Does Planning Work?: Testing the Implementation of Local Environmental Planni...
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Does Planning Work?

Testing the Implementation of Local Environmental Planning in Florida

Samuel D. Brody and Wesley E. Highfield

The lack of empirical studies measuring the efficacy of plans and degree of local plan implementation subsequent to adoption represents one of the greatest gaps in planning research. This article addresses the need to test the effectiveness of environmental planning and plan implementation by examining the spatial pattern of wetland development permits over a 10-year period in Florida. Specifically, our study compares the original land use design of comprehensive plans with subsequent development activity. We identify significant clusters of permits granted for wetland development and evaluate those locations against the adopted future land use maps for all county and city jurisdictions across the state. Findings indicate that development patterns that significantly deviate from the original intent of the adopted plans tend to occur in specific locations and under certain conditions. In addition, plans containing specific environmental and plan implementation policies are correlated with a greater degree of plan implementation. Based on the results, we discuss policy implications for improving plan performance at the local level and establishing a stronger link between plan content and plan implementation.

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Planning scholars and practitioners have long debated the importance of tracking and measuring the implementation of adopted policies. While evaluation and implementation techniques are well developed in the policy sciences, understanding how to assess implementation remains an elusive endeavor in planning, and this is often criticized as a major shortcoming in the field. Lack of data, methods, and empirical enquiry makes it difficult to respond to critics who consider plans to be "dead on arrival" or paper shells that are never put into action (Bryson, 1991; Burby, 2003; Calkins, 1979; Clawson, 1971; Talen, 1996b). How can planners validate the importance of plan making if they cannot determine if their plans have an impact on the community after they are adopted?

A great deal of research has been conducted to measure and predict plan quality as an indicator of implementation, but little systematic empirical work has been done to determine the quality of plan implementation itself. Scholars increasingly recognize that the strength of adopted plans does not necessarily correlate with implementation of their contents, and that research is needed to understand the degree to which policies are being implemented after plans are adopted. To raise the profile of planning as a legitimate policymaking endeavor, techniques must be developed to rigorously measure the efficacy of plans and degree of local plan implementation over time. Until we can evaluate the influence of plans subsequent to adoption, planning will remain an uncertain science.

This study seeks to test the effectiveness of comprehensive planning and plan implementation in Florida by examining the spatial pattern of wetland development permits over a 10-year period. Through a statewide comprehensive planning mandate, local jurisdictions in Florida identify areas designated for growth to guide future development; reduce negative environmental, social, and economic impacts; and provide adequate public services to community residents. Comprehensive plans and associated future land use maps are thus the regulatory and prescriptive growth management policy instruments used by local jurisdictions. Despite the importance of local plan adoption as a legally binding growth management tool, the success of their implementation has never been thoroughly examined. We address this issue by comparing the original land use design of comprehensive plans in Florida with subsequent development activity. Specifically, we identify significant clusters of wetland development permits and evaluate these locations against the adopted future land use maps for all county and city jurisdictions across the state. The findings of this study provide insights into how to test the effectiveness of plans as development guidance tools and how to improve the degree to which plans are implemented at the local level.

Spatial and statistical analyses seek to answer the following research questions:

1. How and where have wetlands been developed over a 10-year period (1993–2003)?
2. Are wetland permits clustered in areas designated for high-density development (conformity) or do they deviate significantly from the plan's original spatial design (nonconformity)?
3. Does the quality and content of the original plan (based on environmental and plan implementation policies) relate to its degree of implementation (based on our measurement of plan conformity)?

The following section examines the debate on measuring plan performance and implementation, and reviews previous attempts to address the problem. Next, we describe the sample selection, measurement of variables, and data analysis procedures. Particular attention is paid to showing how our research design overcomes many of the problems cited in the literature on evaluating plan implementation. The next section reports the results of data analyses (both statistical and graphical) in the following three phases: (1) the development of wetlands based on clusters of granted permits over the 10-year study period; (2) the degree to which these wetland permit clusters conform to the original designs of local comprehensive plans; and (3) correlation analysis between plan quality indicators (environmental and plan implementation policies) and the subsequent degree of conformity based on a subsample of permit clusters in the southern portion of the state. Based on the results, we discuss the research and policy implications of evaluating and monitoring the implementation of adopted plans.

Evaluating Plan Implementation and the Controversy Over "Conformity"

As noted by Talen (1996a, b, 1997), the fields of policy analysis and program evaluation have developed specific methods and a large research base on implementation, but there is a lack of parallel inquiry on implementation processes in the planning domain. This relative scarcity of research is particularly evident for plans that serve as blueprints or guides for the future physical development of urban areas. In these cases, there is little understanding of the relationship between the processes of planning, the adopted plan, and plan implementation or performance (Alterman & Hill, 1978). As a result, the field of planning seems to this day to be mired in what Calkins (1979) referred to as the "new plan syndrome," where plans and policies are adopted without any attempt to measure the progress toward achieving stated goals and objectives. Furthermore, no effort is made to determine why some adopted plans are unsuccessful in meeting their goals.

The lack of systematic evaluation of plan implementation may be a consequence of several major obstacles facing planning scholars. First, it is unclear exactly when the outcome of a plan should be determined and what this outcome should be compared to (Baer, 1997). Since plans tend to be long-term policy instruments, it is difficult to establish a time frame for evaluating success. Second, since the value of planning may be measured by more than plan content alone (e.g., planning process, social interaction, learning, etc.), there is disagreement over how to measure planning effectiveness. Third, the lack of longitudinal datasets and agreed-upon research methods makes it difficult to examine planning impacts over large time frames. Baseline data from which to detect change and measurable performance indicators are needed before community planning can be evaluated systematically (Murtagh, 1998; Seasons, 2003). Talen (1996b) argues that "methodological complexities alone are enough to thwart any evaluative endeavor" (p. 249). She finds quantitative assessments of implementation success in planning to be particularly scarce.

A fourth obstacle is the debate over the meaning of planning success and the evaluation of plan conformity. Conformity measures the degree to which decisions, outcomes, or impacts adhere to the objectives, instructions, or intent expressed in a policy or plan (Alexander & Faludi, 1989). Alexander and Faludi (1989) reject this means-ends approach to measuring plan effectiveness because, due to the complexities of the decision-making process, deviation from a plan's original design is a normal consequence of policy implementation. Additionally, policy statements are meant to undergo modification in response to uncertain political and socioeconomic conditions. Under these arguments, the mere consultation of a plan for very general guidance may be viewed as an indicator of implementation success. Mastrop and Faludi (1997) reinforce this stance when discussing the merits of evaluating strategic plans. These authors assert that the established policy or plan should never be followed blindly, but rather needs to be constantly reenacted and readjusted. Instead, the key to plan performance is the way in which a strategic plan holds its own during the deliberations following plan adoption.

It is important to note that Faludi (2000) later distinguishes between strategic plans and project plans. While strategic plans are open and flexible, a project plan is a "blueprint" for the intended end state of physical development. Once adopted, these plans are meant to be unambiguous guides to action in which outcomes must conform to the specifications detailed in the plan. Faludi (2000) further elaborates that the evaluation of a project plan must follow the logic of ends and means and conformity of outcomes to intentions. Driessen (1997) supports this argument by concluding that the criterion of conformity is unsuitable for assessing the performance of spatial planning policies *unless* the plan explicitly states (and all planning participants concur) that outcomes should conform to the original policy proposal.

At the other end of the implementation success spectrum is the belief that plan intent and policy outcomes should follow a strict linear association (Wildavasky, 1973). Any departure from the goals and objectives of the adopted plan would, under this line of thinking, be considered a failure. Due to the uncertainties involved in the planning process, and the social and political complexities of plan implementation, a direct cause-and-effect relationship may be an unrealistic expectation for most plans. The real value of plan evaluation can most likely be found not at the extremes, but somewhere toward the middle of the implementation spectrum. That being said, not holding planners and planning participants accountable for their adopted policies would undermine or delegitimize the field of planning. Talen (1996b) asserts that the dismissal of linear association between the adopted plan and its outcome on the basis of uncertainty "can be seen as evaluation avoidance" (p. 254).

While the difficulties involved in evaluating plan implementation have restricted the focus of most empirical planning studies to measuring plan quality (see Berke & French, 1994; Brody, 2003a, b; Burby & May, 1998; Burby et al., 1997; among others), there have been attempts to specifically measure the degree of plan implementation. In Israel, for example, Alterman and Hill (1978) conducted perhaps the most comprehensive study on plan implementation by measuring the degree to which plans conform to their original land use configuration. Using building permits as an indicator of plan implementation, the authors found the master plan was followed for approximately 66% of the land area planned. They also used multiple regression analysis to explain the variation in plan conformity through several variables such as time and flexibility. Calkins (1979) devised a "planning monitor" to measure the extent to which plan goals/objectives are met, to explain the differences between the plan and actual states of the environment, and to understand the reasons for any observed differences between the plan and the outcome. Using algebraic expressions, Calkins showed not only how to evaluate the overall plan, but also whether the desired spatial distribution has been achieved. This was the first attempt not only to measure whether policy implementation conforms to the adopted plan, but also to identify where any discordance may occur. Such an approach is particularly relevant when evaluating plans that guide the physical development of a community.

Talen (1996a) built on Calkins' work by employing Geographic Information Systems (GIS) and spatial statistical analysis to compare the distribution of public facilities called for in a plan with the actual distribution that occurred after plan implementation in Pueblo, Colorado. Mapping relationships between access to facilities as denoted in the plan and actual access years later revealed areas of the city that did not match the policymakers' original intent. Most recently, Burby (2003) examined 60 local jurisdictions in Florida and Washington to explain the relationship between stakeholder participation in the planning process and implementation of natural hazards policies. By studying the ratio of proposed hazard mitigation actions that were subsequently implemented to proposed actions that were not implemented, Burby found that greater involvement of stakeholders in the planning process significantly improved implementation success.

This body of research helps provide a conceptual and methodological foundation on which our study firmly rests. We empirically test the level of implementation (based on the principles of conformity) by using GIS to map wetland permits as indicators of development subsequent to plan adoption. In this way, we measure the degree to which development matches the land use configuration prescribed in the original plan as done in Israel by Alterman and Hill (1978). Additionally, we build on the spatial aspects of plan implementation discussed by Calkins (1979) and Talen (1996a) by mapping and spatially analyzing areas of nonconformity across a large geographic area.

Methods

By focusing on the evaluation of local comprehensive plans in Florida, this study addresses many of the conceptual and methodological obstacles described above and may inform future studies on measuring plan implementation at the local level. Pursuant to the 1985 Local Government Comprehensive Planning and Land Development Act, Florida requires that each local community prepare a legally binding comprehensive plan. Under this state mandate, comprehensive plans must adhere to the goals of the state plan, follow a consistent format (in terms of production, element types, and review/updating processes), and most importantly provide a blueprint for future city and county growth patterns. Rule 9J-5, adopted by the Department of Community Affairs in 1986, requires that specific elements and goals be included in local plans and prescribes methods local governments must use in preparing and submitting plans. At the heart of this coercive and highly detailed state-planning mandate lies the requirement for each local jurisdiction to adopt a future land use map. This "regulatory and prescriptive" map designates the types of land uses permitted in specific areas within each local jurisdiction. The requirement is meant to ensure that growth and development proceed with adequate public infrastructure, do not adversely impact critical natural habitats (e.g., wetlands), and do not promote the harmful effects of urban and suburban sprawl.

Each adopted plan under the state mandate is thus a legally binding policy instrument offering spatial guidance for future development patterns. It is not just a broad, strategic policy statement, but a set of explicit directives adopted through a participatory planning process in which future outcomes are expected to conform to the original design of the plan. While this so-called "blueprint" approach to planning has been heavily criticized in the past, it offers an ideal opportunity to test the degree to which development outcomes adhere to the adopted plan and indicate precisely where significant deviations may occur.

Sample Selection

All available state and federal permits issued (under part IV of chapter 373 of Florida Statutes and section 404 of the Clean Water Act) to alter a wetland in Florida between 1993 and 2002 were selected for analysis and evaluated according to watershed units. No nationwide or regional section 404 permits were included in the dataset. We used watersheds to select and summarize permit data because a watershed is a functional ecological unit within which wetlands are located. When examining the effectiveness of plan implementation based on wetland alteration, we believe it is appropriate to focus on areas within ecological boundaries as opposed to those defined by humans, such as local jurisdictions (Williams et al., 1997). We therefore examined approximately 39,960 issued wetlands permits within 51 adjacent watersheds as defined by the United States Geological Service's (USGS's) fourth order Hydrological Unit Code (see Figure 1). This hydrological unit is considered the most appropriate scale for assessing and implementing watershed approaches to management. We also selected a subsample of 1,640 wetland clusters (described below) in the southern portion of the state to examine the relationship between policies within local comprehensive plans and the degree of plan conformity.

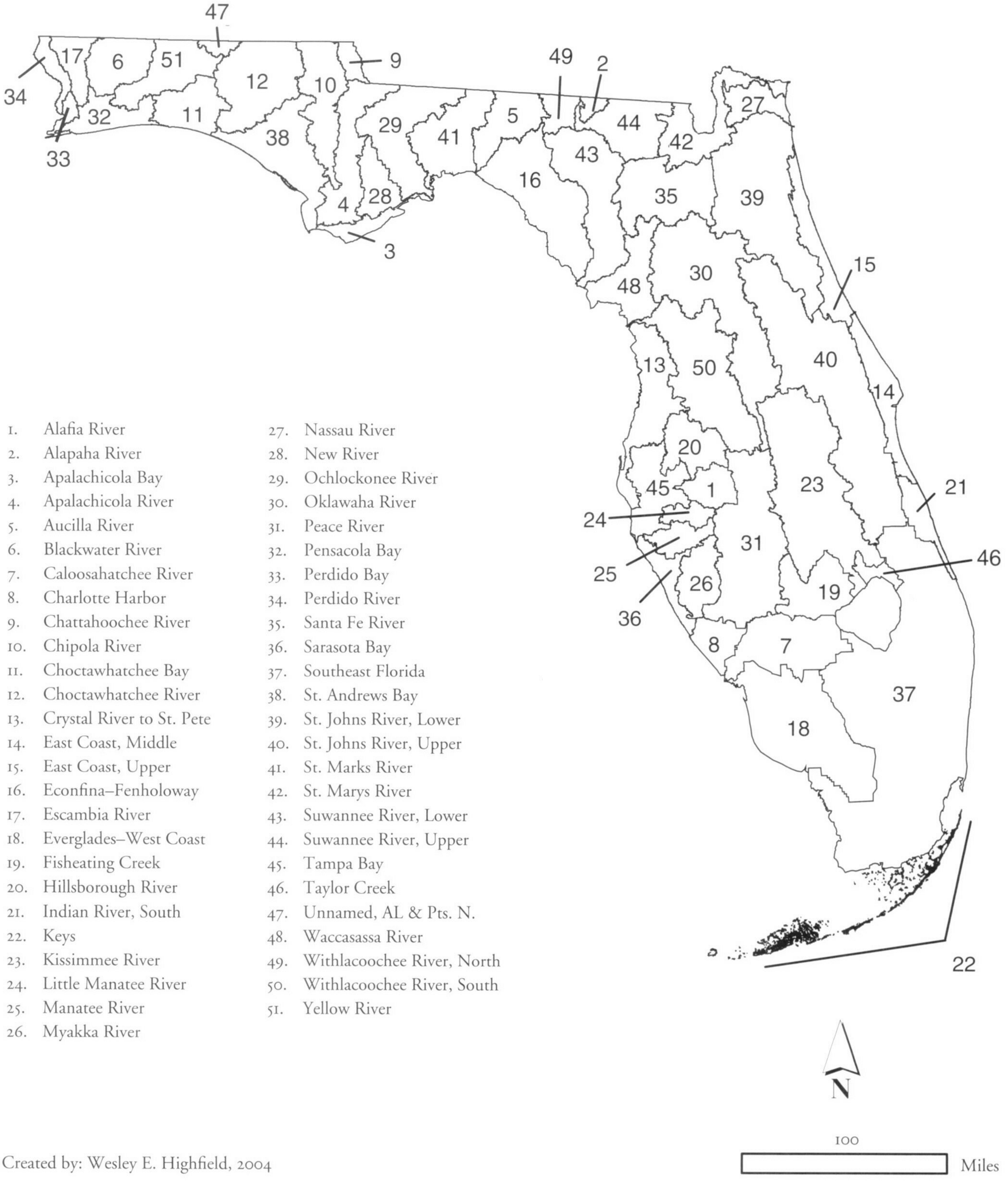
Data Collection

To determine the degree to which wetland development permits conform to the original design of comprehensive plans, we selected a statewide-digitized coverage of future land use for all city and county jurisdictions in Florida. This dataset was created in 1992 by the Southwest Florida Regional Planning Council, which compiled each of the state's 11 regional planning councils' future land use maps, gathered from 458 local governments. Because land use categories can vary by local jurisdiction, they were placed into one of following 10 classes to derive a standardized map for the entire state: Agriculture, Single Family, Estate, Multifamily, Commercial/Office, Industrial, Mining, Military, Preserve, and Water Bodies. This future land use coverage provided a basis for evaluating the degree of conformity of wetland development permits between 1993 and 2003.

Both federal and state wetland permit data were collected from the Florida Department of Environmental Protection's (DEP's) Environmental Resource Permit System and, when necessary, individual water management districts that collect this type of data. The DEP data, which contained the bulk of the permits, were organized by township-range units (i.e., the number of wetland permits in each township-range division). Therefore, any additional permit data were also summarized into these units. The state of Florida is divided into 54,285 township-range units, with an average size of 2.6 square kilometers. Watersheds were delineated and mapped by the USGS and downloaded in digitized format from the DEP web site. Digitized future land use data as described above were also obtained from the DEP web site. Local comprehensive plans current as of 2003 were collected from each selected jurisdiction in southern Florida. When available, the plan was downloaded in its entirety from the appropriate web site.

Concept Measurement

Nonconformity. The degree of plan conformity was measured based on several spatial analytical steps conducted in a GIS framework. First, we used the original township range to total the number of permits over the study period. This procedure enabled us to calculate an intensity variable with which to conduct spatial statistical analyses across multiple watersheds. Second, we used a measure of spatial autocorrelation to identify and map significant hotspots or clusters ($p<.05$, following 999 iter-



1. Alafia River
2. Alapaha River
3. Apalachicola Bay
4. Apalachicola River
5. Aucilla River
6. Blackwater River
7. Caloosahatchee River
8. Charlotte Harbor
9. Chattahoochee River
10. Chipola River
11. Choctawhatchee Bay
12. Choctawhatchee River
13. Crystal River to St. Pete
14. East Coast, Middle
15. East Coast, Upper
16. Econfina–Fenholoway
17. Escambia River
18. Everglades–West Coast
19. Fisheating Creek
20. Hillsborough River
21. Indian River, South
22. Keys
23. Kissimmee River
24. Little Manatee River
25. Manatee River
26. Myakka River
27. Nassau River
28. New River
29. Ochlockonee River
30. Oklawaha River
31. Peace River
32. Pensacola Bay
33. Perdido Bay
34. Perdido River
35. Santa Fe River
36. Sarasota Bay
37. Southeast Florida
38. St. Andrews Bay
39. St. Johns River, Lower
40. St. Johns River, Upper
41. St. Marks River
42. St. Marys River
43. Suwannee River, Lower
44. Suwannee River, Upper
45. Tampa Bay
46. Taylor Creek
47. Unnamed, AL & Pts. N.
48. Waccasassa River
49. Withlacoochee River, North
50. Withlacoochee River, South
51. Yellow River

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Figure 1. Florida watersheds.

ations of a randomization procedure) of permits granted across the study area. These clusters represent adjacent townships containing a large number of permits (high values surrounded by high values) and indicate where intense levels of development occurred in each watershed. To locate these hotspots of high-density wetland development, we calculated a local indicator of spatial autocorrelation (LISA; Anselin, 1995). This procedure allowed us to identify and map the statistically significant clusters of issued permits. LISAs detect significant spatial clustering around individual locations and pinpoint areas that contribute most to an overall pattern of spatial dependence. We used a local Moran's I statistic given by:

$$I_i = \frac{(Z_i - \bar{Z})}{S_z^2} * \sum_{j=1}^{N} [\, W_{ij} * (Z_j - \bar{Z})] \qquad (1)$$

where $\bar{Z}$ is the mean intensity over all observations, Z_i is the intensity of observation i, Z_j is intensity for all other observations j (where $j \neq i$), S_z^2 is the variance over all observations, and W_{ij} is a distance weight for the interaction between observations i and j.

Third, we reclassified the future land use data layer into two values: conforming and nonconforming. As mentioned above, conformity is when high-density development occurs in areas previously designated for such development. We conservatively measured conforming areas as clustered permits granted in areas designated for growth including Single Family, Multifamily, Commercial/Office, Industrial, Mining, and Military land uses. Nonconformity takes place when dense development is located in areas not intended for it by the spatial design of the originally adopted plan. Nonconforming areas were measured by combining land use designations meant for low-density or no development including Agriculture, Estate, and Preserve designations. Fourth, the spatially clustered permits data layer was overlaid on top of the reclassified data layer of future land use to determine the degree to which clusters were conforming or nonconforming. The percentage of area for each cluster containing nonconforming values was calculated to derive a measure for conformity on a scale of 0–1, where 0 is completely conforming and 1 is completely nonconforming.

While we expect comprehensive plans and their future land use maps to have been updated and modified over the study period, spatial changes are almost always minor, and a complete reversal of land use intent (e.g., from Preserve to Industrial) is rare. Furthermore, since we combine multiple land uses into two broad categories, minor alterations in land use designation during plan updates were not detected. Finally, the broad spatial focus of our analyses makes small changes in a local plan insignificant. Thus, the research design permits some degree of flexibility between future land use designation and expected development outcomes without confounding the results.

Plan Quality. Plan quality was measured by evaluating the comprehensive plan for each jurisdiction occupied by a significant wetland permit cluster. Policies within the plans (plan quality indicators) were categorized into the following two major components: (1) environmental policies and (2) plan implementation. Environmental policies are general guides to decisions (or actions) about the location and type of development to ensure that plan goals are achieved (Berke & French, 1994). We evaluated each local plan for the presence of seven policies that are considered effective planning tools for concentrating growth while protecting critical habitats such as wetlands (Beatley, 2000; Duerksen et al., 1997). These policies are likely to help guide growth in an ecologically sustainable manner and assist local communities in attaining the intended spatial design and land use intensities designated in their plans. The absence of such policies may allow for more sprawling development patterns involving an increasing loss of wetlands and leading to a greater degree of nonconformity. The environmental policies include use restrictions in and around critical habitats, density restrictions in and around critical habitats, targeted growth areas away from critical habitats, capital improvements programming to protect critical habitat and ecological processes, density bonuses in exchange for habitat protection, transfer of development rights away from critical habitats, and clustering away from habitat and/or wildlife corridors.

The plan implementation component represents a commitment to implementing the final plan in the future (but does not indicate how well the plan is actually implemented once it is adopted). An important attribute of a high-quality plan is that it articulates mechanisms and procedures for implementing the plan once it is adopted. Implementation depends not only on the ability of a community to implement its plan in a timely fashion, but also on designating responsibility for actions, enforcing adopted standards, and applying sanctions to those who fail to comply. This plan component also focuses on monitoring both ecological conditions and plan effectiveness. Specific plan quality indicators thus include clear designation of responsibility for implementation (accountability), sanctions for failure to implement specified regulations, a clear timetable for implementation, regular update procedures and plan assessments, enforcement of habitat or ecosystem protection, provisions for technical assistance, monitoring for ecological processes, monitoring of ecological and human impacts, identification of costs or funding for implementation, monitoring of plan effectiveness, and monitoring of policy response to new scientific information. Through these 11 indicators, a community can effectively adapt to changing conditions by setting updated standards to obtain stated goals and objectives.

An environmental policy or plan implementation mechanism was coded if it was intended to protect ecologically significant habitat and restrain sprawling development that would adversely impact additional wetlands (see Figure 2 for a complete listing of indicators comprising the coding protocol). Each indicator was measured on a 0–2 ordinal scale, where 0 is not identified or mentioned, 1 is suggested or identified but not detailed, and 2 is fully detailed or mandatory in the plan. In addition to recording the presence of each plan indicator, we calculated a plan quality index for each plan component (as done by Berke et al., 1998; Brody, 2003a; Brody et al., 2004). There were three steps in the construction of the index for each plan component. First, the scores for each of the indicators (I_i) were summed within each of the plan components. Second, the sum of the scores was divided by the total possible score for each plan component ($2m_j$). Third, this fractional score was multiplied by 10, placing the plan component on a 0–10 scale. That is,

$$PC_j = \frac{10}{2m_j}\sum_{i=1}^{m_j} I_i \qquad (2)$$

where PC_j is the plan quality for the j^{th} component, and m_j is the number of indicators within the j^{th} component.

The most recent comprehensive plans for each county and city occupied by a significant wetland permit cluster in the south Florida subsample were evaluated against the plan quality protocol containing the environmental policy and plan implementation indicators. Two trained coders working independently of each other evaluated the sample of plans. An "intercoder reliability score" was computed equal to the number of coder agreements for indicators divided by the total number of indicators. We calculated a score of 97%. The literature suggests that an intercoder reliability score in the range of 80% is generally considered acceptable (Miles & Huberman, 1994).

Data Analysis

The data were analyzed in three phases. First, we examined the trends of wetland development based on granted permits over the 10-year study period. Both the number and size of significant clusters were evaluated according to their respective watersheds. Second, we analyzed the degree to which these wetland permit clusters conform to the original designs of local comprehensive plans. Conformity was statistically and graphically described both among and within watershed units. Third, we conducted zero-order correlation analysis between the degree of conformity (or implementation) based on a subsample of clusters in the southern portion of the state and plan quality indicators for associated jurisdictions.

Plan Quality Indicators

Environmental policies

Use restrictions in and around critical habitats
Density restrictions in and around critical habitats
Targeted growth areas away from critical areas
Capital improvements programming to protect critical habitat and ecological processes
Density bonuses in exchange for habitat protection
Transfer of development rights from critical habitats
Clustering away from habitat and/or wildlife corridors

Implementation policies

Clear designation of responsibility for implementation
Sanctions for failure to implement specified regulations
Clear timetable for implementation
Regular update procedures and plan assessments
Enforcement of habitat or ecosystem protection
Provisions for technical assistance
Monitoring for ecological processes, critical habitat, and indicator species
Monitoring of ecological and human impacts
Identification of costs or funding for implementation
Monitoring of plan effectiveness
Monitoring of policy response to new scientific information

Figure 2. Selected plan quality indicators.

Results

Emergence of Wetland Development Clusters

Figure 3 illustrates an increasing number of permits issued across Florida between 1993 and 2002. Generally, the number of granted wetland development permits increased significantly during the study period. In 1993, 2,487 permits were granted, while approximately 4,796 permits were granted in 2002. A significant spike in the number of permits granted occurred between 1994 and 1995, representing a possible increase in the level of statewide development activity during that year.[1] The number of permits actually declined each year from 1998 to 2000, and then sharply increased from 2000 to 2003. Since these are statewide totals, it is difficult to determine exactly what drove the yearly variations in the number of permits, but these fluctuations should be further investigated in subsequent studies.

Interestingly, the area of spatially clustered permits (as recorded by townships) for each year follows a similar pattern as with the number of permits (Figure 4). The area of clustered permits increased from 2,387 square kilometers in 1993 to 4,069 square kilometers in 2002. Yearly fluctuations in clustered area generally match those for the total number of issued permits. This result may indicate that wetland development occurred in a relatively dense spatial configuration or in concentrated areas as opposed to being randomly scattered across the state.

Figure 5 illustrates the significant clusters or hotspots (showing only areas that have a LISA category of high values surrounded by high values) of issued permits that emerged at the end of the study period in 2003. Several important observations can be made based on the spatial pattern of permit clusters. Principally, the majority of clusters are located in the southern portion of the state and along the coastlines. Hotspots are particularly evident in the southeast urban corridor from Miami north to West Palm Beach (Southeast Florida Watershed), in the Everglades West Coast Watershed from Naples north to Bradenton, and in and around Pinellas County/Tampa Bay Watershed. A large cluster of wetland development is also noted in the central part of the state west of Tampa Bay within the Kissimmee River Watershed. These hotspots of wetland development activity appear to mimic the general pattern of development that occurred in Florida in the 1990s and early 2000s. That is, residential and tourism development built upon and expanded outward from previously established urban centers in coastal areas in the southern portion of the state. Sprawling development into the interior areas was constrained by the presence of the Everglades National Park and Big Cyprus Preserve in the extreme south, but less so in areas north of Lake Okeechobee, where there is no protective barrier.

Level of Conformity for Wetland Permit Clusters

The emergence of spatial clusters of wetland development permits and their locations provide a backdrop for unraveling what may be a pertinent question: Do these clusters representing concentrated wetland development or

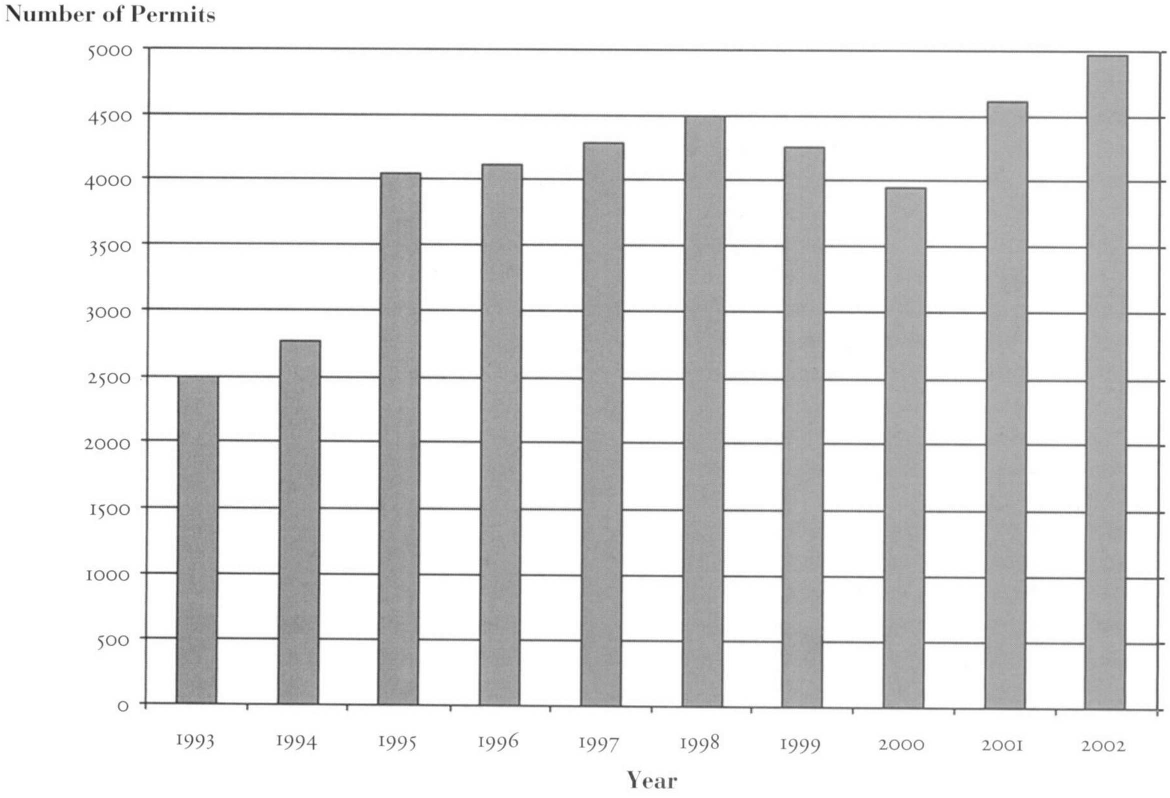

Figure 3. Number of wetland development permits granted in Florida, 1993–2002.

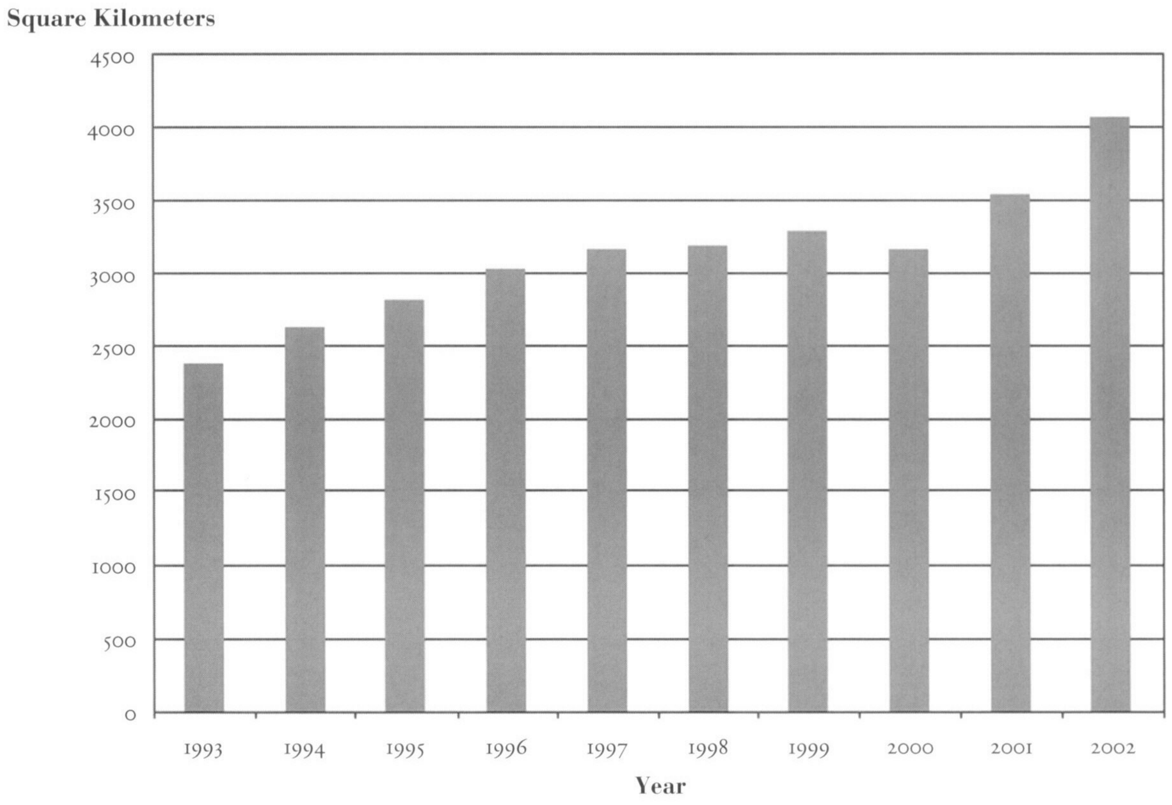

Figure 4. Area of clustered wetland development permits in Florida, 1993–2002.

alteration conform to the general design of the local planning framework? Table 1 shows the degree to which clusters in each watershed in the study area adhere to future land use designations established in 1992. We calculated an average conformity score for each watershed, as well as the percentage of clustered area within each quartile on the conformity scale ranging from 0 (completely conforming) to 1 (completely nonconforming).

Overall, the 1st quartile (for which the conformity score is equal to or less than .25) contains the most area, approximately 3,500 km^2, suggesting that the majority of wetland development across the state is relatively in conformance with the spatial intent of local plans. However, the 4th quartile, where conformity to the local plan is the lowest, contains approximately 800 km^2, which is more than the second and third quartiles combined. In fact, more than 15% of all clustered wetland development permits are more than 75% nonconforming based on the future land use maps of their associated comprehensive plans.

The watersheds that conform to their local plans the least (nonconformity greater than 50% of all permit clusters) are located in the northern part of the state, particularly in the Panhandle region. Among these 11 watersheds, Nassau, Escambia, and Alapaha Watersheds are entirely nonconforming in their development of wetlands. In contrast, the watersheds with the highest level of conformity are primarily located in the southern portion of the state along the coastlines. These areas contain the majority of population and urban centers such as Miami, Tampa, and Fort Lauderdale. While it appears from a watershed perspective that wetland development patterns in northern Florida disregard planning initiatives, these clusters actually represent small, isolated instances of local developments. The vast majority of issued permits and significantly clustered area occur in the southern portion of the state. In fact, the 11 least conforming watersheds amount to only 9% of all clustered area identified in Florida.

Small pockets of nonconforming development are important indicators of the effectiveness of local planning and should not be overlooked. However, a thorough examination of the value of land use designations, spatial guidance for future growth, and plan implementation should also focus on where the most intense development is taking place: southern Florida. A closer look at the conformity

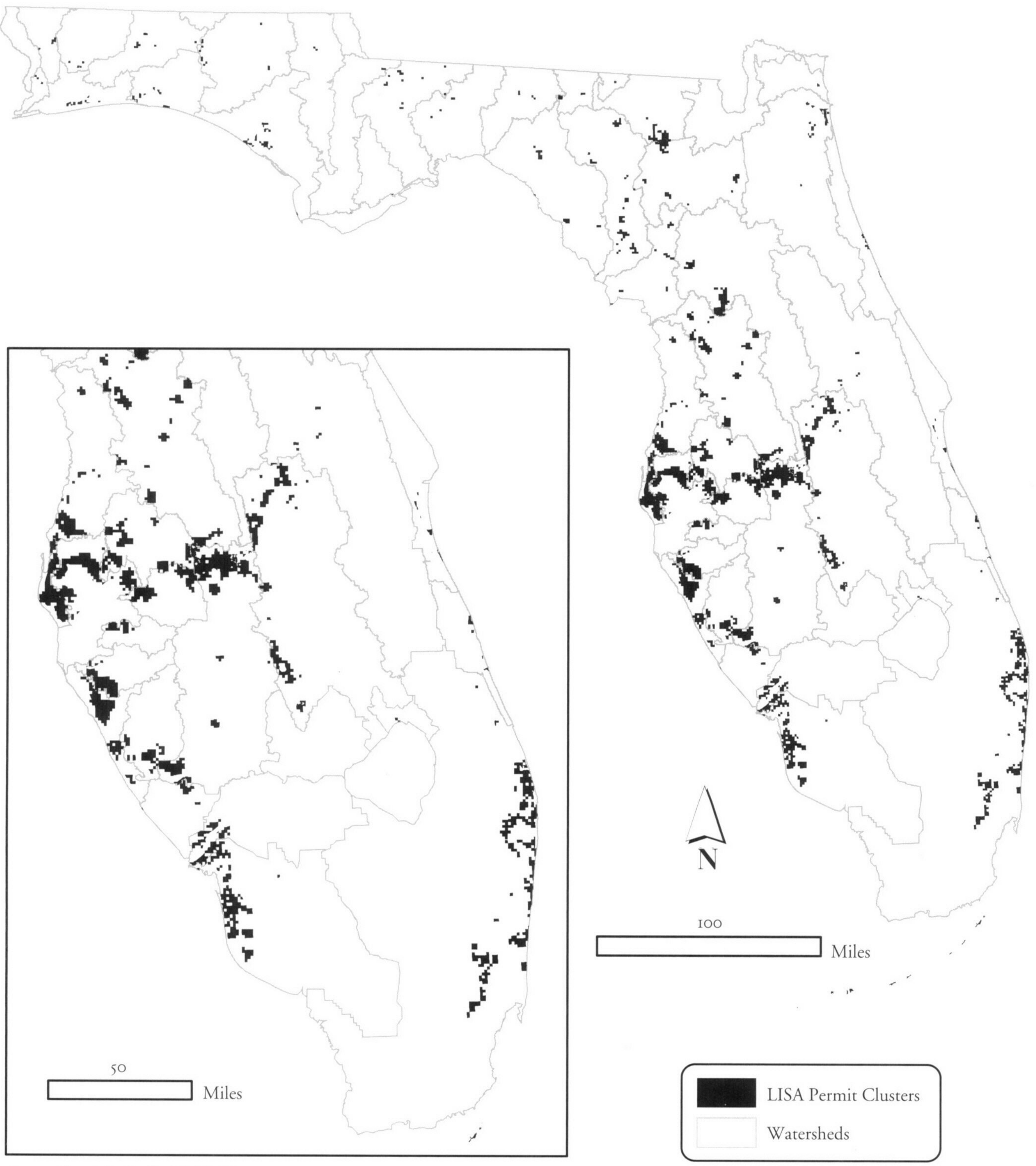

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Figure 5. Spatial clusters of wetland development permits in Florida, 1993–2002.

			Area of nonconformity by quartile (sq. km./%)							
Watershed	**Cluster area (sq. km.)**	**Average non-conformity score**	**First quartile (0–0.25)**		**Second quartile (0.26–0.50)**		**Third quartile (0.51–0.75)**		**Fourth quartile (0.76–1.00)**	
Pensacola Bay	24.34	0.0	24.34	100.0	.	0.0	.	0.0	.	0.0
Choctawhatchee Bay	29.41	0.1	29.41	100.0	.	0.0	.	0.0	.	0.0
Chipola River	5.13	0.2	5.13	100.0	.	0.0	.	0.0	.	0.0
St Johns River, Upper	21.09	3.2	21.09	100.0	.	0.0	.	0.0	.	0.0
Taylor Creek	3.79	3.9	3.79	100.0		0.0		0.0		0.0
Sarasota Bay	236.99	4.7	221.47	93.5	10.68	4.5	2.24	0.9	2.60	1.1
East Coast, Middle	15.58	7.0	13.87	89.0	1.71	11.0	.	0.0	.	0.0
St. Andrews Bay	62.02	8.5	51.70	83.4	5.20	8.4	5.08	8.2	0.03	0.0
Caloosahatchee River	138.70	9.3	128.65	92.8	.	0.0	6.04	4.4	4.02	2.9
Tampa Bay	333.45	9.4	307.52	92.2	18.16	5.4	2.68	0.8	5.09	1.5
Crystal River to St. Pete	429.86	10.2	374.77	87.2	41.41	9.6	3.53	0.8	10.16	2.4
Indian River, South	15.28	10.3	12.75	83.5	2.53	16.5	.	0.0	.	0.0
Hillsborough River	246.88	11.2	209.66	84.9	15.46	6.3	14.92	6.0	6.83	2.8
Everglades–West Coast	339.44	12.4	287.70	84.8	12.99	3.8	17.66	5.2	21.09	6.2
Little Manatee River	56.71	14.2	43.60	76.9	10.47	18.5		0.0	2.65	4.7
Econfina–Fenholoway	43.49	17.0	31.79	73.1	8.06	18.5	2.61	6.0	1.02	2.3
St. Johns River, Lower	56.69	18.0	29.03	51.2	1.25	2.2	25.39	44.8	1.03	1.8
Withlacoochee River, North	14.76	20.0	9.54	64.7	.	0.0	.	0.0	5.22	35.3
New River	1.11	21.4	0.23	20.9	0.88	79.1	.	0.0	.	0.0
Manatee River	144.58	22.3	103.32	71.5	8.21	5.7	5.36	3.7	27.69	19.2
Keys	24.61	23.5	12.84	52.2	7.10	28.9	1.30	5.3	3.37	13.7
Peace River	531.90	23.6	354.93	66.7	57.87	10.9	47.28	8.9	71.81	13.5
Santa Fe River	100.70	24.2	66.40	65.9	7.87	7.8	2.90	2.9	23.52	23.4
Southeast Florida	634.78	26.5	384.57	60.6	89.35	14.1	51.70	8.1	109.15	17.2
Kissimmee River	390.38	29.8	235.95	60.4	44.01	11.3	44.55	11.4	65.87	16.9
Alafia River	174.94	30.3	105.17	60.1	19.89	11.4	23.64	13.5	26.24	15.0
Perdido Bay	7.80	31.3	5.21	66.8	.	0.0	.	0.0	2.59	33.2
Withlacoochee River, South	306.77	34.0	170.63	55.6	36.27	11.8	34.83	11.4	65.05	21.2
Suwannee River, Upper	76.71	36.9	45.14	58.9	.	0.0	.	0.0	31.56	41.1
Myakka River	104.97	37.1	62.32	59.4	13.00	12.4	.	0.0	29.65	28.2
East Coast, Upper	13.78	38.6	8.22	59.7	.	0.0	.	0.0	5.56	40.3
St. Marks River	10.41	38.8	5.22	50.1	.	0.0	2.62	25.1	2.57	24.7
Blackwater River	10.08	44.2	4.67	46.3	.	0.0	.	0.0	5.41	53.7
Charlotte Harbor	38.65	45.2	15.75	40.8	4.27	11.0	2.63	6.8	16.00	41.4
Yellow River	23.24	54.1	7.73	33.3	2.59	11.1	5.12	22.0	7.80	33.6
Waccasassa River	44.16	56.1	14.92	33.8	.	0.0	5.25	11.9	24.00	54.3
Apalachicola River	5.69	60.0	0.53	9.4		0.0	.	0.0	5.16	90.6
Suwannee River, Lower	135.39	60.7	37.01	27.3	15.61	11.5	12.19	9.0	70.59	52.1
Ochlockonee River	39.17	63.7	10.39	26.5	2.63	6.7	2.64	6.8	23.50	60.0
Oklawaha River	152.36	72.4	18.46	12.1	17.11	11.2	33.87	22.2	82.91	54.4
Aucilla River	10.54	74.7	2.70	25.6	.	0.0	.	0.0	7.85	74.4
Choctawhatchee River	29.10	82.5	.	0.0	8.38	28.8	.	0.0	20.72	71.2
Escambia River	2.59	100.0	.	0.0	.	0.0	.	0.0	2.59	100.0
Nassau River	12.89	100.0	.	0.0	.	0.0	.	0.0	12.89	100.0
Alapaha River	3.70	100.0	.	0.0	.	0.0	.	0.0	3.69	100.0
Total	5105.00	.	3478.11	68.1	462.96	9.1	356.03	7.0	807.50	15.8
Average	226.34	33.9	169.07	57.5	33.07	8.6	28.48	5.6	42.50	28.2

Table 1. Watershed plan nonconformity scores.

Note: Nonconformity scores were calculated only for watersheds that contained jurisdictions whose plans had been evaluated (*N*=45).

level of wetland development permit clusters based on quartiles (Figure 6) reveals an interesting spatial pattern. Nonconforming clusters occur at the fringes of coastal urban areas, where development pressures are the greatest. The nonconforming patches are almost always located adjacent to conforming development. These areas include the western outskirts of Miami, Boca Raton, and West Palm Beach on the southeast coast and areas to the east of Bradenton and Sarasota on the west coast of the state. As mentioned above, areas to the north of Lake Okeechobee in the central part of the state do not have large protected areas to constrain growth and therefore contain significant clusters of wetland permits. Large patches of nonconformity are located around urban growth areas associated with Disney World just south of Ocala and the Kissimmee River. Based on the observed patterns of nonconforming wetland development, it appears that urban areas in southern Florida (surrounding the Everglades ecosystem) have experienced unintended growth towards interior portions of the state, causing critical wetlands to be filled in for development. As development pressure increased, urban and tourism areas tended to push outward and were, in this case, constrained only by large, nationally protected areas.

It is still difficult to determine if local comprehensive planning has mattered statewide in terms of focusing development and protecting wetland habitat, since we cannot compare conformity patterns in Florida both with and without a planning mandate. Indeed, the spatial configuration of development and the level of nonconformity might have been very different in the absence of regulatory and prescriptive land use plans.

Correlations between Plan Quality and Plan Conformity

Another way to measure the effectiveness of comprehensive planning is to examine the relationship between plan content and plan outcome. In the final phase of analysis, we conducted zero-order correlation analysis for permit clusters located in the southern part of Florida between plan quality indicators and the plan conformity measure. As shown in Table 2, the environmental policies plan component is not significantly correlated with plan conformity. That is, the presence of environmental policies in the sample of local plans does not guarantee plan performance when it comes to containing the development of wetlands in areas designated as undesirable. The plan implementation component is unexpectedly significantly correlated with a greater degree of nonconformity when it comes to wetland development.

However, unpacking the indices and examining each individual indicator results in a clearer picture of the relationship between plan content and plan implementation. Several policy indicators appear to correlate with significant increases in the degree of subsequent nonconformity, among them the protection of critical habitat, targeted growth strategies, density bonuses, and transfer of development rights. In contrast, two policies in the index significantly increase the level of plan conformity by reducing spatial nonconformity. Wetland protection using capital improvements programming and clustered growth requirements both increase spatial conformity at the .01 level of significance.

Specific indicators for plan implementation reveal a similar pattern when correlated with plan conformity. Designation of responsibility for implementation, suggested funding mechanisms, requirements for regular plan updates (required under the state mandate), provisions for monitoring ecological processes, and monitoring specified so that jurisdictions can respond to new information are all significantly correlated with a decrease in plan conformity. On the other hand, strict sanctions for failure to implement required policies and monitoring plan effectiveness both appear to be significantly correlated with an increase in plan conformity at the .01 level. In addition, monitoring human impacts on the natural environment (i.e., water quality, habitat fragmentation, storm water runoff, etc.) is correlated with an increase in conformity at the .05 level of significance.

Summary and Policy Implications

Wetland development in Florida, as indicated by state and federally issued permits, has increased steadily between 1993 and 2002, particularly in the southern portion of the state. The area of permit clusters followed the same upward trend, indicating that, on average, development did not occur haphazardly across the state, but in specific or concentrated areas. As communities grow and expand outward, new developments tend to locate near previous ones rather than as isolated patches. This cumulative spatial development pattern, so characteristic of rapidly growing communities, may help explain why as the number of issued permits increased, the area of clustered permits also increased.

The degree to which spatial clusters of wetland development permits conform to the original spatial design of local plans varies across watersheds and between the northern and southern portions of the state. While the highest levels of nonconformity are located to the north in the Panhandle region, coastal areas to the south contain by far the largest number of permits and area of nonconformity. We explain this result by the occurrence of two types of

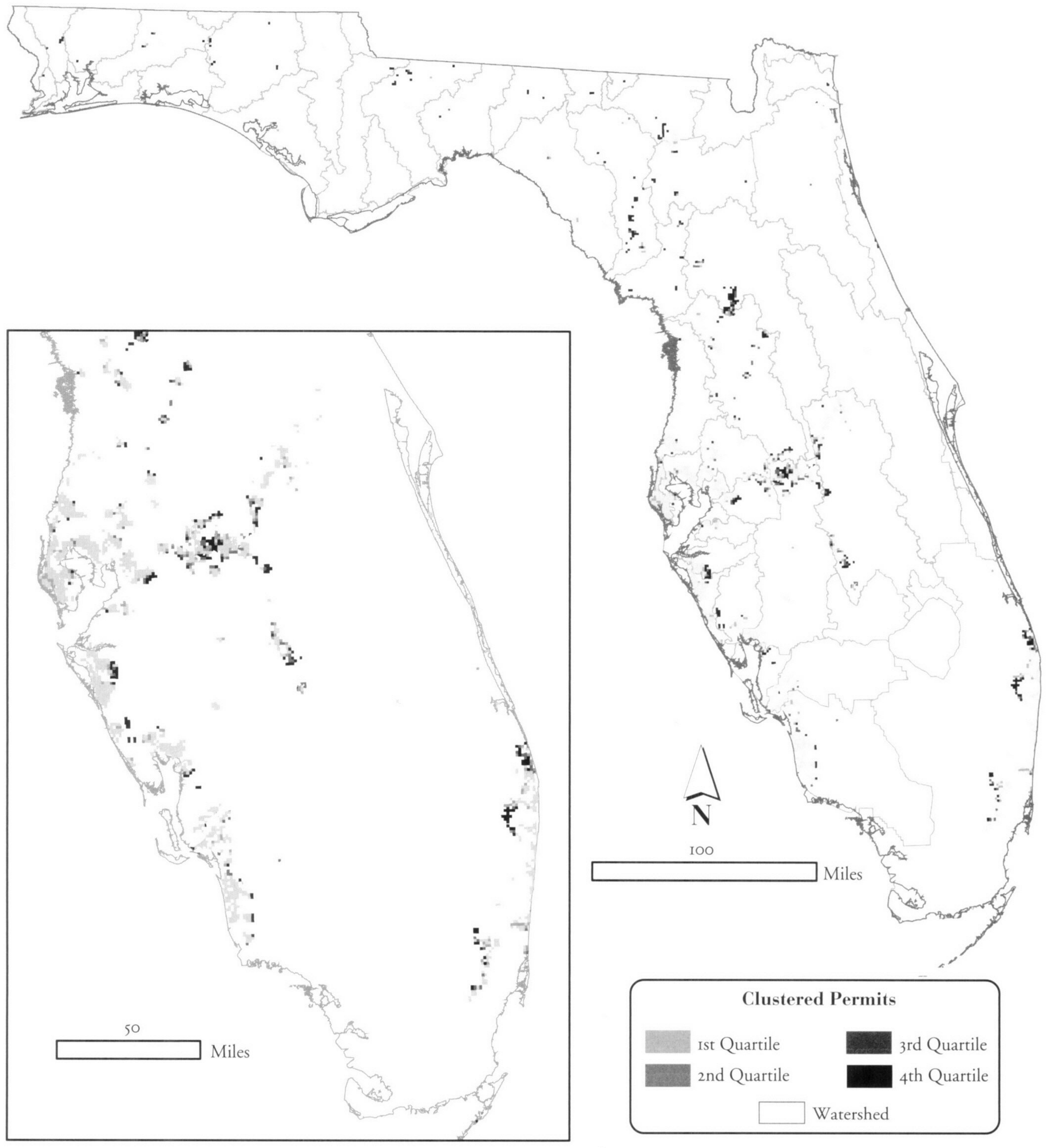

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Figure 6. Level of conformity for spatial clusters of wetland development permits in Florida, 1993–2002.

Correlations between environmental policies and plan conformity	**Nonconformity**
Environmental policy component	0.040
Critical habitat protection	0.074**
Density restrictions	0.060*
Targeted growth	0.161**
Protection with capital improvements	0.110**
Density bonuses	0.075**
Clustered growth	0.092**
Transfer of development rights	0.080**
Correlations between implementation indicators and plan conformity	**Nonconformity**
Implementation component	0.067**
Designation of responsibility for implementation	0.144**
Technical assistance identified	0.006
Funding for implementation outlined	0.154**
Sanctions for failure to implement regulations	−0.066**
Timetable for implementation	0.032
Regular update procedures specified	0.176**
Enforcement of ecosystem protection specified	−0.024
Monitoring for ecological processes	−0.081**
Monitoring for human resource use/impacts	−0.048*
Monitoring specified for plan effectiveness	−0.104**
Monitoring specified for policy response to new scientific information	0.101**

$^{*}p<0.05$; $^{**}p<0.01$

Table 2. Correlations between plan quality indicators and plan conformity (N=1,640).

wetland development: (1) small, isolated patches in the comparatively undeveloped Panhandle; and (2) rapidly expanding development in the south that pushes out from the fringes of urban areas containing large populations. The presence of protected areas associated with the Everglades ecosystem in the south appears to act as a growth barrier that confines development to coastal areas. The relationship between plan quality and plan conformity in southern portions of the state showed mixed results. Capital improvements programming and clustered development to protect critical habitat are the most influential policies related to plan conformity. Sanctions for failure to comply with regulations, monitoring human impacts on the integrity of the natural system, and monitoring the effectiveness of the plan itself are the implementation mechanisms most closely associated with plan conformity.

Each phase of the results provides guidance for planners and managers on how best to mitigate future outbreaks of nonconforming clusters of wetland development in Florida. First, it is important to consider not only the amount of wetland development taking place, but specifically where this development is occurring across natural landscapes. The function and integrity of watersheds depend on a patchwork system of interconnected wetlands. Some of these patches may be more important in supporting the ecological system than others. Analyzing how the spatial pattern (e.g., location, proximity, clustering) of development affects critical ecological components is thus an important aspect of environmental planning (Peck, 1998). The recent ubiquity of GIS and spatial analytical techniques provide the technical means to help local and regional planners better understand the impacts of development trends.

Second, because an expansion of growth away from urban areas in south Florida comprises the majority of nonconforming wetland development, a planning focus on the urban fringe is necessary to limit sprawling development patterns that adversely impact the Everglades ecosystem. A focus on the urban fringe may include local planning strategies such as greater restrictions on wetland development, a sharper distinction between urban and rural areas through the designation of Urban Growth Boundaries, incentives that promote clustered development and higher densities in the urban core, careful placement of public facilities, and programs that encourage infill development or redevelopment in central urban areas.

Third, designation of protected areas in key locations may contain rapidly expanding growth or focus development in ecologically desirable areas. While wetland development in the south expanded out from the fringes of urban areas toward the interior of the state, it was restrained by the presence of Everglades National Park and Big Cyprus National Preserve. A lack of protected areas north of Lake Okeechobee may have contributed to the spread of concentrated wetland development into central Florida. Thus, protected areas designated by state and local authorities may provide a dual role: protection of critical natural habitats that support the integrity of ecological systems, and constraining and focusing growth in areas that will reduce adverse environmental impacts. Florida already has several programs in place to acquire ecologically sensitive lands, such as the Preservation 2000 Initiative and the Florida Forever program, which use a documentary stamp tax to generate $300 million annually for acquisition of conservation lands (Beatley, 2000). At the local level, Pinellas County adopted the Penny for Pinellas program consisting of a one-cent local option sales tax that piggybacks the state sales tax and applies to all sales, uses, services, rentals, admissions, and other authorized transactions. Proceeds from the local option sales tax can be used only for capital projects. Of this money, over $1 million was dedicated for preserves and habitat management, and approximately $3.3 million for parks and land acquisition in 2003 (Pinellas County, n.d.). The Penny for Pinellas Program may be part of the reason why the Tampa Bay Watershed (encompassing Pinellas County) has an average nonconformity score of less than .1 and over 90% of its wetland development clusters are in the first quartile of nonconformity (conformity ≤.25).

Fourth, policies that entail capital improvements programming may be one of the most effective planning tools to ensure plan conformity and the protection of critical habitat. The presence of public infrastructure and facilities is a major catalyst for land development. Local governments can contain or guide new development by not budgeting for water or sewer lines, roads, or other types of infrastructure in certain areas (Duerksen et al., 1997). Only 15% of the jurisdictions' plans incorporated capital improvements programming and control of public investments as a way to protect critical natural habitats such as wetlands. More widespread use of this planning strategy may increase the degree of plan conformity and plan implementation in general.

Fifth, clustering development is another planning technique that is strongly associated with plan conformity. On a regional scale, clustered development patterns help contain growth within the urban core and protect critical habitats. At the parcel level, cluster zoning allows high-density development in one area of a parcel while leaving the remaining land undeveloped. This concept is widely used to contain local growth and set aside sensitive areas such as wetlands and wildlife habitat (Beatley & Manning, 1997). Clustered development may be strongly related to plan conformity in part due to its direct and easily recognizable benefits: protecting significant areas of natural habitat without decreasing land values.

Sixth, sanctions designated for failure to implement goals, objectives, and policies may motivate communities to conform to the original plan design and lead to a greater degree of plan performance. Although mandatory sanctions in the form of penalties, added restrictions, and requirements appeared rarely in the sample of plans (10%), this implementation mechanism seems to trigger increased plan conformity over time. This result indicates that if there are legal or financial consequences embedded in a plan for not adhering to its requirements, communities are more likely to take planning directives more seriously.

Finally, specific monitoring activities designated in a plan may lead to greater plan conformity and better overall plan implementation. Assessing the effectiveness of the plan itself is the most important monitoring mechanism because it forces planners and communities to continually reassess plan performance and make adjustments based on new information or changing conditions. Regular plan updates, self-assessments, and report cards for plans are vital for keeping a plan on track. With a system of constant self-reflection on the effectiveness of an adopted plan, planners can become adaptive managers responsive to the shifting political, socioeconomic, and physical landscape. Most importantly, monitoring a plan can catch systematic occurrences of nonconformity and associated implementation failures before they become too severe. Another useful monitoring device involves tracking human impacts on the natural environment. A clear understanding of the adverse impacts caused by urban development and resource degradation can assist planners in mitigating loss of ecosystem structure and function. When incorporated into a planning process and final plan, this information communicates the importance of protecting wetland function and integrity at the watershed level. It should be noted that some type of monitoring and evaluation of plans does take place at the local level. As part of the state planning mandate, all jurisdictions are required to draft an Evaluation and Appraisal Report every 7 years. This document evaluates the progress made in obtaining the goals of a local government's comprehensive plan and determines if changes are needed.

Conclusion

By using spatial and statistical analyses to measure the degree of plan conformity, this study provides a stronger understanding of the link between plan making and plan implementation. The value of our approach is that it provides a spatial compass for keeping a plan on track and ensuring effective implementation over the long term. By offering a baseline with which to evaluate the effectiveness of implementation, we are able to geographically isolate deviations from the original plan and potential adverse impacts to wetland systems. While the desirability of development patterns should be a value-based assumption made by a community, this method at least helps planners recognize when and where there is nonconformity and a significant change in direction from the original plan design. It serves as a statistical and graphic tool with which to gauge the direction of plan implementation, adjust course to updated information, or chart a new heading before negative outcomes become irreversible. If employed by local planners, such a system could facilitate an adaptive approach to regional growth and environmental management so communities can make microadjustments more informally and more often than the usual official 7-year plan update cycle. An adaptive approach to long-term planning can more effectively mitigate undesirable outcomes such as sprawl and environmental degradation or prevent development patterns from taking major detours from the originally intended path.

While this study provides insights into the degree of plan implementation based on permits for wetland alteration, there are several limitations to the approach, and it should be considered only an initial step toward understanding the links between plans and plan implementation. Further research is needed on several fronts. First, this study provides just one method for measuring the degree of plan implementation, which by itself is not sufficient. Other implementation evaluation techniques must be developed, and plan implementation should be evaluated using multiple methods of analysis, both quantitative and qualitative. Second, this study examines only one state. Future research should analyze plan implementation in multiple states with varying degrees of local planning mandates. Comparative analyses would provide an increased understanding of the effectiveness of planning in general. Third, this study looks at plan conformity on a broad spatial scale and does not detect local variations in urban form. With such a high degree of aggregation, important local details may be lost. Further study at a finer scale and for specific wetland development clusters (both high and low conformity) would generate additional insights into the impacts of development that deviates from the original design of a plan. Finally, more research is needed on the factors driving plan conformity. Bivariate correlations are only a small first step in understanding the relationship between plan quality and plan implementation. More in-depth statistical methods are needed to better explain the factors contributing to plan conformity, including spatial regression analysis and an expanded set of variables that contains socioeconomic contextual controls.

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Notes

1. The data are based on recorded wetland development permits from several agencies. Reporting bias may influence variations from year to year, but we have no reason to expect this bias was systematic, nor that it accounted for significant yearly differences.

References

Alexander, E.R., & Faludi, A. (1989). Planning and plan implementation: Notes on evaluation criteria. *Environment and Planning B: Planning and Design, 16*, 127–140.

Alterman, R., & Hill, M. (1978). Implementation of urban land use plans. *Journal of the American Institute of Planners, 33*, 274–285.

Anselin, L. (1995). Local indicators of spatial association—LISA. *Geographical Analysis, 27*, 93–115.

Baer, W. C. (1997). General plan evaluation criteria: An approach to making better plans. *Journal of the American Planning Association, 63*, 329–344.

Beatley, T. (2000). Preserving biodiversity: Challenges for planners. *Journal of the American Planning Association, 66*, 5–20.

Beatley, T., & Manning, K. (1997). *The ecology of place: Planning for environment, economy, and community.* Washington, DC: Island Press.

Berke, P., & French, S. (1994). The influence of state planning mandates on local plan quality. *Journal of Planning Education and Research, 13*, 237–250.

Berke, P., Crawford, J., Dixon, J., & Erickson, N. (1998). *Do co-operative environmental management mandates produce good plans? The New Zealand experience* (Working Paper). Department of City and Regional Planning, University of North Carolina at Chapel Hill.

Brody, S. D. (2003a). Examining the impacts of stakeholder participation in watershed approaches to planning. *Journal of Planning Education and Research, 22*, 107–119.

Brody, S. D. (2003b). Implementing the principles of ecosystem management through land use planning. *Population and Environment, 24*, 511–540.

Brody, S. D., Carrasco, V., & Highfield, W. (2004). Evaluating ecosystem management capabilities at the local level in Florida: A policy gap analysis using geographic information systems. *Environmental Management, 32*, 661–681.

Bryson, J. M. (1991). There is no substitute for an empirical defense of planning and planners. *Journal of Planning Education and Research, 10*, 164–165.

Burby, R. (2003). Making plans that matter: Citizen involvement and government action. *Journal of the American Planning Association, 69*, 33–49.

Burby, R., & May, P. (1998). Intergovernmental environmental planning: Addressing the commitment conundrum. *Journal of Environmental Planning and Management, 41*, 95–110.

Burby, R., May, P., Berke, P., Dalton, L., French, S., & Kaiser, E. (1997). *Making governments plan: State experiments in managing land use.* Baltimore: Johns Hopkins University Press.

Calkins, H. W. (1979). The planning monitor: An accountability theory of plan evaluation. *Environment and Planning A, 11*, 745–758.

Clawson, M. (1971). *Suburban land conversion in the United States: An economic and governmental process.* Baltimore: Johns Hopkins University Press.

Driessen, P. (1997). Performance and implementing institutions in rural land development. *Environment and Planning B: Planning and Design, 24*, 859–869.

Duerksen, C. D., Elliot, N., Thompson, E., & Miller, J. (1997). *Habitat protection planning: Where the wild things are* (APA Planning Advisory Service Report No. 470/471). Washington, DC: Planning Advisory Service.

Faludi, A. (2000). The performance of spatial planning. *Planning practice and research, 15*, 299–318.

Mastrop, H., & Faludi, A. (1997). Evaluation of strategic plans: The performance principle. *Environment and Planning B: Planning and Design, 24*, 815–832.

Miles, M., & Huberman, A.M. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Newbury Park, CA: Sage.

Mutagh, B. (1998). Evaluating the community impacts of urban policy. *Planning Practice and Research, 13*, 129–138.

Peck, S. (1998). *Planning for biodiversity: Issues and examples.* Washington, DC: Island Press.

Pinellas County. (n.d.). *Penny for Pinellas.* Retrieved April, 2004, from http://www.pinellascounty.org/pennydefault.htm

Seasons, M. (2003). Monitoring and evaluation in municipal planning. *Journal of the American Planning Association, 69*, 430–440.

Talen, E. (1996a). After the plans: Methods to evaluate the implementation success of plans. *Journal of Planning Education and Research, 16*, 79–91.

Talen, E. (1996b). Do plans get implemented? A review of evaluation in planning. *Journal of Planning Literature, 10*, 248–259.

Talen, E. (1997). Success, failure, and conformance: An alternative approach to planning evaluation. *Environment and Planning B: Planning and Design, 24*, 573–587.

Wildavsky, A. (1973). If planning is everything, maybe it's nothing. *Policy Sciences, 4*, 127–153.

Williams, J., Wood, C., & Dombeck, M. (Eds.). (1997). *Watershed restoration: Principles and practices.* Bethesda, MD: American Fisheries Society.

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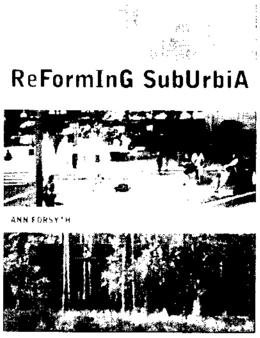

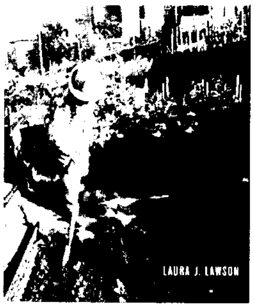

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