PRIVATE LAND CONSERVATION, REGIONAL ENVIRONMENTAL GOVERNANCE, SOCIALSHEDS, AND SOCIAL NETWORK ANALYSIS: THEORY AND APPLICATIONS IN WESTERN NORTH CAROLINA

A Thesis

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by

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ABSTRACT

This thesis addresses environmental governance at the regional level, specifically issues and challenges surrounding private land conservation in the United States. The history of the land trust movement in the United States is outlined and significant attention is given to unpacking the conceptual dimensions of the "region" across several academic literatures. The relationship between regional environmental governance and private land conservation is examined using a social relational approach in a bioregional context. This examination is linked to social networks through the bioregional notion of the "socialshed". This novel framework is applied to a social network analysis of private land conservation actors in Western North Carolina. The social network analysis is a pilot study, undertaken with the objectives of "getting a lay of the land" in terms of network topography and teasing out information that might help the networks and their actors in pursuit of meeting conservation goals and rising to the challenges of conservation in the 21st century.

BIOGRAPHICAL SKETCH

Brittain Sluder began his undergraduate collegiate career at Shimer College and ended it at the University of North Carolina at Asheville, graduating cum laude with a degree in anthropology. He began his post-graduate career at Cornell in the regional planning program before switching to regional science. At Cornell, he split his focus between domestic regional and environmental studies and Southeast Asian and Indonesian language and area studies. He received the Foreign Language and Area Studies Fellowship for Indonesia and a Fulbright-Hays grant for a summer of intensive language study in the Central Javan town of Salatiga. He currently resides in Western North Carolina with his partner, two dogs, a cat, several chickens, two geese, his student loans, and a son younger than this thesis.

DEDICATION

For my mother, who passed away shortly before I completed my degree but was to my knowledge under the impression I had already finished. No one else fought so hard for me, or believed in me so fully.

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Thanks be to:

my committee for their unwavering support and guidance

my partner for letting me drag this out for three years

and so many others.

ACRONYMS

Terms

EESN: ecological entrepreneurship support network

ENGO: environmental non-governmental organization

LWCF: Land and Water Conservation Fund

NGO: non-governmental organization

PLC: private land conservation

REG: regional environmental governance

SNA: social network analysis

WNC: Western North Carolina

Organizations

BCS&W: Buncombe County Soil & Water Conservation District

BRC: Blue Ridge Conservancy

BRF: Blue Ridge Forever

CC: Conserving Carolina

FOOTHILLS: Foothills Conservancy

HCLT: Highlands-Cashiers Land Trust

LTA: Land Trust Alliance

MAINSPRING: Mainspring Conservation Trust

MTNTRUE: MountainTrue

NEW RIVER: New River Land Trust

RIVERLINK: RiverLink

SAHC: Southern Appalachian Highlands Conservancy

TNC: The Nature Conservancy

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Introduction

Private land conservation in the United States is at a crossroads. Historically, it has been rather straightforward -- involved primarily with fee simple transfers from landowner to federal government, with modest tract holdings and little land management on the part of conservancies and other environmental NGOs (ENGOs). But with the aging of neoliberalism comes a liminal moment, a blurry betweenness with great and varied uncertainties, old habits, and new forms. Government has become governance. Or rather, [the] government is now a player in the game of governance, but not necessarily *the* player anymore. Multiparty deals involving both private and public sectors, industry and civil groups, bring conservancies to the table with logging companies, state natural resource agencies, activist groups, and landowners.

Beyond the increased complexity of the agreements (and negotiations prior), best practices in terms of systematic conservation planning and natural resource governance point to the need in private land conservation for strategic coherence and cohesion at a (bio)regional scale. That is, because private land conservation often consists of *ad hoc* acquisitions from landowners, the resulting holdings can be fragmented, non-representative, or otherwise suboptimal.

Private land conservation (PLC) actors, namely conservancies, face a host of challenges in the 21st century, ranging from funding stream (in)security to legal uncertainties in perpetual easement law to climate change. These add risk and uncertainty to an increasingly complex governance paradigm, one complicated not only by the number of interested parties but the contextual environment -- the oscillatory political climate; the spectre of possible legal threats to

the doctrine of "in perpetuity"; increased attention to regional environmental governance; recognition of the intersectional nature of wicked problems (and their remedies); the inexorable onset of climate change.

Social networks are a valuable conceptual tool in the study of environmental governance at the regional level, and they can be leveraged towards increasing understanding of descriptives such as information flows, relational ties, and social network topography. Such understanding may, in turn, support the maintenance of conservation (social) networks which are more strategic, more resilient, and more effective.

Dialectics about *who* constitutes a relevant actor, *what* challenges to prioritize, or *how* to address a wicked problem like climate change while also accounting for its social causes and its place in the ecology of woes -- ideas are tested and directions are negotiated in the real-time practice of conservation. Accordingly the dialectics of conservation are better enacted by an *empowered* network of conservation actors capable of reflexivity and intentional cohesion. The task, then, is to increase awareness and cohesion among relevant actors so as to best position the network to help address the century's challenges.

Western North Carolina (WNC) is a biodiverse region of Southern Appalachia with a strong conservation and stewardship ethic, and is home to several conservancies and dozens of environmental groups. There has not, to my knowledge, been a social relational study using network analysis in the region. My work aims to trace some of the boundaries of that niche, as well as to strengthen the theoretical foundations of the analysis. I attempt this by connecting regional environmental governance to the concept of the "bioregion" and "socialshed" through

intentionality and regional identity; I am not aware of other approaches which bring REG and bioregionalism together in this manner.

Thesis Overview

The *first part* deals with the regional, historical and theoretical bases for the project. It begins with an introduction of Western North Carolina, then proceeds with a historical overview of the land trust movement in the United States, connecting this history to larger themes and trends in environmental governance. This section is the most tangential; the expedited reader may well begin with the section entitled "1981-Present, Or an Accounting of Neoliberal Conservation".

Following the historical treatment, I center the discussion on the scale at which land trusts and conservancies work and discuss some theoretical approaches and problematics surrounding the concept and definitions of "region" and regional identity. This leads us to an intersection of the bioregion and the social network via the concept of the "socialshed", which offers both a way of bridging conservation networks with regions and identities, as well as a degree of falsification regarding network "realness". We segue into an overview of social networks and social network analysis, emphasizing SNA's applicability to environmental governance and establishing a rubric for evaluating environmental governance using SNA.

The *second part* details my formal social network analysis of PLC actors in WNC. This section moves conventionally: introducing the project itself, discussing the methodology, and

reporting the results. These results are interpreted and explained in both a narrow and broader sense, limitations are enumerated, and directions for further research are suggested.

Before setting out for the historical origins of the land trust movement, I want to more comprehensively introduce the region at the heart of the project.

The Western North Carolina Region

Western North Carolina (WNC), located in the Blue Ridge Mountains province of the Southern Appalachians, is one of North Carolina's three regions -- the others being the Piedmont and the Coastal Plain. The regional designations are primarily geographic, but have cultural, social, and political dimensions. The counties usually included in WNC align with the extent of the mountains in the state and the cultural differences between Appalachia and the rest of the Southern states have long been observed. There are recurrent (or maintained) socio-political tensions between WNC and Raleigh -- the capital city located in the center of the state about five hours from WNC's largest city and economic hub, Asheville. Generally, there is a feeling that the state government cares less about the Western counties, acts arbitrarily and unilaterally. From time to time, talk of secession and formation of the State of Western North Carolina can be heard on (mostly conservative) talk radio.

WNC is home to the Great Smoky Mountains National Park[1] (GSMNP) and the Blue Ridge Parkway. Both GSMNP and the Parkway regularly place among the top three to five most-visited national park sites in the country. The mountains in the region include

[1] GSMN actually straddles the border between North Carolina and Tennessee, so it is not located entirely within North Carolina.

internationally-recognized biodiversity hotspots, a wealth of unique and endemic life (particularly salamanders, such as the Hellbender), and a variety of climes including a rainforest (WWF "Appalachian" 2020). There are several national forests and a long history of farming and agriculture. There is also great social interest in conservation and stewardship -- that is, there is much regional interest in good governance of the natural environment, evidenced by the prevalence of environmental organizations and groups as well as by more qualitative and less tangible indicators like culture -- support for local food and food networks, for instance -- which I attest to.

Asheville has seen an increase in national attention over the last decade, including placements in various "top places to retire/visit/live" lists[2]; reasons often include the wealth of breweries, the arts scene, and its reputation as an accessible and friendly mountain city nestled in "The Land of the Sky". The area's increasing popularity as a (eco)tourist destination introduces new and significant development and conservation pressures on the region.

While development is supported on economic bases and has been credited with "revitalizing" the city -- this may be problematized when considering class and racial justice issues -- it is often opposed on environmental and social grounds. At the same time, conservation of rural farmland is prioritized by some regional land trusts (namely, Southern Appalachian Highlands Conservancy) alongside forest preservation and natural landscapes in general. Thus, there are several fault lines of tension between those involved in development and conservation

[2] For example: Lonely Planet's Top U.S. Travel Destination 2017; voted "Beer City USA" in 2010; listed in Travel + Leisure's (unranked) Top 50 Best Places [in the world] to Travel in 2020

or environmentalism more broadly (and social justice) but they interact in complicated ways, such as in the case of rural farmland.

I would like to illustrate the complicated and seemingly-contradictory web of relationships that exist surrounding the environment-development tension. In the region and most acutely in Asheville, there is a strong culture of support for local businesses. But these businesses support the tourism industry, which is buoyed by hoteliers and developers, which many of the "go-local" residents oppose - yet the tourists in turn support the relatively high density of restaurants and breweries and, by extension, the jobs they provide to residents. Of course, we can problematize this with some general observations: a service economy that depends on tourism is vulnerable to shocks because it has not diversified enough (the current pandemic crisis has laid this truth bare); service industries generally have low wage ceilings and low upward mobility; perhaps less intuitively, idealizing "small business" erases the class divides in ownership and wealth distribution; development interests lead to gentrification as well as expansion into the surrounding county which may not be keen on the city moving in. A recent example: a prominent environmental nonprofit, RiverLink, holding the title to riverside land announced plans to lease and eventually sell the parcel to a developer for a local restaurant[3]. The decision was met with backlash from some community members, including one of RiverLink's founders and ex-directors and a former city council member. The justification offered was that it fit within city plans for mixed-use development. One might be forgiven for thinking the city politic and its economic interests are trying to have their cake and eat it, too.

[3] https://www.citizen-times.com/story/news/local/2019/06/19/riverlink-selling-donated-land-commercial-developers/1499227001/

One effect of having all these forces at work in the area is that there are now many, many environmental groups and organizations ranging from the intimately local to international, NGO to state-based, and with differing focuses ranging from water quality to land conservation.My attempt to generate a list of organizations, groups and chapters approaches triple digits, and surpasses that mark if county agencies are included -- such as Soil and Conservation district agencies which facilitate easement applications and transfers between local landowners and both the state and federal government.

PART I

I begin with a historical overview of American land conservation, moving thereafter into a discussion of the myriad influences that together demand an accounting of regional environmental governance. We will see that this is not due to any inherent property of a "region" but that the complex nexus of factors requires a flexible, conceptual term – even at the risk of losing its meaning. I pay particular attention to the concept of a "socialshed" and posit that this project and SNA constitute a social relational approach to "bioregional research" (Navarro-Navarro 2017, McTaggart 1993). Once satisfied with the theory and rationale, I discuss in detail how SNA may be used to evaluate environmental governance based on metrics from the literature.

A Brief History of Land Conservation in the United States

Foundations and Early Years

Land conservation as it is practiced and thought of today began in America. Concern about rates of forest depletion may be traced to nineteenth century England and it was the British colonial governments in India which began forest management programs, but these were movements principally concerned with management for sake of continued resource extraction and use. Similarly, estate and urban commons preserves existed in England by the end of the nineteenth century, but it was the meeting of industrial revolution, population growth, and rural-to-urban migration with deep-seated American concepts of wilderness and pastoralism which inspired the American pioneers of land conservation (Brewer 2003).

In 1891, George Eliot helped to create the first land trust in America, drawing inspiration from the commons preservation movement in England, his professional connection to garden and historical preservation societies in the United States, and his experience in a growing, smog-ridden, industrial London. Eliot's Trustees of Public Reservations, formed in Massachusetts by a mix of mountain club members and other well-to-do men, was novel in that it was a) specifically formed to hold "natural, scenic, and historical" land and sites in trust for the public, b) intended to remain open to the public, and c) tax exempt (Brewer 2003).

During the same period, John Muir had arrived in the American West, where he became famous for spearheading the creation of Yosemite National Park (with some help from Olmsted, no less) and for creating the Sierra Club, a kind of hybrid organization drawing on the legacy of

mountain clubs (such as the Appalachian Mountain Club whose members helped found Eliot's Trustees) and land advocacy groups. Some of these clubs and groups owned land or had persuaded the federal government to purchase land, but acquisition and maintenance were secondary to advocacy[4]. These differences in focus and means are associated with their respective contexts. Whereas the landscape of New England was fragmented and largely privately owned, the American West was largely owned by the federal government. (Brewer 2003).

Muir is often juxtaposed with Gifford Pinchot, the first head of the U.S. Forest Service under President Theodore Roosevelt.These two men came to represent opposing ideologies in the nascent conservation movement: Muir and his Sierra Club strongly favored preservation sans use, while Pinchot and the Forest Service (and Roosevelt) preferred "conservation through use" (Brewer 2003). Theodore Roosevelt set a precedent for extensive government control over the conservation of land which persisted until the latter half of the 20th century and set up the federal government as the primary steward of American land conservation (Brewer 2003).

Private land trusts existed and operated during this time of government tenure over conservation, though growth was sluggish until the final quarter of the 20th century. Land trusts in the early 1900s often organized to purchase land which they would in turn donate to the federal government to maintain. While these are not the public-private partnerships and agreements of today, these early relationships between land trusts et al. and the federal government set a precedent. Given that my region of interest is Western North Carolina, it is

[4] The lines between doing conservation and lobbying for conservation are as blurry today as then; the Land Trust Alliance holds "Advocacy Days" that focus on empowering lobby efforts on behalf of trusts. Similarly in WNC, Conserving Carolina is a merger of two trusts, but also works on creating public lands, sponsoring speaking events, assisting landowners with stewardship, etc.

worth noting that another of the earliest land conservation organizations was Highlands Improvement Society (HIS). HIS at the time was an idiosyncratic, multifunctional organization rather than a land trust proper, but it exists now as Highlands Land Trust and is included in the social network analysis.

The 20th century until Reagan

The federal government was understood to have a mandate for stewardship and conservation of public lands in the aim of promoting the general welfare; by midcentury, the federal government owned about 200 million acres of forest and was regularly adding to that total. Conservation and environmentalism in general faded into the background of public consciousness during the Great Depression and Second World War, though the first national land trust was founded in 1946. Called the Ecologists Union, it became The Nature Conservancy (TNC) in 1950. In mid-late 1950s, a series of new land trusts were founded, and in 1964, the Land and Water Conservation Fund (LWCF) was created, among other things allowing for the disbursement of funds to lower level agencies for the acquisition of land. Most trusts depended indirectly on this Fund[5]; they would spend sums they could not otherwise afford to spend on land acquisition, in turn reselling it to appropriate agencies and recouping their expenditures.

Many of these new trusts worked independently; there were no avenues or forums for communication or the sharing of knowledge. This changed when one Kingsbury Browne, Jr., who came to know land trusts through tax policy and a high-ranking friend at TNC, toured the

[5] Ironically, starting in 1968, off-shore drilling of oil provided a great deal of money for the Fund.

country in 1980, visiting trusts across the mainland and coming away with the idea for a workshop where all the big trusts (and other relevant land conservation organizations) could come together and share knowledge. Held in 1981, it was a resounding success and led directly to the development of the Land Trust Alliance (LTA) (Brewer 2003).

1981 was a pivotal year for land trusts in many respects, specifically regarding funding. Reagan had just been elected and these trusts were suddenly faced with a crisis – not only would environmentalism be subject to cost-benefit analysis, funding for LWCF was cut from over $700 million to just $45 million. The trusts were forced to adopt alternative means to fee simple acquisition – among the most important of these was the conservation easement, which would become the predominant method of conservation for land trusts (Brewer 2003, Ristino and Jay 2016).

1981-Present, Or an Accounting of Neoliberal Conservation

The last decades of the 20th century saw the rise of neoliberalism and with it the retreat of the state -- the "hollowing out" out of which several related but distinct concepts emerge (Rhodes 1994). Scholars have variously referred to the processes of decentralization, devolution, privatization, and the shift from government to governance. The latter of these refers to the paradigm shift which saw traditionally state-based (i.e., government) service provision and administration extend or move to other sectors and scales, forming networks of actors and stakeholders which together engage in *governance*. Some services and functions were privatized, others elevated to international scales or devolved to state or lower levels of government. Others

were merely decentralized, with third-parties working alongside government through public-private partnerships to provide services (Rhodes 1994, Rhodes 1997, Dryzek 1997, Pyper 2012).

The principal mechanism for conserving land since the 1980s, the conservation easement, is essentially a marketization or commodification of conservation. It is sometimes referred to as a "conservation covenant" owing to the differences between a conservation easement and a traditional easement. Traditional easements are appurtenant in regard to adjacent parcels and are not perpetual; in contrast, conservation easements are actually negative easements on a singular parcel or tract and are often designed to last "in perpetuity". The process draws from the "bundle of sticks" conception of property rights and consists of a landowner transferring the development rights to an easement holder -- usually a trust or government agency, sometimes a LLC -- but retaining ownership of the property itself and the remaining rights in the bundle (Ristino and Jay 2016).

The concept of perpetuity is deceptively complex, as there are numerous outstanding and unanswered legal questions surrounding it. The most apparent is the principle of eminent domain, which offers a direct challenge, while others include definitional questions -- for instance, whether conservation easements should be defined relative to the charitable trust doctrine (Ristino and Jay 2016). The specific legal questions surrounding easements are not of direct import here[6], but they are implied in context of the uncertainty and challenges facing land trusts and other PLC actors, which are discussed with specificity in the overview of the project.

[6] See: Fellows 2011, Cheever 1996.

Conservation easements are a product of neoliberalization, but they are neither mere products thereof nor resistances thereunto. While their rise to prominence has been a result of the state's retreat from direct responsibility for acquisition and conservation of land, in many ways it may be argued that the state is more involved now, and in more ways. For example, state, county, and local agencies facilitate trusts' easement agreements and help apply for funding (where it exists), and the easement itself is a product of the state and supports the process with the weight of law. In one sense, they exemplify neoliberalisation; on the other, they are an adaptive immune response by civic antibodies (Hodges and Adams 2012, Ristino and Jay 2016).

This liminality has been interpreted in many ways by many authors. Hodge and Adams point to a corollary contradiction regarding state influence in conservation before and after the rise of neoliberalism, writing, "while the degree of state influence may be less..., in that the land is not being directly regulated by government, the process involves a shift towards a more active engagement of the state in conservation land management through its influence over land trusts. In this policy approach 'neoliberalisation' is paradoxically in a form that sees private control of land reduced and state influence increased" (Hodge and Adams 2012). The authors do a couple things: first, they recast *neoliberalism* as *neoliberalisation*, emphasizing dynamism and process over a state of being. Neoliberal policy implementations interact with society in novel, unpredictable, and sometimes contradictory ways, leading to a phenomenon the authors call "institutional blending". They define it as: "the interplay of market interactions and state brokered policy and planning, of private property rights and social projects, that are integral to the conception, organisation and activities of land trusts and rural conservation more generally" (Hodge and Adams 2012).

As indicated by its seemingly paradoxical presentations, institutional blending represents an increase in systemic and institutional complexity, as demonstrated in the increasingly abstract and complex understandings of property as bundles of rights that may be traded individually. The authors posit a fifth form of property regime emerging from this blurring of state and private (and civic). This "non-profit property regime" follows the private, public, common (cooperatively managed), and open access regimes, and is unique in being run privately, yet ostensibly for the public interest (Hodge and Adams 2012).

Another way to engage with these changes in the institutional landscape is to differentiate them in light of other privately-owned protected areas. To this end, Langholz and Krug offer a classification scheme of ten different types of private reserves around the world, ranging from inherited land to hunting and ecotourism reserves to corporate holdings (for example, forests adjacent to golf courses). They identify one of these types as the "non-governmental organization reserve" -- essentially a different rendering of the non-profit property regime (Langholz and Krug 2010).

The diversity of private land arrangements for conservation in the United States reflects the influence of the burgeoning land trust movement into different forms of private land conservation, including the institutional blending of private-public partnerships. The land trust at its most Platonic deals with fee simple acquisition of land, and the sale or donation of easements by landowners, though both state and federal governments own a substantial number of conservation easements across the country. For instance, in New Jersey, Maryland, and Virginia, the state owns the majority of easements. This is correlated with the uptick in "prearranged flips", in which the land trust facilitates the easement transfer process and thereafter sells the

easement to the state (Fellows 2011). This reintegration of state involvement in private conservation is a good example of the kind of paradoxical outcomes that neoliberalisation begets.

The story can become even more complicated, however, as more stakeholders are brought into the process. Considered at such scales, these are no longer simple private-public partnerships at work, and exist from the relatively modest transactions between an individual landowner and a local land trust or between regional conservancy and the state. Rather, these deals are multi-party, multi-stakeholder processes of negotiation, and reflect the significant rise to prominence enjoyed by the heavyweight trusts such as The Nature Conservancy -- and the reentry of economic interests into the conservation process.

In an examination of one such agreement in the Adirondacks, Wolf challenges the *de facto* view that financialization of conservation is inherently and decidedly negative, suggesting that it resulted in a positive, joint-gains type of outcome. Nevertheless, regarding the meeting of capital and conservation, Wolf writes, "It is possible to argue that the distribution of property rights, along with the governance controls, effectively protects against the social and ecological risks posed by institutional investors. It is also possible to argue that finance capital has found a way, in an institutionally dense and politically fractious landscape, to extract value and buffer itself from economic and political risks. In other words, just as we might conclude the case points to the potential for effective social regulation of financialization of rural land, we must also reflect on the plasticity of finance and its capacity to capitalize on defensive investments made by civil society and the state" (Wolf 2018). Again we see the ambivalent tendencies of neoliberalisation and its myriad forms, although in the same piece, Wolf points to a common

characteristic of these emergent conservation strategies: they are fundamentally pragmatic, adapting ad hoc to the changing, neoliberal landscape.

Beyond institutional blending and other categorical and formal extensions, private land conservation actors and relationships may extend across multiple scales of governance and horizontally across political boundaries. This liminal area between levels of government and across borders has become more important on the whole during globalisation, inviting a renewed dialectic and interest around governance at local-regional scales. Environmentally speaking, land trusts and associated PLC organizations most often range in size and operational scope from the local to the regional (though they may also operate at community or international levels), but I will argue it is the socio-geographic construct called the "bioregion" with which they most closely align.

In the following section, I unpack the history and different uses of the region-as-concept, drawing both connection and distinction between regional planning and regional environmental governance. Our attention then turns to the notion of "bioregion". I make an attempt to consider it in context of and distinct from its parent ecosophy "bioregionalism", introduce the utility of the bioregional term "socialshed", and conclude with the notion of "bioregional research" -- and how it synergizes with the social relational approach of SNA.

What's in a Region?

PLC actors work across political boundaries – across county, municipal, and even state lines. They often work across ecological, environmental, and geographic boundaries -- in multiple ecoregions, landscapes, and tracts. They also work across scales, from local landowners and county governments to state and federal agencies (and higher if we consider international organizations such as TNC that engage in private land conservation). While the primary level of operation and focus may range from the local to much higher, the network of actors in Western North Carolina comprise a *regional environmental governance network*.

When tasking ourselves with understanding governance at this level, there are many avenues we might follow and many points of departure; most of these are part of distinct literatures albeit with overlap. There are the general questions regarding governance and scale: what are the most effective and appropriate levels of decentralization and devolution? How are the boundaries determined -- ecologically, socioculturally, politically? And more specifically regarding governance of the environment and natural resources: how is good environmental governance to be realized in light of the fuzziness of ecological and geographic areas which traverse horizontally across political boundaries, vertically across levels of political authority, and temporally over time -- and all the more given the way in which the social is inextricable from the ecological?

Clearly, these are complex questions to ask, let alone try and answer, so I begin with a broad but seemingly simple question: *what is a region*? While it is true that not all conservancies or other actors work at the regional level (either primarily or at all), even those that primarily

work at higher or lower levels are enmeshed in like-minded "webs of significance" with other conservation actors; it makes sense to try and unpack what "region" means when we talk about "regional [environmental] governance". I begin with briefly describing the use of "region" in other contexts: regional geography, regionalism and new regionalism, regional planning and regional science. Thereafter we will discuss definitions and uses in the context of regional environmental governance. We will finish by paying special attention to the concept of "bioregionalism" -- its complicated history and relevance to this project.

Regionalisms Proper

The study of governance requires a consideration of scale, ranging from the community level all the way up to international and global governance. "Regional" may be used in a variety of ways along this axis and often liminally -- between formal levels. In this sense, to study governance alongside regions is to study *multilevel governance* (Balsiger & Debarbieux 2011). A region is also a spatial entity; it may also laterally transverse various boundaries -- political, sociocultural, geographic, and otherwise -- but it is primarily a denomination of scale. Yet, as we will see, regions also exist as ideas and reflected in identities. They also appear in ideologies, which is where we will start. Conventional *regionalism*[7] is less concerned with the nature of regions or the ontological process of regionalisation; rather regionalism largely takes the region

[7] Regional science -- the field to which my project belongs -- shares its roots with this traditional regionalism and emerged in the years prior to WWII. Regional science emphasizes quantitative analysis and modeling to examine the spatial axes of interdisciplinary problems and issues. These areas of inquiry range from environmental considerations such as land fragmentation, resource use and flows, to socioeconomic applications such as suburban-urban dynamics and development, including transit, firm location, and supply chain flows (Wheeler 2002).

for granted and proceeds from there. Regionalism as a subfield of study and practice came out of the planning field and discipline in early 20th-century America, where planning branched into traditions focused respectively on metropolitan planning and decentralized planning including both cities and their "hinterlands". Both avenues led to unforeseen and emergent problems, including the connected processes of suburbanization and urban renewal (Wheeler 2002).

The intervening years saw an increased reflexivity towards regionalist canon, particularly critiques invoking social justice and issues of power. This was interrupted during the Reagan era that saw the "retreat of the state" but was taken up again in the final decade of the 20th century -- a revisiting of regionalism in the wake of globalization that problematized some of regionalism's assumptions. Scholars began identifying these new, overlapping emphases as indicating a "new regionalism" (Wheeler 2002).

New regionalism challenged the notion that regions are static entities with clear boundaries, suggesting instead that they are relational constructs which exist liminally "'in-between' diverging scales" and which change over time (Paasi 2011). One of the most important differences is that much of new regionalism is normative. Whereas traditions such as regional science can be rigidly detached, new regionalists share the sense of activism and agency that characterizes the newer generations of planning professionals (Wheeler 2002). With these changes in mind, some have drawn distinctions between regionalism conceived in terms of people and communities, and regionalism in terms of services and institutions (MacLeod 2001).

There are also some formulations that consider regions in terms of cities that act as centers of gravity. These are regionalist conceptions in that they are fundamentally economic,

sharing the idea that regions have become more tangible in the context of a modern, global, and urban world. For example, Jane Jacobs argues in *Cities and the Wealth of Nations* that the primary economic unit is the city and its hinterlands, rather than a nation-state. Her argument recalls both the economic logic of traditional regionalism as well as the new regionalist focus on globally-ascendant regions (Jacobs 1984). The term "citistate" was coined in a 1993 volume by three men who would go on to become members of "The Citistates Group", a network of professionals interested in advocating for the economic importance and relevance of city-centered regions in a globalized world. They followed Jacobs in reconsidering the units that comprise a nation; rather than states, it is the metropolitan centers and their outer regions -- the citistate. Particularly, the authors point out that many metro areas are able to engage globally without going through the nation-state apparatus (Peirce et al. 1993, Kirlin 1993).

All these indicate, in my view, a pattern of agreement that regions matter more at global scales than in regard to internal nation-state political divisions, such as states or provinces. The authors of *Citistates* describe a shift from political entities to scalar entities, suggesting that the federalist paradigm is ceding to one of neighborhood-regional-global (Peirce et al. 1993).

Scalar complements to regionalism often shift focus downward to the community, locality or municipality[8]. Some of these are normative or ideological, while some are more analytical and explanatory. Real treatments of each of these deserve projects of their own and so will not be expanded upon here, but present at each level is a relational shift, such as the

[8] Of added relevance are adjacent fields which go beyond the governance literature to include political philosophy such as Murray Bookchin's libertarian municipalism and most anthropological or sociological ethnography.

attention paid to joint ventures laterally between municipalities (e.g., sharing or consolidation of services) and multilevel, network governance.

Conceptualizing "Region"

The usages of "region" in both old and new regionalism differs from our usage in "regional environmental governance" not only in terms of home discipline -- planning versus governance -- but in that they are primarily or majorly concerned with the economic and political dimensions of regions, and to a lesser extent the sociocultural, rather than the environmental or socio-ecological. The exception to this might be regional biogeography, which focuses on the distribution of biota across a given geographic region and can inform the governance of the natural environment along with biology and ecology. The distinction between planning and governance (and thereby their respective implements of "region") also reflects the shift from command-and-control to neoliberalism. In the former, the state engages in centralized planning whereas in the latter, the state is a partner in governance regimes (Kirlin 1993). Nevertheless, regional planning and regional environmental governance share a great deal of common ground -- especially regarding the difficulty in defining "region".

The field of regional geography lays claim to some seniority in its use of the "region" as a conceptual and geographic unit and frame for analysis. It also offers its scholars a critical vantage: in the afterword to the anthology *Reanimating Regions*, Agnew writes that scholars in other fields "discovered the region' as a context for their studies". He later on laments that in other fields the term is employed "without much conscious motivation" such that the concept

itself is "often untheoretically examined" and scholars' conceptualizations remain implicit rather than explicit. He sees a slippery slope in articulating regions as open-bounded with much travel in, out, and through, imagining the region dissolving "into webs of networks and the stories of those in them [going] ungrounded in any conception of territorial space" (Agnew 2017).

In contrast to Agnew's distaste for network perspectives, fellow geographer Anssi Paasi says, "regions themselves are historically contingent social processes that become institutionalized as part of the wider regional transformation and which may ultimately de-institutionalize… Regions are therefore not isolated, bounded islands but may be effectively constituted by networks and processes extending well beyond the administrative borders of each region" (Paasi 2011). This passage is of note for two mentions: "social processes" and "networks". Understood in this manner, regions might be better or equally understood in relation to the *society* rather than the *nation-state*; the boundaries of societies may be political in many cases but do not *necessarily* align with national borders.

In considering regions as constituted by networks, Paasi elaborates that "regions 'stretch' in space so that their social contents and relations are networked across borders and this networking indeed constitutes regions -- regional boundaries and identities need not to be exclusive" (Paasi 2011). A key aspect of this networking is *identity*. For Paasi, the totality of a regional identity is composed of both the identity of the region *per se* and the existence of a regional consciousness in the minds of people (who may or may not be living physically within the region). The regional identity is constructed through a variety of empirical processes and

features that run through the other forms of regional shaping -- in the dialectics of regionalization, in shared cultural practices or dominant economic industries.

These understandings of what a given region is or is not reflect intentionality, choice, and also power. Labels and narratives as such might be ascribed *to* those who identify with a region (or simply live in it) rather than *by* them. In the latter case, Paasi is alluding to regional consciousness. This consciousness is not exclusive to those who live within a region, but may be held by those adjacent or more distant.

Paasi takes care to enumerate the problematics of this framework for understanding regional identity. Perhaps agreeing with Agnew, he points out that studies often assume a certain level of reality to regions such that identities are relegated to being features of regions rather than regionalization processes. He continues by suggesting that regional consciousness understandings do not properly account for social hierarchies, class, or power. This is due to a reliance on qualitative research methods such as surveys and interviews that often construct these consciousnesses for participants who have a sense of regionality, could describe features of their regions, indeed have regions which they consider theirs (or not-theirs), and yet not think about "regional consciousness" academically -- nor think much of it at all. Paasi offers that these "ordinary people" perform their identities rather than explicitize them. Nevertheless, he concludes with a brief consideration that regional identity might actually be quite important when it comes to various "identities of resistance" which set themselves against a dominant power (institution, culture, ideology, et al.) that often acts at the level of society, nations, or globally (Paasi 2011).

Regions and Environmental Governance

The paper I have cited from Paasi is one of a series which came out of a 2010 international conference and workshop, "Regional environmental governance: international approaches, theoretical issues, comparative designs". In the overview paper, Balsiger and Debarbieux outline the discourse amongst attendants in regards to definitions and usages of "region". They discern between "materialist and spatial ways of conceiving the notion -- a region as a spatial entity defined according to its internal elements or … structure", linking this conception to Paasi's "identity of a region", and "an institutional way that views a region as a frame according to which a question is addressed and organizations are set up" (Balsiger and Debarbieux 2011).

In the former case, the participants affixed "region"; for the latter, "Region". They enumerate and simplify these, articulating that "region" refers to "the output of the spatial and cognitive framing of environmental reality" whereas "Region" refers to "the institutional construct which results from the decision to organize stakeholders or preexisting institutions for coping with environmental issues in this frame. In short, they suggest a terminological framework[9] wherein "region" refers to "problem setting" and "Region" to "problem solving" (Balsiger & Debarbieux 2011). It is the difference between the "Mediterranean region" and the "Mediterranean Region"; the IUCN studied conceptions of the Mediterranean region in terms of

[9] I do not adhere to this convention for our purposes except where explicitly stated.

identity and from that determined what would be included in their "Mediterranean Region" (Jackson 2011).

The authors ruminate on the ontology of the region and its issues, but caution us that this is "not an open door to the realm of metaphysics". I am inclined to heed their warning and allow them to return us to the beginning of our sojourn through the conceptual landscape of the region -- that is, to regionalism. They make certain to discern, as we have, between *regionalism* and *regionalization*. Regionalism for them is ideological, "with implications in terms of collective identities and individual or institutional commitments"; regionalization is a "manifest process for re-scaling environmental issues".

This delineation lends itself to consideration of what has been referred to as "new environmental regionalism" -- that is, the "the institutionalization of environmental governance at the ecoregional scale". In terms of the juxtaposition of regionalism-as-ideology and environmental regionalization, the authors leave open several questions about the present situation and relationship between these conceptualizations; I think they are salient and provocative enough to warrant listing. First, to what extent is environmental regionalization -- the re-scaling of environmental issues and governance -- a "bricolage" in the Levi-Straussian sense or part of a "geo-socio-political transformation"? Second, and with liberal paraphrasing, what does the advent of new environmental regionalism suggest about the changing influence of environmental issues on the delineation between regionalism and regionalization? Third, what is the role of a "collective sense of belonging" in this new environmental regionalism (Balsiger & Debarbieux 2011)?

In the following section, I aim to introduce a concept which I believe successfully engages with a swath of the issues raised in the pages prior: regional boundaries, regional identity and consciousness, and the relationship between the ideological and ontological dimensions of regions in regards to environmental governance.

Bioregionalism and Bioregionalization

Let us begin by making a preliminary distinction between two discrete implements which sound very similar: “ecoregion” and “bioregion”. The former is used by NGOs such as the World Wildlife Fund to denominate physical areas in accordance with a nested, scalar classification system. WWF identifies ecoregions with biodiversity, saying biodiversity “follows complex patterns determined by climate, geology and the evolutionary history of the planet. These patterns are called “ecoregions’.” The organization offers a more explicit definition of the ecoregion: "a large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions". Already, it is clear that the ambiguity inherent in defining a region is present. Indeed, they add, “The boundaries of an ecoregion are not fixed and sharp, but rather encompass an area within which important ecological and evolutionary processes most strongly interact” (WWF “Ecoregions” 2020). This is important to us because it illustrates how even attempts at restricting regions to “nature” involve a degree of arbitration and construction on our part.

There is also a large degree of ambiguity about how the WWF distinguishes ecoregion from other terms it seems to use interchangeably. For example, the URL for the WWF webpage

discussing and defining ecoregions actually refers to “biomes”. Further, while “Ecoregions” is the title of the page as given by a header on the page itself, the page title (as seen in a browser tab) is: “Biomes | Conserving Biomes” (WWF “Ecoregions” 2020). When WWF lists the terrestrial ecosystems, it uses “ecoregion” interchangeably with “habitat type”. These include designations such as “tundra”, “Mediterranean Forests, woodlands and scrubs”, and the one of relevance to WNC -- “Appalachian-Blue Ridge forests”. The latter constitute a majority habitat type of both the Blue Ridge and Ridge and Valley “physiographic provinces”.

“Bioregion” itself has been used likewise, though often to denote regions the size of one or more watersheds -- in this sense it adheres in terms of scale to the original use of “region” as an intermediate (intermediary) step between the local-municipal and the state (Paasi 2011). Bioregionalism serves to address the criticism of conventional regionalism -- leveled, for instance, by Balsiger & Debarbieux 2011 -- that it does not fully integrate environmental issues into its ideological framework. Bioregionalists pursue this by grounding the dialectic in the relationship between humans and the natural world (this turn of phrase is not intended to imply they are discrete entities) rather than in the political or economic dimensions. In a sense, bioregionalism strives to do for environmental regionalism what ecological economics did for environmental economics.

The term originated with Allen Von Newkirk, who described it as a framework for identifying “biogeographically interpreted culture areas” which he termed bioregions (Aberley 2005). Those who lived within these bioregions would work to conserve and restore its native ecology and “discover regional models for new and relatively non-arbitrary scales of human activity in relation to the biological realities of the natural landscape”. The term was soon picked

up by influential writers and activists such as Gary Snyder, Peter Berg, and Kirpatrick Sale (Cappuccio 2009, Aberly 2005, Berg 2013). Their form of bioregionalism has both an ideological aspect and a normative aspect which I refer to as bioregionalisation. I want to briefly outline both before introducing a bioregional concept of Berg's -- the "socialshed" -- which I think is helpful for situating the scope and aim of social network analysis in regard to the (bioregional) environmental governance of private land conservation in WNC.

The concept of *place* is well-tread in the social sciences. It has been said that "culture + space = place", but its clarity, and perhaps primacy, is being challenged as our lives are increasingly borne out online and increasingly constructed in a global context. The boons of place-based living are explored directly or indirectly by a variety of ideological positions which share at least some ground with bioregionalism: the dark green religionists, the deep ecologists, the social ecologists[10] (Taylor 2000, Taylor 2009, Bookchin 1990, Cappuccio 2009). These positions, including some strains of bioregionalism, involve antagonism towards modern lifestyles, civilization, or some larger systemic or structural aspect of the status quo. In some of these, there is explicit opposition to capitalism and its exploitation of the natural world and an emphasis on what is perceived as having been lost over time[11] (Taylor 2009, Cappuccio 2009).

Bioregionalists (as well as some dark green religionists and deep ecologists) often draw on language that suggests a participatory, reciprocal relationship with the natural world. The bioregional answer to this is to live-in-place -- one place. Activists such as Peter Berg saw in

[10] It should be noted that Murray Bookchin's libertarian municipalism is philosophically opposed to centering governance at the regional level. Rather, he envisions regional confederations of directly democratic municipalities.
[11] Social ecology, at least as understood by its originator Bookchin, is an exception to these. In fact, Bookchin held longstanding distaste (if not outright hostility) towards deep ecology. What both do share is the emphasis on decentralized scales of governance and reformulated understandings of, and relationships with, the natural world.

bioregionalism a way to anchor in *place* their resistance to modern life and also provide an alternative (Berg 2013, Berg and Dasmann 1977). Gary Snyder's notion of "reinhabitation" – a primary principle of bioregionalism as referenced by several of its major proponents – is put forth as a way of balancing the equation and bringing us back to place (Snyder 1977, Berg and Dasmann 1977). E.g., by *rooting* yourself in your bioregion, you can *cultivate* an intimate knowledge of and *relationship with* the natural world and the particular lifeforms with which you share the bioregion; you are *reinhabiting* the place in which you live.

What specifically constitutes a bioregion is as indeterminate and debatable as with other forms of regionalism, but there are some conventional measures. Perhaps the most well-known way is to delineate bioregions by watershed; another is adhering to ecological climes/zones; another is to begin with geology and/or geography. The bioregional approach to conservation has been linked to ecological uncertainty that unfolds at the scale of regional geographies. These uncertainties reflect conservation factors such as species conservation, migration patterns, fire regimes, habitat structure and nutrient cycles (Johnson et al 2017).

Of course, as we have discussed, human settlements and activity do not self-organize along such lines – they do so politically and culturally in addition to these other factors, and increasingly are able to organize without regard to specific ecological features (although it should be noted that in many of these environmentally-oriented movements and worldviews, ecological place-making is prized and carried out intentionally). Lewis Mumford outlined a chronological trajectory of regionalisation that leads us directly to reinhabitation. For Mumford, in early history, the most important natural environs are physiographic; later, they become

hydrologic in association with agriculture and population growth[12]; later still, the city supersedes the landscape as the regional entity, and over time the various social and economic forces augmented by urban ways of life grow to obscure the natural environment and geography [upon which such a way of life ultimately relies]. This begets ecological crises, which in turn orient life back towards the natural world (Mumford 1938).

The bioregional focus on living-in-place and the identification of reinhabitation with a singular bioregion has been critiqued along similar lines as seen in Paasi's emphasis on the contextual, nested, and relative aspects of regions and identity. Dianne Meredith, for instance, levels such a critique in six parts and connects it to Mitchell Thomashow's notion of "cosmopolitan bioregionalism", which brings globalization into the discourse, arguing that localities and their peoples cannot be understood sans reference to global forces. He therefore calls for a *cosmopolitan* bioregionalism, bridging locality with globality (Meredith 2005, Thomashow 1999). Meredith follows this with the suggestion that bioregionalists let go of the need for reinhabitation and rootedness to apply only to a singular place, and rather to embrace multiple rootedness and external integration; that is, Meredith urges bioregionalists towards a "bioregional sensibility" which they can apply wherever they inhabit (Meredith 2005).

So we are left with a complicated mesh of layers and tensions from which to try and define the conceptual bioregion. But it is no more nebulous than its parent concept -- the region -- and perhaps only slightly less nebulous than a city-region or a cultural region[13]. Cappuccio affirms, "So too, bioregions are constructs of the human mind, and are much more cultural than

[12] For a fascinating energetic explanation for this hydrologic shift, see: Odum, Howard T. and Elizabeth Odum. "Spatial Organization". *A Prosperous Way Down: Principles and Policies*. University Press of Colorado. 2001.
[13] I am reminded of the mandala polities of SE Asia, which exhibited decreasing political influence as the radius from the polity grew and the farther one ventured into the hinterlands.

scientific. Just as regional geography had to live with uncertainty and indeterminacy in defining regions and boundaries, so bioregional constructs will always be tentative and in flux" (Cappuccio 2009). It may be noted that Cappuccio not only agrees that bioregions reflect dynamic regional consciousnesses more than "natural" and static physiographic or geographic boundaries -- but that she is content with it, and sees it as inherent to the study of regions at large.

Indeed, the fact that bioregionalists anchor their philosophy in place-as-concept as much as place-as-locality offers a natural bridge to more conventional concepts of regional consciousness such as in our discussion of Paasi. This suggests that like other regions, the bioregion is indeed as conceptual and constructed as it is natural; idealized, it is a product of the dialectic between a group or groups of people and their natural environs. It is both a "geographical terrain and a terrain of consciousness" wherein the latter refers to "ideas that have developed about how to live in [that] place" (McTaggart 1993). This is, in my view, in rough agreement with Meredith. Or rather, I would posit that her "bioregional sensibility" already exists in the bioregional tradition and that she perhaps emphasizes the place-as-locality at the expense of place-as-concept.

Peter Berg and Raymond Dasmann, drawing inspiration from Snyder's reinhabitation, continue to discuss the boundaries of a bioregion, which "can be determined initially by use of climatology, physiography, animal and plant geography, natural history and other descriptive natural science. [emphasis theirs] *The final boundaries of a bioregion are best described by the peoples who have lived within it, through human recognition of the realities of living-in-place*"

(Aberley 2005). To use Paasi's language, they argue that bioregional identity should be determined by the regional consciousness of those who live and reinhabit it.

Socialsheds

There is a name for a group which enacts such a process of identification: the socialshed. According to its originator, Peter Berg, it is "the idea that individuals who identify with real places, engage with a local environment, and live in geographic closeness foment social interaction to form a 'socialshed'." Berg understood these socialsheds to be units of bioregional identity that could come together with other socialsheds or groups to form organizations, such as a watershed council (or in our case, a land trust). Indeed, there may be several socialsheds that come together to form larger organizations, and these may together point towards a collective, bioregional definition of place (Navarro-Navarro 2017). Similarly, describing the qualitative difference in perspective that bioregionalism offers, Giuseppe Moretti[14] writes that it "[reconsiders] the place in which we live, the bioregion itself, not as a material entity to be used exclusively for human wellbeing, but more like a group of beings and relationships" (Cappuccio 2009). Whether intentionally or incidentally formed, these socialsheds, actors, and organizations and their relationships with each other constitute *social networks*.

Bioregionalism is thereby complemented by study of social networks. W.D. McTaggart writes: bioregionalism "recognizes that the starting point is a re-examination by human groups-human communities - of the way in which they have collectively structured their forms of

[14] Moretti, quoted in Cappuccio's paper, is an Italian bioregionalist and bears no relation to the famed sculptor.

differentiation (the basis for relational actions)" (McTaggart 1993). In this sense, studying the social networks of these communities and groups can enhance or reveal the structure of these forms of differentiation. Moreover, since boundaries are to a large extent chosen by inhabitants, social networks provide a medium and cognitive mechanism for collective deliberation and decision-making.

Indeed, according to McTaggart, the "purpose of 'bioregional research' is therefore to enable the community to be fully 'informed' about its region of responsibility and to provide it with the perspectives needed when decisions are required" (McTaggart 1993). Social network analysis is a tool well-suited to this task, and has the potential to be a powerful complement to a holistic and robust research project. The social relational approach to environmental and natural resource management and governance is enumerated below in terms of social networks and social network analysis.

Social Networks and Environmental Governance

By the end of the previous section, we touched on a couple concepts that suggest we are moving towards a focus on social networks. The socialshed is considered as self-organizing and intentional, and the bioregion is considered as socially-constructed and defined. We may explicitly connect these two concepts by recalling Berg's point that bioregions are defined by those that (re)inhabitat them, and that the people who form the "unit of bioregional political interaction" termed socialshed do so in relation to the *place* in which they live (Navarro-Navarro 2017). Socialsheds are, by definition, social networks. It should be emphasized that socialsheds per se are not the direct object of interest, though they provide a backdrop against which to judge the "realness" or intentionality of a network (rather than being an artifact of the analysis). Socialsheds provide a framework for thinking about how social networks might exist, organize, and operate at the regional or bioregional level. Below, I provide a brief overview of social networks and social network analysis (SNA), followed by the intersection of environmental governance and SNA.

Social Networks and Analysis

The idea of social networks existed in the social sciences before social network analysis brought quantitative analysis to bear on their study -- and long before our online social networks brought the term into everyday use. Social network analysis (SNA) was preceded by sociometry, which itself arose from social sciences such as anthropology, sociology, and social psychology. One of SNA's most recognizable and oft-used features is the sociogram, first used in the 1930s

by the originator of sociometry, Jacob Moreno. Moreno developed the sociogram -- the now-familiar visual 'map' of social relations utilizing points or circles as individuals and lines between them as relations -- in support of his work in psychotherapy and in pursuit of specifying the nature of group social dynamics (Wasserman and Faust 2009).

In the following couple decades, sociometry was used to great effect in other fields that in turn advanced the range of its application. The use of matrices constituted a bridge into mathematics; study of network structure and the relational ties thereof led to the development of numerous ways to model structural processes. At the same time, anthropologists (who had begun to turn their attention homeward) and social psychologists furthered its conceptual dimensions, offering a veritable lexicon of formal concepts which exist as core attributes in modern SNA (Wasserman and Faust 2009).

Over its antecedent's history and subsequent development, SNA has offered a way to make explicit and testable what was previously only metaphorical and conceptual. In particular, social network *structures* and *relationships* are enumerated. The two most fundamental concepts are *actors* and their *relational ties*. An actor is a member of the network and relational ties are the linkages between them. Even at this most basic level, there is a great plurality of possible network configurations which can become rather complex; actors might be defined at the individual, (sub)group, or organizational level, and relational ties may be directional or non-directional (and directional ties may be dichotomous or valued). Analytical focus might be upon ties between two actors (dyad), three actors (triad), or more (subgroups or groups), and

there may be attributes (such as are conventionally explored in social sciences) associated with actors which may also be subject to analysis (Wasserman and Faust 2009).

Using network language, there are two kinds of variables: *structural* and *composition*. Structural variables are those unique to network analysis and measure the relational ties under investigation. Composition variables, also called *actor attribute* variables, are those common to other forms of social science. For example, structural variables might measure the existence of or level of perceived friendship between classmates, while composition variables might include the gender, age, and/or race of the classmates. Networks may consist of one or more *modes*. One-mode networks (the kind we are concerned with in our analysis) comprise actors of one set, while two-mode networks usually deal with two sets of actors[15] (Wasserman and Faust 2009).

Environmental Governance and SNA

SNA is a social relational approach to studying environmental governance. The social relational approach attempts to "merge" rather than simply aggregate the individual vs. whole dichotomy that plays such a large role in the social sciences. In this way, concepts like social structure may be understood as emergent properties and phenomena of individuals and their relations among each other. The social relational approach to a given problem leverages SNA to describe and/or explain relational positions and roles in social systems -- in our case, it will describe some basic roles, positions and relations among PLC actors in Western North Carolina -- and offer that insight in support of designing policy or reflexive action of the network(s) being

[15] There is a variation of the two-mode network called the affiliation network which deals with a set of actors and a set of *events*, such as organizations to which actors belong.

studied. In short, SNA simply addresses relations, and patterns and implications thereof (Bodin and Prell 2011).

In their textbook, Bodin and Co. take care to distinguish between social systems and social networks, and between network analysis and social network analysis. Between the former, they write that "every social network is a social system, but the converse is not true". Crucially, while both may be visualized similarly (such as a sociogram, with points and lines between them), social networks are *informal* and *non-hierarchical*[16]. To illustrate, an organization itself is formal and considered a social system, but can be represented and thereby studied as a social network [of actors and their relations]. Similarly, they note that social network analysis is distinct, and narrower, than generalized network analysis, despite that all forms of network analysis may utilize some of the same algorithms (Bodin and Prell 2011). This difference matters especially in the interpretive stage of analysis; the meaning of centrality in a network analysis of psychopathological symptoms[17] likely differs significantly than the meaning of centrality among, say, PLC actors in Western North Carolina.

Environmental and natural resource conservation and management naturally give rise to governance, whether one begins with Hardin's tragedy or with the empirical observations about the transpolitical and scalar boundaries of ecological and geographic areas. Inherent in governance is not only institutional informality (which itself implies such changes as a lack of

[16] This warrants some clarification: social systems and thereby social networks are often if not usually hierarchical and inextricably influenced by power dynamics and relations. Networks themselves are structurally constructed in a non-hierarchical fashion, but can be leveraged to reveal and tease out information about power. For example, demonstrating that a perceived power player has high betweenness centrality and uses its brokerage as power.
[17] In looking for a salient example, I found this paper, which perhaps does not deserve a "Works Cited" citation, but is cited here simply because it was interesting:
http://www.psychosystems.org/files/Literature/borsboomcramerannualreview.pdf

formal lines of communication) but the need to develop ways to stabilize funding streams, resolve conflicts, work collaboratively, utilize experts, and disseminate knowledge amongst a variety of entities. These are internal uncertainties, but there are also external ones which range from climate change and ecological dimensions to political, legal, and cultural variabilities. Because of these, governance institutions and actors must be adaptable (distinct from the specific term "adaptive").

There is no singular "approach" or "framework" that offers a panacea for governance challenges and uncertainties. SNA certainly is not that; as an application of the social relational approach, it functions best either as a complement to other approaches and frameworks or/and as a tool network actors and others involved in governance. Bodin and Prell specify three frameworks where SNA can be useful: **common-pool resource management, adaptive co-management,** and **collaborative management across boundaries** (Bodin and Prell 2011).

Common-pool resource management specifically refers to Elinor Ostrom's design principles (and the literature that built upon the original list) successful governance of common-pool resources. The governance and management of an array of privately owned parcels and tracts of land is not synonymous with the commons, but many of the principles for good governance apply to both scenarios (Bodin and Prell 2011). **Adaptive co-management** has largely succeeded adaptive management (in the literature, if not in practice) as a predominant way of tackling the problems of managing complex ecosystems over time -- something very relevant to a land trust faced with managing hundreds or thousands of oft-fragmented tracts "in perpetuity". In the interest of aiding these trusts, SNA may be leveraged towards understanding how communication happens in a network, how social learning occurs and how knowledge is

disseminated and shared (or not shared). In relation to any form of adaptive management, this mostly refers to ecological and management knowledge, but may be generalized to other arenas of knowledge such as new legal precedents, new sources of funding, and so on. **Collaborative co-management** refers to governance and management which occurs across different types of boundaries. The authors provide an example wherein a municipality is responsible for maintenance and stewardship of a riparian coastline, but the responsibility for the river itself belongs to the state (Bodin and Prell 2011).

I have already referred to the socialshed as a framework for evaluating the "realness" of the network, thereby situating my SNA as a form of bioregional research (that is, it follows a bioregional approach as well as a social relational one), but there is another standard against which to begin to evaluate the PLC network.

A Rubric for Good Environmental Governance

Bennett and Satterfield (2018) provide a framework for "design, evaluation, and analysis" of environmental governance based on an extensive literature review, including Ostrom's famous design principles. The framework outlined by Bennett and Satterfield comprises four benchmarks for good environmental governance. Such governance is: **effective, equitable, responsive,** and **robust** (Bennett and Satterfield 2018). Each of these would alone require several avenues of analysis in order to fully account for them, but SNA may be useful in pursuit of actualizing some of these. Over the next couple pages, I will spend considerable time

attending to the specific applications of SNA toward evaluation of governance using their[18] rubric as a model; because the discussion is relatively dense, it proceeds without in-text citations to avoid redundancy, and the reader may assume I have pulled any information in the remainder of this section from Bennett and Satterfield 2018 unless otherwise cited.

Social network analysis can help increase the **effectiveness** of environmental governance. Effectiveness is determined by several attributes: *direction, coordination, capacity, fully informed, accountable,* and *efficiency*. *Direction* refers to objective clarity regarding "boundaries on action and scope". Effective *coordination* implies effective division of labor and responsibility among entities, as well as rules for such. *Capacity*, including both skills and resources, comprises the ability to apply and utilize those skills and resources. "*Informed*" (an awkward way to phrase it, in my view) simply means that effective governance is that which can avail itself of the "best available knowledge" of all kinds. *Accountability* is defined by the authors in terms of governors, and relies on transparency on the part of decision-makers. Accountability is different in more informal governance networks than for government-driven networks. Indeed, it is an especially important and vulnerable attribute; NGOs and land trusts have been critiqued and criticized for lacking accountability and by extension having limited legitimacy (Jepson 2005). *Efficiency*, at the risk of seeming redundant, is determined by reasonableness and prudent decision-making in regard to time and money.

Of these, SNA is most helpful in regard to direction, coordination, and informed. All three of these involve actors communicating, working together, sharing, and resolving conflict.

[18] I chose their formulation due to its recent publication date (giving them access to most of the literature) and exhaustiveness.

In being able to explicitly describe linkages, patterns, and roles within a social network, SNA offers these actors and their networks a self-reflexivity they might otherwise lack. SNA is indirectly able to provide support in capacity building and accountability efforts via its direct support of the first three attributes, but could directly impact accountability by highlighting opportunities for inclusion of local actors, groups, and communities (in our case, by conveying to the network members the benefits of including land owners).

Environmental governance, according to Bennett and Satterfield, must also aim to be **equitable**. Attributes of equitable environmental governance are: *inclusivity, participation, fairness,* and *justice*. *Inclusive* governance is that which recognizes "diverse stakeholders" with emphasis given to marginalized and vulnerable groups. This inclusion refers to perspectives, rights, values, knowledges, and so on; *participation* is given its own attribute. Equitable participation entails processes which bring those included into the decision-making processes, and does so in a way that "facilitates the sharing of power", and other democratic forms of self-governance. This leads directly into *fair* distribution of outcomes -- that responsibilities, burdens, and benefits are equitably assigned. *Justice* largely refers to recourse and access to recourse, as well as proper protection of rights and consent.

Much as in regard to effective environmental governance, SNA has the ability to reveal aspects of social structure including cohesion, centrality, and other measures. Through these, it can point to ways in which networks seem to be more or less equitable, namely via perceptions of equitability (such as surveying actors for their perceptions thereof). In this sense, SNA can

point towards solutions and ways to improve equitability, but ultimately it is best used in support of qualitative social science which can best investigate these issues "on the ground".

The third primary objective of environmental governance is to be **responsive**. Such governance arrangements exhibit: *learning, anticipation, adaptability, innovation,* and *flexibility*. *Learning* includes both institutional and social learning and is correlated with collective memory. Learning in these contexts assumes continued monitoring, communication, sharing, and reflexivity regarding both social and ecological performance. *Anticipatory* governance simply refers to practices such as "consideration, analysis, and planning" regarding risks and consequences thereof. *Adaptive* governance requires institutional structures which allow for collective mind-changing and established, clear processes and ways of making changes as needed. *Innovation* implies a high tolerance of risk (and the resources, etc, to allow for it) and simply refers to the cultural willing-and-ableness to experiment in new management strategies and ideas. Finally, *flexible* environmental governance suggests that those involved act relative to "diverse local realities" rather than implement the same practices irrespective of differences.

SNA assists the anticipatory and adaptive attributes similarly to others we have seen -- by offering networks and actors information about themselves so as to identify vulnerabilities and make improvements. It is rather easy to imagine how this might happen in regard to improving learning, anticipatory and adaptive capacities, or flexibility, but it is less clear how SNA can enlighten us regarding a network's capacity for innovation. It is true that SNA could address perspectives of risk tolerance and possible risk pools, but it is less apparent how SNA can tackle

empirical measures of risk tolerance, evaluate what an adequate degree of resources would look like, or determine whether a network justifiably may be said to possess a "culture of innovation".

The fourth and last objective of environmental governance is to be **robust**. Robust governance is that which is resilient in the face of challenges and maintains itself and its institutions over time. I might render it as "resilience over time". According to Bennett and Satterfield, robust governance is: *legitimate, connected, nested,* and *polycentric*. We have touched upon *legitimacy* through our discussion of accountability (see: Jepson 2005). We may add here a benefit of legitimacy: political justification and local support. Such governance institutions will be more able to weather political turbulence and manage relations with local communities and groups when disagreements and conflicts arise. *Connected* environmental governance has "robust networks of institutions and actors [which] are structurally connected horizontally and vertically, often enabled by bridging organizations, and characterized by positive social relations". These "facilitate collaboration, knowledge and information exchange, and diffusion of innovations". I excerpt these directly because the authors are overtly referring to social networks, offering us a natural starting point for bridging a rubric for good environmental governance with social networks and SNA.

In the same vein, robust environmental governance is *nested*. For the authors, this means that "decision-making authority, responsibility, and tasks are devolved to the lowest-possible and most administratively appropriate level, which enables the proper entity to self-organize, make decisions, and take actions", though they caution that this needs "to be matched with adequate support and oversight from higher levels". Lastly, such governance networks aim to be *polycentric*. This means that these devolved centers of authority occur in multiple locations

across the network, across jurisdictions and scales. In particular, this redundancy affords the network some latitude in mitigating challenges (or, for instance, in taking innovative risks).

I have taken a great deal of time, care, and space to point to each objective and attribute in which SNA brings something to the table, but it is most comprehensively valuable in pursuit of robust environmental governance. Legitimacy is likely easier to actualize when actors can demonstrate the influence that the public has on governance actions; SNA allows for some quantitative analysis on this front. For instance, SNA can illustrate how local outreach organizations or agencies play bridging roles between landowners and trusts, or how local knowledge is diffused and later incorporated into collective memory. Perhaps more than any other attribute, SNA is directly applicable towards connected environmental governance by analyzing, visualizing, and evaluating the social structures and relational patterns. It follows that SNA can indicate nestedness and polycentricity by examining positionality and measures such as centrality, as well as identifying which actors act as bridges to higher/lower levels.

PART II

In this part, I introduce the social network analysis, its objectives, variables, and methods; present the data, conduct an analysis, and discuss the results and their implications.

SNA of PLC in WNC

Just as Berg's socialshed offers a way to consider the extent to which the network is self-aware/real or just an artifact of the analysis, so does the framework for evaluating environmental governance suggested by Bennett and Satterfield provide a way for us to begin to gauge aspects of the network.

PLC actors are engaged in the process of environmental governance, and as such, they face the sorts of challenges outlined by Bennett and Satterfield. These include: the need to generate, diffuse, and apply various knowledges for their work; an informal work environment with other actors who may or may not share values, missions, and may even compete for funding or partnerships; the need to work across political boundaries and across vertical scales of governance (Bennett and Satterfield 2008). Additionally, land trusts and like PLC actors face some particular challenges: variable, inconsistent, and sometimes insufficient funding streams and sources; they are also sensitive to the political and legal environs, such as in the case of easements that last "in perpetuity" (Fellows 2011, Ristino and Jay 2016, Cheever 1996, Johnson et al 2017, Pasquini et al 2011).

The first half of this thesis has set the stage for applying our theoretical foundation to a case study in an area of particular interest to me. We have explored the history of land trusts and the land trust movement, and seen how the processes of neoliberalism have set the stage and defined the challenges for land trusts. We have examined and unpacked the boundaries within which land trusts and conservancies operate, namely in regard to scale. We have unpacked and examined conceptions and definitions of "region" and regional identity, paying attention to the

differences between academic fields. We have identified a natural fit between some aspects of bioregionalism -- especially the bioregional concept of the socialshed -- and social networks. We have linked the study of social networks to measures of good environmental governance more generally, and pointed to key areas where SNA may be most helpful.

I have tried to illustrate its potential contributions, but social network analysis is just one tool to be used in improving environmental governance and outcomes; why am I choosing this tool rather than another (e.g., stakeholder analysis)? We have discussed in detail the ways in which SNA can inform, evaluate, and enhance environmental governance. Many of these require a general understanding of the major regional actors and relationships. In my research, I have found next to no data about Western North Carolina private land conservation networks; there is little on the topic of Western North Carolina conservation at all. This means that any work needs to be foundational -- in the sense of laying stepping stones for further work -- and exploratory. We need to survey the territory; describe the network topography. SNA does a few basic things that I believe are A) of preliminary importance and are B) immediately helpful to actors and practitioners in the area. That is, if no further research were to be actualized, this will still be of use *on the ground*.

The ways in which SNA offers preliminary, actionable results are deceptively simple. It a) identifies actors, b) defines them in relational terms, and c) allows for visual representation of these actors and their relational ties. The generation of the network map(s) alone allows the members a degree of self-awareness and reflexivity that otherwise they might not have. A preliminary mapping of basic relational ties can make explicit what actors make only sense or feel, for instance if there is a sense that Organization X brings in knowledge from local groups, a

SNA can reinforce that feeling by showing that most other network actors view Org X in the same way. Basic SNA statistics and measures quantify these relational ties in helpful ways -- for example, by highlighting which actors have high betweenness centrality, or by linking a centralization statistic to the literature on collaborative governance.

Objectives and Variables

The research objectives are: A) to conduct a social network analysis which is exploratory, preliminary, and foundational; B) to conduct a social network analysis which is useful to network members; C) define the social network analysis in terms of evaluative environmental governance and define realness of the network in relation to the socialshed.

The variables I selected for study were chosen because they satisfied all three primary objectives. I attempted to curate a selection of variables that offered some redundancy in terms of satisfying the three objectives in case some variables did not result in workable data.

The structural variables -- the relational ties under investigation -- are: **frequency of communication, frequency of collaboration, frequency of sharing or receiving new information, perception of working in the same region, perception of belonging to a like-minded group, perception of competitiveness,** and **collaborative planning relationships.**

The composition (actor attribute) variables are: **funding sources, scale of operation, types of work done, name and description/definition of region in which they work,**

perception of biggest challenges looking ahead, knowledge access, **knowledge need**, and **dependency on volunteers for daily function.**

In order to align my research with the rubric formulated by Bennett and Satterfield, I chose variables that correspond to Bennett and Satterfield's objectives and specific attributes in environmental governance practice and which may be readily informed by SNA. The variables selected may be leveraged through SNA towards evaluation of **effectiveness, responsiveness,** and **robustness**. In terms of effective environmental governance, the variables in this SNA inform our evaluation of actor and/or network *direction*, *capacity,* and the extent to which actor/network are *informed*. Responsiveness is indicated through *learning*, *anticipation*, and *flexibility*, while SNA robustness through the *connected* and *polycentric* attributes. Measures of equitability were determined to be better suited to successive studies which can survey larger populations, more diverse stakeholders, and ask questions based on prior establishment of network(s) and socialshed(s).

Several variables are intended to indicate the extent to which the actors understand themselves to be part of a larger group with shared understandings of respective roles, goals, and geographic areas of work. To the extent that a group of actors perceive themselves as belonging to a larger group, we may more readily suggest the social network is "real" as well as indicating reflexivity and intentionality. Moreover, mutuality (where actors consider each other part of that same network) may be inferred in situations where two or more actors frequently communicate, share knowledge, and/or work together. Where a group of actors appear to (consciously) share

understandings about roles, goals, and areas of work regarding the network, we may (cautiously) suggest they belong to a socialshed.

Chosen variables were also considered in light of whether they were appropriate in pilot SNA study and whether analysis of them was likely to be helpful to practitioners and participants. For example, the frequency variables serve to establish the existence and basic structure of the network, while many of the composition variables aggregate basic information into an overview (such as with reliance on volunteers) and begin to address member perspectives that ultimately show up in attributes such as direction. Considering both compositional and structural variables gives analytical depth beyond what might be expected with relatively foundational variables. That is, the chosen variables were selected towards the goal of being both useful and basic. This also keeps the study accessible to practitioners and staff who likely vary in their academic leanings.

Definitions and Boundaries

One of the key decisions in conducting SNA is defining the network boundaries. In this case, the physical network boundaries are somewhat arbitrary and have geographic, ecological, social, and political dimensions in addition to logistical constraints. Moreover, rather than begin with physical boundaries and populating the actor list from within those confines, one could begin with known or major actors and use an iterative survey process to generate a population.

I have combined these approaches for this study in order to reflect the dialectic between regions and those who identify with them. Based on our discussions of regions and identity, we

could look to WNC as a formal, political region, or in following an organization such as the WWF look to the Blue Ridge Mountains as an ecoregion. We might consider the social and cultural bounds; Southern Appalachia extends through several states while indicators, such as news channel reach, suggest including upstate South Carolina in with parts of WNC. One could divide WNC into the northern highland counties, the western counties, and the ones surrounding Asheville.

The geographies that comprise WNC amount to more than a bioregion, a formal political entity, an economic unit, or a purely sociocultural construction. It has geographic and bioregional characteristics in addition to state recognition as one of three geographic regions (the others being the Piedmont and the Coastal Plain). As the largest city in WNC, Asheville is an economic and political center; many economic and demographic measures divide WNC into smaller areas. As the reader might have surmised, the designation of WNC is predicated on geography but is fundamentally socio-political; it is a mapping of county lines over the Appalachian Mountains.

One of the objectives of this exploratory SNA is to tease out how the actors think of the WNC region and their organization's place in it -- or whether they instead identify more with the Blue Ridge Mountains or Southern Appalachia in general. Ultimately, one of the most influential factors in deciding to use the conventional designation of WNC as the network boundary is feasibility. Anchoring the actor population to WNC precludes the need to proactively account for political boundaries and the effect of legal variations across state lines. Nevertheless, many actors operate across state lines such that we will indirectly be considering those places.

The study population might also have been defined in various ways. As discussed in the brief history of land trusts, there are many organizations which involve themselves in the protection and conservation of land. Many of these work across political borders. The federal government owns and administers the Great Smoky Mountains National Park, which straddles the border of Tennessee and North Carolina. There are also county soil and water conservation offices, large international firms such as The Nature Conservancy or Sierra Club which have local or regional chapters. There are recreation-oriented non-profits, farmers' associations, and broad-based organizations focused on advocacy, organizing, and education. Indirectly involved are organizations focused on clean water, pollution, clean energy, and environmental law and policy. There are also the private land owners themselves.

The ideal situation would be one in which all environmental actors might be accounted for. For sake of feasibility, the initial actor set was limited specifically to actors (a) directly engaged in private land conservation of soil and land (including farmland) -- meaning acquisition and/or management thereof -- which work (b) at least primarily[19] in WNC. These actors could be environmental NGOs (ENGOs) or state-based entities, such as county conservation agencies. Actors which did not fit these criteria could only show up in the analysis if mentioned by primary actors. I excluded private land owners for the sake of feasibility.

[19] Regarding the latter requirement, for instance, Southern Appalachian Highlands Conservancy is the largest trust in the region but holds tracts in Eastern Tennessee and Southern Virginia; they are included. TNC has two tracts in WNC but do not operate primarily in WNC; they are excluded.

Methodology

To generate a population of actors, I used a two-step iterative process that began with selecting a preliminary set of PLC actors known to be active in the region and who directly practice PLC. Effectively, this was a list of the conservancies and supra-organizations with conservancies as members. These ten actors, listed below, were asked via survey to list other "major" actors in PLC in WNC. From the responses, I curated all the actors who were listed by at least two respondents. The final population list was generated through combining the initial actor set with the curated list of responses. Qualtrics (via Cornell) was used to distribute and administer the surveys.

PRELIMINARY ACTORS	**ADDED PRIMARY ACTORS**
Blue Ridge Forever	MountainTrue
Southern Appalachian Highlands Conservancy	
Buncombe County Soil and Water Conservation District	
Blue Ridge Conservancy	
Conserving Carolina	
Foothills Conservancy	
Mainspring Conservation Trust	
Highlands-Cashiers Land Trust	
New River Conservancy	
RiverLink	

Both survey sets were in questionnaire format. Respondents were asked to answer from an organizational perspective where possible, and encouraged to speak to others if questions could be better answered. For example, they were asked to answer frequency of communication questions in terms of organization-to-organization communications, but were also encouraged to defer the question to another staff member if the other member handled most of the email communications or was in charge of relations with a particular organization listed in the survey.

The preliminary survey simply asked respondents to A) choose whether the listed organizations (the others in the respondent pool) were major or minor players, B) list as many other major regional PLC actors as they were able, and C) list any other organizations or actors which might not qualify as major but which ought to be considered.

The primary survey asked respondents to answer questions based on the structural variables under investigation. Questions about frequency could be answered with "daily, weekly, monthly, a few times a year, rarely, never"; the variable about perception of working in the same area was split across multiple questions, including a self-ascription of regional descriptors and a matrix of others in the respondent pool and possible regional descriptors. The question about perception of belonging to a larger group was given in regards to each other actor in the respondent pool and structure in a 1-5 rating format, where 1 indicated feeling no sense of belonging and 5 indicated complete confidence in belonging.

The compositional variables were more varied in form. Respondents were asked to indicate public and/or private as sources of funding, as well as which kinds of funding they received -- "annual federal/state funding, government/public grants, private donation,

membership fees or dues, public fundraising". Questions about the type of work done were framed in a "choose all that apply" format, and included education, advocacy, volunteerism (i.e. trail maintenance), fundraising, lobbying, land acquisition, land management, community engagement and networking. Scale of operation data were garnered by asking respondents to indicate the highest level at which they engaged in private land conservation, with possible answers including: "community/neighborhood, local-municipal, county, regional, state, national". Regarding regional identity, respondents were given a list of possible regional identifiers -- WNC, Southern Appalachia, Blue Ridge Mtns, Great Smoky Mtns, Asheville area, and Other (including a line to write in an unlisted answer) -- and asked to rank as many as they wanted according to best fit (1 being the best) but asked not to rank identifiers that did not fit. Perception of challenges ahead was given as free ranking, allowing respondents to pick any challenges they wanted and list them in order of importance (there was no option for ties). Dependency on volunteers was asked in the form of ratings (1-5) where 1 indicated not at all dependent and 5 indicated daily dependent.

Responses were collected via Qualtrics; downloaded, tabulated and coded into Excel; and analyzed and visualized using the NodeXL Pro extension for Excel.

Results

Response Rates and Data

The responses to the preliminary survey were lower than hoped for -- receiving only 4 of 10 surveys -- but it was enough to justify the inclusion of MountainTrue (MTNTRUE) in the

primary round. MTNTRUE is an NGO focused on advocacy for responsible use and restoration of *public* lands, along with water quality and energy issues. It is also a well-established union of three environmental NGOs and has a former director/founder on Asheville City Council who has recently begun serving in the North Carolina General Assembly.

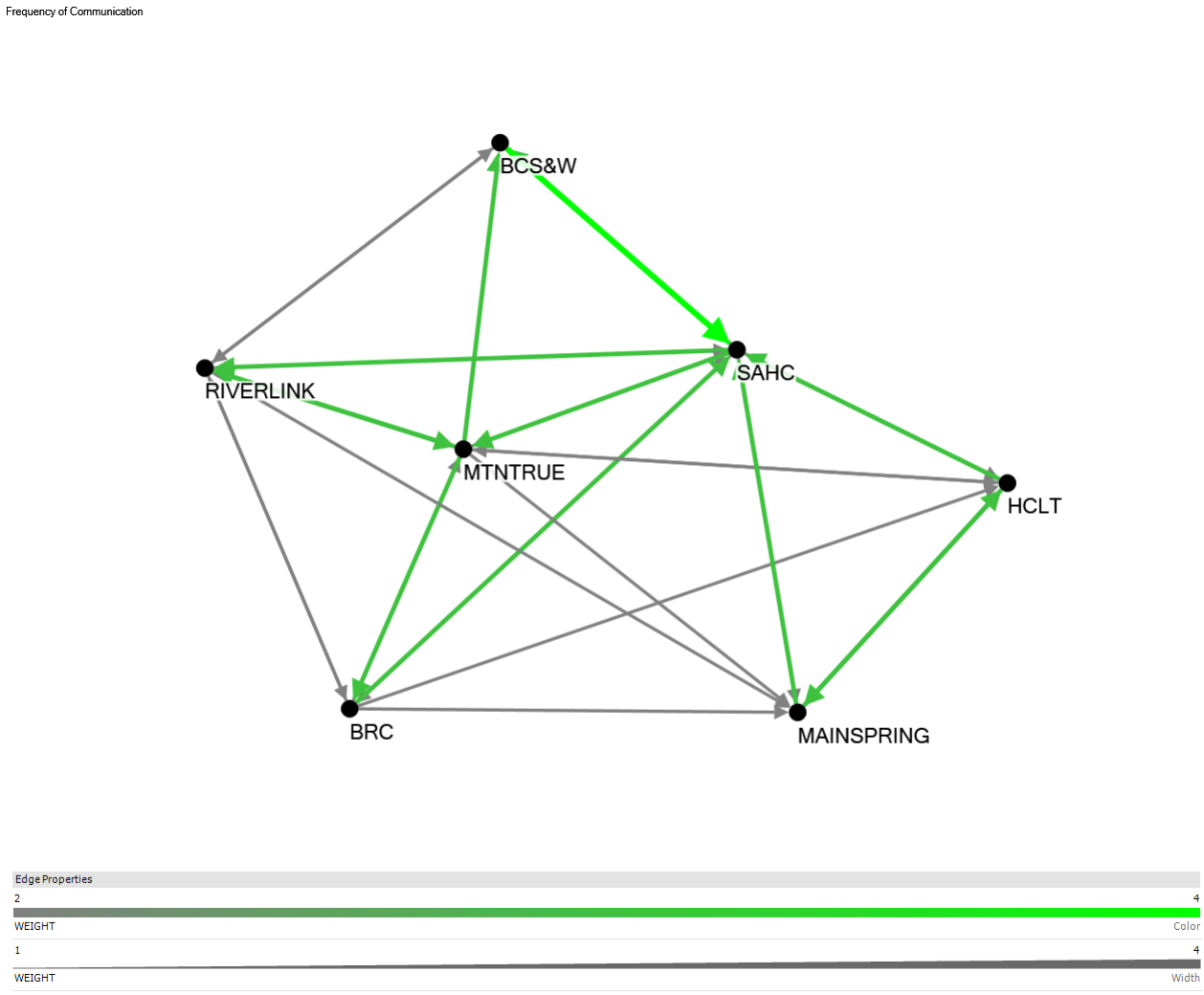
The finalized primary survey list included 8 land trusts, Buncombe County Soil & Water Conservation District (BCS&W), MountainTrue, and Blue Ridge Forever (BRF) -- a coalition of area conservancies and national partners focused on public engagement and fundraising. Of these, I was unable to garner responses from BRF, FOOTHILLS, CC, or NEW RIVER. This was regrettable, not only because it shrank an already-limited pool, but because both CC and FOOTHILLS were indicated as major PLC players just as often as SAHC, which we will see is an influential member of the networks.

There are two key takeaways in considering the two rounds of surveys. First, this analysis would benefit greatly from expanding the respondent pool to include these other important actors. There are several threads we can tease out as it stands, but these threads would be deepened and perhaps challenged by the inclusion of these noticeable absences. Second, the preliminary survey results indicated general agreement about major and minor players. SAHC and CC, followed by FOOTHILLS and then BRC, saw the most consensus as major players; MTNTRUE was the only organization mentioned more than once in the free response section as a major player I ought to consider. On the other side, RIVERLINK was split evenly in how it was perceived, and there was a similar divide in regards to BRF.

Although the primary survey asked questions regarding all 11 of those in the respondent pool, I ultimately determined to remove the non-respondents from the data entirely. This focused my analysis and avoided the difficulty of accounting for a good deal of one-way ties. In other words, although the respondents were asked about their ties and relationships with the 4 nonrespondents, that is not reflected in the analysis beyond what I have already written.

Frequency of Communication

Map 1.1: Frequency of Communication

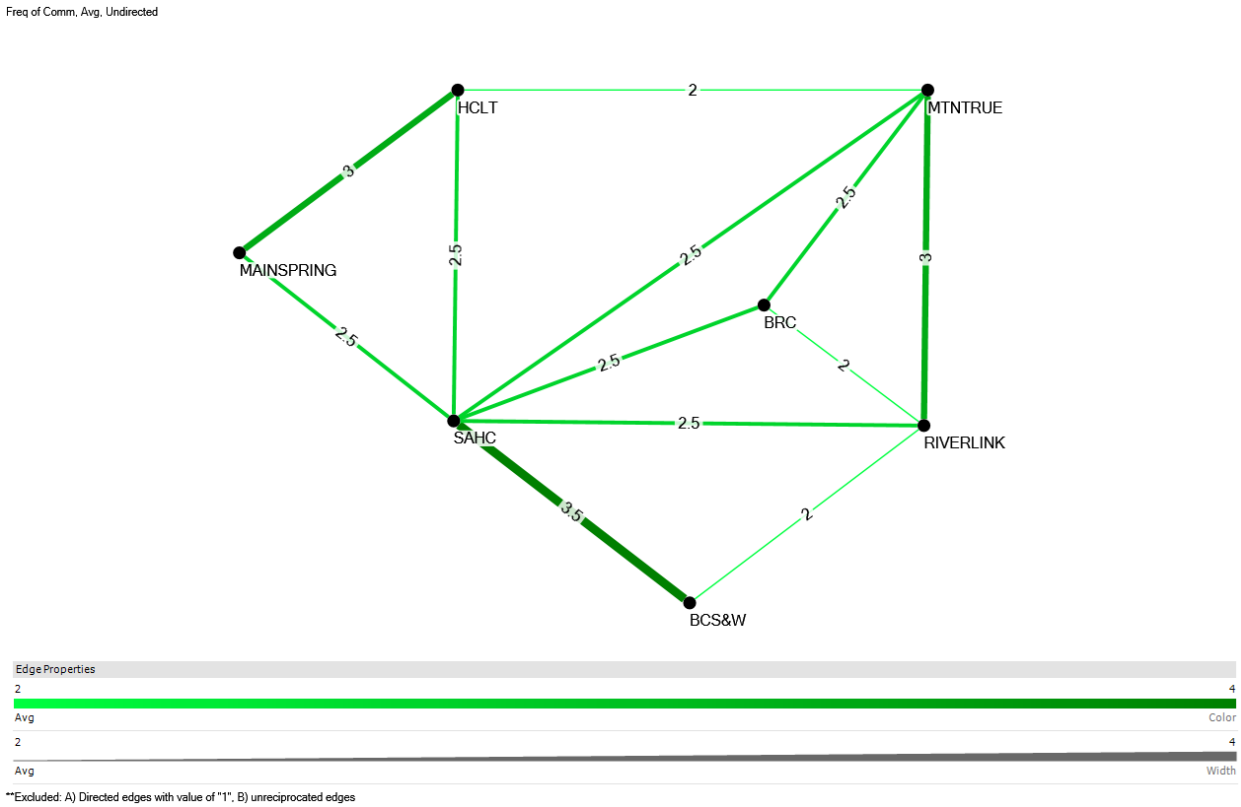


The directed network map in Map 1.1 shows frequency of communication between respondents, who were asked to rate their frequency on a five-step scale from "rarely or never communicate" up to "daily". These were coded numerically as 1-5 and weighted to display as shown in the legend according to color and width. In Map 1.1, I have excluded answers of 1, or "rarely or never communicate" and layered the higher numbered link over the lower where they differed (eg, RIVERLINK chose "4" for SAHC, but SAHC chose "3" for RIVERLINK).

We can see that both SAHC and MTNTRUE appear to be very central, and that the conventional land trusts seem to fall on one side of the two central actors, with RIVERLINK and BCS&W more closely linked to them than the rest. Indeed, the analysis does show that SAHC and MTNTRUE have the highest centrality scores -- specifically closeness, betweenness, and eigenvector centralities. The reciprocated vertex pair ratio (RVPR) for those actors with reciprocal ties of 2+ confirms that SAHC has the highest RVPR in the network. It also has the highest number of total ties (both incoming and outgoing).

Alternatively to layering the higher valued relational tie over the lower one, one could have averaged the two answers to render an undirected network. I have done this in Map 1.2, below:

Map 1.2: Freq of Communication, AVG, Undirected

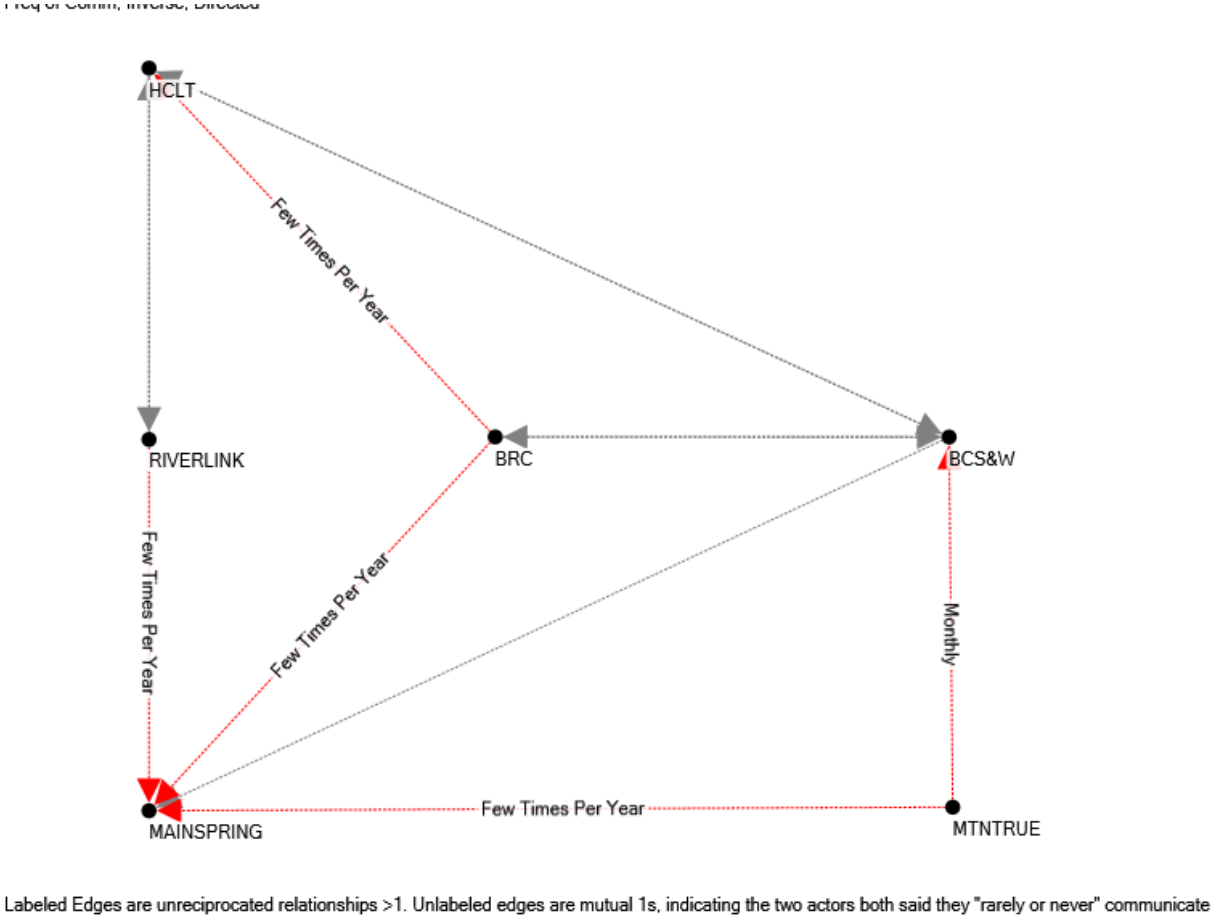


This version excludes 1s and unreciprocated edges. It simplifies the relational ties and focuses only on the mutual relationships, but still weights these relationships. Its arrangement allows us to quickly draw a few inferences. One, SAHC is highly central and appears important to MAINSPRING and especially BCS&W. MTNTRUE also looks to have high betweenness centrality. BRC has a 1.0 clustering coefficient and anchors a clique which includes SAHC, MTNTRUE, and RIVERLINK.

The density of the network -- excluding answers of 1 (rarely or never) -- is .69. This suggests that of the total possible lines of direct communication between two actors, roughly

30% are unactualized. We can visualize these "missing links" by using the data to construct a network map of the unactualized connections. I have done so in Map 1.3, below:

Map 1.3: Frequency of Communication, Missing Links, Directed



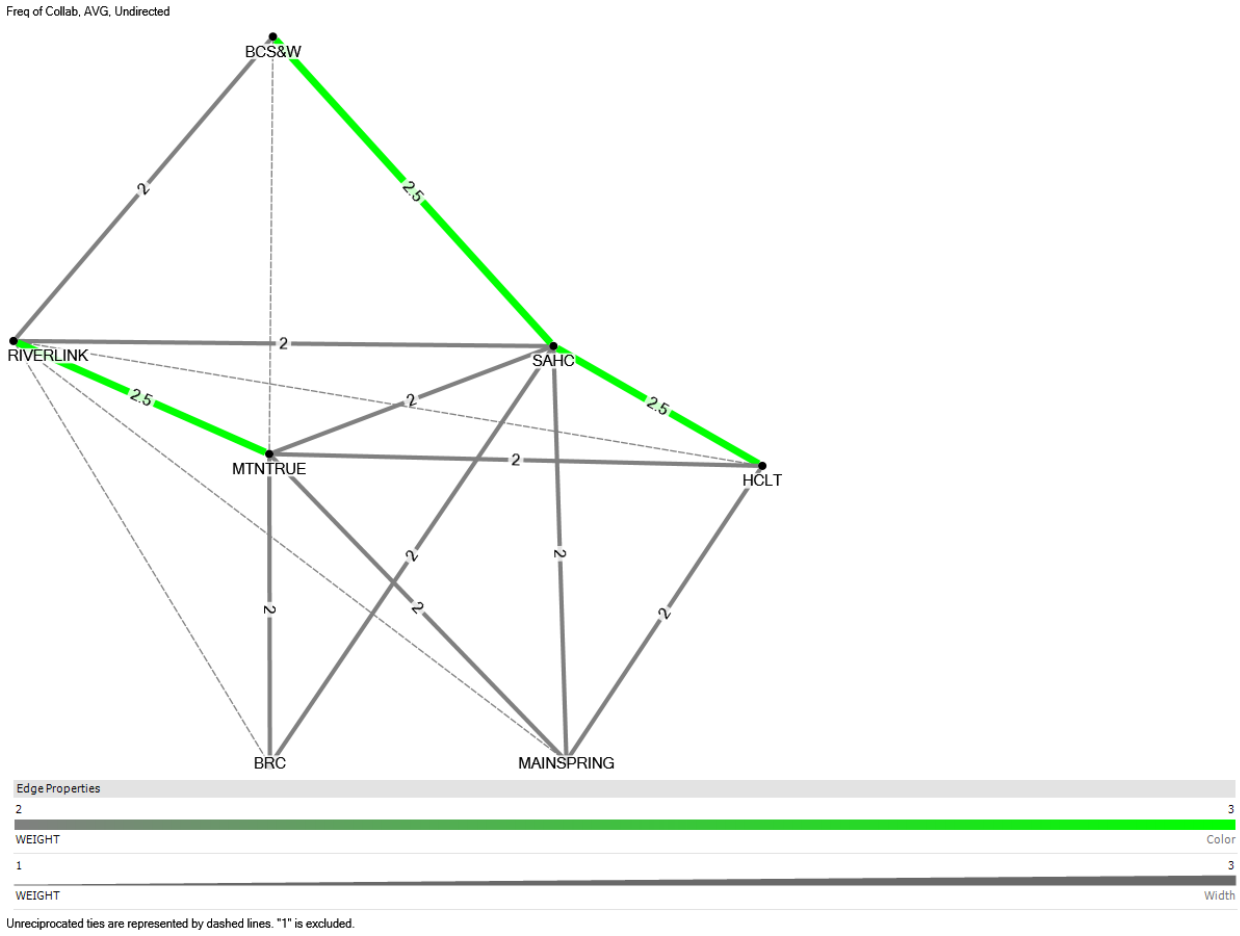
Labeled Edges are unreciprocated relationships >1. Unlabeled edges are mutual 1s, indicating the two actors both said they "rarely or never" communicate

In Map 1.3, the gray lines represent a lack of connection and the labeled red lines illustrate unreciprocated ties. Please note that MAINSPRING appears unduly un-reciprocative; this is due to a lack of answers rather than answers of 1. Beyond that, BCS&W and HCLT seem to account for several of the unactualized density.

To summarize, through the use of 3 different network constructions from the data about the respondents' frequency of communication, it is possible to begin to tease out some patterns and hypotheses about the network. SAHC and then MTNTRUE seem to be influential with high centrality scores, there might be some structural pattern where these two central actors bridge a communicative divide between the conventional trusts and riparian-focused RIVERLINK and the state extension agency (BCS&W). In terms of the lines of communication themselves, we can also look specifically at where these potential needs are indicated.

Frequency of Collaboration

Map 2.1: Frequency of Collaboration, AVG, Undirected



In Map 2.1, above, the green lines are those with the highest average value derived from the responses. The thick gray lines represent reciprocal answers of 2, or "a few times per year". The thin, dashed gray lines are unreciprocated 2s; again 1s are excluded.

Some of the implications from the communication frequency maps appear plausible from the visual; the conventional trusts seem well-connected amongst themselves but lack such strong collaborative ties to BCS&W or RIVERLINK. Nevertheless, RIVERLINK has the highest

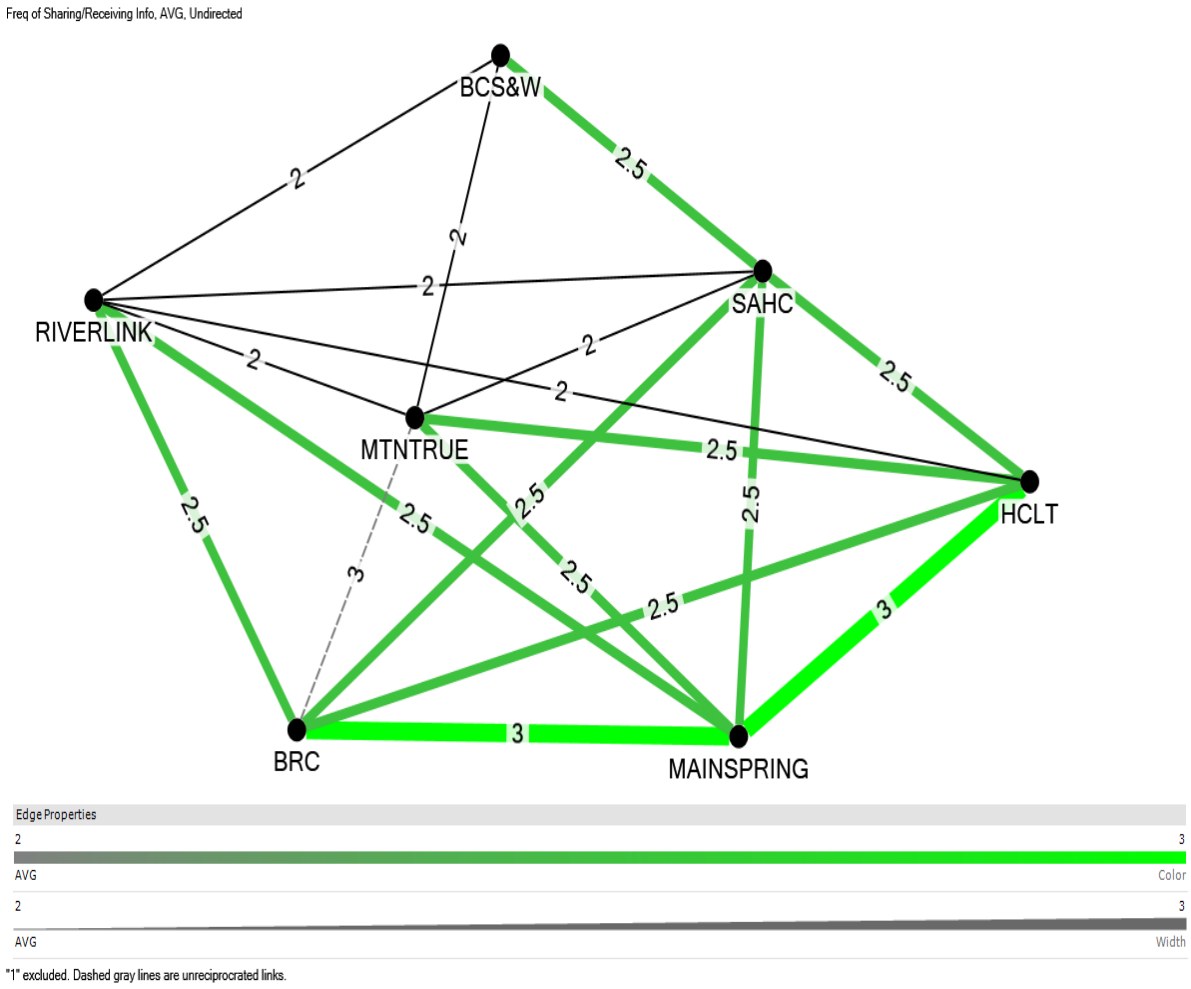
number of unreciprocated 2s. It is impossible to derive from this data a reason for the discrepancy -- whether one actor is mistaken or whether the differing answers might be due to semantics or unclear phrasing on my part. But what we can say is that while RIVERLINK does not have the strongest ties with each conservancy, it does collaborate each year with all of them.

There are several identifiable cliques, beginning with the two actors 1.0 clustering coefficients. HCLT, MAINSPRING, MTNTRUE, and SAHC form a relatively strong one. These latter two have strong collaborative relationships with RIVERLINK and BCS&W, respectively. It follows that MTNTRUE and SAHC have higher centralities -- though MTNTRUE is a distant second. Again, SAHC has the highest RVPR as well as the highest number of connections.

An unexpected feature of the network as seen in Map 2.1 is the lack of collaborative ties between BRC and MAINSPRING or HCLT. BRC and BCS&W have the most actualization potential.

Frequency of Sharing or Receiving New Information

Map 3.1: Frequency of Sharing or Receiving New Information, AVG, Undirected



Map 3.1 is another averaged, undirected network, this time regarding the frequency of sharing or receiving new information with other actors.

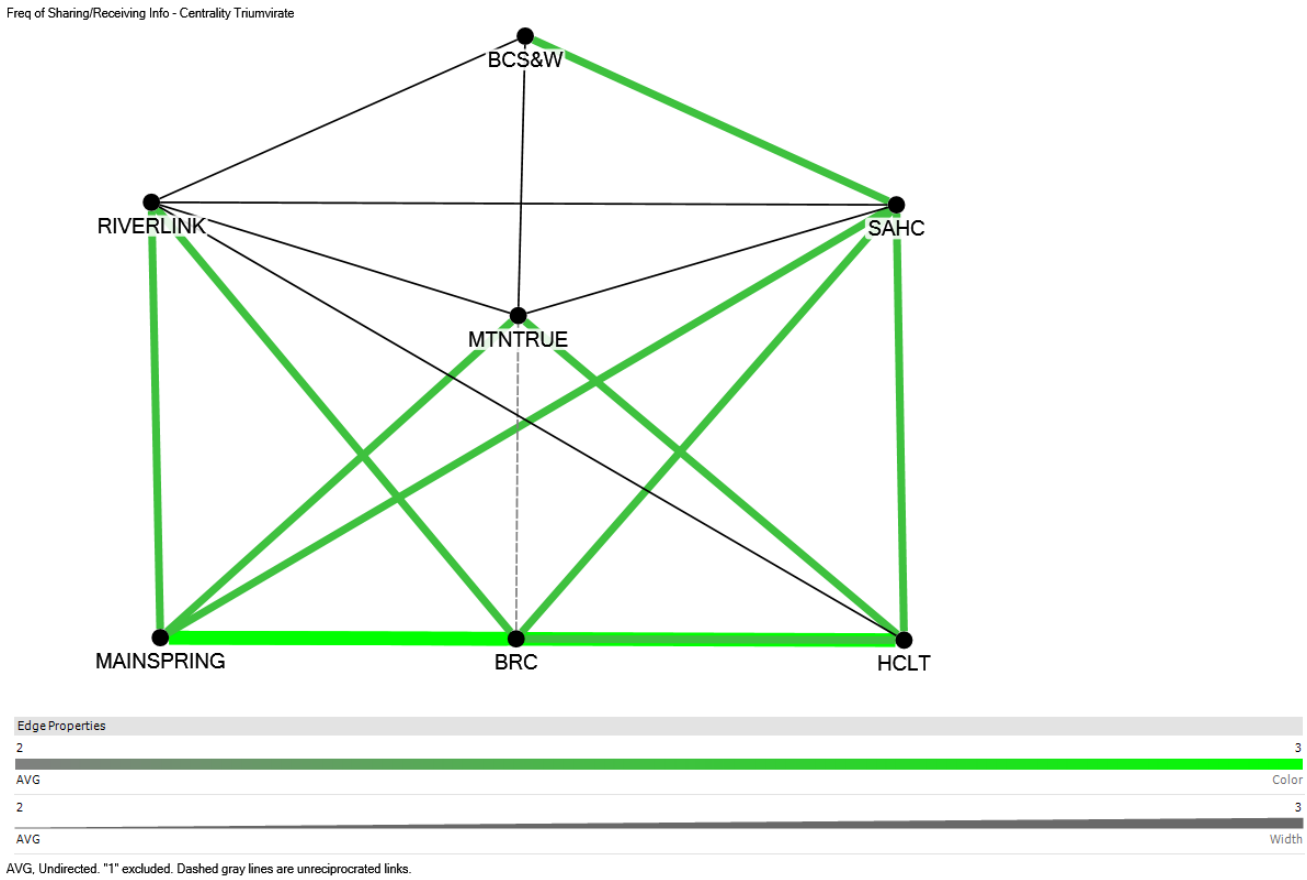
Visual analysis (that is, looking at it) indicates a similar structural pattern as we have seen so far: the conservancies seem more (strongly) internally connected with each other than otherwise. Indeed, BRC does not lack the strong connections with other conservancies as it did

in the collaboration frequency networks. Though it is not readily apparent in Map 3.1, the data show MAINSPRING and BRC respectively have the two highest numbers of outgoing 3s, while SAHC has the highest in-degree 3s. The network density is .85 and there is only one unreciprocated relationship, suggesting relatively high agreement between each pair (there are also fewer 1s than in answers to the previous questions).

The information-sharing network is more complete with stronger average ties than the either communication or collaboration networks. BCS&W has the fewest connections and lowest centrality. Because of the higher density in the rest of the network, SAHC is less of a stand-out and RIVERLINK is of comparable centrality and connectedness to SAHC and MTNTRUE. This is clear in Map 3.2, below, which also illustrates the aforementioned grouping of the trusts:

Map 3.2: Frequency of Sharing or Receiving New Information, AVG, Undirected

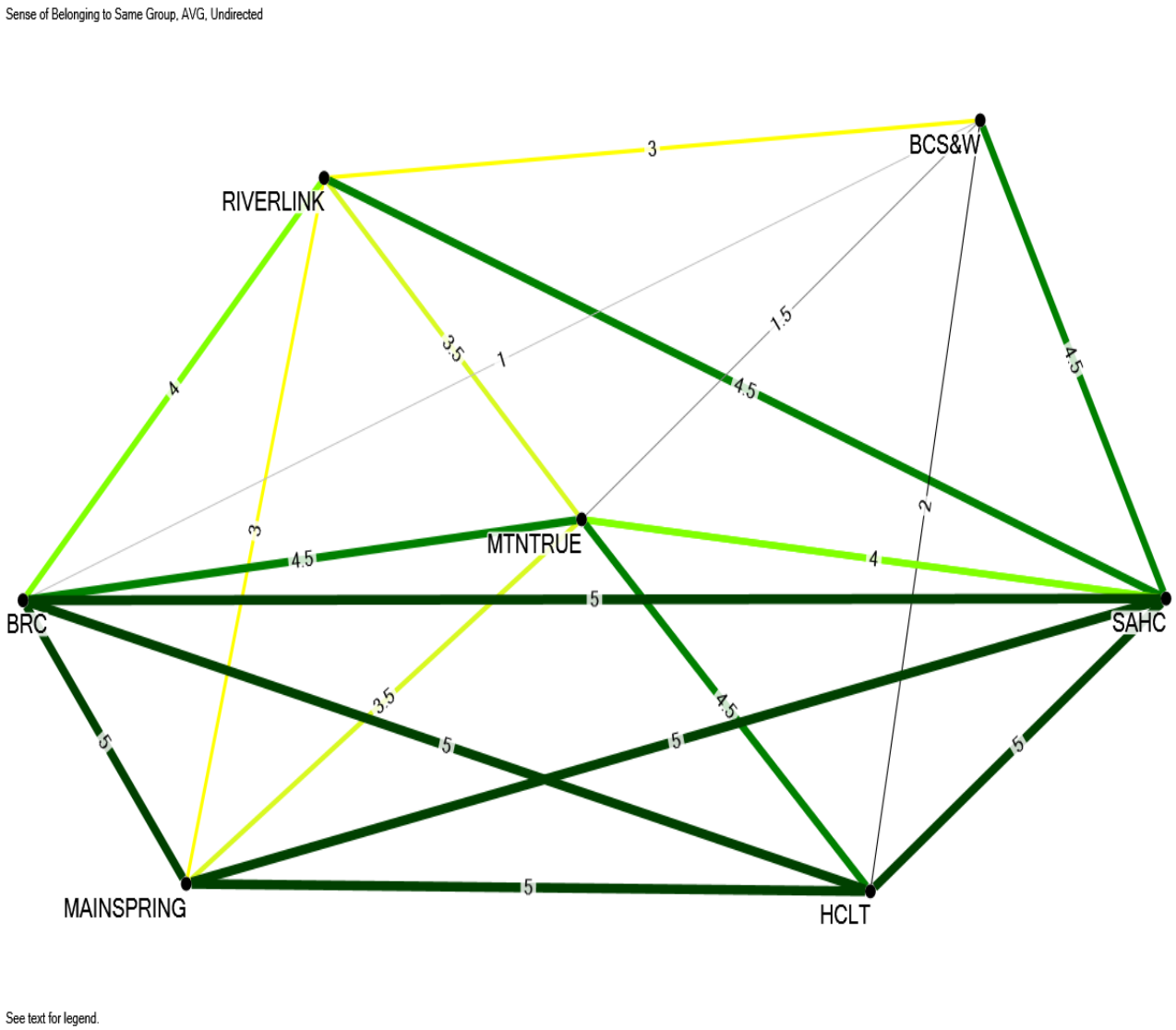
(Alternative Visualization)



AVG, Undirected. "1" excluded. Dashed gray lines are unreciprocrated links.

Perception of Belonging to a Like-Minded Group

Map 4.1: Perception of Belonging to a Like-Minded Group, AVG, Undirected



Map 4.1 describes the relationships between the network members in terms of their sense of belonging to a group with other actors, where "5" represents "complete sense of belonging" and "1" represents "little or no sense of belonging". For this composition, reciprocal links were averaged, unreciprocated links (only two) were excluded, and it was rendered as undirected. The edge width scales by weight (descending according to averaged links). Relational belonging ties were grouped by color and then sorted by hue; 4-5 are green, 3-3.5 are yellow, and below 3 are all black.

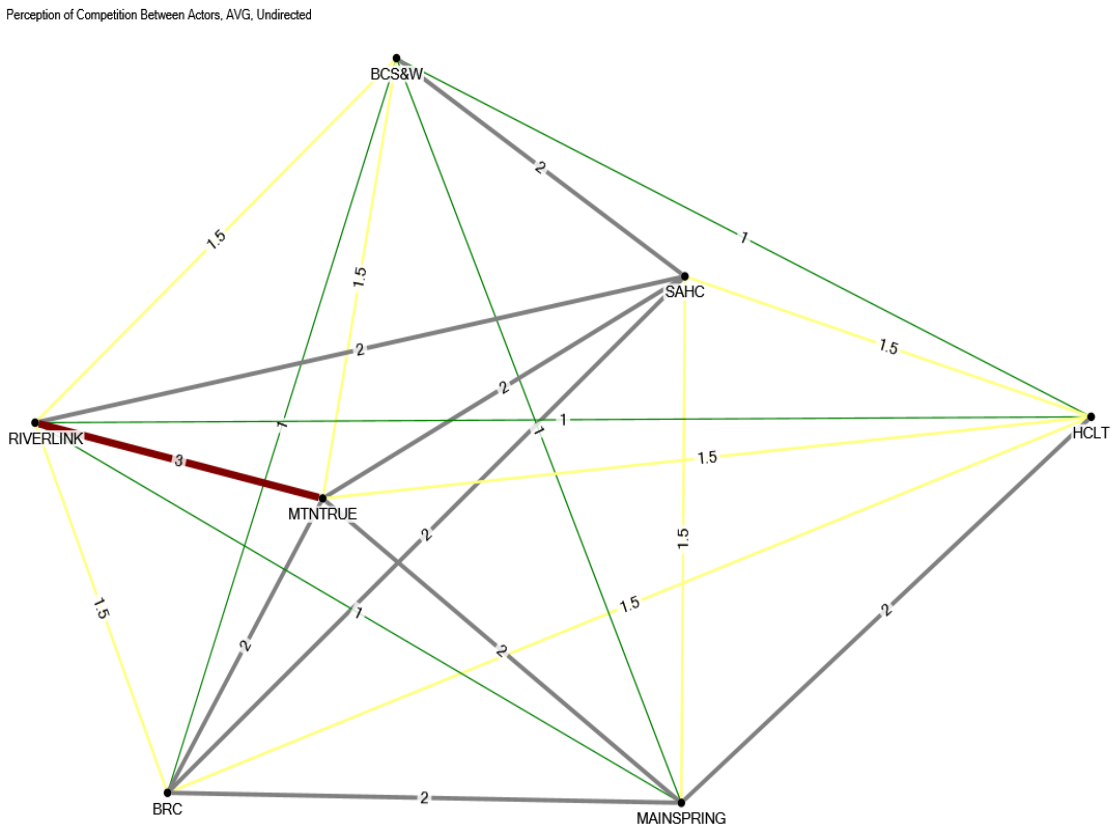
Some visual patterns already noted are stronger in this map; the conservancies are tightly-knit, SAHC is well-connected with everyone. Moreover, here BCS&W appears more isolated and BRC is particularly strongly connected.

The conventional trusts -- BRC, SAHC, HCLT, MAINSPRING form a complete clique; all the ties are reciprocal 5s; these account for all reciprocal 5s in the network. Including MTNTRUE forms a five-node clique of members who all hold mutual senses of group belonging, though the MAINSPRING<->MTNTRUE average of 3.5 is a bit more ambivalently so. BRC, MTNTRUE, and SAHC share the top spot in terms of each measured centrality (closeness, betweenness, eigenvector). Averaging the values of each member's ties according to MAP 4.1 suggests that SAHC has the strongest average reciprocated belonging, or group sense of identity, followed by BRC. BRC has not previously been ranked as highly central. It is noteworthy that BRC is the only respondent who answered that such a group identity primarily decreases tensions between members *and* creates more opportunities for conflict resolution *and* reported that their organization puts "sustained effort" into networking.

SAHC is the member most connected to those outside of the clique and was most often given a 4 or 5 ranking by the rest of the network. It also had the highest number of outgoing 4s and 5s, suggesting it has the highest general sense of belonging.

Perception of Competitiveness With Other Members

Map 5.1: Perception of Competitiveness With Other Members, AVG, Undirected



Map 5.1 shows relational ties between two members as averages of their mutual ratings of competitiveness. In this case, "not at all competitive" was coded as 1, "sometimes/somewhat competitive" was coded as 2, and "often or mostly competitive" as 3. Accordingly, green links represent mutual perspectives of noncompetitiveness, while the red link between RIVERLINK and MTNTRUE is the only relationship indicated to be mutually often or mostly competitive. It may be noted that both of these organizations have a focus on water issues and are based in Asheville where the world's second-oldest river flows. Gray was chosen for mutual 2s in order to suggest ambivalence or case-dependency, while yellow was chosen for the 1.5s to indicate where the mutual perspectives differed but averaged towards nonrivalrous.

SAHC is seen as competition at least “sometimes” by everyone, while MTNTRUE and RIVERLINK are seen as such by 5 of 6 others. BCS&W and HCLT, respectively, seem to have the two least competitive relationships on average. MTNTRUE, MAINSPRING, BRC, and SAHC see themselves as in at least “sometimes” competitive relationships more than the others. The network seems decidedly noncompetitive in general. It is interesting that BCS&W appears to have neither strong perceptions of belonging nor competition.

Collaborative Planning and Shared Perspectives of Risks and Challenges

The data on "perceptions of risks" does not lend itself easily to network visualization, but informs our analysis nonetheless. The respondents were asked to rank 9 pressures or challenges going forward, according to their consideration of them in long-term planning. They are listed below, in Table 1.1, which shows each respondent and their top 5 ranks.

Table 1.1: Top 5 Challenges Going Forward

NAME	1	2	3	4	5
HCLT	DEV PRESSURE	LEGAL	FUNDING	LAND MGMT	CC
BCS&W	DEV PRESSURE	FUNDING	STAFFING	LEGAL	COVID-19
MTNTRUE	FUNDING	LEGAL	CC	COVID-19	LAND MGMT
MAINSPRING	FUNDING	LEGAL	STAFFING	CONFLICT W OTHERS	
RIVERLINK	CC	LEGAL	FUNDING	COVID-19	DEV PRESSURE
BRC	FUNDING	LEGAL	CC	COVID-19	DEV PRESSURE
SAHC	FUNDING	KNOWLEDGE	LEGAL	LAND MGMT	DEV PRESSURE

Table 1.2 is below, alongside their number of appearances in the respondents' rankings and their averaged top 5 rank. It should be stated that the differences between the organizations -- for example, in type of organization, differences of scale or focus, confound a simple comparative analysis. IE, it is reasonable that "land management" would a priori mean something different to MtnTrue, which does not manage land, than to S.A.H.C. which manages a great deal.

Excluding those averages where an issue appeared in fewer than 4 top 5 rankings, "Funding (in)security" and Legal/Political were the only ones to appear in each respondent's top 5, and they respectively averaged the highest of any at 1.7 and 2.43. "Development Pressure" was the third most frequent, mentioned by 5 of 7, and it averaged fourth of the top 5 most appearances.

Table 1.2: Issues Breakdown

Issue	Avg Top 5 Rank	Top 5 Appearances
Funding	1.71	7
Legal/Political	2.43	7
Development Pressure	3.4	5
Climate Change	3	4
Covid-19	4.25	4
Land MGMT	*4.33*	*3*
Staffing	*3*	*2*
Access to Expert Knowledge	*2*	*1*
Conflict with others	*4*	*1*
Ranking	Covid-19	Climate Change

It is not surprising that funding and legal/political issues top the list, as both funding security and the political and legal environs have always been an important factor for the land

trust movement (and government agencies). Development pressure is also expectedly high, and it makes intuitive sense that climate change would appear but in the lower half -- it is enormous, but not as disruptive on short timescales. COVID-19 was a late addition to the list, and these answers were garnered in Fall 2020 during which time many of the respondents were working from home.

Perception of Working in the Same Region

I included three questions regarding scale and regional identity. Respondents were asked (1) to identify the scale at which they worked, (2) to choose from several options which regional descriptor best fit their area of focus, and (3) to choose from the same options which descriptor best matched the areas other actors focused on. Each organization was listed in (3) such that they could choose a label for themselves a second time. For the first two, “other” was provided as an option for which they could write in their preferred answer. There were some confounding results -- some respondents chose different self identifiers in (2) and (3), for instance. The most notable results were differences in regional descriptors the respondents chose even as they agreed on scale. For instance, BRC -- recall their full name is ``Blue Ridge Conservancy” -- chose “WNC” as its descriptor in the individual question and “Blue Ridge Mountains” in the multiple choice. 5 of 6 respondents placed it as working in “Blue Ridge Mountains”, but one chose “Southern Appalachia”. The results are tabulated below in Table 2.1.

Table 2.1: Regional Identifications

NB: "Self ID" refers to the individual question and "Self Label" refers to the group question, defined below in the text.

ID	NAME	Scale Self ID	Self ID	Self Label	#1	#2	#3	#4
1	HCLT	County	WNC	WNC	Otherx3	WNCx2	Blue Ridge	
2	BCS&W	County	Bun Co	Asheville area	AVLx5	Otherx1		
3	MTNTRUE	Regional	Southern Blue Ridge	Southern App	AVLx3	WNCx2		
4	MAINSPRING	Regional	Southern Blue Ridge	WNC	GSMx2	WNCx2	Otherx2	
5	RIVERLINK	Local-municipal	Asheville area	Asheville area	AVLx6			
6	BRC	Regional	WNC	Blue Ridge Mtns	Blue Ridgex5	Southern App		
7	SAHC	Regional	Southern App		Southern Appx2	Otherx2	AVLx1	WNCx1

I arbitrarily color-coded the data by how much consensus and sense it made: green>yellow>orange in order from most to least sense/agreement.

RIVERLINK's geographic area of focus was evidently well-defined by all, while opinion seemed divided in regards to MTNTRUE. BCS&W was generally agreed-upon, and I determined the others' answers were in line with their self-identification because I erred in not listing "Buncombe County" as a possible choice. For an organization called "Buncombe County Soil & Water", it makes sense that the next best choice would have been "Asheville area".

The most interesting cases were the conservancies where terms like WNC, Blue Ridge, Southern Blue Ridge (which were entered as "other"), Southern Appalachian, Great Smoky Mountains all seem more subjective. MAINSPRING is a good example: it works at the regional

level, wrote in that it works in the “Southern Blue Ridge”, opted for “WNC” over “Blue Ridge Mountains” in the later question, and was listed as operating in “Great Smoky Mountains", “WNC”, and “Other” by 2 respondents each. Similarly, MTNTRUE defined its regional descriptor slightly differently each time and was determined to work in the Asheville area by 3 respondents. At first, this seems perplexing because of their high centrality and strength of connections to other actors, and for their focus on public lands -- but their roots in Asheville and connection to Asheville politics provides a possible rationale.

Differences in regional definitions notwithstanding (perhaps explanatory), these results generally match up with the mutual perceptions of competitiveness; the conservancies which work at the regional level more frequently had a “sometimes competitive” relationship amongst themselves -- except with HCLT which identified as operating at the county level. Recalling the history of land trusts and HCLT in particular, it has a long, localized history in the Highland-Cashiers area, so their smaller scale focus makes some sense. MTNTRUE’s place is again complicated; recall it and RIVERLINK were the only pair to have reciprocal “often competitive” relationships. Further, it had similar levels of competitiveness with the conservancies as they had with each other. Given differences in focus (public land advocacy vs private land acquisition and management), MTNTRUE’s relatively higher competitiveness with the other networks is of interest. A follow-up inquiry could try and tease out whether this, if confirmed, might be due to competition in terms of public awareness, engagement, or political capital.

Limits to Analysis and Conclusions

In the previous sections, I have laid out the results in a narrow sense, making only some comparative connections. In this section, I want to draw some conclusions by considering all of the above, but not before stating some of the inherent issues with any conclusions drawn from my analysis.

The most pressing in my view is the incompleteness of the data. Because of the small pool of organizations and actors involved in PLC, the absence of several is important. Those that did not respond include 3 major conservancies and a coalition (BRF) comprised of every other actor in the respondent pool sans MTNTRUE and BCS&W. Clearly, much of the insularity seen amongst the conservancies is confounded by the existence of BRF. That is, to what extent do these relationships indicate individual ties and an emergent network as opposed to relationships cultivated through BRF membership. And what is the impact of the difference; does the establishment of BRF in the first place not simply indicate an emergent [bioregional] network formalized? In general, it is reasonable to posit that the inclusion of these would support the idea that the conservancies are well-connected, but it is not certain how the additional data would affect grouping among them, or network centralities.

A second confounding factor is that individuals filled out the survey on behalf of an organization; more than that, individuals in different roles filled them out. In one case, it was a director while in another it was an outreach staff member. It is not my intent to suggest that the latter lack knowledge, but only that understandings of the organization surely vary by individual.

It is impossible to speculate on the counterfactuals here, but as I will discuss later, the analysis would benefit from accounting in some way for that vulnerability.

Recalling the first half of this thesis wherein we discussed bioregionalism and socialsheds in regard to the "realness" of these conservation networks, there is a valid critique wherein I am acting somewhat arbitrarily in decoupling the concept of "socialshed" from bioregionalism's ideological components. I recognize the need to tread carefully in such a case, but I do not believe there is any necessary ideological baggage or implication in adapting the concept.

If we take one more step back, it is reasonable for the reader to think that I am uncritical of private land conservation, conservation easement mechanisms, or the land trust movement in general. This is not the case; as discussed early on in the thesis, easements and trusts are in some form functions of neoliberalism -- whether they are symptoms or reactions or both is debated. Some have critiqued the financialization and commodification of nature as demonstrated by the easement mechanism and the fact that private entities hold the development rights to land and can control access. Others have pointed to possible legal vulnerabilities.

There is also an anti-colonialist critique that points out conservancies are predominantly white-owned and hold land out of reach of indigenous peoples and other POC. These predominantly-white participants and donors (sometimes sellers) are often middle or upper-middle class; much of the philanthropic purchases and donations are catalyzed by the richest among us. In these ways, private land conservation is both racialized and classicized. All of these are valid critiques. My personal stance, which I share despite academic conventions, is that conservancies are a valuable defense against overuse and their contributions outweigh their

problematics. Most of the criticisms can be leveled in some form at the counterfactuals and the opportunity cost of not conserving seems high.

In one of the papers which first inspired me toward this topic, the authors level their own critiques at the land trust movement, writing that trusts and easements "do little to address underlying forces driving land use change or to avoid non-sustainable land use trends… nor do they promote conservation or management of the greater percentage of lands in the region not under easement. Conservation easements, on their own, do not promote sustainable market conditions for sustainable production of timber, livestock, or other products to keep working lands economically viable, nor do they incentivize management for market or ecological services" (Kimmel and Hull 2012).

At first blush, it seems as though they ask too much of an easement, but they identify "a growing call for conservation organizations to adopt more integrated and holistic conservation strategies which extend beyond property lines, and which seek to reconnect people with land". Towards this aim, they "envision land trusts as… supporting ecological entrepreneurship as a complementary activity to their work of keeping farms and forests economically and ecologically viable, and of connecting communities to land through market goods and services". Kimmel and Hull likewise envision these "ecological entrepreneurship support networks" (EESNs) taking shape as "economies of scope", meaning that "land and resources are recognized as producing and providing a range of functions consistent with local conditions and valued accordingly" (Kimmel and Hull 2012). Such formulations offer views of broader conservation networks which include socialsheds as part but not parcel. EESNs in particular bear some resemblances to

economies envisioned by bioregionalists, arguably sans the ideology but consistent with the dual power sort of approach.

Takeaways

The limits to analysis discussed above necessitate that this section be both clear and brief. There are two main lenses through which to glean specific conclusions: in light of the research questions and motivations, and through what emerges from the data analysis itself. I want to begin with the latter and then speak to how those conclusions apply to the research agenda

The surest takeaways have to do with the basic network structure. Seen across multiple relational ties, the traditional conservancies have strong internal connections. Of those, SAHC consistently holds the most and strongest ties both with the other conservancies and the rest of the network. It seems to work rather closely with BCS&W. SAHC is consistently highly central, often followed by MTNTRUE, which is unique in being the only network member which is neither directly involved in acquiring and managing land or easements. Thus it is curious that MTNTRUE has such high centrality. Similarly to the SAHC<->BCS&W relationship, MTNTRUE seems to have notably strong ties to RIVERLINK. Interestingly, BCS&W and RIVERLINK routinely have among the weakest connections -- though they are more often linked than BCS&W and BRC.

When asked about their role in the movement of knowledge through the network (receive, share, both, or connect to resources), three of the four conventional conservancies said

they shared knowledge while SAHC said it did both. RIVERLINK said it primarily received knowledge and BCS&W said it primarily connected others with resources. This suggests that the land trusts share knowledge with each other (and following the flows in Map 3.1); SAHC may share more often [the knowledge and information it receives from the others] with BCS&W (or the latter helps connect the former to resources), while a similar relationship might exist for MTNTRUE and RIVERLINK.

The repeated grouping of the land trusts into various formal network cliques is both reinforced and complicated by the results of the survey question regarding which other actors the respondents engaged in long-term planning for the future and its challenges with. While all respondents affirmed that they engage in such planning, only the trusts responded that they engaged in it with others. SAHC specified each other individually, but HCLT, BRC, and MAINSPRING all named Blue Ridge Forever (BRF) -- one of the nonrespondent organizations. As detailed earlier, BRF is a coalition of these trusts (along with RIVERLINK and the other nonrespondents), so these results would indicate that oftentimes the planning occurs through that medium. It is impossible to determine to what extent that accounts for their strong links through the analysis, particularly the ties relating to shared information and collaboration. Nevertheless, the strength of their internal ties in general is supported by this result.

The analysis suggests SAHC is the most engaging member, leading in centrality scores, linking the trusts to other PLC actors, and being perceived as part of a group by the rest of the network. MTNTRUE clearly has an important role, but the specific reason for this is not illuminated by the analysis. I have suggested that its connection to local politics plays a role, and I would add that my impression is that it often takes a leadership role in organizing the various

parties. The analysis shows it often has strong connections with the conservancies even where they do not have the connections with each other, perhaps meaning it is fulfilling a role (such as facilitating ties).

RIVERLINK proved to be surprisingly central; I expected its smaller scale to mean it would be more peripheral. While BCS&W often works with SAHC, its connections to the other trusts were lower. This makes some sense, given that the state agency is limited to Buncombe County where SAHC would be the most relevant. HCLT's lower than average competitiveness (yet high group identity ties) and identification with lower-level county-scale work may suggest it is a stable member without much geographic overlap. It is difficult to surmise much about either BRC or MAINSPRING, as their individual relational ties are varied in strength; these would certainly benefit from a more complete respondent pool.

With all this to be considered, the questions remain: how do these results relate to the problem of "realness", particularly regarding the socialshed as a metric? And how do they inform the rubric as set out by Bennett and Satterfield? The variables and surveys were intended to inform a tentative evaluation of **effectiveness**, **responsiveness**, and **robustness**.

In terms of **effectiveness**, the focus was on *direction*, *capacity*, and how *informed* the network and its actors are. A high sense of direction might be assumed, given that most of the network members are conservancies. That is a fair assumption, but there are some caveats. While the BRF coalition and the data supporting its function as a medium through which the conservancies might engage in communicative and collaborative governance appear to be suggestive of common direction, it is less clear that each member's scope of action has such a

consensus. Indicators of this include the mutually-understood competitive relationship between MTNTRUE and RIVERLINK and the lack of agreement on the geographic focus and territoriality of MTNTRUE.

Access to knowledge was described as either "good" or "everyday" by all respondents, and crucial suites of expertise such as natural science and management best practices were listed as readily accessible for most respondents. These fields of expertise were also listed as most needed; taken alongside the influential positions of SAHC and MTNTRUE, there is both common ground in terms of knowledge and the capacity to transfer and share that knowledge -- be it among the conservancies via BRF or through SAHC's relationship with BCS&W (which you may recall functions as a broker, connecting others to the resources they need). The data relating to knowledge propagation, information sharing, and accessibility (vs need) supports the conclusion that the network is generally well-informed of best available knowledges -- even if their need for such knowledges and expertise remains high.

Finally, the high agreement amongst members as to the importance of funding security and changing legal-political environs suggests commonly-perceived challenges. It should be noted that this does not mean that there is agreement on how to address these, either individually or at a network or collaborative level. Regarding direction, the results in this case are somewhat ambiguous. Network capacity -- the actualization and operationalization potential of skills and resources -- is indicated by the establishment and usage of BRF, the bridging functions of SAHC and MTNTRUE, and the relatively high densities. In cases where network density and reciprocation were lower, these central actors often appear to pick up the relational slack. It is

difficult to conclude more without further qualitative analysis, which could investigate the extent to which these indicators reflect the on-the-ground reality.

Responsive environmental governance is addressed by the SNA in terms of *learning*, *anticipation*, and *flexibility*. One of the key aspects of learning in this context is that of collective memory and supposes reflexivity, sharing, and communication among members. It is not clear what information and knowledge flows through the network, but there are clear lines of communication and sharing. Reflexivity was not directly measured, and while it is somewhat implied by respondents engaging in long-term planning and sharing information, the study would have benefitted in this regard by a question directly addressing the respondents' learning and adaptive processes. Such planning clearly underwrites the network and its members' engagement in anticipatory governance; moreover, that there was some agreement on big issues like funding security and legal-political challenges in addition to collaborative planning amongst the conservancies, the analysis suggests anticipation is a strong network attribute. Flexibility suffers some of the same analytical weaknesses as reflexivity and learning, but the combination of network density and connections, the individualized understandings of risks and challenges (agreements notwithstanding), and both access and acknowledgement of need regarding expert knowledge points more towards engagement with "diverse local realities" than not.

In terms of **robust** environmental governance, I posited my analysis might speak to the *connectedness* and *polycentricity* of the network(s). An evaluation of connectedness is inherently weaker without a fuller data set, but in terms of the networks presented herein, there are reasonably high levels of connectedness. There are certainly pairs of actors which are decidedly less directly connected -- BRC and BCS&W, for instance -- but a) there may be contextual

reasons for this (in this example, BCS&W's limited geographic scope) and b) these gaps are or at least might be overcome through the bridging positions, particularly of SAHC and MTNTRUE. While connectedness is stronger among the conventional conservancies, partially due to BRF, the centralities of these two members lend themselves to concluding that the network is well-connected. Lastly, *polycentricity* cannot be fully accounted for without including some verticality in the analysis, but that there are two highly central organizations of different types along with a state agency, and that there are not unusual levels of competition, suggest that the network might be rather polycentric. To more fully answer this question, we would need more information about the role of BRF, as well as MTNTRUE, and what kinds of collaboration are undertaken among network members.

Real Networks and Socialsheds

The analysis also set out to engage with perceptions of belonging to a group and understandings of respective roles, goals, and geographic areas of focus. The question of "realness" could thereby be addressed such that, along with an idea of the intentionality and mutuality of these relationships, I would be able to speak with some measure of confidence about whether these actors are members of a "real" network and whether that network maps onto the idea of a socialshed. The network illustrating relational ties as reciprocal senses of belonging to a like-minded group suggests a strongly shared group identity among the 4 conventional conservancies, shared a bit less strongly with MTNTRUE, followed by RIVERLINK. BCS&W's strongest sense of shared identity is with SAHC, but it is reinforced by their strong ties according

to other metrics. Given SAHC's prime position as a central, facilitating bridge, it is hard for me to suggest that BCS&W's lower reciprocated sense of group belonging indicates it is less of a "real" network member. Rather, I would venture that it relies somewhat on its relationship with SAHC for its status; BCS&W simply shows less mutuality than the others, but there is evidence of intentionality in its engagement with SAHC. Intentionality may be inferred from the data sets regarding collaborative planning, BRC's sustained effort at network, SAHC's role in sending and receiving information, and the existence of BRF itself.

Arguably the clearest result of the analysis -- apparent despite the exclusion of BRF -- is that four conservancies are much more connected with each other than otherwise. This is seen across most metrics used in the analysis. They share a complete sense of group belonging (clique), plan collaboratively (via BRF), and share information amongst themselves more frequently than with others. As they are all conservancies, their types of work and conservation goals are aligned, and as founding members of BRF, their collaborative planning and other ties are intentional rather than incidental. **As such, I cautiously suggest that SAHC, HCLT, BRC, and MAINSPRING form a socialshed and constitute the most natural or emergent self-organized network**. I decline to include RIVERLINK for its less consistent relational ties as well as its difference in focus (that is, local rivers). MTNTRUE is well-connected enough to warrant a serious look at inclusion in the socialshed, but a final analysis of this relies on better understanding MTNTRUE's role and function, and a consideration of its relationship to BRF. BCS&W is more peripheral, perhaps simply because of its status as a state agency with different organizational structures, hierarchies and so on. I also suspect that FOOTHILLS, CC, and NEW

RIVER might well be members of the socialshed as they share most of the qualities which unite the others; this must remain speculative without data to support it.

Finally, one of the research aims was to conduct an analysis that was simultaneously feasible for myself as a graduate student (academically and practically), accessible to practitioners, and meaningful enough to serve as a foundation for further work. In many ways, the degree to which it succeeds in the first case is a matter for my committee and the second case, a matter for those respondents with whom my research is shared and for whom it was done. Both of these parties are the best judges of its meaningfulness -- academically, whether it is defensible enough to support further work, and practically, whether it shows enough promise to warrant further work. My view is that it fulfills all of these. I have tried to cast a net which is narrow enough to engage deeply and theoretically with at the academic level but wide and basic enough to be of practical use to those in the field without having to dive into the discipline themselves. Finally, I believe the results -- while arrested by the incomplete data pool -- offer a strong proof of concept alongside some workable takeaways.

Recommendations

Without a fuller data set, I hesitate to offer specific recommendations. Rather, I would suggest that insofar as the readers and respondents find the work helpful, they use the preliminary results here to inform their thinking about social networks, the conservation networks in the region, and how communication, collaboration, and knowledge-sharing influence and are influenced by these networks of relations. In this way, regardless of how accurate the

analysis was, these organizations and individuals therein can consider what ways they might strengthen bonds, leverage network connections, and so on, to better equip both the network and its members for the challenges facing them now and going forward.

Ways Forward

There are many ways in which this research avenue could be continued, built upon, or expanded. A subsequent analysis would benefit greatly from a higher response rate. With that comes the opportunity for much greater specification and clarity -- for instance, offering explanatory power to the observations made thus far, addressing the extent to which BRF accounts for the ties between trusts, more concretely defining MTNTRUE's role, or investigating what kind of information and learning is exchanged and undertaken. These could be addressed through qualitative means such as interviews. Such research methods also lend themselves towards a dialectic with the network members about their needs so as to better focus subsequent research (this assumes it is undertaken with practical application well in mind).

In terms of the line of inquiry surrounding the perception of challenges and consensus thereof, follow-up studies might further evaluate, for instance, reflexivity, adaptive capacities in terms of resilience, deepen the discussion of conflict and resolution, enumerate scenarios based on uncertainties and external shocks (COVID-19 is a prime and salient example), and identify specific programs to strengthen the network. Bennett and Satterfield's rubric might be helpful in pursuing many of these lines of inquiry; for example, BRF offers a way to engage with and evaluate some measure of equitability, especially as pertains to participation. Moreover, robust

governance, according to the authors, is *nested*. Such governance has authority which is appropriately devolved and strikes a balance between autonomy and supportive oversight. Analyses on power distribution, flows, and relations would be relevant in a SNA which includes higher or lower scales (such as TNC or local landowners), and the authors' basis for evaluating nestedness informs those analyses.

Adjacent and complementary fields and literatures offer the academy many ways to build bridges and incorporate more ways of engaging these issues -- just as social network analysis and regional environmental governance can be leveraged in tandem towards conservation objectives. I mentioned previously some of the social, ideological and philosophical movements behind and adjacent to bioregionalism, and it is certainly appropriate to consider insight from well-tread fields like ecology, geography, governance, and the like. But in particular, I mean the lesser-known and often interdisciplinary or second-order academic disciplines which run in parallel to those already discussed (regional science, environmental and natural resource governance, and so on). Landscape ecology is a noteworthy example; I would like to see it incorporated more in the REG literature and believe it could fruitfully complement the social relational and bioregional approaches.

Expanding the respondent pool to include the national partners listed by BRF (for example, The Nature Conservancy), funding sources, and other adjacent groups would allow for a much wider and contextual view of the conservation networks in the region and their place in the larger web. Conceptual tools such as Kimmel and Hull's EESN could be leveraged to evaluate the networks' integration economically or how different forms of these networks overlap and interact. In the same vein, problematizing the network relationships through an

examination of power relations and hierarchy might prove enlightening -- especially if the study includes national partners, state actors, funding streams, and the like.

But concepts like EESN serve as illustrations of ways traditional conservancies can use social networking tools to innovate beyond easements as well as engage intersectionally with adjacent fields to conserve ways of life rather than land alone. Such a transition offers a regional environmental governance paradigm in which go-local food movements are more intentionally and actively connected to conservancies and other ENGOs, where counterculture movements like homesteading and rewilding can find practical, common ground with local farmers and conservationists. Such expanded and integrated networks can better reflect the multiplicity of interests and environmental issues that exist at the bioregional level.

What follows the medium-term goal of implementing REG best practices? This points us back toward the big questions: why and what are we conserving? Is conservation about freezing a tract in time? Is there room for "working forests" or payments for ecosystem services? What values do we bring to conservation, and what do these values suggest about how we live, and ought to live, as (regional) communities and ecological denizens? It has been said that modern life replaced tradition with institutions; insofar as private land conservancies are institutional actors, there are a series of ideological and normative choices for them to make. It is my feeling that with a diverse, broad, inclusive, and overall healthy conservation network -- be it as EESNs or otherwise -- the bioregional conservation community of WNC can wisely and peaceably navigate these questions and future scenarios.

Outro

This thesis has attempted to do several things: be accessible and meaningful to both academics and practitioners, provide a foundation for further research, engage in a deep way with the intersections between regional science and environmental governance, conduct a quantitative analysis to complement my background in qualitative analysis, and act on my personal interest and history regarding private land conservation in Western North Carolina.

It has done so in the following ways. Its accessibility and meaningfulness to academics is anchored in the theoretical treatments of the "region" and how these relate to environmental governance. In so doing, I have tried to explore the intersections between my overarching discipline and my particular realm of interest and growing expertise.

Its relevance to the practitioner comes in the SNA as "proof of concept" and the fact that such a study has not yet been conducted in the region. Accordingly, the basic map structures, relational ties, and takeaways offer ways of thinking more reflexively about the network and its members. My conclusions serve as a point of engagement for respondents and others to consider, agree, or disagree with them. Insofar as I have been successful in these regards, I have laid a foundation upon which to conduct further, deeper, and more robust analyses.

The project also has powerful personal connections for me. I have a personal interest in the health of the conservation network, a moral interest in conservation in general and more specifically my home region of WNC, and a professional interest in cultivating experience in quantitative analysis.

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