An Environmental Regulation Paradigm Shift:

THE CUTTING GREEN TAPE STORY

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A paradigm shift is inherently complex and difficult to achieve. It is particularly challenging within a layered, multiagency regulatory environment that has been built over decades. However, it can be done. This case study examines one promising example—Cutting Green Tape (CGT)—that not only aims to increase regulatory and permitting efficiencies, but also to shift our collective thinking about how multibenefit environmental restoration projects in California can happen.

The CGT case study allows us to explore the evolution and current status of a perceived paradigm shift. This case study's research-oriented lens and consideration of Kuhn's seminal work on shifting paradigms (1970) reveals CGT's progression in a way that can be applied by a wide range of professional audiences. Insights are shared with those seeking to create such a shift within regulatory (or similar) contexts.

Findings indicate that a paradigm shift for environmental restoration work in California is indeed underway. CGT is moving into the final phase of a five-phase process (see Five Phases of a Paradigm Shift). Two of the four signs of a true paradigm shift (see Four Signs of a Paradigm Shift) have been fulfilled, and there are initial indicators of progress towards the third sign of change as well. However, while promising, CGT as a new paradigm (i.e., a profound change in approach or underlying assumptions) has yet to be fully realized.

FIVE PHASES OF A PARADIGM SHIFT

PHASES	CGT EVOLUTION
Current paradigm: Business as usual	✓
Anomaly: Anomalies discovered	✓
Crisis: Tipping point reached	✓
Revolution: Alternative paradigm(s) developed	✓
Paradigm shift: New paradigm adopted	Early stages

FOUR SIGNS OF A PARADIGM SHIFT

SIGNS	CGT STATUS
Practitioners are the source of a paradigm shift.	✓
Proposed paradigm expands on current approach by adopting to certain circumstances.	✓
Pre-paradigm shift questions are no longer relevant, and new questions emerge.	Early indications
Difficulty going back to the previous way of thinking and operating.	To be determined

A MESSAGE FROM THE AUTHOR

Writing this case study through a research lens about an extremely complex process, one that involves so many different parties and perspectives, has been a joyful challenge. The joy has come from realizing how many people care deeply about California's lands, waterways, and coastline. I want to express my sincere gratitude to those who have stewarded these lands since time immemorial and to those who *today* remain committed to continued stewardship of this precious place.

With deep appreciation,

Amy E. Mickel, PhD

ACKNOWLEDGEMENTS

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INTRODUCTION

The need to accelerate the pace and scale of environmentally beneficial restoration projects has become more urgent than ever in the face of increasing climate change. Home to some of the most remarkable nature on Earth, California's lands, waterways, and coastline are under threat. Healthy ecosystems provide clean water, food, carbon sequestration, places to recreate and connect to nature, and other critical benefits. Therefore, restoring and stewarding the state's natural environment is central to the health and well-being of its people, wildlife, and economy. Environmental restoration is necessary to help combat climate change, build climate resilience, and prevent mass extinction (United Nations Decade on Ecosystem Restoration, n.d.).

Home to some of the most remarkable nature on Earth, California's lands, waterways, and coastline are under threat.

However, the work needed to restore and steward California's diverse ecosystems is hampered by the very laws and regulatory processes designed to protect them. Consequently, restoration project proponents have called for a shift in the way this work is approached (Robins et al., 2019), with a particular emphasis on rethinking environmental compliance and permitting processes (Grenier et al., 2021).

A range of efforts have been made over the past 20 years to alleviate barriers to restoration. One of the first, led by California Secretary for Natural Resources Mary Nichols in 2002, culminated in a set of recommendations described in the report, ***Removing Barriers to Restoration*** (Task Force to Remove Barriers to Restoration, 2002).

Many argue that a true paradigm shift is the only way to quickly respond to the climate crisis we are facing.

While there has been notable progress[1], the sense of urgency continues to build as California and other areas of the nation and world experience catastrophic wildfires, extreme heat, severe drought, increased flooding, and rising sea levels. Many argue that a true paradigm shift is the only way to quickly respond to the climate crisis we are facing.

Fortunately, emerging efforts to create a paradigm shift for environmental restoration in California, such as Cutting Green Tape (CGT), are showing signs of progress. The purpose of this case study is to explore the evolution and current status of this perceived paradigm shift and to share insights with others seeking to create a such a shift in regulatory (or similar) contexts.

[1] Examples include: (1) Categorical Exemption for Small Scale Habitat Restoration by adding Section 15333 to the California Environmental Quality Act, 2004; (2) 401 Water Quality Certification for Small Habitat Restoration Projects, updated 2012; and (3) Habitat Restoration and Enhancement Act of 2014 (AB 2193), which addresses a suite of efficiencies related to permitting of restoration projects through the California Department of Fish and Wildlife.

WHAT IS A PARADIGM SHIFT?

A paradigm is best described as a model that provides a shared understanding of assumptions that may also include approaches to identifying, analyzing, and solving problems. It leads to collective thinking and guides action (Guba, 1990). In essence, a paradigm is analogous to a pair of eyeglasses with particular lenses through which the world is viewed and that shape how facts are interpreted. A paradigm shift is, therefore, a profound change in an approach or in underlying assumptions. The usual way of thinking or doing something changes, often because the current paradigm no longer makes sense under an increasing number of conditions.

THE WORK OF THOMAS KUHN

Thomas Kuhn's seminal work, *The Structure of Scientific Revolutions* (1970), focuses on paradigm shifts in the world of science. Having gained popularity and widespread interest, his ideas have subsequently been applied to many other contexts. Kuhn's research has, in and of itself, created a paradigm shift in the way practitioners and scholars regard long-accepted models of thinking and how to change them.

Conducting business as usual under a well-established paradigm is the starting point for a paradigm shift. When something occurs outside of a paradigm (i.e., no longer makes sense in certain circumstances), it is initially viewed as an anomaly. When there are recurring anomalies, the discovery process ensues. Kuhn (1970) writes: "Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations."

At some stage, a tipping point is reached; the current paradigm no longer works under certain conditions and there is a shared perception of an impending crisis. When there is enough support for the idea that a crisis is underway, a revolution phase in which alternative paradigms are developed begins.

Alternative-paradigm proponents garner support from credible and influential individuals who successfully argue in its favor. They often frame an alternative paradigm as making progress by offering a solution to the problems that led to a crisis with the old paradigm (Kuhn, 1970). If their arguments are convincing, people will "see new and different things when looking with familiar instruments in places they have looked before" (Kuhn, 1970).

In the final phase, an alternative paradigm emerges for circumstances that initially presented as anomalies. A shift to this new paradigm occurs when there is substantial evidence of a change in collective thinking and action. When this happens, the new paradigm, which by now is perceived as the usual way of doing business, replaces the old one.

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PHASES OF A PARADIGM SHIFT

Adapted and adopted from Kuhn's work (1970)[2], Figure 1 depicts five phases of a paradigm shift: *current paradigm, anomaly, crisis, revolution, and paradigm shift*. Eventually, the new paradigm will become the current paradigm, and the process will start over, if and when necessary.

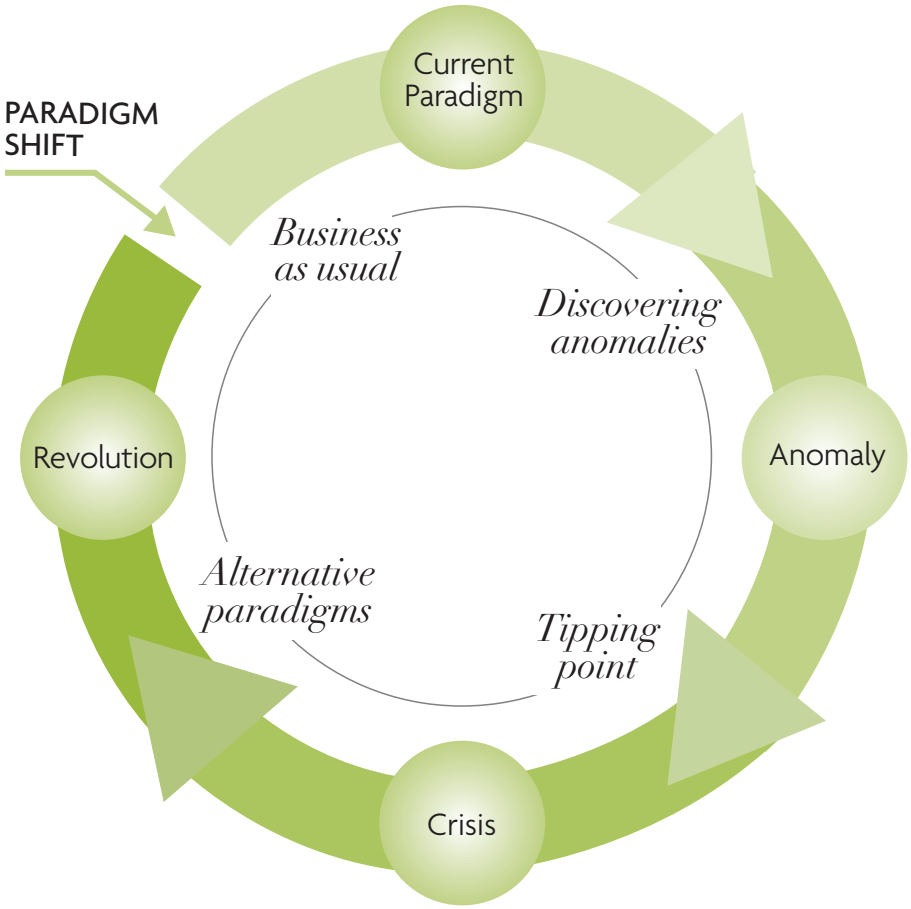

FIGURE 1. FIVE PHASES OF A PARADIGM SHIFT

[2] It is worth noting that Kuhn's research is typically reflected in what is referred to as The Kuhn Cycle, which has five phases and one precursor phase. Terms frequently used to describe these phases are: 0. Pre-science (no paradigm exists), 1. Normal science (current, accepted paradigm), 2. Model drift (paradigm does not explain anomalies), 3. Model crisis (paradigm is no longer a reliable guide to solve problems), 4. Model revolution (alternative paradigms emerge and are considered), and 5. Paradigm change (a new paradigm emerges from the alternative[s], expands or replaces the old one, and the new paradigm becomes the new normal or current paradigm) (Thwink.org, n.d.). Figure 1 is an adaptation of a visual presented in a paper where biomimicry is identified as a paradigm shift in design (Fiorentino & Montana-Hoyos, 2015).

SIGNS OF A TRUE PARADIGM SHIFT

Glenda Eoyang (2018) summarizes four signs of a true paradigm shift that are grounded in Kuhn's work: practitioners as the shift's source, expansion of the previous paradigm, emergence of different questions, and difficulty reverting to the previous paradigm.

Shift source. The first sign is that the paradigm shift originates from practice, not theory. Theory is challenged when its underlying assumptions do not align with observations and practice. In essence, paradigm shifts typically come when the current way of thinking and doing is questioned. Thus, practitioner groups often drive a shift and play a central role in convincing others of its necessity.

Expansion. The second sign is that the new paradigm is not entirely different from the one that preceded it; rather, it builds upon it. While the preceding paradigm may still work under one particular set of conditions, contexts, or assumptions, it no longer works for others. Therefore, a new paradigm expands or alters it in order to incorporate new conditions.

Emergence. The third sign is when pre- and post-paradigm-shift questions have become different. More specifically, pre-paradigm-shift questions are no longer relevant, and likewise, post-paradigm-shift questions would not have made sense under the preceding paradigm.

Difficulty reverting. Trouble considering or even remembering the preceding paradigm as the best approach is the final sign of a true shift. At this point, it is extremely difficult to go back to the previous way of thinking and operating.

It is highly likely that a true paradigm shift has occurred when there is evidence of these four signs and the five paradigm-shift phases. This framework will be applied to the CGT case study in the sections that follow.

CUTTING GREEN TAPE: A PARADIGM-SHIFT CASE STUDY

CGT provides an excellent opportunity to examine how to move toward a paradigm shift within a regulatory environment. This case study is intended to describe the evolution and status of a paradigm shift currently underway and share insights with others seeking to create such a shift in regulatory (or similar) contexts.

This case study was approached using an exploratory, inductive lens. The author conducted one-hour interviews with 32 people (see p. 2 for the list of interviewees), including restoration-project advocates and representatives from state regulatory and nonregulatory agencies. The semistructured interviews were designed to explore the interviewees' perspectives on CGT's evolution, its influence on their field, and possible future direction.

In addition to the qualitative data collected from the interviews, meeting recordings and relevant literature were also analyzed. Themes that emerged from the data analyses are presented in the following sections.

This case study is intended to describe the evolution and status of a paradigm shift currently underway and share insights with others seeking to create such a shift in regulatory (or similar) contexts.

WHAT IS CUTTING GREEN TAPE (CGT)?

When asked what CGT meant to them, interviewees answered with these common responses: "a brand," "a set of recommendations," "a program(s)," "an initiative," "a movement," "an extension [of previous work]," and "a paradigm shift." Variation in responses typically corresponded with the interviewees' relationship to restoration work. Regulatory agency staff viewed CGT as an initiative, a program, and/or a set of recommendations. Nonregulatory representatives from state agencies and nonprofits described CGT as an extension of previous work and a way to brand agency efforts. For restoration-project advocates and practitioners, CGT represented a movement and paradigm shift.

To capture the various perspectives, the following definition is adopted for this case study: Broadly, CGT represents a perceived shift in collective thinking and action to increase the pace and scale of multibenefit environmental restoration work in California. More specifically, it reflects a perceived shift in thinking about restoration work across large landscapes as an urgent need and shift in action to expeditiously and judiciously accomplish this work by streamlining regulatory processes.

Broadly, CGT represents a perceived shift in collective thinking and action to increase the pace and scale of multibenefit environmental restoration work in California.

IS A PARADIGM SHIFT UNDERWAY?

A number of indicators suggest that a paradigm shift for environmental restoration work in California is underway. Its progression and status are explored further in this section through the lens of Kuhn's five-phase framework, and is illustrated in Figure 2.

For each phase, a general discussion is followed by a summary of progress indicators for CGT (phase indicators). Recommendations and questions that emerged from this case-study analysis are offered at the end (phase insights). These phase insights are intended to provide guidance to those seeking to understand and/or create paradigm shifts in their own work.

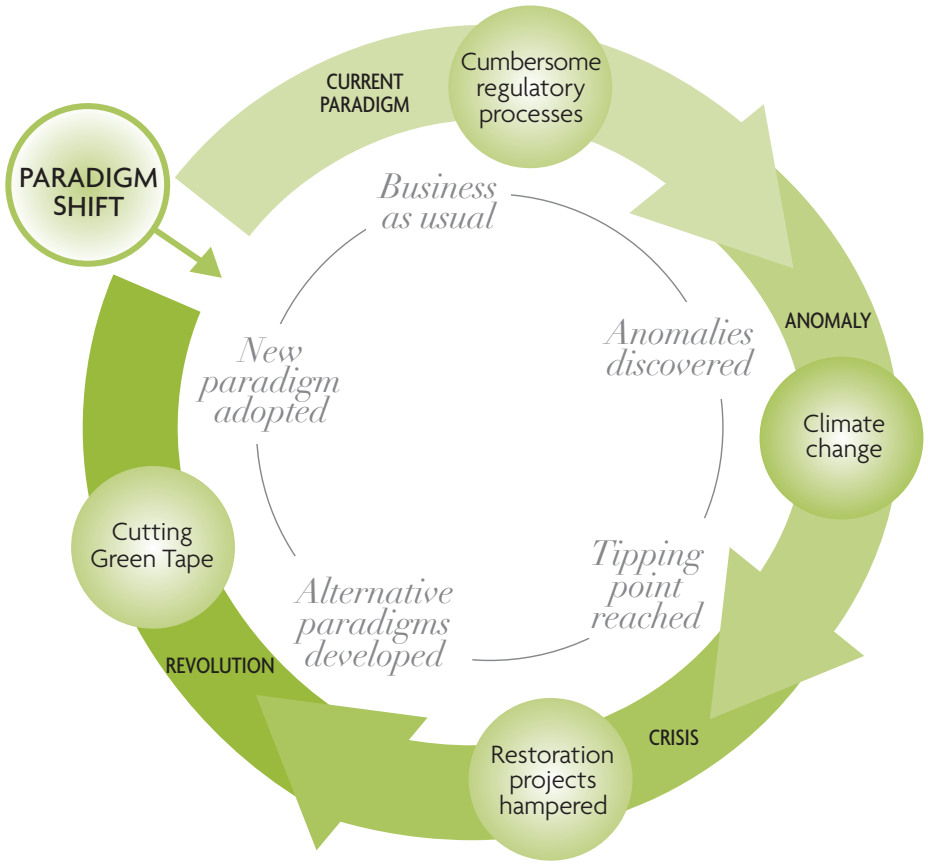

FIGURE 2. FIVE PHASES OF A PARADIGM SHIFT AS APPLIED TO CGT

PHASE 1: WHAT IS THE CURRENT PARADIGM?

California has been a leader in environmental protection for more than 150 years. Starting in 1864, when Yosemite Valley became the first publicly protected wilderness area in the United States, the state has been at the forefront of environmental protection and preservation. Its robust regulatory processes have made it relatively successful in protecting its landscapes from the effects of development and resource extraction.

With its environmental protection tradition and track record of accomplishments, California embraces its current paradigm: Prevent harm through strict enforcement of cumbersome regulatory processes for any project that could be disruptive to the environment. This includes projects related to development or resource extraction as well as environmental restoration work.

> Current paradigm: Prevent harm through strict enforcement of cumbersome regulatory processes for any project that could be disruptive to the environment.

PHASE INDICATORS

The current paradigm of strict regulatory enforcement requires that any proponent of a project with the potential for environmental disruption go through a complex set of processes before breaking ground. While these processes take considerable amounts of time, effort, and money, they have successfully reduced some of the more damaging impacts to California's environment.

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Clearly describe the current paradigm and its underlying assumptions.	What is our current way of thinking and doing things? What assumptions are we making?
Understand the paradigm's history.	When, how, and why did this way of thinking and doing come about?
Understand what function(s) the paradigm has served and continues to serve.	How has this way of thinking and doing helped us in the past? How does it help us now?

PHASE 2: WHAT IS THE ANOMALY?

Climate change, with its deleterious impacts, is the anomaly that is triggering the CGT paradigm shift. While the climate has been changing for decades, its harmful effects on people and the natural environment have accelerated.

The current paradigm of cumbersome regulatory processes for restoration work neither efficiently solves nor mitigates problems created by climate change. In this case, the anomaly of climate change and its impacts are clear, as we hear about or personally experience them with increased frequency.

Climate change, with its deleterious impacts, is the anomaly that is triggering the CGT paradigm shift.

PHASE INDICATORS

There are many indicators of the climate-change anomaly. Described as "code red" for humanity, climate change is directly linked to biodiversity loss, damaged ecosystems, extreme weather, and natural disasters such as flooding and catastrophic wildfires.

According to scientists, nearly one million of the Earth's species are at risk of extinction, and natural ecosystems have declined by 47% on average (relative to their earliest estimated states) (IPBES, 2019).

California is experiencing weather extremes on a whole new level. In January 2023, the state experienced a series of atmospheric-river storms that, in many regions, caused significant infrastructure damage and loss of human life. While these storms are common, global warming has intensified them by creating conditions in which the atmosphere can hold more water (EPIC, 2023). Devastating impacts from floods and landslides resulting from the heavier precipitation were further magnified in areas scarred by wildfires, as a lack of vegetation reduces the ground's capacity to absorb water.

When the temperature reached 130º Fahrenheit in Death Valley National Park on July 9, 2021 (National Centers for Environmental Information, n.d.), another example of weather exacerbated by climate change was marked. Approximately one year later, the area experienced devastating floods from a record-breaking rainfall. As park superintendent Mark Reynolds noted, "With climate change models predicting more frequent and more intense storms, this is a place where you can see climate change in action!" (National Park Service, 2022).

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Clearly describe the anomaly.	How does the anomaly deviate from current standards or assumptions?
Gather evidence to determine if the anomaly is a one-time event or a trend.	Has this anomaly occurred only once, or is it becoming a pattern?
Explain how the anomaly challenges the current paradigm.	In what ways does this anomaly challenge our current way of thinking and doing things?

PHASE 3: WHAT IS THE PARADIGM CRISIS?

The current paradigm is creating barriers to environmental restoration projects that are meant to be beneficial. Navigating time-consuming, costly, and complex regulatory processes is cumbersome. As a result, progress on urgently needed restoration is hampered. It appears that the tipping point has been reached, and there is a shared perception that the current paradigm is contributing to a crisis.

PHASE INDICATORS

It has been reported that "two thirds of those who sought to undertake voluntary conservation projects on private lands downsized or cancelled projects as a result of problems with permitting" (CRAE, 2010). In their article, Grenier et al. (2021) describe the protracted, cumbersome nature of navigating regulatory requirements through an example of a restoration project for McCormack-Williamson Tract (MWT) in the Sacramento-San Joaquin Delta. The MWT project was designed to restore 1,600 acres of freshwater tidal marsh and floodplain. However, it took almost a decade to break ground as project proponents worked through separate processes with at least 14 local, state, and federal agencies. This example illustrates the complexity of meeting regulatory requirements.

Many case-study interviewees described the environmental crisis in California as serious and in need of urgent action. This sentiment is reflected in the statement "Winning slowly is losing," a phrase frequently used by California Natural Resources Agency (CNRA) Secretary Wade Crowfoot.

The current paradigm is creating barriers to environmental restoration projects that are meant to be beneficial.

> Increasing the pace and scale of environmental work has taken on new meaning. As we see natural disasters explode, we need to be doing work faster or else we're just not going to survive."
>
> CASE STUDY INTERVIEWEE

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Understand under what conditions the paradigm still works.	When does our current way of thinking and doing things make sense?
Understand under what conditions the paradigm no longer works.	When does this way of thinking and doing no longer make sense?
Gather information to determine if the paradigm appears to be contributing to a potential crisis.	Does our way of thinking and doing seem to be putting us in a predicament?
Explain the ways the paradigm might be contributing to a potential crisis.	How might our way of thinking and doing add to a potential crisis?

PHASE 4: HOW IS THE CGT PARADIGM REVOLUTION UNFOLDING?

As mentioned elsewhere, paradigm-revolution processes have some shared characteristics. These include practice as the shift source, endorsement for paradigm-shift need, development of alternative paradigm(s), and widespread support for a new paradigm.

Recall that the source of a paradigm revolution comes from practice, not theory (Eoyang, 2018). Theory is challenged when its underlying assumptions are not aligned with observations and practice. Therefore, practitioner groups often drive a shift and play a central role in convincing others of its necessity.

PHASE INDICATORS

CGT's origins lie squarely within the restoration field. Hampered by complex and cumbersome regulatory processes, project proponents have continued to identify the difficulties of working in a timely and cost-efficient manner. Reports describing these challenges include ***Removing Barriers to Restoration*** (Task Force to Remove Barriers to Restoration, 2002) and ***Permitting Restoration: Helping Agricultural Land Stewards Succeed in Meeting California Regulatory Requirements for Environmental Restoration Projects*** (CRAE, 2010). Organizations such as Sustainable Conservation and networks of practitioners such as the California Landscape Stewardship Network (CLSN) continue to argue for the need for a shift in how multibenefit[3] restoration projects are viewed through a regulatory lens.

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Determine if the first sign of a paradigm shift is underway (i.e., the source of the paradigm shift comes from practice).	Where is the need for a different way of thinking and doing coming from? Who is advocating for a shift? Are they theorists? Practitioners?
Explain why there is a need for a paradigm shift in your field of practice. Consider how it creates unnecessary barriers or no longer makes sense.	What evidence do we have that illustrates how our current way of thinking and doing no longer makes sense? Do we have examples of it holding us back?
Explore who might be facing similar challenges.	What groups might see a similar need for a change in a way of thinking and doing?
Begin identifying those who can contribute to expansive thinking around ways to alter the paradigm.	Who understands our current ways and their underlying assumptions? Who engages in innovative thinking?
Begin identifying a subgroup that would be willing and able to coordinate and unify various parties.	Who has a history of successfully bringing people together and unifying voices?

[3] In this case study, multibenefit restoration projects are defined as projects that set multiple ecological and societal goals and include a plan to assess these goals. For example, two or more of the following would be identified in a multibenefit river restoration project: restoration of species and/or aspects of the natural ecosystem; mitigation of climate-change's impacts on fish and wildlife habitats; protection against invasive species; and enhancement of river-based recreation and/or commercial, recreational, subsistence, or Tribal ceremonial fishing.

ENDORSEMENT FOR PARADIGM-SHIFT NEED

There must be widespread endorsement of the need for a paradigm shift for it to happen. This often takes time as well as different voices and perspectives, which in turn requires coordination and commitment from key individuals to build a unified voice for change.

PHASE INDICATORS

Conversations about the need to increase the pace and scale of restoration work have been happening for more than 20 years. Proponents of a paradigm shift have focused on permitting processes, interagency coordination, and the need for a culture shift. For example:

Sustainable Conservation has been at the forefront of advocating with regulatory agencies such as California Department of Fish and Wildlife (CDFW) to accelerate restoration through more-efficient and simplified permitting processes. Enacted in 2015, the Habitat Restoration and Enhancement Act is one example of how Sustainable Conservation garnered the necessary support to work with CDFW to co-design an expedited process of permitting beneficial, small-scale, voluntary restoration projects.

State regulatory agencies also started their own internal efforts to streamline their processes. CDFW was investigating ways to improve its programs through its "Better, Stronger, Faster" approach. These efforts were eventually incorporated into CNRA's CGT initiative.

In the San Francisco Bay Area, the Bay Restoration Regulatory Integration Team (BRRIT) was formed in 2019 to improve permitting and interagency coordination for multibenefit habitat restoration projects. This team comprises representatives from six regulatory agencies: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, NOAA National Marine Fisheries Service, San Francisco Bay Regional Water Quality Control Board, CDFW, and San Francisco Bay Conservation and Development Commission.

California Landscape Stewardship Network (CLSN) participants wrote a paper arguing for the need for a regulatory culture shift, from one where restoration work is thought of as a potential risk to one where it is imperative (Robins et al., 2018). The authors also asserted that regulations created to protect the environment from harmful activities are less suited to activities that are potentially beneficial, and that the current regulatory mindset focuses on avoiding short-term impacts at the cost of longer-term benefits.

The CLSN played a pivotal role in catalyzing and elevating conversations related to the challenges restoration-project proponents face across the state. As a network of practitioner partnerships across California committed to landscape-scale stewardship, it emerged as an ideal vehicle to connect and coordinate restoration practitioners to present a unified voice. Moreover, the CLSN's core team consisted of committed individuals who had the desire and expertise to bring people together to work toward generating solutions.

Ultimately, the efforts of these groups and others provided CGT with a solid platform to launch. Endorsed by regulatory agencies, nonregulatory groups, and restoration practitioners, the need for a paradigm shift became clear.

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PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Connect with others who have identified the need for a shift, but perhaps are looking at the issue through a different lens.	Who else is talking about the issue and proposing different solutions? How do we connect with them?
Demonstrate need through different voices, viewpoints, and lenses.	Are there publications arguing for a different way of thinking and doing business? What groups are advocating for change? Are there examples of innovative solutions?
Find and support a committed group that can connect and coordinate people to drive change.	Are there subgroups that are highly committed to creating change and/or have experience in bringing people together?

EMERGENCE OF CGT AS AN ALTERNATIVE PARADIGM

Successful paradigm-shift revolutions often involve bringing together those who recognize the need for a shift and those who can contribute to expansive and innovative thinking about alternatives. The likelihood of a viable alternative emerging is increased when a group of respected conveners is intentional about when, where, and how conversations happen and who is a part of them. Momentum for a paradigm shift is further accelerated when influential individuals support these efforts.

Successful paradigm-shift revolutions often involve bringing together those who recognize the need for a shift and those who can contribute to expansive and innovative thinking about alternatives.

As previously mentioned, a second sign of a paradigm shift is that a new paradigm is not completely different from the preceding one, but rather, is an expansion of it. While the preceding paradigm will work under a certain set of contexts or assumptions, it needs to be adapted to others (Eoyang, 2018).

PHASE INDICATORS

Secretary Crowfoot engaged a subset of CLSN participants whom he eventually nicknamed "the coalition of the willing." Impressed by their commitment, statewide connections, and ability to succinctly articulate the problem and suggest realistic solutions, he asked CLSN to help coordinate a series of action-oriented meetings to explore how to improve regulatory processes in support of beneficial environmental projects.

The CLSN was able to identify different groups who recognized the need for a paradigm shift—those who had been advocating for one as well as those newer to the conversation—and people who could think innovatively. A wide range of stakeholders, including restoration-project proponents, regulatory agency staff, NGOs, Native nations, water utilities, businesses, and public and private land owners, were invited to participate in three roundtables between December 2019 and February 2020. The CLSN has been credited for adeptly facilitating conversations and keeping the momentum around CGT going.

A wide range of stakeholders, including restoration-project proponents, regulatory agency staff, NGOs, Native nations, water utilities, businesses, and public and private land owners, were invited to participate in three roundtables.

"CLSN has been hugely instrumental in keeping the energy and momentum going. They have done a great job in facilitating interagency conversations and encouraging cross-pollination discussions."

STATE REGULATORY AGENCY STAFF MEMBER

In the interviews, CLSN participants described their painstaking attention to detail when designing the roundtables. From timing to seating arrangements, these events were set up to maximize opportunities for participants to engage in rich dialog and expansive thinking.

"You can't imagine the amount of thought that went into the roundtables. We asked ourselves many questions. How do you get people to talk or focus on these kinds of outcomes? How do you get them to engage and interact? A lot of our focus was making sure we paid extraordinary attention to detail. We brought a lot of care into making sure there were different opportunities for individuals to connect and be heard."

CLSN PARTICIPANT AND ROUNDTABLE CONVENER

During these roundtables, more than 150 leaders from across the state generated a range of ideas, which took the form of 45 recommendations (see CLSN, 2020, Appendix A). A number of these recommendations built upon previous efforts and ideas, while others emerged through roundtable discussions. These 45 were grouped into themes, then narrowed down. The final set of 14 recommendations were those that emerged as key to increasing the pace and scale of restoration work in a more streamlined and cost-efficient way, and included incremental improvements as well as broader system changes.

The final set of 14 recommendations were those that emerged as key to increasing the pace and scale of restoration work in a more streamlined and cost-efficient way, and included incremental improvements as well as broader system changes.

While the roundtables were productive, they were not free of difficult and often tense discussions. Three key lessons emerged from case-study interviewees who had participated in the roundtables and in the process of generating, integrating, and synthesizing CGT recommendations.

LESSON 1: Find common ground. Focus on the underlying issue and do not point fingers or blame others. Assume that everyone's intentions are genuine—in this case, to protect and restore ecosystems for the benefit of California and its inhabitants.

LESSON 2: Narrow the scope of the issue to specific circumstances or conditions to allow for more feasible solutions. With CGT, the focus was on what California's state regulatory agencies can do to expedite multibenefit restoration projects.

LESSON 3: Engage in the process of cocreation to tell a compelling story with relatable examples and to generate concise, realistic, and actionable recommendations. In this example, this was accomplished through three roundtables and the ongoing work performed by a subset of CLSN participants.

It is worth highlighting that CGT meets the criteria of the second sign of a true paradigm shift (Eoyang, 2018). It does not replace the current paradigm (i.e., stop or scale back projects that may potentially harm the environment); rather, it changes the paradigm by adapting it to different circumstances (i.e., considering how to improve regulatory processes that advance multibenefit restoration projects).

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Partner with people who have expertise in convening individuals with diverse perspectives.	Who has a reputation for effectively bringing diverse groups together? How can we partner with them?
For conveners: Be intentional about who is invited and take time to plan out details such as agendas, seating, meals, informal time to connect, etc. Review Priya Parker's *The Art of Gathering* (2018).	For conveners: What is the purpose of the gathering? Who should be included, and why? What is the best use of our time together? How can we foster informal conversations through seating, meals, informal time, etc.?
Engage in the process. Be creative and open-minded. Consider building upon previous efforts, in addition to generating new ideas. Seek to generate shared solutions.	How do we facilitate a process of cocreation? What has already been done to change our current ways? Can we expand on those efforts and/or integrate them with new ideas?
Acknowledge and honor the diverse perspectives, experiences, and work of others. Do not erase or undervalue previous work.	How can we best recognize and praise others, especially those who have been/are engaged in related efforts?
Determine if the second sign of a paradigm shift is underway (i.e., the proposed paradigm is an alteration of the preceding one).	How is the alternative paradigm being adapted for different sets of circumstances?

WIDESPREAD SUPPORT FOR CGT

A final step in the process of a paradigm-shift revolution is garnering widespread support beyond the original advocates. To do this effectively, it is beneficial to tell a compelling story, provide clear evidence to support the need for a shift, and offer a viable alternative.

It is especially important to get buy-in from those who have the power to enact change; in a regulatory context, this means influential government leaders. As these leaders are responsive and accountable to the public, their buy-in is tightly linked to that of other parties (e.g., relevant nonprofits), who are also leaders in their own right.

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PHASE INDICATORS

Based on roundtable discussions, a subset of CLSN participants produced ***Cutting Green Tape: Regulatory Efficiencies for a Resilient Environment*** (CLSN, 2020) with a forward by Secretary Crowfoot. The report tells a compelling story about the need for a shift in the approach to permitting and regulatory processes for beneficial restoration projects, and details the 14 recommendations cocreated during the roundtables.

Evidence of widespread support can be found in the fact that CGT is backed by influential nonprofits such as The Nature Conservancy as well as representatives from Sustainable Conservation, Trout Unlimited, and Ducks Unlimited interviewed for this case study. As Sustainable Conservation's website says:

Sustainable Conservation supports the Cutting Green Tape recommendations based on the benefits of improving agency coordination and eliminating duplicative processes and policies. We applaud the State for recognizing that immediate action is needed to save species from extinction and urge the California Natural Resources Agency to convene policymakers, conservationists, and other interested parties to discuss how to get these recommendations implemented as soon as possible.

Momentum around CGT continues to build as regulatory agencies work with a number of partners (e.g., CLSN, TOGETHER Bay Area, Coastal Conservancy, Sustainable Conservation) to provide ongoing community updates through webinars, virtual exchanges, email blasts, and website updates.

Widespread agreement for change is critical, but it still requires a government leader to enact this kind of change in a regulatory environment. Finding a champion in CNRA Secretary Wade Crowfoot was a pivotal moment in CGT's story. He was able to unify ongoing agency efforts such as CDFW's "Better, Stronger, Faster" approach and the recommendations in CLSN's 2020 CGT report under one umbrella: The CGT Initiative. He was also successful in effectively inspiring other leaders, including Governor Gavin Newsom.

Leaders' qualities and buy-in to change are critical in how and if paradigm shifts happen. In the case of CGT, Secretary Crowfoot was able to inspire his agency leaders and staff through a complementary set of qualities and skills.

"Secretary Crowfoot is charismatic, well-spoken, and compelling. He understands the issues and is grounded in a very sophisticated relationship skill set. So, it is that combination of bringing together his relational power, leadership power, and legitimacy that makes him so effective."

CASE STUDY INTERVIEWEE

Within CNRA, Secretary Crowfoot played a key role in creating the Deputy Secretary for Biodiversity and Habitat position, which has been held by Dr. Jennifer Norris since June 2020. He also ensured that actions to streamline regulatory processes for restoration projects were included in the ***Nature-Based Solutions Executive Order N-82-20*** (Office of Governor Gavin Newsom, 2020). Issued by Governor Newsom in November 2020, this executive order outlines biodiversity conservation as an administration priority and elevates the role of nature in the fight against climate change. It calls for the protection of 30% of California's land and waters by 2030 (30x30) to counter catastrophic biodiversity loss, mitigate the impacts of climate change, and improve equitable access to nature and its benefits.

Aligned with this order, Secretary Crowfoot issued a CGT implementation memorandum in January 2021 directing relevant CNRA entities to take immediate action by implementing seven recommendations proposed in CLSN's 2020 CGT report (Crowfoot, 2021).

PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Determine the most effective way to tell a compelling story around the need for a shift, provide clear evidence to support the need, and offer a viable alternative.	How can we best convey our story to others? What evidence do we have to support a need for change? What are alternative approaches?
Identify individuals who have power and influence to enact change and may be willing to champion a shift.	Who is influential? A change-maker? Inspirational? Who understands the need for change?
Engage with those who have position power to direct change. When engaging with them, clearly articulate why there is a need for a shift and offer feasible alternatives.	Who has the authority to direct change? Are they government officials, CEOs of large organizations, or executive directors of nonprofits?
Engage with those who have inspirational appeal and respect (personal power) to influence change. When engaging with them, clearly articulate need and offer alternatives.	Who is well respected by decision makers? Who is articulate? Who is an expansive, innovative problem-solver? Who can rally support?
Keep communities informed by partnering with different groups. Provide updates through webinars, virtual exchanges, email blasts, updated websites, and other communication channels.	How can we best inform and update communities? Who can we partner with to help us reach out to relevant groups? What information should be conveyed, and by whom?

PHASE 5: HAS CGT BEEN ADOPTED AS THE NEW PARADIGM?

According to Kuhn (1970), an alternative paradigm is likely to be adopted and embraced when it seems to: "resolve some outstanding and generally recognized problem that can be met in no other way" and "preserve a relatively large part of the concrete problem-solving ability that has accrued to science through its predecessors [preceding paradigms]" and allows for "additional concrete problem-solving solutions" (Kuhn, 1970). In the final phase of a paradigm shift, the new paradigm is adopted as the current paradigm and eventually becomes the accepted way of doing business.

The third sign of a true paradigm shift is when questions considered during the pre-shift period are no longer relevant, and the kinds of questions asked post-shift would not have made sense under the preceding paradigm.

The final sign is a difficulty considering or even remembering the preceding paradigm as the best approach under a particular set of conditions (Eoyang, 2018).

PHASE INDICATORS

Recall that for this case study, CGT represents a perceived shift in collective thinking about the urgency of doing restoration work across large landscapes and shift in actions taken to expeditiously and judiciously accomplish this work through improving regulatory processes. To date, CGT has not been adopted as a new paradigm but appears to be in the early stages of a transition towards a new way of thinking and doing.

Shifts in thinking. As original advocates for a paradigm shift, restoration-project proponents have quickly embraced this shift in thinking. It has also been adopted by the Governor, his administration, and state regulatory agency leaders. This is illustrated in recent agency publications that convey a sense of urgency.

Pathways to 30x30: Accelerating Conservation of California's Nature (CNRA, 2022a) calls communities across the state to take action in the face of significant environmental threats. In ***Natural and Working Lands Climate Smart Strategy*** (Nature-based Climate Solutions, 2022), on-the-ground, nature-based solutions to climate change are described as essential to "California's critically urgent effort to achieve carbon neutrality and build resilience to the impact of climate change." In another report, the following statement is made: "Climate change and biodiversity loss require immediate and significant acceleration of conservation and restoration of natural environment" (CNRA, 2022b).

To date, CGT has not been adopted as a new paradigm but appears to be in the early stages of a transition towards a new way of thinking and doing.

A shift in thinking has also occurred among state regulatory agency staff regarding how to best expedite their processes while continuing to protect the environment. A number of agency staff case-study interviewees described how CGT has changed the way they approach their work. Several commented that CGT has given them license to "think more freely, be more ambitious, and take more risks."

Collectively, the statements made in published reports and individual interviews suggest that a collective shift in thinking—among both regulatory agency leaders and staff—about the urgency and need to expedite multibenefit environmental restoration work is underway.

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Another sign of shifts in thinking is that the questions currently being posed are different than those asked prior to CGT. More specifically, questions of *if* and *why* restoration projects should be treated differently than development- or resource-extraction projects are less focused upon. Questions now focus on how to best accelerate the pace and scale of this work through streamlining regulatory processes.

Shifts in action. Shifts in thinking are beginning to translate into action. The Newsom administration has identified "Expand Environmental Restoration and Stewardship" as one of 10 strategic pathways to achieving the 30x30 target and highlights CGT as a signature initiative to increasing the pace and scale of environmental restoration (CNRA, 2022a).

CNRA has reported actionable progress in four areas: regulatory processes; California Environmental Quality Act (CEQA); grant and loan programs; and communication, coordination, and collaboration (CNRA, 2022b). CDFW has actively responded to seven of the recommendations highlighted in the CLSN's 2020 CGT report (Dibble, 2022). CNRA's CGT Initiative also includes two noteworthy actions: implementation of CEQA Statutory Exemption for Restoration Projects that provides an exemption for fish and wildlife restoration projects that meet certain requirements until January 1, 2025, and development of a Restoration Management Permit that streamlines permitting by consolidating multiple environmental authorizations into fewer permits.

> My thinking has shifted from 'this is how we have always done it' to seeing the issue from a restoration practitioner perspective. An NGO does not care what branch I work in, they just want to do their project and not be sent to another window."
>
> STATE REGULATORY AGENCY STAFF MEMBER

Other agencies have likewise taken action to expedite multibenefit restoration work. On August 16, 2022, State Water Resources Control Board adopted the Statewide Restoration General Order and certified the Programmatic Environmental Impact Report. In December 2022, the Coastal Conservancy's Governing Board adopted its 2023–2027 Strategic Plan, which includes supporting CGT projects as a metric in achieving its goal of protecting and restoring the coast.

Collective actions taken by the Newsom administration and state regulatory agencies indicate that shifts in action have begun but have yet to be fully realized. The final sign of a paradigm shift—difficulty considering or even remembering the preceding paradigm as the best approach—has not yet happened.

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PHASE INSIGHTS

RECOMMENDATIONS	QUESTIONS FOR CONSIDERATION
Outline evidence needed to determine if a true paradigm shift is in progress. Collect and analyze data.	How do we decide if a shift is underway? What data currently exists and what data would need to be collected?
Determine if the third sign of a paradigm shift is underway (i.e., questions during pre-shift period are no longer relevant and new; different questions are being asked).	In what ways have questions changed since the paradigm revolution? Are there questions that no longer make sense? Are new questions emerging?
Determine if the final sign of a paradigm shift is underway (i.e., difficulty considering or even remembering the preceding paradigm as the best approach).	Can we imagine going back to the previous paradigm? Do we remember what the preceding paradigm was?

CONCLUDING REMARKS

CGT provides an excellent case study to explore how a paradigm shift can unfold in a regulatory environment. Although CGT as the new paradigm (i.e., profound change in approach or underlying assumptions about regulatory processes for environmental restoration projects) has yet to be fully realized, there are indications that it has advanced through four of five paradigm-shift phases and is moving into the final stage. In addition, two of four signs of a true paradigm shift have been fulfilled, with initial indicators of the third sign being met. To achieve the final stage, a culture shift needs to occur. This can be a lengthy process, especially in bureaucratic environments.

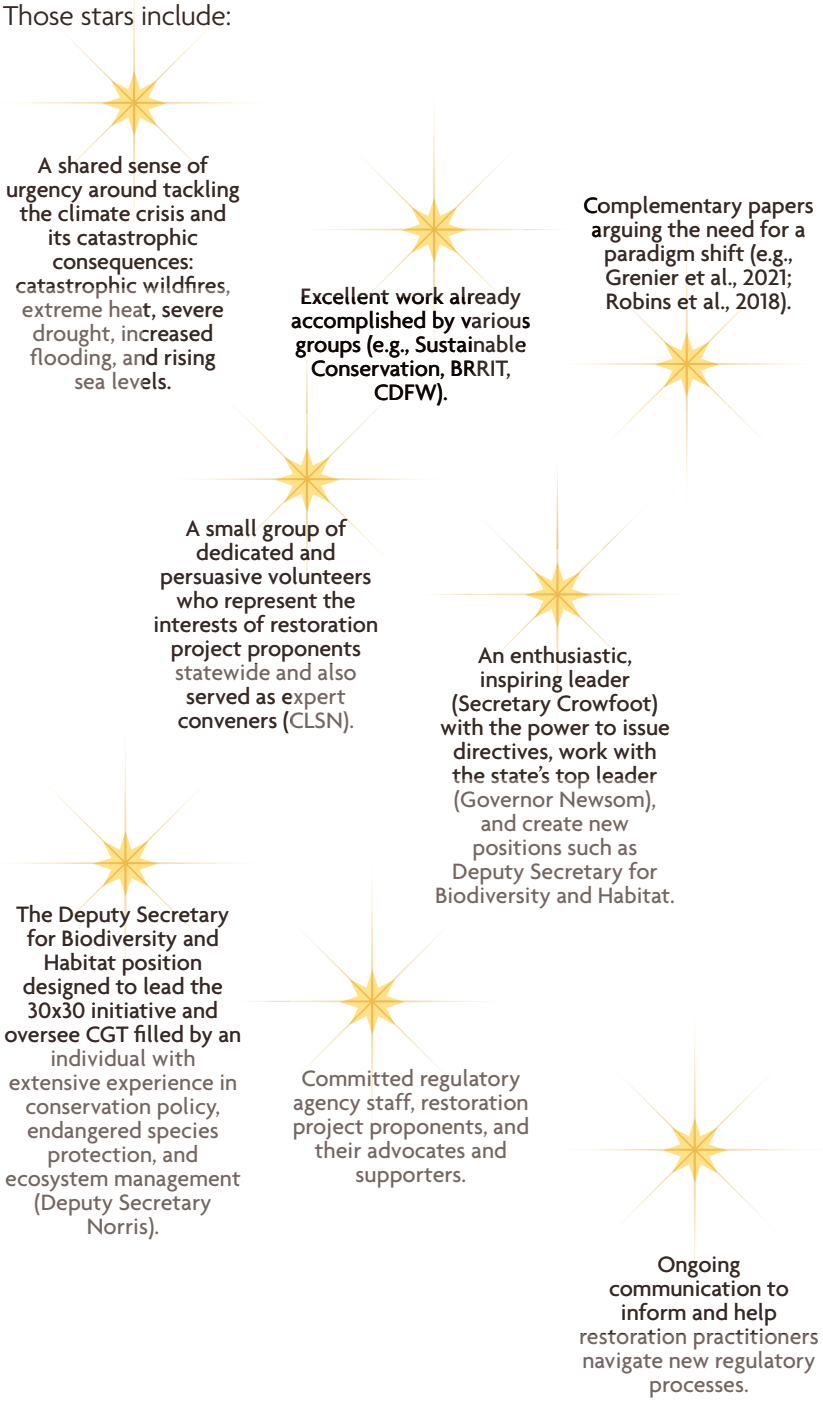
Only time will tell if a true paradigm shift has happened. To determine if CGT has crossed that threshold, future research should include individuals working in all regions across California. A number of interviewees suggested that it should, moreover, include the perspectives of those actively engaged in on-the-ground work: land owners, restoration practitioners, and regulatory field staff from various agencies. For example, a regulatory agency member stated that "end users" such as land owners who want to do restoration work should be surveyed in future research. Another regulatory agency member noted that agency staff in the field should be asked if they feel they have license to think more freely and take more risks.

It is worth noting that similar efforts are now being made by other state agencies. For example, the Board of Forestry and Fire Protection has developed and implemented the California Vegetation Treatment Program Programmatic Environmental Impact Report to expedite vegetation treatments to reduce wildfire, meet emission goals, and improve ecosystem health while conserving natural resources. Likewise, the California Coastal Commission approved Public Works Plans by the Resource Conservation Districts of San Mateo, Santa Cruz, and San Luis Obispo Counties to streamline compliance with the California Coastal Act; the Commission is working on something similar with the Resource Conservation District of Monterey County.

Those who want to create a paradigm shift in regulatory environments or similar contexts are encouraged to learn from CGT. Moreover, they are invited to consider the questions posed in the phase insights sections.

AUTHOR'S REFLECTION

CGT's achievements to date can largely be attributed to the combined efforts and collaborative spirit of the many people who were open to exploring others' perspectives, leaving differences aside, and working toward a shared goal. In addition, a number of interviewees attributed CGT's progress to "stars being aligned." Those stars include:



CGT's achievements to date can largely be attributed to the combined efforts and collaborative spirit of the many people who were open to exploring others' perspectives, leaving differences aside, and working toward a shared goal.

HOPE FOR THE FUTURE

A number of case-study interviewees conveyed their hope for the future as one in which a paradigm shift in the restoration field extends beyond permitting and regulatory processes. Some conveyed the need to extend CGT-thinking to other state and government agencies. Others expressed a larger vision of CGT serving as an opening to systems change in a much broader sense. It is my personal hope that individuals, communities, and organizations continue to collaborate and cocreate innovative pathways and systems to steward our precious California landscapes, waterways, and coastline for future generations.

A number of case-study interviewees conveyed their hope for the future as one in which a paradigm shift in the restoration field extends beyond permitting and regulatory processes.

> While I feel there is growing awareness across the board, a larger culture shift is needed to make real change. A whole new way of interacting with our environment is what we ultimately need. We need a culture of stewardship in California, where restoration work is put in more hands in more places. This could create a snowball effect, and real change to society might happen."
>
> STATE REGULATORY AGENCY STAFF MEMBER

> My vision for CGT is to go deeper in connecting with the broad field of practice to hear from them about the barriers that they face beyond regulatory and permitting barriers. And, I am not just talking about entities that we typically think of such as the National Park Service. When I say the field of practice, this includes Indigenous communities, community-based organizations building urban gardens … everybody who cares about nature, the environment, climate change, and biodiversity."
>
> CLSN PARTICIPANT AND ROUNDTABLE CONVENER

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Dr. Mickel's scholarship has influenced how environmental stewards think about partnership impact, evaluating impact, collaborative leadership, collaborative capacity, and systems thinking and change. She is committed to helping individuals and organizations effectively collaborate to generate, scale up, and sustain impact for systemic, large-scale change.

Born and raised in the San Francisco Bay Area, Dr. Mickel currently resides in Sacramento. She enjoys experiencing California's natural beauty through outdoor adventures with her family, friends, and dog.