Teams at Their Core: Implementing an "All LANDS Approach to Conservation" Requires Focusing on Relationships, Teamwork Process, and Communications

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Abstract: The U.S. Forest Service has found itself in an era of intense human activity, a changing climate; development and loss of open space; resource consumption; and problematic introduced species; and diversity in core beliefs and values. These challenges test our task-relevant maturity and the ability and willingness to meet the growing demands for services. The Forest Service is now on a transformative campaign to improve abilities and meet these challenges. The "All-Lands Approach to Conservation" brings agencies, organizations, landowners and stakeholders together across boundaries to decide on common goals for the landscapes they share. This approach is part of a larger transformation occurring in the American Conservation Movement where large-scale conservation partnerships possibly define the fourth or contemporary era. The intent of this communication is to present one perspective of what large-scale conservation partnerships should include, namely an emphasis on rethinking what leadership looks like in a collaborative context, relational governance, cooperative teamwork procedures, and communications.

Keywords: landscape conservation; network governance; strategic teams; communications; leadership

1. Introduction

In a speech at the Western States Land Commissioners Association in the United States in 2012, Chief Tom Tidwell of the U.S. Forest Service described the all-lands approach. He said, " . . . We need a common vision. Restoration is predicated on partnerships . . . None of this can happen on a piecemeal scale. It has to be on a scale that supersedes ownership. An all-lands approach brings landowners and stakeholders together across boundaries to decide on common goals for the landscapes they share. It brings them together to achieve long-term outcomes. Our collective responsibility is to work through landscape-scale conservation to meet public expectations for all the services people get from forests and grasslands" [1].

That same year, the Department of the Interior of the United States signed Secretarial Order No. 3289 launching the Landscape Conservation Cooperatives (LCCs) [2], an initiative to better integrate science and management to address climate change and other landscape scale issues. The Department of the Interior adopted several pre-existing cooperatives and formed a network of 22 LCCs that work collaboratively with federal, state, and local governments, Tribes and First nations, non-governmental organizations, universities, and interested public and private organizations. The goal is to identify best practices, connect efforts, identify science gaps, and avoid duplication through conservation planning and design.

The emergence of landscape conservation and the all lands approach to conservation in federal government is indicative of a larger movement that has been building for decades.

Arguably, there are three eras of the American conservation movement. The first major historical stage occurred in the late 19th and early 20th centuries with conservationists such as Theodore Roosevelt, John Muir, Gifford Pinchot and women such as Rosalie Barrow Edge whose lasting legacies include national parks, forests and monuments, and private land trusts. The second major historical stage occurred in the 1960s and 1970s which is known as the launch of the environmental movement, this was largely brought on by Rachel Carson and her book *Silent Spring*, Paul Ehrlich and his book *Population Bomb*, former Interior Secretary Udall's book *The Quiet Crisis* and his work with many others to pass and enact important legislation including the Clear Air Act, Clean Water Act, the Wilderness Act, and the Endangered Species Preservation Act and Wild and Scenic Rivers Act. The third stage could be considered the Grassroots Advocacy stage from the 1980s to the 2000s and still into today. Many non-governmental organizations (NGOs) either had their starts or really picked up speed during this time, they brought environmentalism into the homes and hearts of American citizens and worked very successfully to mobilize and activate many around key environmental issues; often to enforce the very laws passed during the last second era in the conservation movement.

Without the gift of hindsight, views might differ for how to define the contemporary conservation movement. Many would say that if the 20th century was a conservation battle on land, the ocean is a major focus for conservation in the 21st century. There is another way to frame this new era and it includes marine conservation. Possibly, we are now in the era of large-scale conservation partnerships. The U.S. federal government initiatives are just a handful of dozens around the world and in the Caribbean (Table 1).

Table 1. Examples of large-scale partnerships in the United States Caribbean and Non-U.S. Caribbean.

U.S. Partnerships	Scale	Non-U.S. Caribbean Partnerships	Scale
El Yunque National Forest All Lands Planning Process	9 municipalities (plan covers municipal, regional and island-wide)	Global Landscapes Forum	135 countries (committed to restoring 128 million hectares of degraded and deforested landscapes)
Caribbean Regional Ocean Partnership and Regional Planning Body	Exclusive Economic Zones of PR and USVI	Caribbean Challenge Initiative	20% of the Caribbean's marine and coastal ecosystems (by 2020)
U.S. Coral Reef Task Force	All coral jurisdictions of the U.S.	Atlantic Conservation Partnership	U.S., Bermuda, and Wider Caribbean
Co-managed Nature Reserves	Individual Reserves	Wider Caribbean Sea Turtle Network	40 nations and territories
Caribbean Landscape Conservation Cooperative	U.S. and Wider Caribbean	Caribbean Sustainable Development Solutions Network	All countries and territories bordering the Caribbean Sea
Model Forest (Bosque Modelo)	19 protected areas in 31 municipalities	Eastern Caribbean Marine Managed Areas Network	6 Organization of Eastern Caribbean States' countries of St. Kitts and Nevis, Antigua and Barbuda, Dominica, Saint Lucia, St. Vincent and the Grenadines and Grenada
Our Florida Reefs	4 counties		

These initiatives are all using similar methodologies. With the rise of ecosystem-based management, managing species by species in forested landscapes is no longer the norm. Nor by ecosystem type. Recognizing the importance of connectivity across types, the focus has largely become on the panorama of ecosystems at multiple scales. Reed et al., 2016 argues in a research review that other methodologies since at least 1992 are a form of the integrated landscape approach, such as agrolandscape ecology (1992), sustainable landscape approach (1994), integrated resource management (2000), collaborative decision making (2005), landscape ecology (2006), integrated watershed management (2008), ecosystems approach (2010), integrated water resources management (2011), integrated coastal zone management (2011), and participatory land use planning (2004) [3].

These methodologies and initiatives are the new conservation model that is, or at least is becoming, the new identity of the American Conservation Movement—large-scale partnerships. This new model is partner-driven, management-driven, large-scale in that it is bigger spatially (across large geographies) and temporally (across long periods of time). The new model is user-focused, future-focused, revolves around a shared vision, and is rooted in both the natural and social sciences. Most importantly, it steps outside of conservation science and management and requires the engagement of multiple sectors. In the U.S., this is often defined by engaging industry, hazard mitigation agencies, the military, private landowners such as farmers, and other economic interests. In international partnerships, it is defined by engaging those working on poverty reduction, food insecurity, development, and disaster risk reduction.

The language used in all these approaches are different, but have the same intent.

Alternative language you occasionally hear the U.S. Forest Service use is "All Lands-All Hands". The "All Hands" might better convey the approach of All Lands and Landscape Conservation. They connect people. They study people and actions of people. They coordinate people. Furthermore, they empower people.

In my experience, in four years serving as Partnership and Communications Coordinator for the Caribbean Landscape Conservation Cooperative (CLCC) with the U.S. Forest Service International Institute of Tropical Forestry, I have found that when you boil down these approaches to the nuts and bolts of cooperative conservation, what you find yourself doing daily, is facilitating strategic teams. Large-scale conservation partnerships are teams at their core.

This means that the most relevant land and sea managers are not just at the table but are engaged and feel empowered to be part of a team that is working for a shared vision. The new model requires that those whom affect the landscape have a way for understanding the values of the others at the table that also affect the land. Collectively, they understand the stressors on the system based on past observations and future projections and, perhaps most importantly, they see real opportunities for increased coordination.

For the purposes of CLCC partnership efforts, strategic teams are defined as teams that are created for a clear purpose, that are tied to larger regional goals, or to a broader strategy, and that strive to be high performing with well-defined tactics for how team outputs will be delivered and ultimately used in accordance with the team's purpose. Strategic teams also tend to be multidisciplinary or transdisciplinary, though that is not required. The organizational structure of the CLCC is comprised of nested strategic teams that interconnected though autonomous. The teams are staff (and staff with advisory groups), steering committee (and executive team with staff and steering committee with advisory groups), research teams, and conservation action teams. The LCC network is also comprised of multiple teams, such as network staff, science agenda teams, working groups, and the LCC Council (similar to the CLCC Steering Committee).

The CLCC is the newest Landscape Conservation Cooperative, created in 2012, but like all landscape partnerships the CLCC has already experienced certain barriers. Through a literature review, Reed et al., 2016 identified five main barriers to implementation of a landscape approach and the CLCC has experienced all five, namely: (1) Time lags as theory is still evolving; (2) Terminology confusion as different actors are familiar with different terms in different languages; (3) Operating silos as actors and agencies work internally to overcome institutional norms that prevent integration; (4) Internal/External engagement that goes beyond "box-ticking" exercises and moves to true engagement that empowers stakeholders; and (5) Monitoring as this is the least developed area of landscape approach application and finding metrics that inform stakeholders and guide decision-making processes is still difficult [3].

There are four solutions to these implementation barriers that are paramount and are often neglected as institutional norms within federal and state forest agencies traditionally have not emphasized them: (1) rethinking leadership in a cooperative context; and deliberately focusing on (2) relational governance, (3) cooperative teamwork procedures, and (4) communications.

This communication seeks to describe these solutions using examples from how the CLCC works to overcome landscape conservation implementation barriers. To be successful in answering the call of the current era of the American Conservation Movement, we cannot be landscape focused, nor all lands-focused, and not even just people-focused. Forest researchers and managers working at the landscape scales must be deliberately focused on relationships, procedures, and communications, and that starts with how leadership in a network is viewed. To do so requires collecting data and knowledge strategically and using that information to design our path forward. Moreover, it requires us as individual scientists and practitioners as well as agencies and organizations to adopt new skills and step outside comfort zones.

2. Rethinking Leadership and Effectiveness

From the inception of the CLCC, official communications have sought to be "agency neutral" in that no one agency would be attributed as the lead agency. One of the first questions received from an interested stakeholder in 2012 was, "Are we a 'cooperative' in name only or we do follow the principles of the International Cooperative Alliance?" meaning do we have voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education and training, cooperation among cooperatives, and concern for community [4]? For individual accomplishments within the cooperative, staff are frequently asked "Who led it?" or "Who is responsible for making that happen?" and when the response is "everyone in the team" or "it was truly collaborative" we are often met with disbelief. At times, the Cooperative's Steering Committee, Staff and Conservation Action Teams, the main components of the CLCC's organizational structure, are led by one or a few individuals or organizations, allowing the traditional hierarchal views of leadership embedded within partner agencies and organizations to dominate. The truth is we seek to be cooperative but we are *learning-by-doing*, meaning we are adjusting how cooperative we are as we go based on lessons learned.

It is more accurate to describe the CLCC's governance structure as "network governance", in that decision-making is horizontal and not vertical and is characterized by systems of affect, communication, knowledge exchange, and dialogue [5]. Network governance is sometimes confused with the governance of a network and governance networks; those are different types of governance. Jones et al. (1997) define network governance as involving, "a select, persistent, and structured set of autonomous firms engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges. These exchanges are socially- not legally-binding" [6] (p. 914). The array of purposes for network governance include policy formation and implication, service delivery (in the case of the CLCC, science and conservation strategy delivery) and innovation development. Structures might include formal, or informal, arrangements or tight, or loose, structures [5]. Several typologies of network governance have been introduced but all are non-static, evolving from one form to another due to changes in priorities, changing contexts, as well as the actions of individual actors. Because of the nature of this type of governance, participating agencies and organizations in the CLCC find themselves reflecting on the role they have or would like to have in the network. In network governance, "role" means the type of "leadership".

Imperial et al. (2016) make a strong case well-founded in the literature that large landscape conservation requires three interconnected types of leadership: *collaborative leadership*, in which network members share leadership functions at different points in time; *distributive leadership* in which network processes provide local opportunities for members to act proactively for the benefit of the network; and *architectural leadership*, in which the structure of the network is intentionally designed to allow network processes to occur [7]. In network governance, all members of the partnership are a source of leadership and their roles continually shift to match the challenges the network is addressing. The ability to govern this way depends on whether network members and staff have a collaborative mindset and are willing to share leadership.

The successes and failures in this are very much determined by how well the Cooperative fosters the collaborative mindset and how well defined for each project tackled by a strategic team the type of leadership approach that will serve that task best.

It is true that "network governance does not emerge spontaneously to advance large landscape conservation; someone has to call the initial meeting and decide whom to invite" [7] (p. 128). For the CLCC, the pioneers to create the cooperative to begin with, the sponsors that established credibility and legitimacy, and the thought leaders to provide knowledge and expertise for where to begin and what to tackle together, were the U.S. Forest Service International Institute of Tropical Forestry and the U.S. Fish and Wildlife Service Southeast Region.

Without the collaborative leadership roles of pioneer, sponsor, and thought leader, the CLCC would never have been created nor would it have had certain research accomplishments. Once the cooperative was formed, new thought leaders arose out of the main decision-making body known as the CLCC Steering Committee, namely the Puerto Rico and Virgin Islands Coastal Zone Management Programs, the National Oceanic and Atmospheric Administration, The Nature Conservancy in the U.S. Virgin Islands, Para La Naturaleza (a unit of the Puerto Rico Conservation Trust), and the U.S. Forest Service El Yunque National Forest. Each of the members of the Steering Committee and Staff then took on the networking leadership role to engage people across jurisdictions, conservation sectors, and interests primarily this was done by the Puerto Rico Department of Natural Resources, the Virgin Islands Department of Planning and Natural Resources, the National Oceanic and Atmospheric Administration, the National Park Service in the U.S. Virgin Islands, and the U.S. Forest Service International Institute of Tropical Forestry. During this time, the Steering Committee and Staff continued to build identity, decide what to do, and generate capacity as thought leaders and stewards, coordinating activities, managing research teams and ensuring results.

As in all teams and partnerships, differences and conflicts do arise and the facilitation leadership role has been employed by different agencies and organizations at different points in order to cope with those problems and build agreement. Representatives from the following organizations have been particularly adept in this leadership role: the U.S. Geological Survey, Para La Naturaleza, the U.S. Forest Service El Yunque National Forest, and the National Oceanic and Atmospheric Administration. Categories of differences experienced include political dynamics and differing opinions on leadership roles, roles of the cooperative in the larger conservation community, and decision-making procedures.

Additionally, the staff envisioned a new component of the Cooperative organizational structure that would work on specific resources or implementation activities, Conservation Action Teams (CATs). In 2015, three CATs were approved by the Steering Committee though all three originated by different partners through different activities: (1) Protected Areas Conservation Action Team (PA-CAT); (2) Offshore Cay Systems Conservation Action Team (Cays-CAT); and (3) Dune Building and Stabilization with Vegetation Conservation Action Team (Dune-CAT). CATs are unique to the CLCC, though other cooperatives in the LCC Network have strategic teams. CATs work together on science-based actions that facilitate conservation of land and seascapes for specific resources or conservation mechanisms. Envisioning and creation of the CATs were not spur-of-the-moment occurrences. Each took time (e.g., one to three years) to identify the conservation action needed, the shared priorities, and build the necessary relationships to bring the appropriate partners to the table. Without strong networkers with the ability to identify and engage individuals and organizations with compatible priorities, the CATs would not have been able to form. Many members of the CATs and staff take on facilitator roles, as well as the other types of leadership roles previously discussed. Throughout each of these phases or activities in the CLCC's formation and operation, but specifically for the CATs, champions are necessary to give legitimacy to the strategic teams, promote network governance in general, and complete certain activities.

All seven of these leadership roles (i.e., Pioneer, Sponsor, Thought Leader, Networker, Steward, Facilitator, and Champion) as defined by Imperial et al., 2016 [7] (Table 2) are necessary for the development and coordination of the CLCC. These roles are fluid as distributive leadership assumes

there will be multiple opportunities for individuals within the network to lead, as well as influence and support, the network process. For the CLCC, these forms of decentralized collaborative leadership are not well-established within participating entities nor are they employed in other types of conservation partnerships. Furthermore, it is not formalized clearly in our charter, administrative orders, or agreements, but has rather come out of four years of learning-by-doing and has emerged as an informal institution of the cooperative. Borrowing from Helmke and Levitsky's (2004) definition of informal institutions, they are "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels. By contrast, formal institutions are rules and procedures that are created, communicated, and enforced through channels widely accepted as official. This includes state institutions (courts, legislatures, bureaucracies) and state-enforced rules (constitutions, laws, regulations), but also what Robert C. Ellickson calls *organization rules*, or the official rules that govern organizations" [8].

Table 2. Collaborative Leadership Roles and Definitions.

Collaborative Leadership Role	Definition [1]
Pioneer	Catalyzes action and recruits others
Sponsor	Establishes credibility and legitimacy
Thought Leader	Provides knowledge and expertise
Networker	Engages people across jurisdictions, sectors, and interests
Steward	Coordinates activities and ensure results
Facilitator	Bridges differences and builds agreement
Champion	Promotes network governance process throughout development

[1] As defined by Imperial et al., 2016.

The challenge now is formalizing the decentralized governance structure while a traditional governance approach is more familiar for individual partner entities and thus sometimes the default setting we find ourselves slipping back into. The formalization of these rules and norms (the "architectural leadership") is important for the long-term sustainability of the CLCC as partner entity representatives inevitably change and the institutional history is lost. What the formalization looks like will also determine how we measure the efficacy of the partnership. Additionally, decentralization can make it challenging to have a shared history on who did what as well as for crafting compelling communications that accurately reflect the leadership roles partners have taken on in order to reach certain milestones. Inreach within partner entities and outreach to potential new partners rely on such communications.

3. Role of Relational Governance

Relationships matter. This is not a novel statement as it is the conclusion of many teams in research and natural resource management circles alike. This reality comes more into the forefront for strategic teams that are composed of multiple agencies and organizations. How well a team performs is largely determined by how well they recognize and appreciate relational governance in their operations. In natural resource management, teams comprised of top subject matter experts tend to be emphasized. However, in the CLCC, we have learned in three years of partnering that team dynamics are far more indicative of successful outcomes than having top experts or managers. A good example of this is our Protected Areas Conservation Action Team where a mix of top experts and managers work directly with mid-level and entry-level employees and new researchers and have performed exceptionally. Top managers for a few of the most active agencies delegated and only once or twice a year do they meet with the full team to see progress and provide feedback. This team, like the other high performing strategic teams of the Cooperative, have interpersonal relationships based on trust, reciprocity, and mutual goals and have met their goals more efficiently than those without.

This experience is consistent with findings in the literature. "Networks are based on the relational . . . it is relationships that give networks their strength and edge over other governance forms" [5] (p. 443).

3.1. Lessons from Google

One well-known company learned the importance of relationships for strategic teams through three years of research. Google put together a team of social scientists tasked with observing, interviewing, and collecting data on hundreds of Google teams [9] in order to answer the research question "What makes a team effective at Google?"[10]. Code-named Project Aristotle—a tribute to Aristotle's quote, "the whole is greater than the sum of its parts" (in reference to Google's belief that employees can do more working together than alone). After defining what a team is and how to measure effectiveness, the data collection and analyses began. They found that how the team worked together (the team culture and interpersonal relationships) and not who was on the team, mattered most. This was contrary to what Google believed prior to the research. They had thought I.Q. or talent would be the primary factor. More specifically, the following factors determined team effectiveness:

1. **Psychological safety**, "an individual's perception of the consequences of taking an interpersonal risk or a belief that the team is safe for risk taking in the face of being seen as ignorant, incompetent, negative or disruptive."
2. **Dependability**, "members reliably complete quality work on time (versus the opposite—shirking responsibilities)"
3. **Structure and clarity**, "an individual's understanding of job expectations, the process for fulfilling these expectations, and the consequences of one's performance . . . Goals can be set at the individual or group level, and must be specific, challenging and attainable"
4. **Meaning**, "finding a sense of purpose in either the work itself or the output . . . The meaning of work is personal and can vary: financial security, supporting family, helping the team succeed, or self-expression for each individual, for example."
5. **Impact**, "the results of one's work, the subjective judgement that your work is making a difference, is important for teams. Seeing that one's work is contributing to the organization's goals can help reveal impact."

The Project Aristotle team also found the following variables were *not* significantly connected with team effectiveness (for Google; these variables might be significant for other organizations): (1) colocation of teammates; (2) consensus-driven decision making; (3) extroversion of team members; (4) individual performance of team members; (5) workload size; (6) seniority; (7) team size; and (8) tenure [10].

3.2. Large Partnerships on Small Islands

The local discourse in Caribbean islands often emphasizes that relational governance seems more necessary on small islands. The point is often made that because there are smaller numbers in the conservation community or professional circles, maintaining good relationships is even more important for sustaining existing and future teamwork. Moreover, because of the prevalent culture of socializing and "island time", teams need to integrate Caribbean cultural norms into the work environments. Research would be needed to determine whether that is just perception from island practitioners or if in fact a difference between landscape conservation in islands and continents. Emphasis on relationships is critical to determining team success anywhere and not just on small islands. However, consequences of past team failures may influence new partnerships more frequently in island contexts given the smaller pool of professionals and collaboration opportunities.

3.3. The Wicked Problem of Team Formation

The social-ecological problems that the All-Lands Approach to Conservation seeks to address have been described as wicked [11] and super wicked [12]. Norris et al. (2016) make a compelling case

for how the teams that employ a transdisciplinary approach to research and management to address those wicked problems experience challenges that make the formation of these teams a wicked problem in itself [13]. The evidence for this is the challenges experienced in team formation are consistent with challenges described by Rittel and Webber (1973) that defined challenges of wicked problems, namely: (1) the process of formulating the problem and of conceiving a solution are identical; (2) it is difficult to ascertain when the work is done; (3) every solution is a "one-shot operation" meaning no opportunities to learn by trial and error (different from learning by doing); and (4) every wicked problem can be considered to be a symptom of another problem [14].

Norris et al. (2016) [13] go on to discuss ways to address the wicked problem of team formation, similar to ones discussed below, and argue that team formation is a planning process. For landscape conservation, this means in essence that we need to go through planning process to form the teams that will develop long-term and all-lands conservation planning processes. As Luis Villaneuva-Cubero, CLCC Spatial Analyst and graduate of the University of Puerto Rico's Graduate School of Planning, stated at a Steering Committee meeting, "it is important to note that planning processes inherently must end in implementation [of said plans] or it is not a true planning process" [15].

Teams that do not go through well thought-out, relationship-based processes are like icebergs [16]. The ordinary or technical problems are at the surface but the governance and political problems and the fundamental and cultural problems are below the surface and only become apparent after your team's ship has struck the iceberg.

The CLCC has learned (sometimes through failures) that it takes considerable investment of time and effort to build and sustain the interactions that are central to the healthy functioning of network relationships. The investment needed for strategic relationship building and monitoring and embedded social relations can limit the actions of members and increase the need for coordination and communications. It also takes skilled network leadership and management in order to navigate the complex sets of relationships and agendas and identify ways to overcome barriers to action. It is critical to keep the perspective alive in the network that the teams are working to ensure a public value is delivered. In my opinion, this is the principal reason why patience is deemed necessary when employing the landscape approach [3], as it can take a lot of time to achieve mutually agreed on actions and outcomes [7] because of relational governance challenges. The collective impact of the collaborative actions are greater than when attempting to work alone as a single entity, but the path is longer and with more speed bumps.

3.4. Role of Cooperative Teamwork Procedures

The CLCC is still developing well-defined rules, incentives, and norms within the network. These are sketched out through a combination of allowing them to develop organically and by formalizing certain necessary procedures. Imperial et al. (2016) say that "structures and processes themselves are theorized to be sources of leadership, separate from the formal or visible leader" [7] (p. 128). This is a dynamic process but the literature provides insights as to why certain rules should be formalized sooner rather than later.

Bennett and Gadlin (2013) describe collaboration and team science along a continuum extending from collaborations with minimal levels of interaction to scientific teams with significant levels of interaction and integration [17]. CLCC Research Teams have occurred in different points on this continuum with some having higher levels of internal interaction and integration than others. A couple research projects were investigator-initiated where the scopes of the work were related to CLCC priorities and so were supported by the Cooperative but until the findings were available for dissemination there was little to no interaction between the rest of the Cooperative and the investigator's research team. On the other end of the spectrum are research projects where the teams worked on the research problem together, each member bringing specific expertise to the table. The projects also used sub-teams that would take on certain tasks conducting research separately but going back to the larger group at key stages. There were regular meetings and discussions during the

team formation, during the work, and afterwards during delivery of the results and multiple times communicated with the wider Collaborative via workshops, webinars, and in written form to elicit input used during the research. All teams, despite where they lie on the continuum, are connected to the broader CLCC strategy so in that regard are strategic teams though not necessarily collaborative or consistent with all network governance definitions.

　　While Bennett and Gadlin's work tends to be more focused on collaborative teams in the biomedical sciences, their perspectives are suitable for large-scale conservation partnerships. They focus on the interpersonal context (relationships among scientists) and borrow from an extensive study on collaborations in physics (Shrum, Geruth, and Chompalov 2007 [18]). From their work, I have crafted a list of factors that contribute to the successful interactions and communications among teams, as appropriate for landscape conservation. Their list comes from in-depth interviews with five National Institutes of Health teams that either were successful, did not succeed in getting fully off the ground, or came to an end due to conflict. Reviewing these variables revealed many CLCC teams and teams of the wider LCC network have experiences consistent with those five teams. Indeed, the Cooperative has experienced the three types of varying degrees of success as consequences of abilities to operationalize procedures that consider these variables. To conceptualize and executive these elements in everyday practice is not easy or intuitive as they may appear:

1.　*Self- and Team-Awareness and Abilities to Self-Regulate* (e.g., communications style, conflict management approach, personality types, approach to giving and receiving feedback)
2.　*Understanding Team Development* (Forming, Storming, Norming, Performing)
3.　*Trust*
4.　*Building a Team* (identification of people interested and capacity to work as a cooperative is important; they have synchronicity between team goals and individual interests as they cannot achieve their individual goals on their own)
5.　*Creating a Shared Vision* (recognizing vision statements and team objectives are dynamic and will change over time)
6.　*Sharing Recognition and Credit* (e.g., review criteria for evaluations should allow for multiple leaders to share status and power, recognition and reward; craft agreed-upon criteria for authorship on products and how decisions are made about gives talks or responds to media inquiries and how intellectual property will be handled; discuss how the team will promote the careers of individual members who depend on taking appropriate credit and receiving proper recognition for their career trajectories)
7.　*Communicating about the Science: Promoting Disagreement while Containing Conflict* (taking advantage of the numerous benefits engaging in disagreements provide: new and stronger relationships within the team; keeps problems or issues from simmering thus prevents accumulation of resentment or of disagreements; continued re-evaluation of the team dynamic and the team procedures; strengthened trust; and emergence of creative solutions)
8.　*Communicating with Each Other* (see Table 3—Ways to Strengthen Team Relationships and Dynamics)
9.　*Share the Excitement of the Process and Discovery* (in theory, everyone in the team loves what they do—do not be afraid to share that passion).

　　The storming under "Understanding team development" is the point in CLCC teams that some might describe as the most painful or where the most uncertainty lies in whether the team will move forward or fold. This is the phase where team members develop processes often that come out of identification of differences and people opening up to one another. The storming is when individuals move into teamwork and have to shift mentality from being an individual or sole expert to sharing influence and leadership with others. Because of the potential sensitivity in this stage, it is important to develop processes early for managing conflict while creating a safe space for open and honest discussion articulating expectations and defining roles and responsibilities.

Table 3. Ways to Strengthen Team Relationships and Dynamics (compiled from Bennett and Gadlin (2013), Project Aristotle, and author perspectives of Caribbean Landscape Conservation Cooperative (CLCC) practices).

Bennett and Gadlin (2013)	Project Aristotle (2016)	CLCC Practices
Foster a collegial and non-threatening environment.	Establish a common vocabulary about team behaviors and norms you want to foster.	Use of process agendas that define purpose and desired outcomes of meetings and use of meeting ground rules, such as "silence is agreement" and "try to offer a solution if stating a problem".
Openly recognize strengths of all members of the team and note as a team how different strengths contribute to advancing the project.	Create a forum to discuss team dynamics allowing for teams to talk about subtle issues in safe, constructive ways.	Outside formal meetings discuss views on process and progress and make sure members know procedures for speaking up. Or offer to bring up the comment for the team member if some restriction to them doing so.
Take a few minutes at regularly scheduled group meetings to do a check-in: How is everyone doing?	Commit leaders to reinforcing and improving.	Create time outside formal meetings to develop relationships (e.g., coffee before or after or via scheduled coffee breaks; time for socializng before or after; field trips with built in socializing time).
Encourage open and honest discussion by establishing trust.	Actively solicit input and opinions from the group. Share information about personal and work style preferences.	Rotate who moderates or facilitates work sessions and meetings.
Jointly develop a process for bringing issues and disagreements forward for early resolution.	Foster dependability by clarifying roles and responsibilities of team members and developing concrete project plans to provide transparency into every individual's work.	Use of user-centered performance metrics for individual tasks or teams, usually through meeting process agendas or tactical communications plans.
Assure that when decisions are being made that require everyone's input that each person has an opportunity and understands the process for providing comment.	Regularly communicate team goals and ensure members understand the plan for achieving them.	Definition of science delivery that stresses coproduction of knowledge, engagement with users, and working towards informing management, policy, investment, behavior change, community actions, or further research.
Schedule periodic assessments and feedback, including opportunities for collaborators to discuss what is going well, what is not, and what needs to be improved.	Ensure your team meetings have a clear agenda and designated facilitator.	Learning-by-doing; Recognizing that network governance/team procedures need to be dynamic as we learn how to operationalize this new model of collaborative conservation. Trainings and capacity building are key!
	Give team members positive feedback on something outstanding they are doing and offer to help with something they struggle with.	Strive for transparency, open membership and open processes, and use variety of available digital tools to assist.
	Publicly express gratitude for someone who helped you out.	Encourage developing new perspectives and new skills.
	Co-create a clear vision that reinforces how each team member's work directly contributes to the team's and broader organization's goals.	Recognize the eight values that motivate human actions and strive for teams that produce and allocate values (Respect, Influence/Power, Wealth, Well-being/Security, Knowledge, Skill, Affection, Ethics) [1]
	Reflect on the work you are doing and how it impacts users or clients and the organization. Adopt a user-centered evaluation method and focus on the user.	Strive to embedd in processes standpoint clarification, problem orientation, social process mapping, and decision-process mapping [1], sometimes called Structured-Decision-Making [2]
		Look for partner needs you can provide (reciprocity)

[1] Clark, T.W. 2002. The Policy Process: A Practical Guide for Natural Resources Professionals. Yale University. New Haven, CT, USA; [2] Keeney, R. 2004. Making better decision makers. Decision Analysis 1(4) 193–204.

The five factors that Google's Project Aristotle found to set successful teams apart come into play during the storming phase, especially psychological safety and structure/clarity. It is the norming and performing phases where team members begin to work together effectively and efficiently, developing trust and comfort as they learn to rely on each other ultimately working together seamlessly focusing on the shared goals and resolving issues and problems that emerge. These last two phases are highly dependent on what happens in the storming phase. The CLCC has experienced in a couple teams

the negative consequences of not taking the time for the intentional development of these procedures. The consequences being less trust and more difficulty transitioning to the norming phase.

Trust just might be what all the other eight elements boil down to. The CLCC has experienced trust and lack of trust in a few areas of work. Trust that team mates will deliver on their assignments or share the necessary data. Trust in the shared vision that we are doing something meaningful that will have positive results for society. Trust in the resources of member organizations to support the work. Trust that each members' contributions are appreciated and will be credited appropriately for the good of the team and the individual. Trust that team members will not try to dominate or make unilateral decisions. Trust that if there is disagreement on process or scientific outcomes that there is a safe space to voice opinions and the team will act constructively. Trust that everyone will be respected and human dignity protected. Unfortunately, trust is often overlooked in collaborative conservation. As Bennett and Gadlin (2013) state, "For many, [trust seems hopelessly subjective and even softheaded" [17] (p. 5). The experiences so far in the CLCC have taught us that trust can make or break a team. Work relationships play a critical role in the teamwork itself. There are risks in teamwork as each individual member forfeits some of their control or influence and when the outcomes of the collaboration affect individual performance the risks are even greater. This dependence (the team's dependence on the individual and the individual's dependence on the team) creates vulnerability. Without trust-filled relationships that vulnerability leads to individuals being protective or defensive rather than collaborative. Time and great care must be taken to build and nurture trust among team members. Furthermore, trust can come from strong personal relationships or created or reflected in written agreements.

As there is little space in this communication to detail all the different tactics to ensure strong team relationships, I have compiled several ways based on the work of Bennett and Gadlin (2013), Google's Project Aristotle, and the most successful CLCC practices based on informal staff monitoring and evaluation. The entries in the table are not exhaustive and many more tools are available. As you read these tactics, it becomes evident that some require certain skill-sets that not everyone possesses. Imperial et al. (2016) review the literature and find that network participants should possess abilities to have a collaborative mindset, link to external resources, mobilize existing assets, be persuasive, deal with changing contexts and challenges, manage group processes, and lead even when not in charge or empower others to lead. Obviously, not everyone can possess all of these skillsets so drawing from those who have those skills and pooling them is one way, but to be most effective collaborative leadership training is crucial. Some may feel they are lacking in these areas and that demonstrates a strong level of self-awareness needed for developing the capacity to work collaboratively [17]. Many natural resource management programs in universities are investing in developing programs that equip students and researchers with these collaborative skills and federal and state agencies in the United States are beginning to provide relevant trainings. The LCC network through the Department of the Interior has benefited from a variety of resources and trainings by the Partnership and Community Collaboration Academy [19] and the National Conservation Training Center [20] but there are many other institutes and centers that can help develop these skills.

4. Role of Communications

It has already been described how team communications are important for rethinking leadership and focusing on relational governance, but communications play other roles in large-scale conservation partnerships as well. It is no secret that agencies, universities, and scientific partnerships do not focus or invest enough in communications. When communications are integrated into a project, it tends to occur at the end of the project or after the research has been done. Sometimes, the project managers do not leave ample room for communications and it is an afterthought. Furthermore, when communications are included, often the communications are not strategically tied to available or generated information on user needs or project goals. For strategic teams to be successful, strategic internal and external communications need to be supported before or during team formation. Bennett and Gadlin (2013)

identified this as a factor for internal team procedures [7] and Google's Project Aristotle identified this as a key dynamic for internal and external activities because team members should reflect on the work they are doing and how it impacts users or clients [10]. They put a strong focus on the user.

Similarly, the CLCC and LCC Networks are user-centered in that team outputs utilized by users are how success or effectiveness is determined in landscape conservation delivery efforts. Because landscape conservation partnerships are inherently applied science initiatives, they strive for the products to be used to inform management, investment, policy, behavior change, community actions, etc. [21]. Co-production or actionable science is a science delivery approach increasingly utilized by federal agencies in conservation and communications play a strong role [22]. The term "science delivery" has become a bit of a misnomer as its meaning has evolved as the benefits of co-production are realized, rather than just delivery and dissemination itself. While clear pathways cannot be delineated easily for knowledge-to-action as it is more of a web of interactions that lead to knowledge being applied [23], the co-production approach is showing to be effective [22].

When the LCCs began, communications were focused on translating science in formats useful to decision-makers. Communications staff were brought in primarily after research projects were completed to package the results in a variety of formats based off of presumed needs of the user groups and "delivered" using suitable tactics for each target audience or user. Stakeholder engagement was a strong element of the approach but it was more viewed as a bridge where information was brought from science providers to science users, and from science users to science providers [24]. In 2014, while setting the LCC Network Science Agenda, a sub-team of science coordinators and communicators discussed the positives and negatives of this approach based off of lessons learned up until that point. The recommendation to the larger network was that communications and stakeholder engagement, "science delivery", need to be considered before a project was even envisioned and employed throughout the research project and of course afterwards. The needs of user groups and the tactics employed for delivering the conservation approaches or the science should be designed with the users. As a result, the 2014 Strategic Plan [25] has a series of objectives and tactics that move the network towards co-production and actionable science, including "Encourage communications guidance, policy, training, and support to principle investigators for science delivery regarding outreach strategies and applications of their research and results to end users (e.g., land managers) and assist them in demonstrating the ecosystem services and socio-economic values of their conservation research" [25] (p. 19). To develop this guidance, the network created the LCC Science Delivery Working Group. The guidance has not been finalized yet, but the draft steps of "science delivery" include four larger best practice categories where communications are integrated: Scoping, Analysis, Outreach/Use of Results, Evaluation. Each of these four are broken down into nine elements of science delivery: (1) engagement with decision makers/implementers (collectively: stakeholder engagement); (2) identification of science needs put into a clear policy or research question; (3) Synthesis of scientific and agency information to ensure the research has not already been conducted; (4) conservation and research design; (5) analysis/conducting research; (6) science translation; (7) delivery and deployment; (8) conservation adoption; and (9) measurement and evaluation [21]. Distinctive in this approach is that teams working to co-produce knowledge include the users and managers that will be utilizing the outputs. Additionally, communications are integrated throughout the process and not just at the end of a project when outputs need to be translated and communicated to broader audiences.

Because each team's needs for internal and external communications are dependent on the shared priorities they are tackling together, communicators are also integrated into the teams. Some team members might play a dual role in that they are skilled communicators who also contribute as scientists or users and others serve exclusively for designing stakeholder engagement processes, facilitating meetings or workshops, coordinating internal communications, and for communicating externally to other target users. It is important that the teams are being strategic about their communications in that tactics used are data-driven and have clear linkages to objectives and metrics of success.

In the CLCC, each team has a different approach for how communications, and thus communicators, are integrated. Many of the Table 3 ideas require strong communications and high levels of organization. The organizational and administrative skills have been a factor in the effectiveness of CLCC Conservation Action Teams and the CLCC Steering Committee. Each team employs different digital collaborative tools and operating procedures that are based on team composition, purpose or tasks, collective skill, and the norms that emerge through the team formation processes mentioned above. The Cooperative has had varying levels of success with internal and external communications. Key to improvement is monitoring and evaluation of performance, without this strategic teams do not have strategic communications.

5. Final Thoughts and Conclusions

This communication is just one person's perspective. Other members of the CLCC or others who work in the implementation of the All-lands Approach in forested landscapes might disagree on a number of points. The landscape conservation community does not have all the answers yet on how to operationalize the teamwork of these large-scale partneships. That is why the work towards this new model of conservation is challenging and exciting for landscape conservation practitioners. We are learning-by-doing and it takes experimentation, creativity, risk taking, and learning from others and each other. There are a few professional challenges we need to overcome in order to see a clear path forward for the All Lands, All Hands approach to conservation. One is patience. Institutional change can be slow. There is a whole social science field around how change happens in institutions. There exist institutional restrictions, baggage from past team efforts, doubt, limited human capital, and varying levels of capacity.

Additionally, much of the social and natural science research needed for the partnerships of the new era in conservation, especially climate studies, take years to complete. If only institutional change and landscape conservation science could work as quickly as our changing climate, then we might be able to avoid the worst effects. This offbeatness might just be the greatest challenge, though there are many. Practitioners of the All-Lands Approach are attempting to do something at a pace institutions and scientists might not be structurally ready for. Sometimes, it seems a lot like trying to speed through a red mangrove stand; lots of starts and stops as you go over prop roots encumbering your path. At least it can feel that way when patience is at its lowest. The strategic teams we interact with everyday and their accomplishments are what keep the new model of conservation moving forward. If we can learn to place a greater emphasis on rethinking leadership in collaborative settings and on relational governance, cooperative teamwork procedures, and communications there is reason to hope we will see long-term success and have more documented case studies by landscape conservation partnerships.

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