146 in ecosystem assessments” (European Commission 2013, p.20). Portman (2013,  
147 p.188; see also Potschin and Haines-Young 2011) is not alone in emphasizing the  
148 absolute necessity of this to the veracity of the approach:

149

150 the scientific community needs to deliver the knowledge and tools necessary to  
151 forecast and quantify the return from ES... and to aid professionals in explicitly and  
152 systematically integrating this knowledge into institutional frameworks.

153

154 I now focus on some of the issues raised for CES.

### 155 **Cultural Ecosystem Services**

156 In the MA definition of Cultural Services, the semantic ambiguity between  
157 services and benefits is pronounced (see figure 4), with the added complication  
158 that services (benefits?) are obtained ‘through’ spiritual enrichment, cognitive  
159 development, reflection, recreation, and aesthetic experiences. An extensive  
160 unpublished literature review prepared for the UK National Ecosystem  
161 Assessment Follow On identified these as *processes* (NEA, undated) but their  
162 relationship with service/benefits is far from clear. The ‘processes’ and the  
163 ‘benefits’ are not mutually exclusive, with recreation appearing twice.  
164 Substantive concepts seem synonymous, such as *values* (understood as beliefs or  
165 ideals about what is desirable or undesirable) and *value* (understood as  
166 monetary worth or a numerical quantity). Some benefits seem to be obtained in  
167 a way which by-passes the ‘processes’ all together, e.g. that “ecosystems  
168 influence the types of social relations that are established in particular cultures”  
169 (Millennium Ecosystem Assessment 2005, p.40).

170

171 INSERT FIGURE 4 HERE.

172

173 Having identified these services (benefits?), the MA had little to say about their  
174 condition (Figure 5), spawning research to fill the gaps. However, the ambiguity,

175 polysemousness and tervigersations of the MA document conditioned the nature  
176 of subsequent research. Schaich et al (2010, p.270) observe that “the assessment  
177 of trends in human use and of the status of CES is one of the most difficult and  
178 least accomplished tasks in ecosystem services research”.

179

180 INSERT FIGURE 5 HERE.

181

182 A range of alternative terminologies for what is provided to the sum of human  
183 culture by ecosystems include *amenity functions* (Pinto-Correia and Carvalho-  
184 Ribeiro 2012), *information functions* (de Groot 2006; de Groot et al. 2002) *life*  
185 *fulfilling services* (Chee 2004) and *socio-cultural fulfilment* (Wallace 2007. See  
186 also Milcu et al. 2013). Little consensus or conceptual clarity emerges from these  
187 efforts (Milcu et al. 2013) and research on CES has been dwarfed by the effort  
188 across the full range of ES (Gee et al. 2010; Rey Benayas et al. 2009; Schaich et al.  
189 2010; Turner et al. 2003).

## 190 **Epistemic Gaps**

191 The epistemic ‘problems’ with ES arise because the approach has been conceived  
192 of, developed, and applied within science disciplines where the objects of study  
193 are the components of ecological systems and the systems themselves, and  
194 extrapolated to something that is not normally the object of study of natural  
195 scientists: culture. The ES approach conceives of the world as a series of complex  
196 yet ultimately knowable objects, functions, processes and outcomes. They cannot  
197 overlap, for if they do we run the risk of double-counting and overestimating  
198 their economic value, ruining the argument that a rigourously valued ecosystem  
199 is a necessary condition for proper management of the world’s natural resources.



200 As Chan et al (2012, p.9) argue:

201

202 everything must somehow 'fit' into an ES framework so that all that matters can be  
203 treated equally, and thereafter be compared and traded off against one another as  
204 more or less important, more or less 'valued' or more or less subject to protection,  
205 loss, or gain.

206

207 Thus, the ES approach attempts to still the world in a particular way but it has  
208 quickly become apparent that complexity of the world cannot be stilled,  
209 evidenced by the legion of articles that attempt to define, refine, capture and  
210 render the vigour of the world's ecosystems (see above). But the intellectual  
211 project of identification and classification continues apace, for example in the  
212 European Commission's proposal for the use of the Common International  
213 Classification of Ecosystem Services (CICES), developed for environmental  
214 accounting purposes (European Commission 2013).

215

216 Whilst Portman (2013, p.185) hails "progress towards a common 'language' of  
217 ES for practical and professional use", the attempt at a stable classificatory  
218 system frustrates its own object. The classification's hierarchical structure  
219 provides: i) an artificial sense of a causative relationship between divisions,  
220 groups and classes ('classes' for example can be "linked back to concrete  
221 identifiable service sources" (European Commission 2013, p.51); and ii) and a  
222 forced separation between activities, processes, objects, outcomes, and  
223 experiences, to avoid double counting (Gee et al. 2010). But in what sense, for  
224 example, is a physical and intellectual interaction not also representational?

225

226 INSERT FIGURE 6 HERE.

227

228 Although there is little consensus on CES, benefits or measure regimes, there is a  
229 agreement that CES are tricky and equivocal because they are intangible and  
230 subjective, with multiple values in different social contexts (Milcu et al. 2013;  
231 Potschin and Haines-Young 2013). This will not come as news to most cultural  
232 geographers but seems to be a source of increasing vexation to the main  
233 proponents of the ES approach for whom CES sit at odds with a natural science  
234 paradigm (Tenbert et al. 2012).

235

236 The question of value in CES is especially vexing, because CES are mobile,  
237 tractable, non-material, ephemeral, and perhaps fleeting. Referring to CES, Gee et  
238 al. (2010, p.350) wonder

239

240       When appreciating a view, or a concept such as wilderness... is it the thing itself (e.g.  
241       the actual physical landscape), knowledge of the thing or the satisfaction that people  
242       derive from the thing, either by visiting it or simply knowing it exists?

243

244 For cultural geographers, separating out the intellectual, visceral, aesthetic,  
245 or embodied encounter from – say – a view runs counter to much  
246 intellectual effort invested in understanding the texture and complexity of  
247 every day life, most recently in relation to climate or environmental change,  
248 including the imbrications of memory and place (Bull and Leyshon 2010;  
249 DeSilvey 2012); dwelling (Ingold 2000); and familiar landscapes (Brace and  
250 Geoghegan 2011; Leyshon and Geoghegan 2012).

251 **Dealing with the Cultural Services**

252 In this section, I consider two contrasting responses to the ‘problem’ of CES’  
253 difference from other ES. The first is to engage the social and behavioural  
254 sciences in the task of ‘integrating’ CES into the overall ES approach. The second  
255 is to sideline the cultural services all together.

256 *Integrating*

257 The correspondence between science, social science and the humanities<sup>3</sup>  
258 features what I term ‘epistemic distance decay’. Distance decay describes the  
259 effect of distance on cultural or spatial interactions and states that the  
260 interaction between two locales declines as the distance between them  
261 increases. Distance decay provides a neat metaphor for how different disciplines  
262 interact in the study of ES: the social science disciplines with at least some  
263 recognisably scientific ontological, epistemic and methodological concerns,  
264 feature most strongly as the source of possible solutions to the ‘problem’ of  
265 identifying, mapping, valuing and incorporating CES (Daniel et al. 2012a; Schaich  
266 et al. 2010). Conversely, qualitative, critical, interpretative approaches (which  
267 are epistemologically distant from the sciences) feature little, though their  
268 potential is recognised in some quarters (Satterfield et al. 2013). Three  
269 exceptions are Tenberg et al’s (2012 p.25) attempt to add historical depth  
270 through a focus on cultural heritage, Potschin and Haines-Young’s (2013) place  
271 based approach to ES, and Schaich et al’s (2010) interest in CES and cultural  
272 landscapes.

273

274 Although Daniel et al. (2012a) identify work in landscape aesthetics, cultural  
275 heritage, recreation and tourism as having some potential for understanding CES

276 better, these fields are only attractive for their potential to “operationally define”  
277 CES through a recognisable episteme, producing sociological models, expanding  
278 systems for evaluation and informing trade-off negotiations “consistent with the  
279 larger set of ES” (p.8812). This is to perhaps underplay the long history of work  
280 in these fields but contributes to the overall impression that the dominant  
281 disciplines in ES research have a limited view of the relevance of other  
282 disciplines. Meanwhile, disciplines like tourism and leisure research have  
283 perhaps not done enough to assert their relevance and applicability.

284

285 Daniel et al (2012a) argue that work from social and behavioural scientists  
286 looking at ecological structures and cultural benefits could be used more  
287 effectively to “integrate cultural services into the broader ES framework”  
288 (p.8813) but this has been “retarded” by the characterisation of CES as  
289 intangible, subjective, and difficult to quantify in biophysical or monetary terms.  
290 Social and behavioural work can, they assert, provide a “science base” for the  
291 better integration of CES into the ES framework.

292

293 The confident assurance with which Daniel et al. (2012a, 2012b) assert that the  
294 right sort of approach can corral the intangible, subjective, difficult-to-quantify  
295 makes for uncomfortable reading for any academician whose theoretical  
296 predilections challenge the dominance of science as a way of knowing, with its  
297 attendant claims to objectivity and truthfulness (Davies and Burgess 2004;  
298 Whatmore 2009; Livingstone 2003). Even Schaich et al. (2010) and Milcu et al.  
299 (2013), who promote the view that cultural landscapes has much to offer CES,  
300 can do little more than call for more dialogue between different research

301 communities on the grounds that, notwithstanding their different theories,  
302 concepts and methods, they share a common object of research: “the demands  
303 people place on, as well as benefits people obtain from, ecosystems and  
304 landscapes”. (p.270).

305

306 Despite an evident willingness on the part of scholars of heritage and cultural  
307 landscapes (amongst the few disciplines to attempt to get involved with ES) to  
308 open a dialogue, a recent review of crossdisciplinary research contributions to  
309 the United Kingdom’s National Ecosystem Assessment found that the UKNEA  
310 “integrated knowledge more successfully between neighboring disciplines, but  
311 struggled to overcome barriers between natural and social science” (Lawton and  
312 Rudd 2013, p.149). The consequence of this may be the sidelining of CES, which I  
313 consider now.

#### 314 *Evicting*

315 Integrating CES into the ES approach by narrowing their scope or finding a way  
316 to equivocate their complexity may be unpalatable for scholars who are  
317 committed to understanding the messiness and complexity of our social worlds.  
318 But far more seriously for both the status of CES and cultural geography’s role in  
319 future environmental governance is the possible relegation of CES out of the  
320 main four services (provisioning, regulating, supporting and cultural) altogether  
321 (Fisher et al. 2009; Tengberg et al. 2012). For example, CES are at risk from  
322 attempts (outlined above) to thoroughly disentangle benefits from services.  
323 Fisher et al. (2008, 2009) “define ecosystem services to be about ecological  
324 phenomena (e.g. not cultural services which we see as very valuable benefits  
325 derived from ecosystems and services)” (Fisher et al. 2009, p. 644; see also Gee

326 and Burkhard 2010). Kirchoff (2012) agrees that “pivotal cultural values<sup>4</sup>  
327 cannot be integrated into the ES framework and should not be called ES”  
328 (p.E3146) because many cultural values (such as feelings of belonging, cultural  
329 heritage, and other symbolic meanings) do not correlate to ecological structures  
330 and functions. Further, the objects which carry symbolic cultural meanings (such  
331 as mountains, lakes, forests or other symbolic landscapes) are not ecosystems at  
332 all, but “shaped phenomena” (p.E3146). Kirchoff concludes that the proper  
333 concern of an ES approach should be with instrumental, not cultural, values of  
334 nature.

335

336 Daniel et al. (2012b) are quick to respond by pointing out that:

337 any attribution of a cultural ecosystem service can only be determined by  
338 considering the specific needs/wants of a particular human/social client at a given  
339 time and place in relation to the demonstrated ability of designated ecological  
340 structures and functions to contribute towards meeting those needs/wants (Daniel  
341 et al. 2012b, p.E3147).

342 In other words, CES are particular, individual, personal, non-scalable, non-  
343 generalisable, temporally and spatially specific. Such concessions might be fatal  
344 to CES, because they imply that cultural services and/or benefits are so small  
345 scale and peculiar that they cannot be incorporated into the wider intellectual  
346 project of identifying, measuring and mapping ES (see also Martín-López et al.  
347 2009, Norton et al. 2012 and Portman 2013 on the necessity of ES being able to  
348 scale up). Further, Daniel et al. (2012b, p.E3147) assert that they

349

350 are not willing, a-priori, to define cultural values out of the ES framework at the  
351 expense of further marginalising their contributions to the full range of benefits

352 ecosystems provide to people.

353

354 But this is only “in the absence of countervailing data”, whatever that might be,  
355 which might prove cultural values to be fatally unstable and impossible to  
356 incorporate into the ES framework.

357

358 Satz et al. (2013) argue that there are five challenges that need to be addressed  
359 to secure the continued inclusion of CES in environmental assessment:  
360 accounting for interconnected benefits, dealing with plural values and cultural  
361 values that are incommensurate with monetary valuations, understanding the  
362 geographical boundedness of services and finally asking whether CES are an  
363 indulgence that will distract attention from the ES which are most crucial for  
364 human existence. Chan et al. (2012, p.13) ask whether ES researchers should  
365 bother seeking a comprehensive analytical framework that includes ill-fitting  
366 values, suggesting that “political processes will ensure that such values will be  
367 properly considered in decision-making”. They rightly argue that technical black  
368 box analyses might be difficult to reconcile with deeply held values. Meanwhile,  
369 political processes may not adequately accommodate the dynamism of social and  
370 ecological processes whilst simultaneously privileging those with powerful  
371 political, social and economic interests.

372

373 These examples show some acknowledgement of dealing with the relational and  
374 affective qualities of CES, and hint at the possibility of admitting deliberative,  
375 subjective and procedural approaches (Fish et al. 2011). However, as Satz et al.  
376 (2013) acknowledge, so far these are applied in specific and limited geographical

377 and cultural contexts where it is necessary to discuss cultural and other ES in  
378 ways that are meaningful to local residents and stakeholders (see also Gee et al.  
379 2010 and Potschin and Haines-Young 2013). Such work does not have a general,  
380 universal application (Portman 2013).

381

382 In light of this, it is unlikely that Fish's (2011) call to put culture on an equal  
383 footing with ecosystems in the ES approach will succeed, given the epistemic  
384 dominance of the natural sciences in framing the debate. Indeed, what is implied  
385 is that CES do not require the same attention to their management or  
386 sustainability because they are: a) not as important or essential to life as the  
387 other services; and/or b) cultural services/benefits will simply be the *collateral*  
388 *outcome* of a properly managed ecosystem, a by-product of the other services.

### 389 **Theories and Methodologies**

390 Expunging CES from the broader ES framework will not be necessary if the  
391 epistemic distance decay described above can be overcome. Cultural geography  
392 has much to offer to enrich dominant conceptualisations of culture within ES,  
393 bringing a rich theoretical literature on place, identity, power, and human-nature  
394 relations along with diverse techniques of data collection and analysis which  
395 attempt to understand the complex spatialities of our (more-than) human  
396 worlds. Unfortunately, cultural geography's engagement with ES or CES has yet  
397 to move much beyond bold theoretical arguments and incisive critique  
398 (Robertson 2012; Yusoff 2011).

399

400 One way forward, currently being explored by Fish et al (forthcoming) is to insist  
401 that CES have an exceptional status within the ES approach, and require



402 distinctive concepts and methods if they are to be accounted for and integrated  
403 into decision making. They suggest that CES can be better aligned to the rest of  
404 the ES framework by making two significant strides in their conceptualization.  
405 The first is to recognize both the distinction between but interaction of  
406 environmental spaces, cultural practices, and cultural benefits. The emphasis on  
407 spaces, practices and benefits combines the material and non-material elements  
408 of culture, thereby addressing the view that cultural values are intangible. The  
409 second is to disentangle the various outcomes or benefits as the *identities* CES  
410 help frame, the *experiences* they help enable and the *capabilities* they help equip.  
411 Thus the benefits can be recognized as “visceral, embodied and ‘felt’” (Fish et al  
412 forthcoming unpaginated).

413

414 Reconceptualising CES by drawing on a richly theorized literature on the co-  
415 production and reciprocity of culture-nature relations, as Fish et al attempt, is  
416 one means of integrating cultural geography into ES research. However, cultural  
417 geographers are unlikely to be able to effectively challenge the epistemic  
418 dominance of the ES approach in the institutional spaces in which it has been  
419 forged. Another approach is to become involved in the operationalization of the  
420 ecosystem approach in local contexts that will raise the questions of local  
421 structures of feeling, politics and poetics of place, unequal relations of power  
422 that cultural geographers are well equipped, both theoretically and  
423 methodologically, to answer, despite the reservations of Satz et al. (2013) and  
424 others that specific case studies have limited usefulness because they cannot  
425 provide generalisations. But there is already a rich literature on which to draw  
426 which is concerned with, *inter alia*, the politics of the environment (Walker et al.

427 2007); knowledge controversies (Whatmore 2009); vernacular ecologies  
428 (Hinchliffe 2010); and topographical readings of landscape as a material-  
429 semiotic assemblage with affective qualities (Leyshon and Geoghegan 2012) that  
430 can add critical and interpretative heft to understanding CES in practice. Where  
431 ES is being operationalized, such work could enable a consideration of micro-  
432 geographical sociospatial relations, at the quotidian scale, in which the play of  
433 knowledge, identity, agency, location, and place in the understanding of local  
434 environmental change can be foregrounded (Harrison et al. 2004; Lorimer  
435 2003).

436

#### 437 **Landscapes and Settings**

438 For cultural geographers interested in refining and operationalizing the ES  
439 approach a further, possible route might be through a shared scholarly interest  
440 in landscapes as sites where CES's are both generated and consumed and which  
441 may have some imaginative and affective resonance with different communities  
442 of practice (Norton et al. 2012 p.449). Amongst authors like Satz et al. (2013),  
443 Potschin and Haines-Young (2013) and Schaich et al. (2010), landscape has  
444 emerged as an organising concept that seems to form an epistemic bridge  
445 between the natural and social sciences. Notwithstanding the multiple and  
446 competing definitions of landscape across a range of academic disciplines – from  
447 a scale of spatial analysis to the product of human agency, imagination and socio-  
448 spatial relations (Leyshon and Geoghegan, 2013) – landscape has the potential to  
449 ground the operationalization of the ES approach, lending a materiality to the  
450 byzantine intellectual machinery of a reductionist science of ES. It connects  
451 disciplines by operating as the site at which multi-, trans- and inter-disciplinary

452 conversations might be had, drawing in policy makers and landscape  
453 management professionals charged with protecting landscapes valued for their  
454 productivity, fragility, beauty or habitat. Landscapes feature in the collective  
455 imaginaries of people and communities across the planet, for whom senses of  
456 place and purpose are located in the familiar surroundings of their everyday  
457 lives. Conceptualisations of landscape as ‘the mutual embeddedness and  
458 interconnectivity of self, body and land – landscape as the world we live in, a  
459 constantly emergent perceptual and material milieu’ (Wylie, 2007, p.1–2) may  
460 also help ES researchers to see that the apparent intangibility and evasiveness of  
461 CES can be productively theorized.

462

463 Notwithstanding these possibilities for a productive intervention around the  
464 notion of landscape (broadly conceived), the UK’s National Ecosystem Services  
465 Assessment (Church, et al. 2011) avoided the use of landscape in preference for  
466 ‘environmental settings’, developed in the work of Manfred Max-Neef (1989;  
467 1992). These settings are the domestic garden, informal green and blue spaces,  
468 formal green/blue spaces, the nearby and wider countryside and national  
469 landscapes. This act of epistemic diplomacy attempted to sidestep landscape’s  
470 extensive theoretical entanglements across a range of disciplines and seemed to  
471 offer an uncontaminated concept over which the fabric of cultural ecosystems  
472 services could be hung without snags or runs, a concept over which few if any  
473 established disciplines had any *a-priori* claim of any significance. In the NEA  
474 conception, “ecosystem cultural services are the environmental settings that give  
475 rise to the cultural goods and benefits that people obtain from ecosystems”,  
476 eliding but not resolving the benefits/services problematic (UK National

477 Ecosystem Assessment 2011, p.81).

## 478 **Conclusion**

479 Critiques of discursive regimes from cultural geography, political ecology and  
480 other critical theoretical disciplines suggest that knowledge and meaning are  
481 always contingent and partial. Such understandings force us to step outside of ES  
482 to see it not as an *a priori* way of knowing but one which is itself a product of the  
483 politics of nature and a neo-liberal political ideology. Within ES, Fish argues that  
484 CES remained “arguably one of the least understood, and most controversial,  
485 areas of the framework” (Fish, 2011, p.674). The epistemic differences between  
486 scholars engaged in research on ES in general and CES in particular present  
487 themselves as methodological problems of identifying, mapping, quantifying and  
488 categorizing ES. Few scholars give themselves time to interrogate the  
489 fundamental assumptions of our knowledge making practices so that we can  
490 make them visible to each other. Further, the work of prediction, modeling and  
491 mapping is at odds with critical and contextual methods which emphasise the  
492 mobility, motility, and fluidity of people, ideas and objects at scales where the  
493 focus is on local structures of feeling and the personal and institutional politics of  
494 place.

495

496 Fish (2011 674) argues that “advocates of the ecosystem services framework  
497 face a steep climb in winning the hearts and minds of cultural theorists over to  
498 their world view, many of whom would be more likely to regard CES as an object  
499 of critique, rather than a concept to be embraced” (see also Chan et al 2012).  
500 This begs the question why advocates of ecosystem services would attempt to

501 win over cultural theorists as their own epistemic status is so dominant. One  
502 option for cultural geographers and others is to stand on the outside theorising  
503 and problematizing without restraint. Rather, we should get inside the spaces in  
504 which a new paradigm of environmental governance is taking shape in the UK,  
505 such as the follow-on work of the National Ecosystem Assessment. This will not  
506 necessarily be comfortable. The yawning epistemological gap might be too wide  
507 to make oneself heard by shouting across it. It might be necessary to moderate  
508 theoretical and conceptual approaches, accommodating the very different  
509 approaches of others in trying to find some common ground. Nevertheless,  
510 cultural geography has a responsibility to stand up for the *applied relevance* of its  
511 work. And there won't be a better moment to do that than now.

512

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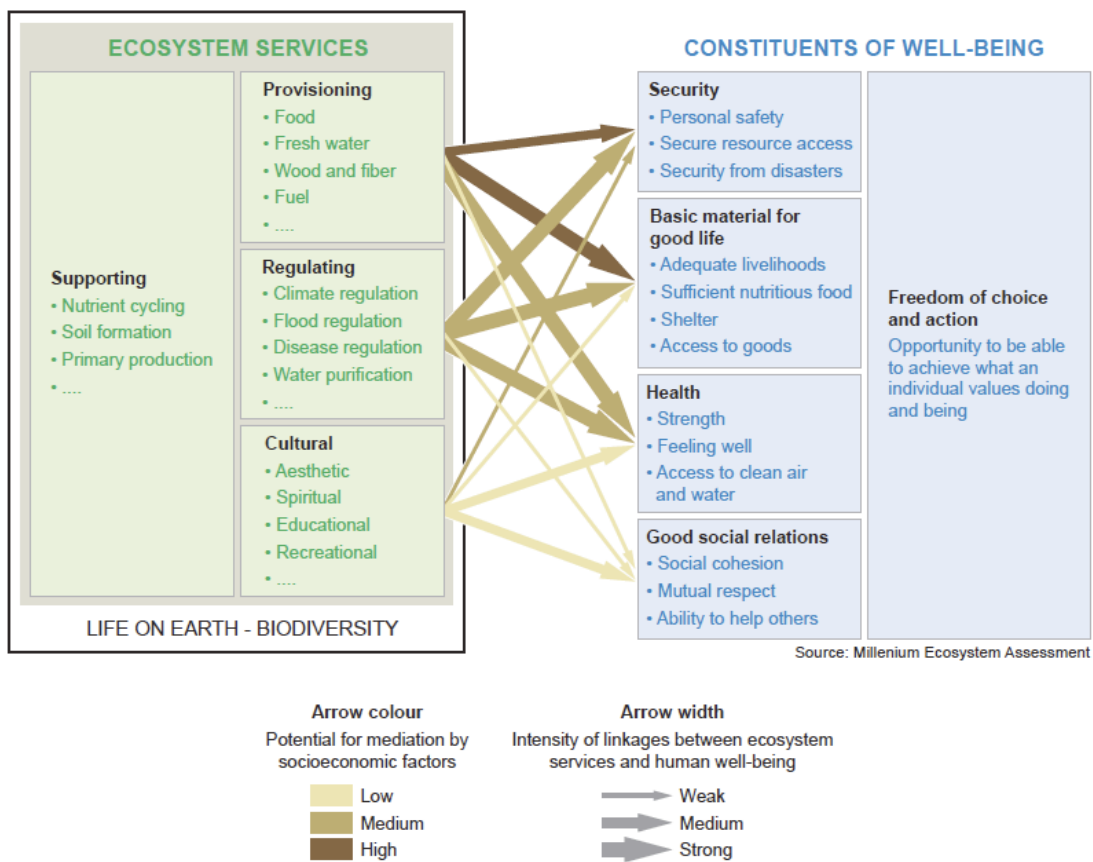
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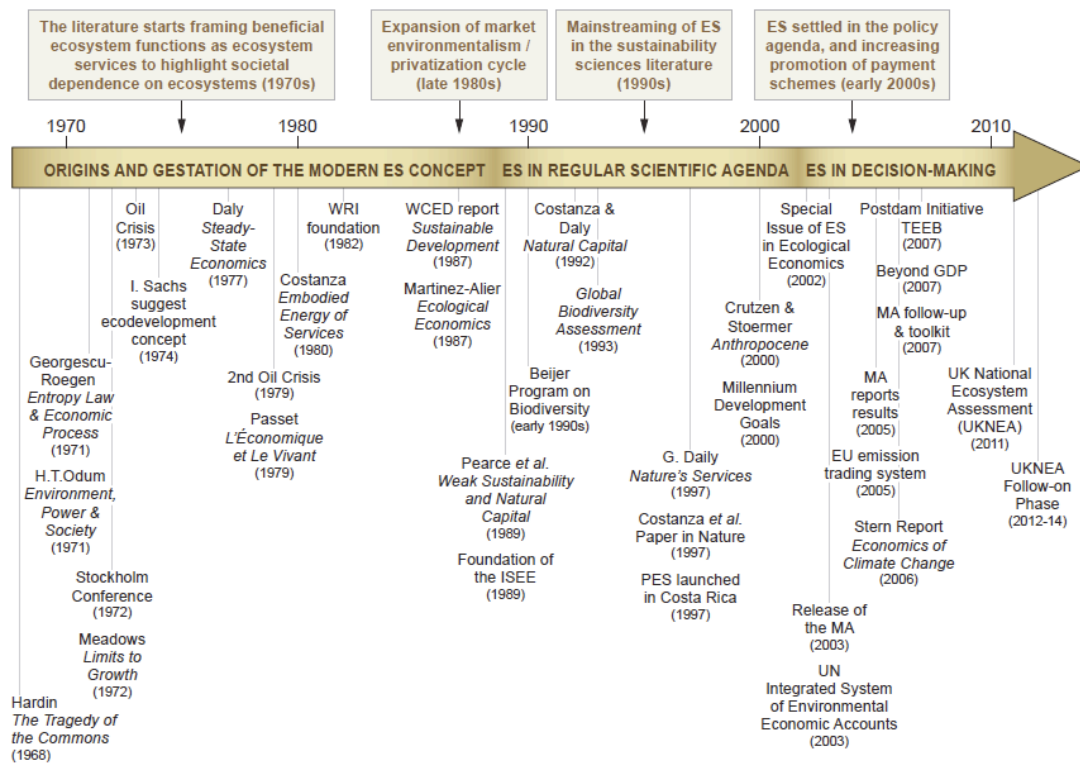
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693

694 Figure 1: Linkages between Ecosystem Services and Human Well-being from  
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697



698

699 Figure 2: Stages in the modern history of ecosystem services. Gómez-Baggethun,  
 700 E., de Groot, R., Lomas, P.L., Montes, C. (2010). The history of ecosystem services  
 701 in economic theory and practice: From early notions to markets and payment  
 702 schemes. *Ecological Economics* 69(6) pp.1213.

703

Definition of ecosystem services	Citation	Philosophy
• "the benefits human populations derive, directly or indirectly, from ecosystem functions."	(Costanza <i>et al.</i> , 1997)	Ecosystem services = benefits
• "the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfill human life."	(Daily, 1997)	Ecosystem services → benefits
• "the capacity of natural processes and components to provide goods and services that satisfy human needs, directly or indirectly."	(de Groot <i>et al.</i> , 2002)	Ecosystem services → benefits
• "the set of ecosystem functions that is useful to humans."	(Kremen, 2005)	Ecosystem services → benefits
• "the benefits people obtain from ecosystems."	(MEA, 2005)	Ecosystem services = benefits
• "components of nature, directly enjoyed, consumed, or used to yield human well-being."	(Boyd and Banzhaf, 2007)	Ecosystem services → benefits
• "the aspects of ecosystems utilized (actively or passively) to produce human well-being."	(Fisher <i>et al.</i> , 2009)	Ecosystem services → benefits
• "a range of goods and services generated by ecosystems that are important for human well-being."	(Nelson <i>et al.</i> , 2009)	Ecosystem services → benefits
• "Benefits that humans recognize as obtained from ecosystems that support, directly or indirectly, their survival and quality of life."	(Harrington <i>et al.</i> , 2010)	Ecosystem services = benefits
• "a collective term for the goods and services produced by ecosystems that benefit humankind."	(Jenkins <i>et al.</i> , 2010)	Ecosystem services → benefits

704

705 Figure 3: Definitions of ecosystem services and their sources commonly cited in  
 706 the literature. Nahlik, A.M., Kentula, M.E., Fennessy, M.S., Landers, D.H. (2012)

707 Where is the consensus? A proposed foundation for moving ecosystem service  
708 concepts into practice. *Ecological Economics* 77 pp.28.

709

710 **Cultural Services**

711 These are the nonmaterial *benefits* people obtain from ecosystems *through* spiritual enrichment,  
712 cognitive development, reflection, recreation, and aesthetic experiences, including:

713 Cultural diversity. The diversity of ecosystems is one factor influencing the diversity of cultures.

714 Spiritual and religious values. Many religions attach spiritual and religious values to ecosystems  
715 or their components.

716 Knowledge systems (traditional and formal). Ecosystems influence the types of knowledge  
717 systems developed by different cultures.

718 Educational values. Ecosystems and their components and processes provide the basis for both  
719 formal and informal education in many societies.

720 Inspiration. Ecosystems provide a rich source of inspiration for art, folklore, national symbols,  
721 architecture, and advertising.

722 Aesthetic values. Many people find beauty or aesthetic value in various aspects of ecosystems, as  
723 reflected in the support for parks, scenic drives, and the selection of housing locations.

724 Social relations. Ecosystems influence the types of social relations that are established in  
725 particular cultures. Fishing societies, for example, differ in many respects in their social relations  
726 from nomadic herding or agricultural societies.

727 Sense of place. Many people value the “sense of place” that is associated with recognized features  
728 of their environment, including aspects of the ecosystem.

729 Cultural heritage values. Many societies place high value on the maintenance of either historically  
730 important landscapes (“cultural landscapes”) or culturally significant species.

731 Recreation and ecotourism. People often choose where to spend their leisure time based in part  
732 on the characteristics of the natural or cultivated landscapes in a particular area (MA synthesis  
733 report, p.40)

734 Figure 4: Cultural Services in the Millennium Ecosystem Assessment (2005).

735 *Ecosystems and Human Well-being: Synthesis*. Washington, DC: Island Press, p.40.

736 Emphasis added.

737

Service	Human use	Enhanced or degraded	Notes	MA chapter
Cultural diversity	NA	NA		
Spiritual and religious values	▲	▼	There has been a decline in the numbers of sacred groves and other such protected areas. The loss of particular ecosystem attributes (sacred species or sacred forests), combined with social and economic changes, can sometimes weaken the spiritual benefits people obtain from ecosystems. On the other hand, under some circumstances (e.g. where ecosystem attributes are causing significant threats to people), the loss of some attributes may enhance spiritual appreciation for what remains.	C17.2.3
Knowledge systems	NA	NA		
Educational values	NA	NA		
Inspiration	NA	NA		
Aesthetic values	▲	▼	The demand for aesthetically pleasing natural landscapes has increased in accordance with increased urbanization. There has been a decline in quantity and quality of areas to meet this demand. A reduction in the availability of and access to natural areas for urban residents may have important detrimental effects on public health and economies.	C17.2.5
Social relations	NA	NA		
Sense of place	NA	NA		
Cultural heritage values	NA	NA		
Recreation and ecotourism	▲	+/-	The demand for recreational use of landscapes is increasing, and areas are increasingly being managed to cater for this use, to reflect changing cultural values and perceptions. However, many naturally occurring features of the landscape (e.g. coral reefs) have been degraded as resources for recreation.	C17.2.6 C19

▲ Increasing (for human use column) or enhanced (for enhanced or degraded column)

▼ Decreasing (for human use column) or degraded (for enhanced or degraded column)

+/- Mixed (trend increases and decreases over past 50 years or some components/regions increase while others decrease)

NA Not assessed within the MA. In some cases, the service was not addressed at all in the MA (such as ornamental resources), while in other cases the service was included but the information and data available did not allow an assessment of the pattern of human use of the service or the status of the service.

738

739 Figure 5: Trends in the Human Use of Ecosystem Services and Enhancement or  
 740 Degradation of the Service Around the Year 2000. Millennium Ecosystem  
 741 Assessment (2005). *Ecosystems and Human Well-being: Synthesis*. Washington,  
 742 DC: Island Press, p.43.