The Knowledge that Counts: Institutional Identities, Policy Science, and the Conflict Over Fire Management in the Gran Sabana, Venezuela

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Summary. — The cultures of environmental planning agencies shape institutional identities and management interventions. Central to such institutional cultures is knowledge production, which is shaped by political-economic processes, dominant narratives and institutional desires to produce “conservation” landscapes. Through knowledge production, certain scientific knowledge and data are appropriated, while others are excluded. In the case of fire management in the Gran Sabana, Venezuela, a project of policy science draws on selected scientific knowledge and emphasizes remote sensing and quantitative analysis at the expense of indigenous knowledge and prescriptive burning practices. This policy science emerges from an institutional culture that favors fire suppression as a means to recreate a desired, imaginary forest.

Key words — Latin America, Venezuela, conservation management, protected areas, knowledge production, indigenous people

1. INTRODUCTION

In the Global South, protected area management is intimately linked with national development strategies and often implicated in conflict between indigenous peoples, state agencies, and commercial interests. Because of these links between politics, development and the environment, indigenous people and landscapes in the South have become objects of hegemonic environmentalist discourse and action (see e.g., Adger et al., 2001; Crush, 1995; Dalby, 1998; Dryzek, 1997; Escobar, 1995; Ferguson, 1995; Gupta, 1998; Mitchell, 1995). These environmentalist discourses are shaped by hegemonic narratives of landscapes, people, and Nature, which in turn are reproduced through the privileging of some “knowledge” over others in the development project (see e.g., Agrawal, 1995; Moore, 1996; Nygren, 1999).

Here I propose to explore some of the ways in which global environmental discourses articulate with “local” systems of knowledge production, which in turn shape planning practices that tend to marginalize indigenous knowledge, sometimes at the expense of conservation objec-
tives. In particular, I seek to examine how development and conservation agencies appropriate and shape scientific and local knowledge in ways that are sometimes contradictory, inconsistent, and ironical, and which leads to everyday, situated practices that are less “rational” that what is presented in agency representations such as annual reports, Web sites, and so on. I argue that production and representation of knowledge is closely associated with institutional identities, which are shaped by global discourses of environmental degradation and risk, but also, or perhaps even more so, emerge from homespun, institutional narratives and imaginaries of local landscapes and peoples. Ultimately, certain knowledges are privileged in planning institutions because they fit the rules of what counts as “true” knowledge production (Foucault, 1972, 1980).

I suggest that the formation of such institutional identities and privileging of certain knowledge are in part shaped by “desire:” desires to produce certain landscape formations, to create formalized systems of environmental management, and to “know the truth.” I draw here on Lacanian psychoanalysis (1978, 1995) to suggest that desires are important determinants in institutional processes of place-making, that is, the social and material production of space occurring through the fantasies of planning institutions and the material resources (economic power, exclusive right to violence, and equipment) of state agencies. Hence on a broader level, these desires to know are intimately implicated with relations of domination and resistance, since knowledge is never divorced from the workings of power. Ultimately, the issue here is the ways in which certain knowledges and modes of research lead to practices that, more often than not, derive from institutional narratives and desires rather than the “most rational” models of development and conservation management (see Gunder, 2003, 2004; Hillier, 2003; Hillier & Gunder, 2003 for other Lacanian interpretations of planning practice).

In the following pages, I draw on these critical perspectives on institutional identities, knowledge production and planning practice to examine a conflict between state and indigenous fire management in the Gran Sabana, a grassland–forest mosaic which extends for 18,000 km² through southeastern Venezuela and into Brazil and Guyana. I suggest that processes of identity formation and knowledge production have reproduced an unremitting conflict between the state agency Electrificación del Caroní (EDELCA) and the indigenous Pemon, a Carib Indian group that numbers about 20,000. State fire management is characterized by misunderstandings and deprecation of Pemon fire management, resulting in practices that favor intensive surveillance techniques, fire suppression strategies, and attempts to discourage indigenous prescriptive burning which may, ironically, serve to prevent the occurrence of extensive and destructive fires.

I begin by positioning my analysis in a broader context of social theory, drawing in part on the Foucaultian concepts of surveillance and “will to truth” (in the sense that “truth” is the outcome of contests to define the rules of proper knowledge production), but modifying this constructivist approach with Lacanian insights on “desire” and subject formation (Lacan, 1978, 1995). Next I review the links between development, conservation and knowledge production in the Gran Sabana, before I proceed with an examination of EDELCA’s policy science. I suggest that EDELCA’s approach to data collection and analysis is shaped in part by global discourse formations, in part by political–economic realities, and in part by a dominant body of Venezuelan literature on fire ecology—but also by desires and institutional identities that derive from “local” constructions and narratives. Then I discuss the prescriptive burning practices of the Pemon, drawing parallels with participatory management approaches based on indigenous knowledge in Australia and South Africa. This allows me to explicate some of the ways in which EDELCA’s policy science could be reoriented toward more participatory and effective fire management.

2. THEORETICAL FRAMEWORK: DESIRE, IDENTITY, AND KNOWLEDGE PRODUCTION

To think critically about the politics of environmental planning, I view domination as facilitated through mechanisms that Foucault calls “small-scale, regional, dispersed Panoptics,” or modes of surveillance (Foucault, 1980). The hegemonic knowledge production effected through these small-scale modes of surveillance—such as the local “data” produced by EDELCA—is shaped by institutional identities and narratives of place and people, submerges or appropriates “local” knowledges, and makes of “real” places (whether they be
tropical forests or city parks) metaphorical terrains of domination and resistance. Local knowledge is thus a mode of learning that is often disempowered in development and conservation projects, simply because such “subjugated knowledge” loses the battle over the “rules according to which the true and the false are separated and specific effects of power attached to the true” (Foucault, 1980, p. 132; see also Gutting, 1989). In the case of the Gran Sabana, the unwritten rules that determine what is true about the natural environment and human ecologies emerge from the privileged status of certain scientific representations and data within EDELCA agency culture (see Agrawal, 1995; Mignolo, 2000; Nader, 1996; Purcell, 1998; Sillitoe, 1998 for more on “local” and scientific knowledge systems).

Ultimately, then, at issue here is not what data, what modes of data collection, and what forms of data analysis are “more valid” from an objective, environmental management perspective. Instead, the question is: Why are certain forms of knowledge production believed to be and represented as more valid within a certain environmental, historical, political–economic and institutional context? I turn here to the psychoanalytic theory inspired by Lacan, where knowledge is understood as discourse constructions that are linked with subject structure and thus serve as foundational elements in processes of identity formation (Alcorn, 1994, p. 35; Gunder, 2004, p. 300). Different knowledges draw on iconic “master signifiers” that symbolize what is common-sensically accepted as true and desirable (such as “democracy,” “development,” and “sustainability”), which means knowledges are intimately entangled with subjective understandings of what is “good” or “bad” (Fink, 1995, p. 130, 1999; Gunder, 2004, p. 305).

I suggest that in the case of the Gran Sabana, “forest” has assumed the role as a master signifier in EDELCA’s institutional narratives. Since a master signifier secures “a whole field and, by embodying it, effectuates its identity” (Zizek, 2002, p. 88), the idea of forest conservation has become a common-sensical, desirable quality. Ultimately, the desire for a forested, scientifically controlled landscape shapes EDELCA’s project of knowledge production and unwittingly serves to reproduce institutional narratives of the Pemon as destructive and irrational. Since desire is implicated in both “wanting to be” and also “wanting to know” (Bracher, 1993, p. 19, 1994), the identities of EDELCA agents are closely associated with the desire to recreate a mythical forest of the past, which in turn makes it seem sensible and acceptable to use institutionally accepted technologies to collect information.

This desire “to know” not only influences institutional identities, it also leads to the production of imaginary, social boundaries (Foucault, 1977; Major-Poetzl, 1983; see also Philo, 2000; Pile, 1996). EDELCA’s desire for certain data, collected through certain means, unavoidably leads to social processes of boundary-making, which construct the Pemon as subjects that are not rational, not behaving appropriately, not modern, and rhetorically place them outside the socially constructed space of rational environmental planning and decision-making. From a Foucaultian perspective on power/knowledge, the Pemon are symbolically excluded from the conservation space that is the Gran Sabana because their subjugated knowledge has lost the “battle for truth” and thus has less validity than that of EDELCA.

Ironically, however, EDELCA must confront the limits of power and its contradictory consequences: occasional attempts to engage indigenous people in participatory approaches to fire management have met with opposition within the agency, and have not been consistent or very long-lived. In part because of the pervasive, institutional narratives of forest destruction, EDELCA has maintained its emphasis on fire suppression and environmental education, which in turn has fomented resistance and failed to reduce indigenous fire use. Such indigenous resistance to EDELCA’s fire management is possible because EDELCA’s desire for knowledge is built on an unstable, Lacanian discourse of policy science that can be resisted by the Pemon and contradicted within the agency itself (see Alcorn, 1994, p. 27, 30; Fink, 1995, p. 138), and also because EDELCA’s surveillance (intended in part to produce the agency’s knowledge) has its limits both in space and in time (see Robinson, 2000; Sawicki, 1989, 1994).

3. ELECTRICITY, CONSERVATION, AND KNOWLEDGE PRODUCTION IN THE GRAN SABANA

The strategic and economic interests of the Venezuelan state, which sees in its southern frontier a vast, “empty” space with huge
development potential, have long influenced the character of scientific research in the Gran Sabana (see e.g., Coronil, 1997; Miranda et al., 1998; Mujica, 1984). In 1960, the parastatal Corporación Venezolana de Guayana (CVG) was formed to spearhead the development of the Guayana, the entire southern half of Venezuela, including the Gran Sabana, and initiated an extensive research program to map the geography, vegetation, fauna, and ethnology of this frontier region. In 1969, the regional development agency Comisión para el Desarrollo del Sur (CODESUR) was charged with mapping, conducting forest inventories, and promoting development of the Guayana (Mujica, 1984, pp. 37, 81). In 1994, CODESUR was replaced by PRODESSUR, which follows a development plan that calls for a 15% population increase through a network of frontier settlements in “unoccupied” indigenous territory; accelerated natural resource exploitation, including intensified mining, oil exploration, agriculture, and forestry; and extensive infrastructure development (Miranda et al., 1998).

EDELCA was established in 1963 to develop the hydroelectric potentials of the Caroní, the largest river downstream from the Gran Sabana. Today, EDELCA produces 75% of the country’s hydroelectric power through a series of dams and power stations, including Macagua I (the first dam in the Caroni basin, completed in 1959), Macagua II, Guri, and Carucahí (EDELCA, 2000; Pérez, 1999, p. 104). Electricity has thus long represented a country-building and development tool par excellence, both in material and in symbolic terms. The inauguration of Macagua I, which took place only one year after the fall of the last dictator, Marcos Pérez Jiménez, was promoted as a public spectacle and hailed as the birth of the “new Venezuela” (Pérez, 1999, p. 17; see also Coronil, 1997). Electricity has reduced Venezuela’s dependence on hydrocarbons (in 2000, the power produced by EDELCA’s hydroelectric dams represented a value equal to 11% of oil exports (Pérez, 1999, p. 104)), and has become a crucial factor in regional integration in northern South America (Guillén, 2002).

Because of the economic importance of the Guri and Macagua dams, environmental protection of the 95,000 km² Caroní watershed is crucial for the state’s project of capital accumulation. “Hydroelectric energy from the Caroní is the foundation for the development of the great industrial complex in Guayana,” said the then-director of the National Park Service (INPARQUES), José Rafael García in 1982. Partly because of the significance of Guri as the country’s “principal source of hydroenergy” and also because of its “geopolitically strategic location, near the borders of Guyana and Brazil,” the Caroní and Gran Sabana were incorporated in Canaima National Park in 1962 (Figure 1) (Comisión Interinstitucional, 1989, p. 1). In the early 1980s, EDELCA assumed responsibility for fire management in the Upper Caroni watershed, specifically to protect gallery forests in order to avoid erosion and sedimentation of Guri (Figure 2) (García, 1994).

These important links between economic development and environmental conservation inform scientific research in the Gran Sabana. This body of literature, in turn, has been selectively appropriated in EDELCA’s institutional culture to support narratives of indigenous destructiveness and forest loss. I am referring here to writers like Dezzeo (1994), Dezzeo and Chacón (2005), Fernández (1984, 1987), Fölster (1986, 1995), Hernández (1987), Huber (1995, chap. 1) and Worbes (1999), who have made seminal contributions to our understandings of fire ecology in the Gran Sabana based on extensive and rigorous field research, but whose work has been used to support a fire management model that overlooks situated practices. Specifically, these authors suggested that the Gran Sabana was once more extensively forested and that anthropogenic burning is a primary explanatory factor for the current grassland–forest mosaic. Although these suggestions are contested and expressed with contingencies, they have been transformed into sweeping “truths” in EDELCA narratives and now form the basis for the agency’s policy science.

For instance, Fernández writes that “it is obvious that the Gran Sabana is experiencing a process of forest degradation” because “one can see” fires appearing every year, and also because of the historical evidence of extensive fires in 1939/40 and 1926 (Fernández, 1987). Palynologist Martin Worbes argues that “(forest patches) constitute partial remnants of mature forests and severely disturbed forests; both forms of vegetation appear surrounded for the most part by savanna. The presence of carbonized (burned) trees in the area around these forests attests to the existence in the past of a more extensive forest cover” (Worbes, 1999, pp. 101–102). Fölster and Dezzeo argue that “it is quite probable that the extensive savannas also
resulted from a similar process (of burning). In that case, the small forest islands distributed within these savannas could be considered relicts of a forest cover that originally was more closed (Fölster & Dezzeo, 1994, p. 147). And most recently, Dezzeo and Chacón (2005, p. 344) suggested that the Gran Sabana resulted from a “conversion of large forested areas ... associated with forest fires without intentional conversion by the sparse human population.”

Indeed, indigenous elders and other long-time residents agree (and see Kingsbury, 1999, 2001): in areas of increasing populated density, primary forest cover has declined during the last two decades, becoming replaced by secondary forest and to some extent savanna. But data are lacking to support the sweeping contention that forests are disappearing in the Gran Sabana, or to verify the extent of forest “degradation” caused by the penetration of savanna fires into forest patches. Forest cover has not decreased “everywhere” in the Gran Sabana—in fact, forests appear to be slowly expanding in some areas (Sletto, 2006)—and revisionist analyses indicate that the great fires of decades past, frequently used as examples of Pemon irrationality, may in fact have been accidentally started by European explorers (Rodríguez, 2004). Also, indigenous landscape conversion needs to be placed in a historical context: penetration of missionaries into Pemon lands, Venezuelan state development projects, and the coming of modernity with the construction of the Pan-American highway and incentives to settle in permanent communities, led to unsustainable population concentrations and thus inevitable overuse of limited resources (see e.g., Butt-Colson, 1985; Comisión Interinstitucional, 1989, p. 22; Kingsbury, 1999, 2001).

In addition, another body of research suggests that the Gran Sabana has never been
completely forested. In areas dominated by grasses and herbaceous vegetation, the soils derive from Precambrian sedimentary rocks and are highly acidic, poor in minerals and nutrients, and sandy with low water retention capacity (Huber & Zent, 1995, p. 39). In upland hills with severely eroded ultisols, only grasses or deep-rooted shrubs can hold out against the droughts and occasional heavy rains (Huber, 1995; Huber & Febres, 2000; Rull, 1992, p. 138; Urbina & Dieter Heinzen, 1982). A mosaic of forest patches, grasslands, and shrub lands has dominated the Gran Sabana since the last Ice Age (Eden, 1974; Rull, 1992; Schubert, 1995, 1986; Vander Hammen, 1974), contradicting the argument that deforestation is exclusively a consequence of anthropogenic burning (Eden, 1974; see also Barse, 1990; Cruxent, 1971, 1972). Palynological research suggests that floristic composition has varied with climate change and not with anthropogenic activity, and that during most of the Holocene the Gran Sabana was characterized by climatic conditions that encouraged savanna development (Rinaldi & Schubert, 1991).
Although this research reveals a great deal of uncertainty about the role of anthropogenic burning in the Gran Sabana, this is not reflected in prevailing institutional representations. Instead, fire managers and seasonal fire fighters alike maintain that the forest-grasslands mosaic is “unnatural” and primarily the result of anthropogenic activity. In the words of Boanerges Ramos Milan, chief of EDELCA’s environmental conservation: “The Gran Sabana was a forest before. There are many areas in the Gran Sabana right now, where one can see there was forest, that there had been continuous forests” (Ramos, 2003, pers. int.). And among fire fighters at the “local” level in San Ignacio, the idea of forest loss is repeated as “truth.” Ambrosio Pinzón, a veteran fire fighter in his 50s, said once: “In 20–30 years, this (the Gran Sabana) will be like a desert.” And in the words of the younger fire fighter Nestor Ayuso: “This might become a desert in the future. We won’t be calling it the Gran Sabana, but the Gran (Great) Desert.”

Ultimately, the issue is not whether it is “true” that the Gran Sabana once was a forest, nor how likely it is that the Gran Sabana will “become a desert.” Instead, I suggest that selected representations in a specific body of scientific literature have been incorporated into a narrative of indigenous destructiveness and forest loss, in part to simplify a complex situation and to satisfy the desires for order, for “protection,” and for “forest.” These narratives, in turn, provide the weight of scientific rationality to EDELCA’s policy science and approaches to fire management, and in so doing, foreclose alternative modes of knowledge production.

4. STATE FIRE MANAGEMENT, TECHNOLOGY, AND PRIVILEGED WAYS OF KNOWING

From a post-structuralist perspective on natural resource management, EDELCA’s fire management project is situated in a “danger discourse” of fire (see Dalby, 1999) intimately associated with two tropes that shape environmentalism in the Global South: deforestation and desertification. Since “fire” is framed as a driving force of both deforestation and desertification, fire management becomes shaped by the common-sensical imperatives of “protecting” forest and “avoiding” savan-

The advent of remote sensing, in particular, has fundamentally influenced research on fire ecologies and allowed for representations that overwhelm with their technological wizardry (Pyne, 1991, 1995, 1996). Dominant models of fire control now combine remote sensing imagery with quantitative analysis in ways that may devalue the ecological benefits of diverse, situated practices (Bassett & Bi Zueli, 2000; Fairhead & Leach, 1996, 1998; Leach & Fairhead, 2000a, 2000b, 2002; Turner, 2003; Turner & Taylor, 2003). Although the services provided by institutions such as NASA’s Fire Information for Resource Management System and the Global Fire Monitoring Centre (GFMC) will facilitate comprehensive monitoring of fires, the pervasiveness of such imagery might have the unintended consequence of devaluing the importance of local-level analyses of the complex causes and consequences of fire use.

In the case of EDELCA, this merging of new technology with hegemonic narratives of fire and risk has led to a privileging of quantitative approaches to fire management. Remote sensing analysis is increasingly seen as complementary to such quantitative methods, especially as a means to persuade indigenous people of the need for more “rational” fire management. In the words of Fransisco Zerpa, the chief of the environmental information section, “if we had remote sensing images for the past twenty years, they (the Pemon) would see how much forest has been lost.” Thus remote sensing is easily incorporated into EDELCA’s pervasive, institutional narrative of the need for “more science.” By “more science” fire managers typically mean more quantitative data, rather than more “local knowledge” of indigenous fire management:

(Transcribed verbatim from the interview with Francisco Zerpa, chief of the environmental information section.)

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(The Pemon) need to see the scientific data (to be convinced they need to stop burning). This is for sure. We all need more statistics to see what the problem really is. We want to see numbers showing how much forest has been lost. We want to have data to conduct a spatial analysis (of remote sensing images). This is the direction we need to go. We ought to have more exact science (Ramos, 2003, pers. int.).
The agency has in the recent years expanded its use of Geographic Information Systems (GIS) with the goal of producing exactly this type of quantitative spatial analysis. Although the agency’s GIS system is still primarily used as a data collection, management, and display tool, agency staffers envision that this powerful technology will take center stage in a more sophisticated modeling approaches to fire management:

(“The problem of burning will be resolved by) designing and implementing an information system that serves to characterize the occurrence and severity of the fires in the watershed. The system will allow for temporal and spatial statistical evaluation of fire events and will constitute a support tool for decision-making at the PCIV (Zerpa, Acevedo, Ablan, & García, 2003, p. 2).

In the following pages, I analyze the data collection strategies and methods that provide the quantitative basis for the agency’s GIS analysis. The question here is not whether “scientific” or “local” knowledge is “better;” nor do I seek to downplay the potentially important contributions of GIS and remote sensing for more effective fire management in the Gran Sabana. Instead, at issue here is the role of agency culture in shaping knowledge production. Specifically, I suggest that EDELCA collects, aggregates, categorizes, and ultimately represents data of fire occurrences in ways that reproduce and bolster agency narratives of the destructiveness of indigenous burning, ultimately providing rhetorical support for the desire to “protect” the Gran Sabana and recreate a mythical forest. Because of this, the agency may foreclose possibilities for alternative knowledge production based on indigenous knowledge and ultimately hamper future, more participatory environmental management approaches.

5. EDELCA POLICY SCIENCE, DESIRE, AND INSTITUTIONAL IDENTITIES

The heart of EDELCA’s operations in the Gran Sabana is the fire fighting station in the village of San Ignacio, which is staffed by two Venezuelan fire managers and 25 fire fighters working in the dry season, between January and May. The agency’s fire fighting operations rely on three watch towers to spot fires (see Figure 2), a helicopter to ferry fire fighters to the site of fires, a small fleet of 4 × 4 Toyotas, and radios and modern fire fighting equipment. The agency also pursues an “environmental education program” to dissuade the Pemon from burning, but its failure to successfully engage with Pemon elders in participatory approaches have led to tense and conflictual relations between EDELCA and the Pemon. Despite the 20-year presence of the fire suppression program, the Pemon burn as before (albeit a little less frequently in some areas than elsewhere because of resettlement, social change, and the influences of EDELCA) and fire use remains integral to their reproduction of indigenous identity (Slettto, 2006) (Figure 3).

![](https://example.com/image)
EDELCA’s and the Pemon’s fire management system differ fundamentally in one, key respect: while the Pemon conduct controlled burning to reduce fuel loads in grasslands, EDELCA focuses on extinguishing grasslands fires, especially those considered threatening to forest patches in “priority areas” (Fernández, 1984, 1987). When a watch tower reports a threatening fire, fire managers in San Ignacio dispatch fire fighters via helicopter to the site of the fire. Whether a given fire needed to be combated, the fire managers in San Ignacio record every helicopter response to fire observations as a “combated” fire in the agency’s GIS. At the end of the year, the data on fires observed and combated are aggregated in a central database and presented in the form of maps and tables. Because of the large number of small, anthropogenic fires set over the course of the entire fire season (the great majority of fires in the Gran Sabana are anthropogenic in origin and not the result of natural causes such as lightning), these maps represent the Gran Sabana as a landscape under siege from misguided, human activity (Figure 4). However, here I will focus less on questions of representation. Instead, I seek to illuminate how EDELCA’s approach to data collection and categorization tends to frame fire events in ways that tacitly correspond with institutional culture and desires.

A principal rhetorical strategy in this framing process is categorization: fires combated are always classified by “cause” (causa) (Figure 5). These “causes” are illuminating both in what story they tell and in what information they...
obscure. To begin, most fires are categorized from a distance by fire fighters manning the watch towers and only rarely based on direct observations. Also, the choice of the term “cause” instead of “reason” or “purpose” is rhetorically important. “Cause” carries a sense of passivity, as if fires are due to random and destructive forces. This rhetorically places Pemon burning within a realm of Nature and unreason. A term such as “reason” (razón) or “purpose” (propósito) for the fire, however, would have carried a connotation of Western rationality. It would have implied that fires are set purposefully for a “reason” and that this could potentially be a “good” reason.

In EDELCA’s geographic information system, there are seven “causes” given for fires: agriculture, animal husbandry, forest, hunting, tradition, and intentional (agricultura, pecudría, forestal, cacería, tradición, and intencional). Thus two categories are chosen to represent agriculture-related “causes”—“agriculture” and “animal husbandry”—and this despite the fact that there are no farms in the Venezuelan sense of the word and very little cattle raising in the Gran Sabana. However, these categories support decades of indigenist policies intended to covert indigenous people to agriculturalists and effect their resettlement in smaller, more easily controlled areas (Galletti, 1980, p. 7; Mujica, 1984). The category “hunting,” meanwhile, accounts for a large portion of the total fires set by the Pemon, and also a significant proportion of fires combated each year. This is also a cause of fire that most raises the ire of fire managers and EDELCA scientists, who often commented in interviews conducted in 2002–04 that hunting is unnecessary in an age when Pemon “could” move to modern communities and become responsible citizens. By representing hunting as a passive “cause,” the category is bounded within the realm of the irrational, thus reproducing the boundary-making that puts the Pemon out-of-place in the Gran Sabana as people who reject the inevitable coming of modern development.

The two remaining categories—“tradition” and “intentional”—are the most rhetorically powerful signifiers because of the ways in which they articulate with narratives of indigeneity. In EDELCA’s institutional narratives, Pemon fire use is typically referred to as the result of indigenous “tradition.” In the words of Francisco Zerpa:

According to the statistics from the fire control program, the majority of fires are due to indigenous tradition. Especially the making of gardens, when they go hunting and fishing, they burn to define their trails and to inform communities where they are. I’m not sure about this but (I think) they also burn as a religious act for feast days...I’m not sure. Also because of the presence of bugs, mosquitoes, one way of getting rid of them is by fire. And to clean trails. Those are the principal causes of fire in the Gran Sabana (Zerpa, 2003, my emphasis).

In EDELCA narratives, Pemon tradition is not essentialized as a set of primordial beliefs and practices that originated in the Gran Sabana, but instead constructed as something foreign and invented. Although Pemon culture in
the Gran Sabana most likely originated before the arrival of Europeans (Cousins, 1991; Mansutti, 1981; Thomas, 1982; Urbina, 1979), agency officials typically represent the Pemon as recent immigrants who are pursuing land-use practices that originated on the forested slopes of Guyana and which are unsustainable in the sparse savanna environment in the Gran Sabana. This construction allows for the framing of indigenous burning as pre-modern, but also unbecoming the Gran Sabana.

What remains is the category “intentional,” which has the rhetorical consequence of further delegitimizing Pemon burning practices. It was difficult to obtain a clear definition of this category, since of course every fire is set “intentionally”: there is an obvious contradiction between the passivity inherent in “cause” and the agency of “intentional.” This category is generally used for fires set for reasons that from the perspective of EDELCA cannot be assigned to “tradition.” “Intentional” fires thus include fires set for no other reason than “for the sake of burning” (quemar por quemar) and fires set “against EDELCA” (quemar contra EDELCA). Both practices are frustrating to fire fighters and personnel in Puerto Ordaz, and also to elder indigenous fire managers (Sletto, 2006). Partly because of the uncertainty associated with this category, few fires are defined as “intentional.”

Ultimately, I suggest that the categories used in the fire reporting system serve to bolster the emphasis on “culture” instead of “environment” in institutional narratives about Pemon fire use. When asked in a survey what they thought were the reasons for the Pemon’s use of fire, 70% of fire managers, policy scientists and administration officials in Puerto Ordaz suggested that Pemon burn for “cultural” reasons. Meanwhile, only 23.5% of fire fighters in San Ignacio listed “culture” as the reason why Pemon burn. These numbers reflect subtle differences in the attitudes toward indigenous fire use. Survey respondents in Puerto Ordaz, located far from everyday fire management in the Gran Sabana, may be more likely to support institutional narratives of the Pemon as destructive and recalcitrant. However, these differences do not matter significantly in what the survey tells us about institutional culture: not a single respondent in Puerto Ordaz or in San Ignacio suggested that the Pemon burn as a means of managing the environment in the Gran Sabana. Since EDELCA narratives foreclose any possibility for the existence of a “rational,” indigenous fire regime, the agency is also at risk of eliminating ecologically beneficial, indigenous burning practices from its project of knowledge production.

6. INDIGENOUS FIRE MANAGEMENT AND ALTERNATIVE KNOWLEDGE PRODUCTION

Pemon burn the savanna for a host of reasons: to communicate (e.g., using smoke signals to announce their arrival in a village), to “clean” trails (using fire to remove tall grasses and snakes, bugs, and scorpions), to hunt (burning grasses to encourage deer to leave their forest hideouts), and to remove fire-prone grasses from the outskirts of villages. The Pemon see the mosaic of grasslands and forest patches as the “natural” state of the Gran Sabana: the grasslands provide opportunities for movement and a sort of canvas to imprint their culture through burning; the forests furnish a source of subsistence through hunting, fishing, and gardening. Unlike state agents, Pemon do not imagine forest as “desirable” per se, nor do they seek to produce a forested landscape. Instead, they wish to protect the existing forest patches for reasons of subsistence.

A cause of particular tension between Pemon and EDELCA is indigenous practices of prescriptive burning in grassland–forest boundaries. Pemon follow principles of “patch” burning; that is, they light frequent, slow-burning surface fires, which result in a mosaic of small (between 20 and 50 m²) grass patches in different stages of regrowth. When the fire reaches a relatively green and damp grass patch, it will stop from lack of fuel. The Pemon say that “fire (Apok) knows when to stop burning” (Pérez, 2002). The key to indigenous preventative fire management is thus to prevent annual grasses from accumulating for several generations and reach the stage of aurúta, that is, tall and yellowing grasses that burn with high heat and might escape control (see Bidulph & Kellman, 1998 for the potential benefits of Pemon prescriptive burning). Such preventative burning is particularly important in savanna edges; that is, what the Pemon call the tureta kata, the last few meters of the grasslands before the beginning of the forest–grasslands ecotone. Although the tureta kata is not considered a separate spatial category in EDELCA’s fire management system, it is nevertheless a functional landscape unit. The dense vegetation in these grasslands
communities may either facilitate or prevent fire entry into forest patches: high fuel levels may allow slow-burning surface fires to reach dangerous speeds and high temperatures; low fuel levels will cause surface fires to stop. The Pemon therefore burn savanna edges in the late rainy season, between August and December, when the forest litter and woody vegetation is too damp to catch fire. The principle behind this “burning so that fires don’t enter forests” (apok womûnamai tureta tak) is thus to reduce the level of combustible grasses near forests and to form a fire break (apok waköin). “We burn part by part (yanupû tupata kene) ... so that the fire stops when it reaches an area that has been burned. If we don’t burn, the grass would build up and the fire might enter into the forest and then damage nature” (Romero, 2002). 7

Because of the documented benefits of such controlled burning to reduce fuel loads in savanna environments, some natural resource agencies have incorporated indigenous burning strategies into state fire management, particularly in Australia and South Africa. The complex pattern of early dry season burning of microhabitats practiced by aboriginal Australian now forms the cornerstone of current fire management policies in the Northern Territory (Cooke, 2000, p. 104; Williams, Gill, & Moore, 2000, p 94; Williams et al., 1998), with Euro-Australian landscape managers insisting that “fire is an essential feature of all savanna environments” (Whitehead et al., 2003, p. 415; see also Haynes, 1978, 1985; Lewis, 1986, 1989). Because of local variation in moisture and topography, the result of such early fires is a patchy, fine-grained mosaic of burned and unburned grasses (Whitehead et al., 2003, p. 416), which serves to protect certain vegetation patches and to enrich biodiversity (Braithwaite, 1996; Laris, 2002; Mistry, 2005; see also Laris (2002, 2004) on similar patch-mosaic fire regimes in Mali). Landscapes that have been prevented from burning suffer from invasions of woody species or exotics (Russell-Smith et al., 2000, p. 95) and are more at risk from catastrophic fires, such as those that ravaged the Northern Territory in the 1960s following the imposition of bans on burning.

In South Africa, landscape managers have also developed approaches to fire management similar to the Australian model: patch burning to reduce fuel loads, create mosaic patterns, and facilitate landscape heterogeneity. This is a means to reproduce indigenous patterns of savanna burning, which probably harkens back thousands of years (Edwards, 1984; Hall, 1984, p. 43; see also Hall, 1984, p. 43 on the !Kung; Hall, 1984, p. 45 on the San and Kull, 2002a, 2002b, 2002c on the Malagasy). In South Africa, land managers maintain that regular burning is not merely acceptable, it is essential to maintain a healthy ecosystem. The accumulation of organic material hampers growth and decreases plant vigor in grasslands ecosystems (Everson, Everson, & Tainton, 1988), while regular patch burning promotes landscape heterogeneity by increasing patch sizes, size variability, and shape complexity and proximity (Hudak, Fairbanks, & Brockett, 2004). This means that the issue in South Africa is not whether fires should or should not be “allowed.” Rather, the challenge is to develop a system of preventative burning that is appropriate given 21st century ecological, cultural, and political–economic realities (Bond & Archibald, 2003).

Ultimately, the question is, why does EDELCA’s policy science and fire management practices divert to such a degree from the models developed in similar savanna environments elsewhere? Part of the explanation lies in the ways in which institutional cultures reflect development imperatives, and in how institutional cultures are supported by desires and narratives of people and place. This is to say, EDELCA is not the only fire management agency in the Global South that privileges fire suppression: while South African agencies are incorporating controlled burning strategies, forest services in Francophone African countries such as Mali and Madagascar tend to represent smallholder fire use as a cause of desertification (Kull, 2002b, 2002c; Laris, 2002, 2004). Also, as in the case of other state institutions, fire management agencies are not monolithic entities but social spaces characterized by contested priorities and narratives. In the case of EDELCA, some officials do indeed see environmental benefits in Pemon patch burning, but they constitute a small minority in the agency.

Eduardo Gómez, EDELCA’s project director and manager of the fire program from 1990 to 1996, once proposed that EDELCA develop a prescribed burn program in collaboration with Pemon, but “this was not well received,” he explained in an interview. The argument was that it would “not be effective,” but this is not the case at all, according to Gómez. “I think this would be an effective solution. We could co-manage quite well with the
Pemon, because they already use this technique (of prescribed burning).” From Gómez’ perspective, it does indeed make sense to reduce fuel loads in order to protect forest patches:

Certainly, when there is a large fuel load, it needs to be reduced. The Pemon have a management vision, and this vision is prescribed burning: to reduce the fuel load so that when a fire of great proportion arrives, there is not enough combustible materials. If they didn’t burn the Gran Sabana, the fires would be spectacular (Gómez, 2003, pers. int.).

To Gómez, then, Pemon knowledge could form the foundation for an alternative project of knowledge production, leading to fire management that is more participatory and from his point of view, more effective. His position is supported by practice and theory developed by fire ecologists and landscape managers elsewhere; in fact, participatory fire management based on principles of controlled burning constitutes a growing body of scientific literature. The question is: given his relatively high position in the agency and his status as a former fire manager in the Gran Sabana, why doesn’t his perspective carry more weight? Part of the explanation lies in the selective appropriation and representation by EDELCA policy scientists, administrators, and fire managers of a certain body of literature on fire ecologies in the Gran Sabana.

7. DISCUSSION

I have suggested that agency narratives are shaped by a desire for a landscape that is rationally managed, orderly, and free from the supposedly irrational burning practices of the Pemon. These narratives draw on a body of literature that represents the Gran Sabana as a vulnerable landscape threatened by anthropogenic burning, both through its framing of the “fire problem” and through its selection and presentation of data. Although a great deal of uncertainty remains about the role of anthropogenic burning in the Gran Sabana, this landscape has been produced as a lost forest through what Latour (1986) calls a process of “constructing order,” whereby policy scientists render alternative interpretations of scientific data less plausible. The “disorderly” understandings of the role of anthropogenic fire have been simplified to construct an orderly, “winning” explanation for the current state of the Gran Sabana: the grasslands have been created by indigenous burning and continued burning will result in savannization (Latour, 1986, pp. 33–39). In a Lacanian sense, “forest” and “desert” have become desired and dreaded categories, respectively, which shape institutional identities, forging institutional narratives that exclude the Pemon from the realm of the rational, and serving as powerful motivators for the agency’s policy science.

Because of these links between desires, institutional narratives and a politicized Science (Latour, 2004), EDELCA has overlooked alternative modes of knowledge production that may facilitate more effective, democratic fire management in the Gran Sabana. In particular, Pemon tenets and practices of controlled burning deserve further attention by fire ecologists to forge a preventative, rather than reactive approach to fire management (see Biddulph & Kellman, 1998). Instead, EDELCA fire managers collect, categorize, and interpret data on fire occurrences in ways that support the “winning explanation” for forest loss in the Gran Sabana. This ironical situation—this un-seeing of knowledge and practices that many scientists argue are beneficial—is due to the institutional narratives of risk which underpin the agency’s raison d’être, but also the role that EDELCA plays in Venezuela’s state-building project in the Guayana. That is, in the interest of furthering state control, EDELCA provides to the state “a mass of information which its strategic position can enable it to exploit” (Foucault, 1980, p. 75).

Thus the “combat” operations pursued by EDELCA are not simply directed against “fires” but rather against the Pemon; or more specifically, against the presumed irrationality and destructiveness of the Pemon, which ostensibly stem from their lack of proper knowledge. Ultimately, the conflict that has held the Gran Sabana in its grip for the past two decades is not about fire, but about knowledge. What counts in this “war for truth” (Foucault, 1980) is quantitative data, and those who have the greatest political and economic means to produce numbers and make them seem valuable are in a privileged position to define “truth.”

The case of the Gran Sabana is not unique, nor is it more important per se than other environmental conflicts, which as often as not are fueled by political-economic imperatives and by identity formations shaped by institutional cultures, desires, and powerful narratives of place and people. The identities of environmental planners are shaped in part by their institutional cultures, which just as inevitably are
suffused with narratives of places and people, memories of what have been and fantasies of what could be, and desires to know what to do so that landscapes can be fashioned the way they “should” be. What behooves planning researchers is to carefully unpack such cultural constructions, track the ways in which knowledge is read, appropriated and transformed in agency cultures, and assess how the multiple, local Panoptics of environmental planning agencies effect relations of power and environmental realities on the ground, in the actual geographies where planners can never avoid but becoming embroiled in contests of place-making.

NOTES

1. Institutional ethnography is a growing tradition in planning research, where the focus is often the disjunctures between broader institutional planning goals and actual practice. One approach is the “micropolitics of practice” (see e.g., Allmendinger, 1998; Forester, 1989), another is the work of planning theorists who question how planning issues are framed and how planning practices are influenced by narratives, knowledge systems, political–economic structures, and everyday negotiations. Examples of this approach are Flyvbjerg’s (1998, 2002) application of Foucaultian insights in his exploration of rationality and power in Danish city planning and Fischler’s (1998) use of Foucaultian “genealogies” in explorations of zoning histories. Other important writers in the related field of “constructivist institutional analysis,” which offers important critiques of assumptions of rationality in environmental institutions, are Espeland (1998), Ferguson (1995), Fischer (2000), Hajer (1995).


3. Although traditional conceptualizations of surveillance see it as a “technique” of power that works to enforce domination over bodies (McHoul & Grace, 1993, p. 65; Merquior, 1985, p. 113), Robinson (2000) emphasizes that surveillance is embodied; that is, made operational through specific individuals in specific places, and therefore by necessity is fractured and incomplete (Robinson, 2000, pp. 68, 78–79; see also Prado, 2000, p. 73).


5. To decide whether to send a squad, the fire manager in San Ignacio must perform a rapid evaluation of potential costs and risks. A helicopter response is expensive and must be justified to superiors, which puts pressure on the fire manager to represent each fire as threatening, regardless of any field observations to the contrary. However, fire fighters told me they rarely fight fires once they arrive in the field. Instead, they typically stand by to ensure the fires do not spread out of control, or they stop fires that, in their estimation, would have died down on their own. These contentions are unsupported by empirical data, of course; the purpose here is not to speculate on the potential destructiveness of fires, but rather to note that such alternative observations are not reflected in the agency reporting system. From the point of view of fire managers, this reporting system is justified because of the implied threat of these fires: there is certainly no nefarious intent on the part of fire managers to inflate the numbers of fires. However, the unintended consequence of this strategy of quantification is to provide rhetorical support for continued fire suppression and to further solidify institutional narratives of indigenous destructiveness.

6. The notion of “framing” is borrowed from Erving Goffman’s social theory, in which he describes “frames” as “principles of organization which define the meaning and significance of social events (Goffman, 1997, p. xlvi).

7. Such prescriptive burning is also a common indigenous practice in grasslands environments elsewhere in Latin America. In Brazil, the Kayapo burn the cerrado (shrublands) for esthetic reasons, to reduce populations of snakes and scorpions, to make walking easier (Anderson & Posey, 1989), and to modify soil properties and create fire breaks (Hecht & Posey, 1989). The Kraho also burn the cerrado to eliminate pests and to create an esthetically “clean” landscape, but also to create fire breaks in order to protect desired vegetation (Mistry, 2005). In Chile, the Araucano used prescribed burning to create and maintain stands of the monkey-puzzle tree (Araucaria araucana) (Aagesen, 2004).
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