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## Review

## Understanding and managing compliance in the nature conservation context



Adrian Arias

Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD 4811, Australia

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## ABSTRACT

Nature conservation relies largely on peoples' rule adherence. However, noncompliance in the conservation context is common: it is one of the largest illegal activities in the world, degrading societies, economies and the environment. Understanding and managing compliance is key for ensuring effective conservation, nevertheless crucial concepts and tools are scattered in a wide array of literature. Here I review and integrate these concepts and tools in an effort to guide compliance management in the conservation context. First, I address the understanding of compliance by breaking it down into five key questions: who?, what?, when?, where? and why?. A special focus is given to 'why?' because the answer to this question explains the reasons for compliance and noncompliance, providing critical information for management interventions. Second, I review compliance management strategies, from voluntary compliance to coerced compliance. Finally, I suggest a system, initially proposed for tax compliance, to balance these multiple compliance management strategies. This paper differs from others by providing a broad yet practical scope on theory and tools for understanding and managing compliance in the nature conservation context.

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## 1. Introduction

Central to nature conservation, from species to ecosystem scales, is the regulation of human activities. Countless regulations are set towards nature conservation; however, noncompliance is often the rule rather than the exception. Illegal wildlife trade; illegal, unreported and unregulated fishing; and illegal timber trade are amongst the largest illicit activities in the world (Haken, 2011). The impacts of noncompliance in the conservation context can be broad. Illegal fishing, for example, affects food security, causes the loss of millions of dollars of catch, and drives overexploitation and environmental degradation (MRAG, 2005). Impacts from noncompliance can be extreme, driving extinctions (Branch et al., 2013; Wilkie et al., 2011), and even the death of poachers and the murder of rangers (Dudley et al., 2013). Surprisingly, compliance receives relatively little focus in the conservation literature when compared to other aspects of conservation. However, key concepts and tools that help understand and manage compliance are dispersed in a wide array of literature, including sociology and economics. This review is aimed at conservation practitioners,<sup>1</sup> and

it expands on recent contributions by integrating key concepts and tools from other disciplines.

Here, compliance means adherence to rules related to natural resource use and conservation. Compliance can be interpreted as dichotomous or as a gradation of behaviour. As a dichotomy, the term compliance refers to whether a person or system adheres to rules or not. More realistically, as a gradation, compliance refers to the degree of adherence to rules, as when a person breaks some rules but not all, or respects rules most of the time, but not always. A gradation of compliance could be represented by continuous values or categories such as 'high', 'medium' or 'low'. So the words 'compliance' and 'noncompliance' are opposites that, as a dichotomy, allow only two values, or lie at either end of a gradation and allow intermediate values.

Compliance management is improved by understanding the factors describing and causing compliance. Here I explore compliance using the Kiping Method or 5W's (who?, what?, where?, when?, and—perhaps the most vital—why?). I consider each of the W's, focussing on 'why?', and then suggest a system for managing compliance (Fig. 1). Because of the breadth of compliance in the nature conservation context this is not intended to be an exhaustive review, but rather one that enriches the literature, and facilitates discussion and, most importantly—action.

E-mail address: [adrian.arias@my.jcu.edu.au](mailto:adrian.arias@my.jcu.edu.au).

<sup>1</sup> "Practitioners are managers, researchers, and local stakeholders who are responsible for designing, managing, and monitoring conservation and development projects" (Margoluis and Salafsky, 1998, p. 7).

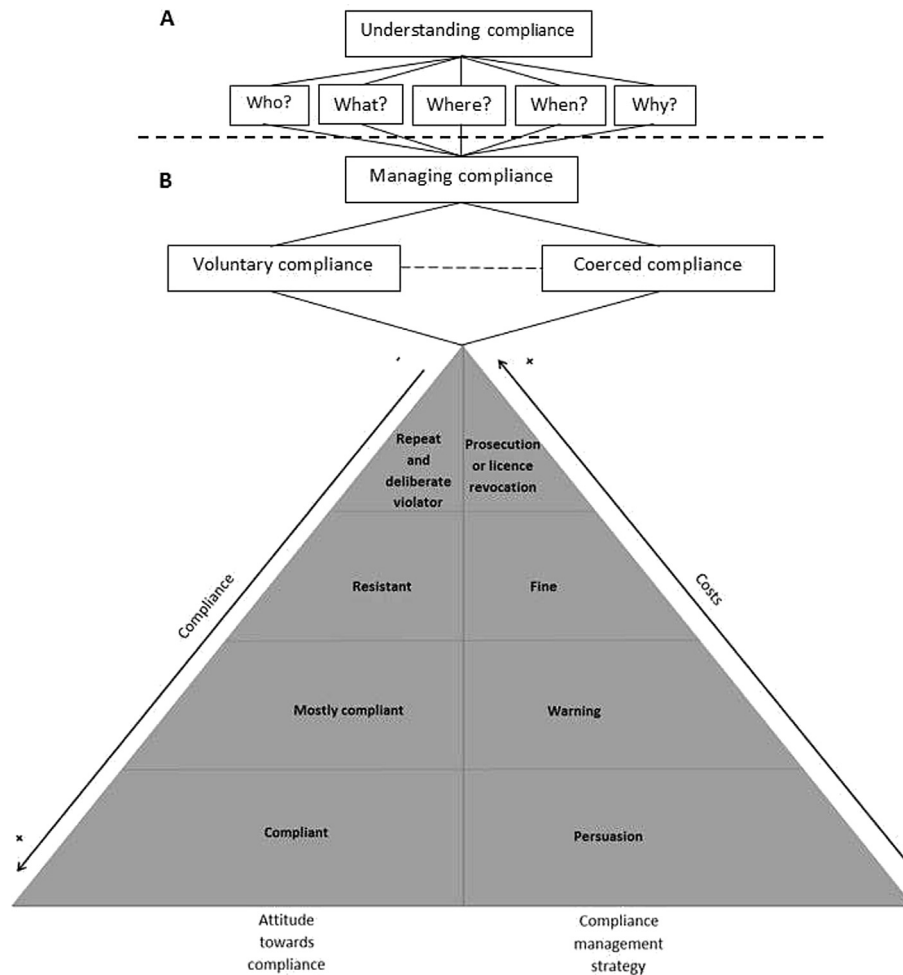


Fig. 1. Heuristic of a system for (A) understanding and (B) managing compliance.

## 2. Understanding compliance

### 2.1. The 5W's

Journalists and law enforcement officers typically use the 5W's to gather a complete story. Here I use the same tool, breaking down compliance in the following questions, with no particular order: 1) Who complies (or not?); 2) What is the noncompliance act?; 3) Where is noncompliance occurring?; 4) When is noncompliance occurring?; and 5) Why is compliance (or noncompliance) occurring?

#### 2.1.1. Who complies or not?

Management interventions can be focused when compliers or noncompliers are known. The answer to this question is usually multilayered. For example: Is it a particular community engaging in illegal activities or a particular group within the community? Several people or just one person? Are they male or female, young or old? Some studies have made these distinctions. In the Calamianes Islands, Philippines, [Fabinyi \(2007\)](#) found that local young males were more likely to fish illegally. Likewise, [Cinner \(2010\)](#) found that the poor were more likely to use illegal destructive fishing gear in Kenya and Tanzania. Noncompliance can also be driven by outsiders ([Berkes et al., 2006](#); [Leader-Williams et al., 1990](#)), requiring special attention when designing interventions

such as patrols, investigations and awareness campaigns.

Complicity can add layers to this question. Referring to the previous example from the Philippines, one might discover a bigger story when investigating who is an accomplice: who is providing the cyanide that the young illegal fishermen use? And who buys the illegal catch from them? These questions are relevant for compliance management. For instance, campaigns condemning the consumption of wildlife products such as shark fins ([Dell'Apa et al., 2014](#)) and ivory ([Stiles, 2004](#)) are common. Such campaigns appeal to consumers, raising awareness on the social or environmental impacts of consuming these products. Similarly, knowing who deals illegal natural resources might be more effective than targeting immediate noncompliers in the field. [Clayton et al. \(1997\)](#) explain how it can be easier to deter the illegal hunting of a wild pig in Indonesia by focussing on markets and road checks rather than by patrolling the forests for poachers. Additionally, by reducing demand, illegal hunting becomes less profitable for poachers. Unravelling the complicity chain can provide a complete notion of the situation and improve compliance management.

Knowing who complies can also be beneficial. Compliers can provide useful information and positively affect compliance by acting, consciously or not, as enforcers. In Zambia, [Jachmann and Billiouw \(1997\)](#) report the success of an enforcement system using investigations aided by cash rewards for information that led to arrests or confiscations. Using this system, arrests became four

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