Report on the Mazon Watershed Grant, 2004 and 2005

The Mazon Watershed Group organized a series of native mussel surveys in 2004 and 2005 utilizing students from the Gardner High and Junior High school as surveyors for some of the sites. The data gathered is valuable in demonstrating the relative health of the watershed, and the experience given to the students is a valuable exposure to a hands-on science project. The findings are used in a variety of ways to further public education within the watershed, including its use at planning meetings and environmental fairs. A poster of mussels found is being distributed to libraries, interested parties and school survey participants in the watershed. This project was funded by a grant from the Illinois Department of Conservation-Wildlife Preservation Fund.

Materials and Methods.

Standard, quantitative mussel surveys of at least 4 person-hours duration were conducted at each survey site under a protocol developed by Robert Szafoni of the Illinois Department of Conservation, (IDNR). Each survey was scored for mussel quantity, catch per unit effort, age of mussels, and protected species present. The protocol assigns a cumulative number to each site that can be translated into a stream health rating, similar to the Index of Biological Integrity, (IBI), based on fish surveys. The ratings progress from the lowest to the highest ratings from *Restricted*, *Limited*, *Moderate*, *Highly Valued,* to *Unique Resource*. Live mussels were collected, sorted, identified, photographed, then returned to the river. Dead shells were taken and saved for vouchers for the Illinois Natural History Survey and the Shedd Aquarium. Sites were fixed by GPS readings and basic habitat observations were notated.

Students from the biology class at the Gardner South Wilmington High School and Junior High science students from the Gardner Elementary School, Gardner, IL. participated in the Mussel surveys. The classes each received a one-hour Power Point introduction about freshwater mussels and survey techniques prior to their field experience. The classes were split in half, and each group was bussed to a different survey site. Students were provided with chest waders and an introduction to collection techniques. Chaperons for each group included volunteers from the Mazon watershed Group, teachers, parent volunteers, and occasionally the landowner. The students generally spent from 45 minutes to one hour at each site. Bottled water was provided at each site. Sanitary facilities and first aid kits were available but unneeded.

Results

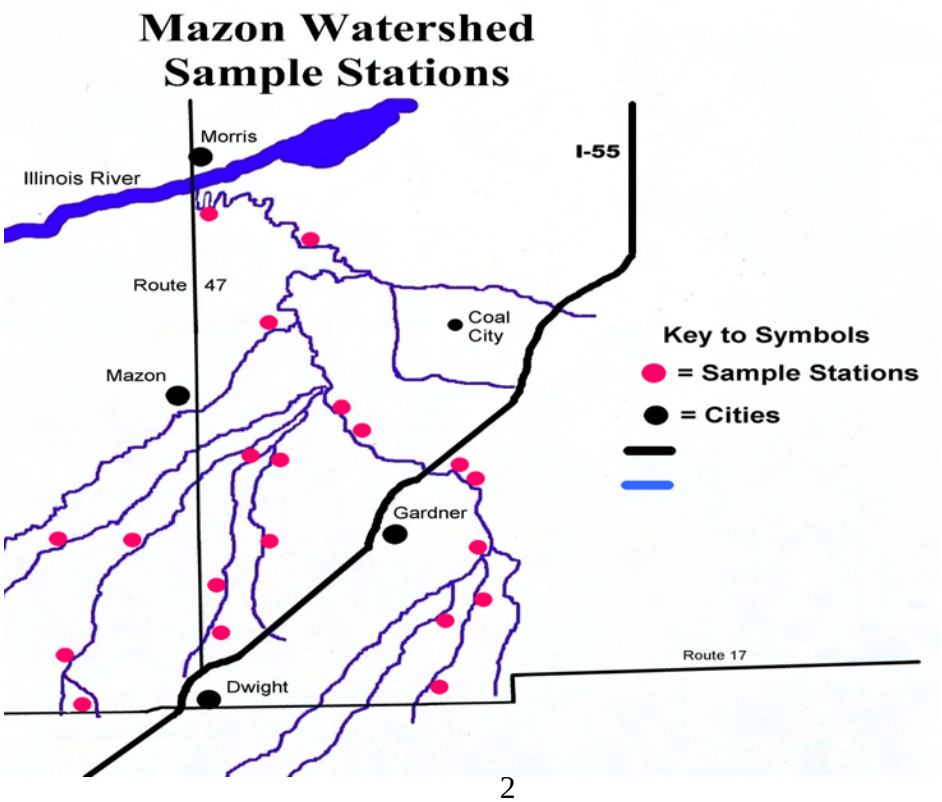
A total of 25 sites were examined that included Johnny Run, Murray Slough, Gooseberry Creek, both forks of the Mazon and the mainstem Mazon during the summers of 2003 through 2005. A total of twenty-four native mussel species were recovered, but only nineteen of these species were taken alive, the other five species were represented as empty shells only, (Figure 1). The most abundant mussel was the pistolgrip, *Tritogonia verrucosa*, a mussel that is uncommonly seen in midwestern streams. It is astounding to consider that this mussel has the seat of its abundance in the Midwest as the Mazon watershed. Based on our surveys, the watershed ranks an overall “Good”. Three sites ranked as *Highly Valued Resources*, with two of these ranking close to the *Unique*

Aquatic Resource rating. Seventeen sites ranked as *Moderate Aquatic Resources*. Three sites, all on small, shallow tributaries ranked as *Limited Aquatic Resources* and one site was ranked as *Restricted*, as it contained no mussels, and almost no water during our severe drought of 2005. Figure 2 locates the sites in the watershed.

Figure 1

Mussel Abundance Rank	*# extant*	*% of total*	Lilliput	17	1.0%
Pistolgrip	321	19.2%	Cylinder	12	0.72%
Threeridge	271	16.2%	Mucket	4	0.24%
White Heelsplitter	259	15.5%	Elktoe	3	0.18%
Fatmucket	174	10.4%	Pink Papershell	3	0.18%
Deertoe	153	9.2%	Pondhorn	1	0.06%
Plain Pocketbook	100	5.9%	Paper Pondshell	1	0.06%
Wabash Pigtoe	86	5.1%	Ellipse	relic	relic
Pimpleback	77	4.6%	Fluted Shell	relic	relic
Fragile Papershell	71	4.3%	Spike	relic	relic
Creeper	60	3.6%	Creek Heelsplitter	relic	relic
Giant Floater	37	2.2%	Round Pigtoe	relic	relic
Mapleleaf	22	1.3%	*Total Species 24*	*1672*	99.9%

Figure 2



Students participated and substantially contributed to four of the surveys in 2004 and four of the surveys in 2005. They performed well in what was an initial introduction to fieldwork for all of them. The refreshing comments they wrote about their experience are attached as Appendix IV in this document. The survey experience will hopefully instill a sense of stewardship in the students as they mature and become local voters with voices for sustainable development in the watershed. The student comments were passed on to select members of the County Board. Photographs of some of the classes are attached as Appendix II.

A poster of the species collected in the Mazon Watershed was produced (Appendix III). The poster includes an additional 9 species that are found in the Illinois River Section of Grundy County. The poster will be given to all of the students who participated in the surveys, as well as local landowners, libraries and will also be available at the Grundy County Environmental Fair. Two news articles about the surveys from the local paper, *The Pilot*, are included as Appendix V.

Conclusions

The Mazon River has several sections near route 53 that are rated as *Highly Valued* for their mussel fauna, and these should be protected if possible. Public purchase of the land bordering the stream would be desirable to protect the mussel resource. The land could also be used as a canoe landing. Canoe landings along the navigable portions of the Mazon may be desirable as the local population increases, and looks for amenities provided by local governmental agencies. Recreation along the river in the form of canoeing, or fishing could bring some revenue to local establishments from both the local community as well as the Chicago metropolitan area. The scenic beauty of much of the Mazon river is high, and is easily appreciated by bird watchers and nature lovers in general. The Mazon is worth protecting through the judicious use of sustainable development. Sustainable development can also mitigate the effect of floods during prolonged rains. While this problem is currently localized, its impact will be more dramatic and costly as new homes and businesses creep closer to the river. Protecting mussels by controlling development along the riverbanks will also mitigate flood damage to housing. Riparian corridors should be preserved for wildlife as well as for flood mitigation, and as future recreation sites for an expanding populace.

Acknowledgements

This project was funded by a grant from the Illinois Department of Natural Resources, Wildlife Preservation Fund. It could not have been accomplished without the dedication of Jeanette Hakey and Eileen Grosso, co-chairs of the Mazon Watershed Group in 2004, and Jeanette Hakey, Chair, 2005. In addition, the tireless work of Joe Kowsky and Arden Reike made the project successful. Thanks to Joe Hakey for participating in several of the surveys. The Shedd aquarium is thanked for donating personnel and expertise to further this project, and in particular, Roger Klocek, Senior Biologist. Thanks are expressed to Jacki Harwood of the Gardner-South Wilmington High school Biology curricula who coordinated students to participate in the surveys. Also, Mr. James Egleton is thanked for

organizing the Gardner School Junior High Science class participants. Thanks are due to all of the members of the Watershed Group who arranged for permission to conduct surveys on private lands. This report was prepared by Roger Klocek, Shedd Aquarium, 1200 S. Lakeshore Drive, Chicago, IL 60605, 312-692-3233 under the guidance and input of the Mazon Watershed Group.

Works consulted

Cummings, K.S., and C.A. Mayer. 1992. Field guide to freshwater mussels of the Midwest. Illinois Natural History Survey, Manual 5. 194 pp.

Starrett, W.C. 1971. A survey of the mussels (Unionacea) of the Illinois River: a polluted stream. Illinois Natural History Survey Bulletin 30(5):267-403.

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Sustainable Development Principles: Protecting Nature in the Chicago Wilderness Region. 2003.6 pp.

Appendix I

RIVER AND SITE NUMBER	Mazon Confluence	Mazon	W Br. Mazon
Date	9/25/2005	9/22/2004	9/17/2004
GENERAL LOCALE	about 2 river		near Route 129
site	miles above	farm near	bridge
site cont'd	Illinois River	Holderman	
LATITUDE North- Start. Degrees-decimal minutes	41 20.845	41 20.092	41 12.507
LONGITUDE West- Start (WGS 84 datum)	88 24.710	88 22.425	88 17.084
CURRENT- centimeters/second, average	1	20	0.1
STREAM WIDTH - range in feet	30-60	**40-65**	**36**
AVERAGE DEPTH - estimate in inches	20	17	24
WATER TEMPERATURE - in degrees Fahrenheit	65	70	71
TURBIDITY- estimate in centimeters	30	50	18
% Key: 0=0; A=<1; B=1-5; C=6-25; D=26-50; E=51-75; F=76-100			
% Hard Bottom	0	b	0
% Boulder >26cm	0	b	a
% COBBLE 6 - 25cm	0	c	c
% GRAVEL .2 - 5 cm	a	c	d
% SAND < 2mm	f	c	c
% MUD/SILT	a	a	b
% WOODY DEBRIS	a	a	a
DEPTH OF SILT in centimeters - average	10	0	5-10
% **RIPARIAN WOODS**	f	c	f
% **AGRICULTURAL**			f
% COVER	c	a	a
TOTAL AREA SURVEYED, in square meters	800+	800	500
TOTAL SURVEY HRS.	6	4	4
mucket - Actinonaias ligamentina		relic	
threeridge - Amblema plicata	3	9	30
elktoe - Alasmidonta marginata		relic	
cylinder - Anodontoides ferussacianus			
spike - Elliptio dilatata		relic	
Wabash pigtoe - Fusconaia flava	2	1	9
plain pocketbook - Lampsilis cardium		5	5
fat mucket - Lampsilis siliquoidea		1	
white heelsplitter - Lasmigona complanata		3	10
creek heelsplitter - Lasmigona compressa			
Fluted shell - Lasmigona costata		relic	
fragile papershell - Leptodea fragilis	fresh dead	1	2
round pigtoe - Pleurobema sintoxia			
pink papershell - Potamilus ohiensis	1		
giant floater - Pyganodon grandis	1	relic	2
pimpleback - Quadrula pustulosa	3	1	8
mapleleaf - Quadrula quadrula	1 fresh dead	1	2
creeper - Strophitus undulatus		relic	relic
lilliput - Toxolasma parvus			
pistolgrip - Tritogonia verrucosa		relic	37
deertoe - Truncilla truncata			22
pondhorn - Uniomerus tetralasmus			
paper pondshell - Utterbackia imbecillis			
ellipse - Venustaconcha ellipsiformis		relic	relic
Total Live Unionid Mussels	10	22	127
Total Number of Live Species	7	8	10
Asiatic clam - Corbicula fluminea - EXOTIC	present	abundant	abundant
zebra mussel - Dreissena polymorpha - EXOTIC	absent	relic	6 juvenile

Mussel Classification Index *from Safoni's woorksheets*				***8***	***8***	***14***
Mussel Resource Value. 0-4= Restricted; 5-7=Limited				**Moderate**	**Moderate**	**Highly Valued**

Appendix I continued

W Br. Mazon	W Br. Mazon	W Br Mazon	West Br. Mazon	West Br. Mazon	W Branch Mazon	W Br. Mazon
10/2/2003	9/9/2005	9/17/2004	9/25/2003	9/22/2004	9/23/2005	9/24/2004
near Route 128 bridge	near Route 129 bridge	upstream Conflu ence with Goose-berry Creek	farm near Gardner and Dwight Roads	farm near Gardner and Dwight Roads	Dwight near headwaters	Dwight Rt 17 at correction-al facility
41 12.476	41 12.533	41 13.648	41 10.873	41 10.875	41 06.992	41 05.636
88 17.044	88 17.086	88 22.427	88 26.122	88 26.092	88 28.884	88 28.643
0.1	< 1	5	1	4 at narrows	< 1	3
42	**40-50**	**24-36**	**12-20**	**12-25**	**5-20**	**8-20**
16	12	18	13	13	8-10	16
52	75	70	69	72	74	67
50	25	46	25	25	50	15
0	0	0	0	0	b	0
a	0	a	a	a	a	a
d	c	c	d	c	d	b
d	d	c	d	d	c	c
d	d	c	d	d	c	c
c	d	c	c	d	c	c
a	a	a	a	a	a	a
5	8	5-10	5	5-20	5-10	5-10
f	f					c
f	f	f	f	f	f	d
a	a	a	b	b	d	b
400	1500	1000	400	400	800	500
4	17	8		5	4	4
	relic		2			
25	87	2	1			
	relic					
			1			1
3	19	8	3	3		
1	5	1	1			1
1	1	3	7	3	8	8
14	41	14	6	7	3	18
		relic				
3	11	1	1		1	
	2	1	6	5	2	5
5	25	relic				
	1	9				5
relic	1	relic	relic	1		
1					2	
29	49	1		2		
1	55	relic				
		relic		1		
relic						
83	297	40	27	22	16	30
10	12	9	9	7	5	6
present	abundant	abundant	present	abundant	abundant	abundant
	8 adult					
12	***11***	***10***	***9***	***8***	***7***	***8***

Highly Valued	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Limited**	**Moderate**

Appendix I continued

E Branch Mazon	E Fork Mazon	E. Branch Mazon	E Br. Mazon	E Br. Mazon	E Br. Mazon	E Br.Mazon
9/25/2003	9/12/2005	9/21/2005	9/10/2004	9/12/2005	9/23/2005	9/24/2004
East Brooklyn near Rice & Coster	near Grand Ridge & Gorman Roads	near Gorham Rd	East Brooklyn < Rice Road	East Brooklyn < Rice Road	at Route 53 near Gardner and upstream	farm near Goodfarm Rd and Lincoln Rd
41 10.434	41 14.581	41 14.012	41 10.397	41 10 392	41 12 .367	41 9.051
88 16.099	88 20.613	88 20.420	88 16.177	88 16.180	88 17.007	88 16.256
38482	< 1	<1	8	< 1	5	3
12-30	**10-70**	**ca 100**	**10-20**	**10-20**	**50**	**12-34**
12	16	15	14	10	20	16
57	75	75	74	76	74	70
50	30	30	20	14	14	50
a	a	0	b	0	0	a
b	b	a	a	a	a	b
d	d	b	c	d	b	c
c	c	d	c	d	d	c
c	b	d	c	c	d	c
b	a	b	c	c	c	b
a	a	a	a	a	a	a
5	5-15	5-10	5-10	5	4	5-10
	f	f			f	
d	f	f	f	f	f	f
a	a		a	a	a	a
600	1000	2000	2000	1200	2000+	2000
4	4		12	19		6.5
		1			relic	
1	3	39		2	68	
			1	relic	1	
	2	19	1	1	10	relic
2	1	8	9	2	22	relic
18		1	20	8	6	1
	1	16	27	2	18	1
relic	4	22		relic	14	relic
relic						
relic		1	2		4	
	1	16			16	
	2	1				
relic		1			1	
4						
	2	50	4	1	142	
	10	49		2	14	
25	26	224	63	18	316	2
4	9	13	7	7	12	2
relic	abundant	abundant	abundant	abundant	abundant	abundant
		2			40	
9	***8***	***10***	***8***	***8***	***10***	***6***

Moderate	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Limited**

Appendix I continued

E Br Mazon	Johnny Run	Gooseberry Creek	Gooseberry Creek	Gooseberry Creek	Gooseberry Creek
9/3/2004	9/10/2004	10/2/2003	9/3/2004	9/17/2004	9/21/2005
farm near Reddick Rd and CR 17	confluence Mazon Rt 113	near Goodfarm Rd Old Mazon Rd	near Goodfarm Rd Old Mazon Rd	Confluence with W Branch Mazon River	near Stonewall & Old Mazon Rd. A. Reike
41 06.959N	41 16.966	41 9.584	41 09.441	41 13.637	41 08.171
88 17.165W	88.21.808	88 23.745	88 23.754	88 22.405	88 23.392
10-20	10 to 20	5	10	6	10 to 20
11	**12**	**4-10**	**6-12**	**12-15**	**6-10**
16	10	12	10	12	10-Aug
72	69	50	72	69	76
2	3	50	25	46	14
b	b	a	0	0	c
a	a	a	0	a	a
b	c	b	b	b	d
c	c	d	d	d	c
d	c	d	c	d	c
d	c	c	d	c	b
a	a	b	a	a	a
5-10	5-10	5-10	20-40	5-10	5-8
f	f	e	d	f	f
a	a	d	c	a	0
	1600	300	600	1000	2000
4	5.3	3.9	4	6	4
		1			
	1				
4		relic	relic		
	3			1	
1	9	6	1	4	3 fresh dead
28	4	1	1	3	
relic	2	5	relic	40	2
		relic			
	1	relic		3	
	2				
	relic	relic		2	1
	2				
				relic	
1	relic	relic	relic	relic	1
	relic		relic	relic	
				relic	
				relic	
	relic				
34	24	13	4	53	4
4	8	4	2	6	4
abundant	abundant	present	abundant	abundant	abundant
					absent
9	***11***	***6***	***6***	***8***	***8***

Moderate	**moderate(high end)**	**limited**	**limited**	**Moderate**	**Moderate**

Appendix I continued

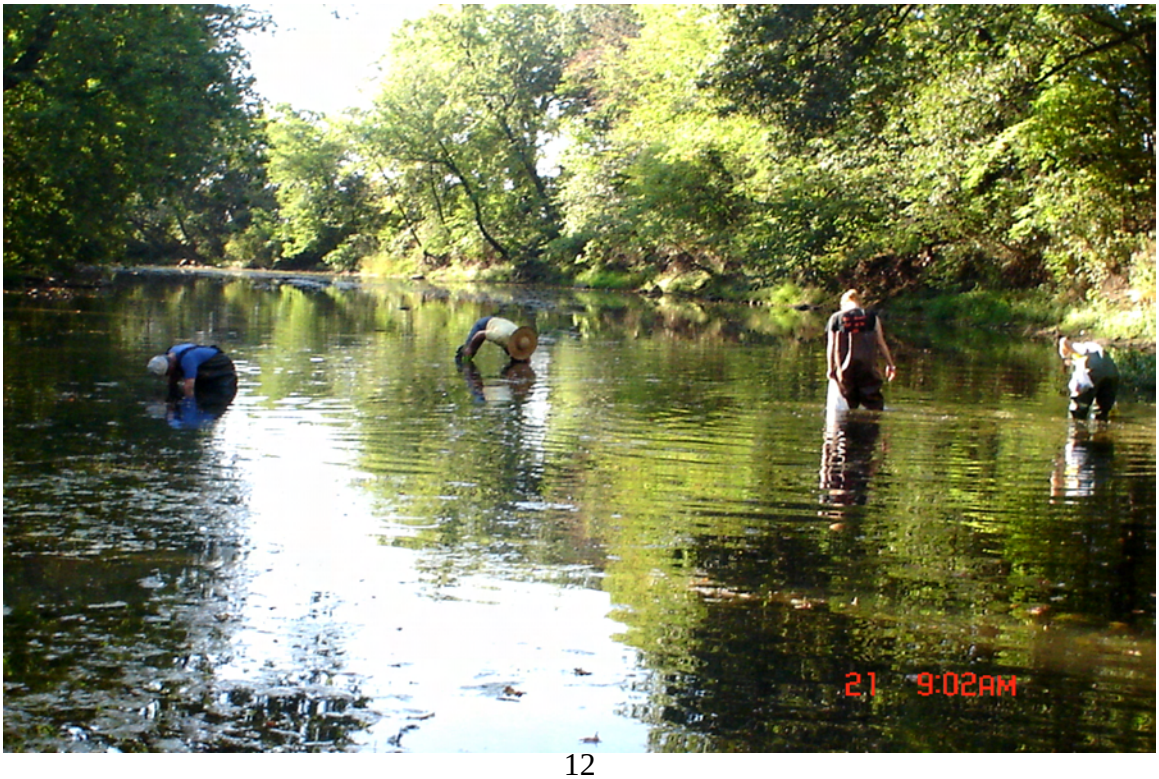
Gooseberry Creek 9/27/2005 near Storm & Stonewall Rds.	Murray Slough 8/31/2005 near Gardner & Ward Roads
41 08.613	41 11.015
88 12.444	88 28.285
0	1
6-10	**10**
6-Jan	14
72	75
25	4
0	0
0	0
b	a
d	d
d	d
c	d
a	a
5-10	>2
	b
f	f
a	c
1200	600
4	4
2	relic
3	relic
2	
6	
1	relic
3	50
10	
1	
28	51
8	1
very abundant	absent
absent	absent
10	***11***

Moderate **Moderate**

Appendix II
Gardner High students sorting the catch

Appendix II continued

Appendix II continued



Appendix III

Appendix IV

GSW 2005

I enjoyed clam hunting a lot. It was a really interesting experience. I learned lots of facts. I didn't know about clams, and their environment. I hope you guys can come back next year to teach the next class about clams. Thanks!

Thank you for taking us clam hunting. I had a blast. It was the highlight of my day. It was such a great experiance and I'll never forget it. Thank you again for such a great experiance.

I enjoyed the clam hunt and would like to go on it again. It is a great adventure and I am sure many of us learned alot. I learned that there are alot more clams in our area than I thought. It was also important that we picked up trash too. Thanks a bunch for bringing us

GSW 2005

I really would like to thank you for bringing us Clam hunting I never really had before. I learned that even though we didn't have too big of a distance, there was a bunch of different species of clams. Within those 13 species we found, there was over 200 clams. I never really thought there would be that much. But it was fun, excluding the smell. Even the smell wasn't that bad. Im glad that we could help with the clams for the Mazon River Watershed. I hope that it really helps.

Take care and thanks again.

Sincerly,

I liked going on the clam hunt ~~cause~~ because I learn hands on. I learned some of the names of the clams and how to sort them. I don't think that I would have learned as much as I did if you tryed to show us on paper only.

GSN 2005

The clam hunt was an amazing educational experiance. I learned that there really are a lot of different types of clams. Before, I just assumed that clams were clams, but now I know that there are many types.

I found out that it really is very fun. At first I didn't think it would be any fun, but it was very exciting.

I had alot of fun with every one on the clam hunting expidition. I like to learn about all the different clams and where to find them. I also liked to learn about all the names and how they looked and felt. Thank you for taking us on the trip and teaching us about the clams.

The Clam Hunt was a great experience to learn more about the environment. I learned more by going out on the clam hunt than I would have learned in class. The hunt was an anomaly from being away from school. I especially liked sorting the clams and finding how you group them. It was a lot of fun, and if given the chance I would definetly go again. Thank you for giving us the time to go on the clam hunt.

GSW 2005

The clam hunt that our class participated in was one of the best experiences I've ever had at a school function. I ~~never~~ never new there would be that many clams in that area. I had a blast participating in the clam Hunt.

I enjoyed the clam hunt a lot. I learned that clams can be found anywhere. I also found that you should never go looking for sinkholes. Also, I learned how important it is to research such things for the possibility of helping the environment.

The clam hunt made me learn a lot. I learned how many different species there are. I also learned that many clams are found in one location. Many clams were found on the shallow banks and there are many dead clams out there too. I noticed how much garbage is there. So I learned not to litter anymore. There are many many clams out there if we found so many in one location.

GSW
2005

The experience of nature and science combined was very interesting. Having learned that much about the local populace of mussels and clams was inspiring. If I could do this again I definitely would. I had a wonderful time taking part in this survey.

Sincerely

I think that the clam hunt was very interesting. I had a blast digging diggin up them clams, Woohoo! I got really wet + cold from being so short + rummaging around the not so shallow water. It was really fun to find many live clams in the same area. The entire experience was very informative. Everytime I would find something, one of the leaders would let me know what I found and if there was anything special about the specimen. I ended up finding a large clam with it's foot sticking out of it's mouth, I was very intrigued by that find. The class as a whole I think, got a lot out of this experience. Thank you for everything.

Sincerely,

GSW 2005

I enjoyed the clam hunt because I have never done anything like that before. At first, I thought I wouldn't like walking through the cold water, up to my knees. However, it really was an interesting experience.

-K

P.S- The only thing I didn't like was the way the bus smelled on the way back.

Citizens' Group Working to Maintain and Improve Mazon River Watershed Ecosystem

By Stu Bloom

The treasury may have just $39, not even enough for a single mailing to its constitutency, but the Mazon River Watershed Committee has big plans and a growing list of achievements aimed at maintaining and improving the Mazon River watershed ecosystem.

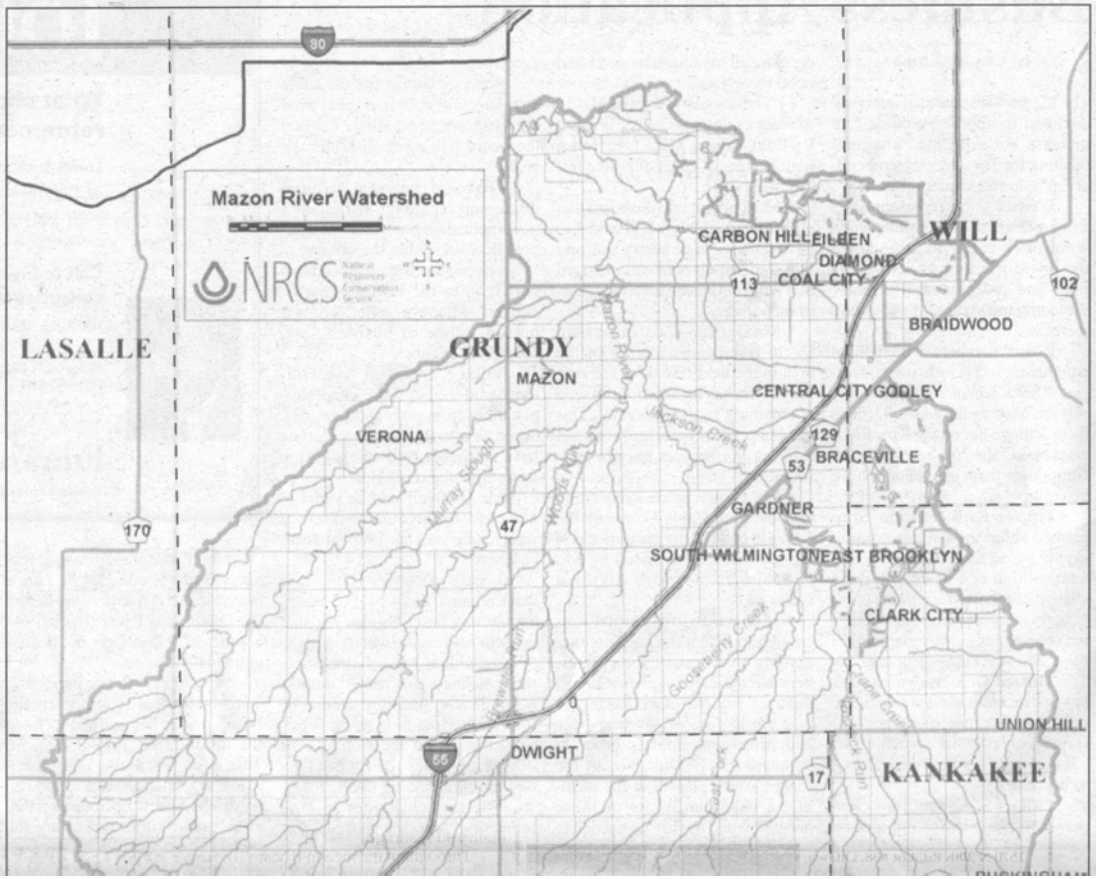
Next month, volunteers from the committee, accompanied by biologists from Chicago's Shedd Aquarium, will wade into 10 spots along the Mazon River and its tributaries to conduct a survey of the mussel life in the watershed.

The study is funded by a grant from the Illinois Wildlife Preservation Fund.

According to committee officials, a previous survey found mussels at two sites. The find, which they say is rare in Illinois, is a "good indicator of stream health." Surveys at the 10 sites being investigated next month will provide more data.

The project is just the latest of the committee, which was formed three years ago by a group of citizens concerned about the future of the Mazon River watershed.

A year ago, the committee – with the help of technical experts from the Illinois Department of Natural Resources (IDNR), the Natural Resources Conservation Service (NRCS) of the U. S. Department of Agriculture, and the Grundy County Soil and Water Conservation District – produced a resource plan for the watershed.



Appendix V

the plan, according to Eileen Grosso, one of the group's leaders.

The Mazon River and its tributaries drain 521 square miles of land into the Illinois River. About 80 percent of the area drained is roughly evenly split between Grundy and Livingston Counties, with smaller portions in Kankakee, Ford, Will, and LaSalle Counties.

The committee is also in the final stages of producing a booklet that will be used in area grade schools to teach fifth-grade students about the ecology of the watershed. The booklet project is funded by a grant from Conservation 2000, an IDNR program that has funded nearly 600 watershed ecosystem projects statewide over the last eight years.

At a meeting of the committee Saturday, Bob Massey, a wildlife habitat biologist with IDNR, talked about grant programs available through IDNR and NRCS.

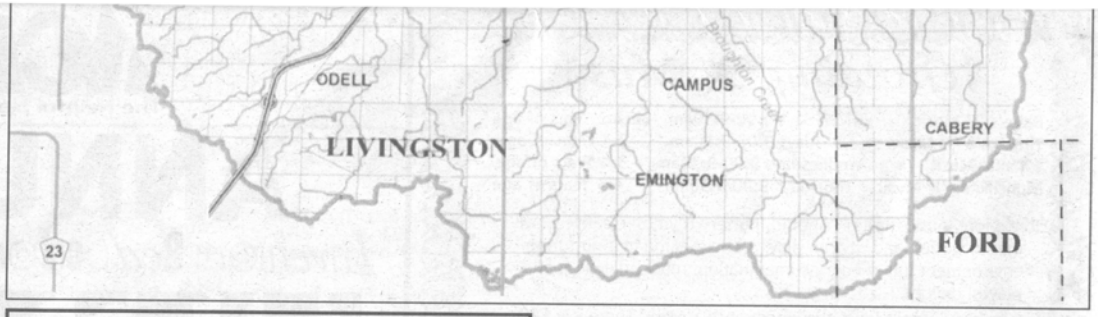
Mr. Massey told the gathering that the strategy for getting ecosystem grants approved is to pick out a project that is small enough for the grant recipient to handle administratively, that will not make excessive demands on the funding agency's available resources, and that will show results in one or two years.

"Big, grandiose projects aren't going to fly," he said.

An example of the type of project likely to receive funding, Mr. Massey said, is one involving a sub-watershed affecting two or three farms.

The committee's next meeting, open to everyone with a stake in the future of the watershed, is November 20 at 9:30 am at 2355 Higgins Rd., south of Morris.

For more information, contact Ms. Grosso at 634-4600 or Jeanette Hakey at 237-8306.



Mazon River Watershed Resource Plan Objectives

Flooding

- More education is needed.
- More coordination with existing entities.
- Reduce debris and trash in river.
- Be forward thinking about the effects of what we're doing. Use common sense. Think cause and effect.
- Reduce flooding without making the river a ditch or channel.

Soil Erosion and Sedimentation

- Reduce sedimentation and erosion while protecting aesthetics and habitat (river, watershed, plants, and wildlife).
- Protect, retain, and enhance recreation.

Growth and Development

- Ensure adequate stormwater management occurs with new development.
- Keep stormwater runoff equivalent to predevelopment conditions or make it better.
- Have more water infiltrate slowly rather than run off on the surface.
- Educate and encourage people about the value of open space, farmland, wetlands, and woodlands for stormwater management,
- Preserve the diversity of land use in the watershed.
- Better coordination among municipalities and among agencies.

Water Quality

- Reduce pollution in the river from all sources.
- Increased monitoring of water quality in the river.

Wildlife Habitat

- Preserve, protect, and enhance the quality of wildlife habitat in the watershed.

Health News

Glucosamine for Knee Arthritis

By Gene A. Carlson, B.S. Pharm., Compounding Pharmacist

Osteoarthritis, caused by degeneration of cartilage that occurs with age, is the most common type of arthritis. After age 50, knee osteoarthritis becomes more common in women, possible because of waning estrogen levels. European researchers studied the effect of glucosamine specifically in postmenopausal women already diagnosed with knee osteoarthritis and found glucosamine could do more than just ease arthritis knee pain: it may actually stop disease progression and possibly reverse it. After three years, women who had taken 1,500 milligrams of glucosamine sulfate daily had experienced no further loss of cartilage as measured by knee x-rays. In addition, pain and function significantly improved among the women taking glucosamine, compared with the placebo group which had no improvement in knee stiffness. The prescription product used in this study is chemically similar to glucosamine sulfate products without chondroitin or methylsulfonylmethane (MSM). Glucsosamine therapy is part of a much larger treatment plan, which should include weight management and physical activity.

Environmentalists Go Wading for Mussels

By Stu Bloom

Four volunteers and a conservation biologist waded into two Mazon River watershed creeks Friday to conduct the first two of ten mussel surveys that will help biologists assess the health of the watershed.

The volunteers are members of the Mazon River Watershed Committee, a group of citizens who have stakes in the future health of the river and its tributaries. The committee received funding for the study through a grant from the Illinois Wildlife Preservation Fund, which receives its funding from a check-off on the Illinois state income tax form.

The state periodically funds mussel surveys to assess the health of its waterways, committee leader Jeanette Hakey said.

"Mussels are useful for assessing a stream over time because they are so long-lived," said expedition leader Roger Klosek, senior conservation biologist at Chicago's John G. Shedd Aquarium.

Mussels are freshwater clams and live on the bottom of rivers and creeks. They feed on plankton, Mr. Klosek said, and healthy streams have a sufficient supply of plankton to support a substantial mussel harvest mussels in the fall, bury them, then come back in the winter, chip through the ice to retrieve them, and boil them.

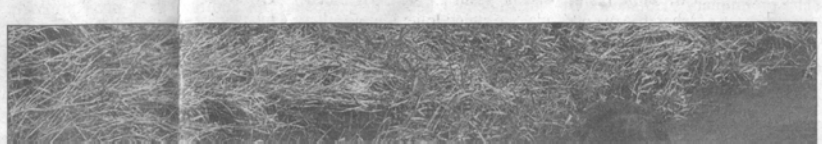
Although the mussels in Midwestern streams are edible, "you wouldn't want to eat them," Mr. Klosek said. Older, larger specimens have absorbed so many pollutants that they would not be very palatable, he said.

In the first survey Friday, the team waded into 72-degree water in a branch of the east fork of Gooseberry Creek, on the Doug Rieke property in Grundy County just north of the Livingston County line. They found mussels that Mr. Klosek estimated to be between 11 and 14 years old.

"The oldest ever found in northeastern Illinois was 48 years old," Mr. Klosek said. Mussels as old as 80 years have been found in the Mississippi River and as old as 150 years in cold water streams along the east coast and in Europe, he said.

"If conditions are good, [mussels] may stay their entire life in one place," Mr. Klosek said. If they do migrate, they can move at a rate of about three feet a day.

"The problem is, they don't have a very good sense of direc-



mussels were much more common in the Midwest. The Illinois River had millions of mussels per mile, he said.

"They served as a natural water filtration plant," he said.

Midwestern Indians used mussels as a food source. They would [illegible] the other half heading for shore."

Silting of streams from agricultural runoff is a threat to some species of mussels, Mr. Klosek said. The species with heavier shells sink into the silt and get buried. The lighter-shelled species can live on top of the silt.

Top right: Searching in Gooseberry Creek for mussels. Foreground, left to right, Arden Rieke and Joe Kowsky. Background, Shedd Aquarium Senior Conservation Biologist Roger Klosek, Eileen Grosso; and Jeannette Hakey. **Middle right**: Ms. Grosso shows a find to Mr. Klosek. **Bottom right**: Mr. Klosek probes for samples. **Below**: Mr. Klosek examines the results. *Staff Photos*