



# A swamp and its subjects: conservation politics, surveillance and resistance in Trinidad, the West Indies

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## Abstract

Once overlooked or scorned for its purportedly “unscientific” and culturally contextual nature, local knowledge has recently become a key ingredient in conservation and development planning in developing countries. However, this abrupt shift in the conceptualization and assumed utility of local knowledge has not received widespread theoretical attention. In addition, the literature on local knowledge is dominated by discussions of the scientific and applied merits of local epistemologies, and little theorization has been devoted to the explicitly spatial and social contexts that inform the encounters between local and scientific knowledge. This article draws on Michel Foucault’s notions of subjectification, surveillance, and subjugated knowledge to analyze the liberatory potential of local knowledge through its embodiment in spatially situated subjects. The article builds on a case study in Trinidad, focusing on the subjectification of local fishermen through constructions of local knowledge, and the ways in which this subjectification was reversed and employed in the performance of resistance and intracommunal conflicts.

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## 1. Introduction

“Local knowledge” has become emblematic of the participatory turn in Third World development and conservation practice. Once scorned as an obstacle to development and relegated to the realm of superstition or magic, practitioners and theorists have during the past decade embraced local and indigenous thinking, experimentation, and epistemologies as the key to remedying the poor and disempowering performance record of decades of top-down conservation planning. This paradigmatic turn—from local knowledge as myth to local knowledge as resource—is commonly viewed as a natural, discontinuous development in the progressive march of Western science: since local knowledge has been “proved” useful by scientific standards, Western rationality demands it is incorporated into the narratives

and practices of conservation planning in Third World countries.<sup>1</sup> However, less attention has been given to problematizing the innately *geographical* contingencies and consequences of this incorporation of local knowledge into the conservation and development discourse. I speak here in terms of projects of place-making for biodiversity conservation, i.e., the social production of places as bounded landscapes deemed worthy of protection as national parks and the like. By situating my analysis at the intersection of these two hegemonic projects of post-colonial desire—place-making and the quest for local knowledge—I seek to explore the spatial discontinuities and fractures which inform what knowledge becomes privileged and by whom, and the spatial networks through which knowledges become embodied and employed both in the practice of power and in the performance of resistance.

<sup>1</sup> I borrow the notion of local knowledge as myth from Scott (1996), who analyzes environmentalists’ and public officials’ use of Cree environmental knowledge to advocate certain development positions.

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In order to consider the multiple ways in which these new representations of local knowledge provide possibilities for power and resistance, and how these possibilities emerge from specific places at specific times, I will disturb the binary between “experiential,” situated local knowledge, and universal, rational scientific knowledge (e.g., Bebbington, 1993; Nader, 1996, pp. 2–3). The result of this dichotomization of local knowledge is an unfortunate contradiction: as the desire for local knowledge increases among Western scientists, local knowledge is increasingly dislocated from their cultural context, recodified, and encapsulated within the boundaries of Western science (Bebbington, 1993; Escobar, 1995, p. 204; Eyzaguirre, 2001). The participatory conservation literature is dominated by reflections of the best methods to “incorporate” local knowledge into the development project, but instead of “learning” from indigenous people, Western scientists appropriate local knowledge and convert it into discreet bits of “information.” In the process, they devalue the bearers of the local knowledge systems and undermine organic processes of knowledge production occurring within different social contexts (Samoff and Stromquist, 2001). On the other hand, while strategic essentializations of local knowledge fuel indigenous projects of self-reliance and territoriality, they simultaneously feed a disempowering and delimiting discourse of indigeneity. This contradiction is perhaps most prevalent in indigenous and local representations of self as ecologically sensitive, symbiotically linked with the land, and the like, which result in a situation where local and indigenous peoples are complicit in their own subjugation (Milton, 1996, p. 202; for more on the critique of strategic essentializations and discourses of indigeneity see also Appadurai (1992, 1995), Escobar (1998), Gupta (1998) and Gupta and Ferguson (1992, 1997); for a traditionalist critique of indigenous conservation management based on local knowledge, see e.g., Redford and Stearman (1993)).

I suggest that this dichotomization of local and scientific knowledge is in part due to the lack of consideration of social processes involved with this latest rediscovery of local knowledge in the North, and the curious inattention to the spatial nature of this particularly spatial phenomenon. In this article, I engage with the work of Foucault (1972, 1977, 1978, 1980, 1983, 1984) and the literature in feminist geography to consider the practice of knowledge, which traverses space and places in inherently uneven, contested, and discontinuous ways, and informs and moderates relations of power in equally unpredictable ways. In his work, Foucault was sensitive to the manner in which spatial relations are deeply implicated in historical processes (Philo, 2000, p. 221), and I draw on this spatio/historical perspective to illuminate the production and practice of local knowledge within spatially contingent fields of

power relations. This Foucaultian perspective provides a point of departure to consider the multiple fissures through which “local” and “scientific” knowledges flow, intersect, and mingle, and the manner in which knowledges are embodied and put to use through a myriad of techniques intended to produce and contest the workings of power in particular places at particular times. Through such a nuanced reading of the limits and yet also “positive” dimensions of power associated with situated knowledges, I consider knowledge as *practice* implicated in contested processes of subjectification and surveillance.<sup>2</sup> Local knowledge is thus never divorced from relations of power, but acts through its spatiality to affect power in multiple ways—not simply as a unified form of communal “resistance” against a monolithic state, but rather as a complicated web of contestation and subjugation “taking place” at myriad points and between myriad actors across a power-laden landscape. Just as the “modern” is transformed and produced in its encounters with the non-modern (Watts, 1995, p. 61), globalized, scientific knowledge is modified when it intersects with local knowledge at specific places at specific times.

To unpack the sometimes counterintuitive responses of local communities to processes of surveillance and subjectification operating through scientific knowledge, I am also aided by the work of feminist theorists, who have developed effective critiques of the hegemony of anthropocentric science, and in the process have further elaborated Foucault’s perspectives on surveillance and subjectification (e.g., Robinson, 2000; Sawicki, 1989, 1994; Haraway, 1991; Harding, 1986). To further expand the understanding of the spatial nature of the operations and contradictions of knowledge practices, I draw on Sharp et al.’s (2000) notion of “entanglement” to underscore that processes of power/knowledge also operate across and through space, producing new forms of embodied surveillances and subjectification among different, “local” actors. By illuminating the explicit spatial dimensions of subjectification and surveillance associated with knowledge constructions and knowledge practices, I view local knowledge as a positive and active form of power, operating through spatially contingent fractures in supposedly hegemonic development and conservation projects.

I build my case on an analysis of narratives of place, knowledge, and identity in the rice farming and fresh-

<sup>2</sup> The concepts of “positive” power, subjectification, and surveillance will be developed further in the following pages. I refer here to the role of power in constituting subjects in terms of discourses, and of the means by which subjects are controlled through surveillance operating in spatial fields (for further explication of positive power, see e.g., Gordon (1980, p.234) and Sharp et al. (2000, p. 15); for more on subjectification and surveillance, see e.g., McHoul and Grace (1993, p. 65), Merquior (1985, p. 113) and Racevskis (1983, p. 9)).

water fishing community of Kernahan, located on the edge of the Nariva Swamp on the east coast of Trinidad, the West Indies. I recorded these narratives through formal interviews and unstructured, impromptu conversations during fieldwork in fall, 1997, a period of important and unprecedented social change in Kernahan. During the late 1980s and early 1990s, the island had witnessed the “Battle of Nariva,” a contest between environmentalists and supporters of agricultural development to define the meaning and proper use of the Nariva Swamp (Sletto, 1998, 1999, 2002a,b). Through this contest, which had been fought between a loose alliance of environmentalists, scientists, and state officials, and an equally ephemeral coalition of rice industry officials, rice growers, and government officials, emerged a redefinition of the local knowledge of fishermen in the subsistence communities that fringe the Nariva Swamp. While the commercial rice growers had become emblematic of environmentally destructive behavior, local villagers had become subjectified as ecologically noble swamp dwellers because of their situatedness in place and their purportedly unique, local knowledge. I argue that this shift in the perception and representation of local knowledge in this particular place at this particular time illustrates the situated and socially contingent nature of the wider paradigmatic shift in the thinking about local knowledge during the past two decades.

However, the subjectification of swamp dwellers was contingent on and fractured by the diversity of practices of place-making within the swamp communities. Different actors responded in different ways to the conservationist rhetoric, incorporating selected tropes associated with their local knowledge and position within a socially “entangled” swamp landscape to engage with the process of their own subjectification. Because of the strict gender divisions in this community, and also because my research was limited to the political ecology of freshwater fishing, I focus here specifically on the tension between two groups of fishermen (Sletto, 1998, 1999). While fishermen following “traditional” castnet techniques participated in their own subjectification as repositories of local knowledge, fishermen who used fishing traps resisted the surveillance implicated in their subjectification. I attempt to allow fishermen’s voices to illustrate the fractured and socially situated nature of local knowledge systems, and the ways in which such knowledge systems are imbricated with global and local relations of power.

I begin with a review of the literature on local knowledge, including a brief detour into the work of authors such as Agrawal (1995) and Nygren (1999) who have effectively critiqued the dualism erected between local and scientific knowledge. I proceed with a short introduction to the spatial dimensions of salient Fou-

caultian concepts, especially the notion of discontinuity, the links between power and knowledge, and the processes of subjectification and surveillance.<sup>3</sup> The intent here is to set the stage for the following section, where I analyze the abrupt change in the representation of local knowledge in the Nariva Swamp and its implications for understanding the wider shift in the conceptualization of local knowledge. Following this I proceed with an analysis of local representations and what these may reveal about the entanglement of everyday practices, power, and contestation associated with new forms of subjectification and surveillance. I conclude with a few thoughts on the utility of an integrated, spatial and genealogical perspective on local knowledge, and the implications of a Foucaultian notion of positive power for those of us eager to conceptualize the empowerment potentials of local knowledge.

## 2. Local knowledge: from magic to resource

Local knowledge has of course long been the fodder of anthropological and other research in the social sciences, particularly in the subfields of cultural ecology and associated fields such as ethnobotany and ethnoecology (Berkes, 1993, pp. 1–2). What is relevant here is the shift from a fairly narrow interest in local knowledge in specialist fields, to a situation where local knowledge is valorized by any number of activists and professionals for its possible contributions to applied research in development and conservation (Scott, 1996, p. 69). The integration of local knowledge for effective conservation planning has become enshrined in the rhetoric of global conservation NGOs (sometimes in terms such as indigenous knowledge, traditional ecological knowledge, or traditional management systems), and has reached the celebrated status of such other plastic terms as “gender” on the web sites and in the publication machines of global, national, and regional planning institutions. As one writer suggested in the early years of this recent quest for local knowledge, “awareness is spreading that (local knowledge) can be used to improve development planning in regions inhabited or exploited by indigenous peoples” (Johannes, 1993, p. 33). The prevailing view is thus that local knowledge can be “integrated” into science; that “indigenous knowledge . . . is an apolitical and non-economic resource which can be extracted from local communities, translated into Western terminology, and assessed by scientific criteria” (Myer, 1998; for

<sup>3</sup> This introduction is brief since the literature on Foucault and inspired by Foucault is voluminous [for explicitly Foucaultian work in the field of geography and closely related disciplines, see e.g., Driver, 1985, 1993; Escobar, 1995, 1998, 2001; Hannah, 1992, 1997a,b; Matless, 1992; Philo, 1992, 2000; Sharp et al., 2000; Soja, 1989. See also Foucault’s comments on geography in Foucault (1980)].

examples of this thinking, see e.g., Balakrishnaraj, 2000; Brokensha et al., 1980; Inglis, 1993; Johannes, 1993; McNeely, 2000; Ortiz, 1999; Quiroz, 1996; Thomas, 1994; Warren, 1990; Warren et al., 1995). Today local knowledge even merits its own, web-based journal, the *Indigenous Knowledge and Development Monitor*,<sup>4</sup> and the World Wide Web is replete with articles proposing definitions and explanations of this latest research tool for applied practitioners and reporting the latest applications of local knowledge in conservation and development projects (see e.g., Mathias, 2001; The World Bank Group, 2001; UNESCO, 2001).

However, despite the apparent innocent respect for local knowledge in the development and conservation literature, the conceptualization of local knowledge still draws on the sets of binaries that define the *raison d'être* of the development project: between developed and underdeveloped, First and Third World, modern and non-modern, and most importantly, between rational Science and un-“disciplined” local knowledge. In the same way as representations of places deemed in need of development emerge from colonial discourse and projects of place-making (e.g., Escobar, 2001, Mitchell, 1995), representations of local knowledge can be seen as mere refinements of colonial imaginings and representations of the “indigenous” Other (Gupta, 1998, p. 167). By painting indigenous knowledge as the dualistic, “undisciplined” opposite of Western knowledge, local knowledge is reduced to subaltern knowledge as part of an ongoing project of neo-colonization (Mignolo, 2000, p. 10).<sup>5</sup> Other writers critique the disempowering practice of information management, especially the removal of indigenous knowledge from their cultural context and their incorporation into the knowledge management systems of hegemonic development institutions such as the World Bank (Samoff and Stromquist, 2001).

These critiques notwithstanding, indigenous activists and conservation scientists with an activist bent have seized the opportunity afforded by the official validation of local knowledge to further an alternative agenda of indigenous and local rights. By drawing on mainstream

narratives of local knowledge, this strategy may lead to immediate access to day-to-day management of protected areas and to greater power in local decision-making processes. However, through their strategic essentializations, these activists may also be actively engaged in the construction of a “hyperreal” indigenous power-subject whose agency is ultimately limited by its ecological *noblesse oblige* (see e.g., Milton, 1996; Nygren, 1999).<sup>6</sup> What is considered old and traditional becomes at once romanticized and fossilized (Samoff and Stromquist, 2001, p. 647), leading the indigenized subjects of the local knowledge discourse to be immovably fixed in time and place (Gupta, 1998, p. 176). Such indigenized peoples must behave in accordance with systems of Western environmental managerialism, which at best are gently modified and softened by selected bits of information derived from indigenous knowledge system. Since this process of indigenization is explicitly founded on the desperate goal of “preserving” dying knowledge systems, the question remains whether indigenous and local peoples’ agency is being acknowledged, let alone respected (*ibid.*).

One of the earliest and perhaps most effective systematic critiques of the dualism between local (indigenous) and scientific knowledge was developed by Agrawal (1995). Alluding to the classic works of Levi-Strauss (1955, 1962, 1966), Agrawal suggests that contemporary writing about indigenous knowledge echoes early anthropological notions of “savage minds” and primitive cultures, and fails on several conceptual grounds. Indigenous knowledge is assumed to be concerned primarily with everyday, practical activities; however, it could be argued that Western science is rarely divorced from everyday practice, and numerous studies have illuminated important, non-technical insights in indigenous knowledge. Secondly, indigenous knowledge is assumed to be no more than common-sense, while Western science is systematic and objective. However, Agrawal suggests that local populations quickly integrate new ways of learning and display a range of attitudes towards traditional methods, while science is often dominated by dogmatism and intolerance towards new methods of inquiry [Feyerabend, 1975 (cited in Agrawal, 1995), Bebbington, 1993; see also Forsyth (1996) for a discussion of the role of indigenous knowledge in hybrid studies]. Finally, indigenous knowledge is assumed to exist in organic harmony with

<sup>4</sup> <http://nuffic.nl/ciran/ikdm>.

<sup>5</sup> The subalternization of local knowledge which occurs through the development project has also been effectively critiqued in the post-structuralist development literature, which has traced the origins of development to colonial imaginings, the spread of capitalism, and Cartesian dualism, and which has explored the role of development representations in the cultural production of Third World places (see e.g., Crush, 1995; Escobar, 1995, 2001; Ferguson, 1995; Gupta, 1998; Mitchell, 1995; Rist, 1997; Yapa, 2001; Sachs, 1999). Other important critiques of representations of “indigenous” and “local” knowledge include Appadurai (1995), Brosius (1997), Escobar (1998), Gupta (1998), Myer (1998), Gupta and Ferguson (1992, 1997) and Zweifel (2000).

<sup>6</sup> Ramos (1994) uses Baudrillard’s (1981, 1983, 1990) notion of hyperreality to describe the construction by environmentalists of indigenous peoples as “ideal” forest dwellers. This notion is integral to the Brazilian environmental agenda, but also serves to sideline and vilify indigenous people who behave in ways unsuitable to the environmentalist discourse.

the lives of people, while Western knowledge thrives in isolation from mundane everyday existence in a secluded oasis of universality and objectivity. However, as historians and theorists of science have long pointed out, Western science is embedded in specific political, economic, and cultural contexts. Rather than a “neutral” phenomenon existing outside politics, science is a Western project ideologically based on the domination of nature and sustained through the expansion of Europe and the reproduction of global inequalities (Nader, 1996, pp. 10–11; Purcell, 1998, p. 258; see also Jasanoff, 1996; Levins and Lewontin, 1985). As Agrawal suggests, “how knowledge is generated, organized, stored, and disseminated presupposes certain relationships of power and control”—relationships which are often ignored in the laudatory literature on local knowledge (1995, p. 431; see also Sillitoe, 1998, p. 240). At work here is a process of boundary-making, whereby science is demarcated from other systems of knowledge by fixing “hegemonic categories in the popular imagination” (Nader, 1996, p. 2).

This leads to the understanding that local and scientific knowledge is not particularly local, nor particularly global, but rather should be seen as contested, “heterogeneous” or “hybrid knowledges” (Gupta, 1998) incorporating local and global dimensions. While local knowledges have been presented as monolithic and culturally bounded systems, they are in fact contested and hybrid knowledge systems situated within broader social, economic and political contexts (Bebbington, 1993; Myer, 1998). Knowledge put to practice derives from the interaction between differently empowered, multiple social actors, including contests and alliances between local social groups, and between local actors and state agencies (Nygren, 1999, p. 282; Robbins, 2000; Gupta, 1998), such as the confluence of interest between castnet fishermen and environmentalists in Trinidad. Thus the production of local knowledge is not simply a local “reaction” to global knowledge; conversely, global knowledge is not a “monolithic entity sustained by grand narratives, but a set of situated and interrelated knowledges and practices, all of which are simultaneously local and global” (Moore, 1996, p. 9). Ultimately, the notion of knowledge as social systems intimately linked with relations of power brings me to Foucault’s theorization of subjectification, which operates through processes of knowledge production and surveillance.

### 3. Foucault’s “subjugated knowledges” and progressive politics

From a Foucaultian perspective, power is essentially positive, intimately linked with and fractured by prac-

tices of resistance: “Where there is power, there is resistance, and yet, or rather consequently, this resistance is never in a position of exteriority in relation to power” (Foucault, 1978, p. 95). This leads to the conceptualization of “power/resistance” as produced and exercised by specific institutions operating in decentralized *localities* (Sawicki, 1989, p. 164; May, 1993, p. 3). In Sharp’s terms, power is ultimately “relayed through spatial fields” (2000, p. 15); i.e., space is the medium through which discourses are transformed into relations of domination and resistance (ibid., p. 27) through processes of surveillance and subjectification (McNay, 1994, p. 93).<sup>7</sup>

Traditional conceptualizations of *surveillance* see it as a “technique” of power that works to enforce domination over bodies (McHoul and Grace, 1993, p. 65; Merquior, 1985, p. 113), but a more subtle view has been developed by Robinson (2000). Robinson emphasizes that surveillance is embodied; i.e., the gaze of surveillance is made operational through specific individuals in specific places. Furthermore, following Foucault’s notion that power and resistance coexist, she argues that subjects participate actively in their own surveillance (Robinson, 2000, pp. 68, 78–79; see also Prado, 2000, p. 73). As I will suggest in the case of the Nariva Swamp, local fishermen participated in their own surveillance because of their desire to be “good” in terms of the significations of the emerging conservation discourse (see ibid., p. 84). However, this self-disciplining was a fractured process operating through decentralized, spatial fields, and ultimately led to realignments of power among different groups of fishermen (see McHoul and Grace (1993, pp. 68–69) for further discussion of disciplining operating through control of activities in space). Although discursive power leads to the *subjectification* of bodies (Racevskis, 1983, p. 9), in the case of the Nariva Swamp it is more accurate to say that this subjectification was incomplete and fractured because of the socially entangled nature of the swamp landscape.

As I will show in the following pages, Western science was indeed implicated in processes of surveillance and subjectification in the Nariva Swamp. However, following Foucault’s conceptualization, the power of official science is not monolithic and unproblematic, but

<sup>7</sup> Discourses can thus be seen as systems that constrain and enable thinking about self and the world, and which are composed of *objects* (the things that discourses study or produce), *operations* (the methods and techniques of treating these objects), *concepts* (terms and ideas which are routinely found in specific disciplines and which may constitute its unique language), and *theoretical options* (different assumptions and theories available in the discipline) (McHoul and Grace, 1993, pp. 31, 44).

dispersed and fractured. The actual practice of power/knowledge in space is contingent on and necessarily implicated in processes of resistance, including the production and communication of alternative forms of knowledge: what Foucault has termed “subjugated knowledges” or “anti-sciences” (Foucault, 1980, pp. 81–83).<sup>8</sup> These subjugated knowledges constitute a form of fragmented “counterscience” (Racevskis, 1983, pp. 88, 126), and the practices associated with subjugated knowledge may be the key to a progressive, liberating politics. In Foucault’s words, “we are concerned . . . with the insurrection of knowledges that are opposed . . . to the effects of the centralizing powers which are linked to the institution and functioning of an organized scientific discourse within a society such as ours” (Foucault, 1980, p. 84). This “insurrection” derives from the process of revealing and repeating subjugated knowledges (McHoul and Grace, 1993, p. 16; Racevskis, 1983, p. 88), and from the role of subjugated knowledges in communicating otherness (McNay, 1994, p. 128). Resistance thus emerges directly “in reverse” from the subjectified body (*ibid.*, p. 101), which leads to my contention that the self-disciplining of fishermen constituted not simply acquiescence to power, but was in fact an embodied form of resistance operating through the performance of subjugated knowledge. As Major-Poetzl suggests, the same discourse can be “used” for both domination and resistance (1983, p. 210); in the case of the Nariva Swamp, the construction of local knowledge as a discursive object or “key term” (Racevskis, 1983, p. 123) reproduced the domination of centrally positioned actors. The notion of “local knowledge” became a key trope for the successful transformation of the meaning of this particular landscape, and hence to the emergence of new systems of material production of place. However, because of the fragmentation of power and its coexistence with resistance in socially entangled space (Sharp et al., 2000, p. 29), the integration of local knowledge as a legitimate epistemological construct into the conservation discourse also enabled situated, localized, and fragmented resistance.

<sup>8</sup> Foucault’s perhaps best-known conceptualization is the intimate link between power and knowledge (Foucault, 1977, pp. 27–28): the notions that power and knowledge imply each other (Foucault, 1978, pp. 94–95; McNay, 1994, p. 109; May, 1993, p. 69), that official science disqualifies other knowledge systems (Harootunian, 1988, p. 119; Major-Poetzl, 1983, p. 28; Racevskis, 1983, p. 125), and that science implies techniques of classification and normalization of behavior (Gutting, 1989, p. 6; McHoul and Grace, 1993, p. 17) have become central assumptions in post-structuralist social science analysis.

My following analysis of narratives collected through interviews and from secondary sources, mostly newspaper articles and internal Ministry of Agriculture documents, draws on Foucault’s notion of genealogy.<sup>9</sup> Although Foucault applied this method to historical analyses of the links between discourse, knowledge, and subjectification associated with constructions of sexuality and madness in 19th century France (Foucault, 1977, 1978), I draw on genealogy to produce a “history” or “diagnosis of the present” (Foucault, 1983, p. 206), and as a means to uncover and give voice to the “subjugated knowledges” of those “who are written out of history.” Foucault did not explicitly develop a theory of how subjugated knowledges may arise as forms of resistance (Fischer, 2000; Gutting, 1989, pp. 281–284), but suggested that the genealogical approach serves contemporary philosophical, moral, and political purposes by illuminating hidden histories and questioning prevailing narratives (Matless, 1992, p. 48, see also Foucault, 1980). Foucault thus utilized genealogy in part to knock down the prize construct of continuity, which is presumed to bind disparate events together in an overarching historical–geographical totality. By applying the genealogical method to the history of the Nariva Swamp, we see how the concept of the “nature” of the Nariva Swamp has undergone metamorphosis, and how these changes in representations affected relationships of power-knowledge through entangled processes of domination and resistance (see Matless, 1992, pp. 46, 49).

#### 4. Discontinuities of knowledge production: the case of the Nariva Swamp

The Nariva Swamp, a 24,000 ha, mixed wetland located on the east coast of Trinidad, has experienced a

<sup>9</sup> See Major-Poetzl (1983, pp. 11, 36–37) for a discussion of Foucault’s intellectual debt to Nietzsche, specifically his use and reworking of Nietzsche’s concept of genealogy. See Foucault (1984) for his own homage to Nietzsche and critique of this Nietzschean concept. In the pages of social theory, genealogy has been viewed as a means to study how subjects are constituted (Harootunian, 1988, p. 122; McNay, 1994, p. 107; Prado, 2000, p. 36), to uncover local, alternative narratives and knowledges (Harootunian, 1988, p. 125; May, 1993, p. 76; Prado, 2000, p. 45), and to reveal the historical conditions that produce scientific “truths” (McHoul and Grace, 1993, p. 60; Prado, 2000, p. 10; Reay and Mirza, 1997). In addition, genealogy is a method to document the discontinuous character of knowledge discourses (Reay and Mirza, 1997; McHoul and Grace, 1993, p. 4) and to uncover the abrupt change in what counts as “knowledge” (Hoy, 1988, pp. 14–15).

series of incarnations in the popular imagination: from the dangerous, swampy wasteland of anacondas and mosquitoes imagined by Victorian travel writers (Kingsley, 1892; Joseph, 1970 [1838]), to the nation's rice basket envisioned by the agricultural industry, and finally, to the conservation-worthy wilderness championed by environmentalists. This evolving, social production of the Nariva Swamp has not been discontinuous or divorced from social processes, but has been intimately imbricated with shifting, disjunctural political-economic realities. Particularly important in this context is the change from a sugar-based export economy to a development agenda that favored food security and domestic agricultural production, and the subsequent change to a tourism and oil-based economic system. Associated with these changes in the conceptualization of the wetlands has been a reformulation of what knowledge about the Nariva Swamp counts; i.e., changing hegemonic discourses have valorized different ways of comprehending the Nariva Swamp, and thus legitimized different ways of materially affecting the wetlands. These changes in the official knowledge about the Nariva Swamp thus have had little to do with "reality," such as the development of empirical "facts" by biologists and social scientists about the swamp environment and its inhabitants. Rather, the change in official knowledge was largely contingent on social processes, in particular the relations of power that allowed certain groups to define the "value" and proper use of the Nariva Swamp. Furthermore, as the discursive production of the Nariva Swamp leaped from a landscape to avoid, to a landscape to develop, and finally to a landscape to protect, appreciation of the knowledge systems of swamp inhabitants also went through a series of shifts. The most dramatic (and best documented) of these shifts occurred in the 1990s, when the local knowledge of fishermen was integrated into the power/knowledge of an emerging conservation discourse, and was used to justify certain environmentalist interventions in the swamp landscape.

In the aftermath of the Second World War, Trinidad began turning from reliance on the sugar industry for export, to the political necessity of providing a steady supply of staples for a growing, urban population. Because of the availability of technology to clear cut and drain the wetland, the Nariva Swamp was by the mid-20th century represented by state agricultural and development ministries as a potential source of rice to meet the needs of the island nation. Already in the 1930s, the government began developing the Plum Mitan rice scheme, a state-funded and state-managed rice growing area, which was mapped onto the Nariva Swamp and thus became an exclusionary zone with a state-defined purpose for its existence. Continuing after WWII, the Trinidadian government pursued a luke-warm but persistent dream of developing the remainder

of the swamp.<sup>10</sup> During this period of agricultural development, the local knowledge of swamp dwellers rarely reached the pages of official documents, and then only in disparaging terms. In a survey of the island's rice industry from 1953, the writer bemoans the inefficiency of the rice farming practices of Indo-Trinidadians, suggesting that their exotic, Oriental practices should sooner or later be replaced with modern agriculture:

The East Indian labourer brought from his native land his customs and traditions, among which was the cultivation of padi (wet-rice). He grew this crop for himself and his family, upon low lying lands unsuitable for the production of tree crops or sugar cane . . . The industry grew with the passing years. At no time, however, has Trinidad been self-sufficient in rice; at no time has the industry been anything more than primitive (Rice Division, Department of Agriculture, 1953, p. 1).

In part because of such narratives that delegitimized the "local knowledge" of traditional rice farmers and valorized efficiency in rice production, and in part because of the political-economic environment that favored commercial production, the Nariva Swamp eventually became the site of a thoroughly modern, and thoroughly destructive, rice industry. Although large-scale, state-led projects were never officially implemented, in the late 1980s about a dozen commercial rice producers moved to the Nariva Swamp from more densely populated and developed agricultural regions on the west coast. These producers were attracted by increasingly generous policies of state support for rice production and buoyed by the discourse of development and food security, exemplified by these words from the then-minister of agriculture: "The cost of importing rice to meet the demand of the population is in the region of \$55 million (Trinidadian dollars). We must reduce this large outflow of money from our country. We must have greater food security and become more self-sufficient in

<sup>10</sup> In 1952, a team of experts from the UN Food and Agriculture Organization drew up a proposed irrigation system, and five years later, another FAO study suggested developing two large polders (agricultural fields surrounded by raised canals) following the Dutch model of wetland reclamation (FAO, 1957). The final, and most audacious scheme, was developed in 1970 by the Japanese Overseas Technical Cooperation Agency (OCTA), and involved clear cutting the windward side of the Central Range and converting the entire Nariva Swamp into a network of canals, polders, and embankments (University of the West Indies, 1979; see also Sletto, 1999).

rice... We must increase production as well as improve the rice quality” (Samaroo, 1989).<sup>11</sup>

Like the peasant farmers in Kernahan, the newcomers to the Nariva Swamp were also Indo-Trinidadians, not surprisingly in a society where the majority of agriculturalists are of Indian descent and large urban centers are dominated by Trinidadians of African descent. But an important distinction separated the commercial rice producers from the peasants in Kernahan. The newcomers were connected with important figures in the Ministry of Agriculture and had much greater access to capital and credit than the subsistence farmers in Kernahan. Encouraged by their supporters in the Ministry and aided by their access to capital, they began large-scale conversion of swamp forests into wet-rice paddies and constructed extensive drainage ditches in an area euphemistically known as “Block B.”

These agricultural projects met with growing resistance from a fledgling environmental movement, which represented the Nariva Swamp as a haven to endemic species and invaluable for the biodiversity of the island. The environmentalists relied on such established, scientific works as that of Bacon (1990), who reported 600 mammal, reptile and bird species in the swamp; and Downs et al. (1968), who had found 27 reptiles and 59 mammals in the relatively small, 1500 acre Bush Bush Wildlife Sanctuary, including two endemic subspecies of red howler and capuchin monkeys. The Nariva Swamp is also important as a filtering area for floodwater and the forested sections are crucial as windbreaks against hurricanes, factors that figured prominently in the environmental narratives. The environmentalists’ narratives also drew on a precedence of conservation planning in the Nariva Swamp: the Bush Bush Wildlife Sanctuary, the first protected area in the Nariva Swamp, traces its history to 1962, when the Forestry Division of the Ministry of Agriculture announced plans to clear cut the swamp and the International Council for Bird Preservation launched the first recorded conservation campaign in the island in protest. In part because of this early environmental campaign, the logging was postponed indefinitely, and on July 16, 1968, Bush Bush Island was formally incorporated into the new Bush Bush Wildlife Sanctuary (University of the West Indies, 1979, p. 186).

During the first Nariva campaign in the 1960s, local knowledge of swamp inhabitants was notably absent from environmentalists’ narratives. In the 1990s, however, when environmentalists faced off with the com-

mercial rice producers and development-oriented individuals in the Ministry of Agriculture, local knowledge came to play a prominent role. The environmentalists’ campaign to evict the commercial rice producers, fought mainly from 1993 to 1996, was dubbed by the Trinidadian media as the “Battle of Nariva.” The “battle” was prompted by the arguably destructive practices of the commercial rice producers, who were razing large swaths of swamp habitats found nowhere else in Trinidad, and who may have damaged the swamp’s drainage system and the aquatic life in the Nariva Swamp (however, no conclusive studies have been conducted to confirm any such damages). The environmental movement was based in the capital, Port of Spain, and was led by mainly wealthy Trinidadians connected with the Port of Spain-based national media, the University of the West Indies, national environmental organizations, and the state apparatus (including dissident officials of the Ministry of Agriculture who opposed the Ministry’s development policies). In November 1996, after three years of media battles and court cases, the commercial rice producers vacated their illegal rice paddies after the Ministry of Agriculture promised them land elsewhere to make up for their lost investment. This eviction was made possible by the official designation by the Trinidadian parliament of a National Park that encompassed most of the Nariva Swamp. The protected area legislation thus formally and legally institutionalized a new conservation unit, which was founded not only on scientific principles, but also on a set of narratives that normalized the local inhabitants into subjects of the conservation discourse. I argue that this process of subjectification was in part contingent on conceptions and representations of local knowledge among members of the environmentalist coalitions. In particular, environmentalists constituted the swamp dwellers as environmentally conscious and responsible because of their local knowledge practices.

The subjectification of swamp dwellers is most easily documented through media representations during the Battle of Nariva, when journalists (for the most part sympathetic to the environmentalists) reported on recent developments in the high-profile case and environmentalists wrote impassioned commentaries to further their cause.<sup>12</sup> Through these media representations, swamp dwellers were exoticized as subsistence rice farmers and fishermen, although in reality, residents of subsistence communities such as Kernahan rely on a complex variety of sources for their income. In addition to “hustling” for money by catching and selling fish and

<sup>11</sup> Largely because of the state support programs, domestic rice production increased from 2300 to 14,000 tons between 1986 and 1990. By 1992, rice production reached an all-time high of 21,000 tons, which represented an increase of about 800% from 1985 (Lee and Jacque, 1993, p. 7).

<sup>12</sup> Many of the 37 newspaper articles reviewed were collected in the archives of the West India Collection of the University of the West Indies or were graciously made available by the Wildlife Section and the National Parks Division of the Ministry of Agriculture.

freshwater snails in local markets, families often draw welfare and retirement pensions, work as shopkeepers, pick up occasional laboring jobs for the county or the oil industry, make a few dollars selling crafts or food to tourists, and market their garden produce or engage in fairly large-scale watermelon production. In the words of the fisherman Roopchan, “What’s going on around here is like a puzzle, you put in all your pieces to mind your family, do your gardening, catching conchs, and tings” (1997b). Despite this diversity in income-earning strategies, however, representations almost exclusively presented an image of swamp residents as “indigenous” people living off the land, victims of the landgrabbing activities of the commercial rice producers:

It is not the small farmer who is causing [the destruction of the Nariva Swamp], not the people who have lived and worked in the area for generations, it is a handful of big, illegal land grabbers... They are even threatening the small local farmers. Three of the worst culprits are cutting roads in the swamp, filling in land, diverting, changing and clogging up watercourses, all against the law. And what is happening? Poor people’s livelihood is being lost... (*Trinidad Guardian*, 8 April 1993).

By late 1996, Trinidadians had also been treated to the documentary “Nariva Must Not Die,” a video sponsored and produced by the Trinidadian film company Pearl and Dean, and aired on national television. According to many involved in the fight to evict the commercial rice farmers, this video, and the newspaper articles that accompanied it, was instrumental in swaying public opinion in favor of the Agriculture Ministry’s Wildlife Section. The video “showed how destruction of the wetlands would affect the Nariva Swamp,” explained Peter Bacon, professor of biology at the University of the West Indies, in November 1997. “It certainly influenced people’s opinion in favor of conservation.” The effectiveness of the video and related newspaper articles was largely due to their emotional, naturalizing representations of the “victimized” subsistence farmers and fishermen. In one review of the video, the writer developed a romantic representation of the Nariva Swamp as habitat for small farmers and “humble catchers,” while painting the commercial rice farmers as “greedy:”

(In the video we) see man, the destroyer. Trees bulldozed and burned and huge agricultural machines invading the sanctuary, ploughing and reaping vast acreages of rice. Where once there was an astounding variety of natural life, now there is only one crop. In the course of this video the rice farmer stoutly defends what he has done, claiming that he provides jobs for others. Yet the

small farmer has been dispossessed of both land and livelihood. The humble catchers of conch, crab and cascadoo are also dispossessed (*Trinidad Guardian*, 28 April 1994, p. 29).

Concurrent with the subjectification of the swamp dwellers as victims of the commercial rice producers (who were represented as the very embodiment of the egregious consequences of the nation’s food security policies), swamp dwellers’ local knowledge about the swamp environment gained new currency in the conservation discourse. Residents of Kernahan and neighboring communities were represented as individuals living in close “harmony” with the land, and whose everyday practices derived from an intimate knowledge of the opportunities and limitations of the swamp environment. Although this rhetoric is blatantly romanticized and inflected with racism, it reflects in many ways the tone in writings about local knowledge in the conservation literature. Here as elsewhere, the local knowledge is by implication limited in its applicability to this specific environment, has been developed through experience rather than “scientific” methods, and is inseparable from the everyday material needs of the local population (Agrawal, 1995). In another part of the review of the video “Nariva Must Not Die,” the writer constructs the following image of the swamp residents and their everyday practice:

The video begins by showing life in the swamp as it has been for the past 100 years or more. We see the birds, monkeys and man existing in harmony with each other... The small gardeners who lived and worked in harmony with the land are threatened and chased away to make room (and money) for those who have helped themselves to Nariva... (*Trinidad Guardian*, 28 April 1994, p. 29).

In other newspaper articles, the narratives continue to couple swamp dwellers’ superior understanding of the swamp environment with the specter of loss associated with the commercial rice production. Through this process of subjectification, we see a project of classification at work (Racevskis, 1983, p. 86; McNay, 1994, p. 97): as swamp dwellers are normalized into subjects of the conservation discourse, they are constructed as one of two sets of opposites, namely the good and the bad swamp residents. In other words, because of their purported local knowledge the “traditional” fishermen were in part defined by what they were *not* (i.e., they were not commercial and “modern” exploiters of the swamp landscape), a subjectification which carried a set of restrictions on their behavior (Yapa, 2001, p. 43). This categorization of “traditional” fishermen and rice farmers’ bodies as “good” swamp dwellers thus provided a “transfer point” for power (McNay, 1994,

p. 99); i.e., as certain swamp residents were subjectified to serve the environmental discourse, they became the very points at which power was exercised by the environmental coalition (ibid., p. 89, McHoul and Grace, 1993, pp. 21, 83). This exercise of power, again, relied on the link between bodies, knowledge, and space (Major-Poetzl, 1983, p. 202); in this case the subjugated knowledge of fishermen and rice farmers was torn from its local context and implicated in a contest of power that traversed the Nariva Swamp landscape.

The Nariva is a rich natural resource, and has supported the people living there over the years and they know the value of the swamp, they did not destroy what fed them but managed it and used it, wisely (*Trinidad Guardian*, 8 April 1993).

Before the arrival of the “big farmers” who are responsible for the devastation not only of the Bush Bush (Wildlife) Sanctuary, but also of hundreds if not thousands of acres of forest, people like Sharma (Deonarine) lived largely in accord with the eco-system... “The machinery is what’s killing we out,” laments one of Sharma’s neighbours (*Sunday Guardian*, May, 1993, p. 11).

While local knowledge thus reached the pages of prominent newspapers, it reached this legitimization through the contest to define the future of the Nariva Swamp, and mainly because of the political imperatives identified by the environmental coalition. This suggests that the advent of local knowledge as resource for conservation planning is intimately related to social processes, specifically the emergence of a “realist” environmentalist discourse that apprehends the importance of incorporating the needs of local peoples into conservation planning. But this also illustrates the discontinuous nature of knowledge production (McHoul and Grace, 1993, p. 4); in fact, although fishermen’s and rice farmers ecological knowledge far predates the 1990s (Indo-Trinidadians have been fishing and farming the nation’s wetlands for more than a century), their everyday spatial practice was constructed as “local knowledge” through an abrupt, social process. Drawing on Foucault’s genealogical perspective, this construction of local knowledge as a useful resource for the future management of the Nariva Swamp did not occur as a result of a continuous and rational process as part of a grand narrative of historical progress, but through an abrupt change in what counted as knowledge in a certain social context (Arac, 1988, pp. 14–15).

Ultimately, this case also illustrates the imbrication of local knowledge with scientific knowledge, and thus the “incompleteness” of power/knowledge formations (ibid., pp. 180–181; Sharp et al., 2000, p. 269). During the Battle of Nariva, local knowledge of the swamp landscape be-

came embedded in the conservation discourse and thus altered the terms of the environmental agenda. While the earlier campaign against the logging of the Nariva Swamp ignored the practices of swamp dwellers, in the Battle of Nariva, the environmental campaign incorporated the subjugated knowledge of swamp dwellers as a necessary, “key term” to further their cause (Racevskis, 1983, p. 123). This incident was thus an example of the Foucaultian concept of “will to truth” (McNay, 1994, p. 87), which again is intimately connected with a “will to power” (Merquior, 1985, p. 146; Major-Poetzl, 1983, pp. 28–29). However, through this subjectification, environmentalists’ narratives were adjusted to allow a space for local knowledge, and thus provided opportunities for localized resistance against powerful institutions. This perspective illustrates the complex implications of the ascendancy of local knowledge in the conservation discourse: on the one hand, science acts as a tool of the “will to power” by dislocating local epistemologies from their cultural context and appropriating them into the power/knowledge of conservation science (Merquior, 1985, p. 146). On the other hand, this valorization of subjugated knowledge systems provides certain actors in certain places capacity to control key signs, and thus to act through fractures in power/knowledge formations (Racevskis, 1983, pp. 153–154). Put in Escobar’s (2001) terms, “culture sits in places,” and global knowledge production is informed by processes of hybridization occurring in specific places at specific times (see also Gupta, 1998 and Watts, 1995). As Sharp et al. suggest (2000, p. 27), space is where power/knowledge discourses are transformed to relations of power through processes of subjectification, but since dominating power is always fractured by resistance, we need to map the spatial contingencies and fissures that provide opportunities for resistance. In the final section of this paper, I illustrate the links between local knowledge, spatial practices, and social processes within Kernahan, particularly focusing on how the process of subjectification was “reversed” and implicated in local resistance to state policies by castnet fishermen (McNay, 1994, p. 101). I also suggest that this process of subjectification was contingent on, and implicated in, shifting relations of power between differently (spatially and socially) situated actors within Kernahan.

## 5. (Self) Surveillance, space, and local conflict

I traveled to the Nariva Swamp a few years following the resolution of the “Battle of Nariva” and the eviction of the commercial rice growers, initially to investigate the political ecology of rice growing and fishing in Kernahan, and the impact of protected area management on the local subsistence economy. In addition to archival research, structured interviews with state offi-

cials and fishermen, and participatory household surveys conducted by villagers, much of my time was spent in participatory mapping workshops aimed at uncovering spatial changes in the local freshwater fishing industry (Sletto, 1998, 1999). Due to the strict gender divisions, only local women conducted surveys of female heads of households, while the self-selected participants in the mapping workshops were exclusively male fishermen. During the mapping workshops and in informal conversations, fishermen soon began to broach the subject of conservation planning. As they noticed my interest in their fishing practices, they began to discuss with increasing enthusiasm the implications of local environmental management systems for what they saw as the proper “conservation” of the swamp environment, and they engaged with the narratives and conservationist language that had been used in the Battle of Nariva.

Implicated in the subjectification of fishermen and “traditional” rice farmers in Kernahan were new forms of surveillance. Partly because of the attention drawn to the community through the Battle of Nariva, the Ministry of Agriculture began in the late 1990s to formalize the largely ad hoc land tenure system in this squatters’ community. The land tenure reform involved mapping tracts of swamp and forest lands, instituting various reporting requirements, and enforcing property tax payments. The Wildlife Section of the Ministry of Agriculture, who was most vocal in its opposition to the development-oriented thinking of other divisions of the ministry, also stepped up its monitoring activities. While before the Battle of Nariva wildlife rangers would only occasionally cruise through the village in their Jeeps, following this celebrated contest the section “began to reach out to the community,” in the words of the head of section, Gyan (1997). The village also saw an increasing influx of other visitors, most notably scientists associated with the Swiss-based Ramsar Convention [who completed a fact-finding study in the mid-1990s that was instrumental in producing the Nariva Swamp as a conservation priority, thus laying the foundation for the establishment of the Protected Area and the eviction of the commercial rice growers (Ramsar, 1996)], and independent researchers such as myself and Robert Horwich, a biologist with Community Conservation Consultants. In addition, a resident of the nearby community of Cascadu was recruited by the Wildlife Section officially as a bird monitor, but became increasingly involved as an intermediary between the section and the community in questions associated with the management of the Bush Bush Wildlife Sanctuary.

From a Foucaultian perspective, then, this surveillance was an active ingredient in the process of disciplining the local residents according to their subjectification as “good” swamp dwellers in the conservation discourse (Merquior, 1985, p. 113; Racevskis,

1983, p. 52). But most importantly from the perspective of power/resistance, this surveillance was, first of all, embodied in local actors and institutions (Robinson, 2000, pp. 78–79). Secondly, the subjectified swamp residents participated actively in their own surveillance in accordance with their own interests, and in terms of their own situatedness within the entangled relations of power that traversed the swamp landscape (Sharp et al., 2000). This self-surveillance was particularly compelling among fishermen, whose traditional practices had become important signifiers of the local knowledge constructed through the conservation discourse. In interviews and casual conversations with myself, other researchers, and wildlife officials, fishermen actively represented their everyday practices as beneficial to the swamp environment. Most importantly, they directly or indirectly suggested they were engaged in a form of self-surveillance of their own practices. As Samaroo suggested,

It was a real paradise when I first came here. When I came here in the ‘60s, there were beasts real bad (many animals). But the fellas from the outside, Mayaro, Mafekin area, come in and hunt. In crop time, we out the cigarette (to prevent fires from starting). But they just throw the cigarette away in the bush and fires start (Samaroo, 1997).

And in Jonas’ words,

People here would like to protect the swamp. People come from the outside to kill the animals. People inside here are more concerned about protecting the swamp than the people outside. This is our environment, we live here. People are glad for the swamp, because we don’t have anywhere else to go (Jonas, 1997).

The fishermen also suggested that their local knowledge included management techniques that benefited the swamp wildlife. One example is the practice of “cleaning” rivers to prevent weeds from invading, thus maintaining open waterholes and simplifying castnet fishing. The most common fish in the Nariva Swamp is the cascadu (*Hoplosternum littorale*), a type of catfish that is found in most of lowland South America. The cascadu is characterized by a vascularized gut that enables it to breathe air, which is a particularly useful survival strategy in the eastern half of Trinidad, where the dearth of rain in the dry season causes minor waterways to dry up. Since the cascadu retreats to the remaining, permanent rivers in the dry season, this is also the main fishing season. But in order to maintain a sufficient number of fishing spots to support the community, fishermen must remove reeds and other plants from the rivers. This is a communal effort that depends on a blend

of voluntarism and pressure from other fishermen, and this practice thus can be argued to incorporate forms of self-surveillance. Although the techniques involved in “cleaning rivers” were unknown and absent from the conservation discourse, the fishermen constructed this practice as integral to their subjectification as “good” swamp dwellers. They thus instituted a form of self-surveillance in their “desire to be good” according to their reading of the conservation discourse (Robinson, 2000, p. 84). In the words of Roopchan, “It is good to clean out the rivers. Otherwise, the fish wouldn’t breed there. So, when we clean the river, we know we can come back there next year to get more fish” (Roopchan, 1997a). And as Cecil explained in more detail:

If we cascadu men didn’t clean the rivers, we wouldn’t have caimans. Once for five years, we didn’t clean Big Bush Bush (River). The grass came in very thick. If they banned people from going into Bush Bush, wouldn’t have no river there. Five years from now, you could walk across the river and not get wet. So the cascadu men keep the rivers open. Every dry season, we clean out all the rivers (Cecil, 1997).

This self-surveillance constituted part of a “technology of the self” [Foucault, 1978; for explication see Sharp et al. (2000) and McNay (1994, p. 7)], and was in part intended to uncover and discourage local practices that were seen as deleterious for the Nariva Swamp and thus conflicted with their local knowledge about what “was good” for the swamp environment. However, this surveillance of self was also imbricated in local, spatially contingent power struggles. Although the normalization implicit in the practice of cleaning rivers was ostensibly directed against outsiders from other communities, it also included as its objects other residents of Kernahan who chose not to engage in this established, “wise” practice. By representing their traditional practice as an environmentally sound method for wetlands conservation, fishermen drew on key significations of the hegemonic conservation discourse to press a claim for control of specific places within the Nariva Swamp.

However, perhaps the most illuminating implications of such normalizing self-surveillance are illustrated by a conflict about cascadu trapping between two groups of fishermen: the members of a family who moved to Kernahan in the early 1990s and who fished with traps, and fishermen born in the community who preferred the more low-impact method of castnet fishing. Traditionally, cascadu traps are made from the stems of the *rousseau* tree, a palm-like plant cloaked in vicious, long, needle-like spines. After cutting the rousseau, which is also known locally as *mal balata*, the fishermen clean off the spines and split the 10–15 cm-long trunks into four sticks, each about 1 m in length. These pieces are woven

together with strips of bark, vines or twine, and placed across the cascadu river like a miniature palisade. In the middle of the trap, the fishermen install an ingenious trap door. This “door” consists of shorter rousseau sticks tied horizontally to the palisade. Held in tension by strings of nylon twine, these sticks point away from the flow of the water and into a holding area immediately behind the palisade. Cascadu will move with the current, slip through the trap door, and end up in the holding area behind the wall of rousseau sticks. Since the sticks point into the holding area, the fish will not be able to swim against the current and escape.

As simple as it sounds, the cascadu traps are known to be tremendously effective. Fishermen set the traps at certain, key times, when water levels in the swamp are rapidly changing and the fish are on the move. This generally occurs at the onset of the dry season in December, when the fish leave the marshes to find refuge in the deep rivers, and during the first, torrential rains in June, when the fish emerge from the rivers and disperse into the marshes and swamps. One well-made trap set across a river can catch hundreds or even thousands of fish, and this means less fish for other fishermen. Because of this, villagers reached an informal understanding not to use traps. The new group of fishermen, however, have ignored this informal agreement. These fishermen appeared to be strong, brutal, and numerous enough to pursue these practices, despite the laments of other fishermen. As one of these “newcomers” explained:

People here say, “you are blocking the fish in the river. You catch too much.” But they don’t know how hard I work. I don’t interfere with no fish from no river. They just jealous. They argue trapping is destructive for the fish. But I work very hard. Every year I clean the streams. I have to stay there (by the traps) to watch for thieves all night. I need to catch cascadu because I not making nothing on rice now. I (would be) working hard for nothing because prices are so hard (such low prices on rice) (Anonymous cascadu fisherman, 1997).

“Traditional” fishermen, meanwhile, maintained that cascadu stocks in the Nariva Swamp had declined precipitously during the 1990s.<sup>13</sup> As Bridgelal (1997) said, “before there used to be cascadu in the millions.” And in Bissoo’s words (1997), “Ten years ago, fish started get-

<sup>13</sup> This contention is unsupported by empirical research, but the cascadu may have become more scarce near Kernahan because of the decline of rice farming and subsequent loss of open water during this period. Also, the community saw extensive population growth in the 1980s and 1990s, partly through immigration, and partly through natural population growth and increasing pressure on local resources (Sletto, 1998, 1999).

ting more scarce. Thirty years ago, the whole village could catch fish in one spot, there would be hundreds of thousands there in one spot.” In terms of the local “counterscience” (Racevskis, 1983, p. 88), the reason for this calamity was the failure of some community members to follow established, wise fishing practices, leading to a classic example of the “tragedy of the commons” [originally postulated in Hardin (1968)]. Specifically, the trappers were to blame for the decline of cascadu because they failed to adhere to the informal community rules and ignored the established local knowledge concerning the cascadu:

They (the trappers) are catching all, it’s getting hard for people here. Last year, they trapped cascadu, then let it rot because the prices were too low. We would never do that. We don’t want to set traps, we just want everyone to do their thing. We are not destroying the environment (Roopchan, 1997a).

The worst problem is the fish traps. They catch the fish when they’re too young. I against the traps, destroying the wildlife. I rather fish with net and hook. The people set traps are new. Since they come in, they start to set traps and destroy the wildlife... They can catch 200,000 fish per day with the traps... This is very wasteful... People who live here care about the swamp. I care about the swamp. We live off that, the conch and the cascadu (Bridgelal, 1997).

The conflict between castnet fishermen and trappers thus illustrates the contested and fractured nature of local knowledge, and the spatial contingencies of subjugated knowledge systems. Although the locations of fishing spots, the methods for building and setting a trap, and the practices of making and using castnets were known to most fishermen—both trappers and adherents to castnets—local knowledge became an arena for internal conflict intimately associated with space. Beneath the narratives of conservation expressed by the castnet fishermen lay a territorial contest to control fishing spots in a period of scarcity. Thus the power to control space was intimately tied to knowledge practices: specific places (fishing spots) throughout the Nariva Swamp were discursively linked with selected representations of local knowledge in accordance with the emerging conservation discourse. Through their rhetoric, the castnet fishermen disqualified trapping as a “bad” component of local knowledge, thus drawing on their own subjectification in the conservation discourse to affect power relations vis-à-vis other local actors. In numerous interviews and in conversations with Wildlife Officials, castnet fishermen voiced their complaints about the trappers, simultaneously emphasizing the

sustainability of their own fishing methods and their consequent right to control favored fishing locations.

Ultimately, this entanglement of space, power, and knowledge also presented a means of resistance to the fractured power/knowledge of the conservation discourse. Through their self-surveillance within the terms of their own subjectification, castnet fishermen drew on the conservation discourse to contest the Wildlife Section’s prerogative to manage the Nariva Swamp. Thus resistance emerged directly from the fishermen’s subjectified bodies through their manipulation of “key terms” of the conservation discourse (Racevskis, 1983, p. 123), specifically by their selective application of the very environmental narratives that had legitimized their local knowledge. In one conversation, Mansing (1997) emphasized the relevance of the local knowledge of castnet fishermen in monitoring the swamp—and in Foucaultian terms, thus revealed the self-surveillance practiced by local fishermen in their desire to be good: “There are still traps in places where (outsiders) don’t go. The (game wardens) don’t go to the real places because they are far away” (but by implication well-known to “good fishermen”). And in one particularly poignant remark, Cecil revealed the ways in which through processes of self-surveillance, local knowledge practices—in this case, the subjugated knowledge of castnet fishermen—cross over the interstices between science practices and local knowledge systems. Echoing comments of many other castnet fishermen, Cecil suggested that their self-surveillance should in fact be incorporated into science practice in the form of employment as game wardens.

If these traps continue this way, my children will wonder what a cascadu is. I could make a trap, I could set a trap, but I don’t want to. Because I want the cascadu to be here tomorrow and the next day and the next year... If I was a game warden, I would check every day, and make sure there were no traps (Cecil, 1997).

## 6. Discussion

Cecil’s comments illustrate the ways in which the incorporation of local knowledge into the conservation discourse, and the attendant subjectification of swamp dwellers, indeed provides spaces for resistance. In fact, the incompleteness and fractures in power/knowledge, coupled with the intimate links between power and resistance (Wolin, 1988, pp. 180–181; Sharp et al., 2000, p. 21), implies that the same discourse is used for both domination *and* resistance (Major-Poetzl, 1983, p. 210). Although the Nariva Swamp was the site where the knowledge associated with the conservation discourse

was transformed into power (e.g., through the establishment of the protected area and the increasing surveillance of swamp residents), this power/knowledge was fractured by entangled, local spatial and social processes, which again were intimately linked with the production and practice of diverse, situated subjugated knowledges. Through the abrupt and discontinuous legitimization of local knowledge that took place during the Battle of Nariva, fishermen's knowledge practices became key significations of power/knowledge. However, because of the incomplete nature of the conservation discourse developed during the Battle of Nariva, power/knowledge led to different consequences for different local actors, depending on the particular associations they constructed between the Nariva Swamp landscape and their local knowledge.

During the late 1990s, the activities of trappers finally caught the attention of wildlife officials, who banned the practice and began a campaign to destroy traps, actively supported by castnet fishermen who clearly saw a benefit from participating with the state in their own self-surveillance. Although it is too simple to speak in terms of "winners" and "losers" following the Battle of Nariva, trappers literally and figuratively began losing ground through the discursive disqualification and actual banning of their practices, while castnet fishermen gained greater legitimacy and power as they jockeyed for relatively high-status jobs as game wardens and research assistants. The play of power relations across the Nariva Swamp landscape was therefore intimately associated with spatial processes: through the disqualification of practices that ran counter to local knowledge as defined through the conservation discourse, certain places (fishing spots) were discursively linked with the dominant "counterscience" (Racevskis, 1983, p. 88) of castnet fishermen. In practice, this had the effect of returning fishing spots that had once been the domain of trappers to the control of "traditional" fishermen.

Ultimately, the Foucaultian perspective on discontinuity, subjectification, and power/resistance may be of particular utility for the theorization of local knowledge. As writers critical of the rush to dislocate and appropriate local knowledge into conservation and development have pointed out, all knowledge systems are socially and spatially situated and contingent. However, perhaps what is needed is more attention devoted to the intimate association between power and knowledge production and practices. Western science arguably emerges from a privileged global position, both culturally and economically through its association with Third World development and processes of globalization. What we are seeing through the "local knowledge" agenda is a paradoxical form of genealogy: formerly subjugated, disqualified knowledges have abruptly become legitimized and incorporated into a hegemonic conservation/development discourse, which is intimately

linked with the current phase in the discontinuous expansion of Western science. As a Foucaultian perspective will allow us to see, this discontinuity in the representation of local knowledge in hegemonic discourse is a mark of the workings of power. The recent signification of local knowledge as a "resource" for conservation and development programs may reflect the priorities of the global development project, rather than a belated recognition of the intrinsic value of alternative knowledge systems.

But such macro-theorizing of the power of Western knowledge and management systems nevertheless leaves unanswered a number of crucial questions, such as: how is the discontinuous valorization of local knowledge linked with spatial processes, and what opportunities does this development in the discontinuous expansion of Western science offer for a progressive politics directed towards the liberation of subjugated peoples? Again turning to Foucault, I suggest that an explicit spatial reading of his notions of subjectification, surveillance, and power/resistance offers a more nuanced perspective on the hegemonic appropriation of local knowledge into science. As we have seen in the case of the Nariva Swamp, power/knowledge was fractured and spatially contingent, offering spaces for some residents to incorporate hegemonic narratives of their local knowledge into their own contestation, both for control of specific places within the wetlands, but also to further their own agency vis-à-vis powerful actors from outside their community. We have also seen how the conservation discourse in the Battle of Nariva was far from totalizing and hegemonic, but was adjusted to accommodate and benefit from the everyday practices and knowledge systems of certain, "traditional" swamp dwellers. Although the conservation discourse might have had the effect of freezing certain land-use practices in time and place, through its postulation of castnet fishing as "good" for the environment it bestowed legitimacy on a subjugated knowledge system.

Perhaps the question to ask about local knowledges from a progressive, Foucaultian perspective, then, is not whether they are "correct" by scientific standards, "useful" for conservation/development purposes, or even socially constructed. Rather, perhaps we should ask how knowledge systems are imbricated in social processes of power/resistance, and how they are implicated in technologies of self to assert the agency of the subaltern. As the case of the Nariva Swamp suggests, the conservation discourse was fractured and contingent on the ways in which different, socially and spatially situated actors acted out their own self-subjectification and self-surveillance. Ultimately, these everyday productions or "technologies of self," emerging through the fractures in the power/knowledge of conservation discourses, constitute situated, localized, and fractured resistance to a Western science that is not necessarily

hegemonic, but rather socially situated and spatially contingent.

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