

1 **Title:** Clarifying the landscape approach: A Letter to the Editor on “Integrated landscape
2 approaches to managing social and environmental issues in the tropics”
3 **Running Head:** Clarifying the landscape approach
4 **List of Authors:** James Erbaugh^{1*} and Arun Agrawal¹
5 **Affiliations:** ¹University of Michigan School of Natural Resources and Environment, 440
6 Church Street, Ann Arbor, MI 48109
7 **Corresponding Author:** *email: jerbaugh@umich.edu ; phone: (713)822-0959 ; fax: (352) 392-
8 9748
9 **Keywords:** Landscape approach; environmental governance; land management; sustainable
10 development; landscape restoration
11 **Type of manuscript:** Letter to the Editor

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/gcb.13788](https://doi.org/10.1111/gcb.13788)

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13 MR. JAMES THOMAS ERBAUGH (Orcid ID : 0000-0002-0602-9045)

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16 Article type : Letters to Editor

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19 The landscape approach (LA) to multi-functional land management has gained traction among
20 international organizations working toward sustainable development. World leaders have
21 pledged to restore 350 Mha by 2030 using the LA. Governments, multinational agencies, and
22 NGOs are key stakeholders (Bonn 2016). Focusing on the LA, Reed et al. (2016) provide a
23 definition, detail its development, and elaborate some of the challenges it faces. While
24 recognizing the importance of their contribution, we seek to clarify Reed et al.'s definition of the
25 LA, illustrate how it relates to landscape restoration, and stimulate further academic work.

26 Reed et al.'s (2016) definition of the LA is inaccurate. They define it as:

27 “a framework to integrate policy and practice for multiple land uses, within a given area,
28 to ensure equitable and sustainable use of land while strengthening measures to mitigate
29 and adapt to climate change” (Reed et al. 2015 in Reed et al. 2016).

30 The LA framework to which Reed et al refer is actually a set of ten principles (Sayer et al. 2013
31 in Reed et al. 2016). In social-ecological research, however, frameworks are considered a set of
32 variables and how those variables relate to one another (Ostrom 2007). Frameworks provide a
33 foundation to test theories of relationships through model building and evaluation (Ostrom
34 2009). The principles Reed et al. refer to are not presented in relation to one another, but as a
35 “menu” that provides management alternatives for different contexts. This strategy creates
36 difficulties. First, it implies a more robust conceptualization of the LA than is presented, possibly
37 stunting development of future frameworks. Second, given the range of principles in question,
38 most forms of environmental governance (Lemos and Agrawal 2006) might be considered a LA.

39 This capacious definition contrasts with how Reed et al. selected and eliminated literature for
40 their systematic review. They used a search protocol that highlights the intention of land
41 management, without directly searching for the principles in question (Reed et al. 2015). Based
42 on the terms in their search protocol and the principles to which they refer, it is more accurate to
43 define the LA as a management ethic. A management ethic guides the use of land or the
44 environment (Regan 1981). Trade-offs between economic, environmental, and social objectives
45 are inherent within land management. The LA therefore guides land management toward an
46 integration of policy and practice that ensures sustainable, equitable, and balanced land use;
47 strengthens climate change mitigation and adaptation; and provides adaptive and inclusive
48 management pathways for a specific area (Reed et al. 2015). The principles Reed et al.
49 acknowledge can guide the implementation of the LA ethic, but the approach is not reducible to
50 one or many of those principles.

51 Recent international pledges have connected landscape restoration with the LA. Figure 1
52 illustrates objectives, assumptions, and methods from landscape restoration and the LA. The
53 Bonn Challenge and the New York Declaration on Forests unite these concepts by promoting a
54 “landscape approach to restoration” (Bonn Challenge 2016). Therefore, the most ambitious
55 restoration pledges of our time aim to restore degraded landscapes through equitable and
56 sustainable land use that enhances climate change mitigation and adaptation. The LA is thus
57 positioned to become increasingly important for large-scale restoration and land management.
58 Social-ecological systems scholars must rise to the task of theoretically and empirically
59 advancing the LA.

60 Scholarship to advance the LA requires that its management principles be tested and coordinated.
61 A handful of publications, based on meta-analyses and expert panels, identify principles that
62 could guide the LA (e.g. Reed et al. 2016, Sayer et al. 2013). New scholarship on the efficacy
63 and implementation of the LA must tie these principles together in a cogent framework,
64 hypothesizing and testing how the different principles relate to one another through theory
65 formation and model development/evaluation. Lessons from scholarship on the commons attest
66 to the importance of testing and refining management principles (Agrawal and Benson 2011).
67 One invaluable tool to assess the efficacy of implementing the landscape approach is spatially
68 explicit impact estimation (Ferraro and Hanauer 2014, Miranda et al. 2016), especially

69 evaluation that makes use of ecological and socioeconomic datasets of high temporal and spatial
70 resolution. Such analysis can determine how different management strategies contribute to key
71 sustainable development goals, including poverty alleviation, and the protection, restoration and
72 sustainable use of terrestrial ecosystems (McCall 2016).

73 Research specific to the LA is nascent, but there is substantial international and cross-sectoral
74 excitement for the approach. Honing sets of principles to develop frameworks is a positive first
75 step. For the LA to realize its potential for restoration and sustainable development, it is critically
76 important to develop stronger frameworks and use them to evaluate theories and test models
77 through careful scholarship.

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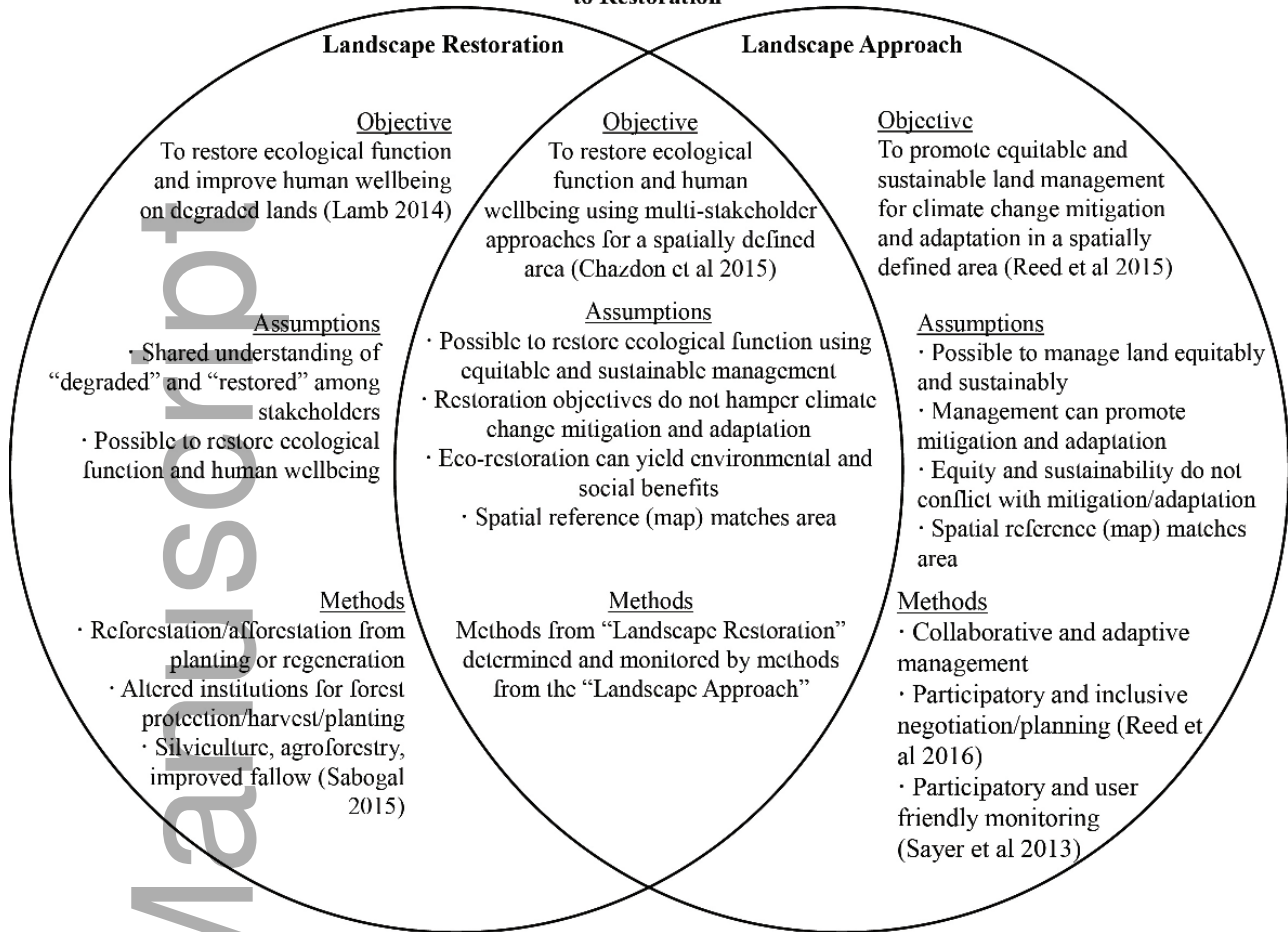
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123 Figure Captions

124 Figure 1: Objectives, assumptions, and methods for landscape restoration and the landscape
125 approach

**Landscape Approach
to Restoration**



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