PRELIMINARY WILDLIFE HABITAT ASSESSMENT AND RECOMMENDATIONS FOR MILLS RIVERSIDE PARK

INTRODUCTION

Two full day field excursions were conducted during the summer and fall season of this year. Accompanied by Livy Strong, Donna Hamill, Liz Harrington and Nat Goodhue, I observed and recorded ample sign of the region's representative wild fauna. Black bear, raccoon, red and gray squirrels, porcupine, red fox, wild turkeys, ruffed grouse, coyote, small rodents, white-tailed deer, and moose were documented. Tracks, scat samples and other sign were noted in all current management zones within Mills Riverside Park, including: (A) the Scenic, Recreation, Agricultural and Riparian Zone, (B) the Forest and Wildlife Zone, and (C) the more restricted Wildlife Habitat Area found within the Park's uppermost woodlands.

Our field trips were intended to be brief explorations—to achieve a preliminary reconnaissance of existing and probable probable wildlife habitat found within Mills Riverside Park. We were delighted to find so much! Further field work, however, will be necessary in order to study the Park's wildlife and habitat more fully. I suggested to Livy Strong that upcoming KEEPING TRACK® trainings sponsored by the Jericho Conservation Commission may suffice to gather some of the additional field observations. In addition, certain of the following recommendations will require specific field delineations and/or management prescriptions. Such detailed information will benefit Park administrators and caretakers as well as the professional consultant and volunteers who will perform the work. I would be happy to be further retained for such service.

FIELD SUMMARY HIGHTLIGHTS

On both field trips I was impressed by Mills Riverside Park's physiographic, plant community and habitat diversity. Opportunities for natural history studies, aesthetic fulfillment and passive recreation are likewise diversified and excellent. For each of the Park's management zones, here are just a few of the highlights taken from my field notes:

- Numerous factors contribute to this productive mix of opportunities for Mills Riverside Park's plant and animal inhabitants. Bedrock geology, soils, aspect, and climatic influences as well as a variety of anthropogenic factors have set the stage for a diversity of plant successional stages and plant community types. This diversity within habitats often valuably contributes to food and cover attributes for wildlife species.

- It was truly fascinating to explore yet another environment demonstrating Jericho and Underhill's remarkable natural and human history. Throughout both field trips we marveled at Mills Riverside Park's rich narrative: stone wall and agricultural fields framing attractive still- rural vistas of the Green Mountains—an appropriate celebrations of the generations of Vermonters who cleared, tilled and pastured these productive soils along the Browns River. Appropriate pasture and field edge management can perpetrate these lovely acres' open character for their obvious agricultural, wildlife, educational, recreational and aesthetic benefits.

- The forested wetlands lining the Browns River are grand. Large red maples, ash, box elders and handsome old willows coalesce to form the dense upper canopy. Adjacent to the Park's open fields and picnic area, numerous herbaceous plant, vine, tree and shrub species reach for the sun. These dense thickets offer vital cover, and a bounty of seasonal foods for numerous bird, insect and animal species. Invasive exotic species, however, pose an increasing problem.

- Steep narrow draws culminating in a sinuous bench of sandy loam soils are testament to post-glacial fluvial depositions— incalculable volumes of waterborne sediments collected over thousands of years to build this complex and beautiful landscape. White pines as well as other planted conifers thrive here, further contributing to aesthetic and wildlife attributes.

- Log landings, skid trails, remnant maple sugar operations, and farm access roads are our signatures throughout a forest which has witnessed many human uses over decades of time. Of obvious recreational value, these are the remote forested trails and glades which Park visitors relish in all seasons. Wildlife seek these places as

well—for ease of movement, and for the diversity of plant species which contribute food and cover values not found within surrounding mid-successional forested acres.

- Game trails increase as we climb into Mills Riverside Park's upland forest. Evidence of black bear "marking" and feeding sign demonstrate these protected lands' continuing attractiveness for even this large, secretive and wide-ranging omnivore.

- "Witness trees" and other venerable old trees are found throughout Mills Riverside Park. Spared by generations of Jericho and Underhill farmers many of these trees bore "witness" to a boundary with a neighbor's farm or woodlot. Surviving witness trees may be well over a century old—even two! Giants in the forest, they stand today to delineate the uncharted territory of the spirit, and remind us of the need to be humble—to limit ourselves. Our notions of property mean little in the presence of these trees. What matters is how will we neighbors-plant, animal and human alike-continue to gather here in healthy communities of the future.

PRELIMINARY RECOMMENDATIONS

SCENIC, RECREATION, AGRICULTURE and RIPARIAN ZONE

1) Large mature riparian zone hardwoods provide vital shade for the numerous species of aquatic organisms, which inhabit the Browns River and adjacent environs. Coarse woody debris created by the trunks, limbwood and rootwads of the trees which periodically decline and die within this forest buffer are equally essential. Such material beside and within the river provides fish, amphibians and mammals alike with the cooling, protective habitats especially during low water periods during thew hottest periods of the summer. For example, fish species such as the rare Finescale dace and Trout-perch benefit from the "escape habitat" this woody debris provides. River otters and mink are known to use these same structures for dinning and resting habitat. Park managers will certainly need to remove trash from the environment, but should forever resist the temptation to "clean up" the forest and riverbank of these natural material.

Don't "clean-up" r'p buffer.

2) The current practice of mowing right up to the edge of the Browns River should be discouraged. Where continued open vistas are to be perpetrated for picnickers perhaps a deliberate alternative mowing timetable and plan can achieve a compromise—allowing for necessary wildlife security and travel cover, as well as park visitor's visual satisfaction. Ideally the "***riparian buffer***" should be permitted to "***be***" a functional "***buffer***", and physically minimize human and domestic pet access within the habitat. Perhaps one or two specific small trails could be established for this purpose while prohibiting access into the regenerating environment of the riverbank might be attempted.

Let r'p buffer go wild

3) Within the aforementioned riparian regrowth area, as well as throughout the field-edge border, several invasive exotic plants currently compete with natives for valuable space and light. Honeysuckle, Hackberry, Japanese knotweed (also known locally as "bamboo") and purple loosestrife often overwhelm native plants which in turn compromises the quality of the habitat for native birds, insects and mammals. Roughly 190,000 hectares of North American wetlands have lost their native flora alone! Mills Riverside Park's natural biodiversity depends upon our ability to minimize if not eliminate the occurrence of these and other invasive exotics. Technical assistance should be consulted, however; this will not be easy.

Remove invasive plants

4) Additional professional help should be sought as Park managers endeavor to steward the cultivated field and field-edge early succession habitats found within this zone. Overall, the Park's long-term recreational and educational goals for this zone will need to be carefully defined. Where wildlife habitat is a priority specific practices, conducted at specific times of the year,--or timed to occur at regular intervals over decades can enhance and perpetuate various habitat qualities. For example, "rough field" mowing for the mere purpose of keeping land "open" should not be done during the breeding and nesting season of various species of birds. I recommend hiring Jericho's well known birding expert Evergreen Erb to conduct a thorough inventory of the birds using these current habitats. Such a baseline of knowledge will allow us to proceed with appropriate caution in identifying a variety of management options for the variety of cultivated field, old field, shrubby border and hedgerow habitats that exist within this zone. The exact timing and frequency of mowing, brush hogging and possibly even prescribed burning can be calculated to preserve and perpetuate a healthier diversity of food and cover opportunities for numerous species of wildlife from bluebirds and bears to monarch butterflies. In addition, park managers will benefit from a clearly defined operations plan which not only outlines where and when various cuts, rotations and thinnings should occur, but what safety practices should always be executed for the benefit of wildlife. For example, the simple raising of the cutting blade to a height of 6-8 inches will minimize the loss of numerous small mammals, snakes, birds and even newborn fawns. Furthermore, mowing should be avoided altogether from April through mid July to protect the critical habitat of various groundnesting birds including meadowlarks and bobolinks. If burning is scheduled, it must be done in early spring well before the return of birds in early May.

In "ag" area, inventory birds & develop an operations plan that benefits them.

5) Administrators will benefit from an inventory of existing mast producing woody shrubs, vine and tree species growing within bordering hedgerow and field habitats. Such plants should be periodically "**released**"—opening their crown space to the sun and thus stimulating their health and productivity. Wild apple, hawthorn, serviceberry, cherry, wild grape, viburnum, dogwood, raspberry and blackberry species produce tons of "mast" each growing season, which is enjoyed by scores of animals. These plants are not shade-tolerant however, so periodic removal of neighboring competing trees will be necessary. Professional help in outlining the goals and methods of release activities is a must. There are some definite "dos" and "don'ts".

Release selected trees in field areas & borders in "ag" area.

6) Further field work will be necessary to identify available old field brushy edge habitats in which park managers can seek to perpetuate young stands of Quaking Aspen for the benefit of Ruffed grouse and their numerous predators. "Aspen Regen" cutting prescriptions in appropriate locations can valuably stimulate the vigorous regrowth of aspen within the root zone areas of declining mature trees. Grouse are known to select for such habitats, seeking the superb feeding and roosting cover they provide.

Select areas for generation of aspen - helps partridge

FOREST, WILDLIFE AND TRAILS ZONE

1) A well used system of trails and old farm and logging roads offer pleasant and easy access for dozens of nature enthusiasts and non-motorized park visitors every day. Park administrators are currently consulting a professional regarding the appropriate layout and function of these and other possible trails—both for the safety and well-being of park visitors (people), and residents (wildlife).
In general, wildlife security (and hence well-being) will be increased if the greater numbers of "exercise recreationalists" (skiers, joggers, dog walkers, equestrians, bikers) could be directed away from remote ridgelines, drainages and flattened overlooks of land, particularly the pine covered bench directly above the Park's field and riverine habitats. These features are consistently selected by numerous species of wildlife as movement corridors and resting habitats—especially where topographical diversity, and/or an abundance of "structural diversity" is abundant. **Structural diversity** provides necessary concealment and diverse foraging and thermal cover for wildlife. The fact that we found sign of a bear bedding area on the pine bench overlook is no accident. Bears, deer, bob cats, foxes and other species will seek well-shaded overlooks for resting habitat from which they can scan the terrain below for possible enemies, while relying on downwinds spilling off the hills above to warn them of danger above. Joggers, people with dogs and especially mountain bikers for example are unpredictable if not constant intrusions and result in wildlife avoidance of such otherwise valued habitats.

2) The current "Management Plan for Mills Riverside Park Property" authored by Kara Wires and Scott Moreau of Greenleaf Consulting Inc. acknowledges the possibility that future maple sugaring operations (possibly of educational purposes) may be conducted within this zone. They also stress the need to retain the services of "experienced and capable logging contractors". In light of these considerations I would further stress the importance of working with a wildlife habitat authority—someone who can oversee the park's sugaring and harvesting operations and ensure that such activities are compatible with wildlife. This is <u>not</u> to suggest that logging or sugaring would not be. For the most part, these practices if done well—with wildlife goals in mind—can actually "increase" a forest's species and age class diversity. But some logging contractors are unaware of these matters, and harm could be dine.

A sugarbush, for example managed intensively the "old way" would purposefully remove all understory trees and shrubs in order to gain easier access to tapped trees. What ecologists call "**vertical diversity**" would be severely compromised, to the detriment of wildlife habitat. Vertical diversity describes the variety and complexity of vegetation layers from the ground up. Including short, herbaceous plants, larger herbaceous plants, woody shrubs, understory trees and their canopy, vertical diversity is a measure of the abundance of foliage layering and stem density. Throughout

temperate forests in North America numerous species of birds and mammals are known to prefer habitats offering greater vertical diversity.

Logging operations throughout much of this zone's forested terrain can actually stimulate the Park's species and age class diversity and thus considerably improve habitat options for wildlife. Particularly in even aged stands dominated by old field white pine and red maple, selection and group selection cuts could significantly improve upon habitat and forest conditions.

3) Having enthusiastically recommended the above, I would be remiss not to appeal to the Park's Board to consider that a careful inventory will be needed in order to delineate what portions (or portions) of this zone should not be cut at all. Our very brief field investigation of this zone nevertheless brought to my attention one such area, and reminded me of the need to carefully search for other sensitive habitats as well.

The stand I recall was notable for its healthy concentration of mature butternut trees a few of which were fine old specimens! (University of Vermont Forest Pathologist Dale Bergdahl should be invited to come and document the existence of these healthy trees. Throughout the region butternuts are killed by a non-native pathogen which may eliminate this wonderful species from our flora. I suspect that the area boasts exceptionally rich soils, perhaps the result of nutrient pooling from nearby steep terrain.

Adjacent to thin soil-to-bedrock slopes, this region also deserves to be studied for the possible presence of **seeps** and **vernal pools.** Seeps are cool moist habitats sought after by species such as the redback and northern two-lined salamanders, wood frogs, spotted turtle, American woodcock and common snipe. A seep may serve as a critical seed catchment and source of winter foods for ruffed grouse, wild turkey and numerous other birds and mammals. Seeps in winter are less inclined to remain frozen over (especially in early and late winter), and thus offer available food and water when such resources are otherwise unavailable. Remote forestland seeps, filled with spring's meltwater, juxtaposed with a nearby "greenup" of tender digestible sedge growth and other forbs, provides black bears with important thermal relief and foods.

Vernal pools are contained basins which collect spring's snowmelt and rain. They are ephemeral pools and are usually dry by mid to late summer. Drying of the pools is vital to their contribution to the breeding habitat of numerous **obligate species** (species which must use vernal pools) including wood frog, spotted and Jefferson salamanders and fairy shrimp. Pools which dry up by mid summer prevent their use by fish, which would prey upon the deposited eggs and developing young amphibians.

Logging in or near vernal pools is known to physically destroy the pools, as well as disrupt surrounding upland down woody materials and other recesses in which young and migratory amphibians seek necessary shelter. Recent studies in northern New England offer a variety of suggestions regarding suitable no cut "buffer zones" that take into consideration the ill-effects of logging within these valuable microhabitats. For these reasons I recommend that the Park Board directors not

authorize any logging within this zone, or the Wildlife Habitat Area, until a thorough reconnaissance can be conducted and all such sensitive wetland habitats be mapped. I recommend the expertise of Dr. James Andrews of Middlebury College, who is well known for his pioneering work in developing Vermont's reptile and Amphibian Atlas which collect credible observations from professional and volunteer naturalists all over the state. I also advise against the "removal of coniferous cover around spring seeps" as called for in the May 2000 Management Plan (Wires and Moreau, p.8)

WILDLIFE HABITAT AREA

1) Both this zone and the contiguous Forest, Wildlife and Trail Zone are acknowledged to offer important habitat resources for wildlife within the Park. Indeed, during our brief two day long field excursions I detected no quantitative difference in the abundance of birds and mammal sign found within each zone. There is not reason to assume that even the most reclusive or elusive species such as black bear or bob cat wouldn't seek access-especially at night-to the various resources found throughout most of the Park's forested habitats. Yet there is an intrinsic difference which defines the greater usefulness of this upper zone and consequently its need for different management in the Park's scheme of things. First and foremost, this upper zone's proximity with and connectivity to extensive unfragmented wildlands is of paramount significance. Thousands of acres of alpine, foot hill, upland forest and wetland habitats exist within the northeastern corner of Chittenden County, including portions of Underhill, East Jericho, Bolton, Richmond and Jonesville. This entire region functions as "core habitat"—habitat which is relatively, unfragmented by extensive human settlements and activities, resulting in its greater capacity to support viable populations of a greater diversity of wildlife including large and small wide-ranging carnivores.

   Evidence of black bear feeding within American beech and the neighboring property's red oak trees was found during our outings. The abundance of numerous healthy black cherry trees would similarly attract bears. It is important to recognize that such sign is indicative not of a bear's (or bears') continuing fidelity to any specific tree within Mills Riverside Park. Instead, Park management should seek to minimize daily and constant human disturbances within this entire upper zone so as to assure bears and all wildlife access to this large and intact habitat with its necessary food, cover, space and refugia they need. The beeches climbed a few years ago may never be climbed and clawed by bears again. But this entire core area-including the Park, the Range and thousands of surrounding foothill acres throughout the region will, if conserved, provide millions of nut producing beeches for generations of bears through time.

   To this end I recommend that park representatives seek to minimize the threats of upper elevations housing developments or increasing intrusive recreational pressure near or within this zone. Care should also be taken to prevent new logging road improvements from attracting greater public use of this zone. Despite attempts at protecting sensitive habitats, the Forest Service, as well as Vermont State Park managers have had difficulty enforcing rules designed to minimize access.

What makes Mills Riverside Park truly unique among most town parks is its ability to offer a wonderful variety of outdoor experiences to a variety of visitors. One can picnic, fish or play ball within the Scenic, Recreation, Agriculture and Riparian Zone; one can exercise, or study nature within the Forest and Wildlife Zone; and one can take pride in knowing that the "wilderness" in the Wildlife Habitat Area is what rules here, and under very special circumstances we are only occasionally guests.

2) I was impressed to see much mention of wildlife habitat considerations in the Forest Management Plan prepared by Kara Wires and Scott Moreau. I recommend that Park managers consider a future collaboration involving Greenleaf Consulting Inc., and Morse and Morse Forestry and Wildlife Consultants in order to further fine tune additional prescriptions and management guidelines that would both serve to improve forest stand and wildlife habitat conditions.

For example, there is growing appreciation of the tremendous benefits gained by properly managing forest stands to not only improve timber values but to enhance and guarantee a suitable diversity in physical structure and foraging opportunities. In New England, an estimated 41 species of birds and mammals rely upon standing snags and tree cavities—seeking food, denning habitat or roosting perches. Similarly coarse woody debris on the forest floor provides critical foraging escape, thermal relief and denning habitat for dozens of species from salamanders to black bear. Using a variety of silvicultural practices over the natural variety of terrain and plant community types, one can improve upon species and age class diversity. Log roads and small landings can be managed to significantly increase the availability of nutritious grasses and herbaceous growth, benefiting deer, wild turkey, grouse and dozens of other bird, mammals and insect species. These and other practices can collectively-on a park wide scale- improve upon horizontal diversity. **Horizontal diversity** measures the mix of various different habitat types across a given landscape. A mosaic or patchwork of multiple habitats is more valuable and meets more needs of more species of wildlife than would one or two types of habitat alone.