WHAT IN THE WORLD IS A BIOBLITZ?

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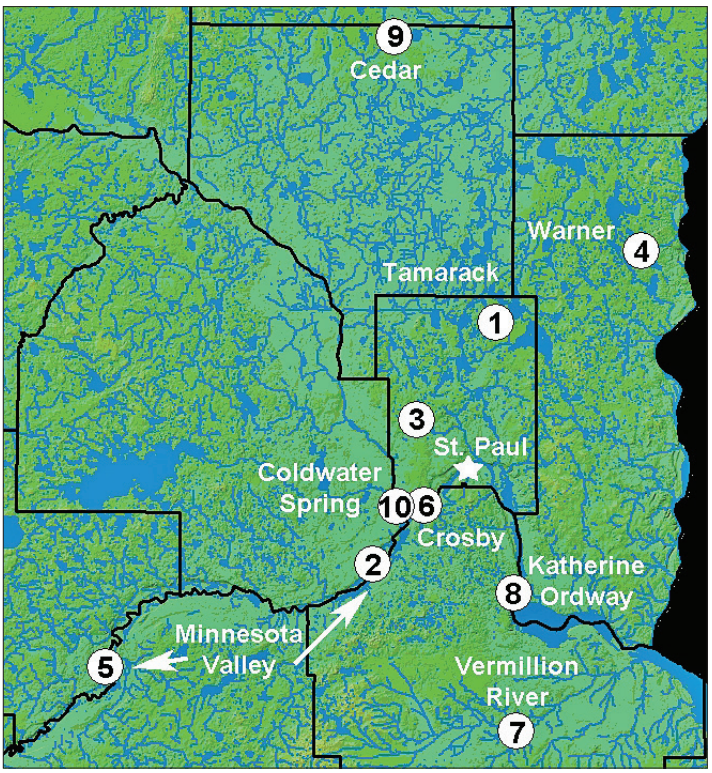
Konrad likes (but Jenny doesn't) to use the analogy of blitzkrieg (lightning war) which is the term used to describe the rapid advances Germany made in World War II. A BioBlitz shares similar tactics, as biologists from multiple disciplines "invade and occupy" a park, refuge or natural area to conduct animal and plant surveys over a 24 hour period. Since 2004, the University of Minnesota's James Ford Bell Museum of Natural History and several partners have sponsored an annual BioBlitz at several locations across the Twin Cities Metropolitan Area. Participants have varied from year to year, but their areas of interest or expertise have included mammals, birds, amphibians, reptiles, insects, spiders, miscellaneous invertebrates, mussels, diatoms, plants, fungi, and lichens. Last, but not least, fish have been the responsibility of NANFA members Konrad Schmidt, Bryan Stefansky and Jenny Kruckenberg for most of the ten BioBlitzes.

Before Konrad retired in 2010 from the Minnesota Department of Natural Resources (DNR), we were able to bring out the big guns, using electrofishing boats on lakes and rivers and backpack shockers on smaller streams. We also used seines, trap nets, kick nets, and minnow traps. Unavoidable events sporadically hampered our efforts. Severe flooding barred us from surveying the Minnesota River twice (locations 2 and 5) and the Mississippi River once (8). Though we were able to access floodplain habitats, we certainly would have significantly increased the species total under normal flows. Konrad's contact information was lost after leaving the DNR and we missed the Vermillion River BioBlitz in 2010.

The overall BioBlitz results are very impressive (Table 1). Birds, insects, plants and fungi were the consistent high scorers. Warner Nature Center walked away with the highest overall score and the highest score for insects. This area was probably the most pristine of the ten BioBlitz locations. It includes large contiguous tracts of virgin hardwood forest and crystal-clear lakes which, ironically, hosted only nine fishes, but 126 species of diatoms.

Our best results were 33 fish species at Crosby Farm Park and 30 at Katherine Ordway. One factor that constantly hindered us—especially in large areas—is that only so many sites can be surveyed in a 24-hour period. We further handicapped ourselves by not venturing out at night. It would have been a very intriguing notion when we were young and impetuous, but perhaps with age comes a pinch of wisdom. We have not yet found any species listed in Minnesota as Endangered, Threatened or Special Concern. Our most boastworthy capture, so far, is the Shoal Chub (*Macrhybopsis hyostoma*), which is a Species in the Greatest Conservation Need (SGCN). We collected specimens in the Mississippi River at Katherine Ordway and Coldwater Spring.

At each BioBlitz we give a bank-side presentation for visitors. Both kids and adults are blown away by the big fish captured with the boat shocker and trap nets. Everyone wants to be photographed with trophy Walleye (*Sander vitreus*), Northern Pike (*Esox lucius*) or Largemouth Bass (*Micropterus salmoides*). Kids have a blast holding Painted



BioBlitz locations 2004-2013:

1. Tamarack Nature Center, White Bear Lake (2004)
2. Minnesota Valley Refuge, Bloomington (2005)
3. Future site of JFBM, Falcon Heights (2006)
4. Warner Nature Center, Marine on St. Croix (2007)
5. Minnesota Valley Refuge, Carver (2008)
6. Crosby Farm Park, St. Paul (2009)
7. Vermillion Wildlife Area, Rosemount (2010)
8. Katherine Ordway Natural Area, Inver Grove Heights (2011)
9. Cedar Creek Ecosystem Science Reserve, Bethel (2012)
10. Mississippi Recreation Area: Coldwater Spring, Minneapolis (2013)

and False Map Turtles, but we insist that they enjoy the Godzilla snappers and *curmudgeon* softshells only from a distance. During our lunch breaks, we set up an aquarium at the BioBlitz headquarters to display small fishes collected during the morning for visitors who missed the presentation. We also leave stacks of informational pamphlets about NANFA and the Minnesota Aquarium Society by the aquariums. We are always under the gun to get out for the afternoon surveys, but first inhale a delicious lunch provided by the BioBlitz organizers.

We have had some interesting adventures along the way. At Warner Nature Center, we set the trap nets with a solar powered pontoon boat which, of course, worked fantastically as long as there was sun. We, however, lost most of our power working in the shade of overhanging trees. We also captured our largest Snapping Turtles at this BioBlitz, with one pushing 30 pounds. It was too big to pass through the series of funnels inside the hoops and the opening at the back of the net so Bryan and Konrad had to "work it" the way it came in through the front. Twice it delivered powerful and painful blows to Konrad's shins and knees, but could not lock on through the mesh. Finally, they got out one rear leg and then the other, and took great care freeing the business end before lobbing the leviathan overboard. At Minnesota Valley Refuge we attempted to launch a boat shocker in a flooding stream, but the raging current snagged the boat on the trailer. After winching it out we found a foot-long gash in the hull, bringing that day's efforts to a very frustrating end. At Coldwater Spring, the National Park Service staff really wanted the springhead surveyed, but nobody had a

Table 1. 2004-2013 BioBlitz Results.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Tamarack Nature Center*	Minnesota Valley Refuge, Bloomington**	JFBM	Warner Nature Center	Minnesota Valley Refuge, Carver	Crosby Farm Park	Vermillion Wildlife Area**	Katherine Ordway Natural Area	Cedar Creek Ecosystem Science Reserve	Coldwater Spring
SPECIES										
Mammals		15	20	15	15	14	15	9	12	7
Birds		102	78	78	100	80	76	54	94	52
Reptiles		5	2	6	5	5	1	5	7	3
Amphibians		7	3	7	7	4	5	5	5	2
Fish	4	6	2	9	11	33	7	30	17	20
Insects		177	232	464	263	110	126	104	142	16
Misc. Inverts		6	8	19	42		8	8	5	5
Spiders		25	18					20	22	16
Mollusks		9	3					4	4	
Diatoms				126						
Plants		329	***456	321	216	241	159	193	218	216
Fungi		102	54	*83	74	57	110	79	79	82
Lichens					15					
Species Total	750	783	876	1128	748	544	507	511	605	418
SITE STATISTICS										
Acres	320	11,012	N/A	700	11,012	736	2838	278	5436	92
Aquatic Habitats	Wetlands, Ditches	Large River, Tributaries, Floodplain Lakes	Stormater Ponds	Lakes	Large River, Tributaries, Floodplain Lakes	Large River, Floodplain Lakes	Trout Stream, Ditches	Large River, Floodplain Lakes	Wetlands, Lakes, Streams	Large River, Springhead
EVENT STATISTICS										
Public Attendance		550	225	430	225	235	125	55	61	45
Scientists		25	42	77	62	64	53	64	57	45

* Species subtotals lost. ** BioBlitz we missed. *** Includes lichens.

Bank-side presentation for visitors.

Solar-powered pontoon at Warner.

Jenny with exhibits and handouts at BioBlitz headquarters.

Pulling trap net at Cedar Creek.

clue about its depth. We stood on the crumbling limestone wall surrounding the pool and could see several large Goldfish (*Carassius auratus*) schooling in the middle. There was a large crowd of spectators curious about what we might find or perhaps hoping for a wader malfunction. Konrad climbed in and stood on his tiptoes with an inch to spare on his chest waders. He hugged the wall and finally found shallower water (but not by much) at the opposite end. With every step, the thick layer of silt over the bottom released large bubbles that filled the air with the stench of rotten eggs. We collected large breeding male Fathead Minnows (*Pimephales promelas*) with dark black heads and bands on the bodies. We also found radiant male Golden Shiners (*Notemigonus crysoleucas*) dressed in their Sunday best. Unfortunately, as hard as we tried all but one of the wily Goldfish eluded us. We did not escape without a little irritating souvenir: soon after leaving the BioBlitz we all noticed red welts appearing on our exposed arms and hands–swimmer's itch. Thank goodness we were wearing chest waders.

What do we enjoy most about BioBlitzes? We welcome the *camaraderie* of volunteering with people in other plant

Shoal Chub is the only listed species so far found at a BioBlitz. (Photos by Konrad Schmidt)

and animal disciplines who share our passion for the environment. We gain a wonderful gratification showing the natural world to adults and especially children during our "touch and feel" presentations. Unlike standard research studies, the public is encouraged to watch, learn and tag along, thereby becoming Citizen Scientists for the day.

Seining Coldwater Spring

A young citizen scientist discovering a Shorthead Redhorse.

Bryan minnow trapping at Cedar Creek.

Touch and Feel presentation.

Species tally boards.

They have no idea what a redhorse is. They have no idea how many minnow species we have in our state. It's up to us to educate them. It's up to us to turn kids (and their parents) on to the natural resources they have in their backyard! With education comes appreciation, with appreciation comes respect. We also must plead guilty to possessing a competitive spirit that drives us on to "score" as many species we possibly can in 24 hours. We are also happy to make a small contribution by gathering baseline data for an area that will be very useful in comparing future surveys and guiding management decisions.

Interested in organizing a BioBlitz in your area? They can be large or small events; there are no restrictions on where they can be held and no minimum acreage for a site. The future site of the Bell Museum was the most unconventional of all our BioBlitzes. There were no defined boundaries and the site spanned a university campus with athletic fields and agricultural research plots surrounded by residential areas. The only aquatic habitats were two small ponds: one in a city park and the other accessible through a church parking lot.

If we have tickled your fancy in the least, check out the following guide from the Connecticut State Museum of Natural History:

http://ocean.si.edu/sites/default/files/lesson_plans/Dana%20Plucinski/BioBlitzGuide.pdf

MOST OF ALL, REMEMBER TO HAVE FUN!