Natural Area Preservation News

Volume 2, Number 4 *Winter 1997*

The mission of the Natural Area Preservation Division is to protect, restore and champion the natural areas of Ann Arbor, especially those in the City's park and recreation system.

Natural Area Preservation is funded by the Ann Arbor Parks and Recreation Department's voter-approved Park Maintenance and Repair Millages.

Management Implications of Species Inventories

by David Mindell

As you read the reports by the inventory staff, you may wonder what the various findings mean for management within the parks. How will this information be used in influencing NAP activities? In the frog and toad survey, Alan notes the absence of cricket frogs and the significant reduction in populations of bullfrogs and leopard and pickerel frogs, most apparently due to development pressures. He also indicates that some reductions appear "where the habitats appear to persist relatively untouched." It is quite possible that while development spares some sites, isolated frog and toad populations become particularly vulnerable to contaminants or those alterations that are more subtle than out-and-out development. NAP wetland activities are more geared towards invasive plant management than in depth studies of amphibian populations or possible reasons for their declines. We have also not addressed the potential effects on park property of inputs from water recharge areas beyond park borders.

Our influence in management on non-park land has been slowly growing. While there are numerous directions we could go with this issue of park management in the broader landscape context, we must also keep in mind the limits created by our small staff and budget sizes. This issue ties in directly to the plant inventory. Bev describes how her focus has now broadened to new non-park sites, some of which have been found to be quite significant botanically. Knowing of these areas will vastly improve and focus future NAP efforts to engage other land owners in joint management. As more and more is known about "ecosystem management," it is clear that managing isolated areas has limited long-term results. To date, NAP has worked with numerous property holders, including the Ann Arbor Public Schools, the University of Michigan, Washtenaw County, Conrail, the Ann Arbor Railroad, and several smaller private owners. The creation and management of linked green corridors mandate an ever-broader partner list. Again, with our limitations in time and money, focusing that management where it will make the most significant impact is critical.

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Parks&Recreation
CITY OF ANN ARBOR

Natural Area Preservation *is a Division of the City of Ann Arbor Department of Parks and Recreation.*
Our Address is:
1831 Traver Rd,
Ann Arbor MI 48105
734-994-4834 or 996-3266
fax 734-997-1072
Coordinator:
David Borneman
Stewardship Coordinator:
David Mindell
Outreach Coordinator:
Catriona Mortell
Administrative Assistant:
Amie Ottinger
Conservation Workers:
Cara Rockwell, Kathy Sorensen, Greg Vaclavek
Inventory Staff:
David Cappaert, Tim Howard, Mike Kielb, David Pollock, Bev Walters, Alan Wolf

For up-to-date information on stewardship activities call the 'hotline' at 734-996-3266

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Coordinator's Corner:

Report Cards

As another semester winds down, it's time to recount the accomplishments of the past season and assess the state of affairs in NAP. It's been a busy year for us. Besides record-setting numbers of burns and workdays, there have been many new records set in NAP's efforts to inventory the plants and animals of Ann Arbor's natural areas. This issue of *NAP News* focuses on the many accomplishments of those inventory staff and volunteers in 1997. For those of you who adopted a park in which to listen for frogs, seek out bird nests, or look for butterflies, this will be a final report of your collective efforts. For the rest of you, we hope this will be a call to join us in 1998. We'll teach you all you need to know about identifying birds, butterflies, or frogs; and you can even choose the park in which you want to do inventory work.

What's the reason for doing all these inventories? Well, they help NAP identify the ecological hot spots in Ann Arbor, and prioritize our work for the next season. They also tell us where we need to fine tune our activities to better manage for any rare species that might be present. Inventories help us establish the "biodiversity baseline" for a site, then monitor that biodiversity through time to assess the impacts and the effectiveness of our burns and other restoration activities. Inventories, in a sense, serve as "report cards," both for NAP and for the sites themselves.

Another report card was presented to NAP on November 4th, when 71% of the Ann Arbor voters said "Yes" to Proposal A, the Park Maintenance and Repair Millage, NAP's sole source of city funding. I'm not sure how 71% translates into a letter grade in this situation, but if we consider it in terms of "Pass/Fail," I think it means we passed.

Or maybe it means simply that the parks themselves passed. If inventories tell us, ecologically, what state the parks are in, perhaps votes tell us, *culturally*, what state they are in. Of course, the two are linked. If the results of four years of inventory work showed that there really wasn't much of ecological significance in the parks, then it would be much harder for the public to get excited about them. But now that we are beginning to more fully understand how rich these natural areas are, it is easier for everyone to appreciate their value and to support them.

If I were to assign grades to the various parks, I'd have to give some of them an A+. Likewise, I'd give you, our volunteers, an A+ as well. We couldn't have done these inventories without you. Thank you for helping us. And thank you for the votes. Now we can better plan for the future work of NAP.

Dave Borneman, Natural Area Preservation Coordinator

Natural Area Preservation staff was honored by the Michigan Chapter of The Nature Conservancy (TNC) for Volunteer Partnership. Dave Borneman attended the state meeting of TNC to receive the award. NAP has worked with TNC in ongoing support and collaboration at Ives Road Fen Preserve.

Volunteer Events

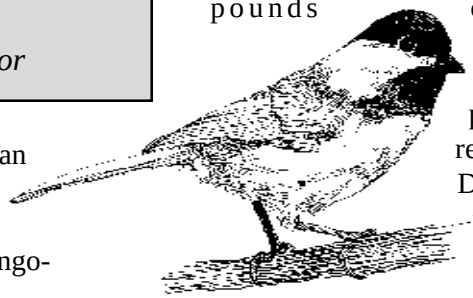
by Catriona Mortell

To all those who volunteered during 1997 (and previous years) we thank you for your support and participation. As we've said before—we'd be nowhere without that support. Since our program started, volunteer participation has increased each year. We've had 496 volunteers, 1,786 hours of work this year. (For 50 events that translates to approximately 6,400 cookies and 600 bagels!) We will continue to seek more volunteers, with special focus on increasing participation in the breeding bird and butterfly inventories and creating park stewards. We hope to have more returning volunteers throughout the work season and from season to season.

We have no events designated for the winter months. Although we have no dates set yet for the 1998 season; the middle of March will see NAP in full swing.

- -The Frog and Toad inventory will kick off the first or second week. This is when the initial "how-to" training session will be held, and survey routes will be assigned.
- -Burn crew training will also be held during the first or second week, with the prescribed burn season starting around March 15. (This past year 203 acres were burned)
- -The first workdays of the season will be held starting mid-March. (This past year 72 acres underwent restoration activities).

During the 1998 season, we plan to increase volunteer participation in seed collection and cleaning. We hope that volunteers can take on much of the work for this aspect of the program. (Seventy pounds of seeds were collected and processed this year, 28 pounds have already been sowed!) Details to follow in the summer newsletter.



Management Implications ... *continued from page 1*

What could we do, recognizing those limits? Forging more active relationships with the Huron River Watershed Council and the Washtenaw County Drain Commissioner's office to control contamination to wetland areas could be a place to start. We could also begin to develop educational materials for home owners relating to the importance and fragility of wetlands and adjacent upland areas. The leopard frog uses non-aquatic areas after breeding, and ensuring that these areas are pesticide- and cat-free could bolster their populations.

Dave P's bird report notes increases in species of breeding birds in many of our parks. In most of these sites, we conducted extensive restoration, yet in some we did not. Are the species changes a result of alterations to plant populations? As our list of plant species per park increases, do the numbers of breeding birds follow a parallel growth path? We are certain of one thing: with each new year of data, we have an increasingly solid base from which to judge future species changes. Determining exactly why those changes take place is a more difficult question. So too is the question of population fluctuations.

In the final paragraph of Dave C's report, he indicates that our butterfly census will help to "measure the effects of development, pesticide applications (notably for Gypsy Moth control), and NAP's own restoration efforts." This latter issue will be particularly pertinent to more fully understanding the effects of our prescribed burns. The literature suggests that butterfly populations ultimately increase as a result of the habitat restoration stimulated through controlled burns. Our early numbers support this. Marshall Park's Silvery Checkerspot is a good example: portions of the park have burned each of the last two years and there has been a (corresponding?) increase in observations of the species--14 in '95, 0 in '96 (the year of our first burn), and 127 this year. It seems likely that if the burn of '96 did adversely effect the local population in the short term, it created better habitat over the longer period.

As NAP increases our seeding efforts (thereby increasing the diversity of host plants) in some of the more degraded areas, will we see an increase in butterfly populations and species? As our butterfly data grow, perhaps we will begin examining what species are not present in sites in which we would expect to find them and then try to determine why (though this could be opening a pandora's box!).

In total, the inventory results may raise more questions than they provide answers. While these questions themselves will begin to modify our management direction, the concrete data we collect suggest that current approaches are working well. We will likely continue these with small tweaks here and there as additional inventory results suggest.

Invasive Species Alert!

Norway maple *(Acer platanoides)*

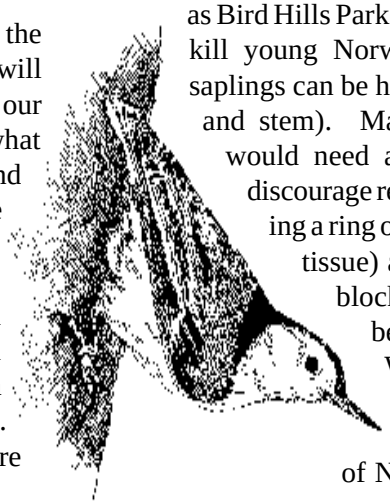
by Catriona Mortell

Recent news coverage about the NAP ecological restoration project in Bird Hills Park has increased awareness of yet another invasive species, Norway maple. Norway maple has been in the US since the late 1700s, when it was brought from Eurasia as an ornamental plant. It has been in use as a street tree for decades because it has high tolerance for urban conditions and is very hardy. Like buckthorn, honeysuckle and garlic mustard, Norway maple's ornamental value pales in comparison to the damage this plant can do to native forest ecosystems.

Norway maple is one of 122 species on the City's Invasive Species List. Similar to other invasives, Norway maple has many traits which allow it to out-compete native species. It creates dense shade allowing young trees and seedlings to take advantage of the growing conditions older specimens create; and it produces a large amount of seeds. The dense shade it creates changes the native forest drastically, inhibiting the growth of ground flora and wildflowers. With the amount of change these trees bring to a forest, many native treasures can be lost.

Norway maple resembles and is sometimes confused with sugar maple *(Acer saccharum)*, because of their similar leaf shape. To identify a Norway maple, look for a smooth underside on the darker green leaf, upright green flowers in spring, yellow fall color, a milky sap from a broken leaf stalk (the petiole), and regularly grooved bark. The buds are also reddish purple compared with the brown buds of sugar maple.

Natural Area Preservation has tried several techniques to remove Norway maple from wooded areas such as Bird Hills Park. Prescribed burning will top kill young Norway maples. Seedlings or saplings can be hand-pulled or dug out (roots and stem). Mature trees can be cut, but would need an herbicide application to discourage resprouting. Girdling–removing a ring of bark and cambium (growth tissue) around the base of the tree–blocks the flow of nutrients between roots and the leaves. We have found that girdling is the most effective, cost-efficient method for control of Norway maples.



The Butterfly Inventory

by David Cappaert

How many butterflies did you see this summer? How many kinds? Chances are that you noticed Ann Arbor's most common species. Cabbage Whites and Clouded Sulfurs occur by the dozens in playgrounds and backyards. The biggest and most brilliant species, such as Swallowtails and Monarchs, would also be hard to miss. But you would have to be really looking to see all of the 68 species that have been seen in NAP's butterfly census. In fact, it might take more than 500 hours and identification of 12,500 individual butterflies, which is the effort contributed by 20 staff and volunteers over the last three years.

Our butterfly census works like this: we each choose one or more natural areas to monitor bi-monthly through the summer. We wait for a warm sunny afternoon (a long wait this past Spring), and wander for an hour or two through fields of flowers, forest fringe, marshes, poison ivy, and brambles. Officially, we count the butterflies; off the record we watch rabbits and deer, birds (typical butterfly watchers are also birders who enjoy not having to wake at dawn), dragonflies, robberflies, and anything else that flies or crawls. Identification is the biggest challenge. Some of us, notably John Swales and Mike Kielb, are experienced lepidopterists who can tell a question mark from a comma without pause; others sweat over field guides and chase butterflies to make a still difficult determination with the butterfly in hand.

The Top Ten. So what have we found? If butterflies were birds, we'd have seen a lot of robins, starlings, and nuthatches. Eighty percent of observations were for the following 10 species:

Species	% of Total	Species	% of Total
1. European Skipper	17	6. Pearl Crescent	6
2. Cabbage White	17	7. Silver-spotted Skipper	3
3. Little Wood Satyr	12	8. Peck's Skipper	3
4. Common Wood Nymph	10	9. Hobomok Skipper	2
5. Clouded Sulfur	7	10. Monarch	2

Some of the names might not be familiar, but most people would recognize most of these species. The exceptions: numbers 1, 8, and 9 above. These grass skippers are the warblers of the butterfly world: a diverse complex of small, difficult-to-distinguish species that are abundant for short periods. The European skipper, the most abundant species in our counts is a very small, brown butterfly that could escape your notice entirely, although it occurs in tremendous numbers during just a 2- or 3-week period in June.

The Great Finds. Although we didn't discover any new records or endangered species, our own data demonstrate that several species are very rare in Ann Arbor. Consider yourself lucky if you see a Fiery skipper, a Northern Cloudywing, or a Compton's Tortiseshell. (You can also consider yourself a pretty good taxonomist if you can identify the first two). Each of these was seen only once, out of 12,500 total observations in the count. Several other species were also rare, few in number and occurring in only one out of 34 natural areas: Long Dash, Mulberrywing, and Orange-barred Sulfur (a sub-tropical migrant that has been recorded only twice in Michigan).

Interesting Cases. The Wild Indigo Duskywing, besides having a poetic name, has official status as a "special concern" species. However, we have found this butterfly to be fairly common (54 observed in seven areas). There are no known areas in Michigan where this species has been observed annually in such numbers. The Silvery Checkerspot, quite unusual in the city, thrives only at Marshall Park, where it was the second most abundant species. Another interesting butterfly seen locally is the largest, and arguably the most striking: the Giant Swallowtail. This species is more common to the south, where it feeds on citrus. We have found it to be fairly common locally though, where it feeds on a northern citrus relative, the prickly-ash.

The Best Sites. We have looked at 34 natural areas, focusing on those with diverse habitats most likely to produce many kinds of butterflies. The richest sites include Matthaei Botanical Gardens, Pioneer/Greenview, Parker Mill, Barton, Dhu Varren, Furstenberg, Marshall, and the Ann Arbor School's Maple/M-14 Property. Where we have spent enough sampling time, we have seen surprising species counts even in fairly small, less sunny corners of the city, such as Miller Park, with 33 species.

The Future. NAP's butterfly census is the only such city-sponsored effort in the country, so far as we know. The data collected thus far give us a clear baseline against which to measure the effects of development, pesticide applications (notably for Gypsy Moth control), and NAP's own restoration efforts. As we continue the census, we will focus our observations on the six or seven key parks that we have found represent most of the habitats and most of the butterflies that call Ann Arbor home. We also plan to continue regular interpretive walks and the annual Fourth of July count, a marathon census that contributes to a national butterfly inventory.

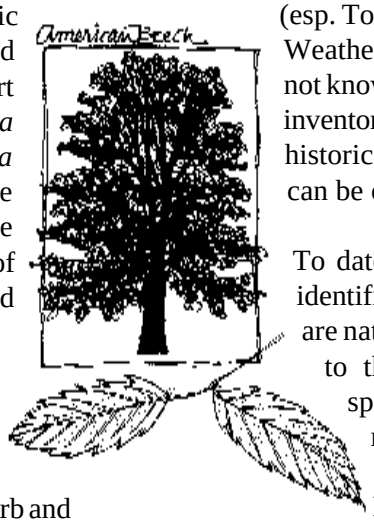
Ann Arbor Butterfly Checklist

Butterfly Species (listed most to least common)	Bandemer	Barton	Bird Hills	Black Pond Wds	Bot Gardens	Brown	Dow Field	Foster	Dhu Varren	Furstenberg	Gravel Pit	Huron Pkwy	Kuebler-Langford	Leslie Science Cr	M-14	Marshall	Miller	Oakwoods	Parker Mill	Pioneer	Saginaw Forest	Scarlett-Mitchell	Wet Prairie Gallup
European Skipper	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X		X
Cabbage White	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Little Wood Satyr	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Common Wood Nymph	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Clouded Sulfur	X	X		X	X	X	X	X	X	X	X		X	X	X			X	X	X	X	X	X
Pearl Crescent	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Silver-spotted Skipper	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X		X
Peck's Skipper	X	X			X	X		X	X	X		X	X	X	X	X	X		X	X		X	X
Hobomok Skipper	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X
Monarch	X	X			X	X	X	X	X	X	X	X	X	X	X		X		X	X	X		X
Orange Sulfur	X	X				X			X	X	X	X	X		X	X	X		X	X			X
Black Swallowtail	X	X	X		X	X		X	X	X	X	X	X	X	X	X			X	X	X		X
Juvenal's Dusky Wing		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X
Viceroy	X	X			X	X	X	X	X	X	X		X	X	X				X	X	X		X
Silvery Checkerspot					X											X			X	X			
Baltimore	X			X		X		X	X	X			X	X	X			X		X		X	
Great Spangled Fritillary	X	X	X		X		X	X	X	X			X	X	X	X	X		X	X			X
Tiger Swallowtail	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X		X
Tawny-edged Skipper		X		X	X	X	X		X	X			X	X	X	X			X	X			
Little Glassywing	X	X		X	X	X	X		X	X			X	X	X	X	X		X	X			
Eastern Tailed Blue		X			X	X	X		X	X			X		X	X	X		X	X			X
Northern Broken Dash				X	X	X	X	X	X	X		X	X		X	X	X		X	X			X
Spring Azure	X	X		X	X		X	X	X					X	X	X	X	X	X			X	
Mourning Cloak		X	X	X	X	X	X	X	X	X	X				X	X	X		X	X	X		X
Pearly Eye				X			X	X		X				X	X	X		X		X		X	
Wild Indigo Duskywing		X			X				X		X		X							X			
Least Skipper				X	X		X	X	X	X		X				X			X		X	X	
Appalachian Brown		X			X			X	X		X			X			X	X					X
Eastern Dun Skipper		X		X	X	X	X	X	X		X					X	X		X	X			X
Red-spotted Purple					X	X		X		X					X	X	X		X		X		
Red Admiral	X		X	X		X		X	X	X		X	X	X	X			X	X	X			
Banded Hairstreak	X				X					X			X		X		X		X	X	X		X
Leonard's Skipper					X								X			X							
Hop Mercant			X	X	X		X	X		X			X			X		X	X			X	
Appalachian Brown		X			X	X	X		X	X			X		X	X		X	X	X			
Striped Hairstreak								X	X						X	X	X			X			
Harvester	X				X			X		X						X							X
Eyed Brown	X				X				X	X							X						X
Delaware Skipper		X			X			X					X		X		X		X	X			X
Horace's Dusky Wing		X			X					X									X	X			
Sleepy Duskywing					X										X	X							
Black Dash				X				X		X												X	
Giant Swallowtail				X	X	X		X								X			X	X	X		
Spicebush Swallowtail	X			X				X					X		X		X		X	X			
Coral Hairstreak														X		X	X						
Orange Clouded Sulfur		X				X				X			X		X		X			X			
Dreamy Duskywing		X		X		X			X						X				X			X	
Broad-winged Skipper					X														X				
Bronze Copper	X						X		X														
Painted Lady	X								X						X				X				
Milbert's Tortiseshell	X									X										X			
Question Mark				X									X			X		X	X				
American Copper		X						X		X													
Acadian Hairstreak																			X	X			X
Hackberry Emporer	X	X													X				X				
Hickory Hairstreak									X				X										
Long Dash																		X					
Tawny Emporer															X	X			X		X		
Common Sooty Wing	X														X	X							
Little Sulfur	X								X		X												
Southern Cloudywing							X									X				X			
Mulberrywing				X				X															
Cross-line Skipper					X															X			
Orange-Barred Sulfur		X																					
Buckeye				X	X																		
Compton's Tortiseshell																X							
Fiery Skipper																			X				
Northern Cloudywing																							

1997 Botanical Review

by Bev Walters

As the NAP plant inventory completes its fourth season, we have a very good grasp of what plants are out there. Our focus is now shifting from primarily inventory work, to monitoring the areas that are the targets of preservation activities such as prescribed burns, and removal of brush and invasive species. For example in 1995 a gentle, east facing slope in Furstenberg was cleared of a thick growth of honeysuckle and has since sprouted a rich array of woodland plants. In the dry spots species include: bloodroot *(Sanguinaria canadensis)*, red baneberry *(Actaea rubra)*, horse gentian *(Triosteum aurantiacum)*, pasture rose *(Rosa carolina)*, lopseed *(Phryma leptostachya)*, white snakeroot *(Eupatorium rugosum)* and broad leaved panic grass *(Panicum latifolium)*. Richweed *(Collinsonia canadensis)*, golden ragwort *(Senecio aureus)*, pale spiked lobelia *(Lobelia spicata)* and Jack-in-the-pulpit *(Arisama triphyllum)* appear in the moister areas at the bottom of the slope. It has been exciting to see areas like this transformed from a tangle of invasive shrubs to an open woodland with good species diversity.



This year, with the parkland inventory well under control, we have ventured into new botanically significant areas outside the parks, including some U of M holdings in the Arb and Saginaw Forest. The woods at the landfill property just southeast of the city has been of particular interest since it is the only city-owned wet forest dominated by silver maple *(Acer saccharinum)*. The area also contains good populations of beech *(Fagus grandifolia)* and black ash *(Fraxinus nigra)* which are not locally common.

Another new effort involves visiting sites where plans have been submitted for development. As Ann Arbor continues to grow into surrounding areas, we try to identify areas that are havens for native species in order to protect them from development. Although the sound of development makes me cringe, it is comforting to see that rich natural areas on a development sites are often set aside as parkland. Our botanical inventory also enables us to have knowledgeable participation in the placement of roads and utilities, in order to reduce the disturbance to fragile wetlands and native vegetation.

As my fellow botanists, Tim Howard and Dave Warners, have moved onto other interests this year, I have relied more on David Mindell and Greg Vaclavek (botanically alert NAP staff who spend considerable time in the field) and Dave Borneman (who wishes he could get out more) to notify me of plants or natural areas that need more investigation. Greg closed out the season with a great fall find of goldenseal *(Hydrastis canadensis)*. It is listed as a state threatened species and this is the only known occurrence in the city parks. NAP submits reports of the state listed species we encounter to the Michigan Natural Features Inventory and a summary of this information can be found on the chart below. The occurrence of these rare plants demonstrate the rich flora present in the Ann Arbor area. While we learned of several locations from local botanists (esp. Tony Reznicek of U of M Herbarium and Ellen Weatherbee of Matthaei Botanical garden), we had not known most of these areas prior to the NAP plant inventory. This winter an effort will be made to locate historical records of rare or listed plant species so we can be on top of what might turn up in the area.

To date a total of 1,002 plant species have been identified in about 65 natural areas, and of these, 724 are native species. Many of the new species added to the inventory this year are native to the specialized bog and fen habitats that were recently located.

It's evident after four years of plant observation that the Ann Arbor parks, as well as other local natural areas possess a remarkable diversity of plant life. While the richest sites have been identified, preserving and restoring these areas in the midst of an urban environment remains a challenge.

Listed Species

Number of populations

Scientific Name	Common Name	Status	Parks	Other
Chelone obliqua	Red turtlehead	Endangered	1	0
Sanquisorba canadensis	American burnet	Threatened	0	1
Hydrastis canadensis	Goldenseal	Threatened	1	1
Panicum leibergii	Leiberg's panic grass	Threatened	2	0
Spiranthes ovalis	Oval ladies'-tresses	Threatened	0	1
Gentianella quinquifolia	Stiff gentian	Threatened	0	2
Eupatorium sessilifolium	Upland boneset	Threatened	1	0
Carex frankii	Frank's sedge	Special concern	1	0
Carex trichocarpa	Hairy-fruited sedge	Special concern	3	0
Carex jamesii	James' sedge	Special concern	4	1
Gymnocladus dioicus	Kentucky coffee tree	Special concern	1	3
Liparis lilifolia	Lily-leaved twayblade	Special concern	4	1
Rosa setigera	Prairie rose	Special concern	5	1
Jeffersonia diphylla	Twinleaf	Special concern	2	2

1997 Bird Survey

by David Pollack

This year's bird survey was a big success. With the help of several volunteers, we collected data from 16 different natural areas, during more than 100 hours in the field. Of these 16 sites, 10 were new to the inventory, helping us to expand and improve our data. Over the last three years, 132 species have been observed in the city, 10 of which were just added this year. (See our complete inventory list below.) The sites with the most diverse bird populations include the following: Landfill property, Foster, Northeast Area, Cedar Bend, Matthaei Botanical Garden, and Barton.

There are two different types of data we collect during this inventory. The primary set of data contains a catalog of species observed at each site. However, we also try to collect information on the behavior of the birds observed. For example, a singing male would indicate that he is claiming breeding territory, and adults with fledglings indicate successful breeding. This is very important information, because it allows us to distinguish migratory bird populations from local resident populations. It also tells us which parks support habitat suitable for breeding.

Because this is a labor-intensive inventory, we rely on many superb volunteers to assist in collecting data. If you are interested in joining us next year, don't be shy! We can train you to identify species and can explain how to observe and interpret bird behavior. If this sounds interesting, look for announcements in our Spring newsletter and join us in the 1998 Breeding Bird Survey!

Birds listed in the table below have been observed during the surveys. The sightings column indicates the number of sites where the species was sighted.
seen at 13 to 27 parks,
seen at 6 to 12 parks and
seen at 1 to 5 parks.

NAP Bird Inventory List and Frequency of Occurrence

Common Name	Sightings	Common Name	Sightings	Common Name	Sightings	Common Name	Sightings
Common Loon	#	Rock Dove	##	Tufted Titmouse	###	Yellow-rumped Warbler	#
Pied-billed Grebe	#	Mourning Dove	###	White-breasted Nuthatch	###	Black-throated Green Warbler	#
Double-crested Cormorant	#	Black-billed Cuckoo	#	Carolina Wren	#	Pine Warbler	#
American Bittern	#	Yellow-billed Cuckoo	#	House Wren	##	Bay-breasted Warbler	#
Great Blue Heron	##	Common Nighthawk	#	Marsh Wren	#	Black and White Warbler	#
Great Egret	#	Chimney Swift	##	Ruby-crowned Kinglet	#	American Redstart	#
Green Heron	##	Ruby-throated Hummingbird	#	Blue-gray Gnatcatcher	#	Ovenbird	#
Mute Swan	#	Belted Kingfisher	##	Eastern Bluebird	#	Mourning Warbler	#
Canada Goose	###	Red-bellied Woodpecker	##	Veery	#	Common Yellowthroat	#
Wood Duck	#	Downy Woodpecker	###	Swainson's Thrush	#	Wilson's Warbler	#
Mallard Duck	###	Hairy Woodpecker	##	American Robin	###	Yellow-breasted Chat	#
Bufflehead	#	Northern Flicker	###	Hermit Thrush	#	Scarlet Tanager	#
Hooded Merganser	#	Olive-sided Flycatcher	#	Gray Catbird	###	Northern Cardinal	###
Common Merganser	#	Eastern Wood Pewee	###	Wood Thrush	#	Rose-breasted Grosbeak	##
Turkey Vulture	##	Acadian Flycatcher	#	Brown Thrasher	#	Indigo Bunting	##
Northern Harrier	#	Willow Flycatcher	#	Cedar Waxwing	###	Rufous-sided Towhee	#
Sharp-shinned Hawk	#	Least Flycatcher	#	European Starling	###	Chipping Sparrow	##
Cooper's Hawk	##	Eastern Phoebe	#	Yellow-throated Vireo	#	Field Sparrow	#
Red-tailed Hawk	#	Great Creasted Flycatcher	##	Warbling Vireo	##	Savannah Sparrow	#
American Kestrel	#	Eastern Kingbird	##	Red-eyed Vireo	##	Song Sparrow	#
Ring-necked Pheasant	#	Horned Lark	#	Blue-winged Warbler	#	Dark-eyed Junco	#
Virginia Rail	#	Purple Martin	#	Tennessee Warbler	#	Red-winged Blackbird	###
Sora	#	Tree Swallow	##	Nashville Warbler	#	Common Grackle	###
Killdeer	#	Rough-winged Swallow	#	Yellow Warbler	##	Brown-headed Cowbird	###
Greater Yellowlegs	#	Bank Swallow	#	Chestnut-sided Warbler	#	Purple Finch	#
Spotted Sandpiper	#	Cliff Swallow	#	Magnolia Warbler	##	Northern Oriole	###
American Woodcock	#	Barn Swallow	##	Cape May Warbler	#	House Finch	###
Bonaparte's Gull	#	Blue Jay	###	Black-throated Blue Warbler	#	American Goldfinch	###
Ring-billed Gull	#	American Crow	###	Blackburnian Warbler	#	House Sparrow	###
Herring Gull	#	Black-capped Chickadee	###				

Frog Survey 1997

by Alan Wolf

Congratulations, volunteers!!! You have made the third year of the frog survey the most successful to date. We have gathered more observations for more sites than in the past two years combined. We also gathered observations earlier and later in the season than any other year. It is clear that the interests of frogs and the natural areas necessary to support them are in good hands.

With only three years of study (only the second two cover the whole city) there are few significant trends that can be determined from these data. However, if we examine the historical records available from the University of Michigan, there are several observations we can make concerning the frog fauna in the Ann Arbor area.

First, some bad news:
1. The once common **cricket frog** is no longer found in the city of Ann Arbor even in sites that are apparently unchanged.
2. The **leopard frog**, described in the 1920s as the most commonly seen frog in Southeast Michigan, is now primarily found in the less developed areas on the edge of the city and in the rural areas.
3. **Pickerel frogs** are no longer found in localities in the city where they were historically reported in the 1930s despite the protection of the habitat (They were known to occur in Bird Hills Park by Dr. Reeve Bailey, UM Museum of Zoology Curator, emeritus).
4. **Bullfrogs** are not common in the area, and once were common in large bodies of water.

Now, the good news:
5. **Green frogs** are now the most commonly seen frog in the Ann Arbor area and are found in almost every type of aquatic habitat.
6. **Wood frogs**, **American toads**, and **gray tree frogs** are holding their own where their habitats are not disturbed.
7. **Spring peepers** and **chorus frogs** are the most commonly heard frogs and seem to be doing well.

Most of the declines can be attributed to habitat loss through the draining or modification of wetlands for development or storm water control. However, there are puzzling cases where the habitats appear to persist relatively untouched, but species known to occur there in the past have not been seen or heard.

As the lead herpetologist with NAP, I spent much of my time trying to supplement our volunteers' efforts by searching for non-vocal amphibians and reptiles. Although many species of amphibians and reptiles are cryptic and rarely venture into accessible areas, some research has been conducted to determine local species. Of the nine species of salamander know to occur in Washtenaw County, seven of them have been found in the course of our surveys in the past three years. Four of the eight species of turtles have been seen this year alone, including the Blanding's turtle which is a Michigan species of special concern. We have found only five of the fifteen species of snakes found in Washtenaw County, although there were potential sightings of two other species.

The frog survey is fortunate to have a corps of enthusiastic volunteers. There are many repeating volunteers and new faces each year. The survey is dependant on volunteers, and we count on their input with each season. With larger numbers of committed volunteers we will be able to cover more of the city, expand the monitoring we already have in place, and conduct similar monitoring levels at every site. We are also looking for ways to improve the survey itself, such as further modifying the survey routes. Data for the past three years will be examined and the schedule of visitation for sites will be changed to increase visits to more sites that have reported calling frogs, and to monitor differently sites with no history of calling frogs.

We wish to thank everyone who has participated in this effort. Ann Arbor is far ahead of the field when it comes to monitoring our amphibians. And those of you who haven't yet participated, join in. The more people we have, the better job we can do! Finally, if any volunteers have any data that has not been sent to NAP, please send it in now (even if it is only from one trip or you did not do the complete route).

Amphibians and Reptiles of the Ann Arbor Area

AMPHIBIANS

Frogs and Toads
(11 of the 13 Michigan species)

- American toad
- Bullfrog
- Chorus frog
- **Cricket frog ***
- Gray tree frog (2 species)
- Green frog
- Leopard frog
- **Pickerel frog**
- Spring peeper
- Wood frog

Salamanders
(9 of the 11 Michigan species)

- Blue spotted salamander
- Eastern newt
- **Four toed salamander**
- **Mudpuppy**
- Redbacked salamander
- Small mouth salamander **
- Spotted Salamander
- Tiger salamander
- Tremblay's salamander

REPTILES

Turtles
(8 of the 9 Michigan species)

- Blanding's turtle **
- Common map turtle
- **Common musk turtle (Skinkpot)**
- **Eastern box turtle ***
- Painted turtle
- Snapping turtle
- **Spiny soft shell turtle**
- **Spotted turtle ***

Lizards
(1 of the 2 Michigan species)

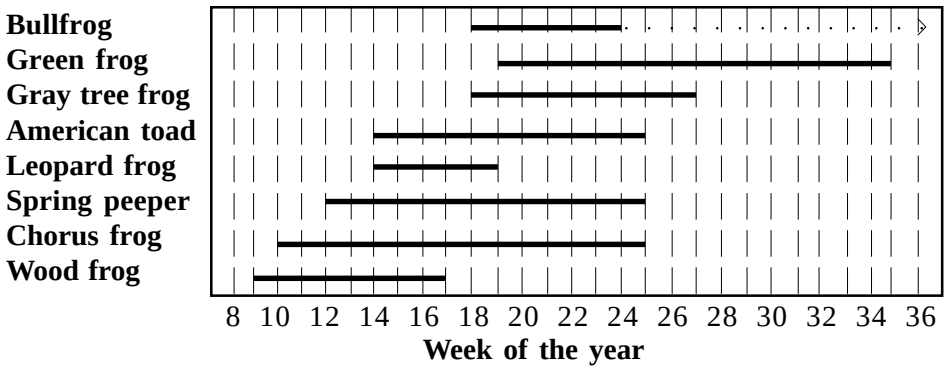
- **Five lined skink**

Snakes
(15 of the 17 Michigan species)

- **Black rat snake ***
- Blue Racer
- Brown (Dekay's) snake
- Butler's garter snake
- Eastern garter snake
- **Eastern hog-nosed snake**
- Eastern massasauga **
- **Kirtland's water snake ***
- Milk snake
- **Northern red bellied snake**
- **Northern ribbon snake**
- **Northern ring-necked snake**
- **Northern water snake**
- **Queen snake ***
- **Smooth green snake**

-Those in **BOLD** have **not** been found in the course of the on-going three year survey. Keep an eye open for them.
-Those with an asterisk * have been granted some level of state protection.

Calling period of the eight species of frogs found in the Ann Arbor area (1993-1997)



The periods of calling activity reflected in this graph are an accurate portrait with the exception that green frogs and bullfrogs will call well into August. Our sampling method generally misses this (thus, the extension of the bullfrog calling period to the end of the graph). The eighth week of the year occurs approximately in the first week of March.

Your Landscape and our Natural Areas

Native Wildflowers

of Southeastern Michigan

Spiderwort *(Tradescantia ohioensis)*

Your Landscape and our Natural Areas

Native Shrubs

of Southeastern Michigan

Spicebush *(Lindera benzoin)*

Your Landscape and our Natural Area

Native Vines, Grasses, Sedges, and Ferns

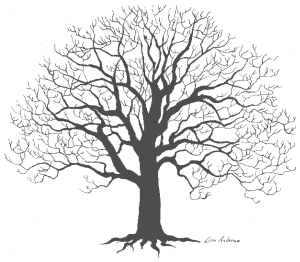
of Southeastern Michigan

Wool-grass *(Scripus cyperinus)*

Your Landscape and our Natural Areas

Native Trees

of Southeastern Michigan



White Oak *(Quercus alba)*

Just in time for winter garden plans—new **Native Landscaping** brochures are now available! *Your Landscape and our Natural Areas* has been expanded to include four companion brochures as illustrated above. All focus on Southeastern Michigan and provide plant descriptions, gardening information, landscaping tips and details as to each plant's native habitat. Each brochure will cost $1.00. These are available in the NAP office or city hall. There is an additional charge for mailing. Please call our office for information (996-3266).

Natural Area Preservation
City of Ann Arbor
Dept. of Parks and Recreation
1831 Traver Rd
Ann Arbor, MI 48105