UNIVERSITY OF
GLOUCESTERSHIRE

Corresponding Author: Prof. Ian Hodge,

Corresponding Author's Institution: University of Cambridge

First Author: Prof. Janet Dwyer

Order of Authors: Janet Dwyer, Ian Hodge

Abstract: Rural areas face increasing pressures to deliver both private
and public goods from land management. Multiple stakeholders seek
different outcomes; and there is substantial heterogeneity in values.
Trade-offs, synergies and complementarities exist between different
services and alternative bundles of goods. The resulting complex social-
ecological systems (SES) therefore require adaptive co-management. In a
governance context, no single organisation has oversight across the
variety of interests involved, but the challenge remains as to how these
interests can best be balanced and negotiated, to deliver socially
beneficial outcomes. This paper analyses how this might be achieved by
considering the perspective of a 'social residual claimant' (SRC). The
SRC, as an ideal type, represents the ultimate 'owner' or steward of an
ecosystem which sets the criteria to assess alternative outcomes,
identifying best approaches and promoting resilience through adaptive
management. A SRC cannot be a static construct, but must interact with
and influence private land-holders and other stakeholders, adjusting
actions as circumstances change. We identify the criteria that would be
required in order for an SRC to act in the best interests of society. We
then make a comparison of these criteria against the conditions applying
in three contrasting approaches currently operating in the UK:National
Parks Landscape Partnerships and Nature Improvement Areas.   This
enables us to identify the differences between approaches and to suggest
changes that could enhance capabilities, as well as ideas for further
research. We suggest that the ideal of an SRC offers a simple method of
benchmarking that has potential application across a wider range of
different local contexts, beyond the UK.

Response to Reviewers: Reviewer #1

1. … Thus, my major suggestion would be to clarify what they mean. And I think what they mean with the SRC is likely quite close to the idea of a bridging organization (or network administrative organizations, a policy platform, boundary organization, etc). Thus, either stick to one (or several) of these more established concepts, or more clearly explain how the SRC relate to these (and what makes it different).

Response:
We have substantially reworked the paper in order to explain more clearly the position of the SRC and why it is different from these other types of organisation.

2. The really interesting research questions, as I see it, it to try to figure out if and how governance, as an inclusive approach to government, can succeed it that. To move beyond simple assertions of the value of governance to more critically examine how to make governance arrangement effective. That research agenda includes

focusing on different 'venues' for co-management (or collaborations) – such as the studied three cases in this paper. Thus, I find the assessment of the seven criteria for these organization useful and interesting (although, again, I would not expect that any one actor would and should fulfill all of them). And worth publishing. But again, the focus on the SRC distracts the reader from the value of this exercise.

Response:
We see the shift from government to governance as a key driver for our analysis. The proliferation of governance mechanisms means that no single organisation has oversight. This emphasises the need for the SRC role.
The SRC is not taking on the full role of governance, but rather responding to the outcomes of other governance mechanisms and setting an ideal against which to identify gaps potentially left by the variety of existing actors and organisations that emerge in the process of governance.

3. So what I suggest is a major reconstruction of the paper, where the concept of SRC might even have to be discarded – unless it can be much better explained and justified.

Response:
We have substantially rewritten the paper to explain and justify our approach to the SRC.

Reviewer #2 Responses
1. The article is well written, although seems lengthy at times. This manuscript has the potential to contribute to an existing (and growing) body of literature on institutional aspects of social-ecological system (SES) governance, specifically through the direct comparison of different approaches to ecosystem (SES) governance in England.

No response.

2. Beyond this contribution of location-specific examples and comparison, I found it difficult to clearly decipher the broader implications of this manuscript, as well as how this research will appeal to the global readership of Environmental Science & Policy.

Two reasons brought me to this point:
1) many of the conclusions the authors reach are findings common to (and do not significantly advance) the rather robust literature on adaptive governance, adaptive co-management and collaborative (environmental) management broadly, and

Response:
We argue that the idea of an SRC offers a systematic methodology for assessing governance structures that can have much wider application. We are illustrating this through the English case studies but see the main contribution as methodological. We believe that the introduction of the idea of the social residual claimant is a novel contribution. We have tried to emphasise and justify this in the revision.

3. 2) the conclusions are relative to the developed, highly-institutionalised context of an advanced nation such as England. This second point is not an insurmountable concern; I urge the authors to briefly discuss the applicability of their findings beyond the context in which voluntary and funded collaboration for environmental decision making is a viable alternative.

Response:
We have emphasised the point of the SRC as a methodological approach that has wider relevance. We have added conclusions that make this wider point.

4. Further, I wish the authors would make their overall contribution and implications of this research more apparent in the conclusion and perhaps in the abstract and introduction as well. As it stands, the advancement of theory on the governance of complex SESs is unclear

Response:
This has now been explained in the introduction and conclusions and in the abstract.

5. Structurally, I first suggest that the authors remove Table 2. Whereas the focus of the analysis in this manuscript is on the scale/scope of an SES, this table and background focused on 'rural' governance more generally seems unnecessary and distracting.

Response:
Yes. Table 2 has been removed.

6. Instead, spend more time discussing why NPAs, LPs and NIAs were chosen above these more sectorial organisations to analyse in the context of SRCs.

Response:
We have added discussion on this point.

7. In addition, under your analysis of "Criterion 1" starting on page 11 line 21, the bulk of the information here is just describing what each of these initiatives/organisations are and how they operate. This information could be much more easily conveyed in a table, and I think this table could be a good substitute for the current Table 2. Such a table could include a brief background for each organisation (NPA, LP, NIA) with columns such as "history, mission, purpose, level of integration" etc. I see two benefits from such a table: 1) provides the

reader with a quick reference context to refer to as you continue to analyse these organisations in terms of your 7 Critera; and 2) frees up text space for you to discuss Criterion 1 more substantively (specifically the range of ecosystem services valued in each NPA, LP, NIA), currently a weakness of this section.

Response:
We have added a table that summarises some of this information and edited the section in light of this.
We have added discussion with regard to Criterion 1.

8. I also suggest that the authors shorten the manuscript. There seem to be a handful of paragraphs that monopolise space to explain concepts tangentially related to understanding the role of the SRC concept in critiquing SES governance arrangements both theoretically and in the English example. Specifically, consider removing or substantially shortening the following lines: page 4 line 60 through page 5 line 6; page 8 lines 27-31; page 9 lines 24-42; and page 18 lines 38-43.

Response:
We have edited out text in the sections referred to. We have also cut out Table 1 and other material that is less central to our argument.

9. In general, I find the SRC framing to be problematic. I do not suggest that my contention with the SRC concept inhibits the publishability of this manuscript, but I do feel that it merits a brief discussion here. The way the SRC is presented in this manuscript assumes that there can (and should?) exist an ideal group, entity or organisation ("claimant") that, in the authors words, "owns" an ecosystem at a particular scale. The concept also assumes that this "claimant" will advocate on behalf of the beneficiaries of ecosystem service at the particular SESs scale in question (focal scale). How is it possible to ignore the political unlikelihood of such an assumption? How does the claimant construct a 'collective will' from which to advocate? How are marginalised beneficiaries represented at these scales? Is the ideal-type of an SRC truly inclusive and consensus-driven? If so, is it still helpful to measure potential success against what is likely to be a political infeasible ideal? Does this concept take into account what is likely to be the nested nature, overlap and redundancy of claimants depending on focal scale of SES conflicts? How does the SRC concept differ from, compliment or contradict the literature on adaptive governance which includes the emergence of organisations of co-management, the application of adaptive management, but also takes into account the role of markets, hierarchies, established institutions (including formal laws and informal rules and social norms) and political realities (Folke et al. 2005; Olsson et al. 2006; Chaffin et al. 2014; Schultz et al. 2015)?

Response:
This is a key issue and we have rewritten the text to clarify and explain the SRC as an 'ideal type' rather than a practical organisation to be established. We have included new material and substantially rewritten the text to clarify and sharpen our arguments about the nature and relevance of the SRC.

Our aim is not to prescribe how an SRC would operate in practice (eg how to determine a collective will or represent maginalised beneficiaries), or to prescribe any particular approach to governance, (such as to manage for resilience). Rather the method seeks to offer the criteria for

assessing the extent to which governance structures in practice meet our ideal.

We have revised the text to clarify this and avoid the impression given that we wish to prescribe the particular approaches that an SRC should take.

10. "Promoting resilience" (abstract line 34, page 5 line 35, etc.) supports a normative reading of the concept of "resilience." While there is a multiplicity of interpretations of this problematic term (Brand and Jax 2008), resilience in the context of SESs is a non-normative property (Gunderson and Holling 2002); resilience is a description of the degree to which a system can withstand disturbance (both internal and external) and maintain a system of stabilising feedbacks. In terms of governance, an oppressive dictatorship can be resilient, as can a system of SES governance that promotes unbridled resource extraction, and marginalisation of a social wellbeing as long as the resource base and power structures will allow. Obviously such a trajectory is not sustainable, but it may be extremely resilient and require substantial disturbance to force regime shift. Given this context, I find that "promoting resilience" as a goal in and of itself, is difficult to swallow.

Response:
As noted above, it was not our intention to promote a 'resilience' approach in this paper. Rather the approach to be adopted should be determined through the SRC process. We have reworded the text to reflect this approach.

11. List of "ecosystem" governance challenges on page 3: why are these not SES governance challenges? These all seem to have socio-economic and political aspects as important as the biophysical uncertainty surrounding them.

Response:
Yes, this has been amended.

12. Page 4, transition between Part 3 and Part 4 of manuscript: a transitioning sentence or paragraph between the theoretical discussion of the SRC and the "cases" you explore in England (NPA, LP, NIA) would help the readability here.

Response:
We have added a linking sentence at the start of Section 4.

13. In addition, how did you justify choosing the three initiatives/organisations you chose to compare? What were your methods for analysing these examples? Without knowing how these examples were selected and the methods and breadth of information used to analyse them, the robustness of your conclusions cannot be assessed. Please address

Response:
We have added discussion on this point.

14. Page 13, lines 27-30: you discuss "authority and capacity" here, what about legitimacy?

Response:
Our summary list of criteria inevitably cannot discuss all of the relevant issues. For example, the SRC would need to take a broad view (Criterion 1) in order to have legitimacy. We would then assume that legitimacy would be a necessary precursor to authority and have not included this explicitly.

15. Table 3: why not compare all three examples here (NPA, LP, NIA), why just NPA? However, I recognise the authors state that NPAs have the most advanced governance roles/responsibilities, it still may be a relevant comparison for the manuscript as a whole.

Response:
A table of this sort for the other 2 cases would have a large number of empty boxes given the narrower focus of the LPs and NIAs.

16. Page 16, line 20: Again, this statement makes my question above related to your methods much more critical to address.

Response:
We recognise this limit of the approach taken here.

17. Page 20, line 12: "funding... guaranteed for a minimum of, say, five or six years"—based on what evidence? Why not 10-12 years? This seems like an arbitrary suggestion.

Response:
This reflects our experience with the analysis of partnerships in the UK but of course there is no clear number. The 5 or 6 years is to emphasise something beyond the usual shorter terms while avoiding any open-ended commitment. The wording has been revised.

Professor Ian Hodge
Professor of Rural Economy

UNIVERSITY OF
CAMBRIDGE
Department of Land Economy

23 June 2016

Dr Martin Beniston
Editor in Chief
Environmental Science and Policy

Dear Dr Beniston

Thank you for your responses to our paper: 'Governance structures for social-ecological systems: institutional directions in the United Kingdom' submitted to *Environmental Science and Policy*.

The Reviewers' comments have prompted us to substantially re-write large sections of the paper in order sharpen our ideas and clarify our presentation, to justify our approach and to explain why we believe that the approach has more general relevance. We have also cut out a significant volume of less critical material.

I hope that this will have met your Reviewers' concerns.

Yours sincerely

Reviewer #1	Responses
… Thus, my major suggestion would be to clarify what they mean. And I think what they mean with the SRC is likely quite close to the idea of a bridging organization (or network administrative organizations, a policy platform, boundary organization, etc). Thus, either stick to one (or several) of these more established concepts, or more clearly explain how the SRC relate to these (and what makes it different).	We have substantially reworked the paper in order to explain more clearly the position of the SRC and why it is different from these other types of organisation.
The really interesting research questions, as I see it, it to try to figure out if and how governance, as an inclusive approach to government, can succeed it that. To move beyond simple assertions of the value of governance to more critically examine how to make governance arrangement effective. That research agenda includes focusing on different 'venues' for co-management (or collaborations) – such as the studied three cases in this paper. Thus, I find the assessment of the seven criteria for these organization useful and interesting (although, again, I would not expect that any one actor would and should fulfill all of them). And worth publishing. But again, the focus on the SRC distracts the reader from the value of this exercise.	We see the shift from government to governance as a key driver for our analysis. The proliferation of governance mechanisms means that no single organisation has oversight. This emphasises the need for the SRC role. The SRC is not taking on the full role of governance, but rather responding to the outcomes of other governance mechanisms and setting an ideal against which to identify gaps potentially left by the variety of existing actors and organisations that emerge in the process of governance.
So what I suggest is a major reconstruction of the paper, where the concept of SRC might even have to be discarded – unless it can be much better explained and justified.	We have substantially rewritten the paper to explain and justify our approach to the SRC.
Reviewer #2	**Responses**
The article is well written, although seems lengthy at times. This manuscript has the potential to contribute to an existing (and growing) body of literature on institutional aspects of social-ecological system (SES) governance, specifically through the direct comparison of different approaches to ecosystem (SES) governance in England.	
Beyond this contribution of location-specific examples and comparison, I found it difficult to clearly decipher the broader implications of this manuscript, as well as how this research will appeal to the global readership of Environmental Science & Policy. Two reasons brought me to this point: 1) many of the conclusions the authors reach are findings common to (and do not significantly advance) the rather robust literature on adaptive governance, adaptive co-management and collaborative (environmental) management broadly, and	We argue that the idea of an SRC offers a systematic methodology for assessing governance structures that can have much wider application. We are illustrating this through the English case studies but see the main contribution as methodological. We believe that the introduction of the idea of the social residual claimant is a novel contribution. We have tried to emphasise and justify this in the revision.
2) the conclusions are relative to the developed, highly-institutionalised context of an advanced nation such as	We have emphasised the point of the

England. This second point is not an insurmountable concern; I urge the authors to briefly discuss the applicability of their findings beyond the context in which voluntary and funded collaboration for environmental decision making is a viable alternative.	SRC as a methodological approach that has wider relevance. We have added conclusions that make this wider point.
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Instead, spend more time discussing why NPAs, LPs and NIAs were chosen above these more sectorial organisations to analyse in the context of SRCs.	We have added discussion on this point.
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| I also suggest that the authors shorten the manuscript. There seem to be a handful of paragraphs that monopolise space to explain concepts tangentially related to understanding the role of the SRC concept in critiquing SES governance arrangements both theoretically and in the English example. Specifically, consider removing or substantially shortening the following lines: page 4 line 60 through page 5 line 6; page 8 lines 27-31; page 9 lines 24-42; and page 18 lines 38-43. | We have edited out text in the sections referred to. We have also cut out Table 1 and other material that is less central to our argument. |
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"Promoting resilience" (abstract line 34, page 5 line 35, etc.) supports a normative reading of the concept of "resilience." While there is a multiplicity of interpretations of this problematic term (Brand and Jax 2008), resilience in the context of SESs is a non-normative property (Gunderson and Holling 2002); resilience is a description of the degree to which a system can withstand disturbance (both internal and external) and maintain a system of stabilising feedbacks. In terms of governance, an oppressive dictatorship can be resilient, as can a system of SES governance that promotes unbridled resource extraction, and marginalisation of a social wellbeing as long as the resource base and power structures will allow. Obviously such a trajectory is not sustainable, but it may be extremely resilient and require substantial disturbance to force regime shift. Given this context, I find that "promoting resilience" as a goal in and of itself, is difficult to swallow.	As noted above, it was not our intention to promote a 'resilience' approach in this paper. Rather the approach to be adopted should be determined through the SRC process. We have reworded the text to reflect this approach.
List of "ecosystem" governance challenges on page 3: why are these not SES governance challenges? These all seem to have socio-economic and political aspects as important as the biophysical uncertainty surrounding them.	Yes, this has been amended.
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In addition, how did you justify choosing the three initiatives/organisations you chose to compare? What were your methods for analysing these examples? Without knowing how these examples were selected and the methods and breadth of information used to analyse them, the robustness of your conclusions cannot be assessed. Please address	We have added discussion on this point.
Page 13, lines 27-30: you discuss "authority and capacity" here, what about legitimacy?	Our summary list of criteria inevitably cannot discuss all of the relevant issues. For example, the SRC would need to take a broad view (Criterion 1) in order to have legitimacy. We would then assume that legitimacy would be a necessary precursor to authority and have not included this explicitly.
Table 3: why not compare all three examples here (NPA, LP, NIA), why just NPA? However, I recognise the authors state that NPAs have the most advanced governance roles/responsibilities, it still may be a relevant comparison for the manuscript as a whole.	A table of this sort for the other 2 cases would have a large number of empty boxes given the narrower focus of the LPs and NIAs.
Page 16, line 20: Again, this statement makes my question above related to your methods much more critical to address.	We recognise this limit of the approach taken here.
Page 20, line 12: "funding... guaranteed for a minimum of, say, five or six years"—based on what evidence? Why not 10-12 years? This seems like an arbitrary suggestion.	This reflects our experience with the analysis of partnerships in the UK but of course there is no clear number. The 5 or 6 years is to emphasise something beyond the usual shorter terms while avoiding any open-ended commitment. The wording has been revised.

*Research Highlights

Highlights:

- Ideal governance may be conceptualised as delivered by a social residual claimant
- Governance proliferates institutions with no single agency having oversight
- Partnerships are tasked to deliver public benefit not their own collective interest
- Short-termism undermines building social capital and long term planning

Governance structures for social-ecological systems: institutional directions in the United Kingdom

Janet Dwyer[a], Ian Hodge[b]*

[a]Countryside and Community Research Institute, University of Gloucestershire, Oxstalls Campus Oxstalls Lane, Gloucester, Gloucestershire GL2 9HW, United Kingdom

[b]Department of Land Economy, University of Cambridge, 19 Silver Street, Cambridge CB3 9EP, United Kingdom

*Corresponding author at: Department of Land Economy, 19 Silver Street, Cambridge CB3 9EP
E-mail address: idh3@cam.ac.uk

Abstract

Rural areas face increasing pressures to deliver both private and public goods from land management. Multiple stakeholders seek different outcomes; and there is substantial heterogeneity in values. Trade-offs, synergies and complementarities exist between different services and alternative bundles of goods. The resulting complex social-ecological systems (SES) therefore require adaptive co-management. In a governance context, no single organisation has oversight across the variety of interests involved, but the challenge remains as to how these interests can best be balanced and negotiated, to deliver socially beneficial outcomes. This paper analyses how this might be achieved by considering the perspective of a 'social residual claimant' (SRC). The SRC, as an ideal type, represents the ultimate 'owner' or steward of an ecosystem which sets the criteria to assess alternative outcomes, identifying best approaches and promoting resilience through adaptive management. A SRC cannot be a static construct, but must interact with and influence private land-holders and other stakeholders, adjusting actions as circumstances change. We identify the criteria that would be required in order for an SRC to act in the best interests of society. We then make a comparison of these criteria against the conditions applying in three contrasting approaches currently operating in the UK: National Parks Landscape Partnerships and Nature Improvement Areas.   This enables us to identify the differences between approaches and to suggest changes that could enhance capabilities, as well as ideas for further research. We suggest that the ideal of an SRC offers a simple method of benchmarking that has potential application across a wider range of different local contexts, beyond the UK.

Keywords:
Environmental governance

Social residual claimant
Social-ecological systems

National Parks

Landscape Partnerships
Nature Improvement Areas

Highlights:
- Ideal governance may be conceptualised as delivered by a social residual claimant
- Governance proliferates institutions with no single agency having oversight
- Partnerships are tasked to deliver public benefit not their own collective interest
- Short-termism undermines building social capital and long term planning

Janet Dwyer

JANET DWYER is Professor of Rural Policy and Director of the Countryside and Community Research Institute at the University of Gloucestershire. She is an experienced EU policy evaluator, a Fellow of the Royal Society of Arts and an active member of the Agricultural Economics Society. Her research interests are in policies for sustainable agriculture and rural development, their design, implementation, analysis and impact, with particular concern for integrated approaches and innovation. She has an MA in Natural Sciences (biological, Cantab) and a PhD in Agricultural Economics (Wales). She previously worked in a government agency for conservation in England and at the Institute for European Environmental Policy (IEEP).

Ian Hodge

IAN HODGE is Professor of Rural Economy in the Department of Land Economy and Fellow of Hughes Hall at the University of Cambridge. He was Head of Department between 2002-2011. He is a Fellow of the Royal Institution of Chartered Surveyors and past President of the Agricultural Economics Society. His primary research interests are in rural environmental governance, property institutions and rural development. He has previously worked at the Universities of Queensland in Australia and Newcastle upon Tyne in the UK. He has a PhD from the University of London and BSc from the University of Reading.

1. The challenge of social-ecological systems governance

Environmental resources are increasingly required to deliver complex mixes of both private and

public goods and services. Particular pressures articulate around the current and future use and management of rural land. Options for the delivery of agricultural outputs have traditionally been resolved within individual farm business decision-making. But today, the wider social demands to meet biodiversity, climate, public access, energy, landscape and water management objectives, alongside the production of food and fibre, indicate the need for a broader, multi-actor and

pluridisciplinary, deliberative approach. This range of desired outputs is increasingly characterised in terms of the delivery of ecosystems services (Millennium Ecosystem Assessment, 2005; UK National Ecosystem Assessment, 2011; Schröter, *et al.*, 2014) and so the promotion of a socially desirable

package of public and private goods through land use planning and management may be cast in terms of the appropriate governance of ecosystems.

Effective ecosystem governance in this context faces many major challenges.

- Multiple stakeholders, at multiple scales (local, regional, national and international) value ecosystem goods and services differently, not simply in terms of relative valuations of particular items, but also in terms of the broader value systems which underpin their preferences.
- The values of services generated within a particular locality depend on both the capacity of the local area to supply them, as well as on the character and scale of local and non-local demands for them. There is thus substantial spatial heterogeneity.
- There are trade-offs but also synergies and complementarities amongst ecosystems services; not just between individual private and public goods, but also amongst alternative bundles of public and private goods.
- The land and/or the capacity to control and influence the delivery of ecosystems services is usually in multiple and complex ownerships.
- Public policy towards individual ecosystem services tends to be implemented through separate agencies, with limited co-ordination between them.
- The operation of certain key elements within ecosystems (e.g. climate regulation; biological adaptation) is only partially understood and subject to uncertainty and ignorance.

This mix of challenges, which combines both 'natural' and 'human' elements[1] together in a social-ecological system (SES) (Folke et al., 2005) requires land management at a scale larger than that of a typical, individual farm business. But it is difficult to generalise about exactly how large this scale should be. Important interactions between elements within the system occur at all scales, ranging from those at micro-scale (e.g. between plant roots, fungal mycorrhizae and the soil), to those with much broader impacts (e.g. greenhouse gas emissions acting on global climate). However, discontinuities in the strength and nature of interactions can be identified and used to define certain scales at which there is a greater degree of system-internalisation of impacts or outputs; thus, delimiting the SES in respect of these features. For example for hydrology, it might be represented by a catchment, whereas for landscape or ecology it could be some sort of 'natural area' or relatively homogeneous landscape unit. This is not to imply that ecosystems are always congruent with such 'landscape-scale' places: rather, that in practice the formation of governance structures demands specific (usually spatial) delineations within which institutional rules may be defined and implemented for SES planning and management.

Beyond the question of scale, there is the need to establish an effective governance structure and modus operandi. We rarely have appropriate, established institutional structures through which values and options may be explored and shared, consensus determined and processes established for the delivery of socially desired ecosystem management. Most existing governance structures lack capacity to identify and adequately represent the complex range of attributes and services that flow from rural land management in the long term. This problem has been recognised previously:

Lindberg and Fahlbeck (2011, p. 35) comment that there is "scope for new forms of institutional arrangements, or governance, to make better use of synergies and complementary inter-relations

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[1] We use this dichotomy for the sake of simplicity in language, whilst acknowledging the scientific impossibility of defining boundaries between its poles.

between actors and activities". Erickson (2015) comments on the need for new institutions to improve the resilience of SESs. Lubell (2015, p. 44) argues that determining "which institutional structures work best in different situations is one of the most important unresolved questions in the policy sciences". Chaffin et al. (2014) have argued for more research on the relationship between the principles of adaptive governance and those of 'good' governance. Market based instruments have potential roles, but they are incomplete and their outcomes uncertain (Lockie, 2013). We also recognise that the required institutional arrangements will not simply reveal an existing set of shared values and preferences but rather they must be deliberative, acting to create these values.

Vatn (2005, p. 203) argues that "the core policy issue is to determine which institutional frameworks are most reasonable to apply to which kinds of problem". Choices reflect the norms, rules and expectations as reflected in the institutions of a society. From this perspective, the sharing and development of a common view means that institutional arrangements for governance will shape both the values underpinning SES planning and management, and the specific management or resource-allocation decisions that arise from them.

In this paper we explore approaches to the governance of SESs. Our method centres around the perspective of an 'ideal type'; the social residual claimant (SRC). In recognising that there is no single organisation or forum that takes an overview of the workings, desired outcomes and wider implications of ecosystems, the SRC represents how the 'owner' of an SES would act to maximise the long term societal value arising from the provision of ecosystem services. This enables the identification of criteria that need to be met in order to achieve this ideal. We then compare these criteria against three case studies of collective environmental governance in the UK. This shows how these approaches to ecosystem governance differ from the SRC ideal and hence suggests directions for further research and development.

2. The relevance of the Social Residual Claimant

Under most conditions of governance, multiple actors and stakeholders influence outcomes in a variety of ways through markets, institutional hierarchies and networks (e.g. Rhodes, 1999), and no single agent has a clear overall control. Chhotray and Stoker (2010 p. 3) see governance operating in a context where "there are a plurality of actors or organisations and where no formal control system can dictate the terms of the relationships between these actors and organisations". This raises the question as to how in principle we can envisage 'optimal' governance of an SES, as a standard against which to assess actual governance processes. It is certainly possible to conceive of a hypothetical single, benign 'owner'. Such an 'owner' of an SES would act as an SRC (Hodge and Adams, 2014). As identified in economic theory, the residual claimant of an enterprise acts to maximize the residual that is left after all costs have been paid and revenues received, and hence maximise the net benefit gained, as judged by the claimant. Varian (1993 p.617) argues: "In order to design an efficient incentive scheme it is necessary to ensure that the person who makes the effort decision is the residual claimant to the output". The residual claimant also bears the residual risks after all exchanges have taken place. In a private company, the residual claimant receives the net cash flows: the difference between the revenues received and the payments made (Fama and Jensen, 1983b). However, the management of an SES bears more resemblance to a non-profit organisation, where there are no agents with alienable rights to residual net cash flows (Fama and Jensen, 1983a p. 318)and thus risks are borne by consumers or beneficiaries of that organisation's

activities, as well as by the factors used to produce the outputs (Fama and Jensen, 1983b). Residual claims are vested in a board of trustees acting on behalf of the beneficiaries and net cash flows are

all committed to current and future output (Fama and Jensen, 1983b, p. 348). Speckbacher (2008 p. 305) comments that "residual rights of control include the right to interpret its mission and turn it into something more concrete by formulating organisational objectives, the right to specify how this

mission is best realized and the right to make all management decisions". We thus see the SRC taking a role equivalent to the board of trustees of a non-profit organisation and acting for the collective interest of all stakeholders. Because the impacts of planning and managing rural land in

an SES include both market and non-market values, the residual claimant effectively acts as a societal agent, determining collective values and preferences, taking account of the full range of public and private impacts, and identifying and implementing appropriate management options.

We also need to identify the beneficiaries on whose behalf the trustees act. If we identify an SES

operating across a defined spatial area, then the beneficiaries or stakeholders are those people within that area whose welfare is affected by the operation of the SES. This is clearly only a subset of all of the people who are affected by the SES, as some may be outside the defined area.

However, for those physically present within the defined space, incentives will be established by external agencies and institutions in order to influence local actions that have wider consequences. In addition, our beneficiaries should also include those who can reasonably be expected to be

present in the future.

This idea of the SRC aims to fill a missing element in the analysis of the governance of SESs. In practice, the governance of an SES involves numerous sets of institutions operating with different types of agent and at different scales. These are implemented by separate organisations targeting

narrow sets of ecosystem services, such as forestry, water quality, biodiversity or flood protection, perhaps with little consideration for the interactions with other ecosystem services or wider social impacts. Generic interventions, such as regulatory standards, imposed by higher levels of authority

will impact differently within different contexts at lower levels. These interventions operate and interact through social, economic and environmental relationships leading to particular local outcomes. They operate imperfectly, often with impacts that had not been planned and side effects

that had not been anticipated. And some aspects of the operation of ecosystems that could have more beneficial local impacts will not be addressed by policy interventions at all. The SRC experiences the cumulative effects of these processes and impacts (both positive and negative) within a local area. It aims to attain, as a single idealised agent, the values that would emerge from a 'perfectly' balanced decision-making process encompassing all stakeholders, taking a long-term

and perfectly informed viewpoint.

We are not proposing that such an organisation could exist in practice or that there 'should' be a

single entity that encompasses all of these qualities. Our SRC is an 'ideal type', an idealised version of a decision-making process which can serve as a benchmark against which to assess real-world governance structures. Coser (1977 p.223) defines Weber's ideal type as an "analytical construct

that serves the investigator as a measuring rod to ascertain similarities as well as deviations in concrete cases". It is not meant to be realistic or to represent a practical goal for policy, but it serves a useful purpose in providing a method by which to compare and assess alternative governance

approaches. In practice, there is no single organisation or forum where a perspective exactly

equivalent to that of a SRC is taken. The implication of our approach is not that we should seek to create a single organisation but rather that governance systems should be developed in such a way

that the processes encapsulated in the SRC concept should be implemented, through which values and issues may be recognised, shared and deliberated taking account of the consequences, intended or incidental, of other governance arrangements.   The aim of these approaches might be to

maximise (in some sense) or optimise net social benefit or in the face of significant uncertainties they might seek to promote resilience through adaptive management (Folke, 2006). Our focus is therefore not on the concept of the SRC as a governance approach in its own right, but on the

various forms of governance structure that could meet similar criteria of operation, thereby enabling a community both to determine appropriate objectives and/or targets for ecosystem management, and to take actions in order to pursue them.

3.   Criteria for effective operation as a SRC

For any coherent unit of rural land, governance outcomes emerge from the multiplicity of markets, hierarchies of state regulations and networks impacting on the actions of stakeholders within the

local area. Local actors will receive payment for marketed outputs. Following the polluter pays and provider gets principles (Hodge, 2016), external costs (i.e. beyond the boundaries of the area) may be regulated or penalised and external benefits may be paid or rewarded. A parallel argument

applies to impacts from outside the area that are experienced within it. These will generally be implemented by governments and other actors beyond the area covered by the ecosystem, in polycentric governance systems (Ostrom, 2010). They require effective communication across scales (Vignola, et al., 2013).

The significance of the SRC is that it assesses the net outcomes that arise from these combined operations within a locality. Given the degree of uncertainty surrounding SES behaviour, the outcomes that arise from these various interventions impacting within the local area will often be

different from those intended, or outcomes intended at one point in time will no longer represent those desired at some later date when available information or circumstances have changed. This implies a need for an adaptive management approach (e.g. Lee, 1999); a need constantly to adjust

actions in pursuit of locally determined, probably shifting, objectives. And if an SRC is to have the capacity to promote socially optimal objectives, it needs to be able to influence the ways in which SES resources are generated or fostered, used and managed. Because in the UK the land-based and human elements of SES are largely private, this process must be able to influence the actions of private agents. The means by which such influence is exerted have been set out, for instance, by

Brown and Everard (2015) and are not discussed here. Our focus is on the element missing in their framework concerning who has the oversight and authority to determine and implement the relevant suite of options across different sectors.

The issue in question goes beyond the collective management of common property resources such as promoted by Ostrom (1990). As noted at the start, the SES is complex with multiple agents and

interests. The approach here is rather a form of co-management (Carlsson and Berkes, 2005) or adaptive governance (Plummer, et al., 2013). These two terms are often used synonymously (Chaffin, et al., 2014). As expressed by Lubell (2015, p. 42) "Actors must learn what types of policy solutions can provide mutually beneficial outcomes, cooperatively act together to implement the

agreed-upon policy solutions, and bargain over the distribution of costs and benefits". To this we might add the higher level questions of determining the constitutional arrangements under which the collective choice decisions are made (Ostrom, 2005) and which will influence the level and incidence of benefits and costs of alternative choices. Any co-management organisation meeting the criteria for an SRC would have to engage in a range of planning, implementation, co-ordination and monitoring activities. Lindberg and Fahlbeck (2011) found evidence of collective organisations becoming involved in these sorts of co-management activities in Sweden. Schultze et al. (2015) provide case studies of three initiatives adopting adaptive governance.

In considering how best to stimulate and support an effective SRC governance approach in any specific context, we can identify some potentially relevant guidance within Ostrom's (2005 p.259) design principles for robust common property institutions. However, as explained earlier, the context for the governance of an SES is one of co-management, rather than common property management. Thus principally the SRC needs to:

1. Take account of the range of values of ecosystems services pertaining to a particular area (breadth of concern). This sets the context within which the SRC can determine trade-offs between values.
2. Have sufficient spatial coverage to capture/internalise key systems linkages (spatial scale). This internalises the major values.

3. Have means to effect changes in land and resource management either through authority to implement policy mechanisms or ability to act on its own behalf (authority and capacity to act). This enables the SRC to translate its objectives into practical actions on the ground.
4. Include representatives of and be accountable to local stakeholders (representativeness) so that the important values are represented internally within the SRC. This requires the SRC to respect formal and informal institutions.
5. Be able to take the long view (e.g. via a low discount rate, or similar) so that the SRC will give due weight to values as they impact on current and future populations.

6. Be subject to some degree of external regulation and audit (accountability). There should be some independent audit process to ensure that an organisation follows good practice.
7. Have a capacity to build social capital and active learning (deliberative decision making and adaptive management). A culture of trust and reciprocity can facilitate the process of consensus-building, better reflecting stakeholder values and reducing transactions costs. Assuming imperfect knowledge of how land management affects the delivery of ES in an unpredictable SES, working with experts and practitioners can promote active learning and adaptive management.

As can be seen, the criteria for effective SRC behaviour include some that are 'static' or pre-determined and others that are dynamic, only developing over time as the governance structure builds institutional and social capital and implements planning and management. Furthermore, as the scale and nature of SES elements vary between localities, it is to be expected that governance structures will similarly vary – institutional design will reflect the complexities and values of the assets being managed and the potential gains to be had from alternative intensities of governance and the costs of implementing them. Nevertheless, it should be possible to analyse and interpret how a variety of different SES governance approaches match up against these criteria in practice.

4. Governance structures in practice

We explore the extent to which governance arrangements meet these criteria through case studies of current environmental management initiatives and institutions in the UK. Governance can be organised along sectoral or spatial lines. Predominantly central government is sectoral while local government is territorial, with responsibilities for spatial planning and the provision of a range of local services. Central government departments are responsible for implementing legislation at a national (country within the UK) scale, and increasingly over the years subject to legislation and policies adopted within the European Union and transposed into local regulations. While the approach and implications vary territorially, the values that are applied essentially arise from the way in which the legislation is initially written, interpreted and implemented through European institutions, UK Parliament and the judicial institutions. This establishes the context within which local areas operate.

Members of local councils will in principle represent the values of the local community. But the competences of local government do not span the full range of rural land issues. In the UK, territorial planning decisions are determined at a local level by local government authorities, subject to central government principles, guidance and appeals but local government has relatively little influence over the ways in which undeveloped land is used. In respect of hydrological processes local authorities have a role in flood protection (working with the government's Environment Agency, in England), and in respect of recreation and landscape management, local authorities undertake maintenance and surveillance of rights of way and open access areas.

Notwithstanding this mix of functions invested in formal local government structures, the shift towards working at a 'landscape' or ecosystem scale over the past twenty years or so has spawned a variety of new approaches (Lawton et al., 2010; Benton, 2012; Helm, 2015). In particular, different initiatives have sought to establish local partnerships in England that bring together stakeholders with shared interests in practical environmental management. A large number of initiatives have been funded by government and its agencies to stimulate partnership projects with the aim of promoting collective action across different areas of land and / or integration of interests across different land use sectors or ecosystem services. Some new partnerships have been established as new bodies, such as River Basin District Liaison Panels set up under the EU Water Framework Directive (Cook, et al., 2012) for integrated catchment management (Short, 2015), partnerships supporting the delivery of large scale conservation areas (Adams, et al., 2014; 2016) or farmer groups in the provision of environmental services (Jongeneel and Polman, 2014). A suite of partnerships is the direct result of specific funding packages – as in the case of Heritage Lottery Landscape Partnerships, Payment for Ecosystem Services pilots and Nature Improvement Areas; whilst others have arisen through bottom-up empowerment processes, including non-statutory arrangements such as ad hoc catchment groups (Benson, et al., 2013).

These groups generally bring stakeholders together to consider interventions or initiatives to be undertaken within a local area. The stakeholders may be from just two sectors, such as a group of landholders jointly entering into an agri-environment contract with a government agency (Franks and Emery, 2013), or from multiple sectors (wildlife and landscape protection, water quality, farming, forestry, public access, local community/quality of life) focusing on a particular issue, such

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as water quality standards, or particular location, such as a National Park. Commonly, a major motivation behind partnership lies in the availability of funding such that the collective decisions to be made relate to the particular projects to which funding should be allocated. Those involved thus have to negotiate a preferred plan and process for achieving a range of targets, as well as to oversee implementation of the plan and to monitor and report on achievements. The extent to which they participate genuinely in pursuit of the overall 'common interest' or to which each partner acts in pursuit of its own individual or organisational interest will not always be evident. Participation by these organisations is voluntary and they have little leverage to promote actions and none to coerce actions. However, the source of funding holds authority over their 'performance' in the sense that funding could be withdrawn or reclaimed if the partnership fails to deliver against its plans. Partnerships do not have a democratic mandate, except indirectly through the involvement of stakeholders from elected bodies. Nonetheless, many have a strong participatory agenda through which the actions of the partnership are expected to be determined collectively and thus 'legitimised' by a wider public. For some such bodies, the scope of their interests tends to be limited and they will generally operate over a fixed time period; but for others, even in cases where funding is time-limited, the partnership will sustain itself through a variety of tactics including serial bidding for funds and diversification of operational models.

5. Development of SES governance approaches in the UK

In principle, we may envisage governance organisations for an SES operating at different scales, addressing different mixes of benefits and costs and representing the interests of different sets of agents. The larger the scale and the greater the number of agents operating within the area of governance and the wider the range of ecosystems services covered, then the stronger will be the authority required to direct agents' actions and the more complex will be the challenge of reaching consensus. While an 'ideal type' might apply these governance principles at relatively large scale across a broad set of ecosystem services, in practice we have not identified institutional structures meeting these conditions. We can though identify emergent institutional structures that embody at least some of the elements of an ideal SES governance approach, but either at a smaller spatial scale or covering a restricted range of ecosystem services.

In order to explore the extent to which these governance principles are applied in practice we consider the approaches adopted in three policy contexts in the UK. A number of existing UK organisations and initiatives undertake aspects of these governance roles, including National Park Authorities; Nature Improvement Areas (NIAs); River Basin management planning under the Water Framework Directive (e.g. Benson et al. 2013); Landscape Partnerships (funded by the Heritage Lottery Fund); Commons Associations and Agri-environment farmer groups. From these initiatives we have chosen to assess three contrasting examples against the proposed SRC criteria. These represent programmes adopted across a significant number of cases at a national level and for which we have access to information on their organisation and approaches. The initiatives require stakeholders with interests in different sectors to work together towards a common objective. We do not claim that they are representative of all initiatives and we would argue that similar analysis could be undertaken across other examples. A key aim here is to test whether the assessment of these environmental initiatives against the criteria identified for an SRC has the potential to identify particular strengths and limits of the approaches to governance represented by these programmes.

For the three selected initiatives – National Parks; Landscape Partnerships and NIAs, we pose the question: Does the governance arrangement effectively act as an SRC with regard to the SES in a

particular locality? This then enables a comparative analysis of the strengths and weaknesses of each by comparison with the 'ideal' as represented by the criteria elaborated above. We set out some basic characteristics of the programmes from which the cases are drawn in Table 1 and then assess

each criterion in turn, for each of the 3 cases. The discussion is based on information available through websites, published evaluations and other literature and through the authors' personal experiences with these organisations. We have not undertaken interviews with the staff of the

organisations specifically to explore the issues raised here: that would be an issue for further research.

Table 1: Key characteristics of selected programmes

	National Parks in England	**Landscape Partnerships in UK**	**Nature Improvement Areas in England**
Purpose	Implementation and management of National Parks	Landscape enhancement through Heritage Lottery funding	Landscape- scale nature conservation
History	Established under National Parks and Access to Countryside Act 1949	Implemented by Heritage Lottery Fund in 2003	Implemented following Natural Environment White Paper (Defra, 2011) from 2012 to 2015.
Number of areas	10	99	12
Decision-making body	National Park Authority	Partnership	Partnership
Scope	Natural beauty, wildlife and cultural heritage. Public understanding and enjoyment. Social and economic well-being of local community.	Putting heritage conservation at the heart of rural and peri-urban regeneration.	Joined up and resilient ecological networks at landscape scale
Scale	300-2,300 km^2	20-200 km^2	100-500 km^2
Approximate total annual programme budget	£50m	£15m	£2.5m
Methods of influence	Planning authority. Expenditure of central government grant. Partnerships	Influence via allocating Heritage Lottery funds. Partnerships	Influence via allocating Natural England funding. Partnerships

CRITERION 1*: Takes account of the range of values of ecosystems services pertaining to a particular area (breadth of concern)*

A *National Park* Authority in England and Wales has engagements across a range of sectors: agriculture, spatial planning, water quality, biodiversity, landscape, public access, economic development and housing. Under national legislation, National Parks have two main statutory purposes:

- To conserve and enhance the natural beauty, wildlife and cultural heritage of their areas.
- To promote opportunities for the public understanding and enjoyment of the special qualities of their areas.

They also have a duty to seek to foster the social and economic well-being of local communities so that there is a requirement to balance national and local interests. Three categories of member are appointed to the National Park Authority: local authority members, parish members, and 'national' members (appointed by the Secretary of State for Environment, Food and Rural Affairs). Half plus one of the members of the Authority are appointed by local authorities and the remainder are national members, of whom half less one are drawn from the parishes located in the Park. Defra (2010) emphasises that members have a primary duty to ensure that the Authority furthers statutory Park purposes and that they should regard themselves first and foremost as having a duty to act in the best interest of the Authority and the Park.

A *Landscape Partnership* (LP) is formed in order to protect, enhance and promote heritage within a specific landscape. The Partnership should be 'made up of a variety of local, regional and national organisations alongside the local community, who all have a shared purpose to develop, manage and deliver the scheme for the benefit of the landscape and the community as a whole' (Heritage Lottery Fund, 2013). This approach therefore assumes a mix of both national and local values within the governance structure (Clarke, 2015). For example, the Board of the Upper Nidderdale LP is chaired by the Chair of the Area of Outstanding Natural Beauty Joint Advisory Committee or their nominee, and is made up of representatives from 20 local and regional organisations including parish councils, farmer and landowner groups, environmental agencies and NGOs. In the Lincolnshire Coastal Grazing Marshes Partnership, the East Lindsey District Council, English Heritage, Environment Agency, Farming & Wildlife Advisory Group, Lincolnshire County Council, Lincolnshire Wildlife Trust, Lindsey Marsh Drainage Board, National Farmers Union and Natural England are the regular members of the partnership, while meetings are also attended by local parish representatives and local landowners.

Nature Improvement Areas (NIAs) have been run by partnerships of local authorities, local communities and landowners, the private sector and conservation organisations. 12 pilot NIAs were funded over 3 years from 2012. In its guidance for local stakeholder bodies on determining appropriate places for local NIAs, Defra (2012) states 'an NIA should be made on a partnership basis, with the local groups or individuals who have developed the NIA and the farmers and landowners concerned'; but the 12 pilots 'will try out different approaches, and the variety of objectives, issues and partnerships seen across the NIAs is part of this purpose' (Collingwood Environmental Planning, 2013). 10 out of the 12 (83%) partnerships existed prior to the NIA initiative, with a mixture of formal (6) and informal (4) partnership arrangements. All NIAs were required to have memorandums of agreement as part of the formal funding procedure. Most NIAs had between 10 and 15 partners, though one NIA had 54 partners (Birmingham and Black Country), while Marlborough Downs was led by a group of farmers with only two other partners. Environment Agency, Natural England and

Forestry Commission (all government agencies) were frequent partnership members, while 8 NIAs had private sector corporate partners and 10 included the National Farmers Union and/or Country Land and Business Association as a partner. 10 also included the Royal Society for the Protection of Birds (RSPB) and 5 had a local university or college as a partner.

Comparing these 3 types: National Parks have an explicit remit across the range of ecosystem services, even though they are not the agency primarily responsible for them. The NPA members are predominantly drawn from the local community. While they will thus have a clear view of local considerations they are tasked to act in the interests of the National Park, and that implies a 'national' perspective of priorities. Partners in LPs and NIAs may be involved either in a personal capacity or else as representatives of wider organisations that might be a governmental body, such as a parish council, an NGO, such as a conservation organisation, or a private company, such as a water company. There is a different mix of interests represented amongst the different initiatives, and no obvious rationale for this in terms of the impacts of the projects in local areas. Rather, membership is likely to reflect initiatives taken by particular leading individuals and their willingness and capacity to bring resources to the collective endeavour. The focus of the LP and NIA initiatives is narrower than that of National Parks, although a variety different sectoral organisations are, unevenly, engaged in the partnerships. Partners may have an interest in seeking to influence decisions in favour of their personal or their organisation's interests but their organisation might also be involved because it can bring expertise or resources to the partnership, such as a local university. .

CRITERION 2: *Have sufficient spatial coverage to capture/internalise key systems linkages (spatial scale)*

NPs have some match with England's defined National Character Areas (NCAs), which reflect relatively homogeneous territories in terms of their geology, biodiversity and land use, but they are not necessarily homogeneous or consolidated (e.g. we might contrast Dartmoor National Park that coincides very closely with the Dartmoor NCA, with the Peak District National Park which broadly covers three different, neighbouring NCAs). In addition, in most cases the boundaries of NPs have been deliberately designed to avoid urban settlements[2]. This might imply that NPs could be prone to under-recognition of local socio-economic linkages as well as of some ecosystem services (e.g. water/flooding, climate regulation).

LPs must cover an area of land that has a distinctive landscape character, recognised and valued by local people; identifying what makes the landscape unique and identifiable, and what gives it its sense of place. The emphasis on visual coherence may lead to under-recognition of broader linkages but that is not immediately evident from among the current funded LPs. There is no attempt to exclude settlements, and areas have tended to be fairly consolidated, though also fairly heterogeneous.

NIAs were large (in terms of nature conservation in the UK), discrete areas that, by taking a landscape–scale approach, 'will deliver a step change in nature conservation, where a local

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[2] the major exception being the South Downs National Park which includes a population of over 100,000.

partnership has a shared vision for their natural environment' (Natural England, 2012). The partnership was charged with planning and delivering significant improvements for wildlife and

people through the sustainable use of natural resources: restoring and creating wildlife habitats, connecting local sites and joining up local action. Under its funding conditions, the partnership had to demonstrate measurable improvements – representing the 'step change' - and take action to

promote and publicise its achievements widely at both local and national levels. The concept of NIAs clearly implies greater homogeneity than that for LP areas, but in practice, the 12 projects included several areas which demonstrate a high degree of variability in landscape types and biodiversity

challenges within their boundaries.

CRITERION 3: *Have means to effect changes in land and resource management either through authority to implement policy mechanisms or ability to act on its own behalf (authority and capacity to act)*

All these areas are subject to national regulations and policies. Particularly, they operate under the requirements of the Common Agricultural Policy and are subject to (predominantly European)

environmental regulations (Birds, Habitats, Water Framework, Floods, Nitrates, etc.). In the cases that we are looking at, only the NP takes a statutory role, acting as the local planning authority with the ability to control built development within its area. In most other instances, organisations have

to operate within the constraints set by other agencies of central government and local authorities. The NPs have the most wide ranging roles as illustrated in Table 2.

Table 2: Governance roles within National Parks

	Direct control	Influence	External controls and influence
Land use		NP management plan	Central government guidance
Agriculture		Influence over Rural Development Programme (RDP) uptake	CAP direct payments Rural Development Programme
spatial planning	Planning authority		Central government guidance and appeal)
water quality		Partnerships	Environment Agency (st EU rules)
Biodiversity		Partnerships	Natural England (st UK and EU rules)
Landscape		Indirect via RDP uptake and Planning control	
public access		Recreation management Access agreements	Legal access rights
economic development		Partnerships	Local Enterprise Partnerships activities
Housing		Influence as planning authority	Department for Communities and Local Government

For LPs, their authority to act depends critically upon membership of the partnership itself, and its relationships with pre-existing authorities and agencies. Many LPs are led by a local authority so, in that sense, have some parallels with NPAs; however, where central government agencies (represented by local officers) are signed up as members of the partnership (as they often are), there can be more direct linkage with their specific areas of authority. For both these bodies, a notable area of relatively limited authority to act will be in respect of land management (beyond the boundaries of some very small areas of land which an NPA may actually own), unless farmers/other landowners form a part of the LP. However, both may use their resources to enter into contractual agreements with farmers/landowners to help deliver their goals.

NPAs were pioneers of local agri-environment schemes and, whilst these are now largely reduced in scale and scope, they still have resources for some initiatives with farmers. LPs may design and operate management contracts with local farmers and landowners. And indeed, the farmer-members of some LPs will play an important role in designing these approaches. An LP may make payments to private owners for activities that contribute to achieving outcomes for heritage, people or communities using a third-party agreement. These agreements define the outcomes to be delivered on private land and secure the management and maintenance of capital works from the expected date of the works' completion, until 10 years after the project's completion (Heritage Lottery Fund, 2013).

Given the variety of models of NIA partnership, their influence on land management will vary considerably between the different areas. For many, the situation is likely to be similar to that for LPs, in that they are led by public bodies and their ability to influence private landowners and managers depends upon how far these groups are drawn into the partnership or have agreed to certain activities as part of the development of the NIA's goals and plans. In the specific case of Marlborough Downs NIA (MDNIA) the situation is almost the inverse, in that this is the sole farmer-led governance institution, whereby a group of 40 farmers has become a trust in order to receive and manage the NIA funds. In this sense, the MDNIA has authority to act on all the land owned and/or managed by the trust members and it may have less ability to act directly in respect of meeting the responsibilities of statutory agencies or local authorities.

But overwhelmingly in these examples, actions are based on voluntary agreements. This is the case even for NPAs whose work is substantially delivered through partnerships with like-minded organisations or through leverage over financial incentives from third parties.

CRITERION 4: *Include representatives of and be accountable to local stakeholders (representativeness)*

NPA members are appointed to combine local and national knowledge and interest and, as noted above, to work 'in the best interests of the National Park'. The SRC implies a local collective 'self' interest with national interests addressed by higher levels of government providing incentives (funding, regulations, encouragement/ guidance) to influence actions with wider consequences. In NPAs there is an element of direct and formal representation through members' links to the government bodies by whom they are appointed but with explicit guidance that they should act in

the higher interests of the NP, which may well often not be the same as their local collective interest.

Representation on LPs should be relatively open reflecting the range of stakeholders involved. That on NIAs is highly variable and likely to be narrower due to the narrower range of objectives covered.

In practice, involvement of stakeholders as partners in the LPs and NIAs will depend substantially on their active engagement and their capacity to contribute positively towards the likelihood of successfully securing the project funding in the first place, before the partnership has been formally established. The main way in which an element of local accountability is pursued, in these structures, is through the strong focus in both programmes upon participatory approaches which involve the local community as a key element in how they undertake their activities; and upon communication with local and national stakeholders to inform them about these activities and their outcomes.

CRITERION 5:   *Able to take the long view (i.e. low discount rate, or similar)*

NPAs are subject to short term political influences and funding arrangements; reductions in central government funding have forced them to cut back on a range of initiatives and reorient their efforts towards other sources of funding (Campaign for National Parks, 2015), although expenditure has subsequently been protected in the Government's 2015 Autumn Statement. However they have an identity and core role which is likely to persist over a substantial period of time. The majority of NPs in England and Wales were designated in the 1950s. LPs are by definition time-limited and must focus upon delivery within a maximum period of 10-20 years. However, as with all funded initiatives they are supposed to plan for legacy beyond that point. NIAs have clearly the most transitory lifespan, with only 3 years' funding and it is evident from the monitoring and evaluation so far that this challenges their ability to plan for the long term. In the second year evaluation report, the consultants (Collingwood Environmental Planning, 2014) note that of the 12 funded NIAs, only 5 had specific plans to seek to continue their work beyond the 3 year funding period. Institutional structures will not be sustained in the absence of some resource base or long term funding stream.

CRITERION 6:   *Be subject to some degree of external regulation and audit (accountability).*

All the institutional structures under consideration here are subject to some degree of external regulation and audit, in that they have to demonstrate financial probity in the conduct of their duties. However, whilst the provision made in these terms for LPs and NIAs is in the form of a simple contract with conditions which must be capable of being evidenced upon demand and at regular intervals over the lifetime of the initiative, NPAs have more sophisticated regulatory and audit processes. The National Park Management Plan is a comprehensive public document intended to serve as a yardstick against which NPA performance can be assessed. In addition, the process by which NPA budgets are determined requires them to evidence their work in a rolling programme of reporting and development. Finally, as with all public-funded 'permanent' institutions, NPAs may periodically be subject to scrutiny by the National Audit Office and may be the focus of attention or scrutiny by various Parliamentary Committees.

CRITERION 7 :   *Have a capacity to build social capital and active learning. (deliberative decision making and adaptive management).*

This aspect of governance is much harder to identify and assess from outside of an organisation. It has been underplayed in NPAs in the past but more recently many NPAs have become engaged in partnerships with a diversity of government, private and community actors (Lockwood, 2010). Clark and Clarke (2011) provide examples of NPAs working as a collective endeavour building trust and new capacities between individuals at different organisational levels and geographic scales. LPs are expected to include this as part of their modus operandi but evidence suggests that levels of engagement and active learning vary considerably between different cases. The same is apparent of NIAs. Evaluators are very positive about achievements, outreach, community involvement etc. in respect of both LPs and NIAs, but there is clearly scope for more research here.

6. Conclusions

The idea of an SRC sets an ideal against which particular governance arrangements may be assessed.

It is not intended to offer a template for governance but rather to point to the process whereby governance may address the complex factors interacting in unique and largely unpredictable ways within particular localities. It responds to the outcomes of the multitude of governance processes that have impacts within their particular local area, as well as identifying gaps where governance is inadequate. Governance needs to establish local community values and preferences, to identify and assess impacts, to make judgements about trade-offs and to identify and implement actions. This will be a deliberative approach. It might in principle be implemented through a single organisation, through organisations working in parallel, or through some sort of deliberative forum. More work is required in order to flesh out the options and their relative merits. The details of local arrangements will depend on local conditions and will vary greatly depending on such factors as the state of development, the wider significance of natural capital within the local area and the extent to which the area is impacted by external forces. But the essential principles will remain the same. The ideal of an SRC offers a checklist of criteria against which existing arrangements may be compared. This presents a methodology that can have quite general applicability across different institutional contexts. We have tested it in a relatively simple way in this paper in a UK context but argue that the approach can be equally applicable elsewhere. We have been able to assess the position with regard to many of the criteria. However some aspects, particularly relating to the internal workings of partnerships, would require more in-depth analysis.

NPAs meet a number of the criteria to act as an SRC. They develop management plans with broad scope and have concerns for a range of ecosystem services. They have statutory authority and indirect democratic representation. They have in many cases been in existence for over 50 years and have a long term commitment to their area. There is a reasonable coherence to the areas designated as an NP, although the boundaries do not necessarily match ecosystem logic and the exclusion of major settlements may underplay the interactions between urban and rural areas. The major departure from the criteria for an SRC is that the remit of the NPA is to advance the statutory national role of the Park rather than the particular interests of local stakeholders. NPA members have to balance national and local perspectives but the lack of direct land ownership and the reliance on national funding and incentives weight actions towards the national orientation. The

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members clearly may face conflicts of interest. This means that the accountability of the NPA tends to be upwards to national government departments rather than from below via the local

community. This may challenge the trust given to it by the local community if it is seen as responding to national policy rather than to local interests. In addition, its role as the SRC is constrained by the limited resources available to it and its lack of direct influence over agriculture,

environment, biodiversity, pollution and economic development.

LPs and NIAs represent a more locally oriented approach, and they are directed towards the delivery

of a narrower range of ecosystem services that generally have less national significance than some aspects of NPs. They are also less formally established and are implemented through a variety of

stakeholder involvements. There is no systematic representation of all stakeholder interests, rather engagement is determined on a more ad hoc basis. The approach relies upon funding to motivate change voluntarily, so it lacks the element of authority to regulate which NPs have in at least some

aspects of their work. The arrangements in LPs and NIAs are essentially temporary, especially so in the case of the NIAs, and this challenges their capacity to take on long term commitments. Rather, there will inevitably be pressure to achieve demonstrable change in the short term in order to justify

funding received and as a basis for applications to secure funding in the future. This parallels a general trend in neoliberal approaches towards governance that increasingly allocate resources through a series of separate projects (Sjöblom et al. 2012).

 On the other hand, it is possible that the objective to support provision of a narrower range to ecosystem services may mean that stakeholders hold a greater shared interest in the goals of the organisation. There may be a greater degree of self interest amongst partners who have joined in order to pursue their own aims. The extent to which this is achieved in practice will depend

considerably on the particular activities and composition of the membership.

Perhaps the most striking aspect of the organisations considered as putative SRCs is the uncertainty

surrounding the objectives that they are expected to adopt in decision making. NPA members are expected to make decisions that ensure that the Authority furthers statutory Park purposes. This is clearly not the same as furthering their own collective interest. The position is less clear for the LPs

and NIAs. They are funded in order to support the provision of public goods, and the aspiration on the part of funders would be that they should allocate the funds so as to maximise the wider social

benefits of their actions; that is to say the value as perceived by stakeholders who are largely

external to the organisation. But in practice, in all these examples the members of the organisation will need to balance the social aims of the organisation with their own private interests. In a world

of high degrees of uncertainty and asymmetric information it will be difficult for an external audit to determine precisely how or where that balance is being struck. This contrasts with our conceptual SRC where we posit that the SRC pursues its own collective 'self' interest rather than taking on a

wider social duty. This is much closer to the position of the board of a public company that acts on behalf of a defined group of shareholders. However, even in this context, arguments are made that the board should also take account of wider issues through a policy of corporate social responsibility

(CSR). There is then debate as to whether corporate CSR represents self-interest by other means or a genuine attempt to redistribute the benefits of the activity to a wider population (Crifo and Forget, 2015; Schmitz and Schrader, 2015).

Given its wider responsibility, more formal establishment, statutory basis and longer term commitment, the NPA comes closest to our ideal model of an SRC. But it could still be modified to bring it closer to that ideal. As the SRC, the NPA members would in principle have the objective of taking decisions in the interests of stakeholders within the locality, now and in the future, rather than in the wider national interest. In this context, it would be more appropriate for members to be directly elected from the local community[3]. External stakeholders, primarily national government, would then have to create explicit incentives to influence relevant decisions taken within the Park towards national interests. The NPA could then be granted greater discretion to act in pursuit of its objectives. It is possible to envisage a position where at least an element of agricultural or economic development funding was allocated directly to NPAs. The NPA could be given devolved powers to allocate funding from the Common Agricultural Policy or lead a Local Enterprise Partnership which accesses government funds in support of economic development. It might take on the powers currently exercised by Natural England over the management of conservation sites within its territory, subject to meeting nationally defined standards and criteria. It could play a role as an intermediary in establishing schemes for payments for ecosystems services. There would be some scope for raising funds either through voluntary donations or perhaps through local taxation, such as on visitor stays. In fact, NPs are already addressing these sorts of issues in the face of limits imposed on their public funding.

Partnership and collective decision making are increasingly central to the governance of the countryside (Hodge, 2016), but the many examples in the UK tend to be sporadic, ad hoc, narrowly focussed on subsets of ecosystem services and time limited. The incentives facing decision makers are often unclear and interventions are voluntary and incentivised through the potential availability of grants. The involvement of local members of the various organisations contributes in terms of introducing local information into decision making processes, but where the members are expected to pursue nationally set objectives, it leaves incentives for decision making unclear. Our SRC 'ideal' addresses the requirements for SES governance of wide and integrated concerns for the delivery of ecosystem services, flexible and adaptive management and long term commitment. Existing governance structures such as those examined in this paper fall far short of that ideal. More work is required in order to explore further the conceptual issues, to understand better the existing alternative and experimental structures of collective governance, and to design new institutions that can align incentives, commitment and capability.

In considering the policy framework for appropriate institutions, the experience of LPs and NIAs suggests that short-termism poses a significant obstacle to achieving SRC-style arrangements and outcomes. This issue becomes particularly acute in periods of low and/or reducing public funding, as it will reduce the resilience of the structures concerned and thus be likely to reduce their potential to make a difference, for the long term. Short-term creation and review of multi-actor and multi-objective structures frequently entail significant transactions costs which may weigh heavily upon the performance of the initiatives, reducing their capacity to generate net benefits. These costs frequently fall upon the members of a partnership in advance of securing funds to achieve their aims, as well as afterwards, thus weakening the ability of these institutions to be truly inclusive (as

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[3] A bill to provide for direct elections to National Parks Authorities on a pilot basis failed to get through Parliament in 2014.

partners must have the capacity to dedicate resources to the initiative before any significant public support is forthcoming). Finally, the transactions costs which accrue to the funding bodies that hold

responsibility for assessing, awarding funding, tracking progress and policing performance may ultimately prove a disincentive to them continuing to adopt these kinds of approach, particularly if short-term evaluations are unable convincingly to demonstrate added value (which may be elusive

when there is only three years in which to operate, given the capacity-building usually associated with multi-actor adaptive management processes). For all these reasons, we suggest that policy makers need to devote more attention to medium-term institution building for SRC outcomes,

where structures and funding are guaranteed in excess of the typical periods currently, of perhaps five or six years, and to demonstrate some commitment to continuation subject to satisfactory

performance beyond that point, rather than to operate within the normal three-yearly budgetary

planning cycle for public finances.

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