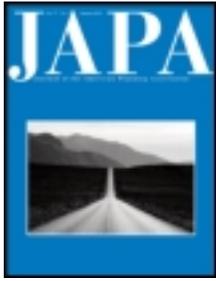


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# Environmentally Sensitive Area Planning in Ontario, Canada

Paul F. J. Eagles

**Environmentally Sensitive Area planning and management is a rapidly developing policy field in the Province of Ontario. It has been concentrated at the municipal planning level with a particularly strong relationship to the policy planning of the new regional governments. Case studies have shown that there is a general consensus in society that municipal governments must attempt to protect the most important natural areas from destructive alteration. Key elements in the policy implementation mechanism include: designation in official plans, establishment of technical advisory committees, development and use of detailed criteria, strong community interest and support, and the use of environmental assessment in cases of conflict.**

The preservation of the natural ecological diversity of Ontario has long been a concern of the conservation movement in this province. The major policy tools that have been developed include the protection of individual natural areas by park designation, the application of fish and game laws, the development of point-source pollution abatement programs, and the use of endangered species legislation.

Recently, the development of the ecological philosophy and its applied counterpart, environmental management, has enabled a fundamental and important change in the approach to environmental issues. The most basic element has been the development of public policies and programs which are based upon a broad systems approach involving an increasingly sophisticated ecological understanding of landscape productivity, processes, and dynamics. Furthermore, there has been a better appreciation of the importance of "scale," i.e., the hierarchical relationship of environmental issues from continental to local significance in size and importance.

Traditionally the protection of ecological diversity through the protection of natural areas has been dealt with only at the senior levels of government. Recently, the important role of the various municipal governments in the planning and land management functions relative to environmental quality has been recognized. Therefore action to establish a variety of environmental management tools that can be used at the municipal level has been started. One of these

tools has been the establishment of Environmentally Sensitive Area (ESA) policies in an effort to protect the small but important natural areas in the municipality.

## Municipal government planning in Ontario

Under the British North America Act of 1867 (the Canadian Constitution) provincial governments have authority over "municipal institutions" (592-8) and "property rights" (592-13). This gives the provinces powers over the creation, structure, and functioning of municipal governments. Over time a complex assortment of municipalities has been created by provincial statute including villages, towns, cities, townships, counties, districts, and the newest form, urban-centered regions. Many of the small communities in northern Ontario are unincorporated and 80 percent of the province is still crown land.

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The 1947 Ontario Planning Act creates two major planning tools for municipal use, the official plan and restricted area by-laws. The official plan definition in the Act is (S1-h):

a program and policy, or any part thereof, covering a planning area or any part thereof, designed to secure the health, safety, convenience or welfare of the inhabitants of the area, and consisting of the texts and maps, describing such program and policy, approved by the Minister from time to time as provided in this Act.

Restricted area by-laws may be passed by municipal council for a number of purposes, these include:

- “prohibiting the use of land” (S35-1(1)) including “the minimum area of the parcel of land . . . and the density of development” (S35-1a);
- “prohibiting the erection or use of buildings or structures” (S35-1(2));
- “prohibiting the erection of any class or classes of buildings or structures on land . . . rocky, low-lying, marshy or unsuitable” (S35-1(3));
- “regulating the cost and type of construction” (S35-1(4));
- “prohibiting the making or establishment of pits and quarries” (S35-1(6)).

Simply stated, municipalities adopt draft plans and by-laws by motion of council, but the plans and by-laws are not given the force of law until approved by either the Ontario Minister of Housing or the Ontario Municipal Board (OMB), depending upon the situation. The OMB is an appeal and approval body that has the authority to overrule municipal government decisions. Any individual can appeal municipal government planning decisions to the OMB. The board hears the case anew, is not bound by precedent, and makes the basic assumption that the elected municipal council is correct until proven otherwise.

Municipalities are not legally required to develop or adopt either official plans or restricted area by-laws. The province has been politically unwilling to make planning obligatory. Instead, it attempts to entice municipalities to plan by offering grants and withholding some specialized funds (such as those for urban renewal) unless plans are in place. In practice the majority of municipalities have official plans and corresponding by-laws. Many rural areas have by-laws only.

At this point a discussion of the differences between American and Canadian land use law might be worthwhile. In the past the U.S. Supreme Court has often interpreted the Fifth Amendment of the U.S. Constitution to mean that if a land use regulation goes too far in limiting individual freedoms, it will be recognized as a “taking.” The Fifth Amendment guarantees that private property shall not “be

taken for public use without just compensation.” The interpretation of “too far” has been left to a case by case determination. A difficulty arises in the preservation of open space by use of the police power because there is lack of objective standards for determining whether the use restriction is reasonable. In a variety of cases, U.S. courts have ruled invalid zoning ordinances restricting land use for flood storage, parking lots, school, recreational, open space, greenbelt, and park purposes. Similarly, some subdivision regulations have been invalidated (Rose 1974; Bosselman 1975). The 1980 case of *Agins v. City of Tiburon* (100 Supreme Court Reporter 2138) has the potential of radically reinterpreting the issues of downzoning and taking. The Supreme Court unanimously agreed that the zoning ordinances of Tiburon that restricted development to between one and five residences on five acres of unimproved land did not constitute a taking. Also the court stated that:

The zoning ordinances benefit the appellants as well as the public by serving the city’s interest in assuring careful and orderly development of residential property with provision for open-space areas.

The judgment implied that the city’s concerns of preserving the environment and open space planning were valid concerns and within their jurisdiction.

Under the Canadian Constitution, the provinces have exclusive rights over municipal affairs and natural resources. The provincial legislatures have seen fit to delegate most of the land use control powers to municipalities with the provinces retaining a final veto power. Under the Ontario Planning Act municipalities have the legal right to downzone properties or to be very restrictive on the uses that can take place on private land (Swaigen 1978). Legally, the taking issue does not exist in Canada. Politically though, a municipal government must be well prepared before it takes such an action because of the negative public reaction that sometimes ensues. Interestingly, because of the influence that American society has on Canada, most landowners assume that they have some form of development rights as do Americans. In fact, many planners retain this misconception as well.

## Environmentally Sensitive Areas

An ESA is a specifically bounded landscape that fulfills one or more of a set of criteria. The criteria are presented in detail in Table 1. In general terms, ESAs are natural landscapes that contain features such as: aquifer recharge, headwaters, unusual plants, wildlife, or landforms, breeding or overwintering animal habitats, vital ecological functions, rare or endangered species, or combinations of habitat and land-

**Table 1. Criteria for identification**

The criteria for selecting ESAs for designation in official plans includes, but are not restricted to, any one or combination of the following:

1. The area represents a distinctive and unusual landform within the municipality, Ontario or Canada.
2. The ecological function of the area is vital to the healthy maintenance of a natural system beyond its boundaries, such as, serving as a water storage or recharge area, important wildlife migratory stopover or concentration point, or a linkage of suitable habitat between natural biological communities.
3. The plant and/or animal communities of the area are identified as unusual or of high quality locally within the municipality, Ontario or Canada.
4. The area is an unusual habitat with limited representation in the municipality, Ontario or Canada, or a small remnant of particular habitats which have virtually disappeared within the municipality.
5. The area has an unusually high diversity of biological communities and associated plants and animals due to a variety of geomorphological features, soils, water, sunlight and associated vegetation and microclimatic effects.
6. The area provides habitat for rare or endangered indigenous species that are endangered regionally, provincially, or nationally.
7. The area is large, potentially affording a habitat for species that require extensive blocks of suitable habitat.
8. The location of the area, combined with its natural features, make it particularly suitable for scientific research and conservation education purposes.
9. The combination of landforms and habitats is identified as having high aesthetic value in the context of the surrounding landscape and any alteration would significantly lower its amenity value.

form which could be valuable for scientific research or conservation education. These ESAs may or may not have been significantly affected by certain human activities and they may or may not require intensive management in order to restore, maintain, or improve certain of their natural values (Eagles and Adindu 1978).

In an official plan the words Environmentally Sensitive Area give recognition that the area contains an ecosystem whose natural characteristics and processes should be maintained, preserved, and protected. Some areas contain geological or physiographic features that are important irrespective of the biological features.

Hazard lands are landscape areas which can be harmful to man and/or his structures and are a result of forces extraneous to him (Schwarz, Thor, and Els-

ner 1976). ESAs are landscape areas that are quite susceptible to disturbance by man. Often ESAs are found on lands that are also considered to be hazard lands, for example a unique forest on a steep slope. However, not all hazard lands are ESAs.

### Policy initiatives across Ontario

Traditionally the protection of natural areas has been a subject dealt with by individual members of the public, the provincial governments, and the federal government. Local governments, such as those of counties, cities, townships, and towns, have played only a small role in environmental management generally, and natural area protection specifically. Cases can certainly be found where a local government now owns a natural area. This situation usually occurs

*The Grand River Valley in Brant County contains extensive forests with many species of southern plants and animals. Here hazard land and ESA designations overlap.*



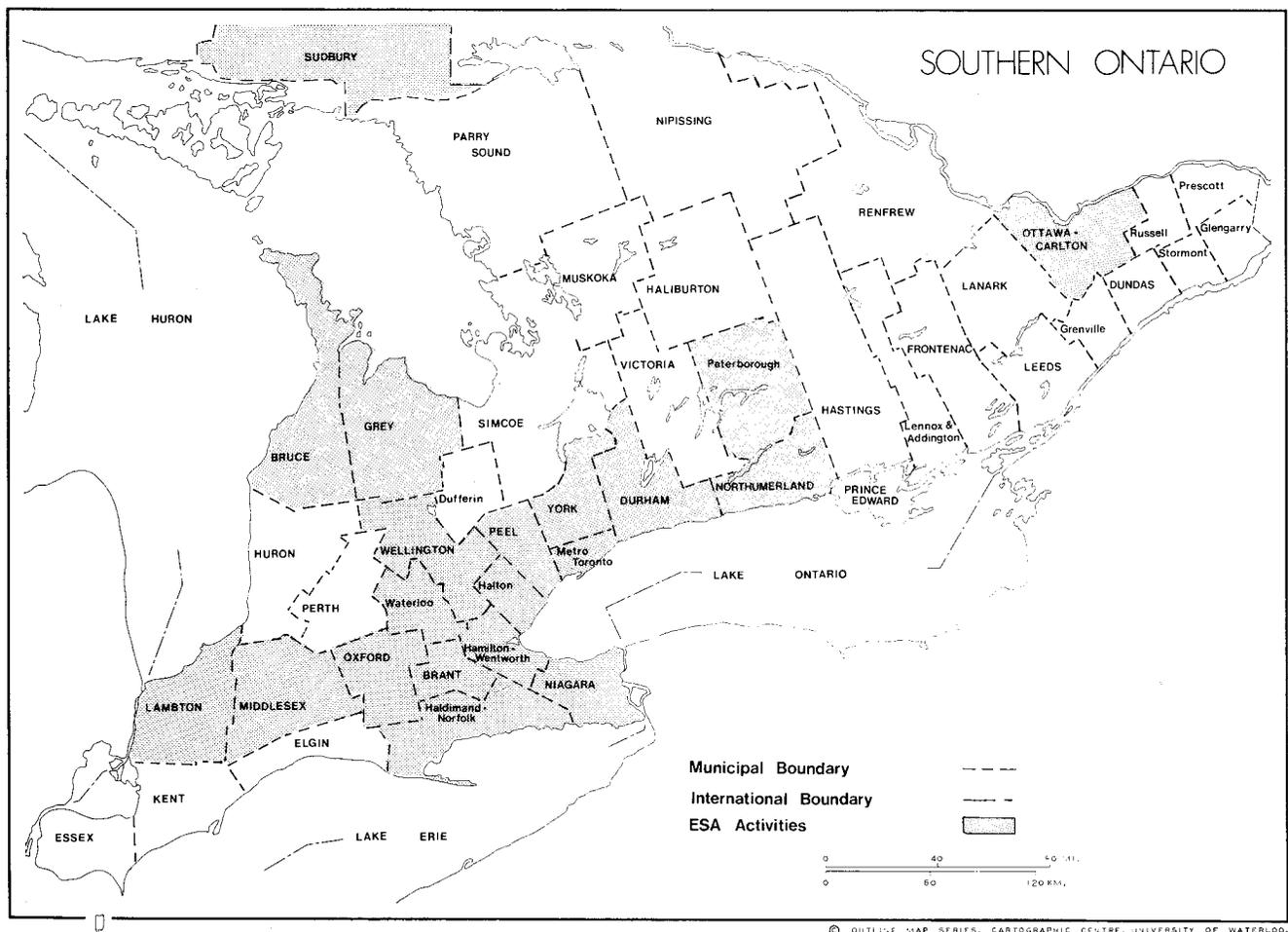
when a citizen of the community who valued a particular area has donated it completely or partially to the municipality. The area is then usually managed by the local parks department. Examples of this type of activity can be found in most Ontario cities. However, such philanthropic endeavors have not been part of an overall, coordinated policy to protect local natural areas.

In the early 1970s several studies were done that pointed toward the possibilities of municipalities becoming involved in the protection of local natural areas. Chanasyk (1979) in Haldimand-Norfolk utilized environmental planning concepts based upon considerable historical ecology to develop a landscape analysis. Dorney and George (1970) detailed areas worthy of long term protection in Waterloo. The Ottawa Field Naturalists' Club (1970) outlined to the Ottawa-Carleton region natural areas that should be protected.

The provincial government started to reorganize county governments into regional governments in the early 1970s. In the regional structure, all municipalities were part of and subject to the upper level municipality. Previously, most urban centers had been outside the county governmental structure. This

movement was built upon the experience gained with the metropolitan form of government in Toronto. Here all cities, boroughs, and towns within a defined regional area around the City of Toronto sent representatives to a metropolitan or regional council. The primary purpose of this upper tier municipality was to open communication channels among local municipalities and to ensure some degree of cooperation in the implementation of policies and plans with regional significance.

While planning in Ontario was initially permissive, in the case of regional governments, the provincial legislation which established each region made land use planning mandatory and set time limits for the adoption of regional official plans. Also, the legislation required that once regional official plans had been adopted, all local municipal official plans and restricted area by-laws had to be in conformity with the regional plan (Higgs 1977). This new legislation set the stage for widespread, new initiatives in planning. The introduction of environmental management principles was one such initiative. Environmentally Sensitive Area planning is part of this initiative concurrent with the official plan formulation in the new regional governments (Hrabi 1979; Dorney



**Figure 1. Municipalities with Environmentally Sensitive Area activities in Ontario**

**Table 2. Environmentally Sensitive Area activities in Ontario**

Political jurisdiction	ESA study underway	ESA study completed	Policy work underway	Draft plan produced	Draft plan passed by council	Plan signed by Housing Minister
*R. M. of Durham		X	X	X	X	
R. M. of Haldimand-Norfolk		X	X	X	X	X
R. M. of Halton		X	X	X	X	X
R. M. of Hamilton-Wentworth		X	X	X	X	X
R. M. of Niagara		X	X	X	X	
R. M. of Ottawa-Carleton		X	X	X	X	X
R. M. of Peel		X	X			
R. M. of Sudbury		X	X	X	X	X
R. M. of Waterloo		X	X	X	X	X
R. M. of York		X	X			
C. of Brant		X				
C. of Bruce		X				
C. of Grey		X				
C. of Lambton		X	X			
C. of Middlesex	X					
C. of Northumberland		X				
C. of Oxford		X				
C. of Peterborough	X					
C. of Wellington		X	X			
City of London		X				
Metropolitan Toronto	X					

\*ESA policies not included in the official plan but to be included later by amendment.

R.M. = Regional municipality

C. = County

et al. 1981; Paterson 1981).

The establishment of regional governments was highly controversial. Many local municipalities objected vigorously to the loss of some of their discretionary power to the upper tier municipality. The transfer of some provincial functions to the region, most notably policing, helped to increase the municipal land based taxes which resulted in public outcry against the new governments. Several cities and townships have asked to be removed from the regional structure but the province has not heeded any such request. Due to the public and local municipal opposition Ontario has not created any new regions since the early 1970s, but has decided to retain those now in place.

At present, twenty municipalities in Ontario have become involved in ESA planning and management to some degree (Figure 1). All are located in the southern portions of the province.

Table 2 gives six planning steps which start with resource inventory and culminate in the legal adoption of a plan containing sensitive area policies. It is immediately apparent that the regional municipalities have made further progress incorporating ESA concerns into the planning structure than have the county governments. The possible reasons for this are worth exploration.

Regions are required by their enabling legislation to produce official plans by a certain date while county planning is not obligatory. The regions are urban centered and were created, in part, to deal with problems of rapid urban growth. The counties are mostly rural with lower levels of land use alteration to the urban form. The legal obligation to produce plans and the immediacy of the problem in urbanizing areas appear to be factors in the regions' greater progress concerning ESAs.

New political institutions tend to be responsive to new concepts and ideas during their formative years. The regional governments were established during the late 1960s and early 1970s. The planning staff members tended to be young and recent university graduates, often with resource planning backgrounds. The importance of the role of environmental planners within the regions at the time that all programs were being formulated must be emphasized.

Some evidence exists which suggests that the urban populace in Ontario appears to be more willing to accept land use restrictions for environmental purposes than the rural residents (Eagles 1979). The urban residents see the issue as a need for open space and are familiar with some of the negative impacts of urbanization, such as environmental pollution. The

**Table 3. Inventory steps for Environmentally Sensitive Areas**

1. Assemble interdisciplinary study team.
2. Adopt standardized criteria.
3. Find existing sources of information on the natural environment in the municipality (e.g., published and unpublished works, topographic maps, government studies, knowledgeable individuals).
4. Screen this information through the criteria to identify possible ESAs.
5. Field check all possible ESAs.
6. Compile detailed background files on the important resource elements (e.g., locations of endangered species and rare ecosystem types).
7. Screen all possible areas through the criteria and find which areas can be considered to be ESAs.
8. Delineate each ESA on 1:25,000 topographic maps.
9. Detail the reasons for criteria fulfillment of each delineated area.
10. Publish the results.

rural residents place higher emphasis on economic development and see less need for institutional open space because of the apparent abundance of such lands. Public surveys in the region of Halton at the time of plan formulation found that the protection of "sensitive lands" was ranked by residents as second in importance, just behind the protection of agricultural lands. These issues were given higher priority than policies for the promotion of industrial development, the creation of more jobs, and the ensurance of equitable tax costs and benefits. Conversely, the very strong public reactions against recent resource management efforts in the rural Bruce and Grey Counties by the Niagara Escarpment Commission highlights the attitudes in those areas.

## Plan concepts

### Inventory and delineation

A team of individuals with disciplinary knowledge has often been used to study, identify, and delineate ESAs using the standard criteria (Table 1). The team approach was deemed to be necessary as no one person has the experience, technical knowledge, or skill to apply all the details of the criteria. Interdisciplinary teams have produced designations capable of withstanding the assaults of critics within the adversary system of land use planning in Ontario. In most cases, knowledge from the following disciplines have been drawn upon in the planning of ESAs: pedology, geomorphology, ornithology, herpetology, ichthyology, mammalogy, botany, forestry, ecology, historical ecology, environmental planning, and planning.

A wide variety of institutional structures have been used in various municipalities to create these teams. Representative examples include university students

supervised by a professor, the staff of an environmental planning consulting firm, the staff of a municipal planning department assisted by students, or the members of a technical advisory committee. An equally wide variety of provincial, municipal, and private funding sources have been used to pay for the various inventory and planning studies.

The basic aim of the resource inventories is to identify the location and composition of the landscapes that fulfill one or more of the criteria. Table 3 lists in simplified form the basic inventory steps as accomplished in the studies after the mid 1970s.

It is essential that a regional perspective be maintained in order that decisions can be made concerning the criteria that deal with the regional status of a species or phenomenon. Details on one such inventory can be found in Eagles et al. (1978 and 1979).

### Application to official plans

After the identification of the Environmentally Sensitive Areas within a municipality, a critical step involves the development of appropriate planning policies for the protection of these areas. A standard municipal treatment has been for the areas to be recognized by designation in the official plan as constituted under the Ontario Planning Act. In addition, rural and urban valley lands as well as some wetlands are protected by conservation authorities using their flood and fill line designations. Conservation authorities are independent governmental bodies that are established with a watershed management unit. They play a major role in resource management with heavy emphasis on water management and parkland establishment.

A set of standard policies for inclusion in official plans is given below. These policies are generalized from the various plans now in use in the province.

1. As a general rule, development is restricted in Environmentally Sensitive Areas owing to detrimental impacts.
2. Development which may alter the physical and/or biological features of an ESA is encouraged to locate outside ESAs.
3. Environmental Impact Assessments will be used to provide information on decisions concerning detailed boundary adjustments, the effects of land use change, and management alternatives.
4. Municipal as well as private works are subject to the policies.
5. An ESA designation in an official plan does not imply that areas will be purchased by a public agency or that areas are open for public use.
6. Land use designation and controls are to be specified in the zoning by-laws and in the regulations implementing regional and local official plans.
7. Municipal by-laws encourage and permit the

municipality and/or other agencies to undertake management agreements with the owners of ESAs.

8. If lands designated as an ESA are proven to be endangered by a proposed nearby change in land use, means of protection should be considered by municipal council. There should be provision for minimum setbacks from any sensitive area, sufficient to ensure its preservation.
9. Addition of other lands to those designated, or deletion of areas which no longer fulfill one or more criteria, may be carried out by amendment to the official plan upon recommendation of persons or agencies, provided that detailed studies justify such action.
10. The alteration of any condition of the land use of an ESA which may affect the natural values for which that area was designated must be approved by the appropriate authority, based on site plans and management plans submitted by the owner of the sensitive area.
11. Procedures for applications for alterations in conditions or use are to be prepared by the municipality. These procedures should also include specific requirements for conducting environmental impact analyses.
12. Agreements for the management of designated areas may include financial cost sharing, adjustment of property assessment, rebates of property tax, definition of rights and responsibilities, provisions for public access, specific natural resource improvements, or any other provision deemed necessary to ensure continuance of the ESA.
13. ESAs should appear as land use designation in official plans and zoning by-laws, and not as overriding development controls over a variety of land use designations.
14. Appropriate enforcement procedures and staff must be set up to ensure effective implementation, enforcement, and supervision of any official plan, management plan, zoning by-law, or other regulation.

The most controversial policy is also the most central one: that is, the degree of development or land use alteration that is allowed. The most common approach is to make a statement concerning the intent to allow only compatible low impact development and to leave detailed boundary, land use, and density decisions until a later date. At the time that a land use change is proposed the proponent is required to submit an environmental impact assessment which provides the detailed biophysical information on which a definitive judgment can be made.

Each municipality must grapple with the difficult process of policy formulation given in own particular set of institutional constraints. A number of different approaches have been used varying from the simple

fact of recognition of the areas' existence to the development of sophisticated planning and management policies and associated implementation structures. In order to give the reader an idea of the range of approaches a discussion of several case studies is presented.

## Case studies

There have been three substantive developmental attempts to incorporate natural area concerns into regional official plans in Ontario. Each effort has been predicated somewhat upon the failures and successes of the previous ones. In order of time of involvement the three political jurisdictions that did this work were the regional municipalities of Ottawa-Carleton (early 1970s), Waterloo (mid 1970s) and Halton (late 1970s). Each of these are discussed below.

### The regional municipality of Ottawa-Carleton

The Ottawa-Carleton regional official plan of the early 1970s was the first of the new, regional level plans to appear. It contained major new advances which introduced resource and environmental management concepts into the municipal planning structure in Ontario. Previous plans such as the Toronto Centered Region Plan and the draft Metropolitan Toronto Official Plan of the 1960s had set the tone by starting to introduce natural resource concepts (Higgs 1977).

The Ottawa-Carleton plan made several important advances. One was the inclusion of considerable amounts of resource information under two subject headings: Conservation and Recreation Areas, and Marginal Resource Areas (Regional Municipality of Ottawa-Carleton 1974). This division into two subject categories was concerned with the two different types of resource capabilities that would later be known as ESAs and hazard lands.

The official plan stated that:

Because of the range of vegetation, topography, wildlife and geological characteristics within its boundaries, the planning area contains a variety of natural areas. There are a number of reasons why certain areas should be protected—not all of them necessarily applying in all cases:

- to protect water supplies
- to preserve areas of scientific interest
- to maintain areas of wildlife
- to provide for a range of outdoor recreational activities
- to protect areas of scenic value
- to set aside land for forestry purposes.

The official plan policies stipulated an almost complete prohibition of land use change in the Conser-

vation and Recreation Areas which comprised in total a significant portion of the region's land surface. The designated natural areas and river corridors covered about 10 percent of the region, and approximately one-third of that area was designated in the most restrictive category (Paterson 1981). An indication of landowner opposition is evident in the fact that in 1976 several hundred objections to the official plan were referred in the OMB for adjudication. A number of these objections dealt with the Conservation and Recreation Area policies.

The major contribution of the Ottawa-Carleton official plan lay in its recognition of the importance of protecting natural areas. However, significant mapping and resource data deficiencies, as well as the blunt rigid official plan policies, ultimately resulted in a reduction in the effectiveness of the plan. The designations were often based on maps and data provided by an interested amateur group and a consultant. No selection criteria were used and the data were spotty with a wide variance in information quality and quantity between sites. As a result the mapping often did not stand up to the careful scrutiny given to it in the adversary process used in front of the Ontario Municipal Board.

In 1978 the region of Ottawa-Carleton passed a major amendment (number 12) to the official plan, partially in response to public reaction and partially resulting from departmental hindsight review of the policies. This amendment considers the use of performance standards for natural landscape regulation as opposed to landuse limitation. At the present time the region is waiting for provincial government approval of the changes (Paterson 1981).

### **The regional municipality of Waterloo**

In the mid 1970s the regional municipality of Waterloo (Regional Municipality of Waterloo 1976) carried forward the early concepts but extensively altered the approach. The details of this planning process have been extensively covered (Eagles 1975, and Francis 1977).

A number of critical institutional and policy developments took place in Waterloo that enabled the parallel Ottawa-Carleton concept to be carried through to fruition. These can be summarized as:

1. the collection of relatively comprehensive and defensible resource data under the supervision of a number of professional environmental planners,
2. the presence of the Ecological and Environmental Advisory Committee,
3. the development of the term Environmentally Sensitive Area with associated selection criteria,
4. the separation of ESAs and hazard lands into separate policy categories,
5. skillful strategic planning, and

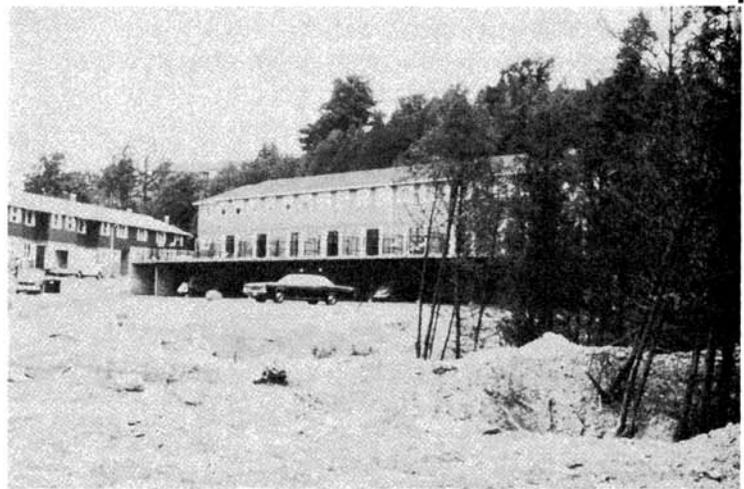
6. the use of a flexible approach, including environmental assessments.

The works of Dorney and George (1970), Theberge et al. (1974), Francis (1974), and Francis and Eagles (1975) provided a resource data base that enabled comparisons and compromises to be made. The several years of resource compilation and committee action resulted not only in a refined product but also in the dissemination and associated acceptance of environmental management concepts by many key actors within the decision-making structure of the community.

The establishment of the advisory committee was a critical factor. It institutionalized environmental concerns into the regional government structure. It provided a direct route for environmental management concepts to be filtered into the regional government. Also, the extensive knowledge and experience of the members was valuable in guiding the draft official plan through its formative stages. The terms of reference of the committee outlined the following roles: to act as a "watch dog" over environmental issues, to assist the region in reviewing Environmental Impact Statements, to recommend environmental policies, to keep the council aware of impending issues such as proposed provincial legislation to recommend and to undertake environmental studies, and to review any issues referred to it by the planning committee or by the regional council. The committee played an important role in the justification, establishment, and development of ESA planning in the municipality. The advisory committee concept is an old one, but this committee was significant in that it was able to actively participate in decision making.

The development of the term Environmentally Sensitive Area was important. The term is self-explanatory, similar to the term hazard land. At a glance the unfamiliar individual has an idea of what the area is and what any associated policy must be concerned with. The development and the use of selection criteria allowed for the relatively objective analysis of resource data against a common standard, the ranking of diverse ecological sites, and the indirect explanation of the ecological purposes of the area in question.

The incorporation of the ESA concept into the draft official plan, and through the various approval stages, was effectively done, as evidenced by the ultimate approval by the Provincial Minister of Housing. The numerous small strategic decisions made are much too numerous to review here but one that turned out to be quite significant will be mentioned. A decision was made early in the planning process to take the plan and the proposed ESA designations to the public for comment. At the time various individuals expressed concern that a premature release of the policies and information would cause considerable



Top: The Homer Watson Forest in Kitchener (Waterloo region) contains a number of rare plants, birds, and butterflies. Urban development is being directed outside this ESA. Middle: Urban development can have a strong impact on a sensitive ecosystem. Environmental design, construction, and management guidelines are much more stringent in Kitchener today than in the early 1970s when this subdivision was built. Left: The wetlands forests surrounding Irish Creek in Wellington County not only contain significant plant and animal communities, they serve important hydrological functions as well.

opposition to the plan. As it turned out, easy public availability to information and direct public access to the decision makers strengthened the plan considerably by diffusing potentially destructive misunderstandings. Also, those who supported the concepts were able to prepare their case and to make themselves heard.

### **The regional municipality of Halton**

The region of Halton (Regional Municipality of Halton 1978) produced the most advanced resource management policies found in an Ontario regional official plan to date. The Halton plan is solidly based upon the ideas developed in Ottawa-Carleton and Waterloo but goes somewhat further in policy development. A similar set of institutional and policy arrangements to those described for Waterloo was used.

One considerable functional addition has been the development of a well integrated official plan where the environmental management policies are interwoven throughout. Of fifteen regional goal statements, seven are concerned with resource management issues. These include policies on agriculture, environmental protection, waterfront, forestry, mineral resources, open space, and energy. Consequently the ESA policies are nestled into a broadly conceived bed of resource management policies. However, the issue of assigning priorities in use where land is covered by multiple designations and associated policies must still be dealt with. The relative priorities between the various policy fields in the Halton plan are unclear.

The Halton plan is based upon performance standard regulations that concentrate on land and ecosystem functions at a policy level. In essence this plan does not say "Do not build here" but says "You can build here if you can show that you will maintain the important natural functions found in the landscape" (Thurow, Toner, and Erley 1975; Thurow 1977). It guarantees governmental involvement in any substantial landscape alteration that is proposed.

One of the critical continuing agents in the process will be the Ecological and Environmental Advisory Committee. The official plan recognizes the role of the advisory committee in a number of areas. For example, all Environmental Impact Assessments must be reviewed by the committee and all land severances "where ESA features may become altered must be commented upon by EEAC." This relatively large amount of power given to an unpaid advisory body is interesting. Up to now this system has worked well but as the work load builds for the committee, timing and other problems may result.

### **Summary**

As we increasingly understand the science of ecol-

ogy and the webs of connections between the use of any particular piece of land and the impact on the environment as a whole, we increasingly see the need to protect the wetlands and other areas that were formerly ignored. (Bosselman 1975.)

The interconnections among the plants, animals, and physical features of an ecosystem are so complex and interwoven that modification of any one part affects others to a greater or lesser degree. The recognition of this dynamic aspect of the ecosystem—of the importance of land use policies on ecosystem functioning—and a general societal attitude change have helped to create an environmental protection consciousness. This in turn has strengthened the efforts of some ecologists, planners, and decision makers to protect the natural ecological diversity found in the biosphere.

The planning and management of these sensitive areas become a process of discovering, analyzing, and making decisions about land use conflicts and resource allocation. A cycle of planning and management is developing in Ontario which builds upon and develops from existing social institutions. Some of the important planning elements discussed include the criteria for identification, the interdisciplinary team studies, the role of advisory committees, the inventory process, the interpretation of the criteria, boundary delineation and adjustment, and the application of this information to official plans.

The movement to protect natural areas through the tool of the municipal official plan is now ten years old in Ontario. Over that time an innovative system of delineation, planning, and management has been developed (Eagles 1979). The initiative is becoming imbedded in the institutions and consciousness of municipal planning in Ontario. In fact, it is on its way to becoming a standard planning practice. The advances have largely been connected with regional governments and major changes could occur if for any reason the regions were altered in structure. In the mid and late 1970s the regional governments were under strong political attack from some sectors of the public who disliked the changes that occurred with establishment of regions and from many local municipalities who complained of a loss of power. This outcry has considerably died down of late but the possibility of regional government dismantlement still exists, albeit remotely.

It appears to be doubtful that the counties are going to be as successful as the regions in incorporating this type of concern into their decision making structures in the near future. Due to a number of legal, political, financial, and structural limitations they find it difficult to formulate and implement policies for environmental issues that are of wide geographical significance. The initial rapid spread of the ESA concept across Ontario occurred mostly with the regions. A

much lower level of acceptance can be expected in the future with the county governments.

For the first time in its history the provincial government has decided to produce land use policy plans for the 80 percent of the province that is still under government ownership. The agency involved, the Ministry of Natural Resources, has been highly resistant in the past to the idea that crown land management policies should be codified and open to public discussion. At present, a small scale attempt has been made to delineate "sensitive areas" on crown land but it has suffered from a lack of definitional criteria and field implementation. It is possible that the model as developed by Ontario's municipalities will be used for this provincial program of planning for public land.

The protection and management of natural landscapes by the upper tier of municipal government is now of widespread occurrence in Ontario. It has broad public support and will continue to evolve and spread geographically in the near future.

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