Chapter 3

The Pinelands

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Situated nearly in the center of the densely populated northeastern megalopolitan corridor is a million-acre tract of pine-oak forest traditionally known as the Pine Barrens or Pines, and more recently recognized as the Pinelands National Reserve (Figure 3.1). One-third of the land within the reserve is publicly owned; the other two-thirds is in private hands. Approximately 700,000 people live in the Pinelands, though parts of the central Pines have remarkably low population densities. The Pinelands are home to two major aquifers and a great many species of rare and endangered flora and fauna. In 1981, only four days before Ronald Reagan became President, Interior Secretary Cecil B. Andrus approved a comprehensive regional zoning and regulatory plan that would be implemented by local, county, state, and federal governments. The Pinelands became the country's first, and is still its only, 'national reserve'. How is the Pinelands region defined and constructed? How has the regional plan, and the region it is meant to protect, fared over the past two decades? What are the future prospects?

Regional Significance and History

Unlike most national parks in America, the New Jersey Pinelands is an area with towns, farms, and an extensive history of human occupation and resource exploitation. The region is prized especially for its vast stores of groundwater, but also for its unique ecology and history. It is known by various names, with the traditional appellation 'Pine Barrens' implying a forbidding place whose soils are not conducive to agricultural production. In fact, parts of the Pine Barrens are exquisitely suited for cranberry and blueberry production. Many of the region’s residents, known as ‘Pineys,’ are more apt to recognize their own part of the Pinelands than to regard themselves as residents of the larger ecoregion (Berger and Sinton, 1985; Mason, 1992). When they do refer to the region, ‘Pines’ is the term that often is used. The official term, embraced by the U.S. and New Jersey governments, is ‘Pinelands’. This term is meant to free the place of the stigma associated with ‘barrens’. The offensiveness of the term is reflected in the way that residents often refer to the regional planning agency, the Pinelands Commission, simply as ‘the Pinelands’.
Water is central to the physical character and human history of the Pinelands, which are underlain by two major aquifers: the Kirkwood and the Cohasney. Collectively, these and several smaller aquifers contain about 17 trillion gallons of pure water and supply 89 per cent of surface water flow. The entire Pinelands ecosystem, with its abundant wetlands, streams, and impoundments, is heavily dependent upon groundwater. Yet the aquifers can easily become contaminated, since they are overlain by sandy soils that are rather ineffective in filtering wastes (New Jersey Pinelands Commission, 1980; Rhodehamel, 1979; Trela and Douglas, 1979). Water quality is a prime concern for Pinelands protection advocates; so, too, is water quantity with particular attention to the potential for overuse and exploitation by outside interests. Indeed, in response to industrialist Joseph Wharton’s plans to export water to Philadelphia, the New Jersey Legislature passed a law in 1884 that prohibited conveyance of water out-of-state. Even today, some residents harbor suspicions that the Pinelands plan is designed to preserve the groundwater resource for future large-scale industrial/commercial use.

Ecological and open-space protection also are driving concerns in Pinelands management. Indeed, some of the strongest advocates for regional protection have been ecologists (Forman, 1979; Sinton and Berger, 1985; Mason, 1992). The Pines are distinguished by extensive pine-oak forests, as well as cedar swamps and maple-gum-magnolia complexes. Of particular interest to naturalists are the pignut pines, or Pine Plains, which drew the attention of conservationist Gifford Pinchot around the turn of the last century. These dwarf forests, occupying between 12,200 and 22,150 acres in total (McCormack, 1970) continue to engage ecologists, who debate the relative roles of fire frequency, soil conditions, and genetic factors in sustaining this unique forest ecosystem (McCormack, 1970; Good, et al., 1979; New Jersey Pinelands Commission, 1980). The Pinelands also act as a sort of “post-glacial arborectum” (Mason, 1992: p. 51), where a number of northern plants reach their extreme southern limits and southern plants reach are at their northern extremes.

Pinelands cultural history and prehistory also are prominent factors in regional protection and planning, although not as central as hydrologic and ecological considerations. Earliest human occupancy of the region has been established to be more than 10,000 years ago (Hartzog, 1982; New Jersey Pinelands Commission, 1980; Wacker, 1979; Sinton, 1982), while European settlement dates to the early 1700s (New Jersey Pinelands Commission, 1980). Over the past three centuries, the region has been intensively used. Through the mid-1800s, the Pinelands supplied wood for shipbuilding and for fueling urban furnaces and steam engines. Through the eighteenth and first half of the nineteenth centuries, the forests were cut to produce charcoal that stoked the iron industry. Limonite, or bog ore, was used to produce iron until the iron making industry moved westward toward the coal and concentrated iron ore deposits of the Midwest. Between 1800 and 1875, glassmaking thrived in the Pines. Other smaller industrial enterprises, including paper and textile mills, were present as well (New Jersey Pinelands Commission, 1986). In the early 1900s, Elizabeth White developed the cultivated blueberry at the town of Whitesbog, and during the course of the twentieth century, commercial
cranberry and blueberry farming became significant agricultural industries. Until rather recently, the Pinelands landscape was a very settled and exploited one, with an extensive network of roads and small towns (Wacker, 1979). Many of these survive today only as ghost towns or as interesting place names such as Ong's Hat and Double Trouble that appear on maps but to the casual observer show no signs of human occupancy.

The role of contemporary Pinelands culture is critical to our understanding of the region (Sinton, et al., 1979; Moonsammy, et al., 1987). ‘Piney’ is the term used to describe Pinelands natives, who are portrayed romantically by John McPhee (1967, 1974) and celebrated with ‘Piney Power’ signs and bumper stickers proudly displayed by Pinelands residents and non-residents alike. But despite the near-mythical status accorded Pineys, it is not at all clear who qualifies as one. According to Sinton (1981, p.40), a Piney is someone who ‘is just a little deeper in the woods than you are’.

Pineys were not always viewed in flattering terms. Early in the 1900s, Elizabeth Kite (1913), based on her research at the Vineland Training School for Feeble Minded Boys and Girls, described Pineys as degenerate, lazy, and lustful. ‘The real Piney,’ wrote Kite, ‘is a degenerate creature who has learned to provide for himself the bare necessities of life without entering into life’s stimulating struggle...like the degenerate relative of the crab...kicking food into its mouth and enjoying the functioning’s of reproduction, the Piney and all the rest of his type have become barnacles upon our civilization’ (Kite 1913, p. 10). These unsympathetic impressions were reinforced by the ethnographic work of Kite’s supervisor, Henry Goddard (1912). Although all of this in time would be debunked, the immediate effect was a call, in 1913, from Governor James F. Fielder for segregation and possible sterilization of this dangerous population (Goldstein, 1981).

If a Piney is regarded as someone who depends principally on the region’s natural resources for his or her living, few true Pineys are to be found today. Yet Piney lore persists, and there is a rich tradition of music and story telling that is still commemorated. Bluegrass and old-time music can be heard weekly at Waretown’s Albert Hall, home of the Pinelands Cultural Society. The Jersey Devil, a regional legend from the 1700s, is the namesake for today’s hockey team based in northern New Jersey. Many of those who do regard themselves as Pineys, or who would be labeled as such by non-residents, are concerned about being regarded as ‘museum pieces’ (Mason, 1992). Moreover, although regional culture is intimately linked to the physical environment, representation and ‘management’ of local culture is not necessarily among the basic principles that guide ecosystem planning (see Yaffee, et al., 1996; Vogt, et al., 1997). Indeed, ecosystem management is a driving force in Pinelands management.

Given its complex pattern of human uses and physical characteristics, the Pinelands region may aptly be seen as many regions rather than one. Indeed, this is one of the continuing controversies in Pinelands regional planning: to what degree should the region be regarded as a whole region, versus a series of interlinked subregions (Berger and Sinton, 1985; Mason, 1992). The Pines have been mapped on the basis of hydrogeology, vegetation, and soils (Harshberger 1916; McCormick and Jones, 1973; Governor’s Pinelands Review Committee, 1979; New Jersey Pinelands Commission, 1980). The formal planning process, described below, treats the Pinelands region essentially as a unified ecological region, delineated on the basis of a combination of physical factors. Arguably, though, the bedrock concern has been groundwater management, with other physical and cultural factors subsumed under the hydrologic umbrella.

Planning and Legislative History

As noted earlier, the State of New Jersey staked out a strong position on resource protection when in 1884 it passed a law prohibiting export of water out-of-state. This act was contemporaneous with New York State’s establishment of the Adirondack Forest Preserve. New York’s effort was driven by interest in protecting the Hudson River watershed to serve future industrial needs, though the recreation rationale was invoked as well (Graham, 1978; Liroff and Davis, 1981).

For many environmentalists, public ownership is the most certain way to provide for long-term protection of valued lands. For many landowners, acquisition is more desirable than regulation, while for elected officials it often is more politically palatable, but limited in utility by its costliness. The first major Pinelands public land designation was that of Lebanon State Forest, in the northern Pines, in 1908. A 1915 ballot question on acquisition of the Wharton tract, in the center of the Pines, was rejected by voters. Not until 1950 was the 100,000-acre Wharton National Forest established. Several other significant parcels also came into public ownership between 1955 and 1954, and more recently, the Pinelands Commission has carried out its own land acquisition program in conjunction with the New Jersey Department of Environmental Protection’s Green Acres office and with additional funding from the federal government. Today, about one-third of the Pinelands and this includes federal military facilities, is in public ownership.

Although scientific interest in the Pinelands has been in evidence for more than a century, the first serious stirrings about regional planning did not come until about 1960, when the Pinelands Regional Planning Board came into being. Largely geared toward economic development in portions of Burlington and Ocean Counties, the Board’s primary accomplishment was to commission planning studies (Herbert H. Smith Associates, 1963, 1964). The planning area was considerably smaller than today’s Pinelands National Reserve.

More widespread concern about Pinelands protection was prompted by a 1967 proposal to build a huge jetport, to serve the New York region, in the Pinelands. This was a NIMBY (Not In My Backyard), or LULU (Locally Unwanted Land Use), of enormous proportion. Consideration of the Great Swamp site, located in northern New Jersey, had been brought to a halt by a powerful campaign mounted by the area’s wealthy and influential citizens (Cavanaugh, 1978). The Pine Barrens jetport scheme, mimicking visionary planning schemes of decades earlier, called for a garden city surrounded by open space and connected with New York City and Philadelphia by high-speed rail. Needless to say, there was strong opposition from
conservationists as well as the military, which had its own plans for the region (Goldstein, 1981). The issues took on statewide importance; indeed there was general opposition to a jetport being sited anywhere in New Jersey (Mason, 1992).

In the end, the Pines proposal may have been done in as much by economic considerations as by political and environmental concerns.

The jetport era marked the beginning of more serious and widespread attention to Pinelands protection. It was around this time that John McPhee's (1967) popular book, *The Pine Barrens*, brought much attention to the region. A Department of the Interior study, commissioned in the late 1960s, was greeted locally with apprehension about federal involvement in the region and provoked a response in the form of the Pine Barrens Advisory Committee, a body appointed by the Burlington and Ocean County Boards of Chosen Freeholders. In 1969, a report released by the National Park Service (U.S. Department of the Interior, n.d.) set forth several alternative regional management schemes, which would ultimately be reflected in some of the debates over Pinelands management a decade later. The report described these management alternatives: 1) two national scientific reserves, one considerably larger than the other and with federal intervention in the form of land acquisition and regulation, 2) a state forest or national recreation area that relies on both conservation easements and land acquisition, and 3) a state Pinelands region that would rely on zoning and land acquisition. The last of these, which would involve a regional governing body representing towns, counties, and the federal and state governments, is the one that most closely resembles Pinelands management in its current form.

Although the Pine Barrens Advisory Committee endorsed the Park Service land acquisition proposals, the time was not ripe for a comprehensive top-down plan. Instead, a locally-based planning organization, the Pinelands Environmental Council (PEC) was authorized by state legislation. But it principally represented local and county-level interests. The PEC's jurisdiction was limited to the central Pinelands and it only had review and advisory powers; it could delay but not halt major new projects (Mason, 1992). It was similar in composition and powers to the much-criticized Tahoe Regional Planning Commission (Constantin and Hanf 1973; Strong 1984). The PEC did produce a *Plan for the Pinelands* (Pinelands Environmental Council, 1975), but its extensive reliance on half-acre zoning led New Jersey Commission of Environmental Protection David Bardin to characterize it as a 'developer's dream' (Goldstein 1981, p.106).

In contrast to emphasis on more concentrated development found in the sprawl management and later 'smart growth' literature (see Real Estate Research Corporation, 1974; Bank of America, 1995; Young, 1995; Leo, et al., 1998; Burchell, et al., 1999; Daniels, 1999; Zinn, 1999), the PEC recommended that:

No owner of a parcel of land should have the privilege of utilizing this land so intensively that if all similar parcels were so utilized, the region would suffer degradation. Otherwise, a time may come when no further development may be permitted to occur, unfairly punishing those who did not develop their land early. (Pinelands Environmental Council, 1975, p. 8).

In the late 1960s and early 1970s, regional planning was coming on line in Vermont, Florida, Oregon, and Colorado (Popper, 1981; DeGrove, 1984; Mason, 1992). In New York State's Adirondacks, a comprehensive private-land use management plan that in many ways closely resembles the one later adopted in the Pinelands, took effect in 1973 (Booth, 1987; Graham, 1978; Liroff and Davis, 1981; Terrie, 1985; 1997; Mason, 1995). But despite the attention being focused on the Pinelands at the time, the political climate was not yet right for comprehensive regional planning to advance beyond the conceptual stage.

For a time, the PEC's efforts, minimally-effective as they were, helped keep state and federal regulators at bay. Moreover, the Pinelands had no clear and compelling single issue around which to rally (in the Adirondacks, for example, it was proposals for major second-home developments in the early 1970s). Nor was there a forceful single advocate for regional planning at that time. And although the Pinelands are a treasured ecological and recreational resource, it lacks the star quality mountains, glaciers, lakes, and rushing streams that are the stuff of Sierra Club posters and films.

The political situation would soon change dramatically. In 1973, Brendan T. Byrne was elected Governor of New Jersey and he became a powerful advocate for the Pinelands. Strongly influenced by his close friend, the writer John McPhee, Byrne wanted Pinelands protection to become the accomplishment for which he would be remembered. Because New Jersey's Governor has extraordinary powers of patronage and appointment, a skilled governor--and Byrne fit this description--can have tremendous influence over the state Legislature (Saimore and Saimore, 1998).

The PEC, hobbled by its weak plan and scandals involving various officials (Mason, 1992) lost its state share of funding in 1974. The PEC continued to function for a time and made a last-gasp effort to reinvent itself in 1978, but by that time the tide had turned toward setting up a more comprehensive system of centralized planning.

In 1977, in the face of growing threats from proposed senior citizen communities, increasing recreational demands, anticipated growth associated with approval of casino gambling in Atlantic City, and planned development of Outer Continental Shelf oil and gas, to be transported via pipeline through the Pinelands (Governor's Pinelands Review Committee, 1979), Governor Byrne issued Executive Order 56, creating the Pinelands Review Commission (PRC). The PRC's draft report, released in 1978, called for establishment of a Pinelands Planning and Management Commission. With substantial input from the Rutgers University Center for Coastal and Environmental Studies, the PRC established boundaries for the planning area (Merrill, et al., 1978). The planning scheme with its core 'preservation area' within a larger 'protection area', embodies that advocated by the UN Man and the Biosphere Program for the worldwide network of biosphere reserves (Figure 3.2). Biosphere reserves are meant to be landscapes in which human inhabitants are an integral part of the ecosystem (see Batiste, 1982; 1997; West and Brechin, 1991; Lucas, 1992; Wells and Brandon, 1992; Sotecki, 1994). The reserves are designated by MAB, but managed by national or
sub-national governments. Ecological preservation is emphasized in the core area, while a carefully-defined range of human uses especially 'traditional use' is permitted in the buffer area. The buffer area generally is encroched by a transition zone, where more intense human uses co-exist with ecological protection. In 1982, the Pinelands gained international recognition when the Pinelands Biosphere Reserve was designated.

In the late 1970s, Pinelands protection was not just a New Jersey concern; the federal government was actively involved as well. The Mid-Atlantic Office of the National Park Service was involved with the PRC's efforts, while the federal Bureau of Outdoor Recreation as noted earlier produced a study that described several state-federal joint approaches to Pinelands management (US Department of the Interior, 1976). And there was considerable Congressional and Executive interest in promoting the 'greenline' approach to protected area planning. The greenline approach, in contrast with the more typical model of full government ownership and control, is one that favors 'public-private partnerships', with a mix of private and public landholdings. Conservation easements, regional zoning, and transfer of development rights are among the tools that might be employed. Private, local, state, and federal interests would be represented in the planning process (Hirner and Mertes, 1986; Belcher and Wellman, 1991). Although the Pinelands were to be the first formal greenline park in a system that would have been created under a bill proposed by New Jersey Senators Clifford Case and Harrison Williams, in the end the national greenline program never really did get off the ground. Still, several protected areas around the country embrace the general principles supported by greenline proponents (Little, 1983; Foresta, 1984; Mason, 1994). Chief among these areas are the Pinelands National Reserve and the Adirondack Park.

Two separate bills were written in the House: the Forsythe-Hughes bill, which favored local interests and encouraged municipalities to work cooperatively, and the Florio Bill, which gave greater weight to overriding regional interests. But neither bill was reported out of committee; instead, the Pinelands National Reserve was established as part of the lengthy National Parks and Recreation Act of 1978 (Van Abs, 1986). The legislation called for a 15-member planning body, with seven members appointed by the governor, seven members to come from the seven counties with land in the Pinelands, and a designee of the U.S. Secretary of the Interior.

Pinelands planning is enabled by state as well as federal law. New Jersey Executive Order 71, issued in 1979, established the 15-member planning body described above, and charged it with developing a comprehensive management plan for the million-acre area that had been defined by the Governor's Pinelands Review Committee (1979). In addition, Governor Byrne imposed a building moratorium that remained in effect until the Pinelands Protection Act was passed. A typical alignment of interest groups coalesced in response to the proposed legislation: farmers, local officials, and small entrepreneurs tended to oppose it, while environmentalists were in favor. Momentum, however, was with regional
planning, and Byrne was able to sign a bill that called for completion of a comprehensive regional plan by August 8, 1980.

The plan was to be guided by the following general principles: For the inner Preservation Area:

1. Preserve an extensive and contiguous area of land in its natural state, thereby insuring the continuation of a Pinelands environment which contains the unique and significant ecological and other resources representative of the Pinelands area;
2. Promote compatible agricultural, horticultural, and recreational uses, including hunting, fishing, and trapping, within the framework of maintaining a Pinelands environment;
3. Prohibit any construction or development which is incompatible with the preservation of this unique area;
4. Provide a sufficient amount of undeveloped land to accommodate specific wilderness management practices, such as selective thinning which are necessary to maintain the special ecology of the Preservation Area; and
5. Protect and preserve the quantity and quality of existing surface and ground waters.

For the outer Protection Area:

1. Preserve and maintain the essential character of the existing Pinelands environment, including the plant and animal species indigenous thereto and the habitat therefore;
2. Protect and maintain the quality of surface and ground waters;
3. Promote the continuation and expansion of agricultural and horticultural uses.
4. Discourage piecemeal and scattered development.
5. Encourage appropriate patterns of compatible residential, commercial, and industrial development, in or adjacent to areas already utilized for such purposes, in order to accommodate regional growth influences in an orderly way while protecting the Pinelands environment from the individual and cumulative impacts thereof. (Mason, 1992, pp. 94-95)

The Comprehensive Management Plan

The Comprehensive Management Plan for the Pinelands (CMP) was developed quickly, under extraordinary pressure, and thus fueled local resentment and the belief that extra-local interests were fully controlling the process. The New Jersey Assembly, concerned that the Governor's moratorium and the plan that was being developed were indeed too stringent, and too overbearing, strongly favored delay in approving the CMP. Intense negotiations between the Governor and legislators resulted in a compromise under which the plan for the Preservation Area was adopted as scheduled on August 8, 1980, while adoption of the Protection Area portion of the plan was delayed until November 14. Federal approval came in January 1981, when the outgoing Carter-administration Secretary of the Interior Cecil D. Andrus signed off on the CMP.

Central to Pinelands planning is the notion of a single Pinelands region, within which a predictable overall level of growth and development will occur. Areas of greatest environmental vulnerability will be afforded the strongest protections, while growth will be directed toward those parts of the region with the environmental capacity to accommodate it. The many cultural characteristics of the Pinelands are inventoried in the CMP, but given little planning attention beyond protections for sites of archaeological value and the so-called ‘Pinney exemption’, described in the following paragraph.

The overarching basis for the CMP is protection of the Pineland’s critical ecological areas; this is operationalized in part through a stringent region-wide water quality standard for nitrate: two parts per million. The core Preservation Area is very strictly regulated, with emphasis on such uses as cranberry and blueberry cultivation, forestry, low-impact recreation, and limited resource extraction. Residential development is to be in and adjacent to designated towns, villages, and agricultural areas. For development outside these areas, applicants must demonstrate that they belong to a two-generation extended family with more than twenty years residence in the Pines or that they are dependent on ‘employment or participation in a Pinelands resource-related activity’ (New Jersey Pinelands Commission, 1980, p. 350); these activities are defined as ‘including, but not limited to, forest products, berry agriculture and sand, gravel or minerals’ (New Jersey Pinelands Commission, 1980, p.350). This is the ‘Pinney exemption’.

The Preservation Area, as well as the surrounding Protection Area, where development is allowed at varying densities, are subdivided into additional management areas.

They are as follows (Mason, 1992, pp. 99-100):

1. Agricultural Production Areas. Found in both the Preservation and Protection Areas, these zones consist of major areas devoted to agricultural uses, as well as adjacent lands so suited. Allowed uses are those related to agriculture, though municipalities have limited options for permitting other uses.
2. Special Agricultural Production Areas. Designated by municipalities in the preservation area, these are meant to protect areas devoted to berry production and native horticultural uses, as well as adjacent watershed lands.
3. Military and Federal Installation Areas. These are major existing federal landholdings.
4. Forest Areas. These are largely undeveloped areas that represent the ‘essential character’ of the Pinelands. Low-density residential development is permitted (average densities for each township are specified in the CMP), as well as certain other uses that would not greatly alter the character of these areas.
5. Rural Development Areas. These are meant to serve as buffers between more and less developed areas, as well as reserves for future development. Municipalities are afforded wide discretion in determining land uses in rural
development areas, though there is an overall density cap of 200 dwelling units per square mile. Within Rural Development Areas, municipalities have the option of designating 'Municipal Reserves'. Reserves are meant to absorb future growth beyond the capacity of existing regional growth areas (see below). Before an area's status can change from Rural to Regional Growth, a series of environmental conditions must be met. Regional Growth Area standards then apply to the Reserve area.

6. Regional Growth Areas. These are in or adjacent to already developed areas, are experiencing growth pressures, and have been deemed capable of accommodating growth. The Commission allocates dwelling units and maximum densities for each town's Regional Growth districts. Regional Growth areas are meant to absorb growth demands generated by Atlantic City casino development, coastal growth pressures, and suburban expansion from the Philadelphia metropolitan area.

7. Pinelands Towns and Villages. These are existing settlements. Limited development is allowed in and around the center of the settlements, with a 3.2-acre maximum lot size for houses using conventional septic systems and a 1-acre minimum for those using alternative and innovative on-site treatment systems.

An additional 212,000 coastal acres are included in the Pinelands National Reserve and follow the same zoning scheme as the rest of the Pinelands National Reserve. But this area is under the jurisdiction of the New Jersey Division of Coastal Resources. While the Pinelands Commission provides comments on applications filed under CAFRA (Coastal Area Facilities Review Act), CAFRA regulations are, in fact, considerably less stringent than those that apply to the rest of the Pinelands.

The CMP includes a transfer of development rights (TDR) scheme. Sending areas are the Preservation Area, Agricultural Production Areas, and Special Agricultural Production Areas. Receiving areas are the Regional Growth Areas. Landowners in the Preservation Area receive one credit per 39 acres (prorated to the actual acreage on which rights are sold), except in wetland areas, where the ratio is .2 credits per 39 acres and in Agricultural and Special Agricultural Production Areas, where it is .2 credits per 39 acres of upland, berry bogs, or fields and .2 credits per 39 acres of wetlands not being used for agriculture. Adoption of the TDR scheme was contentious. Supporters felt it provided necessary compensation and was a wise political move. Opponents argued that the compensation was unnecessary, since the CMP did not constitute a 'taking' of private property (see Randle, 1982).

Other key elements of the CMP include recommendations regarding wetlands, vegetation, forestry, agriculture, waste management, housing, and recreation. Critical to the plan's objectives is the region-wide implementation of the two-parts-per-million nitrate standard, aimed at protecting groundwater quality. On-site disposal systems anywhere in the Pinelands must be situated on lots of at least 3.2 acres, though exceptions can be made where alternative septic systems are used.

But after considerable experimentation with various systems, the Pinelands Commission has yet to find and endorse the ideal system for homeowners in this situation (New Jersey Pinelands Commission, 2000).

Plan Implementation

The Comprehensive Management Plan for the Pinelands (CMP) has been in place for two decades. It has adapted well to changing political circumstances and the Pinelands Commission has been able to give much greater attention to its public profile during its second decade than during its first several years.

In the early years, the Pinelands Commission was consumed with bringing about the conformance of local plans with the CMP and ensuring that the plan stood up to a variety of potentially destructive political and legal challenges. Conformance means that local master plans and zoning ordinances comply with the provisions of the CMP. While reasonable latitude is allowed in doing so, requirements regarding wetlands buffers, wastewater and septic standards, fire management provisions, and resource-extraction conditions are not negotiable. For those towns not in conformance, the Pinelands Commission is responsible for development review. For towns that have been certified, the Commission still can call up and review local decisions; it remains the ultimate decision-maker.

The number of conforming towns is viewed as a key measure of the success of Pinelands planning. And, indeed, when compared with the Private Land Use and Development Plan for the Adirondacks, the Pinelands is a remarkable success story. All 53 Pinelands municipalities and seven counties are in conformance with the CMP, while in the Adirondack Park after nearly 30 years of plan implementation only 15 out of 103 municipalities have had their planning programs approved by the Adirondack Park Agency.

The Pinelands Commission made conformance a high priority and created a special 'conformance subcommittee' to work closely with individual municipalities in revising their plans and ordinances. The committee established strong working relationships with Pinelands towns; while underlying issues about management area boundaries, growth allocations, and local autonomy did not vanish, the convivial relationship between Commissioners and local representatives undoubtedly made the resolution of those issues more feasible and expedient than would have been the case with more formal, adversarial proceedings. Moreover, when a 1985 statewide bond issue was passed, $30 million became available for infrastructure projects in Pinelands Regional Growth Areas. Only towns that were in conformance with the CMP were eligible for the funds; furthermore, the county within which the town is situated also had to be in conformance. In 1987, a Pinelands Infrastructure Trust Fund was established to provide for wastewater treatment systems in Regional Growth to enable them to accommodate projected development.

Pinelands planning has also been made more palatable to local governments through provision of limited relief, through the Municipal Property Tax
Stabilization Act, in the form of payments to municipalities that contain large amounts of land on which development is prohibited. Payments in-lieu-of-taxes are a matter of course for towns in New York State's Adirondack Park, but this is not the case in the Pinelands. The relief provided in the Pinelands is short-term rather than ongoing relief. Furthermore, there has been contention about the fairness with which funds have been distributed (Mason, 1992). Still, the legislation was a step toward greater intra and inter (within New Jersey) regional equity.

Once the conformance process was largely completed and the concerns of most local governments reasonably satisfied, the Commission could turn its attention to a host of activities that had received rather scant attention up until this time. Public programs received renewed emphasis. The Commission expanded its outreach efforts and began to establish relationships with and publicize the activities of environmental and other organizations active in the region. In 1984, the Pinelands Education Advisory Council was established, as was the Pinelands Research and Management Council. Education programs, ecological research, and ongoing economic assessments of the CMP all were stepped up in the mid-1980s. These activities continue to consume a significant share of Pinelands Commission time and resources. In 2000, funding was approved for development of the Richard J. Sullivan Center for Environmental Policy and Education, which will act as a research and resource center for those with scholarly interests in the Pinelands.

The Commission continued to become more 'landowner and local government-friendly' over the years. Its early emphasis on taming the ecological line has gradually softened in the face of changing gubernatorial priorities and pressures from agricultural and development interests. This response is typical of maturing land-use programs elsewhere (see Pepper, 1981; Mason, 1992). Many Pinelands localities now have 'Local Development Review Officers', whose job is to simplify the application process for those applying to the Pinelands Commission for permits to build single-family homes on existing lots. Steps also have been taken to simplify the application and permitting process for public entities. Recently, $23 million have been appropriated for state purchase of Pinelands Development Credits (PDCs), helping to boost the market price for the transferable credits. A separate program is in place to buy parcels of land that are too small to be developable. In 1997, a Rural Development Pilot Program was established. Its main objective is to examine economic development programs that might be applied in areas where growth potential is limited. Among the options under consideration are airport development, trade parks, and heritage tourism development.

Three major interests have been deeply involved in Pinelands planning and management: environmentalists, the development community, and agriculturalists. Environmental interests have long been represented through the New Jersey Conservation Foundation and local chapters of the Audubon Society. These and other local groups were dedicated and knowledgeable, but for many years yielded rather limited influence. During the early years of CMP development and implementation, major national groups, such as the Environmental Defense Fund, Natural Resources Defense Council, and Sierra Club, were quite active. So too was the locally-based Friends of the Pine Barrens, which is now defunct. National interest has diminished, and most local and regional interests are now represented by the Pinelands Preservation Alliance. The Alliance is influential; its Board of Trustees includes former Governor Byrne (Honorary Chair), as well as former Pinelands Commission Chair Franklin Parker. Also on the board are individuals representing key organizations and interests that have been active in Pinelands planning over the years. With a staff of eight, the PPA has become a powerful, influential voice in the planning process.

Another source of support for environmental interests is the Pinelands research community. Ecological concerns form the basis for much of the scientific research linked to Pinelands planning. The Commission has its own Science Office, which works closely with academic researchers at Rutgers, the State University of New Jersey, and other institutions. One of Commission's current major projects involves the development of environmental indicators for long-term environmental monitoring in the Mullica River watershed.

The development community was especially active during the period of plan development and implementation. The key actors were the Builders League of South Jersey (BLSJ) and the New Jersey Builders Association (NJBA). During the early years of Pinelands planning, the Coalition for the Sensible Preservation of the Pinelands was very active. Supported almost entirely by the BLSJ and NJBA, the Coalition lobbied the Legislature extensively, commissioned its own reports on Pinelands environmental issues, and even produced its own alternative plan for the Pinelands. Although its plan of course was not adopted, its participation did secure some concessions that favored development. The building community first through the Coalition, which has been inactive since the mid-1980s, and later through the BLSJ and NJBA was a key player in the politics of conformance and continues to be active in important development cases and when amendments to the CMP are taken up (Mason, 1992).

The New Jersey Builders Association currently is making the case against proposed reductions in density in some Regional Growth townships in the Pinelands. The Association contends that regional growth must be accommodated, and that although the CMP seeks to do so, state and local investments in infrastructure have not been sufficient to support this growth. NJBA is now imploiting the Pinelands Commission to refrain from placing future restrictions on, or, alternatively, allow localities to place their own further restrictions on areas meant to accommodate future growth.

Agricultural interests have to some degree been allied with development interests. The agricultural community tends to be politically conservative and also well-represented politically in spite of its relatively small share in the state economy (Burch, 1975). Private property rights are a principal concern for the farm lobby in New Jersey, as is the case with farm lobbies elsewhere in the U.S. The New Jersey Farm Bureau has been particularly vigilant in Pinelands-related legislative lobbying and with the conformance process. Although the Pinelands Development Credit program sought to placate farmers, that was not the initial
effect, if we are to judge by early reactions from the New Jersey Farm Bureau. Although some individual landholders have benefited rather handsomely (Mason, 1992), the overall benefits have been limited because up to recently, the value of Pinelands Development Credits (PDCs) has been quite low in appreciating. The Farm Bureau strongly supported allocation of farmland preservation funds from a dedicated state fund, as well as a new appraisal formula recently adopted by the Pinelands Commission, that seeks to increase the value of PDCs. Generally, though, the Farm Bureau has been a rather strong critic of Pinelands planning. However, the extent to which the Bureau represents Pinelands and state farmers as a whole is unclear; there are no survey data that speak to this question (Mason, 1992).

Interest group activity peaked during the period of plan development and early implementation in the late 1970s and early 1980s. Although these key interests continue to be active and well-represented, it seems that they have reached a level of accommodation with the Pinelands Commission and with each other that allows for a degree of remove from the day-to-day activities of Pinelands planning. Moreover, involvement has become more institutionalized and routine, as is typical of public participation in environmental affairs generally (Sewell and O’Riordan, 1976).

Pinelands planning has fared well through both Republican and Democratic administrations. The New Jersey Governor’s office is the one institution most pivotal to the success of Pinelands planning; the Governor yields considerable power in appointing seven of the 15 Pinelands Commissioners and acting as the single most visible promoter for (or detractor to) the entire process. About three-quarters of the two decades of Pinelands planning has been under a Republican governor. When Republican Thomas Kean eked out a victory over environment-friendly James J. Florio in 1981, environmentalists feared for the worst. And indeed, Kean and later Republican Governor Christine Todd Whitman, were more accommodating of the development community’s interests in the Pinelands than were Democrats Byrne and Florio. Whereas Governor Byrne’s original seven appointees have been characterized as ‘tree huggers’, under Republicans Kean and Whitman, frequent calls from the development and agricultural communities for ‘balance’ and ‘diversity’ have been heeded. By this thinking, the ecological foundation for Pinelands management must be balanced with due consideration for economic development and administrative responsiveness to the needs of private landowners.

But New Jersey is a state where Republicans tend to be moderate and where environmental protection is a high priority issue (Mason and Mattson, 1990). While Ronald Reagan was attempting to dismantle the national environmental protection machinery in the early 1980s, Governor Kean upheld the protections in place in the Pinelands. It is unlikely that New Jersey voters would elect a governor, or put in place a legislative majority, that would be willing to undo Pinelands planning.

Yet Pinelands planning has been weakened or moderated, depending on one’s perspective over the years. The program was, and to a considerable extent still is, managed by a dedicated staff of ecologists and environmental planners. The Pinelands Commission supports a team that is dedicated to scientific research and monitoring, and there is considerable research support from Rutgers University, the State University of New Jersey. The longstanding belief in ecological planning argues for close adherence to the environmental tenets of the CMP; compromise with local communities is at best a necessary evil. Of course, the complexion of the Commission itself determines how much compromise is ultimately made and clearly, the Commission has become less environmentally strident in recent years. This is evident in some of its responses to key current issues, described below.

Pinelands planning is now an accepted part of life in the region. There was a time when it was conceivable that it might go away. Many residents of Southern New Jersey saw the program as a land grab, a way for residents of the populous and politically influential northern part of the state to play without paying. Ultimately, the groundwater resources might be made available to outside industrial interests. During the late 1970s and early 1980s, there was considerable secessionist sentiment in southern New Jersey, and southern New Jersey’s interests continue to play prominently in gubernatorial politics. While its population is small compared to that of the northern half of the state, it yields pivotal influence.

What limited evidence there is indicates that most Pinelands residents, as well as the great majority of New Jersey residents, support Pinelands planning. It is the vocal and effective voices of a relative few, acting on very deeply held convictions that may convey the impression that opposition is widespread. This impression is reinforced by wide media coverage of negative reaction to specific initiatives, such as a broadening of the Pinelands Commission’s regulatory powers that was proposed in the early 1990s (Hajna, 1993). Disproportionate media coverage and accompanying political attention aside, locally based interests do raise very credible questions about the extent to which they are being asked to bear disproportionate burdens (development restrictions, diminished property values, loss of autonomy) in the service of the larger public interest.

Solecki’s (1998) survey of Pinelands residents from a set of census tracts that includes both preservation and development-oriented zoning, along with areas that are experiencing growth as well as those whose populations are stable, indicated overall support for Pinelands planning of nearly 50 per cent, opposition of only 16 per cent, and a neutral or no opinion response from 35 per cent of the sample. Interestingly, even the strongest supporters tended to feel that the Pinelands plan has negative effects on the local and regional economy. This lends weight to the notion that support for regional planning is widespread, if not very deep. Indeed, for many people it simply is not a primary concern. Yet the substantial group that holds no opinion about regional planning as well as those who are opinionated but perhaps only weakly so constitutes a crucial political bloc when it comes to voting for candidates in races where land use management is an issue, as well as in support for local and statewide measures involving land protection.

Today, most interests recognize that Pinelands planning is here to stay and that they must accommodate themselves to it. Yet 2001 gubernatorial candidate Bret Shundler has proposed to do away with Pinelands planning. Schundler is a
maverick Republican archconservative that ran against the state's Republican establishment and succeeded in winning the primary. Although it is unlikely he will be elected governor, he is a force in keeping alive the long-standing concerns of those southern New Jersey residents who view Pinelands planning as nothing more than a massive land grab.

**Notable Recent Issues**

One recent Pinelands issue that has attracted a good deal of attention is deeply rooted in the history of Pinelands planning. It involves J. Garfield DeMarco, a member of an Atlantic County family that has had a central role in local politics for decades (Mason, 1992). DeMarco is a major landowner and cranberry grower, active and influential in the Atlantic County Republican Party, and the first chairman of the Pinelands Environmental Commission during the 1970s. His brother Mark, as municipal attorney for Woodland Township, was engaged in protracted court battles involving the legality of Pinelands land transactions. Garfield's political activities have put him in good stead with current Department of Environmental Protection Commissioner Robert Shinn. This set the stage for recent controversy surrounding DeMarco's expansion of his cranberry lands.

DeMarco's conversion of 22 acres of wetlands to cranberry bogs was done without the necessary permits, a violation of New Jersey's Freshwater Wetlands Protection Act. But DeMarco initially was not fined; instead a deal was negotiated that requires him to accept deed restrictions on 591 acres of forested land that he owns, in addition to donating 75 acres for inclusion in New Jersey's state park system. Although DeMarco was ultimately assessed a fine of about $600,000, he stands to realize an enormous benefit on the order of about $3 million from the sale of development credits on 3,600 acres of land in Woodland Township (Regan, 2001).

The DeMarco's have been frequent and vocal critics of Pinelands planning. Yet they are among its greatest beneficiaries. The Pinelands Development Credit Program, in particular, has provided them with a windfall. Clearly, one can oppose a regulatory system and then reap as much benefit as possible from it. In this case, the extent to which their opposition has been sincere, as opposed to simply a matter of political posturing, is not entirely clear. But it would appear that in Woodland Township, where Garfield DeMarco has been most engaged politically, he as a local elite, has been an exceptional gatekeeper, very successfully shaping larger processes (i.e., regional growth and Pinelands planning) in ways that provided considerable local and personal benefit (Mason, 1992).

Another Pinelands issue of relatively recent vintage is that of cell tower placement. This, of course, was not anticipated when the CMP was developed. A 35-foot height restriction on structures applies through much of the Pinelands, with towns and Regional Growth Areas exempted. Under regulations adopted in 1995, the Commission can grant exemptions to this rule for cell towers. In those cases, the towers must not produce 'substantially detrimental' impacts, and must minimize visual impacts, be located in already disturbed areas, and be under 200 feet in height (N.J.A.C. 7:50-5.4 et seq.). In addition, the structures must be in conformance with a regional comprehensive plan for placement of cell towers. Such a plan was adopted by the Pinelands Commission in 1998, but had to be modified to take into account the ascendance of PCS technology. A chief objective of the plan is to meet regional telecommunications needs while erecting the smallest possible number of towers. The current plan, adopted early in 2000, allows for six new towers and use of 30 existing or previously-approved structures. The Pinelands Preservation Alliance vigorously opposed both plans, arguing that too many towers are permitted, public concerns have been ignored at the expense of industry interests, and structures are being permitted in ecologically-sensitive areas, such as the West Plains, where dwarf pines are present.

**Pinelands Planning as Smart Growth**

Much of the contention about Pinelands planning has involved limits that the plan places on growth. But since the plan's inception, there also has been concern about the burden of too much growth in those parts of the region to which the plan directs growth. Recent increases in the value and use of development credits in Regional Growth Areas, in conjunction with general concerns about the impacts of suburban growth have served to strengthen local sentiment favoring growth limitations. Indeed, Pinelands planning may be held up as a model for 'smart growth' (Real Estate Research Corporation, 1974; Bank of America, 1995; Young, 1995; Leo, et al., 1998; Burchell, et al., 1999; Daniels, 1999; Zinn, 1999), in that it accommodates, rather than resists growth, and directs that growth to areas deemed most suited for development. It stresses a cooperative, intergovernmental approach to regional planning just the sort of approach embraced by advocates of smart growth. But while Pinelands planning and smart growth efforts share certain fundamental precepts, there also is a major difference. Pinelands planning has behind it much more regulatory authority than does the typical smart growth effort; in no small measure, the threat of stringent enforcement of regulations can act as an inducement for cooperation among the parties involved.

The recent smart growth movement, which has taken hold especially in some of the major eastern metropolitan regions, not surprisingly has come home to roost in rapidly-growing parts of the Pinelands. Even though this growth is by CMP design, it is not entirely welcome. Several Pinelands townships that contain major Regional Growth Areas have approached the Pinelands Commission, asking for reductions in their growth allocations. Early on in the course of Pinelands plan implementation, many, though not all of these towns were willing to accept growth, and the Pinelands Commission faced its greatest difficulties in dealing with those towns who felt that they were being denied the opportunity to grow. Egg Harbor Township, in the eastern Pinelands, now argues that it has grown too much. Almost all of its land within the Pinelands boundary is zoned for growth at an average density of 3.5 units per acre, meaning a total of 33,725 houses in the Regional Growth part of the town. Local officials argue that development has been
rapid, often of poor quality, and has burdened the town with undue fiscal and environmental impacts.

On the Pinelands Commission's calendar for late 2001 is an amendment to the CMP that would allow Egg Harbor and other Regional Growth townships greater flexibility in meeting these requirements, as well as reduction in the densities assigned to developable portions of their Regional Growth Areas. Part of this approach would be a "timed growth" element that would control the pace of growth that these towns are obligated to accept. These measures have the qualified support of the Pinelands Preservation Alliance, which, as noted earlier, is the lead non-governmental organization that monitors and seeks to influence the Pinelands planning process.

Other recent Pinelands Commission actions, emblematic of a general shift in its posture toward being more accommodating of development interests, have riled environmentalists. In 1999, the Commission approved an amendment to the CMP to allow redesignation of land zoned for agriculture under the CMP, so that a school can be constructed. The amendment, tailored to this specific situation and presented as a pilot program, allows for development of public educational facilities in Agricultural Production Areas and Rural Development Areas if certain conditions are met. Supporters of the rezoning contend that the area is currently a sod farm and not an important ecological resource, while opponents see this change as a precedent-setting weakening of the CMP. Former Secretary of the Interior Bruce Babbit granted the needed federal approval for the change, but with an admonishment to the Commission to be cautious about sending up any more such amendments. Terrence Moore, who has been the Commission's Executive Director since its inception, did not approve of the zoning change and it is widely speculated that this is what prompted his resignation in 2000.

Environmentalists also have been outraged by the Commission's response to discovery of timber rattlesnakes in a Burlington County development named, interestingly enough, The Sanctuary. In 1995, when development was first approved, the endangered snakes had not been detected, though it had long been known that they are present in that part of the Pines. Construction was halted in 1998, when snakes were tracked on the site. The development is already partially completed, and under a settlement reached in 2000, the developer would be permitted to build an additional 147 homes. Snake dens would be fenced off and culverts constructed to allow snakes to travel under roads. The developer would also sell to the state 1,200 acres, in other parts of the Pinelands, for a sum exceeding $5 million. The Pinelands Preservation Alliance, along with the New Jersey Audubon Society and Natural Resources Defense Council, argues that the CMP mandates protection for endangered species, pure and simple. In this case, it seems, the Commission is unwilling to halt development because it fears it would lose an inevitable court battle. Moreover, snakes are not an easy species to defend. This leads to questions about whether or not residents of The Sanctuary would actually learn to co-exist with the snakes, as envisioned under the settlement that was reached.

Conclusion

Pinelands planning is an important model for guiding growth and protecting the integrity of ecosystems (Collins and Russell, 1988; Lilienthal and Romm, 1992). It appears that the CMP has been largely successful with respect to sustaining a regional landscape that fits the U.N. biosphere reserve model, with its core, buffer, and transition zones. Indeed, a recent analysis by Walker and Solecki (1999, p. 231) reveals that:

The area with least conversion is the preservation core (in relative terms), and the other two Pinelands regions show decidedly less conversion than the outlying census tracts.

A less rigorous assessment, by Peterson (1999), contends that the Pinelands has neither boomed nor busted. It has grown steadily, prospered and stayed attractive. Still, concern has been growing as already noted about the pace of growth in designated growth areas. Furthermore, alarms are being raised about rapid growth in some areas just outside the Pinelands boundary (Mansnerus, 1998). Moreover, the value of Pinelands Development Credits, which transfer development rights from the core Preservation Area to designated Regional Growth Areas, has been increasing in recent times in response to increased pressures for development and a $23 million purchase program supported by funds from a statewide land preservation bond issue approved by voters in 1998. Collectively, these trends raise questions, as well as providing new opportunities, regarding the ability of the CMP to maintain the integrity of the Protection Area, as well as allow for a suitable transition zone from less-developed to more-developed parts of the Pinelands region.

Despite its overall success in managing Pinelands growth, the concerns just noted notwithstanding, Pinelands planning has trended in a more conservative direction, particularly over the course of the past decade. Pinelands Commission staff are more accommodating of development interest, i.e., a balance among competing interests and the ecocentric voice of Commission staff is not as influential as in prior years. The leading environmental organization, the Pinelands Preservation Alliance, remains an ally of the Commission but is alarmed at the increasing calls for balance. In its view, there is only one mandate: to protect, preserve, and enhance the Pinelands. That concern notwithstanding, the ecological basis for Pinelands planning is well-established and in all likelihood will not be eroded too deeply. Although the development and agricultural communities are very well-represented, there is no representative equal to the Pinelands Preservation Alliance for local interests who would want to reign in Pinelands planning. The Pinelands Municipal Council, long dormant, was revived in 1995, and it is the main voice for local communities. Its activities are limited principally to participation in periodic reviews of the CMP, and it appears that this will remain the case for the foreseeable future.

Pinelands management is an evolving process of conflict and accommodation among various interests, key among them agriculture, homebuilding, and
environmental protection. In the end, the planning process did not give as much weight to local and subregional concerns as would be supported by those cultural geographers, historians, human ecologists, and others who are deeply concerned with the human character of the region (Rubenstein, 1983; Berger and Sinton, 1985; Mason, 1992). Even these supporters of local interests readily acknowledge, however, that achieving an appropriate balance between natural and cultural concerns is a very elusive prospect indeed. While many local residents want to protect the natural character of the Pinelands, they are wary of government intervention. Yet without strong planning controls, the region is extremely susceptible to the designs of well-funded developers who are represented by high-priced legal talent. Local planning boards can be so easily overburdened and overwhelmed by external interests, who, in many cases will work in conjunction with local interests who stand to benefit. Thus, external government intervention is needed if the region’s natural and cultural integrity are to be protected. Pinelands planning has been quite successful with the former, less so with the latter. What remains to be seen is how the region will fare as the Pinelands Commission embarks on its next scheduled 5-year review of the CMP, as new development pressures emerge, and as political forces in New Jersey continue to realign.

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