The Limits of Acceptable Change Process: Modifications and Clarifications

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Abstract—There are ways to improve the LAC process and its implementational procedures. One significant procedural modification is the addition of a new step. This step—which becomes the first step in the process—involves more explicitly defining goals and desired conditions. For other steps in the process, clarifications of concept and terminology are advanced, as are numerous suggestions about how to implement LAC more effectively.

Major objectives of the Limits of Acceptable Change workshop (from which this proceedings resulted) were to identify procedural modifications, if needed, to clarify LAC terminology and concepts, and to make recommendations about implementational details. These objectives were largely met. During the workshop, weaknesses, problems, and contentious or confusing issues emerged. For the most critical of these issues, we debated potential clarifications of concept and terminology and means of correcting problems. In the end, one significant procedural modification—the addition of a step—was recommended. A number of clarifications and implementational recommendations were also advanced.

This paper describes the recommended procedural change, including the rationale for the change and the likely outcomes of the modified procedure. For each of the other steps in the LAC process, issues that lack clarity, are contentious, or tend to impede LAC applications are identified. The nature of each of these issues is stated, along with the problem that exists, if any. Each discussion of issues concludes with a recommended clarification of concept or terminology, advice about implementational details, or a call for further work. The recommended procedural modification and clarifications should help practitioners implement LAC more efficiently and effectively, as well as better understand the process and its underlying rationale.

Proposed Modification to the LAC Process

As originally formulated (Stankey and others 1985), the LAC process is driven by issues more than by goals (Nilsen

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and Tayler, this proceedings). The first step in the traditional LAC process is to identify issues and concerns. The specification of broad management goals and the articulation of desired future conditions are not explicitly called for within the LAC process. The lack of attention to goals and desired conditions was more an oversight than an intentional procedural specification. For the issue of wilderness recreation carrying capacity, goals and desired conditions were so self-evident that there seemed little reason to explicitly articulate them (Cole and Stankey, this proceedings). The importance of planning being goal-driven rather than issue-driven was recognized as National Park Service planners developed the Visitor Experience and Resource Protection (VERP) process. Hof and Lime (this proceedings) note that issues are obstacles that lie between existing conditions and desired conditions; therefore, issues cannot be dealt with unless desired conditions are specified.

Proposed Change

The proposed solution to this oversight is simply to add a new first step to the LAC process—a step that involves defining goals and desired conditions. The addition of this step makes the LAC process more similar to VERP in the details of implementation. In VERP, this step is described as "Develop statements of park purpose, significance, and primary interpretive themes; identify planning constraints." A shorter descriptor might simply be "Define goals." This step involves assembling the legal and policy mandates that will guide management of the area and developing a perspective on the significance of the area, its uniqueness, and its regional or national "niche." These can then be used to describe general goals for the area.

In wilderness, broad goals would stress preserving natural conditions, maintaining outstanding opportunities for solitude, and avoiding restrictions on recreational access and freedom of behavior. Specific goals would vary more from area to area. In a large, remote wilderness, goals might be developed that stress protecting unique wildlife populations and opportunities to experience challenge and the sense of remoteness. In a small wilderness close to a large urban area, goals might be developed that emphasize opportunities to provide access to urban populations or the importance of preserving a rare plant population. These goals constitute the statements of desired conditions that are largely absent from the original description of the LAC process.

The second step involves the identification of issues, concerns, and threats. These constitute existing or potential barriers to achieving the goals identified in the first step. To do this, it will be necessary to analyze and describe the

current situation. At this step in the process, it should be possible to assess whether or not some goals directly conflict with others. If they do conflict, it will not be possible to optimize all goals. If management is interested in compromising between goals, the LAC framework provides a rational, explicit means of compromising (Cole and Stankey, this proceedings). For example, the goals of preserving natural conditions and of providing solitude opportunities generally do not conflict with each other. However, both of these goals are frequently in conflict with the goal of not restricting access to wilderness recreation, and all of these goals are subject to compromise. The concern, addressed by the original LAC formulation, is how to define a compromise between resource and experiential conditions on one side of the equation and recreational access on the other side.

Many of the goals identified in the first step may either not conflict or may not be subject to compromise. These goals should be identified and need to be dealt with somewhere in the planning process. However, because there is no need for compromise, LAC is not the appropriate framework for dealing with issues related to these goals. A new purpose for the second step, then—in addition to those described by Stankey and others (1985)—is to assess, for each issue, whether or not LAC is an appropriate planning framework.

Consequences of the Proposed Change

An explicit articulation of goals and desired conditions at the start of the process should improve planning considerably. First, it makes it easier to determine which issues can be dealt with effectively within the LAC framework and which issues cannot. This is largely a function of whether or not goals are in conflict and subject to compromise (Cole and McCool, this proceedings). Explicit statements of desired conditions should also clarify the distinction between what is desired and what will be accepted in compromise situations. This is particularly critical wherever desired conditions are less clearly articulated or are more controversial than they are in wilderness. Stating goals explicitly, early in the process, should also help with (1) identification of indicators, (2) identification and implementation of management strategies, and (3) guidance in situations where conditions are "better" than acceptable but "worse" than desired.

Clarifications of Concept, Terminology, and Implementation

The following discussion, organized by step in the LAC process, summarizes the dialog that occurred during the workshop and recommendations that were advanced there or developed as we wrote this paper. Recommendations include clarifications of concept, recommended changes in terminology, implementational suggestions, and identification of issues that need further work.

Define and Describe Opportunity Classes

The issue here was primarily one of confusing or inappropriate terminology. The term "opportunity class" focuses undue attention on the concept of recreational opportunities. These different "classes" might contribute to improved management of many resource issues other than recreation. As Cole and Stankey (this proceedings) point out, the term "opportunity class" was adopted because an informal Forest Service policy existing in 1985 did not allow for zoning of wilderness. That policy is no longer in effect, so we recommend replacing the term "opportunity class" with the term "prescriptive management zone."

This terminology, already used in the VERP process, will be much more generally useful as LAC concepts are adopted outside wilderness and applied to issues other than recreation. Use of the adjective "prescriptive" emphasizes that the culmination of the zoning step is the prescription of future conditions rather than the description of existing conditions. Existing conditions are described and analyzed in this and the preceding step. However, the ultimate zone descriptions refer to the conditions that will be allowed or created—not the conditions that currently exist (although it is possible to prescribe future conditions that are identical to current conditions).

Some confusion exists about whether or not opportunity class descriptions refer to desired conditions. Prescriptive management zone descriptions refer to acceptable conditions rather than desired conditions. Desired conditions should be articulated in the new first step—definition of goals and statements of purpose. The prescriptive zone description step initiates the process of defining less-than-ideal (acceptable) conditions reflecting the need to compromise broad goals. At this step, those acceptable conditions are still stated as general, qualitative statements.

Select Indicators

The most critical issues at this step involve clarifying what indicators should refer to, the question of whether or not qualitative indicators are acceptable, and implementation problems resulting from lack of scientific information and inadequate monitoring protocols.

To What Should Indicators Refer?—There is substantial confusion about the attributes for which indicators should be developed. This can lead to the selection of inappropriate indicators.

Indicators should be developed for outputs (such as experiential and environmental conditions) rather than inputs (such as use levels), if possible. This principle is articulated frequently in discussions of recreation carrying capacity (Stankey and McCool 1984) and was recently repeated by a panel of ecologists in their suggestions about how to implement ecosystem management (Christensen and others 1996). Inputs may need to be managed, but it is the outputs that are of concern and that should be monitored. Having stated this ideal, however, we recognize that for some issues it may only be possible to develop indicators and standards for inputs (Merigliano and others, this proceedings).

As LAC was originally conceived, Stankey and others (1985) stated that indicators should refer to resource or social conditions in wilderness. However, indicators may serve broader functions. For example, Cole (1995a) has suggested that wilderness management plans might include

an indicator related to the risk of a fire burning outside of wilderness. Cole and Stankey (this proceedings) suggest that the LAC process involves defining compromise between conflicting goals—a compromise that is made explicit by developing indicators for the goal that ultimately constrains the other goal. In the case of fire, the desire to minimize risk to life and property (one goal) will ultimately constrain the desire for natural wilderness conditions, including a natural fire regime (a conflicting goal). In such situations, we need to be able to develop indicators for variables such as risk that are not resource or social conditions. We recommend modifying the definition of an indicator to include attributes other than resource or social conditions.

It is possible to develop indicators for important wilderness attributes that are not directly subject to management control (such as solitude achievement, within-group harmony, and so on) Proponents of this approach argue that these are the variables that most influence the quality of visitor experiences. While it may be true that experiential quality is determined primarily by factors not subject to direct management influence, management must focus on those attributes they can influence. Management has a responsibility to provide outstanding opportunities for high-quality experiences. However, management should not be held accountable if certain visitors are unable to achieve these experiences (because they fight with their spouse, get bit by mosquitoes, or are incompetent anglers), as long as the attributes that maximize opportunities for high quality experiences are in place.

Consequently, we continue to recommend that most emphasis in LAC should be on indicators of those attributes that represent compromises between goals and that are directly subject to management control rather than either direct measures of the visitor experience or important influences on experience that are not subject to management control. Management control should be construed in a broad context, however. For example, even though wilderness air quality is not directly subject to control by wilderness managers, it is controlled to some extent by external managers.

Qualitative Indicators—Much has been written about the characteristics of good indicators (Merigliano 1990; Watson and Cole 1992; Whittaker and Shelby 1992). The ability to measure and quantify are among the most important criteria. On the other hand, many important attributes of wilderness seem virtually impossible to quantify (Driver and others 1996). Clearly, indicators that can be quantified have substantial advantages compared to qualitative ones, because resultant monitoring data can be interpreted in a relatively unambiguous manner. Different evaluators are more likely to arrive at similar conclusions about whether or not standards are being met when indicators are amenable to quantification. However, what is unclear is whether qualitative indicators are totally unacceptable or merely inferior. If they are totally unacceptable, issues that are not amenable to quantification would have to be dealt with using some framework other than LAC.

Inadequate Attention to Monitoring Protocols—A common problem during implementation of a completed LAC plan is confusion about how to conduct monitoring and ambiguities in the interpretation of monitoring data. This is likely to occur when the procedural details of monitoring indicators are not given sufficient attention during the step when indicators are selected. Ritter (this proceedings) provides a good example from the Selway-Bitterroot Wilderness. The indicator selected for the issue of solitude was number of encounters with other groups, expressed as a probability. The standard based on this indicator, for one of the zones, was that there will be an 80 percent chance of encountering less than two other groups. When field personnel attempted to monitor this indicator, they encountered problems with deciding how managers could measure what visitors were encountering. They also had difficulty deciding how data collected could be expressed as probabilities.

This problem should be dealt with by giving more attention to monitoring protocols early in the LAC process. Before indicators are finalized, measurement and data analysis protocols need to be developed and field tested. This means that some field level monitoring must be conducted before this step can be completed. This is an illustration of why we recommend that practitioners work through the LAC process in an iterative rather than linear fashion.

Inadequate Science Foundation to Develop Indicators—For many issues, scientific knowledge is so rudimentary that there is little basis for identifying appropriate indicators. For other issues, there is a substantial knowledge base, but little attention has ever been directed toward identifying good indicators. In either case, planners are often unable to use an LAC framework to address critical issues because they are unable to formulate useful indicators for those issues.

To address this concern, we suggest that state-of-knowledge papers be developed on different issues for which one might want to develop indicators. These papers would describe the issue or problem, potential indicators, available monitoring protocols, and the pros and cons of alternatives. Such a thoughtful analysis would be preferable to a simple list of indicators such as that compiled by Watson and Cole (1992). Cole's (1989) review of campsite impact indicators and monitoring protocols provides one example of what such a review might include.

Specify Standards

Many different issues were raised regarding the specification of standards. Several involved conceptual clarifications about what standards are, what violation of standards implies, and how compatible the LAC process is with the principle of nondegradation. Other issues that were debated led to recommendations regarding the role of science in the formulation of standards and the appropriateness of changing standards once they have been specified.

Definition of What a Standards is—Substantial confusion exists about how standards relate to the concepts of acceptability and desirability and about meanings of the terms "standard," "objective," and "goal." This confusion has caused a number of problems, most notably inconsistencies in how violations of standards are treated and, therefore, how different places are managed.

Standards define minimally acceptable conditions. The conditions defined by standards should not be considered

unacceptable nor should they be considered desirable. Standards specify the departure from desired conditions that has been judged acceptable to avoid compromising another goal entirely. For example, some resource impact and loss of solitude is accepted to avoid the need to prohibit all recreation use. The reason minimally acceptable conditions are tolerated is not that management does not wish for or bother to maintain better conditions. Rather, minimally acceptable conditions are the best possible conditions, *given the constraints imposed by the need to compromise several goals simultaneously*. Minimally acceptable conditions, as expressed in standards, do not represent the conditions that would be desired in the absence of conflict and the need for compromise. Moreover, in the absence of need for compromise, conditions should be substantially "better" than those defined in standards (that is, closer to desired conditions).

In the LAC process, standards are not equivalent to objectives, although sometimes they can be viewed as objectives. If current conditions are "worse" than standards, the standards represent objectives that management can strive to achieve. However, where conditions are currently "better" than those specified in standards, the implication is that conditions will be permitted to deteriorate to the standard if the only way to maintain "better" conditions is to implement heavy-handed recreational restrictions. In this situation, the standard is not an objective that management strives to achieve. It defines a condition that management will allow to occur if it cannot be avoided without compromising other goals.

We recommend continuing to use the term "standard" rather than "goal," "desired future condition," or "objective." However, since the term "standard" has many different meanings in planning applications, we recommend using the term "LAC standard" to distinguish standards used in LAC and related processes from standards used elsewhere.

What Violation of Standards and Lack Thereof Imply—There is considerable disagreement about what violation of a standard implies. Is it a warning, an indication of need for further study? Or does it imply the need for immediate action? Conversely, what does lack of violation mean? Does it mean that everything is fine? Or is this the time to implement restrictive actions that will prevent future problems? Some of these interpretations of what violations of standards imply undermine the entire purpose of the LAC process—to define a balance between conflicting goals when both conflicting goals must be compromised.

Standards are absolute limits—a "line in the sand." They are not warnings. Once standards are reached, management must implement whatever actions are necessary—even if it means curtailing use—to avoid violation of standards. The LAC standards explicitly prescribe not only the *conditions* under which it is appropriate to compromise each of several conflicting goals, but also the *extent* to which each goal is compromised. Standards are the mechanism by which *extent* of compromise is regulated. If standards are not treated as absolute limits, this mechanism is defeated, and the increased objectivity and opportunity for shared decisionmaking that the LAC process provides are lost.

Just as it is critically important for managers to act whenever standards are violated, it is important that they not take *drastic* action when standards are not violated. To do so would again defeat the mechanism for balancing several conflicting goals. In dealing with the recreation carrying capacity issue for which LAC was originally formulated, this implies that recreation access and behavior should not be restricted to any substantial extent unless restrictions are necessary to keep conditions within standards. This does not mean that nonrestrictive management actions (such as visitor education) cannot be taken at any time or that restrictive actions cannot be taken when it is clear that conditions are deteriorating and standards will soon be violated. It does imply that managers should not implement highly restrictive actions in order to maintain conditions that are substantially better than standards. The legal foundation for this implication is the Wilderness Act's mandate that wilderness provide opportunities for "unconfined" recreation. There are likely to be differences of opinion about which management actions are appropriate (nonrestrictive) when standards are not violated. Therefore, we suggest that actions that are and are not appropriate be explicitly stated as part of the LAC process. Refer to the section "Identify Management Actions" later in this paper.

The Principle of Nondegradation and the LAC Process—The principle of nondegradation (Hendee and others 1990) is often subscribed to by wilderness managers and users. There is substantial confusion about the compatibility of this principle and the LAC process (Ritter, this proceedings). Problems stemming from this confusion include people rejecting the LAC process because they feel it undermines the principle of nondegradation, as well as people not recognizing the implications of decisions made during the LAC process to this principle.

The preceding discussion of what violations of standards mean has important implications for the principle of nondegradation. In its strictest form, the nondegradation principle asserts that no place in wilderness should be allowed to degrade from its present state or its state when it entered the wilderness system. The LAC process provides a ready mechanism for enforcing this principle. LAC standards simply need to be developed that are always at least as stringent as the current condition or some more "pristine" state. This implies, however, that most wildernesses must adopt a use limitation system to keep currently increasing use (Cole 1996) from causing further degradation. The only other option is to reduce per capita impact substantially, and there is little evidence that this can be done. For example, during the 1980's, impacts increased in many wildernesses that experienced little increase in use (Cole 1996). If a management regime based on use limitation is considered unacceptable, then it is important for decisionmakers to realize that they will be violating a strict interpretation of the principle of nondegradation. Further degradation of conditions will occur, with the degree of further degradation reflected in the extent to which LAC standards differ from existing conditions.

An alternative interpretation of the principle is that no "net" degradation occurs. Further degradation might be allowed in some places, if it is offset by improved conditions elsewhere. Again, the LAC process offers a mechanism that can readily accommodate such a strategy. LAC standards could be developed that are more stringent than current conditions in some places (these places will improve) and

less stringent than current conditions in other places (these places will deteriorate). Use limitation might be unnecessary in some places that subscribe to this interpretation of the nondegradation principle.

The Role of Science in the Specification of Standards—There are substantial differences of opinion about the degree to which empirical data can be directly translated into LAC standards. Managers have often looked to scientists to tell them where LAC standards should be set—hoping to avoid the need to make subjective decisions. Some scientists have encouraged this tendency by representing their results as indicative of where standards should be set. Stankey and others (1985), in contrast, state clearly that standards are judgments—subjective evaluations of the appropriate compromise between conflicting goals. At the root of this disagreement are beliefs about the relative importance of expert and experiential sources of knowledge (Stankey, this proceedings). Moreover, because decisions about the relative importance of these different sources of knowledge will cause the focus of decisionmaking power to shift, these decisions will influence the likelihood that the plan will be implemented and supported—both by managers and the public.

Scientists have generally used the concepts of thresholds and norms to support the view that empirical data can be directly translated into evaluative standards. Ecologists frequently look for thresholds, such as the level of vegetation cover below which accelerated erosion is likely to occur or the level of resource degradation beyond which the ability for natural recuperation is lost. Similarly social scientists have also attempted to identify thresholds, such as the number of encounters that causes a significant decrease in quality of experience. Most commonly this is referred to as the normative approach, which proponents state has great potential to put the issue (of evaluative standards) on an empirical basis (Shelby and others 1996).

There are both theoretical and practical problems with these approaches, however. Although there are clearly situations in which ecological thresholds can be identified, they may be more the exception than the rule. For example, there appear to be no apparent thresholds in the relationship between amount of trampling and resultant impact (Cole 1995b). Similarly, the existence of norms related to such variables as number of encounters has been questioned by many scientists (for example, Noe 1992; Roggenbuck and others 1991).

More fundamentally, advocates of an empirical, objective basis for developing standards appear to not appreciate that standards define a compromise between several conflicting goals. Consequently, data they can provide typically relate to just one of the goals and is only half the story. Information about ecological threshold conditions must be complemented by information about the "costs" of restricting use such that the threshold is not exceeded. Information about preferred or acceptable encounter levels must be complemented by information about the costs of restricting use to these encounter levels. Managers want their LAC standards to be scientifically valid but the notion of scientific validity is not useful in the context of evaluative standards. No LAC standard is more "scientifically valid" than any other.

Our position is that standards should be *informed by* science, but not *derived from* science. Empirical data can be used to describe the costs and benefits of alternative LAC standards. However, all costs and benefits need to be displayed. It is not sufficient to study just one side of the conflict. Encounter norm data (assuming it is valid) typically identifies the preferences of current user groups for acceptable conditions, *in the absence of a clear understanding of the tradeoffs that would need to be made to achieve these conditions.*

We recommend that, to be more directly useful in defining LAC standards, these evaluations should be placed in the context of tradeoffs. For example, visitors could be asked their opinion about a maximum acceptable number of encounters, given that this might result in restricted access. This approach would be useful if it was felt that current users, responding to visitor surveys, could make good decisions regarding the tradeoffs between low encounter rates and restrictions on access. However, it is not clear that current users should be placed in the position of having to make these tradeoffs. Moreover, the opinions of current users will always need to be complemented by other legitimate sources for evaluative judgments: decisionmakers, experts, organized interest groups, and the general population (Shelby and others 1996). Although empirical data relevant to the specification of standards will always be welcome, a higher priority for research may be the development of effective ways of incorporating diverse sources of knowledge into decisions about standards.

The Appropriateness of Changing Standards—Considerable disagreement exists about the conditions under which it is appropriate to change standards. Reluctance to change standards when it might be appropriate can result in (1) standards being ignored, (2) failure to take advantage of opportunities to increase the protection of resources and experiences, or (3) management regimes that are unacceptably restrictive. Conversely, changing standards when it is not appropriate undermines the purpose of the LAC process. Problems (situations where standards are violated) can be dealt with simply by redefining what constitutes a problem (by relaxing standards so that they are not violated).

Usually the issue is whether or not it is appropriate for standards to be relaxed, although questions about the appropriateness of making standards more stringent are equally valid. The issue of changing standards is usually raised with two different temporal scales in mind. The short-term concern can surface as soon as plan implementation begins. After LAC standards have been selected, existing conditions have been inventoried, and violations of standards have been identified, it might be decided that the "solutions" required to deal with violated standards create more "problems" than the "problems" the violated standards represent. If this is the case, it is our opinion that the standards are not good ones and we recommend that they be changed. The LAC process seeks to define the optimal compromise between the "benefits" of high-quality environmental and experiential conditions and the "costs" of the restrictive actions needed to maintain these conditions.

The step sequencing recommended in the original formulation of LAC (Stankey and others 1985) provided a mechanism for analyzing costs and benefits before a plan is finalized. The

recommendation was to inventory existing social and environmental conditions (step 4) before standards are finalized and to identify the management actions that will be needed to bring conditions into compliance with standards (step 7). Once necessary management actions are displayed, the "costs" of meeting standards (in terms of management restriction) should be clear. If costs appear unacceptably high, different standards can be specified. Through this iterative approach, carefully assessing the costs and benefits of alternative standards, the most acceptable compromise should emerge.

In several early applications of the LAC process (the Bob Marshall and Selway-Bitterroot, for example), planners decided it was too time-consuming to develop explicit descriptions of the management actions that will be needed to bring conditions into compliance with standards. In these places, the "costs" of meeting standards were not widely recognized until after the plan had been finalized. Consequently, there has been a reluctance to question or change standards (Ritter, this proceedings). We recommend that the step sequencing and implementational details of the original step 7 (Stankey and others 1985) be followed. For further discussion, refer to the section "Identify Management Actions" later in this paper.

Although it is important to set standards that will not cause more problems than they solve, it is also important to be courageous and bold in setting standards. Standards should not routinely accommodate existing conditions simply because this is the easiest course of action. In wilderness, for example, there are many places where conditions are unacceptable and the "costs" of restrictive management must be accepted. The key is to find the right balance between providing high quality experiences and minimal impact, on the one hand, and minimizing restrictive management on the other. If it becomes clear during plan implementation that standards have struck a poor balance, we believe it is appropriate to change them. However, we also believe there should be little need to change standards if management actions are carefully considered during development of the plan.

More problematic is the issue of whether standards should evolve over time—as society evolves. Both sides of this argument have valid points. One side argues that as society changes, definitions of what is desirable and acceptable should evolve so that wilderness continues to be supported and continues to meet the needs of a changing society. The other side argues, however, that if society constantly evolves toward a higher density, more-developed society, standards may always evolve toward ones that accept higher densities, more impact, and more development. This would result in loss of the most unique and valuable aspects of wilderness. One potential solution to this dilemma is to implement zoning, such that some zones are allowed to evolve and change (operationalized by changing LAC standards) while others are not. This important issue needs more substantive debate.

Identify Management Actions

This step has multiple purposes, some of which have been lost during applications of the LAC process. These multiple purposes need to be clarified and the procedural details of this step need to be emphasized to avoid problems. The most common problems result from merely listing possible management actions, rather than identifying those actions needed to bring standards into compliance. A second issue involves differences of opinion about the types of management actions that are appropriate to implement when standards are not violated. We recommend a procedural change to make decisions about the appropriateness of different actions more explicit.

During this step, Stankey and others (1985) proposed that specific management actions be identified for each existing violation of standards. They suggested that only actions that are likely to be effective in bringing standards into compliance within a reasonable timeframe be considered. The most obvious purpose of this step is to identify the management programs that must be implemented once the plan is finalized. This step has a second purpose, however. By identifying these required actions before the LAC process is finalized, decisionmakers should understand the "costs" in terms of restrictive actions that will be needed to achieve standards. If these costs exceed the benefits derived from achieving standards, then standards can be redefined. Consequently, there should be little need to change standards shortly after the LAC plan has been finalized.

When the LAC process was first implemented in the Bob Marshall Wilderness Complex, there were so many violations of standards that it was considered impractical to develop management actions for each violation. Consequently, a list of management actions was compiled, ranked from most to least preferred (on the basis of perceived visitor burden) for each type of problem and each opportunity class. This modification of the suggested process—undertaken as a matter of practicality—has had two negative ramifications. First, it made it more difficult to assess the social costs of the management program needed to comply with standards, before the plan was finalized. As a result, there is now some dissatisfaction with the standards that were selected. People question whether the standards can just be ignored (undermining the entire process), whether they can be changed (which many are reluctant to do), or whether they should implement the highly restrictive management needed to comply with standards (even if the costs of doing so exceed the benefits).

As noted in the last section, we strongly recommend using the step sequence and procedural details recommended in the original LAC formulation (Stankey and others 1985). Standards should not be finalized until decisionmakers have a clear idea of the management programs needed to bring conditions into compliance with standards. We should seek out innovative ways of dealing with the time-consuming task of listing management actions for every violation of standards.

One possibility is to describe requisite management actions for several examples of each type of standard violation. For example, managers could decide that locations where there were too many highly impacted campsites (places where a standard specifying a maximum number of highly impacted sites was violated) would be dealt with by requiring the use of designated campsites and instituting a site restoration program. If there were 100 locations where

there were too many highly impacted campsites, there would obviously be 100 locations where designated sites and restoration would be needed. Decisionmakers could envision what the costs of such a program would be to both visitors (the designated camping regulation) and management (substantial site restoration program and increased enforcement costs). They could assess these costs in relation to the benefits that would derive from using that standard and decide either to keep the standard or specify a different standard. Similar prototypic management strategies could be developed for violations of other standards, such as too many trail encounters.

The second negative ramification of ordering potential management actions from most to least preferred has been the reluctance of managers to implement less preferred actions, even if they are the only effective way to deal with violations of standards (Ritter, this proceedings). This is not a problem with the listing approach. It is a problem with how the list was developed and how it has been used. If a list is developed, we recommend that it be confined to actions that are likely to be effective in the short term. In addition, managers must exert the political will to do what is necessary to not violate standards, even if these actions are costly.

The final issue, related to the identification of management actions, is confusion and disparate views about the management actions that are appropriate when standards are not being violated. As noted earlier, goals such as freedom of access and freedom from behavioral restriction should not be compromised to maintain conditions substantially "better" than those specified in standards. Therefore, restrictive actions (such as limiting use, prohibiting campfires, and so on) should not be implemented unless they are necessary to avoid violations of standards. However, actions that do not curtail access or freedom of behavior (such as visitor education) should be implemented as a means of forestalling the need for more restrictive action.

Because there are differences of opinion about which actions are appropriate when standards have not been violated, we recommend development of two different lists of management actions. One list will consist of "preventive" management actions that could be undertaken at any time. These actions should not be too restrictive and should place little burden on the visitor. Most of these actions are diffuse in their effect and not likely to solve specific problems in reasonably short periods. These actions are appropriate even in situations where standards are not being violated, but they are unlikely to quickly correct problems.

"Corrective" management actions are generally more restrictive and should not be undertaken unless they are necessary to avoid violations of standards. These actions are more remedial in nature. They also are more likely to effectively solve problems in specific locations in reasonably short periods. This list of remedial, restrictive actions gives decisionmakers a sense of the costs of specified standards, once it is clear how many places are out of compliance with particular standards.

Implement Actions and Monitor

Two issues related to this step were discussed extensively at the workshop. The first issue was the problem of implementing the LAC plan when there is no sense of priorities for either management or monitoring. Typically, numerous violations of standards will be identified through the LAC process. Which places and which problems should be attacked first? Should initial attention be devoted to the conspicuous problems that develop in popular, frequently visited places? This is the most common management response. However, Cole (in press) provides a rationale for assigning a higher priority to lesser used and impacted places. He argues that these places can be considered the most precious and vulnerable places, as well as the ones most likely to benefit from management attention.

In addition, funds for monitoring are always limited. Which indicators should be given highest priority and which places should receive the most attention? Because prioritization is so dependent on the specifics of different areas and the people who care about those areas, we could not recommend specific types of indicators, places, or problems that should receive highest priority. We do recommend that attention be given to priorities for management and monitoring while the plan is still being developed. Decide which indicators, problems, and places should receive most attention and describe the rationale for those decisions. This will provide a helpful bridge between the planning and implementation stages of the LAC process.

The second issue discussed was a general concern for the lack of institutional support for monitoring. Inadequate funding makes it difficult for some places to conduct any monitoring at all. Moreover, where monitoring programs do exist, there is a tendency to select "simple" rather than "good" procedures and for the data collection procedures to be so unsystematic that data quality is highly questionable. Many root causes of inadequate support were identified. One contributor is the high degree of compartmentalization in the agencies (Stankey, this proceedings). Is monitoring a planning task or a management task? Should it be done by researchers or managers? Is it part of LAC or not? Frequently, nobody accepts the responsibility for monitoring.

Another contributing factor is the view that LAC is a one-shot effort to create a product rather than an ongoing management process. Planners are not in a good position to do monitoring, while the implementors view monitoring as a task for the planners who developed the LAC product. Again, this often results in monitoring responsibilities being shirked. A final contributor—in wilderness management and probably elsewhere—is an inadequate commitment to professional management. Ultimately, the group could only conclude that monitoring was critical to professional management. If the agencies are serious about professionalism, they simply must institutionalize monitoring—make it a part of the ongoing management job.

Further suggestions can be made about coping with minimal funding for monitoring. Regardless of funding levels, monitoring data needs to be valid. Validity is as much a function of knowing the limitations of the data as of the accuracy and precision of the data. Precision should be as high as possible for a given methodology, but relatively imprecise techniques can be acceptable. If imprecise techniques are used, this lack of precision must be reflected in the indicators and standards that are written and in the way monitoring data are interpreted.

Concluding Observations _____

Throughout the course of the workshop, the dialog frequently involved reiteration of three fundamental observations about procedural aspects of the LAC process. These observations are made in a number of papers in this proceedings. We will repeat them here as a conclusion to this paper.

1. The LAC process is a means of resolving conflict between opposing goals. The notion of compromise is at the core of LAC. Procedurally, compromise is accomplished through the explicit specification of minimally acceptable conditions for one of the goals in conflict—the goal that ultimately constrains others. Many management issues do not require compromise. Other planning tools are more appropriate for dealing with these issues.

This perspective of the LAC process as just one planning tool—useful for dealing with certain types of issues—embedded within a more comprehensive planning process, has several important implications. For example, monitoring is one of the critical elements of the LAC process. However, the monitoring task should not be confined to those indicators identified through an LAC process. For many important issues, the LAC process is either unnecessary or difficult to use due to concerns about writing meaningful standards. Monitoring indicators relevant to these issues can contribute to improved management, even if standards are not written and the LAC process is not used.

2. It is more helpful to treat the LAC as a process than as a product. It is more a framework for rationally and openly dealing with certain issues than a means of developing a written comprehensive management plan. It is a continuous process, rather than a one-shot undertaking. Consequently, it blurs the line between management and planning.

3. The LAC process should be applied in an iterative rather than linear fashion. One must think forward about the implications of early decisions for later steps and think back about how decisions late in the process affect early steps. Some steps in the process are returned to again and again. Nevertheless, sequencing is important. Certain steps must come before certain others. The procedures can be flexibly adapted but within limits.

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