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"Urban Wildlife Planning"

by

Alfred V. Diebel

A PLAN B PAPER

Submitted to

Michigan State University

in partial fulfillment of the requirements
for the degree of

MASTER IN URBAN PLANNING

School of Urban Planning and Landscape Architecture

June 1980

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"Urban Wildlife Planning"

Problem

Planning for wildlife in the cities has been largely neglected. It is usually treated as an afterthought, or considered a luxurious concern. If given any thought at all, it is usually from planning for open space. The impression held by many individuals is that only the rich can afford the amenities of wildlife in their neighborhoods. Other widely held impressions of wildlife conjure up thoughts of animals in the garden/flower bed and pest control. The traditional research has been oriented towards game animals in rural or wild areas. Such traditions and thoughts are brought to cities and are laden with misconceptions based on a lack of knowledge. This condition does not always have to be so.

Hypothesis & Guiding Conceptual Principal

The wildlife being contemplated in this report are small mammals, birds, reptiles, amphibians, and aquatic animals. Attracting such wildlife into the urban scene can be a way to improve the quality of the environment in general. But, much more than the general environment can be improved. The social welfare and mental health of people in general can be positively affected. Improving and increasing people's contact and general association with wildlife and Nature can be beneficial.

A strong argument and discussion can be put forth to defend these assertions and assumptions. Ecologist / Scientist Rene' Dubos, has reflected that many of our cities and the populace are literally insulated too much from the country-

side and experiences with Nature. "In all countries of Western Civilization, the largest part of life is spent in an environment conditioned and often created by technology. People are increasingly dissociated from the cycles of Nature that have established the biological rhythms of human life and that have shaped its physiological functions. In fact, most contacts with the outside world originate from technology or are mediated through technology. Contact with the rest of creation is almost always distorted by artificial means, even though man's senses have remained the same since the Stone Age."¹

Rational urban planning must recognize the stresses that people experience in the cities. There is a lack of balance in man's relationship to the total environment. Many people seek to relieve the tension and stress by escaping on weekends. The crowded freeways to the northern woods and various State Parks is ample evidence of this desire.

"Our ancestors' lives were sustained by physical work and direct associations with human beings. We receive our livelihood in the form of anonymously computerized paper documents that we exchange for food, clothing, or gadgets. We have learned to enjoy stress instead of peace, excitement in lieu of rest, and to extract from the confusion of day-to-day life a small core of exhilarating experiences. I doubt that mankind can tolerate our absurd way of life much longer without losing what is best in humanness.

"...So far, we have followed technologists wherever their techniques have taken them, on murderous highways, to the moon and under the threat of nuclear bombs. But this does not mean that we shall continue forever on this mindless and suicidal course. The technological conditions under which we now live have evolved in a haphazard way and few persons if any really like them. At heart, we often wish we had the courage to drop out and recapture our real selves.

The impulse to withdraw from a way of life we know to be inhuman is probably so widespread that it will become a dominant social force in the future."²

These are fundamental human needs that drive the actions of people. It is simply a need for natural stimuli: the stars, the seasons and the sun - very simple and very obvious, yet very much ignored. Technology seems bent on denying our humanness. The health of our humanness will be preserved through a renewed partnership with Nature and wildlife. There is an instinct of man to coexist with Nature. Planners, however, appear to be unconcerned with the fundamental human needs. They seem to accept at its face value the statement attributed to the American technologist Buckminster Fuller that architecture is a "technical optimum per pounds of invested resources." As if the really significant criteria of planning and architecture were cost and efficiency of buildings rather than the suitability of environments for human needs, potentialities, and aspirations.³

"...No social philosophy of urbanization can be successful if it fails to take into account the fact that urban man is part of the highly integrated web that unites all forms of life. There have been many large cities in the past, but until recent times their inhabitants were able to maintain fairly frequent direct contacts with the countryside or with the sea. Historical experience, especially during the nineteenth century, shows that urban populations are apt to develop ugly tempers when completely deprived of such contacts. In our own times race riots provide further illustrations of this danger. Saving Nature in both its wild and humanized aspects is an essential part of urban planning."⁴

This writer believes a better social philosophy would indeed consider the environmental values, the needs of wildlife and the ecological balances within Nature. People will

always interact with Nature to some extent. We also can not deny our own evolutionary past. Yet, human beings must and will progress. The professional planner is in a key position, within the fabric of modern society, to positively influence that forward movement.

An excellent approach for integrating wildlife and ecological values, into urban planning, was expressed by Professor Glen Duddarar of the Department of Fish and Wildlife, in the School of Resource Development, Michigan State University. In essence, Professor Duddarar stated, "what is best for people is good for wildlife. Note the phrase "best for people". This does not include commerce, industry, etc. It simply means what is best for people." He continues with a crucial point that, "We must be honest with ourselves as professionals, for what is best for people can usually be good for wildlife. Not always best, but at least good for wildlife."

Professor Duddarar's thoughts can be succinctly understood by considering the following progression of thoughts:

- 1) Wildlife to exist in an urban setting require a good habitat for a viable home range and for survival.
- 2) People too, need a viable habitat. People need the natural environment, the semi-natural and the artificial environment.
- 3) If these three environments are really provided for in planning, wildlife will naturally be a part.
- 4) Therefore, what is best for people is good for wildlife.

He gives much credit to Rene' Dubos in the creation of these ideas. It is the interplay of these thoughts that form the guiding conceptual principal of this study, its hypothesis

and its' conclusions.

Further meaningful ideas on renewing our partnership with wildlife and Nature are again aptly expressed by Dubos. One form of landscape very much desired is:

"... Nature undisturbed by human intervention. We shall have less and less of this as the world population increases. We must make a strenuous effort to preserve what we can of primeval Nature, lest we lose the opportunity to re-establish contact now and then with our biological origins. A sense of continuity with the past and with the rest of creation is a form of religious experience essential to sanity."⁵

As people need a viable habitat, (alluded to in the above progression of thoughts, point number "2",) the need to encounter and experience primeval Nature must not be overlooked. From the perspective of an ecologist as Dubos, this is an understandable concern. Yet, he does not deny and fully accepts the human desire to explore, to be curious, experimental and creative. This is voiced as he speaks to another desirable landscape:

"...One created by human toil, in which, through progressive adjustments based on feeling and thought, as well as on trial and error, man has achieved a kind of harmony between himself and natural forces. What we long for is rarely Nature in the raw; more often it is a landscape suited to human limitations and shaped by the efforts and aspirations that have created civilization."⁶

This landscape of a semi-natural and artificial environment completes the human need for a viable habitat. Our cities and suburbs reflect the artificial and the semi-natural. The professional planner must work to insure that a viable habitat for people will always exist. It is truly a challenge to bring such ideas into everyday thinking. To say they are overlooked is virtually a gross understatement. Yet, there is progress and an undercurrent to

consider and preserve Nature. It is however, always at odds with the economic motivations prevalent in our society. This hopefully may not always be the case.

Recently, more consideration is being given to the appreciation of wildlife and Nature in urban and urbanizing areas. Some developers now realize that wildlife can provide not only an aesthetic amenity, but financial benefits as well. In New York City, it is common knowledge that apartments that overlook Central Park command some of the highest rents in the marketplace. The effects of these amenities apply to all development activity. This is very important, for the economic forces and the various design professions can go far to greatly improve cities and the overall environmental well being. For this to occur, there is a growing need to demonstrate how wildlife and environmental values can be incorporated into our city planning process. It is the contention and hypothesis of this study that "little needs to be changed in the planning and design process, and usually little extra cost will be involved."⁷ In terms of ecological values and environmental well being, these changes will yield a creative and improved planning and development practice.

Goal

For change and improvement in private and public planning, greater access to and understanding of wildlife values and ecology is desirable. Yet, the occupations of wildlife management and planning traditionally have had little to do with each other. Biologists do not grasp the planning

process and planners want information and advice the biologists have not been able to provide. This condition is beginning to abate, to some degree. (Some interaction is occurring with the process of conducting environmental impact analysis. This research has found only token considerations when compared to economic considerations.)

The two disciplines do have common ground and it is believed that planners wish for a better understanding of the needs of wildlife. Planners can incorporate wildlife values into urban design work, at the site specific level, and at the neighborhood and community scale. Principles and guidelines are available for improving our urban and suburban environments. Therefore, it is the intent and goal of this study to show a format for incorporating wildlife values and ecological principles in the planning process.

Methodology and Data Collection

For support of the hypothesis and goal, the methodology and research pattern focused on three areas:

- 1) Investigation of literature and research of bibliographical resources.
- 2) (a) Interview experts in pertinent fields of education and research studies, such as, urban wildlife experts, landscape architects and planners.
- (b) Interview public and private agency representatives with the Department of Natural Resources and the Kalamazoo Nature Center.

- 3) Conduct field studies and original research, (such as, spatial and site analysis of habitats), of wildlife planning efforts in Kalamazoo, Meridian Township, and Okemos, Michigan.

This research and data collection process was fruitful and is elaborated on, below.

Extensive investigation and readings have been conducted on relevant literature. Excellent bibliographical resources are available and have been tapped for this effort. Much of the pertinent writing comes from the fields of wildlife biologists, wildlife managers, environmental analysts, botanists, ecologists, foresters, and educators in related fields of study. There are many publications from private foundations and organizations, such as the Wildlife Society, the American Fisheries Society, the Ecological Society of America, the National Audubon Society, The Urban Institute, the National Wildlife Federation, and others. Research, readings, monographs and reports from symposiums are available from many colleges and universities which specialize and sponsor this area of knowledge. The University of Vermont is one example which is extensively involved with ecology and urban environmental planning. Additional information is provided from a number of different government agencies and offices, such as, offices of the Cooperative Extension Service, the U.S. Soil Conservation Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service, etc.

Because of the voluminous amount of data, resources and organizations, both public and private, it is often difficult for a concerned individual to dig through all the sources for his/her needs. An excellent solution to this problem is to utilize the publication, The Conservation Directory, by the National Wildlife Federation.

This is an annual compilation of the above organizations and others concerned with a broad range of wildlife and environmentally oriented activities and programs.

Interviews with local agency officials and urban wildlife experts in this area was only partially successful. At the State of Michigan, Department of Natural Resources, there was no one person or office which dealt with this particular topic. There was an office of "Non-Game Programs", but no one seemed able to answer questions pertinent to the goals of this study. They were able to provide references to an individual in Kalamazoo, Michigan, who had extensive working experience with urban wildlife planning. This person was successfully contacted and will be referred to later in the discussion on field studies, below.

Planners employed at Michigan State University, Campus Park and Planning, were interviewed, but this was very unproductive. A negative attitude prevailed from those individuals; reactionary and close-minded to the idea of man living in harmony with wildlife, conquering the environment, instead. They told of stories of spending thousands of dollars to rid the campus of those "critters", failing

to consider the positive benefits. They felt a "mission" existed to rid the campus of pests and protect the aesthetics!

A most successful interview was conducted with Professor Glen Duddarar in the Fish and Wildlife Department, School of Resource Development, Michigan State University, (referred to in the above discussions.) This person is an urban wildlife expert and proved to be invaluable with his expertise and experience on the subject. Many helpful insights and ideas were offered. His encouragement was a good boost in the early stages of this study.

Local developers were contacted which were involved with subdivision and multi-family developments. These contacts however did not play out commensurate with their development efforts to date. One individual developer was reached in Meridian Township who specifically had landscaping and natural design in mind, yet did not consider wildlife. He provided maps and the conceptual background to the pattern of the subdivision he built. This will be looked into further in the discussion on the field studies, below.

Overall, it was hoped there would have been more persons available who could have contributed to the goals of this research. The greatest disappointment with the negative attitudes were encountered at the offices of M.S.U. Campus Park and Planning. Of course this is taken in stride and the positive benefits of the interviews have certainly outweighed the negative.

Field studies of known wildlife planning efforts were successful. Two subdivisions were studied in Meridian

Township: Sylvan Glen, and Wind and Woods subdivision. A third development was found from the aforementioned reference at the Department of Natural Resources, Lansing, Michigan. This was Parkview Hills, a development located in Kalamazoo, Michigan. All three will be explored with more depth below, in support of the hypothesis and goal. This was successful original research and proved to be rather enjoyable.

Data Analysis

The later stage of this study involved investigation of several areas before field studies were undertaken. Each area will be briefly and concisely addressed. Strong efforts were made to prevent the sacrifice of quality for the sake of brevity. Each element is important and builds upon the preceeding in a logical sequence. The separate sections within Data Analysis are: a) consideration of the definition of "open space"; b) habitat needs of wildlife; c) a format and basis for including wildlife values in the comprehensive plan process, (the study goal); d) assessment and identification of habitat; e) protection and preservation of habitats; and, f) the field studies and descriptions.

A. "Open Space"

This is an essential matter to consider before moving on further with planning for wildlife. "Open space" is a concept which is commonly thought of as parks and picnic areas. Mowed grass, pruned trees, neatly arranged rocks along the road sides, shelters, outhouses, baseball diamonds -- these and similar trappings typically go hand-

in-hand with the ideas of natural areas and open space. Nothing could be farther from the truth, and farther yet in terms of the needs of wildlife. If we are to plan and consider natural areas to bring wildlife into the city, then we must stop trimming the grass, raking all the leaves, and cutting down the brush and ground cover. There is a place for active recreation, but we must stop exerting our force over the environment and consider letting things be as they are -- in a "natural condition" -- as much as possible. Too many people prevail with the idea that natural areas are unsightly, unkempt, and are not aesthetically pleasing. Use of a little imagination and skill can have very beneficial results. If planners are to seriously consider improving the environment of our cities, and truly wish to attract wildlife in and among our homes, then a greater respect for the values of nature and ecological principles must be included in our thinking. These thoughts must be included in the making of a good definition of open space. A good definition and understanding of natural areas will enable planners to more effectively work with wildlife biologists and ecologists for the improvement of the environment.

B. Habitat Needs of Wildlife

An important area to examine at this point is the precise needs of wildlife to survive. (See Figure 1, page 13.) "There are four basic needs: food, cover, water, and space in which to live and reproduce. These four components collectively can be termed habitat. These habitat requirements

WILDLIFE NEEDS...

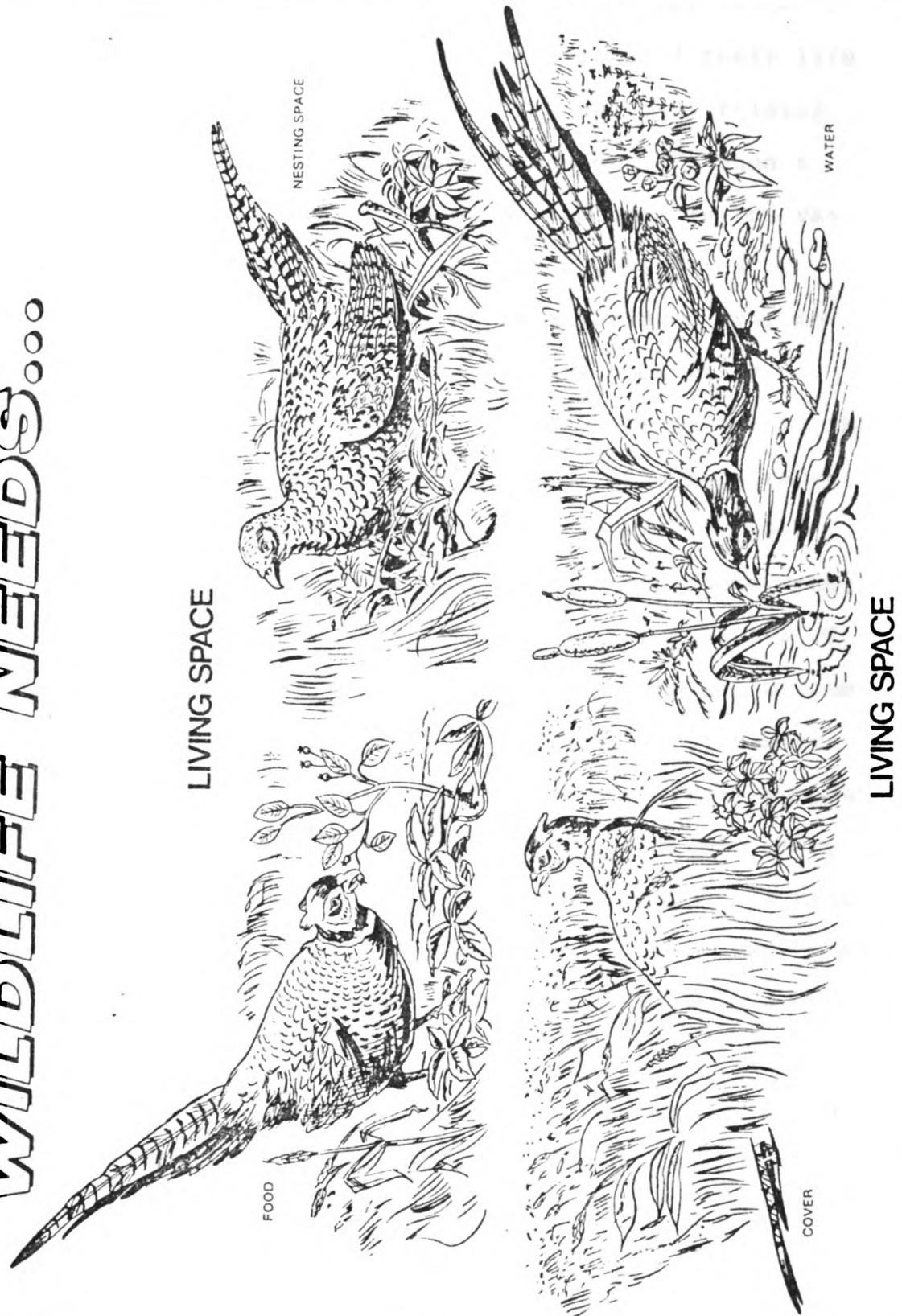


Figure 1

vary for different species. Though many species show a great affinity for specific types of habitat, most require a diversity of habitat for different portions of their life cycles. Cover requirements may vary for nesting, raising young, resting, and protection from predators."⁸ When a diversity of habitats are provided, an increase in the variety of wildlife species will occur in a given area.

This area, or living space, that an animal ranges over to satisfy all the requirements is called its home range.

"Even this varies among different species, for instance, the whitetailed deer requires one square mile for a home range, while a fox, cottontail rabbit, or quail can survive on a few acres of land. Related to this concept of a home range, there is the need to have access to the different types of habitat they require. Discontinuity of habitats can become a limiting factor for many species. This is particularly important with respect to site planning"⁹ and larger scales of community and neighborhood planning. Any discontinuity can be prevented by utilizing the natural drainage patterns for access, such as creeks, streams, ravines, wetlands, ponds, etc. Planners should take advantage of floodways used in water management and flood control programs. Often these are wooded or have substantial amounts of shrub, brush and other cover suitable for the seclusion that wildlife needs. These natural drainage patterns will provide open space corridors for movement and survival. From this last need, there are some obvious implications for spatial configurations in urban design theory and practice. Additionally, this

concern includes human disturbances as a limiting factor in residential areas. High density housing is frequently accompanied with free roaming cats and dogs, predators of small mammals and other wildlife. Pets will follow killing instincts with no real need for food as a part of their existence with people. "The placement of design components generating high levels of activities adjacent to wooded areas greatly reduces their potential use as refuges for wildlife."¹⁰ There are many natural regulators of wildlife without mans' disturbances, compounding the problems further. Some examples are natural predation, disease and accidental death. Already mans' impact is extremely substantial with timber harvesting, altering the environment for farms, livestock grazing, urbanization and industrialization.

Next to planning the spatial and larger physical attributes of habitat, there must be an emphasis on food and water for wildlife. "This weighs heavily in the composition of wildlife in any given area. This can be provided for through protection of existing vegetation or by supplemental planting. Of the various components of habitat, vegetation, and water are, perhaps, the most essential and at the same time the most manageable. Thus vegetation and its management is basically the key to wildlife management."¹¹

To best deal with vegetation and management, it is highly recommended that one explore the information available in local/county soil surveys. Each survey provides specific data on the soils that "directly affect the kind and amount

of vegetation available as food and cover,

"If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing cover, or by helping the natural establishment of desirable plants."¹²

(See Figure 2, page 17.) Because of the rating system used, there are many obvious examples that a planner interested in wildlife may apply the data towards, such as, wildlife refuges, natural study areas, etc.

The soils data has also been applied for development of recreational plans. (See Figure 3, page 18.) This organization system also permits a planner to develop or preserve lands suitable for active recreation, versus lands with soils that can not justify expensive development - that would be better off left for simple development of "paths and trails", or other low disturbance activities.

These are very good sources for site specific plans concerning wildlife and environmental impacts. They would greatly aid decision-making processes and weigh heavily in favor of rational planning. Additionally, the data has been correlated directly with the types of plant materials and wildlife most likely to establish a home range within that area. For functional purposes, the data is organized into three types of habitat, with soils that best support certain vegetation listed with each type. The three habitat types are briefly summarized in the following paragraphs:

SOIL SURVEY

TABLE 6.—Suitability of soils for elements of wildlife habitat and as habitat for kinds of wildlife

Soil series and map symbols	Suitability for elements of habitat								Suitability as habitat for—		
	Grain and seed crops	Domestic grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open-land wildlife	Woodland wildlife	Wetland wildlife	
Adrian: Ad	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.	
Bixby: BbA	Good	Good	Good	Good	Good	Good	Very poor.	Good	Good	Very poor.	
Borrow land: Bb. Soil material too variable to rate.											
Boyer: BbB, BbC, BbD For Spinks part of BbD, see Spinks series.	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	
BbB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	
BbC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	
Brady: BbA For Bronson part, see Bronson series.	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.	
Bronson Mapped only in a complex with Brady soils.	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.	
Capac: CaA CbB For Marlette part, see MaB of Marlette series.	Good Good	Good Good	Good Good	Good Good	Good Good	Fair Poor	Fair Poor	Good Good	Good Good	Fair. Poor.	
Cohoctah: Ch ¹	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.	
Colwood: Co Cp ¹	Good Very poor.	Fair Poor	Fair Poor	Fair Poor	Fair Poor	Good Good	Good Good	Fair Poor	Fair Poor	Good. Good.	
Edwards: Ed	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.	
Gilford: Gf	Poor ¹	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.	
Hillsdale: HaB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	
HaC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	
Houghton: Ho ¹	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.	
Kibbie: KbA	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.	
Lenawee: Lo ¹	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.	

TABLE 7.—*Estimated degree and kind of limitation for recreation*

[An asterisk in the first column indicates that at least one mapping unit is made up of two or more kinds of soil. The soils in such mapping units may have different properties and limitations, and it is necessary to follow carefully the instructions for referring to other series as indicated]

Soil series and map symbols	Camp areas	Picnic areas	Playgrounds	Paths and trails
Adrian: Ad -----	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; dusty.
Bixby: BbA -----	Slight -----	Slight -----	Slight -----	Slight.
Borrow land: Bh. Properties too variable to be rated. Onsite investigation needed.				
*Boyer: BnB -----	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy; slope.	Moderate: too sandy.
BnC -----	Moderate: too sandy; slope.	Moderate: too sandy; slope.	Severe: slope -----	Moderate: too sandy.
BoB -----	Slight -----	Slight -----	Moderate: slope -----	Slight.
BoC -----	Moderate: slope -----	Moderate: slope -----	Severe: slope -----	Slight.
BpD ----- For Spinks part of BpD, see Spinks series.	Severe: slope -----	Severe: slope -----	Severe: slope -----	Moderate: too sandy; slope.
*Brady: BrA ----- For Bronson part, see Bronson series.	Severe: wetness ¹ -----	Moderate: wetness.	Severe: wetness ¹ -----	Moderate: wetness.
Bronson Mapped only in a complex with Brady soils.	Moderate: wetness. ¹ -----	Slight -----	Moderate: wetness. ¹ -----	Slight.
*Capac: CaA, CbB ----- For Marlette part of CbB, see MaB of Marlette series.	Severe: wetness ¹ -----	Moderate: wetness.	Severe: wetness ¹ -----	Moderate: wetness.
Cohoctah: Ch -----	Severe: wetness; floods.	Severe: wetness; floods.	Severe: wetness; floods.	Severe: wetness; floods.
Colwood: Co -----	Severe: wetness -----	Severe: wetness -----	Severe: wetness -----	Severe: wetness.
Cp -----	Severe: wetness; floods.	Severe: wetness; floods.	Severe: wetness; floods.	Severe: wetness; floods.
Edwards: Ed -----	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; dusty.
Gilford: Gf -----	Severe: wetness -----	Severe: wetness -----	Severe: wetness -----	Severe: wetness.
Hillsdale: HaB -----	Slight -----	Slight -----	Moderate: slope -----	Slight.
HaC -----	Moderate: slope -----	Moderate: slope -----	Severe: slope -----	Slight.
Houghton: Ho -----	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; soil blowing.	Severe: wetness; floods; excess humus; dusty.
Kibbie: KbA -----	Severe: wetness ¹ -----	Moderate: wetness.	Severe: wetness ¹ -----	Moderate: wetness.

Figure 3.

"Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include quail, pheasant, meadowlark, field sparrow, cottontail rabbit, and red fox.

"Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include owls, ruffed grouse, woodcock, thrushes, nuthatches, woodpeckers, squirrels, raccoon, deer, and opossum.

"Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrats, mink, and beaver."¹³

Upon first cursory review of the charts on soils in the above paragraphs, it may appear that this is rather complicated for planners traditionally trained in land use, housing, transportation, etc. Yet, this is data and information that should logically be tapped in competent circles of decision-making and planning.

This kind of consideration, that is, consulting soil surveys for wildlife planning, may appear burdensome to the developer or planner. Yet, one should not approach this area from the perspective of: what angle of this work is easiest for me? We must remember that people have to live in the city environments, not just consumers or an anonymous public. The public will react and communicate their feelings. Very often a reaction to environmental planning activity is only reflected in terms of economics, that is, the rents and prices that well planned communities may command in the marketplace. "Developers and real estate agencies have learned that a house in an area characteri-

zed by natural biological communities - shrubs, trees, wetlands, and the wildlife that goes with them - sell for a higher price than the same house on a small barren lot. Most residents prefer a community well endowed with wildlife amenities. Little documentation is needed to support the fact that higher prices can be charged for new housing developed with a liberal open space system. The increased values are related directly to the open space and natural setting provided and, indirectly to the wildlife amenities afforded from this open space. Additionally, surveys of suburban and urban residents have indicated that homeowners and others appreciate having wildlife on their properties or in the areas where they live, play, or work."¹⁴

The information on habitat, home range, vegetation, soils, and knowledge associated with wildlife needs is based on generally accepted management principles and approaches. It is suggested that if these principles and ecological values are followed, one can successfully go a long way toward integrating wildlife into the planned urban environment.

C. Wildlife Within the Comprehensive Planning Process

Thus, our wish is to integrate wildlife values into the planning process. To do so, it will be helpful to review some of the fundamentals and the theories which are inherent in the planning and design processes. There is a general consensus that an effective plan deals equally with the normative and the technical, that is, ends and means.

The first is concerned with values and the latter with methods. Related to our subject, an example would be viewed in the following manner:

- A) General - bring wildlife values and ecological principles into the comprehensive plan, reflecting community attitudes, goals and objectives;
- B) Methodological, (specific procedures)-
 - (i) existing vegetation and habitat needs assessment;
 - (ii) open space and stream corridor systems to be planned for, and protected;
 - (iii) arrangement of physical elements to minimize impacts and disturbances of natural areas; etc.

The general reflects a strategy, or goals and objectives, in the planning process. These must be clearly understood at the outset and then related directly to the methodology of the individual plan components.¹⁵

A traditional approach to the comprehensive plan and its various elements can easily be adapted to include wildlife values and other ecological principles. An example of the typical "City Plan Elements" has been extracted from the Practice of Local Government Planning and is presented in Figure 4, page 22. Alongside are the same city plan elements except that wildlife values have been included. The traditional approach in this example has an orientation to housing and the necessary infrastructure to be considered. This plan suggests spatial organization as a major element, or "the physical arrangement and relationships of the various components of the landscape, particularly in the context of their formation and transformation over time and space."¹⁶ There is flexibility to deal with potential areas of conflict, through a reexamination of strategies and procedures. A short-run plan can then be set to effectively deal with the

Traditional City Plan Elements

- 1) Current circumstances and why a plan is needed for the city.
- 2) Strategy - goals and objectives as to the physical setting:
 - A) overall development policy and strategies:
 - 1) the use of the land
 - 2) providing services and infrastructure, including:
 - (a) transportation
 - (b) utilities
 - (c) community facilities
 - (d) recreation and open space
 - (e) housing
 - (f) social services
 - (g) natural resources
 - (h) economic development
 - B) Particular areas of the city of particular importance, (optional)
- 3) What to be done in the short-run and what it will cost, and where the monies will come from.
- 4) Who develops the plan and how the modifications will be added, ...

City plan Elements (With Wildlife Values)

- 1) A need to include wildlife values and ecological principles; and redefine the "open space" concept.
- 2) Plan for habitat diversity for different species; improve the general environmental qualities; improve the amenities of the urban settings with wildlife; etc.
 - A) Define the relationship of land uses with respect to the open space / wildlife habitats:
 - 1) Housing Type:
 - Impact on Habitats
 - (a) high disturbance.....high density residential
 - (b) moderate disturbance....low density residential
 - (c) low disturbance.....elderly homes, or passive recreation only
 - 2) Outdoor Recreation Facilities:
 - (a) Active - high disturbance, e.g. softball, football, picnics, etc.
 - (b) Passive - low disturbance, e.g. nature study and birdwatching.
 - 3) Transportation: construct to avoid and minimize impact on site habitat constraints.
 - 4) Utilities: ...etc.
 - B) Chose an open space corridor configuration within the overall relationship of the above land uses. Stream corridors are to hook up the system throughout the community, rather than retaining a large area, (it may be economically unfeasible).

conflict. An example may be a desire to have builders and developers increase the amount of wildlife or natural amenities at proposed development sites. This would arise in a normal process of site plan review as provided in many local zoning ordinances.

From the example provided in Figure 4, City Plan Elements with wildlife values are virtually no different than the traditional approach. From the outset, the essential principles of ecology and common sense are integrated throughout the planning process. The housing orientation and the concomitant infrastructure are not sacrificed, only more specifics were addressed in this example to add more depth to the illustration. "Such plans should include specific objectives, statements of policy, criteria, and programs for a coordinated ecosystems approach in planning and development of the community.

Planning for wildlife should be an integral part of the urban planning and development process, from the data gathering and formulation stages through the decision-making, development, and maintenance stages. The planner should think wildlife. And, it is important to remember that consideration for wildlife does not require departure from the normal planning process."¹⁷

D. Assessment and Identification of Habitat

An important step in a process of protecting and promoting wildlife, and preserving open space and environmentally sensitive areas, is to know what exists, that is, to have an assessment of the habitat conditions and the wildlife present.

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(This was alluded to in the comments on Methodological procedures, above.) Even if the approach is to attract wildlife to a developed urban setting, an assessment is essential. Supporting data and research "must be documented in a form understandable to people who are not trained in the field. There is also a necessity to qualify the input because the urban designer is frequently faced with the problem of not being able to retain all the components of an earlier design when it is revised. Under these situations, he/she must be in a position to know which aspects of the wildlife input are more valuable to retain than others."¹⁸ This also is important, for justifying decision-making is inherent in the planning process of the urban designer. Site analysis is in order at this stage and can be successfully undertaken from simple field surveys and aerial photography. Identification of the habitat (components) of greater value may appear to be a subjective process, however, a trained wildlife biologist or naturalist can give greater objectivity to the assessment. Table 1, page 25, is a simple example for taking notes in the field and for substantiation of decisions that are made. In addition to aerial photos as a data source, there are frequently

"field guides, local checklists, and other standard references available. Meaningful results can be obtained using this method. It is impractical and too costly to actually census all species. Only those species that are likely to remain within the new community should be included. Much care must be taken in the selection of habitats to be included in the open space system. ...Of even greater importance is the use of such a table in helping to demonstrate the need for retention of a diversity of habitat types. For example, the Table illustrates that retention of an old field adjacent to a

Table 1. Habitats for which a strong affinity is shown

Species	Existing Habitats					Potential Habitats			
	Deciduous Woodlands	Coniferous Woodlands	Old Field	Farmland	Stream	Pond	Marsh	Swamp	Urban Suburban Total
Mammals									
Subtotal									
Birds									
Subtotal									
Reptiles and Amphibians									
Subtotal									
Grand Total									

Table 1.

deciduous forest would increase species diversity and that these benefits are further enhanced if a pond is constructed in the same area."¹⁹

Other assessment approaches are available and very similar to the method described above. These too recognize the high costs involved with a total census of wildlife and recommend the use of secondary sources of information as being more than adequate. Aerial photos are a prime source of data in this process.

E. Protection and Preservation of Habitats

Protection and Preservation of wildlife habitats is an activity that should be undertaken by either private or public planners and urban designers. For the public planner, three approaches are viable: acquisition and purchase, zoning, and designation. The third method is also applicable to the private planning and development field. The method of acquisition is utilized when the habitat area is a part of a larger purchase area such as a park. Zoning is utilized to protect habitats when it occurs in a conservation zone such as a lakeshore zone, a wetland zone, etc.²⁰ The State of Michigan has passed legislation to prevent development along shorelines that are susceptible to high risks of erosion. These areas would be an example where a community could further protect the natural environment and also meet State legislated goals and objectives.

The method of designation is highly recommended. In essence,

"Designation is a land use control method, especially suited to the protection of natural areas. Designation consists of: (1) identification, (2) objective evaluation

and (3) incorporating the description, evaluation and statement of public interest into an adopted master plan. Designation has proven successful in protecting natural areas in many instances. When a property owner discovers that he owns an area which is highly prized as a natural area for scientific and educational reasons, he becomes proud, interested, knowledgeable and protective in regard to that area. He will then take necessary steps to protect the integrity of the area. Designation of natural areas, and incorporation of the designation in the master plan, makes it possible for the planning commission to set requirements on developers that they respect the integrity of natural areas in the course of their development,"21

Additional encouragement^u for a community to use designation methods, as well as zoning, will come from the public residing near wildlife habitats and environmentally sensitive areas. This occurs because of the free market economy as higher values are attached to objects of relative scarcity. This implies higher property values for adjacent and nearby properties. The net result is a strong public interest in protecting the environment.

In sum, the designation method is preferable, "unlike purchase in fee simple, it does not cost the taxpayer any money. Unlike zoning, it is not likely to be challenged in the courts as it does not deprive the owners of natural areas of any of their rights."²² And finally, designation is a method similar to dedication of property in the private realm of building and development. It is frequently seen in recent years as land given in a common area to a homeowners association. These typically are lands that because of limiting factors, in terms of expenses for building homes, are given to the neighborhood residents for their private usage. These will often be left as wild areas or improved as parks. Unfortunately, not always totally undisturbed.

F. Field Studies and Descriptions

As expressed above, successful field study efforts were achieved. These studies focused on subdivision designs in which wildlife values were included and, where the results of the designs yielded benefits for wildlife. This original research and the data collected support the Hypothesis and demonstrate that the Goal can be successfully achieved. Though successfully investigated, there are not a large number of examples of known wildlife planning, either at a site scale or at the larger community level of planning. As mentioned above, at the Department of Natural Resources, Land Resources Division, the personnel reached only, "thought", they knew of specific examples. They do not have policies or experience that address the concerns of this study. In the office of Non-Game Programs, the clientel of the department have other areas of concern, something that they could not elaborate on. They were helpful in recommending a wildlife biologist in Kalamazoo, Michigan, as a good resource person. This was indeed a valuable reference as this individual was a principal investor in a large development, in the City of Kalamazoo, which held ecological principles and environmental quality very highly.

The first subdivision investigated is located in Meridian Township. It is called Sylvan Glen. See Figure 5. The setting is a rural farmland that has been developed and built-up with subdivisions. The Red Cedar River flows along the north edge of the oblong shaped subdivision. On

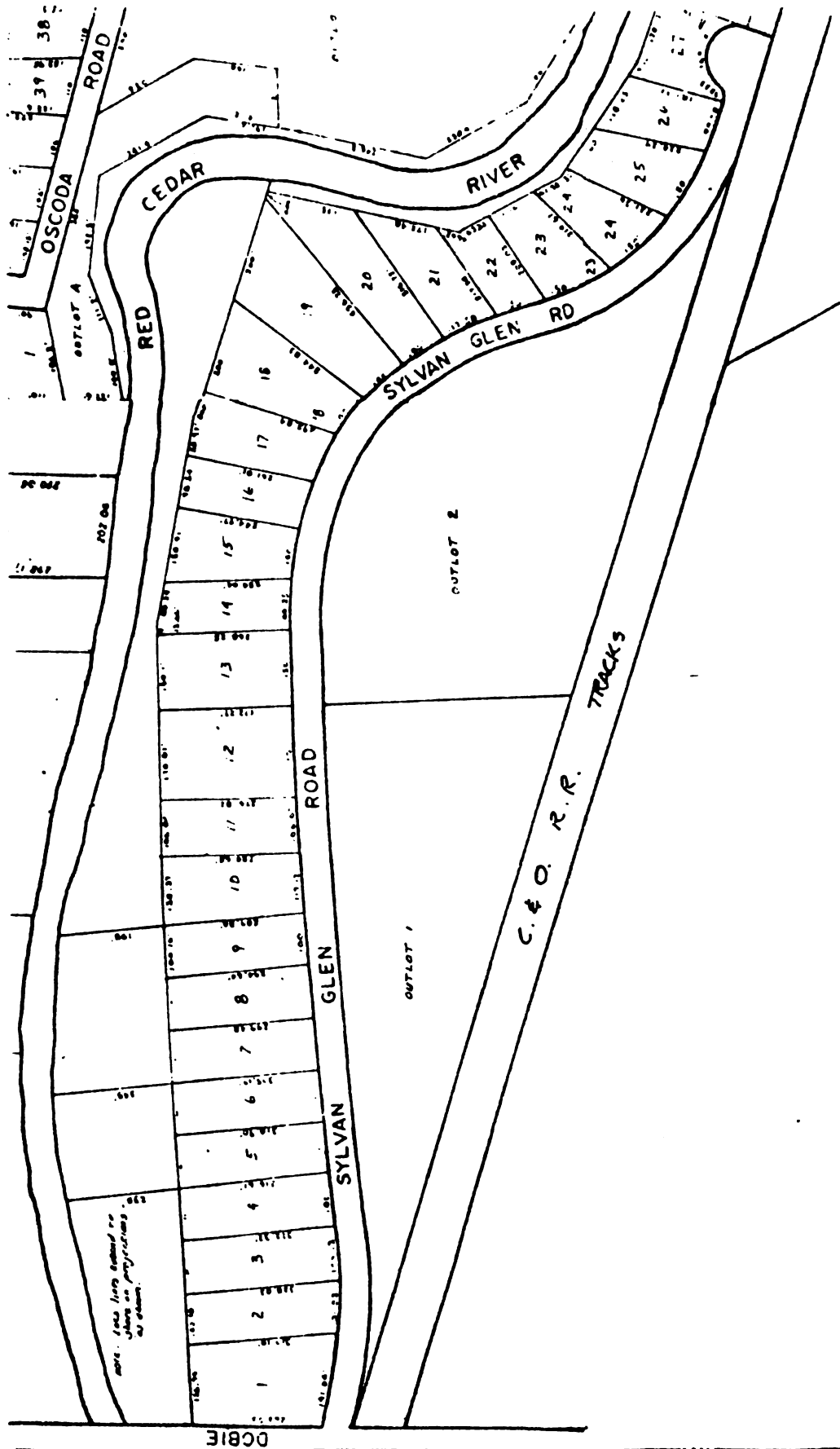


Figure 5.

the southern edge is the C. & O. Railroad tracks. It was not built with wildlife values in mind, however, its ultimate design, based on the river and the railroad tracks, led to the subdivision being rich in habitat diversity for different species of wildlife. The prime consideration of the developer was economics and maximizing return on the probable land values from resale of the lots. Because of the negative factors associated with the railroad tracks, the developer sought to have the lots as far away from them as possible. The closer to the river, the higher the value of the lots. Along the river banks are thick and mature hardwoods and natural ravines that aesthetically make the area very attractive. As a buffer between the lots and the railroad tracks, a park/open space area was reserved. This open space is semi-vegetated, with stands of mature hardwoods in a "springtime creek" ravine, fill-with second and third generation saplings, open fields and, along virtually the entire length of the tracks are plantings of pine trees. The height varies at about twenty to twentyfive feet. The terrain also varies and has abundant amounts of brush and perennial shrubs and undergrowth. The field survey revealed lots of animal sign, (tracks and droppings), nests and a general impression of a healthy amount of wildlife. Birds were clearly evident, as were sign of rabbits, raccoons, and other small mammals. Because of no maintenance, the regeneration of trees and the healthy vegetation will in all likelihood insure the continued presense of wildlife, especially in this low

disturbance residential setting. The open space acreage is 15.6 acres out of 51.9 acres total, or 31 percent open space and 69 percent built-up.

The plan for this subdivision was inadvertently designed with a good wildlife management plan. The increased numbers of wildlife species has added a lot of value to the subdivision. In terms of economics, values of homes are high. The general quality of the environment and the amenities have made it a nice place to live and raise children.

The second subdivision investigated is also located in Meridian Township; in the southwest corner where sporadic farmhouses dot the landscape. Tilled fields and occasional woodlots are the predominant characteristics. The total area of the subdivision comprises 73 acres, of which 20 acres are open space, or 27 percent built-up and 73 percent open space. It is rectangular in form, bounded by the C. & O. Railroad tracks on the north edge. It was designed with a green belt totally surrounding the development. See Figure 6. The design used natural landscaping as the prime element of the plan. Of course this will maximize the economic return, and the value of the lots. Developing the landscape with beautiful trees and shrubs, and to revitalize two dying ponds, was without consideration for wildlife. However, the result was just as if there was an intentional wildlife management plan. The quality of the trees as food sources and the quality of the water strengthened the overall habitat. Additionally, an existing woodlot of mature trees was protected as an arboretum

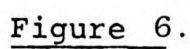


Figure 6.

for the residents, with nature trails and access easement/corridors to and from the arboretum and ponds. When the subdivision was first constructed, the developers began a tree planting program in the greenbelt. To date, there have been over 10,000 pine, deciduous and flowering trees planted.

Residents report a very noticeable amount of wildlife sightings. Much more than when the first development activity began. Songbirds, hawks, raccoons, opossums, fox, cottontail rabbits, deer and other small mammals are present. Canada geese and white cranes make the ponds their home and way station while migrating. Also, the ponds now support small mouth bass and blue gil fish -- because the drying ponds were too shallow from the vegetation and siltation -- the fish now survive the winter freeze-up. Each lot in the subdivision must have a planting plan. This is provided by a landscape architect which the homeowners association has retained. The plans bring hardy trees which are ideal as cover and food for wildlife, such as, maples, pin oaks, flowering crab apples, Japanese flowering cherry, hawthorn, weeping willows and birch.

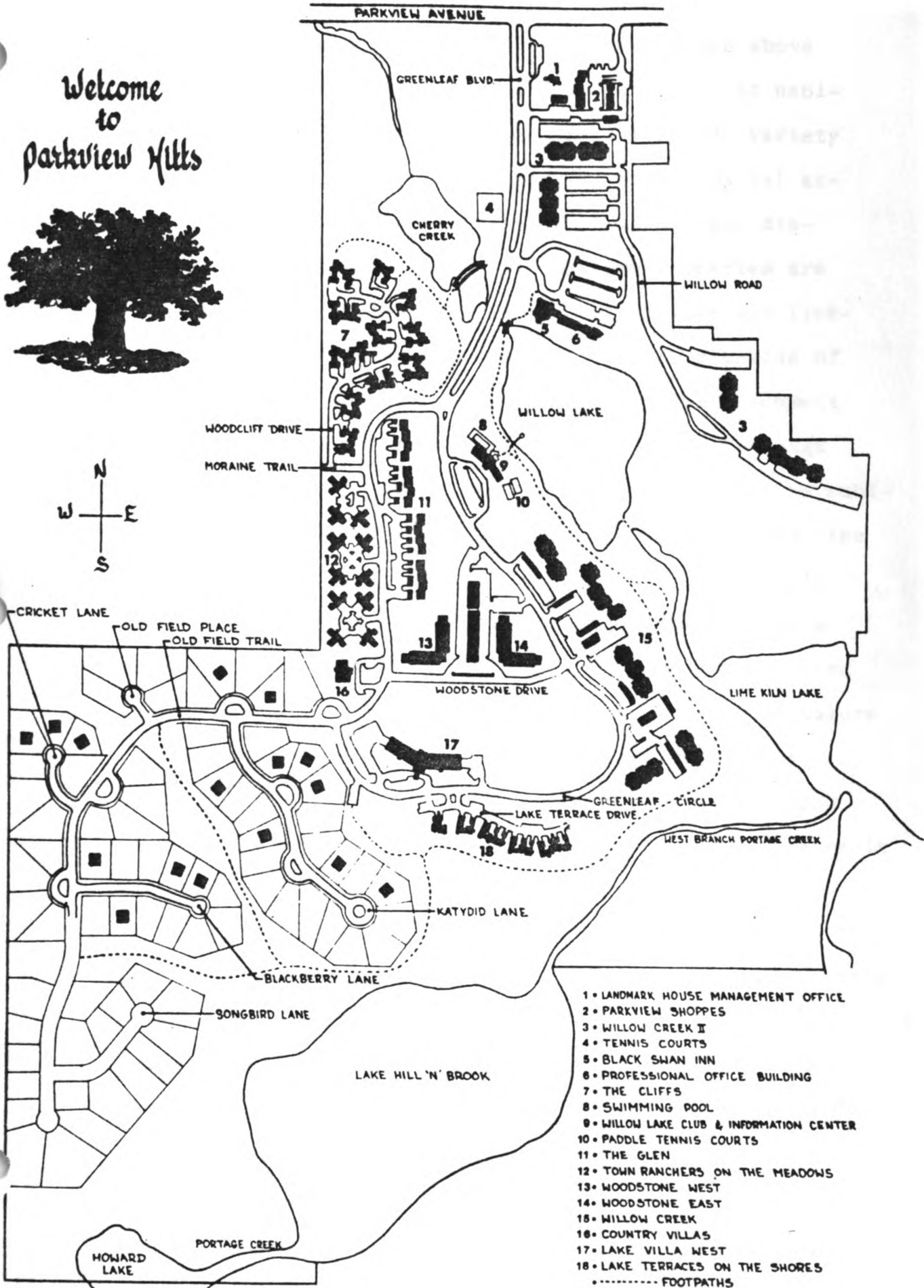
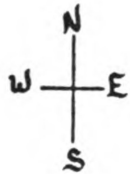
Essentially, all the spatial requirements of habitat and home range are met, and, all in all, the developer has had a positive effect on the number of wildlife species present. Initially, this landscaping was planned strictly for purposes of aesthetics, increased respect for nature and land values. The effect, once again, was simply good wildlife management, though inadvertent. (The developer

said he wished he could take credit for the increased wildlife.) The wildlife was a bonus dimension that really reflected an improved environmental quality in the neighborhood. Again, it is a nice place to live and raise children.

The third development investigated was very unique for its time, (begun in 1966.) Parkview Hills is located in Kalamazoo, Michigan. It comprises 285 acres, 155 acres are built-up and 130 acres are in open space, or 54 percent built and 46 percent open space respectively. The technical term to describe Parkview Hills is, a Planned Unit Development, or PUD. It is a mixture of single family houses, duplexes and apartment/ condominiums. See Figure 7. The apartment units are clustered and the open spaces are purposely protected. Many ecological principles were applied in the planning and development of this PUD. Natural drainage patterns were protected and retained by the community association. This includes "springtime creeks", year-round meadows, wetlands, small ponds and lakes. There are regulations that do not permit grading of lots to conform to a home or structure. The house must be designed in accordance to the existing topography, and to retain as much as possible the original vegetation.

The natural drainage patterns were recognized as excellent corridors and space for movement of wildlife. Many hillsides of a slope of 15 percent and greater were protected from development. These hillsides contain significant amounts of young and mature woodland and undergrowth.

Welcome
to
Parkview Hills



- 1 • LANDMARK HOUSE MANAGEMENT OFFICE
- 2 • PARKVIEW SHOPPES
- 3 • WILLOW CREEK II
- 4 • TENNIS COURTS
- 5 • BLACK SWAN INN
- 6 • PROFESSIONAL OFFICE BUILDING
- 7 • THE CLIFFS
- 8 • SWIMMING POOL
- 9 • WILLOW LAKE CLUB & INFORMATION CENTER
- 10 • PADDLE TENNIS COURTS
- 11 • THE GLEN
- 12 • TOWN RANCHERS ON THE MEADOWS
- 13 • WOODSTONE WEST
- 14 • WOODSTONE EAST
- 15 • WILLOW CREEK
- 16 • COUNTRY VILLAS
- 17 • LAKE VILLA WEST
- 18 • LAKE TERRACES ON THE SHORES
- FOOTPATHS

The ponds were also cleaned as described in the above subdivision, Wind and Woods. A diverse number of habitats have been protected and as a result a wide variety of wildlife is present. The most important spatial aspect of this design is that the habitats are not disjointed. Viable home ranges for different species are present, as the open spaces are all contiguous and linked in a system. This has affected the site planning of virtually every lot and every structure. The placement of the design components (such as, clustering the high impact apartments), has minimized disturbances on the habitats. Throughout the single family residential lots, the open space corridors have been woven. Thus, virtually every lot has trees, brush and small saplings within a stones throw. Within the corridors of open space, along the hillsides and around the ponds are 5.5 miles of nature trails. Ample amounts of active recreation, such as, softball and platform tennis, was planned for; all high disturbance activities. This recreation type is located in and around the clustered apartments and condominiums.

Reports from Parkview Hills' residents indicate a good deal of satisfaction. It is stated by many that "this neighborhood is as nice as having a second home in Michigan's lower peninsula." The popularity is well known and there are three year waiting lists to move into the apartments and duplexes. The rents command high prices in the marketplace. Even though the initial costs were very high to develop Parkview Hills, (and they were warned by convention-

al developers of economic disaster), the community is a big success.

In summary, Parkview Hills has very diverse habitats for wildlife, and in fact, there are considerable numbers of different species present. They (the Community Association) do not maintain the open spaces in a traditional manner and the system is well organized with corridors for movement. A very high quality of living is present and the land values reflect this in the marketplace and with the success of the principle investors.

The three subdivisions investigated in this field study have commonalities that are summarized below:

- 1) The open spaces have diverse habitat features: old woods, young trees, shrubs and brush, water, adequate food, and fields to move and cover for wildlife to find seclusion;
- 2) Open spaces devoted to wildlife are not manicured or mowed, trees are not pruned and young saplings all grow unrestricted;
- 3) The locational /distribution pattern of the open spaces are contiguous, corridor systems for movement of wildlife are present, arranged around streams, creeks and ravines which are natural drainage patterns;
- 4) Many human benefits have accrued: a) educational values for young and old, b) improved community health, and c) improved environmental quality (interrelated to the above points); and,
- 5) (Pertinent to Parkview Hills and Wind and Woods), though economically costly with initial investments, the land values have risen very high. The neighborhood and home sites that are wooded and exhibit ethereal qualities command the highest values.

Conclusion

To conclude, it was initially stated that planners have a lack of understanding of wildlife. It is accompanied by a very poor regard for the vital relationship that human

have with the natural environment. As a result, little is understood of ecological principles and the value of integrating them within our built environment. It is the belief of the author that this study will aid in dispelling the problem.

The hypothesis states that attracting wildlife will improve the quality of the general environment in which people live. Through a format and basis for including wildlife and ecological values in the comprehensive planning process, an improvement of the general environment will be possible. As demonstrated, little extra effort is required to integrate wildlife values in that planning process. This has successfully fulfilled the goal of this study effort.

Additionally, the research efforts of this study sought to expand on the important areas of understanding the needs of wildlife, by exploring the relationship to physical planning, the importance of vegetation, water and soils, and the methods for protecting and preserving wildlife habitat and natural areas.

Overall, the methodology and data analysis revealed that successful planning, with wildlife included in the larger designs of development, will accrue many benefits. These were outlined in the common features of the subdivisions studied. Also, it was found that it is possible and profitable to plan for wildlife in the manner described. Therefore, it is recommended that planners, public and private, take active stands to educate and stimulate, the inclusion of wildlife / ecological values in the planning and building of our homes, neighborhoods and cities.

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