Fostering Forest Conservation and Management among Woodland Owners

Research report summarizing applicable social marketing theories and social movements

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2. Introduction

There are a number of time-tested behavior-change theories that can be used to help foster forest conservation actions and a culture of sustainable forestry among woodland owners. The American Forest Foundation (AFF) and Cullbridge reviewed four of these theories, showed how they have been applied in behavior change programs with similar challenges (multiple, complicated or long term outcomes), and summarized how they may be used by AFF for conservation and sustainable forestry.

The four theories are:

1. Stages of Change

2. Diffusion of Innovations

3. Reasoned Action and Planned Behavior

4. Social Norms

Two other promising planning models were also reviewed in the same manner: *(i)* Community-Based Social Marketing, and (ii) Citizen Science.

AFF also collaborated with Hager Sharp to review examples of social movements and their associated success factors that could be applicable to forest conservation and sustainable forest management. Two examples are highlighted.

1. The local food movement

2. Conserving California Landscape Initiative

This document is an abridged and combined version of the two separate project reports.

3. Key Insights for Fostering Sustainable Forestry

The following points are the key insights for fostering sustainable forestry, revealed through the literature reviews.

- *Stages of Change:* Because landowners are at various stages of change regarding specific conservation behaviors and their own engagement with forest conservation in general, different strategies, tactics and messaging may be required to effectively engage and support these audiences. Try segmenting target audiences by readiness for change. To improve cost-effectiveness, consider the use of web-based platforms that can automate – for each participating landowner – some identification and tracking of stage of change, motivators and barriers, and other relevant data – and that can then automatically tailor some communications to address each landowner's specific barriers and motivators and link into local incentive and other programs.

- *Diffusion of Innovations:* Every "community" of individuals (geographic or otherwise) has early adopters who are more likely to try something new and who are well positioned within their networks to promote the innovation. Different strategies, tactics and messaging may be required for them as compared with later adopter segments. Try segmenting target audiences into Innovators and Early Adopters, Early and Late Majority. To increase the rate of diffusion of a new behaviors, design and position / frame the desired behaviors to provide a clear relative advantage; be compatible with existing routines, self-perceptions and values; be seen as simple and easy to do; be easily tried out; and be easily observed by others.

- *Reasoned Action and Planned Behavior:* The theories suggest that to change behavior one must have (1) Intention, (2) perception of behavioral control, (3) attitude toward the behavior, (4) subjective norms and (5) habit strength reveal different aspects of a behavior, and each can serve as a point of attack in attempts to change a behavior.

- *Norm Appeals:* Tell woodlot owners the proportion of people in their influencer networks and communities who are already taking action or who have achieved certain milestones or levels (assuming that enough people are already doing that); OR the proportion of people in their influencer networks and communities who think woodland owners should take those conservation actions where practical. It can also be useful to tell them how they are doing relative to comparable woodland owners. When informing those who have done better than average, acknowledge in some way that they have done the right thing, to help to prevent a "boomerang" or "magic middle" effect. Long-running serialized melodramas, with characters that gradually evolve into positive role models for the audience (Sabido Methodology), can also inspire changes in social norms and behaviors, and have done so in other countries for woodland-related norms and behaviors.

-     o   *Key Influencers* may include the businesses that landowners rely on to manage their woodlots, and also well-respected, successful and innovative landowners who engage in conservation practices and share their knowledge.

- *Community-Based Social Marketing* (cbsm) corroborates many of the previously mentioned insights and adds additional guidance.

  o   The key barriers to taking conservation measures must be addressed, and landowners' social networks will be critical to engaging other harder-to-influence woodland owners. Incentives can be used for a number of purposes; however they should be accompanied by other conservation approaches, and one must be careful to avoid two pitfalls. First, to ensure they don't undermine intrinsic motivation, they must be primarily interpreted as informational and affirming competence. Secondly, an incentive's action needs to be specific to the behaviors being promoted, so to promote a broader domain of interest such as forest conservation award incentives for a range of behaviors that all have to do with that broader domain of interest, and help participants make the connection with that broader domain of interest.

  o   Agreeing to a small commitment makes program participants more likely to agree to future, more demanding commitments. However, asking for a commitment before people are ready to commit can cause people to disengage. Public commitments are stronger than private ones and written commitments are stronger than oral ones. Tailored information combined with a public commitment has, under some circumstances, improved the uptake of forest conservation practices - particularly those that are not subsidized.

  o   *Additional social psychological tools* are useful and synergistic (e.g. feedback; goals setting; prompts; vivid, personalized, credible, empowering communication.)

- *Citizen Science:* Peer / volunteer-led programs and citizen science offer significant, increasingly cost-effective opportunities for communicating with and engaging targeted groups of woodland owners. Citizen Science approaches may be able to be used not just to collect data but also to further engage participants to undertake habitat restoration and other forest conservation activities on their own lands and in their communities.

- *Social Movements:* Prioritizing "high impact actions" can move the needle in the short term and thus help launch a social movement. A movement must balance individual behavior change and structural or societal changes for optimal success. Frustration with the status quo can lead to a valuable cost/benefit transaction for potential change agents looking to shift from the usual to something new and different. A single, simple call to action can help potential change agents tangibly realize the benefits of a small shift in their cost/benefit exchange and personal reward. Communicating the results of adopting behaviors can be an effective way to reinforce messaging and encourage sustained results. Targeting a few specific geographic regions where opportunities are the highest can improve ROI and visibility for the movement. Making a program easy to access and adapt by a variety of organizations, communities or stakeholders can maximize resources. Outreach through existing networks and new partners can be an effective means of engaging like-minded groups of people, who

can then collectively get behind an issue. Using a variety of distribution channels can reach potential social change agents where they are and where they'll be most attentive and able to act. Organizational leaders and social movement mavens can help create solidarity among audiences and galvanize change.

4. Stages of Change (Transtheoretical Model)

Summary

This theory provides a framework and well-researched tool for segmenting target audiences by readiness for change, and for selecting strategies and tactics that work best at each stage. Behavior change is seen as a process involving progress through a series of stages:

- *Precontemplation* (Not Ready) –no intention to take action in the foreseeable future (within six months), unaware of the risks associated with the current behavior and often avoiding reading, talking, or thinking about these risks
- *Contemplation* (Getting Ready) –aware of the risks and starting to look at the pros and cons of alternative behaviors; ambivalent
- *Preparation* (Ready) –motivated and planning to take action in the immediate future (within six months); may already have undertaken small steps in that direction
- *Action* –have overtly taken action / changed behavior within the past six months
- *Maintenance* –have done the desired behavior for at least six months
- *Termination* – no temptation to return to the old risky behavior

The model holds that, while progression through these stages may be linear, individuals tend to progress and regress in a cyclical pattern.

The decisional balance between the pros (benefits / motivators) and cons (costs / barriers) changes with each stage. Those in the first two stages tend to discount the pros and magnify and avoid thinking about the cons; they are often best engaged through a re-evaluation of the benefits to them and their social environments. In contrast, those in the preparation and action stages already see that the benefits are worth the costs. They are particularly influenced by ways of reducing the cons, learning new or substitute behaviors, making a commitment to take action / change, setting goals and by helping relationships. Those at the maintenance stage are best influenced using negative consequences for doing the old behaviors, and prompts and rewards for doing the new ones (reinforcement management.) The more often people repeat the desired behaviors, the greater their confidence (self-efficacy) in doing and continuing to do those behaviors, and the less likely they are to stop doing them.

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| Recent Overview Article(s) | Bridle,C., Riemsma, R.P., Pattenden, J., Sowden, A.J., Mather,L., Watt, I.S., & Walker, A. (2005). Systematic review of the effectiveness of health behavior interventions based on the Transtheoretical Model. Psychology and Health, 20(3), 283-301. Over ten years old, but still one of the best, most-recent meta-analyses on the TTM in the Cochrane database. http://www.healthevidence.org/view-article.aspx?a=21246

Mastellos, N. , Gunn, L.H., Felix, L.M., Car, J. & Majeed,A. (2014). Transtheoretical Model: stages of change for dietary and physical exercise modification in weight loss management for overweight and obese adults. Availabale in the Cochrane Library. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008066.pub3/abstract

Pike, C., Doppelt, B. & Herr, M. (2010). Climate Communications and Behavior Change: A Guide for Practitioners.   Provides advice for each stage of change. http://www.climateaccess.org/sites/default/files/Climate%20Communications%20and%20Behavior%20Change

Prochange overview: http://www.prochange.com/transtheoretical-model-of-behavior-change

Wikipedia overview: https://en.wikipedia.org/wiki/Transtheoretical_model |

Case Study Examples

- *Smoking: Bob and Martin Quit Smoking*. This effective cross-Canada smoking cessation campaign used eight television ads based on the Stages of Change model to move smokers from the pre-

contemplation to the maintenance stage of smoking cessation. The campaign is a classic illustration of tailoring communications by stage of change. The ads featured an average male smoker moving through each stage. For example, in the ad for the pre-contemplation stage, the actor blows smoke into the camera and declares defiantly that he's a smoker, and he's not ready to quit. For the next stages, the actor is thinking about quitting, then preparing, and by the maintenance stage he's thinking about what keeps him from smoking again. By 2004, prevalence had reached an all time low of 20%. The percentage of Canadians aged 40-54 who smoked had declined from 24% in 2001 to 21% in 2004. http://www.toolsofchange.com/en/case-studies/detail/185

- *Cycling and Fitness: Love to Ride* provides tailored resources and support for increasing commuter cycling, staff fitness, and reducing traffic congestion. It illustrates how communications can be cost-effectively tailored to participants at different stages of change, to address their specific barriers and motivators and link into local incentive and other programs. A web-based platform and GPS app reach people through their computers, cell phones and tablets, with personalized, empowering and timely information. The web-based approach builds on and is complementary to local person-to-person communications. Originally developed in New Zealand, Love to Ride has now been replicated in continental Europe, the UK, US and Australia. After three months, 54% of self-identified non-cyclists had cycled at least once a month and 35% cycled to work at least once a week. http://www.toolsofchange.com/en/case-studies/detail/682

- *Biodiversity Conservation: Rare Pride* promotes biodiversity conservation in critically threatened regions in developing countries. It grew from about two campaigns per year in 2001 to more than 40 per year in 2009. A number of successful campaigns have been documented in the literature. Between 2001 and 2008, Rare adopted strategies based on the Stages of Change model. In 2009, it reformulated its central theory of change and programming to (1) include additional stages that extend the model beyond maintenance / termination of particular behavior changes through to measurable threat reduction and conservation impact, and (2) to put additional focus on barriers to change and their reduction or elimination. (Jenks et al, 2010; http://www.toolsofchange.com/en/case-studies/detail/669)

Additional Reading

- *Forest Fires in the USA:* Homeowners who are in an early or pre-contemplative stage (both low and high subjective knowledge) as well as low knowledge contemplatives are motivated by their perceived degree of vulnerability to mitigate the risk. In contrast, high knowledge contemplatives' potential behavioral changes are more likely to be motivated by increasing their perceptions of the severity of the risk. Risk-mitigating behaviors undertaken by high knowledge action homeowners are influenced by their perceptions of risk severity, self-efficacy, and response efficacy. In contrast, the low knowledge action homeowners engage in risk reduction behaviors without the influence of any of these variables, demonstrating their motivation to emulate others in their community. (Martin et al, 2007)

5. Diffusion of Innovations Theory

Summary

Diffusion of Innovations Theory notes that successful innovations follow an S-shaped adoption curve. Once 10-25% of system members have adopted an innovation, there is relatively rapid adoption by the remaining members and then a period in which the holdouts finally adopt. A social system can be divided into five groups, based on this adoption curve.

1) **Innovators:** *venturesome types that enjoy being on the cutting edge.* Innovators are more likely to be seen as mavericks than as opinion leaders. Their social networks extend to other regions, helping them import innovations into the systems to which they belong and thereby play a gate-keeping role. (About 2.5 % of a given population)

2) **Early Adopters**: *respectable opinion leaders*. When these opinion leaders observe that the innovation has been effective for the innovators, they are encouraged to adopt. They are successful, well-connected locally and have earned respect for their judicious, well-informed decision-making. A powerful way for change agents to affect the diffusion of an innovation is to affect opinion leader attitudes. (13.5%)

3) **Early Majority:** *those who deliberate a little longer before adopting a new idea.* This group follows suit with the trusted opinion leaders and has extensive social networks. (34%)

4) **Late Majority:** *skeptical and cautious types.* They can be persuaded of the utility of new ideas, but it is norm appeal that primarily motivates adoption. (34%)

5) **Laggards:** *traditionalists.* The last adopters, laggards, can either be very traditional or be isolates in their social systems. If they are traditional, they are suspicious of innovations and often interact with others who also have traditional values. If they are isolates, their lack of social interaction decreases their awareness of an innovation's demonstrated benefits. Their lack of financial resources makes them more cautious of possible losses from an unprofitable innovation. It takes much longer than average for laggards to adopt innovations. (16%)

According to this theory, innovations will spread more quickly the more they provide a clear relative advantage; are compatible with existing routines, self-perceptions and values; are seen as simple and easy to do; are easily tried out; and are easily observed by others.

It is easiest to influence social systems when there is more interaction between people from different backgrounds and a greater interest in being exposed to new ideas

	(heterophilous ones.) Target the most elite and innovative opinion leaders and the innovation will trickle-down to non-elites. In contrast, it is harder to change social systems where people and ideas that differ from the norm are seen as strange and undesirable (homophilous ones). In such cases, change agents must communicate to opinion leaders a convincing argument in favor of the innovation that accentuates the compatibility of the innovation with system norms. The opinion leaders will then be able to use this argument, which will hopefully resonate with the masses, to support their own adoption decision.
Foundation Article(s)	Rogers, E. (1995) *Diffusion of Innovations* (4th Ed.) New York: The Free Press. The 1st Ed. was in 1960. The original diffusion research was done as early as 1903 by the French sociologist Gabriel Tarde who plotted the original S-shaped diffusion curve. Tarde and Parsons (1903) https://archive.org/details/lawsofimitation00tard In the 1940's, two sociologists, Bryce Ryan and Neal Gross "published their seminal study of the diffusion of hybrid seed among Iowa farmers" renewing interest in the diffusion of innovation S-curve and five categories (Innovators to Laggards.) See Ryan and Gross (1943) in Rural Sociology (8:1) http://chla.library.cornell.edu/cgi/t/text/pageviewer-idx?c=chla;rgn=full%20text;idno=5075626_4294_001;view=image;seq=17
Recent Overview Article(s)	http://thornelyhill.co.uk/diffusion/ https://en.wikipedia.org/wiki/Diffusion_of_innovations https://www.yumpu.com/en/document/view/22631154/diffusion-of-innovations-instructional-media-magic

Case Study Examples

- *Survey Firm Experience:* "Over two decades Roper has verified that virtually every local community has a cohort of particularly active influentials comprising roughly 10% of all of its adults. These people are energetic early adopters who are five times more likely than the average person to attend a civic-oriented public gathering. They are likewise seven times more likely to be an officer of a club or organization, six times more likely to attend a political rally and eight times more likely to have written a letter to the editor (Keller and Berry, 2003). Importantly, these community influentials are keenly interested in learning (and) are curious about environmental subjects" (Coyle, 2010)

- *Heart Health and Smoking in the USA: Framingham Heart Study*. Christakis and Fowler (2008) conducted a network analysis of 12,067 people who underwent repeated assessments of their smoking behavior and social-network ties over a period of 32 years. The analysis showed how the first people to make changes influenced others in their networks to make similar changes (at up to three degrees of separation).

- *Energy Conservation: Team Power Smart.* This behavioral energy conservation program for residences in the province of British Columbia, Canada found that the psychographic composition of participants shifted over time, as predicted by the theory. The program initially ''preached to the choir,'' predominantly attracting participants in the Devoted Conservationists psychographic segment, which was particularly receptive to environmentally focused communications. These participants did not contribute as much energy savings as others, as they already practiced many of the desired behaviors. However, they helped build the critical mass to run the program and they served as ambassadors for it. Over time, the program attracted substantially more Stumbling Proponents. Although the early adopters wanted a lot of brief facts and detailed information, later participants tended to want more feedback, affirmation, and recognition. Program communications had to change accordingly. Team Power Smart reduced electricity consumption by 46 GWh from fiscal 2009 to the end of fiscal 2015. (Kassirer et al., 2014; http://www.toolsofchange.com/en/case-studies/detail/649 *)*

- *Climate Change Education in the USA*: In support of Al Gore's Climate Project, the National Wildlife Federation (NWF) trained some 5,000 influential leaders between 2007 and 2010 to serve as voices for both personal and civic actions on climate and for broader policy reforms at the local, state and national levels. Trainees were asked to make ten presentations each, within the first year of being trained, and were supplied with a digital slide presentation and an accompanying curriculum and handbook on climate change. In all, some 7.3 million people have come to see these presentations and participated in discussions about the implications of climate change. The curriculum was specifically designed to match each slide with a mini-tutorial that provided the presenters, (mostly non-scientists) with core background science on what a particular slide was depicting. (Doyle, 2010)

  NWF initially focused on environmentally-minded civic and organizational leaders, then went on to target leaders among less likely allies such as hunters and anglers, conservative church organizations, and private company employees. This required different course designs and approaches tailored for each target group. "The average hunter or angler was much less likely to want to go out and give a digital slide presentation than were, for example, the Inconvenient Truth trainees. The leaders tended to be a little older and many fewer of them owned portable computers. They were instead more inclined to rely on a tradition of talking things over at meetings with their organization or club members then to actually make formal presentations. We discovered that, for this group, the degree of trust felt for the climate change messenger seemed to matter as much or more than the details of the science. This is not unusual among different cohorts but it seemed to be a particularly strong consideration for hunters and anglers. So, even though we supplied them with pre-packaged Digital slide presentations and accompanying slide-by-slide guides, we received feedback that these were not used all that much in the field or, if they were, it was a highly abbreviated version."

Relying on participants' keen observations of the natural world, organizers introduced discussions into training programs asking trainees to reflect on changes to the natural environment and wildlife patterns that they had personally observed in recent years. Despite skepticism that "was often thick in the air at first ... (once) the trainees began to describe their own observations and experiences, (the) mood shifted to be more positive and even enthusiastic." (Doyle, 2010)

- *Rare Pride* promotes biodiversity conservation in critically threatened regions in developing countries. It grew from about two campaigns per year in 2001 to more than 40 per year in 2009. A number of successful campaigns have been documented in the literature. The program utilizes the influence of peers and opinion leaders garnered through interpersonal communication, a construct taken from the Diffusion of Innovations Theory. Across these many initiatives, the starting percentage of engagement has had a great influence on the percentage change at the end of the campaign; the higher the initial adoption level of knowledge, attitude, and behavior change, the easier these measures have been to improve. In addition, organizers have observed difference in the potential of change with different audience segments: it has been easiest to change influencers, then the general public, and finally the resource users who are the target of the social marketing campaigns (Haden and Deng, 2013; Jenks et al, 2010; http://www.toolsofchange.com/en/case-studies/detail/669)

- *Agricultural Conservation in the USA*: Purdue University recently published an account of its experience with row-crop farmers in the mid-western United States and of a related literature review it conducted. It found that these farmers' social networks—the people that the farmers trust and talk to, as well as the message that they hear from those people—play key roles in the adoption process. For medium-sized and larger farms, chemical dealers, seed dealers, and crop consultants are important influencers. Other key influencers are well-respected, successful and innovative farmers who engage in conservation practices and share their knowledge. The report notes that program objectives need to move beyond initial adoption to include maintenance over time. (Prokopy, 2015) Reimer et al (2012) studied the adoption of agricultural best management practices among forty-five producers in two watersheds in Indiana, USA. Of the five factors that can speed up diffusion of a particular best practice, according to the theory, three were particularly important: a clear relative advantage (e.g. reduced inputs, time-savings, and on-farm and environmental benefits); compatibility with the farms system and needs of the producer; and observability. Perceived risk and complexity were significant limiters of adoption for only a few practices.

- *Peer Learning and Extension Forestry in the United States:* For over 30 years, extension forestry in the USA has used peer-learning programs to hasten the diffusion of land management actions from volunteers to their peers. A recent review of 39 programs found that, "because they operate through peers and personal networks, Master Volunteer and other peer-led programs are well positioned to engage specific subgroups of the broad and diverse family forest owner population, a task facilitated by recent advances in landowner segmentation and typology development."

  While these programs have generally been grappling with program impact evaluation issues, there are a few well-designed studies with measured results. One of these involves New York's Master

Forest Owner volunteer program, which was initiated in 1991 by Cornell University and was modeled after the successful COVERTS programs in Massachusetts and Connecticut. The volunteers received certification following a 4-day, 40-hour training session covering numerous forestry-related topics, such as wildlife management, forest economics, ecology, and related programs and organizations. Most of the volunteers were longtime forest owners, so the training complemented their experience. Following certification, the volunteers were encouraged to spread their knowledge and skills to others. These volunteers were particularly effective at helping other woodland owners seek out more forestry information, set goals and priorities for forest management on land, consult with a professional forester, and thin forest stands. Between 33% and 43% of program participants said they had done each of these activities because of a volunteer, and an additional 10% to 25% intended to do each because of a volunteer. (Allred et al, 2011; Kuepper et al., 2014).

- *Citizen Science* is another approach that can be used to speed up the diffusion of land management actions from volunteers to their peers. (For more details, see Citizen Science in Section 8: Additional Models)

- *A Conservation Awareness Index* (CAI) has been used to further assess how prepared family forest landowners are to make informed decisions about their land and take next steps (Schnur et al, 2013).

6. Reasoned Action and Planned Behavior

Summary	The *Theory of Reasoned Action* holds that stronger intentions lead to a greater effort to perform a behavior, resulting in a greater likelihood of doing the behavior. In turn, the strength of intentions are determined by a person's attitudes and perceived social norms. This theory is particularly relevant for behaviors that are within one's volitional control.
	The *Theory of Planned Behavior* also takes into account one's perceived *behavioral control*: an individual's perceived ease or difficulty of performing the particular behavior. This in turn is influenced by one's past experiences, resources, opportunities and any obstacles to taking action. A favorable intention to do a behavior will only be acted on when the perceived behavioral control is strong enough.
	The *Reasoned Action Approach* adds a focus on background factors (global dispositions, demographic factors, and other kinds of variables often considered in social psychology and related disciplines), adds descriptive norms to the normative construct, and adds self-efficacy to the concept of perceived behavioral control.
	Verplanken and Aarts argue that habit strength should also be included as a predictor and moderator of behavior.
	Klockner developed a model based in large part on the Theory of Planned Behavior, then tested it using a meta-analytical structural equation modeling approach based on a pool of 56 different data sets with a variety of environmentally-relevant target behaviors. The model was supported by the data. Intentions to act, perceived behavioral control and habits were identified as direct predictors of behavior. Intentions were predicted by attitudes, personal and social norms, and perceived behavioral control. Personal norms were predicted by social norms, perceived behavioral control, awareness of consequences, ascription of responsibility, an ecological world view and self-transcendence values.

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Reasoned Action Approach

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Habits

Verplanken, B., & Aarts, H. (1999.) Habit, attitude, and planned behaviour: is habit an empty construct or an interesting case of automaticity?," European Review of Social Psychology (10), pp. 101-134.

Recent Overview Article(s)	*Theory of Reasoned Action:* https://en.wikipedia.org/wiki/Theory_of_reasoned_action *Theory of Planned Behavior model:* https://en.wikipedia.org/wiki/Theory_of_planned_behavior This article discusses some strengths and limitations of the theories. Klockner, C.A. (2013). A comprehensive model of the psychology of environmental behaviour—A meta-analysis. Global Environmental Change, Volume 23, Issue 5, Oct. 2013, 1028-1038.

Case Study Examples

- *Farming in the Netherlands*   An intervention strategy containing tailored information and public commitment making can improve farm conservation practices. "Participants showed a stronger desire to engage in conservation, increased their area of nonsubsidized natural habitat, and reported spending more time on non-subsidized conservation. Participants in the tailored information only condition also increased their area of non-subsidized natural habitat but did not show any change on other measures. In addition, we found that while our intervention affected both types of conservation, the effects were stronger for non-subsidized conservation." Lokhorst et al (2010)

- *Agricultural Conservation in the USA*: Purdue University's account of its experience and literature review notes that smaller farms are disproportionately affected by barriers such as a lack of technology and skills required. (Prokopy, 2015) Reimer et al (2012) studied the adoption of agricultural best management practices among forty-five producers in two watersheds in Indiana, USA. Both in their literature review and in their own results, they found that background factors (in this case, the characteristics of the best practice being adopted) can have a significant influence on rates of adoption.

- *Rare Pride* promotes biodiversity conservation in critically threatened regions in developing countries. A number of successful campaigns have been documented in the literature. It grew from about two campaigns per year in 2001 to more than 40 per year in 2009. The model assumes that many individuals carefully observe the results achieved by early adopters of the behavior before they adopt the behavior themselves, as posited by Bandura's social learning theory (Jenks et al, 2010; http://www.toolsofchange.com/en/case-studies/detail/669)

- *Songbird conservation in the USA:* One study used the Theory of Reasoned Action to explore the interactions between attitudes, norms and incentives for encouraging landowners to manage land cover for the benefit of endangered songbirds in central Texas. Those who had supportive attitudes about songbird conservation and perceived social pressure to participate were willing to participate with few incentives. Those with weak conservation attitudes who perceived *no* social pressure to participate required the strongest incentives. Those with weak conservation attitudes who perceived social pressure to *not* participate were unwilling to participate regardless of the incentives structure. The study concludes that incentives must be integrated with other conservation approaches such as working with social networks and with collaborative processes that reinforce the desired social norms. (Sorice et al, 2011)

7. Normative Social Behavior

Summary	The Theory of Normative Social Behavior as described by Rimal and Real holds that norms influence social behavior, as do the Theories of Reasoned Action and Planned Behavior. In addition, this theory distinguishes two types of norms, as follows. • Descriptive norms—beliefs about the prevalence of a behavior, or what is commonly done • Injunctive norms—beliefs about what should be done and what influential others (e.g., parent or boss) expect The theory proposes that the influence of descriptive norms on behavior is modified by injunctive norms, perceived benefits, and group identity. Festinger had already introduced Social Comparison Theory as early as 1954. It states that we continuously compare ourselves to others in our social group. If discrepancies exist, we become motivated to reduce the discrepancies, thus, bringing our behavior into congruence with the norm. Cialdini and Goldstein note that three core motivations influence participants: accuracy, affiliation and the maintenance of positive self-concept. Mead et al. introduced the concept of social exposure, defined as "the composite of ways in which people come in contact with or experience a particular product or behavior in their environment."
Foundation Article(s)	Rimal, Rajiv N., and Kevin Real. 2003. Understanding the influence of erceived norms on behaviors. *Communication Research* 13(2):184–203. Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concepts of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015–1026. Cialdini, R.B. & Goldstein, N.J. (2004). Social influence: compliance and conformity. Annu. Rev. Psychol. 2004. 55:591–621 Perkins, H.W. & Berkowitz, A.D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International Journal of the Addictions*, 21, 961-976. Festinger, L. (1957) A Theory of Cognitive Dissonance. Stanford University Press, Stanford,

	CA.
Recent Overview Article(s)	https://en.wikipedia.org/wiki/Norm_(social)#Focus_theory_of_normative_conduct Mead, E., Rimal, R.N., Ferrence, R., and Cohen, J. Understanding the sources of normative influence on behavior: The example of tobacco. Soc Sci Med. 2014 August; 115: 139–143. Published online 2014 May 21. doi: 10.1016/j.socscimed.2014.05.030

Case Study Examples

- *Heart Health and Smoking in the USA: Framingham Heart Study*. Christakis and Fowler (2008) conducted a network analysis of 12,067 people who underwent repeated assessments of their smoking behavior and social-network ties over a period of 32 years. It showed how people influenced others in their networks to make changes (at up to three degrees of separation), likely through social norms. The degree of influence varied according to the type of relationship: when one person quit smoking spouses were 67% more likely to also quit, friends were 36% more likely; coworkers at small firms were 34% more likely, and siblings were 25% more likely to do so. These effects were not seen among neighbors in the immediate geographic area.

- *Energy Conservation: Opower's Home Energy Reports* illustrate the importance of having congruent injunctive and descriptive norms, and how an injunctive norm can be used to mitigate people doing less after being told that they have been doing better than their neighbors (the "boomerang" or "magic middle" effect.") Opower helps individual utility companies to send customized home energy use feedback reports to their residential utility customers. The full-colour reports include a comparison with other similar households, offer tips and strategies to reduce energy use, and provide seasonal energy consumption information. A web portal offers personalized insights and tips, and tools for choosing an optimal energy rate plan. In addition, Opower offers utilities the opportunity to send text messages directly to customers to alert them when their energy consumption is high and offer ways to reduce it. On average, customers whose electrical utilities partnered with Opower saw energy savings ranging between 2% and 4% and those savings had remained consistent over several years. By 2011, the Opower program (including all of the partner utilities in the U.S. and in the U.K.) had saved more than 690 gigawatt hours. http://www.toolsofchange.com/en/case-studies/detail/647 See also Schultz et al. (2007).

- *Organizational Decisions Related to Landscaping, Energy Conservation and Cycling.* The "Corporate Grounds", "Living City", and "Bicycle Friendly Communities" programs *(*discussed under Community-Based Social Marketing in Section 8: Additional Models) are three good examples of programs targeting organizational decision makers. These programs pool member experiences and data to proactively identify conservation opportunities, support and raise the visibility of taking action, help establish norms, and provide opportunities to network and be recognized publicly.

- *Agricultural Conservation in the USA*: Purdue University's account of its experience and literature review notes that farmers' social networks play key roles in the adoption process. For medium-sized and larger farms, chemical dealers, seed dealers, and crop consultants are important influencers. Other key influencers are well-respected, successful and innovative farmers who engage in conservation practices and share their knowledge. (Prokopy, 2015)

- *Biodiversity Conservation: Rare Pride* promotes biodiversity conservation in critically threatened regions in developing countries. The program uses the influence of peers and opinion leaders on the harder-to-influence resource users who are the target of the social marketing campaigns. A number of successful campaigns have been documented in the literature. The program grew from about two campaigns per year in 2001 to more than 40 per year in 2009. (Haden and Deng, 2013; Jenks et al, 2010; http://www.toolsofchange.com/en/case-studies/detail/669).

- *Natural Resource Conservation and Species at Risk: Population Media Centre (PMC)* is an international NGO using entertainment education programming to improve the health and well-being of people and our planet. PMC uses the Sabido Methodology, which involves creating long-running serialized melodramas—written and produced in participating countries in local languages—in order to create characters that gradually evolve into positive role models for the audience, inspiring changes in social norms and behaviors with regard to the issues being addressed.

  In addition to numerous health-related campaigns with measured impacts, PMC has been involved with two environmental campaigns. (1) PMC produced Umurage Urukwiye ("Rwanda's Brighter Future") in Rwanda. This 312-episode radio serial drama aired April 16, 2007 through July 2009 in Kinyarwanda, one of Rwanda's official languages. Umurage Urukwiye was rebroadcast from October 2012 through October 2014. Listeners were 1.5 times more likely than non-listeners to have talked with their spouse or partner in the past three months about the connection between family planning and conservation of natural resources. (2) PMC produced Nau Em Taim ("Now is the Time") in Papua New Guinea. This 208-episode radio serial drama aired February 2011 through May 2013 in Pidgin, one of three official languages in Papua New Guinea. In addition to measuring changes in health and social objectives, the program demonstrated success with a number of environmental ones. *The percentage of individuals involved in clear cutting declined from 58 percent to 45 percent from pre- to post-broadcast. Listeners were 4.3 times more likely than non-listeners to seek environmental conservation services related to logging.* Listeners were significantly more active than non-listeners in marine species conservation (22% vs. 8%). At the community level, activity in marine conservation was twice as likely, rising from seven percent to 14 percent. (Population Media, 2016)

8.   Additional Behavior Change Models

The following two behavior change models provide additional, relevant insights.

8.1 CBSM

Summary	Community-Based Social Marketing (cbsm) builds on the previously mentioned theories and structures them in a practical, accessible manner. It emphasizes direct contact among community members and the removal of structural barriers, since research suggests that such approaches are often most likely to bring about behavior change. Cbsm uses a set of social psychological "tools" which have been identified as being particularly effective in fostering such change. While each of these tools on its own is capable of promoting healthy and/or sustainable behavior under the right conditions, the tools are most effective when used together. Cbsm also notes that changes in behavior may influence changes in attitudes more strongly than the other way around. Community-based social marketing involves: 1. Selecting behaviors 2. Identifying the barriers and benefits to the behavior 3. Developing strategies to overcome these barriers and address these benefits 4. Piloting the program and testing alternative approaches 5. Implementing the program on a broad scale, evaluating its effectiveness and testing alternatives and making improvements on an ongoing basis
Foundation Article(s)	*McKenzie-Mohr, D. (2011). Fostering sustainable behavior (3rd ed.). Gabriola Island, Canada: New Society.*
Recent Overview Article(s)	www.cbsm.com www.toolsofchange.com

Case Study Examples

- *Farming in the Netherlands.* Cbsm provides a range of social psychological tools, including advice for tailoring communications and obtaining increasingly demanding commitments. This case study illustrates how tailored information and public commitment-making can improve farm conservation practices. "Participants showed a stronger desire to engage in conservation, increased their area of nonsubsidized natural habitat, and reported spending more time on non-subsidized conservation. Participants in the tailored information only condition also increased their area of non-subsidized natural habitat but did not show any change on other measures. In addition, we found that while our intervention affected both types of conservation, the effects were stronger for non-subsidized conservation." Lokhorst et al (2010)

- *Energy Conservation: Team Power Smart.* This behavioral energy conservation program for residences in the province of British Columbia, Canada Team Power Smart is one of the few published examples to date of a large-scale program using McKenzie-Mohr's cbsm methodology. This program illustrates a number of promising strategies and tools. Because energy conservation is low-priority and low-involvement for most BC residents, the program connects with participants through things they already care about and builds engagement incrementally using a "loyalty program' approach. A messaging grid was created that connects each targeted behavior with the topics that people already care about, as well as key barriers and motivators. In addition, BC Hydro developed a new engagement model specifically for this program which is designed to increase participants' engagement levels on three dimensions: Enjoyment ("I like this"), Affiliation ("This is who I am"), and Resonance ("This is right for me"). Team Power Smart reduced electricity consumption by 46 GWh from fiscal 2009 to the end of fiscal 2015. (Kassirer et al., 2014; http://www.toolsofchange.com/en/case-studies/detail/649)

Team Power Smart offers participants the opportunity to participate in successive 12-month challenges and earn a small reward if they reduce energy consumption by 10% or more, calendar normalized, and weather normalized. The incentive was originally $75 but was subsequently reduced to $50 after conducting a sensitivity analysis. Those who have completed a challenge can maintain their reductions or take further challenges to reduce their energy use even more and earn additional rewards. The decision to provide a cash incentive was not taken lightly. Rewarding repetitive behaviors can under some circumstances undermine intrinsic motivation so that when the incentive is removed, the behavior may revert back to or even drop below the previous level (Deci, Koestner, & Ryan, 1999; McKenzie-Mohr & Shultz, 2012) Cognitive evaluation theory (CET), developed by Deci and Ryan, asserts that rewards are particularly likely to undermine intrinsic motivation if they are performance contingent but only if they are primarily interpreted by recipients as controllers of their behavior. Conversely, CET asserts that rewards are more likely to enhance intrinsic motivation if they are primarily interpreted as informational and affirming competence. To ensure the latter interpretation, BC Hydro set a relatively low incentive, awarded it only once at the end of every 12-month challenge for completing the challenge successfully rather than for doing a specific behavior, and promoted it as just one of the various tangible and intangible benefits from adopting the desired behaviors. The success of this approach was corroborated by the price sensitivity analysis, which

showed that reducing the incentive to US$50 or US$25 would only lower participation by 4% or 13%, respectively. Further, program participants who have completed a challenge and not yet signed up for another (i.e., who are ''on hiatus'') only increased their energy use marginally during the intervening period. Another potential drawback of incentives is that their action tends to be specific to the behaviors being promoted (McKenzie-Mohr & Shultz, 2012); they generally don't spill over to other behaviors. However, in this case, the incentive is awarded for energy use reductions from practicing a wide range of energy-efficient behaviors rather than for doing only one or a small number of specific behaviors. (Kassirer et al., 2014)

- *Organizational Decisions Related to Energy Conservation, Cycling and Landscaping.* The following three case studies illustrate ways of engaging organizational decision makers. While they don't explicitly use the cbsm methodology, they all have measured impacts and generally follow its methodology, and they illustrate the use of a number of its social psychological tools.

The Living City's energy efficiency programs help member organizations to manage data online and proactively identify conservation opportunities. Benchmarking, target-setting, audit tools and technical support all help to uncover inefficiencies and quantify potential benefits. The assessments identify immediate low/no cost opportunities and also make the case for capital projects. Members can access their data online at any time. These programs also provide opportunities to network and to be recognized publicly. The programs have generated about 26 million dollars in cost savings from 2004 to the end of 2014. This includes 70,000 tonnes of GHG emission reductions, 2.5 million m3 of water saved and about 1.5 million giga joules of energy saved. (McIntyre, 2016; TRCA, 2016)

The Bicycle Friendly Communities Program (USA and Canada) uses early adopter communities to help inspire and guide other communities to be more bicycle-friendly. It also builds relationships between collaborators throughout each participating community and levers synergies between existing programs. It provides municipalities with advice and feedback, goal setting assistance, training programs and recognition awards. Detailed feedback from transportation professionals and community stakeholders gives communities an accurate measure of where they are and a detailed roadmap to the future. As of April 2015 there were 332 certified communities in all 50 states in the USDA. Between 2000 and 2010, cycling as a mode share grew, on average, by 47% in the U.S. as a whole. During this period, the growth of American BFC-certified communities was 80% - more than double the 32% of non- certified communities. http://www.toolsofchange.com/en/case-studies/detail/681

Corporate Grounds (Canada) is an outreach and stewardship program to promote adoption of ecological landscape practices on corporate and institutional grounds, primarily in urban areas. The program provides ecological experts who work with participants on their grounds. Plus, it provides related educational resources such as workshops, seminars and fact sheets, as well as public recognition. The program provides a list of possible projects and benchmarks to achieve increasingly greener grounds at three levels: Turquoise, Jade and Emerald. It has published a number of case studies documenting changes carried out by participating organizations www.creditvalleyca.ca/gcg.

8.2 Citizen Science

Summary	The term "citizen science" has multiple origins dating back to the mid-1990s. It involves volunteers partnering with scientists to answer real-world questions (Citizen Science Central, 2016).
	The World Economic Forum makes the case that citizens are getting increasing access to information but have remained un-empowered, and that increasing empowerment / efficacy is key to sustainability. "Citizen science gives participants a sense of belonging to an effort that creates positive, lasting change. ... Citizen science is more than just a new outlet that engages public spirited citizens who have an existing interest in science. It is increasingly seen as a tool that could enable a more participatory democracy by empowering individuals and communities to analyse, understand and ultimately take ownership of the issues that affect them."
	Haklay describes four levels or stages of participation.
	1. Crowdsourcing (citizens collect data)
	2. Distributed Intelligence (citizens are also involved as interpreters of the data)
	3. Participatory Science (citizens also help define the problem)
	4. Extreme Citizen Science (citizens also help analyze the data)
	At least one large scale Citizen Science program has begun asking its data collection participants to also take landscaping conservation actions on their own properties (see the Great Sunflower Project case study below). This opens the door to more Citizen Science programs that engage a large number of participants in adopting conservation behaviors.
	The Executive Office of the U.S. President recently directed Federal agencies (including the US Forest Service) to take specific actions to advance citizen science and crowdsourcing, including designating an agency-specific coordinator for citizen science and crowdsourcing projects, and cataloguing citizen science and crowdsourcing projects that are open for public participation on a new website. (Holdren, 2015)
Foundation Article(s)	Bonney R., Ballard, H., Jordan, R., McCallie, E., Phillips, T., Shirk, J., & Wilderman, C. (2009). Public Participation in Scientific Research: Defining the Field and Assessing its Potential for Informal Science Education. Washington, DC: Center for Advancement of Informal Science Education (CAISE). http://www.birds.cornell.edu/citscitoolkit/publications/CAISE-PPSR-report-2009.pdf
	Haklay, M., (2012). Citizen science and volunteered geographic information – overview and typology of participation. In Sui, D.Z., Elwood, S. and M.F. Goodchild (eds.), 2012.

	Volunteered Geographic Information, Public Participation, and Crowdsourced Production of Geographic Knowledge. Berlin: Springer.
Recent Overview Article(s)	Wikipedia (2016). Citizen Science. Accessed, March 29, 2016. https://en.wikipedia.org/wiki/Citizen_science World Economic Forum (2016). The Global Risks Report 2016 (11th Edition) http://www3.weforum.org/docs/GRR/WEF_GRR16.pdf Citizen Science Central (2016). Defining Citizen Science. Accessed March 29, 2016 http://www.birds.cornell.edu/citscitoolkit/about/definition

Case Study Examples

- *Monitoring butterfly populations.* The University of Minnesota's Monarch Larva Monitoring Project involves over 1,300 volunteers in the USA and Canada. Some volunteers have gone on to protect monarch sites through preserves, easements and trusts. Others have influenced policy makers and land managers to change practices such as mowing, limit pesticide and herbicide use, and remove invasive species. http://www.mlmp.org/

- *Monitoring bee populations and creating more habitat suitable for pollinators.* San Francisco State University's Great Sunflower Project involves over 100,000 volunteers and has built the single largest database of North American pollinator populations. Participants monitor the number of bees that visit their backyard flowers. "The new *Great Pollinator Habitat Challenge* will track the ways in which participants improve their habitats and compare the number of pollinator visits from year to year. An online questionnaire will evaluate a volunteer's habitat and offer personalized suggestions for how to attract more pollinators. As participants submit their results via the website, researchers will learn which methods are effective and which are not." In the process, participants will have significantly increased the amount of space available for pollinators. (Morales, 2015)

- *Mapping the Spread of a Forest Disease.* OakMapper was developed in 2001 to allow communities to monitor the spread of Sudden Oak Death, which is a serious problem in California and Oregon forests. Using a simple online form, users mark the locations of symptomatic trees on a map and provide a brief description of the symptoms. Early in the infestation, information from the public key in locating new areas of infestation across California. By 2014, the OakMapper website had collected 3,254 confirmed cases. (Connors et al., 2012; Oakmapper.org, 2016)

9. Social Movements

AFF collaborated with Hager Sharp to review examples of social movements and their associated success factors that could be applicable to forest conservation and sustainable forest management. The following two case studies are highlighted. The first case study, on the local food movement, was included given its strong applicability to AFF's work because of its rural and agricultural nature and use of public-private partnerships. The second case study looks at the Conserving California Landscape Initiative which is focused on very similar goals and outcomes

Each case study is segmented into three sections: Overview, Success Factors, Caveats and Sources.

9.1 Movement profile: Local Food

Overview:

While the concept of eating locally has been practiced by food co-ops for decades, localism as a social movement has only gained significant momentum in the past 15 years. Spurred by the "increasingly global and corporate nature of the mainstream food system as well as to the perceived cooptation of the organic movement through corporate influence over the institutionalization of government standards" (Delind 2006; Guthman 2007 as cited in Dunning, 2015), localism provided citizens with a direct solution to an "of-the-moment" problem. Sales of local foods have increased dramatically as a result, as have new partnerships and the perceived importance of sustainability. However, critics challenge localism's effect on the food system as a whole, noting that while individual behaviors have changed, how our food is grown, produced, and distributed has not, leaving inequities in the system (Barber, 2014).

Success Factors:

Tapped into growing frustrations with the status quo. Part of the local food movement's success hinged on tapping into people's growing frustrations with an industrialized food system and providing a direct answer to that frustration. Similarly, "opposition to industrial food production spurred one set of localism leaders to action; the frenzied expansion of big-box retailing in the last quarter of the 20th century stoked localism's other arm" (Mitchell, 2006 as cited in Kurland, 2014).

Gave new meaning to food—and its modes of production and exchange. Whereas mainstream food had become faceless and meaningless, local food gave food new meaning, context, and a story "by embedding economic transactions within the environmental and social conditions of particular places, largely by reinforcing relationships through direct marketing initiatives" (Allen and Hinrichs 2007; Feenstra 1997; Kloppenburg et al. 1996 as cited in Dunning, 2015). As a result of discovering this new source of meaning, people were willing to inconvenience themselves to buy local and found joy in connecting with farmers, cooking the food, and taking part in the exchange (Starr, 2010).

Organizational leaders helped frame the movement and its values and create new markets. Once "buy local" campaigns took off, social movement organizations (SMOs: the leaders/conveners within the field) helped turn upset individuals into a movement, by: 1) framing and legitimizing the movement's grievances and demands; 2) creating a collective identity among consumers and producers, thereby creating solidarity; and 3) creating new markets. More specifically, one SMO used membership growth to help create collective identity. Another partnered with other non-profit organizations to help build a sense of community (Kurland, 2014). Note: While some anti-capitalists have criticized markets as being too limited for solving global social problems, "the market is where society increasingly spends its time and attention" and the place where "those with whom we would like to make revolution" may be found (Starr, 2010).

Emphasized marketing and promotion. "Marketing and promotion was by far the most popular strategy leaders used to facilitate localization. All leaders mentioned efforts to market and promote the buy-local message. Marketing and promotion to the consumer was the easiest way to enter the movement, in large part because the national organizations provided new networks with pre-fab kits—well-designed labels, promotional materials, and ideas for publicizing themselves. These efforts included 10% shift campaigns (encouraging customers to shift 10% of their purchases from non-local business to those who are locally owned and independent), farm to-table events" (Kurland, 2014).

Caveats:

Losing the movement's core values in search of market success. A criticism of the local food movement's success is that it prioritized economic gains over social values, such as participatory democracy and empowerment of local people, which ultimately undermined its ability to challenge the larger structures in which the food system operates. (Jaffee and Howard 2009 as cited in Dunning, 2015; DeLind, 2010)

Changing individual behavior at the expense of making structural changes. In many cases, the local food movement has focused so much on the individual as the key actor that it has lost the power of collective change. Locavore, as a label, is about the individual and not the community. By emphasizing free choice and putting the onus on the individual to "do the right thing," the movement has overlooked the reality that people with lower incomes don't have a choice and that more systemic, structural changes are needed (Werkheiser, 2013). In addition, SMO leaders tended to emphasize development of local customers and customer identity over more difficult tasks "such as mentoring producers to encourage their market entry and altering the nature of exchange between consumers and producers. This focus on changing consumer behavior to the neglect of developing producers and altering the nature of exchange may ultimately challenge the efficacy of the movement" (Kurland, 2014).

Community-focused movements, a hybrid of individual and system-focused movements may have the most radical power to transform. Between movements led by large institutions and those led by individuals are movements centered on communities. The community-focused movement is the least defined and discussed in literature, but it may have the greatest potential for change because it puts people, not market demands, at the center of systems and policies. It also advocates for creating new and more interdependent networks between communities as a lever for change (Werkheiser, 2013).

Sources:

Barber, D. (2014). What Farm-to-Table Got Wrong. Retrieved from http://www.nytimes.com/2014/05/18/opinion/sunday/what-farm-to-table-got-wrong.html?_r=1

DeLind, Laura B. (2011). Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars? Agriculture and Human Values (2011) 28:273–283.

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9.2 Movement profile: Land Conservation – Conserving California Landscape Initiative

Overview:

Launched in 1998 by the Packard Foundation, the Conserving California Landscape Initiative (CCLI) began as a 5-year effort to conserve at least 250,000 acres of California land. Prompted by California's population growth, a growing conservation ethic, and a movement toward private funding of formerly public efforts, CCLI ultimately resulted in the preservation of more than 340,000 acres and generation of around $700 million in matching funds. While its success has raised questions about the role of private entities in public life, some of its strategies for success present useful lessons for study and evaluation.

Success Factors:

Embraced ecosystem philosophy to conservation/ assumed goal of "conserving landscapes rather than land parcels" (Packard Foundation, 2003 as cited in Delfin et al., 2006). Instead of approaching conservation as the mere act of preserving land, CCLI took a cue from the emerging ecosystem philosophy to conservation to consider conservation as a system involving a range of relationships and elements including land, water, air, organisms, and humans. This led to taking a more long-term view on land-use impacts and collaborative conservation planning.

Targeted a few specific geographical regions. Not only did this decision reinforce Packard's focus on strategic philanthropy, i.e., focusing efforts on areas where threats and opportunities are highest, it resulted in CCLI achieving greater visibility and greater participation in the communities in which it was working.

Pledged enough money at the start to stimulate matching grants. Packard's initial 5-year pledge of $175 million was considerable enough to convey credibility and attract interest and matching grants from other donors, which resulted in $764 million in additional donations.

Oriented program around partnerships. CCLI deliberately brought together a range of stakeholders knowing that this challenge could not be solved by one entity alone and that buy-in was important. "National environmental nonprofits such as The Nature Conservancy (TNC), Trust for Public Land (TPL), and American Land Conservancy bring conservation planning expertise, political presence, legal experience, and financial muscle that help small local groups identify conservation priorities; connect with policy makers in Sacramento, California, and Washington, D.C.; hurdle the complex legal requirements of land trust deals; and acquire large swaths of ecologically critical properties. In return, their smaller nonprofit partners bring local support and buy-in from the community, which is crucial for sustaining conservation efforts. Local groups also supply local conservation knowledge, which many regard as a form of audit of outside environmental experts. In several instances, although the national groups negotiated and bought the properties, it was local groups that eventually held the land in trust and monitored the land. This helps reduce the mistrust of local landowners for outside environmental advocates (Interview record #7, May 3, 2004)." (Delfin et al., 2006)

Sources:

Delfin, Jr., F, & Tang, S. (2006). Philanthropic Strategies in Place-Based, Collaborative Land Conservation: The Packard Foundation's Conserving California Landscape Initiative. Nonprofit and Voluntary Sector Quarterly, 35(3): 405-429

10.Context and Methodology

AFF began by selecting four behavior change theories to research.

- Stages of Change
- Diffusion of Innovations
- Social Norms
- Theory of Reasoned Action and Planned Behavior

During the course of the project, in collaboration with Cullbridge, it added two additional promising planning models: (i) Community-Based Social Marketing, and (ii) Citizen Science.

AFF and Cullbridge then reviewed and synthesized academic journal articles but also gray literature and case studies findings of behavior change projects with measured impact results and that involved one or more of the following characteristics.

- Long term outcomes
- Complicated actions
- A range of actions, some leading to others
- Audiences that were rural and mostly over 65 years old
- Preferably environmental or conservation examples

A literature review was conducted using Google Scholar, The Community Guide, Sage / SMQ, Research Gate, Cochrane Database, cbsm.com, AFF and Cullbridge libraries. Requests for assistance were also placed on several listservs. The key words used in the searches included:

- Behavior/ Behaviour
- Behavior change/ Behaviour change
- Case study
- Climate change mitigation
- Coastal conservation
- Conservation
- Diffusion of Innovation
- Landowner
- Landscaping AND pesticide
- Marine conservation
- Meta-analysis
- Norm
- Prochaska
- Rural
- Species at risk
- Sustainable agriculture
- Theory of Normative Social Behavior
- Transtheoretical

- Wildlife conservation

AFF then partnered with Hager Sharp to research social movements. The group looked at local foods, water conservation, land conservation, energy efficiency, and environmental management in Costa Rica. The local food movement and California land conservation are highlighted in this report. The literature review and environmental scan was based on a combination of peer-reviewed journal articles, case studies, and analyses found via online searches.

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