Contributed Paper

Assessment of the Conservation Measures Partnership's effort to improve conservation outcomes through adaptive management

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Abstract: *Conservation practice has demonstrated an increasing desire for accountability of actions, particularly with respect to effectiveness, efficiency, and impact to clearly identified objectives. This has been accompanied by increased attention to achieving adaptive management. In 2002, practitioners representing several prominent conservation nongovernmental organizations (NGOs) launched a community of practice called the Conservation Measures Partnership (CMP). The partnership CMP has worked to establish standards of conservation practice to improve accountability of conservation actions through adaptive management. The focal organizing framework for CMP has been the Open Standards for the Practice of Conservation (OS). We evaluated, through an online survey and personal interviews, the first decade of CMP and the OS. The CMP has garnered a positive reputation among agencies, NGOs, and funders and has succeeded in developing a large user base of the OS. However, CMP has not fully achieved its goal of making the OS standard operating procedure for the largest NGOs (e.g., The Nature Conservancy, World Wildlife Fund), despite it being widely used within these organizations. This lack of institutionalization is attributable to multiple causes, including an increase in the number of partially overlapping decision-support frameworks and challenges achieving full-cycle adaptive management. Users strongly believed the OS fosters better conservation practice and highly valued the OS for improving their practice. A primary objective of the OS is to assist practitioners to achieve full-cycle adaptive management to better integrate learning into improving the effectiveness and efficiency of actions. However, most practitioners had not yet achieved cycle completion for their projects. To improve the effectiveness of CMP, OS, and conservation practice in general, we recommend collaborative efforts among the proponents of multiple decision-support frameworks to foster strong institutional adoption of a common set of adaptive-management standards for conservation accountability.*

Keywords: accountability, adaptive management, decision support, efficiency, effectiveness, impact

Evaluación del Esfuerzo de la Asociación de Medidas de Conservación para Mejorar los Resultados de la Conservación a través del Manejo Adaptativo

Resumen: *La práctica de la conservación ha demostrado un creciente deseo por la rendición de cuentas de acciones, particularmente con respecto a la efectividad, eficiencia y el impacto de los objetivos identificados claramente. Esto ha ido acompañado por una atención creciente por la obtención del manejo adaptativo. En 2002, los practicantes que representaban a varias prominentes organizaciones no gubernamentales (ONGs) de la conservación lanzaron una comunidad de práctica llamada la Asociación de Medidas de Conservación (CMP, en inglés). La CMP ha trabajado para establecer estándares de la práctica de la conservación y así mejorar la rendición de cuentas de las acciones de conservación por medio del manejo adaptativo. La*

infraestructura principal que organiza a la CMP ha sido la de Estándares Abiertos para la Práctica de la Conservación (OS, en inglés). Evaluamos la primera década de la CMP y el OS por medio de una encuesta en línea y de entrevistas personales. La CMP se ha ganado una reputación positiva entre las agencias, las ONGs y los inversionistas, y ha tenido éxito en el desarrollo de una gran base de usuarios del OS. Sin embargo, la CMP no ha alcanzado totalmente su objetivo de hacer del OS el procedimiento estándar para las ONGs más grandes (p. ej.: The Nature Conservancy, World Wildlife Fund), a pesar de que se usa ampliamente dentro de estas organizaciones. Esta falta de institucionalización puede atribuirse a causas múltiples, incluyendo un incremento en el número de infraestructuras para el apoyo a las decisiones que se traslapan parcialmente y los retos en la obtención de un manejo adaptativo con ciclo completo. Los usuarios creyeron firmemente que el OS promueve una mejor práctica de la conservación y valoraron ampliamente al OS por mejorar su práctica de la conservación. Un objetivo primario del OS es asistir a los practicantes para que alcancen un manejo adaptativo con ciclo completo y así integrar de mejor manera el aprendizaje dentro de la mejora de la efectividad y la eficiencia de las acciones. Sin embargo, la mayoría de los practicantes aún no han alcanzado el ciclo completo para sus proyectos. Para mejorar la efectividad de la CMP, el OS y la práctica de la conservación en general, recomendamos esfuerzos colaborativos entre quienes proponen múltiples infraestructuras de apoyo a las decisiones para fomentar la adopción institucional firme de un conjunto común de estándares de manejo adaptativo para la rendición de cuentas de la conservación.

Palabras Clave: apoyo a las decisiones, eficiencia, efectividad, impacto, manejo adaptativo, rendición de cuentas

摘要： 保护实践表明, 人们越来越希望为实践活动建立责任制, 特别是在有效性、效率, 及对明确确立的目标的影响方面。伴随着人们越来越注重实现适应性管理。在2002年, 来自保护领域的多个知名非政府组织 (NGOs) 的代表发起成立了一个名为 "保护措施伙伴关系" (Conservation Measures Partnership, CMP) 的保护实践团体。CMP 伙伴关系致力于建立保护实践的标准, 通过适应性管理推动保护行动的责任制。保护实践的开放标准 (Open Standards, OS) 一向是 CMP 的重点组织框架。我们通过在线调查和个人访谈, 评估了 CMP 和 OS 的第一个十年表现。CMP 在组织机构、NGO 和资助者中享有良好声誉, 并成功发展了许多 OS 的使用者。然而, CMP 还没有完全达成其让最大的 NGO (如大自然保护协会、世界自然基金会) 把 OS 作为标准操作程序的目标, 尽管 OS 已被这些组织广泛使用。这一制度缺失有多方面原因, 包括决策支持框架的部分重叠越来越多, 以及实现全周期适应性管理存在的挑战。OS 的使用者坚信 OS 促进了更好的保护实践, 并高度评价了其在提升实践中的作用。OS 的一个主要目标是帮助实践者实现全周期适应性管理, 以便更好地将学习与提高行动的有效性和效率结合起来。然而, 大多实践者的项目尚未形成完整的周期。为整体提升 CMP、OS 和保护实践的有效性, 我们建议在多个决策支持框架的支持者之间进行协作努力, 以促进强有力的机构在保护责任制上采用一套相同的适应性管理标准。**【翻译: 胡怡思; 审校: 魏辅文 】**

关键词： 有效性, 影响, 效率, 适应性管理, 责任制, 决策支持

Introduction

Conservation practice is increasingly focused on documenting outcomes (Ferraro & Pattanayak 2006; Margoluis et al. 2013). With increases in size and complexity, conservation nongovernmental organizations (NGOs) face increased pressure from donors (Christensen 2003), media (Ottaway & Stephens 2003), and researchers (Parrish et al. 2003) to assess whether or not they are accomplishing their missions. The Conservation Measures Partnership (CMP) (www.conservationmeasures.org) was established in 2003 within this environment to provide conservation decision support.

The CMP is a partnership of individuals from organizations representing a wide variety of agencies, NGOs, and funders. One of its missions is to develop common standards of practice and common measures of accountability of impacts and outcomes for conservation (CMP 2012). Around 2003 many NGOs embraced adaptive management (sensu Walters & Holling 1990) as the best means to support improving outcomes. Adaptive management seeks to structure learning from actions to improve the likelihood of achieving desired outcomes (Walters & Holling 1990). The CMP sought to establish project management standards that conformed to an adaptive-management approach to natural resources (CMP 2013).

The primary tool CMP developed and deployed is the Open Standards for the Practice of Conservation (OS). The OS represents a framework for adaptive project management that emphasizes defining objectives, prioritizing actions, evaluating outcomes, and learning to create results-based management in conservation. Structuring how actions lead to learning and adaptation in management requires defining targets of conservation and threats to those targets; monitoring to evaluate actions designed to improve the status of conservation targets; and identifying specific points of evaluation so as to consider whether actions need to be adjusted to increase effectiveness (CMP 2013). Providing an adaptive management structure for conservation is predicted to improve practice by helping conservation become evidence based, results driven, and accountable (Margoluis et al. 2013).

We sought to evaluate the efforts of CMP and the impact of the OS. We examined whether CMP efforts were effective and efficient over 10 years (2003–2013). We used the strategic plans of CMP, relative to outcomes, to evaluate CMP. We used practitioner opinions as a basis for documenting the successes in and challenges to effective conservation in which OS was applied.

A critical step in evaluation of effectiveness is to assess whether actions achieve results. The CMP formed at a time when the effectiveness of most large conservation NGOs were under increased scrutiny (e.g., Choudry 2003). Although many frameworks now exist to provide decision support and project accountability (Groves & Game 2015), CMP is the only organization that enlists members from across the conservation community to create a broad community of practice that seeks to find and promote the best practices for conservation. The CMP has operated in this role for more than a decade and thus provides a test case for creating standards designed to drive conservation toward broad adoption of standards of practice for adaptive management.

Methods

We were tasked by 2 related organizations, CMP and Conservation Coaches Network (CCNet) (ccnetglobal.com) to conduct an independent, external, summative evaluation of these organizations and their main product, the OS (CMP 2004, 2007, 2013). Specifically, we were asked to evaluate the organizations with respect to relevance and importance as measured by their effectiveness, efficiency, impact, and sustainability. The full evaluation is available from CMP (http://www.conservationmea sures.org/cmp-ccnet-evaluation-results-available/). This evaluation provided general insights for the field of conservation. The linkage between CMP and the OS created the opportunity to evaluate the OS as a tool to achieve CMP's conservation mission to improve the global status of biodiversity. The CCNet is a younger organization focused on developing a community of practice through organizing professionals who use the OS. We used the CCNet community of conservation professionals, as dedicated users of the OS, to collect data on the efficiency and effectiveness of the OS. However, we treated them as unbiased evaluators because they have many options for decision-support tools and are often trained in alternative operational procedures for managing conservation projects. We focused the evaluation on CMP as expressed through their development and promotion of the OS. We maintained ownership of this scholarship of both organizations while working with them to conduct the independent evaluation.

The History of the CMP

To address a convergence of need for results-based conservation, financial accountability, and specific performance measures for projects, a broad-based group of people representing several conservation NGOs formed the CMP in 2002. The group recognized that neither conservation effectiveness nor impact measures were a routine component of conservation practice by NGOs. In the rare cases where outcomes were being assessed, different systems were being used within and across organizations, inhibiting sharing and learning. The CMP is an organization-based network represented by 1–2 individuals from each member organization. The individual CMP members are responsible for the exchange of ideas between CMP and their organizations.

The CMP has 4 overarching goals (CMP 2012): improve conservation projects and programs; enable cross-project learning; create conditions for enhanced collaboration among conservation practitioners; and proactively promote organizational adoption of results-based management frameworks.

As of 2017, CMP had 29 organizational members (20 NGO, 7 foundation, and 2 agency members) (www.con servationmeasures.org). The CMP has pursued numerous initiatives during its first 10 years (Table 1). Chief among these is writing, updating, and maintaining the OS (CMP 2013).

The OS represents a 5-stage process (conceptualize, plan, implement, analyze, learn) for practitioner-based adaptive management (CMP 2013) (Fig. 1). The OS prescribes a process for conservation planning that includes identifying key conservation targets, threats, and a conceptual model for how actions are thought to resolve threats to specific targets. The OS contains best practice guidelines designed to help practitioners plan and manage projects within a results-based framework of adaptive management (CMP 2013). The goal of applying the OS is to improve conservation outcomes (Fig. 1).

The CMP released the first version of the OS in 2004 (CMP 2004) and updated versions in 2007 and 2013 (CMP 2007, 2013) to account for lessons learned and to meet identified practitioner needs (e.g., incorporating human well-being and climate change). The OS are open in the sense that they are available for use and adaptation so long as any derivatives maintain an open license. The critical attributes of the OS are that they were developed collaboratively by the CMP members and combine the best practices of several conservation NGOs. For example, the OS aligns with elements of The Nature Conservancy's (TNC) Conservation Action Planning, the World Wildlife Fund's Project Standards, and others. The CMP, and others, have constructed detailed guides on how to practice the OS. In addition, Miradi (www.miradi.org), a software program, supports implementation of the OS. The OS is the fundamental structure for conservation practice

Table 1. Fourteen conservation measures partnership (CMP) initiatives scored relative to whether they were achieved and whether they resulted in the anticipated outcome.

Initiative[a]	Achieved[b]	Outcome[b]	Source[c]	Contribution to effectiveness
Rosetta Stone of Conservation Practice	high	high	interviews; documents	enabled organizations using different planning methods to translate between them and laid a foundation for the OS; instrumental in getting the OS started
Threats and strategies classifications	high	high	interviews; documents; survey	instrumental in preparing the foundation for the OS by providing standardized terminology; publishing the classification in the peer-reviewed literature gave credibility to CMP's efforts and increased its visibility
Open Standards for the Practice of Conservation (OS)	high	high	survey; interviews; documents	main effort of the CMP; served as the basis for many organizations and practitioners to improve their practice of conservation; has gone through 3 versions; improvements based on considerable experience with implementation
Guidance on OS use	high	medium	interviews	documents help practitioners properly and fully implement different stages of the OS; good guidance available for the first 2 steps; only basic guidance available for steps 4 and 5; interviewees highlight lack of such guidance as a contributing factor to the limited use of the final 2 steps
Cosponsor CCNet Rally	high	medium	interviews	CCNet Rally in 2013 cosponsored by CMP to build support and linkages; rally contributed to a growing strategic coordination by the 2 groups that increased the achievement of CMPs effectiveness through provision of coaching to spread use of OS
Conservation effectiveness data exchange standards	high	medium	documents	proposed in 2007; designed to develop a set of standards that govern the exchange of data among databases around the world and would allow cross-project learning; not pursued by itself, but was folded into the common data standards work, where it helped build a common basis of collaboration
Ensure coaching	high	medium	documents	specified in 2011; directed at the need for more coaches to strengthen and extend the use of the OS; allied to the co-sponsorship of the CCNet rallies
Fundraising	medium	medium	interviews; documents	not much money has been raised, but not much is required ; membership fees are the major source of support, except for Miradi; increasing number of members has increased the available support; greatest success has been for the Miradi software
Share good examples	high	medium-low	interviews	can improve practice through learning; CMP shares good examples between member organizations through conference calls, meetings, the website, and summits (medium rating); little sharing occurs with those outside the CMP umbrella (low rating)
Conservation Measures Summit	high	low-medium	documents; interviews	aim was to advance results-based management across the conservation community by bringing together senior leaders and funders to share results; one goal was to greatly increase support among senior leaders and donors – neither of which happened; consensus statement developed shows broad support from the conservation community for spell out and helped in recruiting new members
Conservation auditing	high	low	interviews; documents	designed to help CMP member organizations to start using the OS and to check on their progress; it was not embraced by member organizations and was discontinued; tenure did not appear to substantially increase adoption of the OS
Conservation investment accounting	low	low	interviews; documents	designed to measure the flows of money associated with conservation actions and outcomes and to increase support for the OS by enlisting senior managers, particularly those in charge of institutional management; engagement with senior managers was not sustained; the exercise was difficult and did not receive broad support

Continued

Table 1. Continued.

Initiative[a]	Achieved[b]	Outcome[b]	Source[c]	Contribution to effectiveness
Global and regional biodiversity indicators	low	low	interviews	one of the early initiatives considered by CMP; strong support from a limited number of member organizations; little work done on this effort
Effectiveness and impact data to global community	low	low	documents	initiated in 2006 and 2008; designed to facilitate the provision and analysis of data on impacts and effectiveness through global and regional networks; no evidence of significant progress or increase in effectiveness

[a]Chosen because they represent initiatives that CMP both identified and prioritized.
[b]Scores are subjective opinions of the lead and corresponding authors. In some cases additional assessment information is available through the web-based survey.
[c]Sources of evaluation varied but included interviews with conservation leaders and review of CMP documents as per reviewed publications.
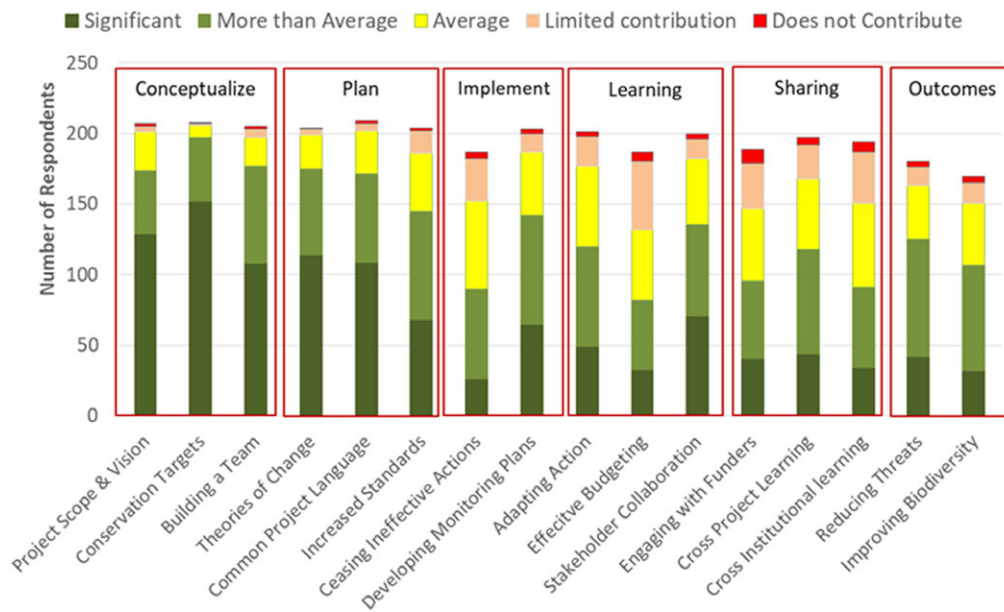

Figure 1. Survey responses in an assessment of the contribution of the Open Standards for the Practice of Conservation to project or program effectiveness. Survey responses reported on each of 14 attributes of effectiveness (e.g., creating a common project scope and vision). Attributes are grouped (rectangles) relative to stages of adaptive management (conceptualizing, planning, implementing, learning, and sharing) or an assessment of outcomes. Data are from an online survey of 250 conservation practitioners, 205–209 of whom were able to assess these attributes.

for this evaluation because it contains the benchmark standards a large number of practitioners use to plan and manage conservation projects.

Evaluation Performance Measures

We focused on 3 primary challenges that impede documenting conservation achievements: measuring the effectiveness of conservation actions, assessing the efficiency of resources invested to achieve those outcomes, and measuring the impact of actions on desired outcomes (Stem et al. 2005; Kapos et al. 2008). We define *effectiveness* as a measure of whether an action achieved its intended consequence (Stem et al. 2005). Measures of effectiveness were of interest to CMP because conservation practitioners often implement interventions but

fail to document their effectiveness (Redford & Taber 2000; Kapos et al. 2008) or failure (e.g., Payne 2000; Garnett et al. 2007). We define *efficiency* as a measure of cost-effectiveness. Given limited resources, was the action taken the most efficient one given the state of the knowledge? We define *impact* as the degree to which actions lead to desired outcomes. Measuring impact was of interest to CMP as a means of assessing and documenting mission success: is conservation action improving the state of the system by reducing threats and improving the viability of conservation targets?

Evaluation Process

Our evaluation was divided into two principal data-gathering efforts. First, we interviewed people with

Table 2. The number and nature of informants in the evaluation of the Conservation Measures Partnership (CMP).

Interviewees	Number	Proportion
Relationship to CMP		
board members	7	0.17
nonfunder member organizations	20	0.48
funding member organizations	7	0.17
senior conservation scientists not affiliated with CMP	15	0.36
Respondents' region of work		
Latin America & Caribbean	88	0.27
United States & Canada	58	0.18
Asia	56	0.17
Africa	55	0.17
Australia & Pacific Islands	41	0.13
Europe	28	0.09
Other or not specified	6	0.02
Respondents' organizations		
The Nature Conservancy	51	0.20
World Wildlife Fund for Nature	44	0.18
Wildlife Conservation Society	8	0.03
CONANP	6	0.02
Bush Heritage Australia	5	0.02
Foundations of Success	5	0.02
independent consultants	20	0.08
Organizations (75) with 3 or fewer		
respondents	94	0.38
not reported	17	0.07

extensive practical knowledge of recent developments in conservation practice. Four categories of experts were interviewed ($n = 42$): representatives from funding organizations belonging to CMP; representatives employed by conservation organizations or independent conservation practitioners; the CMP board; and a collection of conservation thought leaders unaffiliated with CMP (Table 2). We asked individuals to respond to a series of questions that included stating how well CMP had done on their self-defined initiatives and to describe the role of CMP in developing greater accountability and improved practices for conservation.

Simultaneously, we developed a web-based survey of conservation practitioners to query their use of results-based management and their participation in building capacity for adaptive management (AM). The web survey was designed by our research team, with input from the Evaluation Steering Committee, and beta-tested on 10 individuals. The survey (Supporting Information) was sent to 668 practitioners generated from the CC-Net lists of coaching workshop attendees and members and to contacts provided by CMP member representatives and by the steering committee. We followed protocols to assure anonymity among respondents. Based on safety training of the investigators and the nonsensitive nature of the information, institutional guidelines permitted expedited human-subjects review. Following an invitation and 2 reminders, 250 (37% completion rate) individuals completed the survey. These individ-

uals were globally distributed and represented 84 different organizations and 20 independent consultants (Table 2).

Survey respondents were a nonrandom set of conservation practitioners in that nearly all (96%) had managed projects or programs that used results-based management tools or principles, mostly (71%) through the OS. Time and resource limitations made it impossible to survey a random selection of conservation practitioners to compare their responses with the OS-experienced set we surveyed. As a result we considered these respondents a friendly sample. Consequently, we took particular note of negative feedback. Despite the overall friendly nature of the sample, there was no reason to consider the population biased with respect to questions that detail project completion and the relative utility of different tools within the OS.

Effectiveness was assessed by evidence of the CMP implementing projects consistent with its mission. We used CMP financial records to evaluate the cost-effectiveness of their accomplishments as a measure of efficiency. We treated impact as a combined measure of the extent to which CMP has affected the growth of accountability in conservation practice and the ways in which conservation outcomes have changed as a consequence of the actions of CMP and the OS. The former was assessed through interviews with conservation thought leaders. Our information can only be used to assess the latter anecdotally, and we could not quantitatively assess the impact of OS on practice-based conservation outcomes.

Results

Effectiveness

The CMP documentation (strategic planning documents, annual work plans, and annual reports) revealed that the organization is highly effective in terms of defining clear objectives and then systematically working to achieve them. Using member questionnaires, CMP self-evaluated as having high or medium accomplishment on about half of their self-identified initiatives. Our expert interviews showed strong support for the view that CMP efforts, in concert with CCNet, toward building a common community of practice have improved the practice of conservation. We scored 14 CMP initiatives or programs and assessed ten of these to have been accomplished (high achievement); more than half had a medium or high effectiveness evaluation score (Table 1). These included major initiatives to aid in conservation planning (the OS), promoting a common lexicon for conservation, and codifying a standard terminology of threats and strategies. The CMP fully accomplished these initiatives. In total, CMP accomplished most of their strategic objectives. Interviews with conservation leaders not affiliated with CMP

reported that CMP was very effective at accomplishing several high-priority objectives.

Primarily, CMP developed, maintained, and updated the OS as an adaptive project-management process (CMP 2004, 2007, 2013). The CMP maintains guidance for the use of the OS and is continually strengthening and adding to this guidance (http://cmp-openstandards.org/). For the OS and all its initiatives, CMP maintained a living set of supporting documentation. This corpus of work associated with the OS was viewed by our interviewees as an important contribution to structuring conservation practice.

Interviews showed CMP was moderately effective at unifying conservation around a single set of standards for conservation practice. The CMP broadly engaged many organizations in developing the OS, made the OS readily accessible by providing guidance documentation, and continues to consult with individuals across many organizations in maintaining and updating the OS. Two organizations, Foundation of Success (FOS) and CCNet were particularly active in providing training opportunities. Beginning with a substantial base of practitioners within TNC and the World Wildlife Fund, the OS established an industry standard for conservation planning and project management.

The CMP was very effective at maintaining a high commitment among a membership representing a diversity of organizations. Beginning with 5 principle participants (http://www.conservationmeasures.org/about-cmp/history/), CMP now has 30 members (June 2017). Members include representatives from both large (e.g., TNC) and small (e.g., WildTeam) NGOs, governmental organizations (e.g., U.S. Agency for International Development), and foundations (e.g., Margaret A. Cargill Foundation). The organization meets periodically to, among other things, update their programmatic initiatives. The FOS (http://www.fosonline.org/) has taken on a strong coordination role in organizing CMP activities and has focused its efforts on project planning with the OS and has maintained a pattern of strong organizational leadership for CMP. Many interviewed conservation leaders thought CMP could not have advanced as it had without the strong leadership from FOS.

Evidence of broad adoption of the OS, a primary mission of CMP, was clear from interviews, surveys, and use statistics. The CCNet, for example, reported in 2015 that its members included staff from 125 organizations in 52 countries who used the OS. The Miradi software (www.miradi.org) has over 10,000 subscribers. Miradi Share (www.miradishare.org), a web-based version of Miradi, has 654 publicly registered projects (6-6-2016). This audience is very diverse, including NGOs, government agencies, private consultants, and foundations. The audience is global, with a minimum of 100 users on all inhabited continents.

Despite broad global use, the OS has not become institutionally embedded as the CMP sought. For example, 37.5% of survey respondents stated their organizations had adopted the OS as a standard (a percentage generated from a nonrandom survey of conservation practitioners). Even among those organizations where the OS was adopted as a project-planning standard, interview respondents reported their organizations did not enforce the use of the OS. Our interviews with thought leaders clarified that a part of the failure of the OS to become the single dominant framework driving the practice of conservation may result from the highest leadership of some important conservation organizations not embracing common standards of practice for conservation planning. We were told that NGO culture may work against a common set of standards as organizations strive to create a brand that distinguishes them from other organizations. Because the OS are open they have been renamed by other organizations and thus lost brand identity. For example, TNC uses a version of the OS they call Conservation Action Planning as one of a suite of decision-support options. Interviews and survey respondents suggest that smaller organizations are more willing to commit to the OS as their organizational standard of practice.

Those who have adopted the OS find it meets their needs. Among survey respondents who use OS, 71% were generally satisfied with the OS. We found that 35% of survey respondents switched from some other framework to the OS, whereas 3.4% dropped their use of OS. Those who discontinued its use most frequently did so because of a job change that resulted in their no longer managing conservation projects. A strong majority of the 250 survey respondents thought their conservation-project management was improved through the use of OS (Fig. 1).

The OS was less effective than envisioned in terms of fostering full-cycle adaptive management. Most web-survey respondents, when asked to report on an exemplary individual project, stated that they had not fully implemented OS through the entire cycle of learning and adaptation (Fig. 2). The OS partitions actions into conceptualization, planning, implementation, analyzing adapting, and learning. Given that there are specific steps within each area, we subdivided these overarching steps into 2–3 substeps (Fig. 1). Although nearly all OS users conceptualized a project, close to half of all projects did not accomplish the full cycle (Fig. 2). Failure to fully complete the adaptive-management cycle was reported for four reasons. First, the project cycle may take a long time and the respondent may simply not have accomplished everything yet but is on target to do so in the future. Second, the respondent's involvement in the project may have been short term; hence, they could not have witnessed progress beyond the initial phases of the OS. Third, organization priorities may have changed such that the respondents attention was directed elsewhere, resulting in the project not being adaptively managed.
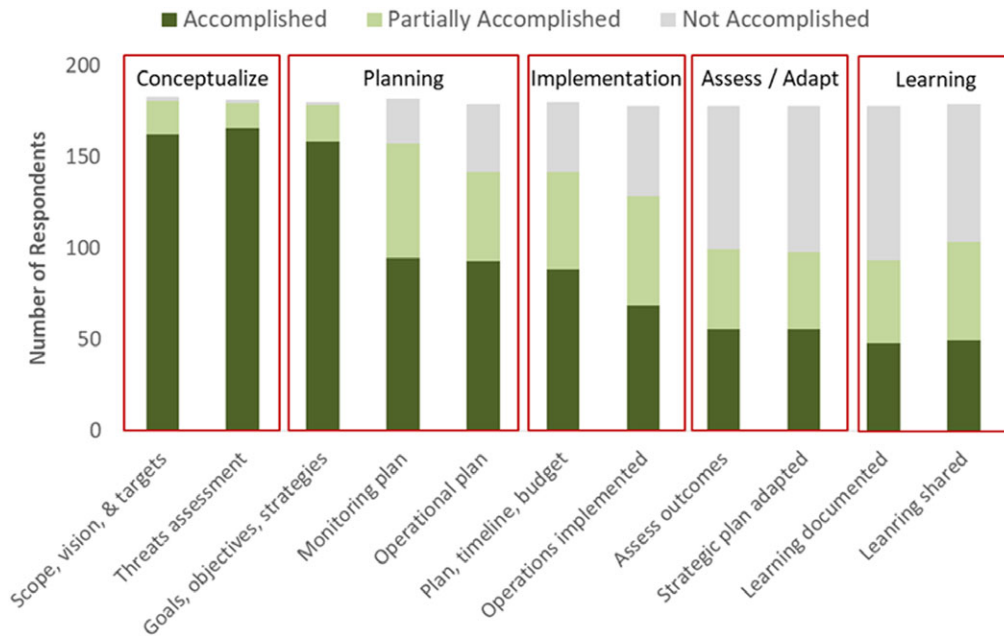
Figure 2. Number of respondents in a survey of 250 conservation practitioners who, in thinking about a particular project, had accomplished a step of the Open Standards for the Practice of Conservation at least once; partially accomplished the task; or had not accomplished or not attempted to accomplish a task (rectangles group 5 major steps of the OS adaptive-management cycle grouped into tasks associated with conceptualizing, planning, implementing, assessing, adapting, and learning from a project; 178–183 of respondents could report on the implementation of results based management on a specific project for each attribute).

Finally, managing projects through the full cycle is difficult and some projects struggled to fully implement project monitoring, learning, adapting, and sharing of knowledge.

Efficiency

The CMP was a highly efficient organization. The accomplishments of the organization were completed on a meager annual budget of just over $73,000/year (not including in-kind contributions). Fund raising is a large programmatic need for CMP, and to date just under $3 million has been raised to support the development of the OS and Miradi as a software support tool for OS. Most work on core CMP initiatives was done on time donated by individual members (i.e., not compensated for by CMP itself). Fourteen CMP members spent an average of 25.3 days of volunteer effort per year on behalf of CMP, representing in-kind donation of approximately $265,000/ year. Our interviews revealed an estimated $750,000 of CMP work donated to CMP by FOS, who play a particularly important role in CMP leadership and accomplishment.

Users reported time limitations as a constraint to using OS for project management, which may also be regarded as a significant aspect of efficiency: planning requires an investment in time and money. Efficiency is a measure of the value of the outcome of project management rel-

ative to the investment in project management. We do not have metrics that directly address this trade-off. Two observations, opposing in their implications, suggest a need for further study of this issue. On the one hand, low efficiency is indicated by survey respondents that cite the OS as a costly investment of time and report low frequency of adaptive-management cycle completion. On the other hand, sufficient efficiency is indicated by respondents who report they will continue to use OS. This substantial majority endorsement for the continued use of OS, coupled with a lack of an employer mandate of use, suggests that users consider OS an efficient use of their limited resources.

Impact

Interviewees revealed a broad and general shift toward accountability in conservation. Although these were open semistructured interviews, all conservation thought leaders were asked what they through the role of CMP was in driving conservation toward increased accountability. Eight interviewees believed that CMP was a critical component of this shift toward accountability. Six thought that CMP was a part of a general shift toward accountability in conservation but that it would be hard to credit CMP as the cause of this shift. Two individuals thought this shift was best credited to the work of individuals who also worked with the CMP. Using this

interview evidence, alongside the volume of conservation projects now using OS to plan actions, we conclude that CMP was an important driver of accountability growth in conservation. However, we acknowledge that it is likely impossible to disentangle the contribution of CMP and OS from those of evidence-based approaches, systematic conservation planning, or other efforts to increase accountability in conservation. Even if the move toward results-based conservation is general, we conclude that the prevailing sentiment among conservation leaders is that CMP has had a broad positive influence on increasing accountability in conservation.

Discussion

Conservation practice faces four difficult procedural challenges. First, conservation has struggled with effectively translating knowledge into action (Knight et al. 2008). Second, conservation practice has struggled to capture information learned from actions and to feed the information back into adaptive management (Sanchirico et al. 2014). Third, because conservation problems and actors are so varied, developing a community of practice for shared learning is difficult (Schwartz et al. 2012). Accountability is a fourth procedural challenge and can be divided into two parts. Upward accountability refers to reporting to funders of conservation action on how resources were deployed, and downward accountability refers to reporting to the public or other stakeholders on how actions to protect a public good were intended to improve that public good (Ebrahim 2003). The CMP, unparalleled in its scope and ambition to improve the practice of conservation, has made significant progress developing a global community of conservation practice around a formal structure for adaptive management. At some level, it has addressed each of the four aforementioned challenges.

Analyzing CMP's successes and failures provides insight for all conservation actors in considering the broader implications of individual practice. In total, we found that CMP effectively accomplished its mission and was efficient in doing so, likely resulting in significant positive impact on conservation outcomes (Table 3). The CMP, by creating the OS, has established a credible means to challenge the knowledge–implementation gap by providing a decision-support structure that demands documenting known information and clearly stating cause and effect hypotheses through results chains (Margoluis et al. 2013). The OS provides project management structure that fosters full-cycle adaptive management (CMP 2013). The CMP has fostered the creation of a community of practice around the OS that is institutionally diverse and global in extent. Finally, the OS increases the capacity for both upward and downward accountability by linking actions explicitly to conservation objectives and demanding

that practitioners measure progress toward those objectives (CMP 2013).

In facing these procedural challenges, CMP has met both significant success and unforeseen barriers (Table 3). Quickly establishing key working objectives to improve the practice of conservation, CMP made significant progress on the most pressing of their objectives with meager resources. The OS, designed as an adaptive project-management framework, enhances project accountability by providing a structure for accounting of actions and measuring outcomes. The CMP has been very effective in accomplishing its mission to increase adopting of the OS. Large numbers of people use the OS to structure their practice. Further, OS users are clear champions of this process for improving conservation practice. Evidence of the value of OS for project management is also clear. The OS provides for increasing transparency, accountability, and tracking of actions to foster evaluation of effectiveness as well as adaptive management. The value of this structure is evidenced by the sheer number of OS practitioners and the enthusiasm these users show for OS.

Assessing the impact CMP has had on conservation outcomes is challenging. We asked survey respondents for examples of how the use of the OS has helped them improve conservation outcomes. Respondents reported numerous anecdotal accounts of positive conservation outcomes that practitioners attributed to the OS. From garnering increased revenue streams to accomplishing critical actions on the ground, practitioners who use the OS believe they are seeing the benefit of the OS in conservation outcomes. Nevertheless, these accounts lack counterfactuals of what would have happened without CMP or without the OS.

The evidence for the influence of CMP on conservation practice appears generally positive, but not entirely clear. There is substantial evidence that CMP formed during, and in response to, a broad and general trend toward increased accountability in conservation organizations (Christensen 2003; Jepson 2005) and in ways of doing conservation, such as structured planning (e.g., Groves 2003), applying adaptive-management principles to resource management (e.g., Folke et al. 2005), and documentation of decision processes (Ralls & Starfield 1995). Thus, the emergence of CMP is representative of a general trend toward accountability through decision support. Several emerging synthetic treatments of the evolution of conservation planning and decision making acknowledge the role of CMP and the OS (Kapos et al. 2008; Groves & Game 2015); others do not (e.g., Pressey & Bottrill 2008; Gregory et al. 2012). Evidence of the role of CMP and OS in the peer-reviewed literature, however, is sparse because the CMP effort is driven principally by practitioners who are generally not motivated to publish peer-reviewed articles. Based on our interviews, senior conservation practitioners familiar with the field, and

Table 3. A summary of findings on the effectiveness, efficiency, and impact of the Conservation Measures Partnership (CMP) and the Open Standards for the Practice of Conservation (OS).

	Rank	*Metric*	*Rationale*
Conservation Measures Partnership			
Effectiveness			
mission completion	high	internal CMP workplans and annual reports	Organization established clear objectives and followed through on the majority of their intentions, focusing substantial work on the most important of these objectives.
developing an international reputation	high	interviews	Interviewees from outside CMP agreed they had established a solid, positive, international reputation in the field of conservation decision support.
OS	high	OS and Miradi usage statistics	primary objective of CMP was to develop the Open Standards and push to spread its use; in this they were effective.
developing a common community of practice	moderate	interviews	Interviewees report a strong commitment from practitioners across a broad suite of organizations. However, many of these organizations have not institutionally embraced the OS.
commitment of CMP member organizations to retain membership	high	interviews	Organizations that have joined the CMP have stuck with the CMP and their mission.
commitment of CMP member organizations to adopt OS as a standard of practice	low	web surveys	Thirty-seven percent of respondents report their organizations have structurally adopted OS as a way of doing business for project or program management.
Efficiency			
Was CMP able to accomplish much relative to resource expenditures?	very high	CMP financial statements	The CMP leveraged help from a variety of organizations to accomplish their tasks based on a very small core budget.
Impact			
Did CMP help move conservation toward accountable conservation decision support?	uncertain, but likely	interviews	Interviewees reported CMP as having a positive impact on conservation practice.
OS			
Effectiveness			
widespread global use of OS	high	Miradi subscription statistics	> 10,000 Miradi users
widespread global use of OS	high	OS project registration and sharing statistics	> 650 OS projects shared; appears to be robust usage statistics indicating global reach
widespread global use of OS	high	web surveys	The OS is used by over 80 conservation organizations distributed over all inhabited continents.
OS meets practitioner needs	high	web surveys	A strong majority of respondents who use OS are satisfied; far more people report switching to using OS than switching away from using OS.
driving full-cycle adaptive management	low	web surveys	A low fraction of respondents report managing full-cycle adaptive management with OS.
Efficiency			
Do the OS represent an efficient use of time to develop a results based management approach?	unclear	web surveys	Respondents cited time as a primary limiting constraint on getting further on the adaptive management cycle and that they will use the OS again in the future.
Impact			
Did OS help achieve better conservation outcomes?	probably yes	web surveys	Survey respondents were asked to report evidence of positive outcomes as a consequence of the use of the OS.

independent of CMP, place CMP as a leader in efforts to improve conservation through better practices. At the very least, CMP appears to have been a full participant in the push within conservation practice for increased transparency of decisions, accountability of expenditures, and evaluation of the effectiveness of conservation practice.

Not everything CMP sought to accomplish, however, went as CMP envisioned. Three key issues emerged that characterize shortfalls in CMP's effort to focus conservation practice around adaptive management through the OS. First is the CMP goal to make the OS the accepted standard of practice within major conservation NGOs. The CMP focused on building an effective process for the practice of conservation through the OS. The apparent belief was that if CMP created a high-quality product, the conservation community would readily adopt it. Conservation organizational leadership, however, has not committed fully to the OS as a means to structure their conservation practice. The same organizations that funded the CMP during its formation have not made the OS an organizational requirement, or a priority. This suggests that the perceived utility of the OS varies with the type of problems organizations handle, or institutional constraints.

The second issue is potentially competing frameworks that have emerged to provide decision support (e.g., Pressey & Bottrill 2008; Gregory et al. 2012; Schwartz et al. 2017). These alternative frameworks each have a slightly different focus and are best at particular types of conservation problems. For example, evidence-based approaches specialize in identifying effective actions (Sutherland et al. 2004), systematic conservation planning (Margules & Pressey 2000) focuses on where to take action, and structured decision making emphasizes choosing among competing actions (Gregory et al. 2012). Most of these alternatives differ from OS in that they were launched from within the academic community and, as a consequence, have a deeper academic literature associated with them but less traction in the community of implementers.

In contrast, the OS emerged from an assessment of successful organizational practices from a wide array of fields (FOS 2002) and included elements of the key NGO practices (e.g., TNC's Conservation Action Planning) (Groves 2003). With FOS and CCNet as leading champions of the OS, however, results-based management practices have reached a global community of government and NGO practitioners. Grounded in a community of practice in which few practitioners devote time to writing academic papers about the process or outcomes, the OS have a structural challenge to gain broad academic acceptance and institutional adoption.

Frameworks such as systematic conservation planning (Sarkar et al. 2006; Pressey & Bottrill 2008), structured decision making (Gregory et al. 2012), and management strategy evaluation (Sainsbury et al. 2000) are alternative frameworks for making transparent, collaborative, and iterative decisions to foster accountability and promote evaluation of effectiveness. In addition, there is a more robust academic literature surrounding these alternative frameworks. Nevertheless, there are clear strengths to these different approaches to conservation decisions support (Schwartz et al. 2017). These differences provide abundant opportunities to integrate complementary tools developed within other conservation frameworks into the OS (Schwartz et al. 2017).

The CMP maintains that the OS is a flexible set of project standards that can be completed in differing levels of detail, depending on the project. Interviews with knowledgeable experts led some to critique the OS as being too inflexible for the breadth of modern conservation problems. This impression emerges in part from training materials (e.g., online training materials [http://cmp-openstandards.org/using-os/guidance/]) that present the OS in a step-by-step cookbook type process. Although this training structure appears to emerge from heuristic necessity, the result is that the OS can be viewed as inflexible, whereas just the opposite is intended in the general description of the OS (CMP 2013). More broadly, some leading conservation planners suggest that all frameworks for conservation planning have become overly prescriptive and that taking a flexible, expansive approach independent of frameworks, generally, is preferred (Groves & Game 2015). Providing helpful OS training that does not disenfranchise those who seek flexible approaches to conservation problems remains a challenge for CMP.

The third, and perhaps most important, issue is a low rate of OS cycle completion. This problem is broadly symptomatic of the field of conservation in general. Several factors may be driving the lack of project-cycle completion we found. Primary explanatory factors called out in survey responses included the time it takes to move projects fully around the project cycle; brevity of funding cycles relative to implementation and evaluation cycles; donor funding of project planning but not implementation; donor funding of implementation but not monitoring; and a failure to use monitoring information to analyze, learn, and adapt. These are challenges shared across all conservation work (Sanchirico et al. 2014).

We found the CMP to have strongly contributed to a growing use of decision-support frameworks and tools to foster the use of knowledge, adaptive management, and transparent accountability mechanisms in conservation. The OS, the primary decision-support framework developed by CMP to foster adaptive management, evaluation, and accountability, is both widely used and highly regarded by its users. There remain several significant challenges in placing the OS as a common set of industry standards for conservation, but the steps that have been taken are both welcome and needed.

Acknowledgments

Supporting Information

The questions in the online survey (Appendix S1) are available online. The authors are solely responsible for the content and functionality of these materials. Queries (other than absence of the material) should be directed to the corresponding author

Literature Cited

Choudry A. 2003. Conservation International: privatizing nature, plundering biodiversity. Seedling October 2003. Available from https://www.grain.org/article/entries/406-conservation-international-privatizing-nature-plundering-biodiversity (accessed January 2017).

Christensen J. 2003. Auditing conservation in an age of accountability. Conservation Magazine 4: https://doi.org/10.1111/j.1526-4629.2003.tb00065.x.

CMP (Conservation Measures Partnership). 2004. Open standards for the practice of conservation. Version 1.0. CMP, Washington, D.C.

CMP (Conservation Measures Partnership). 2007. Open standards for the practice of conservation. Version 2.0. CMP, Washington, D.C.

CMP (Conservation Measures Partnership). 2012. Strategic Plan 2012-2017. Version 2.2. unpublished report. Available from www.conservationmeasures.org.

CMP (Conservation Measures Partnership). 2013. Open standards for the practice of conservation. Version 3.0. CMP, Washington, D.C.

Ebrahim A. 2003. Accountability in practice: mechanisms for NGOs. World Development 31:813–829.

Ferraro PJ, Pattanayak SK. 2006. Money for nothing? A call for empirical evaluation of biodiversity conservation investments. PLOS Biology 4 (e105) https://doi.org/10.1371/journal.pbio.0040105.

Folke C, Hahn T, Olsson P, Norberg J. 2005. Adaptive governance of social-ecological systems. Annual Review of Environment and Resources 30:441–473.

FOS (Foundations of Success). 2002. Draft synthesis of an approach for doing effective M & E from the fields of conservation, development, public health and population, education, and business: preliminary results of the Measuring Conservation Impact Initiative. Foundations of Success, Bethesda, Maryland.

Garnett S, Sayer J, du Toit JT. 2007. Improving the effectiveness of interventions to balance conservation and development: a conceptual framework. Ecology and Society http://www.ecologyandsociety.org/vol12/iss1/art2/.

Gregory R, Failing L, Harstone M, Long G, McDaniels T, Ohlson D. 2012. Structured decision making: a practical guide to environmental management choices. Wiley-Blackwell, Chichester, United Kingdom.

Groves CR. 2003. Drafting a conservation blueprint: a practitioner's guide to planning for biodiversity. Island Press, Washington, D.C.

Groves CR, Game ET. 2015. Conservation planning: informed decisions for a healthier planet. Roberts & Company, Greenwood Village, Colorado.

Jepson P. 2005. Governance and accountability of environmental NGOs. Environmental Science & Policy 8:515–524.

Kapos V, et al. 2008. Calibrating conservation: new tools for measuring success. Conservation Letters 1:155–164.

Knight AT, Cowling RM, Rouget M, Balmford A, Lombard AT, Campbell BM. 2008. Knowing but not doing: Selecting priority conservation areas and the research implementation gap. Conservation Biology 22:610–622.

Margoluis R, et al. 2013. Results chains: a tool for conservation action design, management, and evaluation. Ecology and Society 18:22 https://doi.org/10.5751/ES-05610-180322.

Margules CR, Pressey RL. 2000. Systematic conservation planning. Nature 405:243–253.

Ottaway DB, Stephens J. 2003. Nonprofit land bank amasses billions. Washington Post 4 May. Available online from http://www.washingtonpost.com/wp-dyn/content/article/2007/06/26/AR2007062600803.html (accessed January 2018).

Parrish JD, Braun DP, Unnasch RS. 2003. Are we conserving what we say we are? Measuring ecological integrity within protected areas. BioScience 53:851–860.

Payne DC. 2000. Policy-making in nested institutions: explaining the conservation failure of the EU's common fisheries policy. Journal Common Market Studies 38:303–324.

Pressey RL, Bottrill MC. 2008. Opportunism, threats and the evolution of systematic conservation planning. Conservation Biology 22:1340–1345.

Ralls K, Starfield AM. 1995. Choosing a management strategy – 2 structured decision-making methods for evaluating the predictions of stochastic simulation models. Conservation Biology 9:175–181.

Redford KH, Taber A. 2000. Writing the wrongs: developing a safe-fail culture in conservation. Conservation Biology 14:1567–1568.

Sainsbury KJ, Punt AE, Smith ADM. 2000. Design of operational management strategies for achieving fishery ecosystem objectives. ICES Journal of Marine Science 57:731–741.

Sanchirico JN, Springborn MR, Schwartz MW, Doerr AN. 2014. Investment and the policy process in conservation monitoring. Conservation Biology 28: 361–371.

Sarkar S, et al. 2006. Biodiversity conservation planning tools: present status and challenges for the future. Annual Review of Environment and Resources 31:123–159.

Schwartz MW, Cook CN, Pressey RL, Pullin AS, Runge MC, Salafsky N, Sutherland WJ, Williamson MA. 2017. Decision support frameworks and tools for conservation. Ecology Letters: https://doi.org/10.1111/conl.12385.

Schwartz MW, Deiner K, Forrester T, Grof-Tisca P, Muir MJ, Santos MJ, Souza LE, Wilkerson ML, Zylberberg M. 2012. Perspectives on the open standards for the practice of conservation. Biological Conservation 155:169–177.

Stem C, Margoluis R, Salafsky N, Brown M. 2005. Monitoring and evaluation in conservation: a review of trends and approaches. Conservation Biology 19:295-309.

Sutherland WJ, Pullin AS, Dolman PM, Knight TM. 2004. The need for evidence-based conservation. Trends Ecology & Evolution 19: 305–308.

Walters CJ, Holling CS. 1990. Large-scale management experiments and learning by doing. Ecology 71:2060-2068.