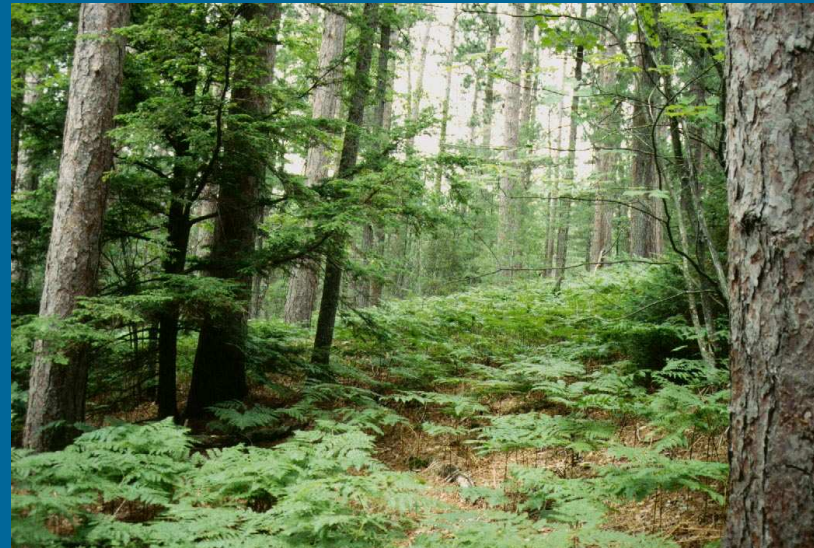


Rare Species and Natural Communities in Michigan's State Forests

Element Occurrences in Michigan Forest Compartments Database

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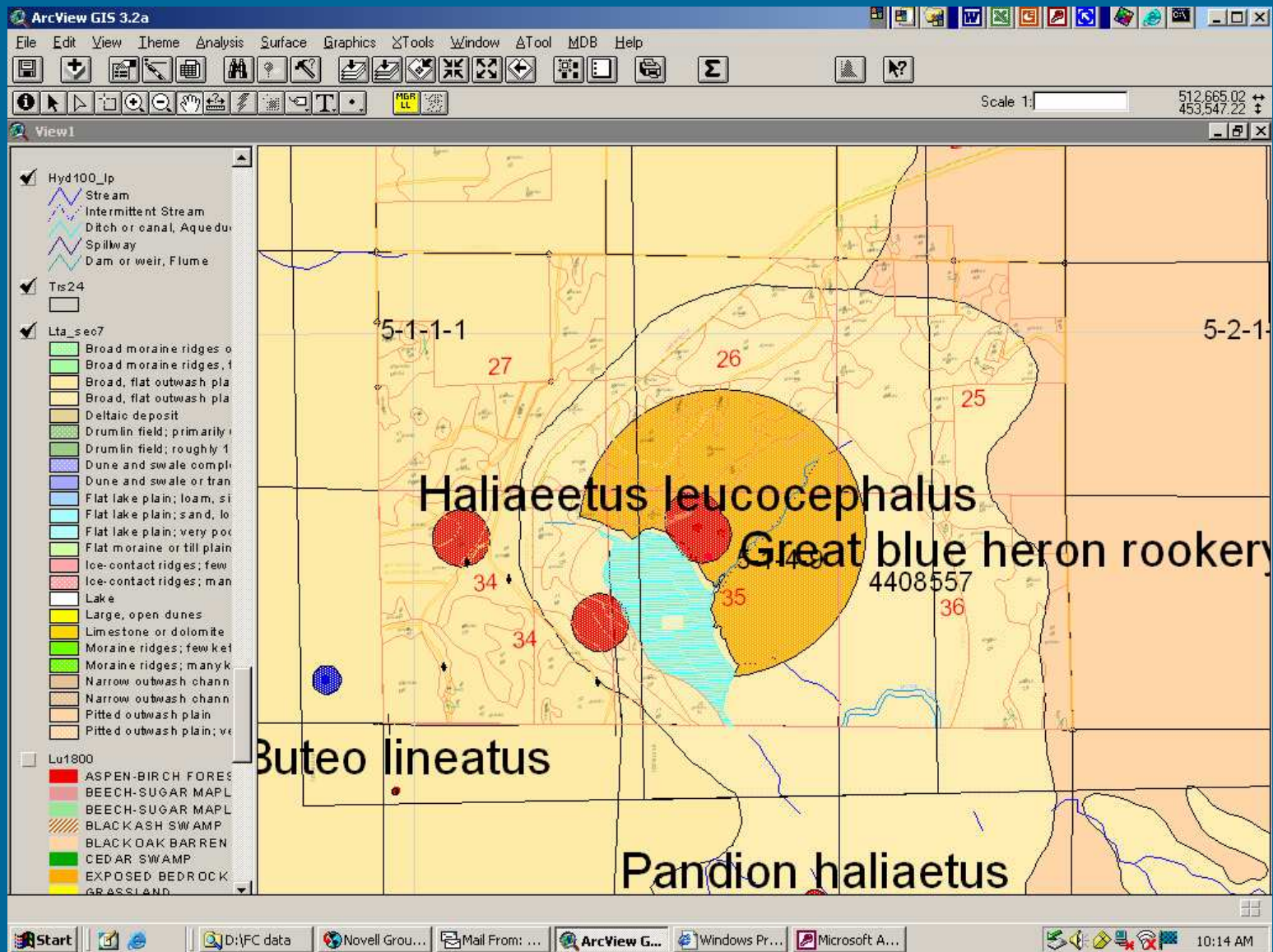
- **Project Goal**

To improve MNFI scientists ability to simultaneously access attribute data from multiple GIS data layers so we could more efficiently write reports about rare species or high-quality natural communities in state forest lands. These reports are submitted for consideration in State Forest Compartment Reviews.

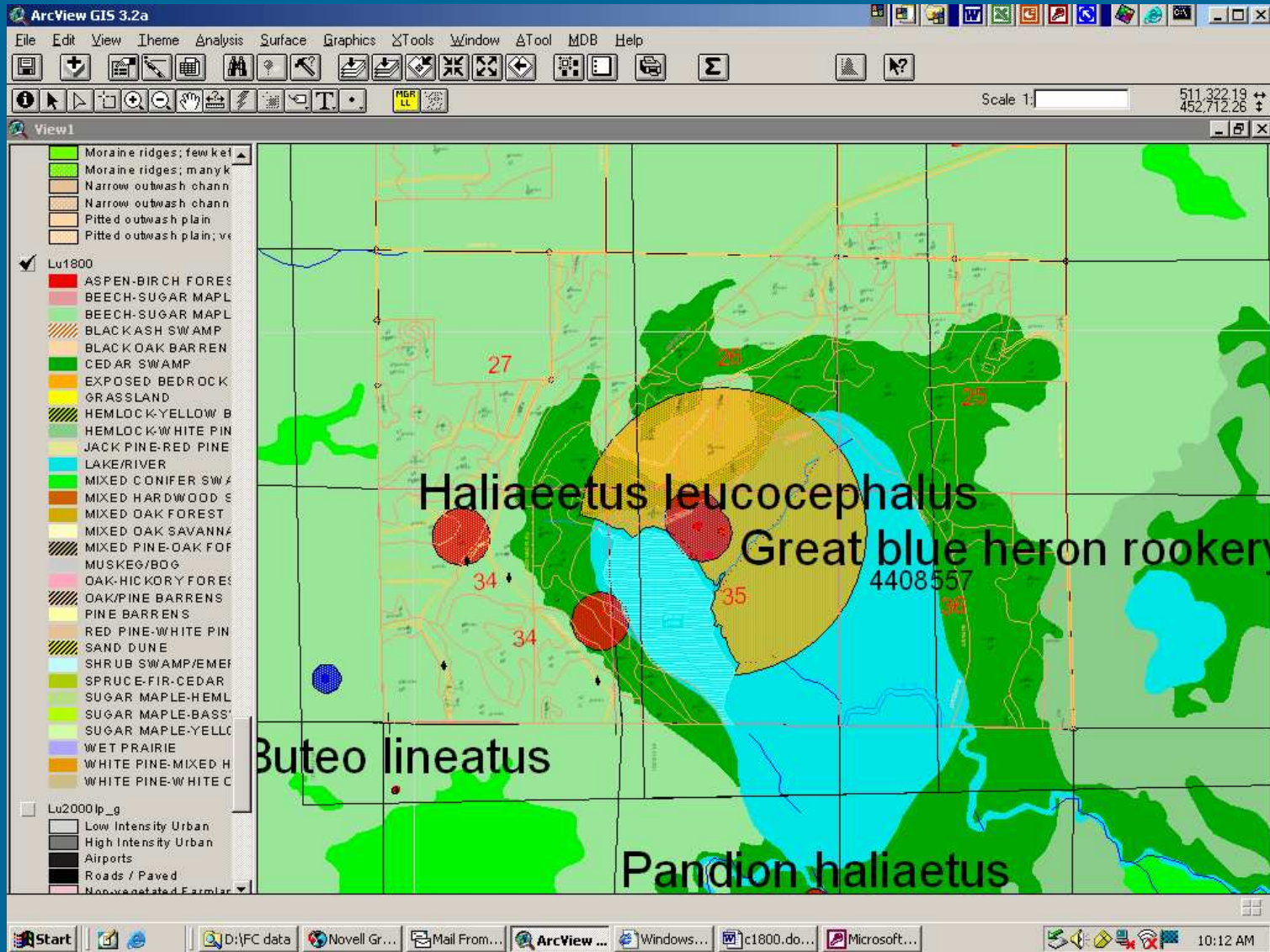
- **The Solution**

Assemble all the relevant data into one relational database management system.

Attribute tables for multiple data layers were accessed to produce reports.



This was time-consuming and cumbersome.




Excerpt from a report submitted for consideration in State Forest Compartment Review.


Bald eagle* (*Haliaeetus leucocephalus*, state threatened, federally threatened) have been documented nesting in the northwest quarter of section 35, the northwest quarter of section 34, and the southeast quarter of section 34. **Bald eagles** prefer to nest in the tallest tree available adjacent to the shorelines of lakes, large rivers, floodings, and other bodies of water where prey is available throughout the breeding season. Michigan eagles nest primarily in white and red pines, yellow birch, maple, oak, and aspen. Live trees are generally favored over dead ones. Nest trees usually have a clear flight path toward areas of water. In Michigan, eagles arrive at their nesting territories between mid-February and mid-March. Nesting pairs usually return to the same nesting sites. **Please be advised of the following regulations which may apply to the prescriptions in section 34. Where eagle nests are known to occur, no forest management activity is allowed within 330 feet surrounding a nest, at any time of the year. No forest management is allowed within ¼ mile (400 meters) of an active nest during the nesting season (February to August).** The nesting season is the most critical time of year for eagles. **Eagle and osprey** (*Pandion haliaetus*, state threatened) could potentially occur throughout the compartment in upland conifer, lowland brush, and swamp stands if suitable nesting trees/snags are available. **Osprey** have been recorded just south of section 35. A **great blue heron rookery*** has been documented in the northwest quarter of section 35 and **rookeries** could occur throughout the compartment in swamp hardwoods, lowland brush, and swamp conifer stands. **Great blue heron** (*Ardea herodias*) often nest in hardwood swamps and treed bogs, building their nests most commonly in tall trees. They feed on fish, amphibians, reptiles, crustaceans, insects and small mammals. Great blue herons begin arriving in Michigan in late March or early April. Nesting begins in late April and lasts until mid-June. Migration south begins in October. The same rookery may be used year after year for several decades, if nest trees and foraging habitats remain undisturbed. **Recommendations for maintenance of great blue heron rookeries include no tree harvest within the rookery or within 850 feet of nests and avoiding noisy, conspicuous activities within ¼ mile between March and mid-August.** Please refer to the **General Comments** section for information on the habitat, ecology and management of these species.

The initial screen of the database allows the user to select the data and order it in a variety of different ways.


Forest Compartment Element Occurrences


All EOs



By Year of Entry 

By Forest Compartment 


Community EOs only


By Community Type 


By Forest Compartment 

By County  -- totals only 

Element Category EOs listed by EO Rank

Animals 

Communities 

Plants 

Sample report of Element Occurrence data for a selected Forest Compartment.

Forest Compartment Element Occurrences

Traverse City 18

YOE: 2007

QUAD: 4408557 Karlin
4408558 Thompsonville
4408567 Lake Ann
4408568 Platte River

Geology: Glacial outwash sand/gravel/postglacial alluvium

Ecoregion: VII.3

c1800: BEECH-SUGAR MAPLE-HEMLOCK FOREST

LTA: 5-1-1-1

CEDAR SWAMP

5-2-1-1

HEMLOCK-WHITE PINE FOREST

5-1-4-9

LAKE/RIVER

MIXED CONIFER SWAMP

Animal

Haliaeetus leucocephalus (Bald Eagle, T)

EO ID 4718

Precision: S

1981: (c) ad, subad seen. 1982: (b) 1 yg. 1983: (?) failed. 1984: (c) 1 yg. 1985: (?) 2 yg. 1986: (?) 1 yg. 1987: (b) 2 yg. 1988: (b) 1 yg. 1989: (b) ad sitting. 1990-91: (b) 2 yg. 1992: (b) 3 yg. 1993: (b) 2 yg. 1994: (b) 2 yg. 1995: (b) Ad. obs. incuba

FIRST OBS: 1974

LAST OBS: 2004

26N 13W 34

26N 13W 35

Other

Great Blue Heron Rookery (Great Blue Heron Rookery,)

EO ID 10692

Precision: M

FIRST OBS:

LAST OBS: 1950?

26N 13W 25

26N 13W 26

26N 13W 27

26N 13W 34

26N 13W 35

26N 13W 36

Sample of report listing Community Element Occurrences by Forest Compartment

Forest Management Units

Community Element Occurrences by Compartment

Atlanta 89

QUAD: 4408384 Ossineke
 4408385 Big Ravine Creek
 4508314 Alpena
 4508315 Lake Winyah

Great lakes marsh	G2	S2	EO ID:4290	EO #: 5
Alpena Co.	T30NR08E - 10			
	T30NR08E - 15 *			
	T30NR08E - 16			
	T30NR08E - 22 *			
	T30NR08E - 9			

Atlanta 107

QUAD: 4508313 North Point
 4508316 Lachine
 4508317 Jewett Creek

Great lakes marsh	G2	S2	EO ID:1936	EO #: 57
Alpena Co.	T31NR09E - 14 *			
	T31NR09E - 15			
	T31NR09E - 22			
	T31NR09E - 27 *			

Atlanta 156

QUAD: 4508442 Black Lake Bluffs
 4508452 Grace

Intermittent wetland	G2	S2	EO ID:11227	EO #: 9
Presque Isle Co.	T36NR02E - 16			

Atlanta 168

QUAD: 4508453 Manning
 4508463 Cordwood Point

Intermittent wetland	G2	S2	EO ID:7652	EO #: 7
Cheboygan Co.	T37NR01E - 6			
	T37NR01E - 7			
	T37NR01E - 8			

Atlanta 169

QUAD: 4508453 Manning

Intermittent wetland	G2	S2	EO ID:3851	EO #: 6
Cheboygan Co.	T37NR01E - 8			
Intermittent wetland	G2	S2	EO ID:7652	EO #: 7
Cheboygan Co.	T37NR01E - 6			
	T37NR01E - 7			
	T37NR01E - 8			

Sample of report listing Community Element Occurrences by County and Forest Management Unit

Community Element Occurrences by County and Forest Management Unit

Mackinac County	Total Community EOs: 30	EO ID	EO Rank	G Rank	S Rank
Gaylord	Northern fen	11602	C	G3	S3
	Wooded dune and swale complex	10973	C	G3	S3
	Cobble Beach	4632	B	G3?	S3?
	Mesic northern forest	9668	AB	G4	S4
	Rich conifer swamp	317	AB	G4	S4
	Boreal Forest	8473	A	GU	S3?
Sault Sainte Marie	Great lakes marsh	12046	B	G2	S2
	Great lakes marsh	2797	BC	G2	S2
	Intermittent wetland	4173	B	G2	S2
	Intermittent wetland	8036	C	G2	S2
	Alvar	2938	CD	G2?	S2
	Interdunal wetland	11037	AB	G2?	S2
	Interdunal wetland	12340	B	G2?	S2
	Bog	12944	C	G3	S3
	Northern fen	11717	A	G3	S3
	Open dunes	1910	BC	G3	S3
	Poor fen	9790	AB	G3	S3
	Poor fen	2363	C	G3	S3
	Wooded dune and swale complex	9523	AB	G3	S3
	Wooded dune and swale complex	6497	AB	G3	S3
	Wooded dune and swale complex	6496	A	G3	S3
	Wooded dune and swale complex	562	BC	G3	S3
	Wooded dune and swale complex	4993	AB	G3	S3
	Cobble Beach	3957		G3?	S3?
	Hardwood-conifer swamp	8824	B	G4	S3
	Dry-mesic northern forest	13252	B	G4	S4
	Mesic northern forest	10987	B	G4	S4
	Muskeg	9791	C	G4	S4
	Muskeg	2367	BC	G4	S4
Northern wet meadow	7335	C	G4	S4	

Sample report listing Community Element Occurrences by their EO Rank. Reports are also available for plants and animals.

Community Element Occurrences by EO Rank

Alvar G2? S2			Total FCs with EOs: 19	
EO Rank	Management Unit	Compartment	EO ID	
A	Escanaba	110	2305	
A	Sault Sainte Marie	1	13104	
A	Sault Sainte Marie	2	2121	
A	Sault Sainte Marie	2	13104	
A	Shingleton	99	9612	
AB	Shingleton	98	142	
AB	Shingleton	99	142	
B	Atlanta	140	6511	
B	Atlanta	141	6511	
B	Gwinn	87	2492	
B	Sault Sainte Marie	14	4734	
B	Sault Sainte Marie	12	12028	
B	Sault Sainte Marie	1	10594	
B	Sault Sainte Marie	4	10594	
B	Shingleton	98	5952	
BC	Sault Sainte Marie	8	8641	
C	Shingleton	96	7436	
C	Shingleton	97	7436	
CD	Sault Sainte Marie	177	2938	
Basalt bedrock lakeshore G3 S2			Total FCs with EOs: 1	
EO Rank	Management Unit	Compartment	EO ID	
B	Baraga	75	10595	
Bedrock beach G2? S2			Total FCs with EOs: 1	
EO Rank	Management Unit	Compartment	EO ID	
AB	Sault Sainte Marie	14	5883	
Bedrock Glade GU S3			Total FCs with EOs: 5	
EO Rank	Management Unit	Compartment	EO ID	
A	Crystal Falls	82	2328	
A	Crystal Falls	83	2328	
A	Gwinn	205	2171	
A	Gwinn	202	4782	
B	Gwinn	298	9902	

- MNFI scientists are now able to more efficiently write reports on element occurrences for consideration in State Forest Compartment Reviews.
- In the future this database could be adapted to allow restricted web access so that State Forest managers could use the information to assist in prioritizing conservation and restoration activities.