



State Making, Knowledge, and Ignorance: Translation and Concealment in Mexican Forestry Institutions

ABSTRACT Officials in the Mexican environmental protection agency, the *Secretaría de Medio Ambiente, Recursos Naturales y de Pesca* (SEMARNAP), deploy representations of agropastoral fires set by rural people to find urban allies, whereas officials and rural people in Oaxaca avoid mentioning fire and firewood cutting. Rigorous fire and firewood regulations are largely unenforced, producing official ignorance of burning and firewood cutting, partially because of the absence of fire and firewood forms within SEMARNAP and partially because of collusion and collaboration at the state level. This is compared with official knowledge of logging in indigenous forest communities in the state of Oaxaca to argue that official knowledge can be the product not of state-imposed projects of legibility but, rather, of alliances and entanglements between the state and politically powerful interlocutors. Practices of silencing and concealment are not the result of inadequate Mexican forestry institutions but are inherent to the process of knowledge production. [Keywords: Mexico, forestry, indigenous communities, ignorance, translation, actor-networks]

THE SETTING

In November of 2000, I attended a convention on indigenous community forestry in a hotel on the outskirts of the city of Oaxaca, in southern Mexico.¹ Three large conference halls were occupied by an audience of indigenous community representatives; over the next two days it was largely officials and academics who occupied the podium, speaking on such topics as forestry legislation, community organization, and the benefits of forestry.² It was always clear who the officials were and who the community members: officials occupied the stage, wore office clothes, and often spoke an elaborate bureaucratized laden with legal and technical terms. Their audience was usually darker skinned and many wore the baseball caps or plastic laminated straw hats popular in rural Mexico.

One of the stated goals of the convention was to elicit the views of community members about forest management and forestry regulation, in a state where most forests were owned by indigenous communities. However, it became increasingly clear that a much more important objective was to build political support for the forest service, SEMARNAP, and for a World Bank-funded forestry project, the *Proyecto de Conservación y Manejo Sustentable de Recursos Forestales en México* (PROCYMAF), which sought

to increase industrial forestry in indigenous communities.³ In an inaugural address, the director of SEMARNAP for the state of Oaxaca announced that a principal objective of the convention was “to let society know that communities protect their forests, that they generate jobs from the forests, and generate environmental services” (field notes, Oaxaca, November 8, 2000). He went on to describe the “advances which society should know,” reciting figures about timber production, areas of forest under management, and the numbers of community members involved in fire fighting. Critically, he declared that “only two percent of burned areas are in communities with forests under management” and that violations and environmental degradation took place mainly in unlogged forests. Project leaders and forestry officials were trying to bolster support for logging by producing a representation of community forestry that would visibly demonstrate the political power of the forestry sector to a hostile governor and to his environmentalist allies.⁴ They wished to enlist forest communities and to stage manage a representation of successful forestry development that could link the pine forests of Oaxaca, the legal boundaries of forest communities, the bodies of the community representatives in the room, and global-scale World Bank development agendas.

The convention provided a theatrical stage on which official knowledge, reasoning, and power could be performed. This stage was structured by the uneven power relations between officials and their audience, which ensured that community members and officials concealed their real views from each other. In an interview a few days later, a senior official emphatically blamed rural people for environmental degradation: “Most of the forest in Oaxaca is degraded because of cutting for agriculture, because of fires, because of insect infestations.” This official went on to explain that, although rural communities were reluctant to authorize logging, degradation continued because “they still cut firewood, and they still do their *rozas* (swiddens)” (interview notes, Oaxaca, November 15, 2000).⁵

Officials expressed sympathy with the poverty that drove poor people to engage in firewood cutting and charcoal burning and told me that it would have been impractical and politically foolhardy to try to control it:

We know that a lot [of charcoal] is being produced, maybe more than the total produced for industrial timber, several times more. The Oaxaca market [where firewood and charcoal were openly sold] is a long-term problem, punishing everyone is not the solution. The police or PROFEPA can [forbid sales] for fifteen or thirty days, then political pressures increase and after a month or two the market reopens. [interview notes, January 5, 2001]

These official views of fire and fuelwood cutting were dramatically at odds with the understandings of many of the people in their audience. In the community of Ixtlán, where I spent the most time, elders told me how they had formerly used fire as a largely controllable tool for agriculture, scathingly criticizing those who did not burn properly⁶:

One burns to fertilize, one sets fire. Before, the *milpa* [field] used to come out perfectly, even though we burned the fertilizer [i.e., vegetation]. First you cut a firebreak around the field, you start at the edges, and when the field is surrounded, you burn from the bottom Even when I was young, if people burned without giving notice, if they didn't open up firebreaks and if the fire got away they would be punished with [the community] jail. [interview notes, July 24, 2002]

In spite of this widespread knowledge of the techniques of controlled burning, no one at the convention suggested that fire was anything other than destructive. Similarly, although people from Ixtlán told me that there was no shortage of firewood, there was almost no mention of firewood at the convention.

In this article, I will argue that public silence on fires and firewood at the convention in Oaxaca was underpinned by official performances of knowledge of sustainable forestry. I will combine theories of state formation and of bureaucratic knowledge and ignorance with recent literature from science and technology studies to argue for a counterintuitive conclusion: that rather than being imposed by an authoritative state, socially accepted knowledge of Mexican forests is coproduced (Jasanoff 2004) in

alliances with and encounters between the state and politically powerful indigenous communities. In such encounters, officials combine official environmental discourses, institutional power, and representations of knowledge about forests to build alliances that support stable representations of people, forests, and industrial forestry. These representations silence and cut alliances that support other forms of knowledge, affecting what can be said in public and by whom. Silencing and concealment are not produced only in the unequal encounters between officials and their clients: as I will show, forestry officials willfully omit information from the reports they submit to their superiors. These mundane acts of silencing and omission have implications for what the state itself can know; things that are not embedded in official reports and daily institutional practice come to be forgotten or dimly remembered, as official knowledge comes to exclude the intimate practices of officials and rural people alike.

This article is not an accusation against the Mexican state, Mexican foresters, or states in general. On the contrary, I think that there is a role for the Mexican state in supporting rural communities and helping protect forests. The literature on state making shows us that states and rural people are not necessarily locked in conflict (Joseph and Nugent 1994; Nugent and Alonso 1994), and I will argue that the production of knowledge and of ignorance is a necessary part of the mundane practices of state making. This is emphatically not a triumphant “unmasking critique” (Hacking 1999:13–14) in which I rip aside the veil of appearances to show officials improperly suppressing information. Perhaps it is because we too often assume that states ought to gather, manage, and make use of information that revealing something different can seem like an unmasking. The effect of unmasking may be further supported by some conventions of ethnographic storytelling, which can include an element of mystery and unmasking. At the beginning of this article, I set a stage and described some actors and events, and my analysis of what was “really” going on may appear to be an unmasking. However, I will argue precisely that what was “really” going on was on the stage before me, not concealed at all, a “public secret” that was relatively easily revealed in private conversation. As Bill Maurer (2005:113–114) points out in a discussion of money forms, what is of interest is not the triumphant unmasking of the murderer’s identity but the “glint in his eye,” the way that truth is staged and displayed. Similarly, the literature from science and technology studies shows that silencing rival forms of knowledge is a necessary part of producing scientific knowledge, rather than a vice of Mexican bureaucrats.

STATE MAKING, KNOWLEDGE, AND IGNORANCE

A generation of anthropological research has revealed that state institutions are profoundly fractured, frequently reconfigured, and often in conflict with one another.⁷ Rather than looking for a hidden instrument or machine

whereby real power is exercised, this research locates power in mundane practices of state making and bureaucratic power: the “everyday forms of state formation” described by Gilbert Joseph and Daniel Nugent (1994). How do people in these conflicted and unstable state institutions continue to assert official knowledge and power?

The case of official fire and firewood regulations in Mexico is suggestive: over the course of the 20th century an enduring state discourse has represented rural, often indigenous people as being the authors of environmental degradation through firewood cutting and agropastoral fires that escape to destroy forests. Certainly some agropastoral fires do escape cultivation and rural people are not ecologically benign noble savages. What is of interest is here is that controlled burning is almost totally absent from official representations, in spite of an enormous body of evidence that many fires are controlled. Every year between three and four million hectares are burned for agricultural purposes (Catterson et al. 2004:26); according to official figures, forest fires average around 800,000 hectares per year but the average size of a single forest fire is only 2.8 hectares (Galindo et al. 2003), suggesting that many fires are set intentionally and remain controlled. Anthropologists and agronomists have presented evidence of careful fire use for almost a century (Calvino 1916; Xolocotzi 1957:397), without making any headway in changing official representations of uniformly destructive rural fire use (Mathews 2005:803). I suggest that the stability of official fire discourse and regulations arises from the ways that states make use of discourses of failure or disorder to justify interventions on the side of order. Rural fire users resemble the subjects of development described by Arturo Escobar and James Ferguson (Escobar 1995; Ferguson 1994). Like the subjects of development, fire and fire-using rural people are rebellious “others” who legitimize bureaucratic projects of ordering and control.

However, this kind of discursive analysis of state or development institutions is insufficiently detailed. All too often, what is revealed is rather disappointing; capitalist elites are shown to be doing business as usual, using development or the state to extract resources from poor rural people. The instrumentality of technocratic development has been replaced by an equally instrumentalist political economic analysis (Mosse 2005:3–5). How can we balance the intentionality and complex motivations of officials and their clients with the way that they are embedded in broader political, discursive, and institutional structures? I suggest that we need to take seriously the culture of state institutions themselves, building on the work of James Scott (1998). Scott shows how authoritarian states have sought to impose simplified and officially legible landscapes on prostrate civil societies, describing, for example, the catastrophic failures of forced villagization in Tanzania and collectivization in Soviet Russia (1998:4–5, 193–260). For Scott, officials have interests and aesthetics of their own (1998:18); they constantly straddle legibility and illegibility, as only the kinds

of simplifications administrators wish to know are recorded (1998:11), while official practices are often sustained by a “dark twin” of illegal or informal practices in which officials may collude (1998:331).

Suggestive as this is, Scott largely takes for granted the ability of states to imbue officials with the desire to impose projects of legibility and visibility. We do not see how they go about concealing evidence of failure from their superiors or themselves, although this is strongly suggested by the persistence of failed policies. More recent ethnographies of bureaucracy suggest that officials may ignore government ideologies and projects; they may carry out rituals of assent even as they undermine regulations by their daily actions (Li 1999); or they may collude with the subjects of rule from sympathy, for personal benefit, or from political necessity (Herzfeld 2005:375).⁸ I suggest that close attention to these mundane practices of collusion and evasion radically transforms our understanding of the location and texture of official knowledge making and even of the project of legibility itself. Rather than an official knowledge that arises from the imposition of legibility on officials, society, and nature, as Scott describes, I suggest that official knowledge can also be the relatively fragile product of negotiations between officials and their audiences. Officials may decide to ignore projects of legibility and deal with their own institutional weakness by seeking to entangle powerful allies in official knowledge claims, while often concealing their own activities from their superiors.

In this context, Bruno Latour’s description of the production of scientific facts can be applied to the ways in which officials actively perform and stabilize authoritative representations. According to Latour, scientists seek to stabilize facts about nature by skillful use of rhetoric, by drawing on “texts files, documents and articles” (Latour 1987:31) and linking these with laboratory instruments and nonhuman actors such as microbes, aluminum prisms, or proteins (Latour 1987:75–88). To stabilize their representations as facts, scientists build heterogeneous networks of alliances while seeking to destabilize competing alliances (Callon 1986).⁹ Knowledge is an initially fragile network of people, things, and social practices, easily destabilized, requiring scientists to engage in skilled rhetoric and constant translation (Latour 1987:103, 110–113).

Applying these insights to the study of practices of representation and concealment within the British development agency, the Department for International Development (DFID), David Mosse describes how field-level officials represent their activities as emanating from new policies, concealing much of what they actually do from their superiors (Mosse 2005:162–168). Similarly, the literature on audit culture in the United Kingdom suggests that efforts to assert official transparency for purposes of control often produce public representations of assent that bear little relation to actual local practices, emphasizing that audits are coproduced by the auditors and the audited (Power 1997:90–121). Intentional practices of concealment

and silencing are clearly present in what are often taken to be centers of modernity, so that they are neither necessarily the result of the lack of resources or modernity nor a sign of incompetence or corruption in Mexican forestry institutions.

Actor-network theory (ANT) also suggests why some facts may resist translation across the hierarchy of the forest service, whereas others do not. Facts that are supported by large networks of humans and nonhumans are likely to travel across translations, enter official policy, and become official knowledge through the daily conversations and paperwork of bureaucrats (Latour 1990:54–60). However, as Sheila Jasanoff points out, the size of a network alone is a rather thin explanation for why some facts triumph, and ANT is of little help when thinking about hierarchy, power, and agency (2004:21). Her usage of the term *coproduction* reinserts politics and power into knowledge making, as does her insistence on the ability of citizens to draw on enduring cultural framings of state, science, and credible expertise to accept or reject official performances of knowledge (Jasanoff 2005:247–250). Official representations of knowledge and expertise are produced before often skeptical audiences: these representations may be supported by the institutional power and cognitive authority of the state, but they encounter powerful popular beliefs that may undermine the credibility of official knowledge making. This means that we need to pay attention to the materiality of state power and to the performances and representations with which officials seek to give the state its cognitive, institutional, and normative authority. In these performances, officials braid together multiple forms of power and representation, drawing on ideas about the state, scientific knowledge, and reason, deploying official discourses about industrial forestry alongside their material power to refuse subsidies, mobilize documents, deny logging permits, and punish recalcitrant communities. We should also focus on mundane practices of silence and evasion within the forest service; Mexican forestry officials have some room to ignore or refuse to deploy official environmental discourses and regulations, even as these constrain what they report to their superiors.¹⁰ The strategic decisions by forestry officials in Oaxaca, who choose which official environmental discourses to deploy and which regulations to enforce, are exercised in the gap between official realities and discourses and local political opposition: a hostile state governor, potentially troublesome forest communities, and largely hostile environmentalists.

CONVENTIONAL KNOWLEDGE AT THE CONVENTION

Later in the convention, a senior forestry official, Aldo Domínguez, elaborated on the “advances” of the forestry sector (field notes, November 8, 2000), reciting statistics of forest area under management, firebreaks created, trees planted, and increased timber production, concluding that these activities had benefited the environment and boosted

the economy. A striking feature of this statistical panegyric was that he presented minuscule figures for firewood cutting and made no mention of agropastoral fires, except to repeat that only two percent of fires took place within the boundaries of “well-managed” communities. A few days later, when I asked Domínguez what he thought the actual amount of firewood cutting was, he immediately agreed that it was many times the official figures. Although he did not acknowledge that he had presented these incorrect statistics at the convention, he seemed embarrassed by my question, quickly changing the subject to emphasize that “fire and pests have almost entirely occurred outside of the areas of forest management.” Further, he told me he had hoped that the convention would demonstrate the sustainability of community forestry to the hostile state governor and his “misinformed” advisers (interview notes, November 21, 2000). This response strongly suggests that Domínguez had avoided mentioning firewood cutting and burning at the convention because he feared that this could have threatened a solid public representation of sustainable community forestry.

Domínguez’s statistical recitation asserted his status as a representative of the Mexican state who could not be publicly contradicted for fear of reprisal, it established that the authority of the state was based on quantitative knowledge of the uttermost reaches of the forest, it represented community forestry to the governor and environmentalists in a favorable light, and it established how community forestry could be discussed in public by community members themselves. Community representatives could and did complain of neglect by forest service officials, but they did not criticize the factual basis of official statements, nor did they make statistical declarations of their own. In private both officials and many in their audience doubted the truthfulness of these numbers. As the skeptical forestry official Luis Mecinas told me a few days later: “At the forest forum Ing. Domínguez was putting out all kinds of numbers about reforestation, but he didn’t say how many of the seedlings survived. If those numbers were true they would be great” (interview notes, Oaxaca, November 29, 2000). Such skepticism about official statistics and forms of knowledge was ubiquitous among officials and professionals, in Oaxaca and in Mexico City. Many community members in Ixtlán were similarly doubtful about official figures, criticizing the accuracy of their forest-management plan and resenting burdensome regulations. Environmental activists argued that behind official rhetoric was a reality of corrupt and environmentally degrading logging, claiming that officials used their control of subsidies and logging permits to reward political clients and punish refractory foresters and communities (interview notes, Juan Rosas, Oaxaca, May 1, 2001).

The obverse of public acquiescence to official certainty was a widespread belief that official statements masked the real action: the illegitimate deals whereby officials allocated subsidies or acquiesced to illegal logging. Other researchers

have observed that in Mexico official assertions are rarely criticized in public (Lomnitz 1995; Nuijten 2003:133–136) but that audiences often believe that officials' public actions and declarations conceal immoral negotiations between powerful actors (Haenn 2005:162–164; Nuijten 2003:200–208). The perception that official knowledge is a mask that conceals dangerous realities is shared by officials and their publics and is hauntingly represented on the cover of this issue. In this image by José Chávez Morado, newspapers are a "cloud of lies" that conceal danger and threaten to transform workers into monstrous automatons (Chávez Morado 1940).

A form of criticism that is readily available is the private retelling of stories of corruption and of the reality that is believed to reside behind the mask of official appearances. As Akhil Gupta (1995) points out, discourses of corruption provide a way of imagining the relationship between states, citizens, and other organizations; in Mexico, corruption talk can undermine the credibility of official knowledge claims and make officials vulnerable to strategic accusations of corruption or incompetence. Although I often heard statistics reproduced in public discourse, these were almost universally disbelieved in more intimate conversations with government officials and foresters.¹¹

Public representations of economically and environmentally sustainable industrial forestry were therefore co-produced by officials and audiences who doubted official declarations of knowledge and impartiality but, nevertheless, collaborated in several ways. Representatives of internationally known forest communities such as Ixtlán occupied the podium on several occasions, also mounting a poster display about the community sawmill and drying kiln. A more subtle form of collaboration was community representatives' complicity in avoiding embarrassing topics and public criticism. This, in turn, allowed the continued reproduction of official and media representations of community industrial forestry, supporting continued cooperation between the forest service and communities. "Good" communities such as Ixtlán could be assured that officials would provide direct material benefits through subsidies, indirect support through the authorization of management plans and timber transport documents, and discursive support in public statements. For community members, industrial forestry and its management plans asserted community autonomy and control of forests while allowing them to earn profits from legal as opposed to illegal logging. For forestry officials, industrial forestry was a way of enlisting forest communities in forest protection and of destabilizing the projects of conservationists who might ally with the governor to shut down logging.

Forestry officials sought to stabilize public representation of well-managed forests, of community members fighting fires, and of the economic and social benefits of logging. This public representation was a fact that allowed cooperation between officials and community members, although it had different meanings and purposes for each of them.

We can make sense of this cooperation with the concept of the "boundary object" (Star and Griesemer 1989), which has different identities in different social worlds, enabling cooperation and coordination between them. Even as it allowed collaboration, the boundary object of industrial forestry was a place of linguistic and spatial translation. The fact of industrial forestry ensured that officials and community members expressed their views in certain ways, avoiding the embarrassing public secrets of fuelwood cutting and burning. Officials intentionally translated their belief that rural people cut and burned recklessly into recitations of statistics about valiant community fire fighting, whereas community members translated their knowledge of burning and firewood cutting, and their doubts about official impartiality, into requests for resources and official attention. The boundary object was also stabilized by a spatial translation, as officials sought to displace the interests and allegiances of their audience and persuade them that industrial forestry was an acceptable "detour" to get what they wanted (Latour 1987:117–122). In this sense, officials tried to translate community members into a solid network of pine forests, forest communities, and management plans, while they also tried to destabilize alternative knowledge alliances and "cut" other networks such as the governor's incipient conservationist antilogging alliance (Callon 1986). A further cut was that which defined the limits of the actor-network that supported the representation of industrial forestry (Strathern 1996). Cutting trees in the right way, with a management plan, separated "good" communities from "bad" ones in which trees were cut illegally or not at all.

Unlike the translations described by Michel Callon and Latour, or even the boundary objects described by Susan Leigh Star and James Griesemer, I emphasize the role of state power in stabilizing public representations. Officials' efforts to produce a seamless representation of success were underwritten by their material and symbolic power as representatives of the state, by their audience's fear of reprisal or state violence, and by cultural norms that ruled out public contradiction even when the audience disbelieved official statements. Officials could refuse to authorize forest management plans, they could deny subsidies to foresters and forest communities, and they could refuse to sign timber transport documents. However, communities also had means of applying pressure, by refusing to go to meetings of regional assemblies or forestry conventions, by blockading highways or government offices, and, on very rare occasions, by public denunciations of incompetence or corruption that could result in officials losing their jobs.

OFFICIAL ENVIRONMENTAL DISCOURSES AND TRANSPARENT REGULATIONS

SEMARNAP was an entirely new institution, formed in 1994 by transferring environmental responsibilities from a number of institutions, including the ministries of

agriculture (SARH) and environment (SEDUE). In 2001, the former minister of environment and prominent biologist Julia Carabias described to me how she built the political alliances necessary to produce environmental laws and regulations and how she formalized the internal organizational structures and workflows within the institution. These working practices and flows of documents affected what kinds of knowledge would be officially known and what kinds would remain unreported and unknown. Carabias described the process required to ensure the passage of a new forest law (1997), law of ecological equilibrium (2000), and wildlife law (2000) as one of consultation and consensus building:

When you try to reform regulations, laws, etc., you need very broad-based consensus, otherwise nothing prospers. . . . The law of ecological equilibrium (LGEEPA) was unanimously approved, for the wildlife and the forestry laws we had opposition only from a part of the PRD, not from all. [Julia Carabias, audiotape interview, Mexico City, July 27, 2001]¹²

Although Carabias' consultations secured broad support for SEMARNAP and for new legislation among Mexico City-based politicians and their publics, this consensus suggests that the rural people who set fires and cut firewood were largely ignored. The lack of controversy was precisely an indication of how powerfully urban environmental discourses structured the political and imaginative space available for senior officials. Ultimately, regulations and documents reflected the contexts of policy formation in the capital, dictating what officials in the provinces could record on documents and distancing official reality in Mexico City from what happened in the forests. Official fire discourse that blames rural people for forest fires is pervasive and often deployed by officials, as in senate hearings during the catastrophic 1998 fire year, when Carabias conceded that officials had been overwhelmed by drought and by the burning practices of small farmers and pastoralists (Senado de la Republica Mexicana 1998).

Fire-control regulations produced by the Carabias administration sought to make forests and rural people legible and controllable (SEMARNAP 1997b), requiring people who wished to burn to submit a form ten days in advance, specifying the time, location and size of burn, and who would be in attendance.¹³ If this regulation had been strictly enforced, the forest service would have been overwhelmed by applications from hundreds of thousands of small farmers. In searches through archives in Oaxaca in 2001, I could find no filled-in forms and yet no one in the Sierra Juárez had been fined or even cautioned for inappropriate burning over the previous six years. Rather than preventing burning, these forms claimed official vision into the forests, while making actual burning practices invisible, as people who wished to burn did so discretely or in secret.¹⁴ A firewood-control regulation (SEMARNAP 1996) had a similar effect: people were allowed to cut firewood without permission only as long as they cut dead and fallen trees,

causing fuelwood cutting to go almost entirely unreported and undocumented.

Although these regulations were largely unenforced, they affected the institutional structure of the forest service and the daily paperwork practices of officials. There were almost no budgets or personnel for firewood management and no budget at all for supporting the burning practices of rural people, compared with a large effort to fund official fire fighting. Fire and firewood control regulations caused an almost total absence of forms and documents with information about these practices, so that officials almost never encountered official evidence of burning and fuelwood cutting. The hegemony of official fire discourse among urban politicians, officials, and their audiences produced regulations that suppressed the ecological knowledge not only of the rural people who set tens of thousands of controlled fires every year but also of foresters who might seek to carry out controlled burns. As a forestry researcher told me: "We foresters know quite a bit about fire, but the people of the city, the politicians, criticize the use of fire . . . so foresters have to do it in secret (*a escondidas*)" (interview notes, Oaxaca, May 8, 2000).

TRANSLATING AND OBSCURING WITHIN THE BUREAUCRACY

Forestry officials in Oaxaca were responsible for bridging a yawning gap between detailed and unenforceable regulations that sought to make forests legible to the state and local practices of concealment, burning, and illegal logging. They bridged this gap by silences, omissions, and concealments, carefully interpreting policy mandates and regulations emanating from Mexico City and deciding whether to act on them or to discreetly ignore them. For example, officials responsible for enforcing enormously detailed regulations over logging and biodiversity protection told me that in practice their responsibility for monitoring voluminous cutting reports, transport documents, and management plans prevented them from monitoring anything beyond the cutting area and timber volume (audiotape interview, Oaxaca, November 27, 2000). Their judgment of what was practical and politically feasible caused these officials to ignore most environmental regulations, but even this minimal level of enforcement was bitterly criticized by private foresters and other officials. Domínguez in particular was accused of being "unrealistic" for demanding that foresters follow the regulations; these accusations may have contributed to his dismissal in 2001, suggesting the possible personal cost of applying a regulation on the wrong people. The official responsible for directing fire fighting and enforcing burning regulations was more cautious:

Often the communities listen but don't apply [the regulation]. It is a very heavy bureaucratic transaction that we rarely see. . . . It was managed to write a letter (*un oficio*): it was the simplest manner. A letter was sent to the community officials (*bienes comunales*) for them to take

official notice of the regulation. [interview notes, Juan Soriano, Oaxaca, July 7, 2001]

The “simplest manner” of translating the regulation was indeed to circulate and then ignore it. Soriano told me that effective firefighting depended on good relations with communities, implying that a serious effort to apply the regulation could have alienated these allies. The material object of the fire regulation had become a place of discreet silence by Soriano and community members, while it also prevented him from encountering controlled burning or from reporting his own decision to ignore the regulation.

The ways in which state level officials concealed information from their superiors can also be seen with illegal fuelwood cutting. Officially declared fuelwood production in 1997 (SEMARNAP 1997a) was around one percent of the most credible figures (Díaz Jiménez 2000; Masera et al. 1997) and contradicted figures presented in the firewood-cutting regulation itself (SEMARNAP 1996). These inaccurate national figures show how provincial and local forestry officials throughout Mexico avoided reporting their inability to enforce fuelwood-cutting regulations. Forestry officials in Oaxaca and other states collated the tiny number of legal fuelwood cutting permits and submitted them to their superiors in Mexico City, where they were used to produce inaccurate national statistics. There were good pragmatic reasons for officials to ignore fuelwood and charcoal. In 1990, efforts to prevent illegal charcoal sales in the main market of Oaxaca had resulted in riots that shut the market down for two days; one official told me that the market was a “powder keg” (interview notes, Miguel Soriano, Oaxaca, November 29, 2000). Officials knew that enforcing fuelwood regulations could cost them their job, but the decision to turn a blind eye could also be motivated by sympathy; Soriano told me how he had allowed a truck laden with illegal charcoal to proceed to market because it carried a sick child.

Even as they tactfully ignored forestry regulations, many officials felt that it was often pointless to report unwelcome news to their superiors, who preferred them to produce statistics that supported fictitious success. One senior forestry official, looking back on 30 years in government service, told me that foresters were largely prisoners of the environmental beliefs of politicians and their urban audiences:

It is not easy for [the public] to form clear ideas, the [senior functionaries] have always answered to the government, so generally the same policies get made, to satisfy in some measure the ideas that [the politicians] have and the same errors are repeated . . . Politicians say ‘let’s reforest’ and money gets spent on this when what is needed is education, training, culture . . . there is not even an area of one hundred hectares [of replanted forest] where you could come back after five or six years; all of those trees are dead. [interview notes, Jose Mares, Mexico City, April 5, 2001]¹⁵

Mares was particularly bitter that politicians’ performances of environmental restoration prevented the failure

of tree-planting projects from being reported, and he told me that this kind of suppression of project evaluations and reports was ubiquitous. The case of failed tree planting resembles the failure to report evidence of widespread illegal fuelwood cutting and the nonenforcement of fire regulations; representations of controlled burning and of fuelwood cutting failed to travel because they lacked the necessary networks of human and nonhuman allies and were silenced by the much more powerful discursive alliances between senior functionaries, politicians, urban audiences, and forestry legislation.

A FINAL COUNTEREXAMPLE: KNOWLEDGE THAT TRAVELS

After these examples of knowledge that fails to travel for lack of institutional alliances and political support, it seems worthwhile to briefly outline knowledge that travels and can survive translations across the hierarchy of the forest service and affect the knowledge of high-level officials. This is the case with official knowledge of trees cut in the community forests of Ixtlán de Juárez, north of the city of Oaxaca. Ixtlán is one of a group of around 30 highly organized and relatively powerful forest communities in the state of Oaxaca that have gained *de facto* as well as *de jure* control of their forests (Bray et al. 2005). These communities have a long history of cooperation, co-option, and opposition to state power and are far from being a realm of harmony and order; internal community politics have at some times been violent and oppressive. Community and state are at times in tension, at times in alliance, and often profoundly imbricated, as some community leaders may periodically work as government functionaries. At present, the communities employ their own foresters, have their own management plan, do their own logging, and, in some cases, perform their own sawmilling and timber marketing. Despite persistent and occasionally paralyzing internal and intercommunal conflicts, these communities are so politically powerful that they can pressure forestry officials to see things their own way. Community forestry has attracted the attention of donors such as the World Bank, and the collaboration of successful communities such as Ixtlán can secure flows of funding to support official involvement in projects such as PROCYMAF, which is active to this day (2008).

These forest communities have been able to impose on the forest service a local environmental history that highlights the virtue of community members in fighting forests and suppressing fires and blames past environmental degradation on outside logging companies (Mathews 2003). Officials are in dire need of a success story of good forest management so they have good reason to accept community environmental and political narratives. In addition, the communities can apply political pressure according to the traditional repertoire of Mexican politics: by presenting a serious enough protest that officials feel they must negotiate. For example, I was told that before the 1994 presidential elections, an alliance of forest communities

threatened to blockade the main highway into the city of Oaxaca with timber trucks and succeeded in securing an informal exemption from taxes (interview notes, anonymous informant, Oaxaca, May 4, 2001), which remained in place when I was doing my fieldwork in 2001 (ASETECO and COCOEFO 2001). In another manifestation of community power and of officials' need to avoid public criticism, I was told that representatives of the community of Yavesia had openly denounced the official Domínguez in a public meeting with the new minister of environment (interview notes, Juan Rosas, Oaxaca, May 1, 2001). Although everyone I talked to considered Domínguez to be honest and idealistic, he lost his job in an administrative reshuffle a few weeks later. Domínguez himself blamed this on politicking by the governor, the community of Yavesia, and environmentalists (interview notes, Oaxaca, July 4, 2001). In this case, then, state knowledge of trees cut in the forests of the Sierra Juárez was coproduced by an alliance between relatively weak state institutions and politically powerful forest

communities who could threaten the job security and alter the representational practices of forestry officials.

The community forester of Ixtlán had mastered the bureaucratic and material operations required to submit elaborate biannual and bimonthly cutting records and timber transportation documents (see Figure 1), assuring the forest service of detailed knowledge of the remotest parts of the forest. These cutting reports are every bit as detailed as fire-and firewood-control forms (SEMARNAP 1996, 1997b), but cutting reports from communities such as Ixtlán produced official knowledge rather than official ignorance. The information entered onto cutting reports was accurate only because community members thought it was worth participating in legal logging through well-established community forestry institutions, rather than evading documentation and logging illegally. The community of Ixtlán could support a bureaucracy of its own, with full-time paid "documenters" who managed transport documentation, foresters who prepared management plans, and secretaries

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FIGURE 1. Timber transportation form.

who managed these documents. Knowledge of trees cut in the forests of Ixtlán could only be translated, first onto timber transport documentation and then into national forestry statistics, because of a successful alliance between the forester, community members, and forestry officials. Within the political context of state–community relations in Mexico, it is the political, material, and representational power of forest communities such as Ixtlán that allows for an entanglement of the social worlds of World Bank forestry projects, national forest policies, Domínguez’s panegyric to forestry development at the forest forum in Oaxaca, and Ixtlán’s decision to produce management plans, submit logging records, and attend the forestry convention in Oaxaca. People from relatively weak or less unified forest communities, where bureaucratic practices of forest management lack popular assent, are likely to adopt more traditional practices of evasion, concealment, or illegal logging (e.g., Klooster 2000).

REFLECTIONS ON STATE MAKING AND KNOWLEDGE

Like other modernist bureaucracies, state forestry and conservation institutions in Mexico are fractured and unstable; high-level officials respond to this instability by deploying representations of out of control wildfires and rural people before urban audiences who have come to believe that rural people are the authors of destructive fires. Fire and firewood regulations inspired by this official discourse seek to assert knowledge and control over distant forests but are only rarely connected to the practices of people who work in them. These representations do, however, strengthen the legitimacy of state forestry institutions before urban audiences and lead to the production of regulations, plans, and documents that codify official understandings of nature–society, structure the flow of documents and the allocation of budgets, and limit what forestry officials come to know. The distance between national regulations and rural reality leaves local-level officials the tricky task of representing success and obedience to their superiors, even when the regulations they are supposed to enforce are impossible to apply. Officials in Oaxaca can maintain representations of obedience and success by building alliances with politically powerful forest communities and by avoiding public conflicts should they try to enforce inappropriate regulations. As new policies and regulations continue to emanate from Mexico City, the art of being a state-level forestry official lies in divining which policies and regulations to apply and which to discreetly ignore.

By focusing on public performances of official knowledge, on officials’ decisions to turn a blind eye, and on the reasons they give for doing so, I have sought to show how officials have some space to intentionally ignore environmental regulations and discourses. Nevertheless, these regulations subtly constrain what officials come to know, both because the slippery assent of their audiences prevents contradiction and because regulations largely dictate the con-

tent of forms and policy documents. Forestry officials have considerable room to decide whether and how to incorporate official discourses into local performances of official knowledge, as they negotiate a reality of institutional weakness and competing political-epistemic alliances. However, although officials like Domínguez could intentionally avoid mentioning fire and firewood, they never openly contradicted official environmental discourses and largely accepted them.

The concept of the actor-network, drawn from Latour (1987), can help us understand why representations of responsible fire use and of the failure of officials to enforce fire and firewood regulations fail to travel across translations and enter official knowledge. The institutional, material, and representational power of official knowledge silences alternative knowledge alliances, as in the conference hall in Oaxaca or in the power of fire and firewood forms to silence knowledge of controlled burning and of rural firewood cutting. Other kinds of knowledge, such as of trees cut in the forests of Ixtlán, does travel, because it is supported by a large and politically powerful network of human and nonhuman allies: documents, community members, and trees. Interpreting public knowledge about forests as a political-material alliance of this kind illuminates the collaboration between state and forest communities. In the conference hall in Oaxaca, collaboration took place around the boundary object of community forestry, a political-material alliance that silenced competing knowledge. This boundary object shed a shadow that silenced knowledge of fire and firewood cutting and marginalized a possible antilogging alliance between the governor and conservationists, even as it allowed collaboration between politically powerful forest communities, the forest service, and the World Bank PROCYMAF project.

I suggest that Mexican forestry officials’ intentional and unintentional practices of making knowledge and ignorance contradict common assumptions about official knowledge, whether as a power-laden discourse (Escobar 1995; Ferguson 1994) or as the result of a project of legibility (Scott 1998). Drawing on science and technology studies and recent ethnographies of bureaucracy, I have highlighted the ability of officials and their audiences to partially ignore environmental discourses and to collaborate in making knowledge and ignorance. Knowledge making is profoundly context dependent, requiring skillful intentional practices that are only partially constrained by official discourses or projects of legibility. This freedom of action has the effect of drastically undermining the ability of the Mexican state to know things. Where official knowledge making does not find local allies and interlocutors, it slips smoothly across assent; this slippery transaction produces a symmetrical absence within the forest service itself. Fire and firewood regulations leave little record, have no effect on institutional structure and practice, and produce official ignorance as to where and why people burn fields and cut firewood. This yields the profoundly counterintuitive

conclusion that in Mexico official knowledge of forests can be the product not of authoritative state institutions but of the ability of relatively weak officials to build alliances with powerful indigenous communities.

Official knowledge proceeds not by imposition alone but by entanglement, mistranslation, and concealment, as officials seek to engage their audiences in public knowledge making. This suggests that we need institutional ethnographies that attend not only to discourses and official projects but also to translations and mistranslations within institutions, to the materiality of institutional power, and to the texture of encounters between officials and their clients. Socially accepted knowledge of Mexican forests is the product of “civic epistemologies” (Jasanoff 2005:247–271), where the beliefs and practices of citizens affect whether official environmental discourses and regulations are entangled with popular practice and assent or slip smoothly across silence and disbelief.

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NOTES

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1. This convention was mentioned in Mathews 2005, where I incorrectly gave a date of 2001.
2. Around 80 percent of Mexico’s forests are legally the property of *comunidades agrarias* or *ejidos*. For much of the 20th century, de facto control of forests was in the hands of private or parastatal timber companies. Since the mid-1980s, an increasingly powerful community forestry sector has attracted national and international attention and support (Bray et al. 2005).
3. The federal institution responsible for forests has undergone frequent name changes and institutional moves over the last 80 years. At present, responsibility for forests is spread across the Ministry of Environment and Natural Resources (Secretariado de Medio Ambiente y de Recursos Naturales [SEMARNAT] 2002), the semi-autonomous National Forestry Commission (CONAFOR), the National Biodiversity Commission (CONABIO), and the Federal Environmental Prosecutor (PROFEPA).
4. Governor Murat had his own projects for conservation and development, mostly focused on the development of a transisthmus highway, which was mysteriously also supposed to protect tropical nature.
5. Swidden is the nonderogatory term for long fallow agriculture, where forests are cut, burned, cultivated for a few years, and then allowed to regenerate. In Mexico, this is known as *tumba roza y quemada* (slash and burn) or simply *roza* for short.
6. In Ixtlán burning has ceased because of the abandonment of agriculture and the rise of industrial forestry (Mathews 2003).
7. Seminal essays by Abrams and Foucault deny the unity of the state and suggest a focus on the mundane routines through which bureaucrats assert state power (Abrams 1988; Foucault 1991). For a collection of classic and more recent essays on the anthropology of the state, see Sharma and Gupta 2006 and Sivaramakrishnan 1994:8–20.
8. Scott is himself keenly aware of precisely these kinds of evasions and concealments (Scott 1985).

9. Latour is the best known of a school of actor-network theorists. His theoretical position has shifted significantly over the last 20 years (e.g., Latour 2004); for present purposes, I make use of his earlier formulation.

10. Following Martin Hajer, I focus on strategic action by officials who use discourse argumentatively, even as they are also somewhat constrained by its effects (Hajer 1995:352–361).

11. Claims not to believe in official statistics were also kind of positioning that distanced officials from official corruption.

12. Zedillo was the first president not to control a majority in the legislature. The PRD is the Revolutionary Democratic Party. Along with the National Action Party (PAN), the PRD was in opposition to the president’s minority Institutional Revolutionary Party (PRI).

13. Forestry regulations have been similarly detailed over the last century (Mathews 2003:803–804), suggesting an enduring cultural commitment to regulatory transparency.

14. Filling in forms requires the simultaneous production of legibility and illegibility, and of translation and transposition (Chu in press); in Mexico permission to burn forms produced complete concealment.

15. Reforestation budgets are often dedicated to other ends (personal communication, Nora Haenn, December 1, 2005). See also Haenn 2005:156.

REFERENCES CITED

- Abrams, Philip
1988 Notes on the Difficulty of Studying the State. *Journal of Historical Sociology* 1(1):58–89.
- ASETECO and COCOEFO
2001 Open Letter to Mexican Congress from the Coordinadora de Comunidades y Ejidos Forestales del Estado de Oaxaca. Oaxaca, Mexico.
- Bray, David Barton, Leticia Merino-Pérez, and Deborah Barry, eds.
2005 *The Community Forests of Mexico*. Austin: University of Texas Press.
- Callon, Michel
1986 Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Briec Bay. *In* Power, Action, and Belief: A New Sociology of Knowledge? J. Law, ed. Pp. 196–233. London: Routledge.
- Calvino, Mario
1916 Boletín No. 4 del Departamento de Agricultura de Yucatán (Bulletin No. 4 of the Yucatán Department of Agriculture). Mérida, Yucatán: Yucatán Department of Agriculture.
- Catterson, Thomas M., Oscar Cedeno Sanchez, and Stephen Lenzo
2004 Assessment and Diagnostic Review of Fire Training and Management Activities Funded by USAID/Mexico From 1998–2003. Mexico City: USAID/Mexico.
- Chávez Morado, José
1940 *Nube de Mentiras* (Cloud of Lies). Philadelphia Museum of Art: Gift of R. Sturgis and Marion B. F. Ingersoll in 1943, Mexico City.
- Chu, Julie
In press Card Me When I’m Dead: Identification Papers and the Pursuit of the Good Afterlife in China. *Cultural Anthropology*.
- Díaz Jiménez, Rodolfo
2000 Consumo de Leña en el Sector Residencial de México: Evolución Histórica de Emisiones de CO₂ (Firewood consumption in the residential sector of Mexico: Historic evolution of CO₂ emissions). M.S. thesis, Department of Engineering, Universidad Nacional Autónoma de México.
- Escobar, Arturo
1995 *Encountering Development: The Making and Unmaking of the Third World*. Princeton: Princeton University Press.
- Ferguson, J.
1994 *The Anti-Politics Machine: “Development” Depoliticization and Bureaucratic Power in Lesotho*. Minneapolis: University of Minnesota Press.
- Foucault, Michel
1991 Governmentality. *In* *The Foucault Effect: Studies in Governmentality*. G. Burchell, C. Gordon, and P. Miller, eds. Pp. 87–104. Chicago: University of Chicago Press.

- Galindo, P., P. López-Pérez, and M. Evangelista-Salazar
2003 Real-Time AVHRR Forest Fire Detection in Mexico (1998–2000). *International Journal of Remote Sensing* 24(1):9–22.
- Gupta, Akhil
1995 Blurred Boundaries: The Discourse of Corruption, the Culture of Politics, and the Imagined State. *American Ethnologist* 22(2):375–402.
- Hacking, Ian
1999 *The Social Construction of What?* Cambridge, MA: Harvard University Press.
- Haenn, Nora
2005 *Fields of Power, Forests of Discontent: Culture, Conservation, and the State in Mexico*. Tucson: University of Arizona Press.
- Hajer, Maarten A.
1995 Discourse Analysis. In *The Politics of Environmental Discourse*. Pp. 42–72. Oxford: Oxford University Press.
- Herzfeld, Michael
2005 Political Optics and the Occlusion of Intimate Knowledge. *American Anthropologist* 107(3):369–376.
- Jasanoff, Sheila
2004 Ordering Knowledge, Ordering Society. In *States of Knowledge: The Co-Production of Knowledge and Social Order*. S. Jasanoff, ed. Pp. 13–42. London: Routledge.
2005 *Designs on Nature*. Princeton: Princeton University Press.
- Joseph, Gilbert M., and Daniel Nugent
1994 Popular Culture and State Formation in Revolutionary Mexico. In *Everyday Forms of State Formation: Revolution and the Negotiation of Rule in Modern Mexico*. Gilbert M. Joseph and Daniel Nugent, eds. Pp. 3–23. Durham, NC: Duke University Press.
- Klooster, D.
2000 Community Forestry and Tree Theft in Mexico: Resistance or Complicity in Conservation? *Development and Change* 31(1):281–305.
- Latour, Bruno
1987 *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press.
1990 Drawing Things Together. In *Representation in Scientific Practice*. Pp. 19–68. Cambridge, MA: MIT Press.
2004 *Politics of Nature: How to Bring Sciences into Democracy*. Cambridge, MA: Harvard University Press.
- Li, Tania
1999 Compromising Power: Development, Culture, and Rule in Indonesia. *Cultural Anthropology* 14(3):295–322.
- Lomnitz, Claudio
1995 Ritual, Rumour and Corruption in the Constitution of the Polity in Modern Mexico. *Journal of Latin American Anthropology* 1(1):20–47.
- Masera, Omar, Jaime Navia, Teresita Arias Chalico, and Enrique Riegelhaupt
1997 *Patrones de Consumo de Leña en Tres Micro-Regiones de México: Síntesis de Resultados*. Mexico City: Proyecto FAO/México “Dendroenergía Para el Desarrollo Rural.”
- Mathews, Andrew Salvador
2003 Suppressing Fire and Memory: Environmental Degradation and Political Restoration in the Sierra Juárez of Oaxaca 1887–2001. *Environmental History* 8(1):77–108.
2005 Power/Knowledge, Power/Ignorance: Forest Fires and the State in Mexico. *Human Ecology* 33(6):795–820.
- Maurer, Bill
2005 *Mutual Life, Limited: Islamic Banking, Alternative Currencies, Lateral Reason*. Princeton: Princeton University Press.
- Mosse, David
2005 *Cultivating Development: An Ethnography of Aid Policy and Practice*. London: Pluto Press.
- Nuijten, Monique
2003 *Power, Community and the State: The Political Anthropology of Organisation in Mexico*. London: Pluto.
- Power, M.
1997 *Audit Society: Rituals of Verification*. Oxford: Oxford University Press.
- Scott, James C.
1985 *Weapons of the Weak: Everyday Forms of Peasant Resistance*. New Haven, CT: Yale University Press.
1998 *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- SEMARNAP
1996 Norma Oficial Mexicana NOM-012-RECNAT-1996. Electronic document, http://www.semarnat.gob.mx/leyesynormas/Normas%20Oficiales%20Mexicanas%20vigentes/NOM_012_RECENAT.pdf, accessed March 1, 2003.
1997a Anuario Estadístico de la Producción Forestal. Mexico City: SEMARNAP.
1997b NORMA Oficial Mexicana NOM-015-SEMARNAP/SAGAR-1997. Electronic document, <http://www.sagarpa.gob.mx/ganaderia/NOM/015semsa.pdf>, accessed March 1, 2003.
- Secretariado de Medio Ambiente y de Recursos Naturales (SEMARNAT)
2002 Acuerdo por el que se establecen las especificaciones, procedimientos, lineamientos técnicos y de control para el aprovechamiento, transporte, almacenamiento y transformación que identifique el origen legal de las materias primas forestales (Agreement which establishes the specifications, procedures technical features and controls for exploitation, transport, storage, and processing that identify the legal origin of forest raw materials). In *Diario Oficial*, Martes 24 de diciembre de 2002. México: Federal Republic of Mexico.
- Senado de la República Mexicana
1998 Sesión Plenaria del Senado de la República Mexicana: Versión Estenográfica (Stenographic version of Plenary Session of the Senate of the Mexican Republic, April 21, 1998). Mexico: Senado Mexicano D.F.
- Sharma, Aradhana, and Akhil Gupta
2006 *The Anthropology of the State: A Reader*. Blackwell Readers in Anthropology, vol. 9. A. Sharma and A. Gupta, eds. Malden, MA: Blackwell.
- Sivaramakrishnan, Kalyanakrishnan
1994 *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India*. Stanford: Stanford University Press.
- Star, Susan Leigh, and James R. Griesemer
1989 Institutional Ecology, “Translations” and Boundary Objects: Amateurs and Professionals in Berkeley’s Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science* 19(3):387–420.
- Strathern, Marilyn
1996 Cutting the Network. *Journal of the Royal Anthropological Institute* 2(3):517–535.
- Xolocotzi, E. H.
1957 *La Agricultura en la Península de Yucatán (Agriculture in the Yucatán Peninsula)*. In *Los Recursos Naturales del Sureste y su Aprovechamiento (Natural resources of the Southeast and their exploitation)*, vol. 3. E. Beltran, ed. Pp. 3–57. México, D.F.: Ediciones del Instituto Mexicano de Recursos Naturales Renovables.