

Monitoring and Evaluating Health of Ash Trees in Michigan's Rural Forests

**Preliminary Report to US Department of Agriculture Forest Service,
Northeastern Area State and Private Forestry**

December 2003

John A. Witter

**School of Natural Resources
and Environment
University of Michigan
430 E. University
Ann Arbor, MI 48109-1115**

jwitter@umich.edu

Andrew J. Storer

**School of Forest Resources and
Environmental Science
Michigan Technological University
1400 Townsend Drive
Houghton, Michigan 49931**

storer@mtu.edu

Contents

Introduction	2
Progress	2
Map 1. Distribution of Black ash in FIAA plots	10
Map 2. Distribution of Green ash in FIAA plots	11
Map 3. Distribution of White ash in FIAA plots	12
Map 4. Distribution of three ash species in FIAA plots	13
Map 5. Distribution of FIAA plots with and without ash present	14
Table 1	15
Table 2	21
Table 3	32

Introduction

The Michigan Ash Monitoring Plot System will provide detailed information on the condition of the ash resources in Michigan, how this condition changes over time, factors that contribute to the condition of the ash resource, and characteristics within the rural ash resource that may reduce impacts of the emerald ash borer, *Agrilus planipennis*.

Progress

We focused on three major objectives during Fall 2003:

- 1) Visited recreation sites throughout lower Michigan to determine presence or absence of emerald ash borer while initiating a plot system to detect emerald ash borer and to monitor the health and status of ash trees in Michigan's rural forests.**
- 2) Organized project staff and worked on recruiting of graduate students and field assistants.**
- 3) Established a project web site.**

Since the instigation of this research, a number of field and office meetings have taken place between the PIs and state personnel. These meetings will continue during the coming months as the plot monitoring system is refined prior to the 2004 field season. The goal of this report is to convey initial progress in this project under the objectives listed above, and to indicate directions the project will take leading up to the 2004 field season.

1) Visited recreation sites throughout lower Michigan to determine presence or absence of emerald ash borer while initiating a plot system to detect emerald ash borer and to monitor the health and status of ash trees in Michigan's rural forests.

In Fall 2003, 208 field sites in Lower Michigan were visited to determine their suitability as detection or evaluation sites (Table 1). We emphasized rural recreational sites and natural sites next to recreational areas, concentrating on campgrounds, picnic areas, roadside rest areas, and boat access sites. Ownership and percent of field sites within each of the major ownership types were as follows: Michigan Department of Natural Resources- State Parks and Recreational Areas (30%), Michigan Department of Transportation- Rest Stops (18%), City Parks (13%), Michigan Department of Natural Resources-Boat Access Sites (8%), Michigan Department of Natural Resources- State Forest Campgrounds (7%), United States Forest Service- Campgrounds and Recreational Areas (6%), Private and Non-profits (6%), County Parks (5%), Metro Parks (3%), Township Parks (2%), and Other (2%).

Approximately 41% of all visited potential detection or evaluation sites were rejected due to the fact that no ash trees or fewer than 10 ash trees were located on the site. Of the remaining sites,

90 are being recommended to the Michigan DNR as potential permanent detection sites and 56 are being considered as potential permanent evaluation sites (Table 1).

Only 11% of the visited sites contained detectable levels of emerald ash borer. Our sampling scheme emphasized recreational areas outside of the quarantine area. However, we did include some recreational areas within the quarantine zone, especially concentrating on recreation sites in Oakland and Washtenaw Counties. We encountered emerald ash borer on visited sites in the following counties under quarantine: Oakland, Livingston, Washtenaw, Genesee, Shiawassee, Wayne, and Monroe. We did not find visible evidence of emerald ash borer on any sites visited outside of the quarantine area. We did, however, find sites within some quarantine counties that had no visible signs or symptoms of the emerald ash borer. This was expected because some quarantined counties are quite large and emerald ash borer populations are not yet present throughout the county.

If less than 10 ash trees were on a site, measurements were taken on all live ash trees present on the site. If more than 10 live ash trees were present on site, we estimated the number of trees on site (for example 100) and then measured every tenth tree. Any ash trees with noticeable dieback also were checked separately for evidence of emerald ash borer. The size of the ash trees sampled on our sites varied considerably from trees planted very recently or small natural ash trees (1-2 inches in diameter) to planted and natural ash trees up to 32 inches in diameter. About 55% of the sites with ash trees had mean diameter averages of over 10 inches (Table 1).

Tree vigor was determined for all ash trees sampled in the following categories:

- 1 = Tree crown with relatively few dead twigs
- 2 = Tree crown with an occasional large dead branch in upper portion of crown
- 3 = Tree crown with moderate dieback in upper and outer crown
- 4 = About half of tree crown dead
- 5 = More than half of tree crown dead
- 6 = Dead tree

Mean tree vigor by site was generally very good. Eighty-five percent of the sites visited had mean tree vigor ratings lower than 1.5. Nine percent and 6% of the sites had mean tree vigor ratings between 1.5-2.0 and 2.1-2.5, respectively.

Percent dieback(upper and outer crown) within the tree crown was estimated in 1 of 22 classes (0,1, 2-5, 6-10, 11-15, 16-20, etc to 96-100%). There was considerable variation in mean % dieback by site in Lower Michigan, both in areas with and without emerald ash borer (Table 1). Examples of site locations in northern Lower Michigan without emerald ash borer with extremely healthy ash trees, as noted by very low mean % dieback ratings included: Oscoda Ausable Chamber of Commerce Visitor Center (0.6%), Singing Bridge Public Access Site (0.7%), Pere-Marquette Rail Trail, Isabella County (1.1%), Sturgeon Point Lighthouse Park (1.3%), Wilson State Park (1.5%), Burt Lake State Park (1.5%), Harrisville State Park (1.8%), Bayfront Park, Petoskey (2.0%), Ben D. Jeff's Muskegon River Park (2.2%), Fisherman Island State Park (2.3%), Mill Creek Historical State Park (2.5%), Ludington State Park (2.7%), Silver Lake State Park (2.7%), Cheboygan State Park (3.0%), and South Higgins Lake State Park (4.0%).

Examples of site locations in northern Lower Michigan without emerald ash borer that had higher mean % dieback ratings included: Tawas State Park (28.4%), Aloha State Park (23.5%), William Mitchell State Park (16.6%), Ausable River Mouth Access Site (15.1%), Pinconning County Park (12.0%), US 23 Rest Stop, Linwood (11.0%), Rifle River, Omer (10.0%), Wallace Nunn Center (9.5%), Orchard Beach State Park (8.6%), Bay City State Recreation Area (8.5%), Private land near Wilderness State Park (8.3%), Cecil Bay County Park (8.0%), and US 23 Rest Stop, Oscoda (7.4%). Possible reasons for these higher dieback ratings on some sites included tree age, tree location, drought conditions, changing water tables due to road construction, soil compaction, other various environmental factors, management practices, trees planted off-site, and trees planted from other geographic areas of state.

As in northern Lower Michigan, ash trees in southern Lower Michigan also were very variable in mean % dieback ratings (Table 1). We purposely did not take samples during Fall 2003 in the emerald ash borer core area in southeast Michigan with the highest tree mortality. We concentrated our sampling in southern Lower Michigan in areas without emerald ash borer or in areas with emerald ash borer, but with very low tree mortality at this time. However in southern Lower Michigan, most of the higher mean % dieback ratings were in areas with emerald ash borer. Areas in southern Lower Michigan with emerald ash borer and higher dieback ratings included: Delhi Metro Park (25%), Highland Recreation Area (22.5%), US 23 Rest Stop, Fenton (20.8%), US 23 Rest Stop, Genesee County (13.8%), Proud Lake Recreation Area (11.2%), and Kensington Metro Park (6.1%).

Many areas in southern Lower Michigan without emerald ash borer or with beginning infestation levels of emerald ash borer had very good mean tree vigor ratings and low mean % dieback ratings at this time (Table 1). Examples of site locations in southern Lower Michigan with very low mean % dieback ratings include: Holly Recreation Area (1.0%), Ortonville Recreation Area (1.0%), Seven Lakes State Park (1.0%), Hertiage Park, Frankenmuth (1.0%), Sleepy Hollow State Park (1.4%), Pinckney Recreation Area sites (1.2%, 1.2%, 1.9%), Brighton Recreation Area (1.4%), Dexter- Huron Metro Park (1.4%), Hudson Mills Metro Park (1.4%), Independence Lake (1.4%), I 75 Rest Stop, Monroe (1.6%), I 94 Rest Stop near Indiana State line (2.0%), I 94 Rest Stop, near Ann Arbor (2.7%), Kensington Metro Park- Spring Hill (3.1%), and Warren Dunes State Park (3.5%). The only locations in southern Lower Michigan without emerald ash borer that had higher mean % dieback ratings included US 27 Rest Stop, Gradiot County (12.0%), I 69 Rest Stop, Calhoun County (5.5%), Herrick Park (5.9%), and Dundee Community Center Park (5.5%).

On our sites, green ash and white ash were by far the most common species. Ash distribution (Table 2) at our sites were:

- 53.2% of sites contained only green ash or primarily green ash
- 27.8% of sites contained only white ash or primarily white ash
- 1.5% of sites contained only black ash or primarily black ash
- 11.9% of sites contained fairly equal numbers of white and green ash
- 5.5% of sites contained fairly equal numbers of green and black ash.

Considerable variation occurred on the sites in regards to origin of the ash. The largest number of sites (44%) contained all natural ash or almost all natural ash. The second most common

situation (33%) was sites that contained all planted ash or almost all planted ash. About 23% of the time, the ash origin was approximately evenly divided between natural and planted ash (Table 2).

The potential risk of a site to emerald ash borer was determined by assigning each site to one of the six following risk categories:

- 1) None - no ash on site,
- 2) Low - very few ash on site,
- 3) Moderate - some ash on site,
- 4) High – average amount of ash on site,
- 5) Very high - large amount of ash on site
- 6) Extremely high - large amount of ash on site with higher mean % ash dieback ratings.

Approximately a third of all visited sites had no risk because no ash was present on the site. About half of all sites visited had very high or extremely high risk values due to amount of ash present on the site. In the case of the extremely high risk sites, they also had a higher mean % ash decline rating. The remaining 15% of the sites varied from low to high values of risk (Table 2).

A list of 305 potential emerald ash borer detection sites in Lower Peninsula of Michigan for 2004 is enclosed (Table 3). Ownership and percent of potential detection sites within each of the major ownership types is as follows: City Parks (29%), Michigan Department of Natural Resources- State Parks and Recreation Areas (22%), Michigan Department of Natural Resources- Boat Access Sites (14%), Michigan Department of Natural Resources- State Game and Research Areas (9%), Michigan Department of Transportation- Rest Areas (9%), Michigan Department of Natural Resources-State Forest Campgrounds (5%), County Parks (4%), Metro Parks (3%), Universities (2%), and Other (3%). The list is very complete and has potential detection sites in all counties of Lower Michigan. The list can easily be reduced by not sampling as many sites in each county, by reducing the number of city parks being examined, and/or by not sampling as many boat access sites or state game areas. Data has been collected in 2003 from 25% of these sites. An additional 6% of the sites were located but not sampled in 2003.

A number of observations were made while visiting the over 200 field sites, primarily in or next to recreational areas. The most important observations were:

- 1) You can not predict the amount of ash that will be in a specific recreation area by depending on what is present nearby on natural areas, less managed areas, and less disturbed sites
- 2) Green ash is very common in many recreation areas where there has been disturbance. Four examples include:
 - a) very common along ditches by railroad tracks (the rail to trail system),
 - b) very common along disturbed areas near rivers and streams (many boat access sites contain natural green ash),

- c) very common along the edge of roads leading to boat access sites and recreational areas, and
 - d) very commonly planted in parts of some recreational areas due to prior disturbances (the best example is South Higgins Lake State Park which is primarily an oak/white pine area naturally but some type of disturbance, probably a wind storm off of Higgins Lake led to high tree mortality in the campsites next to the Lake and these sites were replanted to primarily green ash)
- 3) Some recreational areas had much higher mean dieback ratings than others; the reasons for this should be examined in more detail
 - 4) In some recreational areas, the decline is very high in only one part of area, either due to different environmental situations or very high recreation use and more soil compaction
 - 5) Some of the variation in % dieback ratings can be attributed to lack of water; some areas such as some city parks and some rest areas are commonly watered by an irrigation system
 - 6) There was considerable variation in the overall health of ash trees recently planted during the last 5 years; this variation was not due to emerald ash borer but was more related to the environmental conditions of the site, how well the trees are watered and fertilized, the condition of the planted nursery stock, and the origin of the nursery stock
 - 7) There is considerable variation within the landscape of these recreational areas when it comes to origin of trees, density of trees, amount of grass, amount of disturbance, closeness of tree to camping site, picnic area, pavement, or road
 - 8) There may be a relationship between tree age, tree size, and % dieback; it appeared to us that the very smallest diameter trees and the larger dbh trees may have had higher % dieback ratings (we will be analyzing our data during late Fall 2003 in more detail to address this question).

During Fall 2003, we concentrated our field sampling primarily in recreation areas or next to recreational areas in Lower Michigan. However, at the same time we were also visiting rural forested areas containing ash that foresters reported to have higher than normal dieback levels. To date, nine different rural forested areas have been examined by us and other areas will be visited this coming Winter or Spring. So far, twelve areas have been identified that appear to have % dieback, higher than expected. None of these areas have emerald ash borer at this time. Possible reasons for these higher dieback levels include: overstocked stands, periods of drought, grazing, timber harvesting, insect and disease infestations, and changing water levels. No quantitative data has been obtained at this time. We plan to include these areas as part of the 400 evaluation plots that will be sampled during field seasons 2004 and 2005.

In summary, the most important findings from field sampling during Fall 2003 were:

- 1) No emerald ash borers were found in any recreation sites sampled outside of the quarantine counties
- 2) Ninety potential detection plots and 56 potential evaluation plots were visited and selected during Fall 2003
- 3) Forty-one percent of all field recreation sites visited during Fall 2003 were rejected as potential monitoring sites due to no ash or less than 10 ash trees being located on the site
- 4) Only 11% of the sites visited contained detectable levels of emerald ash borer; note sampling emphasis during Fall 2003 was on recreational areas in Lower Michigan that were not in quarantined counties
- 5) Size of ash trees sampled during Fall 2003 varied from less than 1" dbh to over 32" dbh. About 55% of all sites with ash trees had mean diameter averages of over 10 in.
- 6) Most (85%) of the sites visited with an ash component had very good overall mean tree vigor ratings (mean tree vigor ratings lower than 1.5 tells us that the tree crowns had very few dead twigs and branches
- 7) There was considerable variation in mean % dieback by site in Lower Michigan, both in areas with and without emerald ash borer
- 8) Numerous examples of sites with low and higher dieback rating were given; possible reasons for these differences were covered
- 9) In recreation areas, green ash and white ash were by far the most common species
- 10) Considerable variation in regards to origin of the ash occurred on our recreational sites; 44% contained only natural ash or almost all natural ash, while 33% contained only or primarily planted ash, and 23% of the ash origin was approximately divided between natural and planted ash
- 11) About 50% of all sites visited had high or extremely high risk values due to the amount of ash present on the site while about a third of the sites visited had no risk because no ash was present on the site
- 12) At least 12 rural forest sites were identified as have potentially higher ash dieback, but with no emerald ash borer present; these sites will be measured during Winter 2004.

A major effort during Winter 2004 will be completing our sampling design for our plot system and developing the protocol handbook on our field sampling methods.

1. **Research Plot methodology:** The PIs have met in the field and evaluated the research plot assessment methodology. Consistency of data collection between MTU and U of M groups is seen as a primary key to success. Towards this goal, a joint training session will be held in lower Michigan at the start of the 2004 field season. The research protocol book is being prepared for use by field crews and for publication on the project website. This tool will enable others interested in working within this plot network to determine the suitability of the research methods for their needs. In addition, weatherproof methods summaries will be prepared for the field crews.
2. **Research plot locations:** Information regarding suitable locations for research plots is being gathered and collated. Sources of information include field site visits, information from state and federal agencies, and private individuals. Plot selection is ongoing, and is will meet a number of research goals. Firstly, the four gradients or transects will be represented. These are two north to south gradients, one in the eastern part of the Lower Peninsula and one in the western part, and two east-west gradients, one in southern Lower Michigan and one in the Upper Peninsula of Michigan. Many of the research plots will lie on these gradients. We view the gradients as two counties wide, thus enhancing the coverage of counties with ash. We also aim to meet the goal of all counties being represented by at least one plot, and that the distribution of plots reflects the distribution of ash in Michigan. Hence, from our total goal of 400 plots, 200 will be established along the gradients (50 on each), and the remaining 200 plots will be placed to fill in gaps such that the other two criteria are met.

2) Organized project staff and worked on recruiting of graduate students and field assistants.

Two PhD students have been identified at MTU who will work as part of the team assessing the ash resource in the Upper Peninsula and Northern Lower. One student has a background in entomology at VPI and is expected to enroll in January 2004. The other student is completing a Master's degree at MTU and is expected to join our group in May 2004. In addition; two graduate students already have been identified at U of M who will participate in this project. Both of these graduate students started their MS degrees during Fall 2003. At least one additional graduate student at U of M will be selected this Winter; this student will start his/her graduate program in late May 2004. The graduate students involved from both institutions bring a strong background in mathematics and modeling, as well as in more traditional biological sciences.

3) Established a project web site

The website for this project has been established at www.michiganash.org and is also accessed at www.emeraldashborer.org. We are starting to build content on this site to provide the latest information relating to this project, and to facilitate secure communication of data between research groups. In the coming months, our methodologies will be put on the website, along with maps of ash distribution and approximate plot locations. Access to this site by collaborators will help us to fill in gaps in the network. Hence the website is seen as having three functions:

1. Providing information about the project to interested parties
2. Obtaining feedback from interested parties about field site and other issues

3. Providing a secure method to data transfer among collaborators on the project.

Maps have been produced using the 1993 FIAA data. These will help in locating plots. It should be noted that the number of FIAA plots in southern Lower Michigan is less than in the northern lower and the Upper Peninsula.

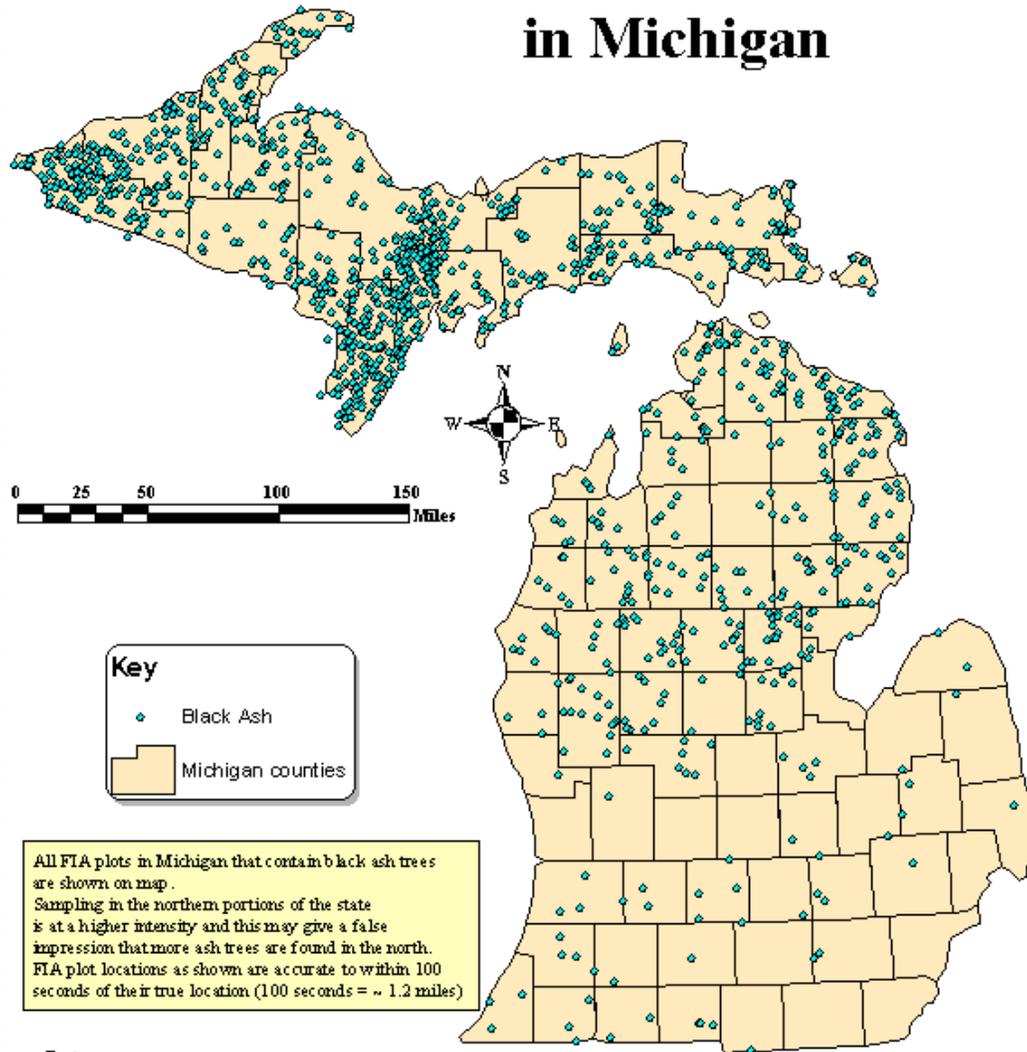
Guide to Maps included in this report:

- Map 1. Distribution of Black ash in FIAA plots
- Map 2. Distribution of Green ash in FIAA plots
- Map 3. Distribution of White ash in FIAA plots
- Map 4. Distribution of three ash species in FIAA plots
- Map 5. Distribution of FIAA plots with and without ash present

Maps are being collected from state and federal agencies that aid in determining location of both detection and research plots. These will be placed on the website when they are available.

Map 1

Distribution of Black Ash Trees in Michigan



Key

- ◆ Black Ash
- Michigan counties

All FIA plots in Michigan that contain black ash trees are shown on map.
Sampling in the northern portions of the state is at a higher intensity and this may give a false impression that more ash trees are found in the north.
FIA plot locations as shown are accurate to within 100 seconds of their true location (100 seconds = ~ 1.2 miles)

Data source:
U.S. Forest Service
Forest Inventory and Analysis
(FIA) data for Michigan, 1993



Ecological Monitoring and Mapping Lab
School of Forest Resources & Environmental Science
Michigan Tech University
Houghton MI 49931-1295 USA

<http://forest.mtu.edu/>

Map date: November 2003 M. Hyslop

Map 2

Distribution of Green Ash Trees in Michigan



All FIA plots in Michigan that contain green ash trees are shown on map.
Sampling in the northern portions of the state is at a higher intensity and this may give a false impression that more ash trees are found in the north.
FIA plot locations as shown are accurate to within 100 seconds of their true location (100 seconds = ~ 1.2 miles)

Data source:
U.S. Forest Service
Forest Inventory and Analysis
(FIA) data for Michigan, 1993



Ecological Monitoring and Mapping Lab
School of Forest Resources & Environmental Science
Michigan Tech University
Houghton MI 49931-1295 USA

Map date: November 2003 M. Hyslop

<http://forest.mtu.edu/>

Map 3

Distribution of White Ash Trees in Michigan



All FIA plots in Michigan that contain white ash trees are shown on map.
Sampling in the northern portions of the state is at a higher intensity and this may give a false impression that more ash trees are found in the north.
FIA plot locations as shown are accurate to within 100 seconds of their true location (100 seconds = ~ 1.2 miles)

Data source:
U.S. Forest Service
Forest Inventory and Analysis
(FIA) data for Michigan, 1993



Ecological Monitoring and Mapping Lab
School of Forest Resources & Environmental Science
Michigan Tech University
Houghton MI 49931-1295 USA

Map date: November 2003 M. Hyslop

<http://forest.mtu.edu/>

Map 4

Distribution of Ash Trees in Michigan



All FIA plots in Michigan that contain ash trees are shown on map.
Sampling in the northern portions of the state is at a higher intensity and this may give a false impression that more ash trees are found in the north.
FIA plot locations as shown are accurate to within 100 seconds of their true location (100 seconds = ~ 1.2 miles)

Data source:
U.S. Forest Service
Forest Inventory and Analysis
(FIA) data for Michigan, 1993



Ecological Monitoring and Mapping Lab
School of Forest Resources & Environmental Science
Michigan Tech University
Houghton MI 49931-1295 USA

Map date: November 2003 M. Hyslop

<http://forest.mtu.edu/>

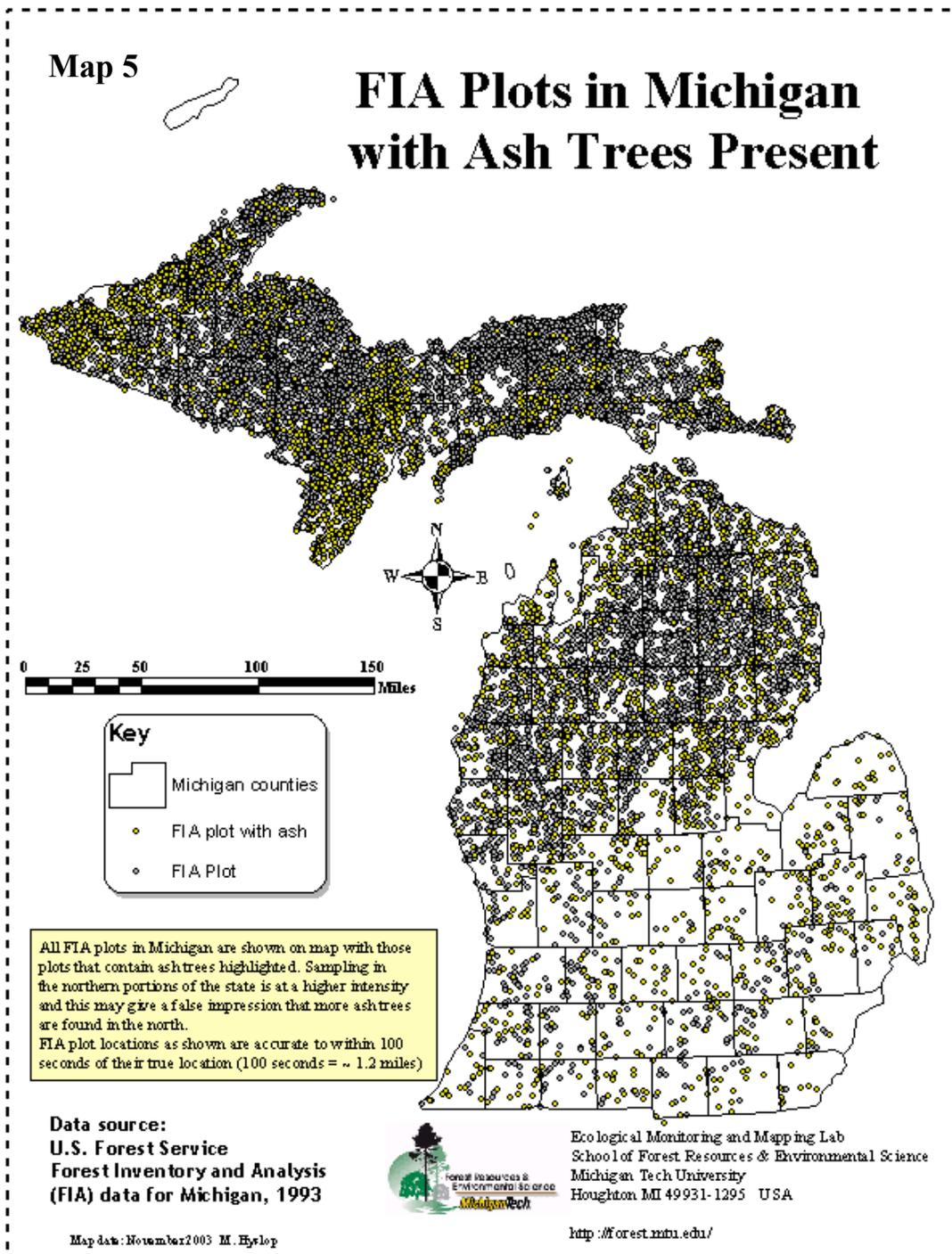


Table 1: Plots visited and sampled during Fall 2003. Data includes type of plot, status of EAB, DBH, tree vigor, and % dieback.

Key:

Ownership:

1 = MDNR-Parks
 2 = MDNR-Forestry
 3 = MDNR-Boat Access
 4 = MDOT
 5 = County Parks
 6 = Township Parks

7 = City Parks
 8 = Metro Parks
 9 = Federal/USFS
 10 = Federal/Dept of
 Interior
 11 = Private/Nonprofit

12 = University
 13 = MDNR Game Area/
 Research Area

Status:

1 = Data collected in 2003
 2 = Plot located in 2003 but no data collection
 3 = Potential detection site for 2004

Type:

D = Detection
 E = Evaluation
 R = Rejected

EAB:

Y = Yes
 N = No

Plot	Location	Ownership	County	Type	EAB?	Mean DBH (in)	Mean Tree Vigor	Mean % Dieback
1	Wilson State Park	1	Clare	D	N	9.2	1.0	1.5
2	Burt Lake State Park	1	Cheboygan	D	N	10.7	1.0	1.5
3	Maple Bay State Forest Campground	2	Cheboygan	D	N	10.1	1.2	5.0
3A	Maple Bay Area	2	Cheboygan	E	N	---	---	---
4	Wilderness State Park	1	Cheboygan	R	N	1.7	1.3	5.0
4A	Private, Wilderness State Park Area	11	Cheboygan	R	N	3.8	1.7	8.3
5	Cecil Bay County Park	5	Cheboygan	D	N	11.8	1.3	8.0
6	Wallace Nunn Center	4	Cheboygan	D	N	5.1	1.6	9.5
7	Mill Creek Historical Park	1	Cheboygan	D,E	N	10.0	1.1	2.5
8	I-75 Rest Stop, near Mackinaw City	4	Cheboygan	R	N	---	---	---
9	US 23 Roadside Park	4	Cheboygan	D	N	7.5	1.2	4.0
10	Fort Michilimackinac	1	Cheboygan	R	N	3.6	1.2	5.0
11	Aloha State Park	1	Cheboygan	D,E	N	7.0	2.4	23.5
12	Cheboygan State Park	1	Cheboygan	D,E	N	5.1	1.1	3.0
13	I 75 Rest Stop, Pellston	4	Cheboygan	R	N	---	---	---
14	Bay City State Recreation Area	1	Bay	D,E	N	11.1	1.7	8.5
15	Pinconning Park Campground	5	Bay	D	N	5.8	1.5	12.0
15A	Pinconning Park-Natural Area	5	Bay	E	N	---	---	---
16	US 23 Rest Stop, Linwood	4	Bay	D	N	10.9	1.6	11.0
17	M 13 Rest Stop	4	Arenac	R	N	12.0	1.1	3.4
18	US 23 Rest Stop	4	Arenac	D	N	8.0	1.4	7.5
19	East Tawas City Park	7	Iosco	D	N	12.1	1.2	5.5
20	Tawas State Park	1	Iosco	D,E	N	7.8	2.4	28.4
21	US 27 Rest Stop	4	Gratiot	R	N	11.3	1.2	12.0

22	Woodland City Park	7	Gratiot	R	N	11.5	1.0	0.0
23	Sleepy Hollow State Park	1	Clinton	D,E	N	6.6	1.0	1.5
24	US 27, Rest Stop, Clinton	4	Clinton	R	N	7.6	1.0	5.0
25	I 69 Rest Stop	4	Calhoun	D,E	N	15.8	1.2	5.5
26	I 94 Rest Stop,near Indiana line	4	Berrien	D	N	13.3	1.0	2.0
27	Warren Dunes State Park	1	Berrien	D	N	11.8	1.0	3.5
28	Warren Woods	1	Berrien	R	N	---	---	---
29	Van Buren State Park	1	Van Buren	R	N	---	---	---
30	I 96 Rest Stop	4	Allegan	R	N	---	---	---
31	West Side County Park	5	Allegan	R	N	---	---	---
32	Saugatuck State Park	1	Allegan	R	N	20.4	1.0	5.0
33	Holland State Park	1	Ottawa	R	N	---	---	---
34	US 31 Rest Stop	4	Ottawa	R	N	---	---	---
35	US 31 Rest Stop	4	Muskegon	R	N	---	---	---
36	Pioneer County Park	5	Muskegon	R	N	---	---	---
37	Hoffmaster State Park	1	Muskegon	R	N	---	---	---
38	Muskegon State Park Campground.	1	Muskegon	R	N	---	---	---
38A	Muskegon State Park, wet natural area within Park	1	Muskegon	E	N	---	---	---
39	Shore Area Township Park	6	Muskegon	R	N	---	---	---
40	Duck Lake State Park	1	Muskegon	R	N	---	---	---
41	US 31 Rest Stop,North of Muskegon County line	4	Oceana	R	N	---	---	---
42	M 20 Rest Stop	4	Oceana	R	N	---	---	---
43	Silver Lake State Park	1	Oceana	D	N	14.9	1.0	2.7
44	US 31 Rest Stop,Hart	4	Oceana	R	N	---	---	---
45	US 31 Rest Stop,near Oceana County line	4	Mason	R	N	---	---	---
46	Ludington City Park	7	Mason	R	N	---	---	---
47	Ludington State Park- Hamlin Beach/Boatlanding	1	Mason	D	N	13.2	1.0	2.7
47A	Ludington State Park-Cedar Campground	1	Mason	D,E	N	---	---	---
48	Hackert Lake	9	Mason	R	N	---	---	---
49	Nordhouse Dunes Campground	9	Mason	R	N	---	---	---
50	Douglas Park	7	Manistee	R	N	---	---	---
51	Orchard Beach State Park	1	Manistee	D,E	N	17.2	1.4	8.6
51A	Audubon Center	11	Manistee	E	N	---	---	---
52	Onkama Village Park	7	Manistee	R	N	---	---	---
53	Manistee River- High Bridge	3	Manistee	D	N	11.6	1.0	3.0
54	Pine Lake Campground	9	Manistee	R	N	---	---	---
55	M 55- Pine River Rest Stop	4	Manistee	R	N	---	---	---
55A	Low Bridge River Access Site	3	Manistee	R	N	---	---	---
56	I 75 Rest Stop, Gaylord	4	Otsego	R	N	---	---	---
57	Ben D. Jeff's Muskegon River Park	4	Missaukee	D	N	8.3	1.0	2.2

58	Bayfront Park, Petoskey	7	Emmet	D, E	N	6.9	1.0	2.0
59	Petoskey State Park	1	Emmet	R	N	---	---	---
60	Fisherman Island State Park	1	Charlevoix	D,E	N	6.5	1.0	2.3
61	US 31 Rest Stop	4	Charlevoix	D	N	7.4	1.0	5.0
62	Susan Lake Boat Access Site	3	Charlevoix	R	N	---	---	---
63	Rifle River, Omer	3	Arenac	D	N	11.0	1.5	10.0
64	Singing Bridge Public Access	3	Arenac	D	N	10.0	1.0	0.7
65	Oscoda Ausable Chamber of Commerce	6	Iosco	D	N	9.9	1.0	0.6
66	Ausable River Mouth Access Site	1	Iosco	D	N	2.2	1.7	15.1
67	Oscoda Township Beach Park	6	Iosco	D	N	16.3	1.2	5.4
68	US 23 Rest Stop, Oscoda	4	Iosco	D	N	11.8	1.3	7.4
69	Harrisville State Park	1	Alcona	D,E	N	11.5	1.0	1.8
70	Sturgeon Point Lighthouse Park	1	Alcona	D	N	9.8	1.0	1.3
71	Horseshoe Lake	9	Alcona	R	N	---	---	---
72	Ausable Vista Overlook	9	Alcona	R	N	---	---	---
73	Pere- Marquette Rail Trail	1	Isabella	D	N	5.7	1.0	1.1
74	Herrick Park	5	Isabella	D	N	8.1	1.2	5.9
75	Shamrock Park	7	Clare	R	N	17.7	1.1	3.5
76	Pettit Park	7	Clare	D	N	7.5	1.0	2.0
76A	Pettit Park- Natural Area	7	Clare	E	N	---	---	---
77	US 27 Rest Stop, Clare	4	Clare	R	N	2.1	1.0	1.0
78	US 27 Rest Stop	4	Roscommon	R	N	---	---	---
79	Reedsburg Dam State Forest Campground	2	Missaukee	D	N	6.2	1.1	3.3
80	South Higgins Lake State Park	1	Roscommon	D,E	N	12.9	1.1	4.0
81	Onaway State Park	1	Presque Isle	D,E	N	6.9	1.3	6.1
82	Ocqueoc Falls Forest Campground.	2	Presque Isle	R	N	---	---	---
82A	Ocqueoc Falls Picnic Area	2	Presque Isle	R	N	---	---	---
83	US 23 Rest Stop	4	Presque Isle	D	N	---	---	---
84	P. H. Hoeft State Park	1	Presque Isle	D	N	---	---	---
85	Presque Isle Lighthouse	1	Presque Isle	D	N	---	---	---
86	Huron Beach	3	Presque Isle	R	N	---	---	---
86A	Bell's Landing	3	Presque Isle	R	N	---	---	---
87	Wixom Lake	3	Gladwin	R	N	---	---	---
88	M 30 Rest Stop	4	Gladwin	R	N	18.9	1.0	5.0
89	Loon Lake Recreation Area	9	Oscoda	R	N	---	---	---
90	Island Lake Campground	9	Oscoda	R	N	---	---	---
91	Wagner Lake Campground	9	Oscoda	R	N	---	---	---
92	Mack Lake Campground	9	Oscoda	R	N	---	---	---
93	Oscoda County Park	5	Oscoda	D	N	1.7	1.3	5.9
94	Smith Lake Picnic Area	5	Oscoda	D	N	1.9	1.0	3.8
95	USFS Ausable River Access Site	9	Oscoda	D	N	6.3	1.0	1.8
96	Whirlpool Access Site	3	Oscoda	R	N	---	---	---

97	M 33/DNR River Access Site	3	Oscoda	R	N	--	--	--
98	Mio Pond	3	Oscoda	R	N	11.3	1.0	3.6
99	Ausable River Scenic Overlook	9	Oscoda	R	N	---	---	---
100	Camp Ten Bridge	3	Oscoda	R	N	---	---	---
101	Paramatee Bridge State Forest Campground	2	Oscoda	R	N	---	---	---
102	Smith's Bridge	3	Crawford	R	N	---	---	---
103	William Mitchell State Park-Campground	1	Wexford	D,E	N	14.5	2.1	16.6
104	Kenwood City Park	7	Wexford	D	N	10.4	1.3	5.8
105	Hemlock Campground	9	Wexford	D	N	4.6	1.0	1.1
106	Harvey Bridge	3	Wexford	D	N	9.5	1.0	2.2
107	William Mitchell State Park-Picnic and Beach Area	1	Wexford	R	N	---	---	---
108	Baxter State Forest Campground	2	Wexford	R	N	---	---	---
109	Baxter Bridge Access Site	3	Wexford	D	N	8.4	1.0	1.8
110	Woodward Lake Picnic Area	9	Wexford	R	N	---	---	---
111	US 131 Roadside Park/Manistee River Access Site	4	Wexford	D,E	N	6.2	1.0	1.7
112	Old 131 Manistee River Access Site	3	Wexford	R	N	2.4	1.0	1.0
113	Goose Lake Forest Campground	2	Missaukee	R	N	---	---	---
114	North Higgins Lake State Park	1	Crawford	D	N	8.0	1.1	1.3
115	Old 131 Campground	2	Wexford	R	N	---	---	---
116	US 131 Roadside Park	4	Wexford	R	N	---	---	---
117	Kensington Metro Park- Nature Area	8	Livingston	D,E	Y	---	---	---
118	Kensington Metro Park- Maple Beach	8	Oakland	D	Y	14.5	1.3	6.1
119	Kensington Metro Park- Spring Hill Picnic Area	8	Oakland	D	Y	6.7	1.1	3.1
120	Island lake Recreation. Area- Kent Lake Beach/Picnic Area	1	Livingston	D,E	Y	13.0	1.0	2.4
121	Holly Rereation Area- Heron Lake Beach	1	Livingston	D	N	7.9	1.0	1.0
122	Holly Recreation Area- Campsite	1	Livingston	D	N	---	---	---
122A	Holly Recreation Area- Natural Area	1	Livingston	E	Y	---	---	---
123	Ortonville Recreation Area- Big Fish Lake	1	Lapeer	D	N	16.4	1.0	1.0
124	Groveland Oaks County Park	5	Oakland	D	ND	---	---	---
125	Seven Lakes State Park- Sand Lake Campground	1	Oakland	D	N	5.1	1.3	4.1
125A	Seven Lakes State Park- area in Park with natural ash	1	Oakland	E	Y	---	---	---
125B	Seven Lakes State Park- Big-Seven Shelter Area	1	Oakland	D	Y	8.6	1.0	1.0
126	Waterloo Recreation. Area-Sugarloaf Lake Campground	1	Washtenaw	D	ND	---	---	---

127	Waterloo Recreation Area- Mud Lake Access Site	1	Washtenaw	R	N	---	---	---
128	Chelsea City Park	7	Washtenaw	R	N	---	---	---
129	Waterloo Recreation Area- Crooked Lake	1	Washtenaw	R	ND	---	---	---
130	Pinckney Recreation. Area- Bruin Lake	1	Washtenaw	D,E	N	16.0	1.1	1.2
130A	Hadley Rd., private land near Unadillo	11	Washtenaw	E	N	---	---	---
131	Pinckney Recreation Area- Silver Lake	1	Washtenaw	D,E	N	16.1	1.0	1.2
132	Pinckney Recreation Area- Halfmoon Lake	1	Washtenaw	D	Y	10.5	1.0	1.9
133	Brighton Rereation Area- Bishop Lake Campground	1	Livingston	D	Y	11.0	1.0	1.4
134	Brighton Lake Recreation Area- Appleton Lake Campground.	1	Livingston	R	N	---	---	---
135	Proud Lake Recreation Area- Proud Lake Campground	1	Oakland	R	ND	---	---	---
136	Proud Lake Recreation Area-Huron River Fishing Site	1	Oakland	D	Y	8.1	1.4	11.2
137	Highland Recreation. Area- Field Trial Area #1, Silo Course	1	Oakland	D	Y	12.8	2.5	22.5
138	Dodge Brothers State Park- Dodge #10	1	Oakland	R	ND	---	---	---
139	Proud Lake Recreation Area- Powers Beach	1	Oakland	R	N	---	---	---
140	US 23 Rest Stop	4	Genesee	D	Y	5.9	1.7	13.8
141	US 23 Rest Stop, Fenton	4	Shiawassee	D	Y	12.7	1.8	20.8
142	Hertiage Park, Frankenmuth	7	Saginaw	D	N	13.7	1.0	1.0
143	Dexter- Huron Metro Park	8	Washtenaw	D,E	Y	14.8	1.0 1.	1.4
144	Delhi Metro Park	8	Washtenaw	D,E	Y	15.6	2.3	25.0
145	Barton Nature Area	7	Washtenaw	R	Y	---	---	---
146	Barton Park	7	Washtenaw	R	Y	---	---	---
147	Hudson- Mills Metro Park	8	Washtenaw	D,E	Y	14.9	1.0	1.4
148	Independence Lake County Park	5	Washtenaw	D	N	8.5	1.0	1.4
149	Waterloo Recreation Area- Cedar Lake	1	Washtenaw	R	N	---	---	---
150	Waterloo Recreation Area- Crooked Lake	1	Washtcenaw	R	N	---	---	---
151	Waterloo Recreation Area- Horseman's Campground	1	Washtenaw	R	N	---	---	---
152	I 94 Rest Stop, Ann Arbor	4	Washtenaw	D	N	15.8	1.1	2.7
153	I 23 Rest Stop, Ann Arbor	4	Washtenaw	R	N	---	---	---
154	I 75 Rest Stop, Monroe	4	Monroe	D	Y	16.1	1.6	2.2
155	M 50, Dundee Community Center	7	Monroe	D	N	20.7	1.3	5.5
156	Waterloo Park, Monroe	7	Monroe	D	N	---	---	---
157	Sterling C Monroe State Park	1	Monroe	R	N	---	---	---

158	Chippewassee Park /N. Chippewa River Walk	7	Midland	D	N	---	---	---
159	Currie Golf Course	11	Midland	D,E	N	---	---	---
160	Tridge by Farmer's Market	7	Midland	D	N	---	---	---
161	Emerson Park	7	Midland	D	N	---	---	---
162	Tittabawassee Park	6	Saginaw	R	N	---	---	---
163	Memorial Park, Freeland	7	Saginaw	R	N	---	---	---
164	Roselawn Cementary	11	Saginaw	D	N	---	---	---
165	Pere- Marquette Rail Trail, Coleman	1	Midland	D	N	---	---	---
166	Imerman Memorial Park/M47	5	Saginaw	D,E	N	---	---	---
167	I 75 Rest Stop, Gaylord	4	Otsego	R	N	---	---	---
168	I 75 Rest Stop, Grayling-north	4	Crawford	R	N	---	---	---
169	I 75 Rest Stop, Grayling-south	4	Crawford	R	N	---	---	---
170	I 75 Rest Stop, near Saginaw	4	Saginaw	R	N	---	---	---
171	I 27 Rest Stop, Higgins Lake	4	Roscommon	R	N	----	---	---
172	T37NR6WS20, stand 10-thin	2	Emmet	E	N	---	---	---
173	T37N R6WS20, stand10-nat.	2	Emmet	E	N	---	---	---
174	T37NR6WS20, stand 8- thin	2	Emmet	E	N	---	---	---
175	T37NR6WS20, stand 8- nat.	2	Emmet	E	N	---	---	---
176	T37NR6WS32, stand 29- thin	2	Emmet	E	N	---	---	---
177	T37N R6WS32, stand 29-nat.	2	Emmet	E	N	---	---	---
178	Univ. Mich. Botanical Garden	12	Washtenaw	E	Y	---	---	---
179	Lower Huron Metro Park	8	Wayne	E	Y	---	---	---
180	Maybury State Park	1	Wayne	E	Y	---	---	---
181	Sturgis	7	St. Joseph	E	N	---	---	---
182	Osceola (Ken Ford- private)	11	Osceola	E	N	---	---	---
183	Barry (MUCC, Jim Bruce)	11	Barry	E	N	---	---	---
184	Calhoun (MUCC, Jim Bruce)	11	Calhoun	E	N	---	---	---
185	Ives Road Fen (Nat. Conser)	11	Lenawee	E	N	---	---	---
186	YMCA Camp, Shiawassee R.	11	Shiawassee	E	N	---	---	---
187	Sharon Hollow Preserve	11	Washtenaw	E	N	---	---	---
188	Mesic School Forest (Steve Begin)-thin	7	Wexford	E	N	---	---	---
189	Mesic School Forest-thin	7	Wexford	E	N	---	---	---
190	Mesic School Forest-wet area	7	Wexford	E	N	---	---	---
191	Mesic School Forest-thin	7	Wexford	E	N	---	---	---
192	Steve's K. property	11	Wexford	E	N	---	---	---
193	(Steve's)92 year old property	11	Wexford	E	N	---	---	---
194	Belle Isle	7	Wayne	E	Y	---	---	---

Table 2: Plots visited in Lower Michigan during Fall 2003. Data includes forest type, risk to EAB, allocation and ash distribution, number and origin of ash.

Key:
 Risk: 0=None, 1=low, 2=moderate, 3=high, 4=very high, 5= extremely high
 Species type: 0=absent, 1=green ash, 2=white ash, 3=black ash
 Origin: N=natural, P=planted, B=both
 Distribution: 0=No ash, 1=Mostly green ash, 2=Mostly white ash, 3=Mostly black ash, 4=Equal amount of green and white ash, 5
 Equal amount of green and white black, NV=Not visited yet
 Number of ash: If area listed was small and/or the number of ash trees were sparse, 100% estimates were attained. In areas that were much larger, the number of ash were estimated as Few, Moderate, or Many.

Plot	Location	TRS	Forest Type	Risk	Green Ash	White Ash	Black Ash	Distribution	# of Ash	Origin
1	Wilson State Park	T19NR4WS17	Oak	2	1	2	0	4	50-60	Mostly P
2	Burt Lake State Park	T35NR3WS25	Oak-maple; Planted ash in picnic area and boat landing; natural ash along fence	2	1	2	0	1	50-60	B
3	Maple Bay State Forest Campground	T36NR3WS24	Boreal forest	4	1	0	3	5	Many	N
4	Wilderness State Park- Campground	T39NR5WS26	Conifer-aspen	1	1	0	3	5	4	P
5	Cecil Bay County Park	T39NR4WS29	Open mowed area with planted ash trees	2	1	2	0	1	25	Mostly P
6	Wallace Nunn Center, Mackinaw City	T39NR3WS18	Open mowed, irrigated, planted rest area	2	1	2	0	1	12	P
7	Mill Creek Historical Site	T39NR3WS27	Open mowed area with planted trees including ash around historical site; Maple/beech forests and wet sites including ash near buildings	3	0	2	0	2	Moderate	B
8	I 75 Rest Stop, South of Mackinaw City	T38NR3WS26	Maple-beech	0	0	0	0	0	0	Mostly N
9	US 23 Roadside Park	T38NR2WS6	Open mowed area with mainly ash, birch, spruce, and arborvitae; Some natural ash along stream	2	1	0	0	1	15	Mostly P
10	Fort Michilimackinac	T39NR3WS7	Open mowed park-like area with mostly conifers, birch, oaks	0	1	2	0	4	1	N
11	Aloha State Park	T36NR1WS8	Drained marsh; Mostly planted ash, red maple, and arborvitae	5	1	0	0	1	Many	Mostly P

12	Cheboygan State Park	T38NR1WS22	Campground-mainly arborvitae, white pine, aspen, birch, and few ash; Many black and green ash in wet area behind campground	2	1	0	3	5	Few in cmgd; many in natural area	Mostly N
13	I 75 Rest Stop, Pellston	T36NR3WS24	Oaks/red maple	0	0	0	0	0	0	Mostly N
14	Bay City State Recreation Area	T14NR5ES32	Picnic area/visitor center-many planted ash; Campground-natural oak with planted ash and maple in cmgd; Large cottonwood and small ash in wet area next to organizational cmgd	4	1	2	3	1	Many	B
15	Pinconning Park Campground/Natural Area	T17NR4ES19	Well developed campground with planted ash; About 200 acres of almost pure wet ash	5	1	0	3	5	Many	Cmgd-P; Natural area-N
16	US 23 Rest Stop, Linwood	T16NR4ES29	Open mowed area with planted trees; Nearby natural area=oak and green ash	2	1	0	0	1	10 planted in rest area; 30 natural ash behind rest area	B
17	M 13 Rest Stop	T18NR4ES34	Mowed area with mixed conifers and hardwoods	1	1	2	0	4	9	B
18	US 23 Rest Stop	T19NR5ES21	Mixed conifers and hardwoods	2	1	0	3	1	20	Mostly P
19	East Tawas City Park	T22NR8ES29	Well developed city park with many campsites; Mostly mixed hardwoods	2	1	2	0	1	20	Mostly P
20	Tawas State Park	T22NR8ES30	Oak and mixed hardwoods	5	1	2	0	4	Many	Mostly P
21	US 27 Rest Stop	T11NR2WS7	Primarily dry oaks with other hardwoods and conifers	1	1	0	0	1	5	P
22	Woodland City Park	T11NR3WS36	Mixed conifers and hardwoods	1	1	0	3	5	2	P
23	Sleepy Hollow State Park	T7NR1WS34	Mixed hardwoods with many elms and ash	5	1	0	0	1	Many	Mostly N
24	US 27, Rest Stop, DeWitt	T6NR2WS21	Upland hardwoods	1	1	0	0	1	Very few	N
25	I 69 Rest Stop	T2SR6WS3	Open grown planted trees; Norway maple, red pine, ash and hackberry; Two acre northern hardwood forest with a few large ash behind rest stop	4	1	0	0	1	Many	B, Mostly P

26	I 94 Rest stop, near Indiana line	T8SR21WS14	Open grown with large planted oaks, maples, and ash	2	1	2	0	1	20	P
27	Warren Dunes State Park	T6SR20WS35	Oak and maple; Scattered ash in campground, along edges and in picnic areas	2	1	2	0	2	Many	B
28	Warren Woods	T7SR20WS7	Beech and maple	0	0	0	0	0	Few	N
29	Van Buren State Park	T15SR17WS32	Mixed deciduous	0	0	0	0	0	0	P
30	I 96 Rest Stop	T2NR16WS32	Beech, maple, and oak	0	0	0	0	0	0	B
31	West Side County Park	T2NR16WS7	Deciduous hardwoods and red pine	0	0	0	0	0	0	B
32	Saugatuck State Park	T4NR16WS28	Picnic area has primarily deciduous hardwoods and some pines; Rural forest is oak-beech	0	1	0	0	1	1	P
33	Holland State Park	T5NR16WS33	Beach/picnic area campground has cottonwood and red maple; Other campground also includes pine.	0	0	0	0	0	0	P
34	US 31 Rest Stop	T7NR16WS15	Deciduous hardwoods and red pine	0	0	0	0	0	0	P
35	US 31 Rest Stop	T11NR16WS17	Oaks and maples with a few red pine	0	0	0	0	0	0	P
36	Pioneer County Park	T10NR17WS6	Oak and red pine; Natural habitat is oak, sassafras, and eastern hemlock	0	0	0	0	0	0	P
37	Hoffmaster State Park	---	Oaks, beech, and white pine	0	0	0	0	0	0 - Very few	N
38	Muskegon State Park Campground	T10NR17WS2	Oak, white pine, and beech; Recreation area is oak and white pine; Dry natural stands are oak and beech; Natural wet stands are conifers and ash.	3	1	0	0	1	Very Few in Campgrounds/Rec area. Many in wet area	N
39	Shore Area Township Park	T10NR17WS13	Open park area, primarily grass and sugar maple, red oak, and Scots pine.	0	0	0	0	0	0	B
40	Duck Lake State Park	T11NR17WS18	Oak, sassafras, red, and Scots pine	0	0	0	0	0	0	N
41	US 31 Rest Stop near Muskegon County Line	T13NR17WS32	Oak and maple with some white pine	0	0	0	0	0	0	N
42	M 20 Rest Stop	T14NR17WS36	Rest area mowed with large oak and beech; Also open area with planted maple and Scots pine; Nearby forest is oak/beech	0	0	0	0	0	0	B

43	Silver Lake State Park	T15NR18WS29	Oak and pine in campground; Some ash located near the check-in station	2	1	2	0	2	15	B, Mostly P
44	US 31 Rest Stop, Hart	T15NR17WS31	Open planted and mowed area with maple and blue spruce; Natural area has oak, beech, and maple	0	0	0	0	0	0	B
45	US 31 Rest Stop near Oceana County Line	T17NR17WS19	Oak, beech, and maple	0	0	0	0	0	0	N
46	Ludington City Park	T18NR18WS5	Open, planted maple, and spruce.	0	0	0	0	0	0	P
47	Ludington State Park-Cedar Campground	---	Cedar campground has many as; Pine campground has very few ash; Hamlin Lake and boat access site has many ash	4	1	2	0	2	Many	B, Mostly P
48	Hackert Lake	T18NR17WS3	Maple, oak, and white pine	0	0	0	0	0	0	B
49	Nordhouse Dunes, Campground	T20NR18WS23	Picnic/cmgd has mixed oak, beech, hemlock, red maple, and pine; Cmgd has oak and pine	0	0	0	0	0	0	N
50	Douglas Park	T21NR17WS11	Open, grassy area with maple, paper birch, cottonwood, and white spruce	0	0	0	0	0	0	P
51	Orchard Beach State Park	T22NR17WS25	Cmgd is mostly planted with about 60% maple, 40% ash and 2% white oak; Natural area is maple, ash, and oak	5	1	2	0	4	Many	Mostly P
51 A	Audobon Center		Natural area has maple, oaks, and ash	5	1	2	0	4	Many	N
52	Onekama Village Park	T23NR16WS26	Open mowed area with large silver maples.	1	0	2	0	2	5	P
53	Manistee River - High Bridge	T22NR14WS33	Wet area next to river primarily ash.	4	0	2	0	2	20	N
54	Pine Lake Campground	T21NR14WS21	Maple, oak, birch, and pine; A few ash trees on the road to the campground; No ash in campsite	1	0	0	0	0	Few	N
55	M 55 Pine River	T21NR13WS17	Mowed picnic area with pine, maple, and oak.	0	0	0	0	0	0	B, Mostly P
55 A	Low Bridge River Access Site	T21NR13WS17	Mixed conifers and hardwoods	0	0	0	0	0	0	N
56	I 75 Rest Stop	T30NR3WS28	Oak, red maple, and red pine	0	0	0	0	0	0	B
57	Ben D. Jeff's Muskegon River Park	T23NR5WS33	Mixed deciduous and conifer	4	1	0	0	1	20	N

58	Bayfront Park, Petoskey	T39NR5WS6	Park-like, irrigated with the majority being ash; Also paper birch, maple, red pine, and red oak	4	1	2	0	1	Many	P
59	Petoskey State Park	T35NR5WS27	Beach and picnic area is cottonwood, aspen, arborvitae, red pine, and oak; Cmgd has mixed hardwoods and pines	1	0	0	0	0	Few	N
60	Fisherman Island State Park	T34NR8WS32	Campground has mixed conifers and hardwoods; Ash scattered throughout campground	4	1	2	3	2	Moderate	N
61	US 31 Rest Stop	T34NR7WS9	Boreal-like; Arborvitae, white pine, and paper birch	2	1	2	0	1	15	N
62	Susan Lake Boat Access Site	T34NR7WS20	Arborvitae and willow.	1	0	0	0	0	Few	N
63	Rifle River, Omer	T19NR5ES15	Aspen and ash; Wet area next to the river.	4	1	2	0	1	Moderate	N
64	Singing Bridge Public Access	T20NR7ES12	Mixed deciduous and white pine; Most ash at access site was located along fence row on private property.	4	1	2	0	1	15	P
65	Oscoda Ausable Chamber of Commerce	T23NR9ES10	Very open park area with planted ash	4	0	2	0	2	10	P
66	Ausable River Mouth Access Site	T23NR9ES10	Open, planted with oak, locust, maple, and ash; New site within the last five years	4	1	0	0	1	20	P
67	Oscoda Township Beach Site	T23NR9ES3	Open grown planted hardwoods; Ash and maple	4	1	0	0	1	13	P
68	US 23 Rest Stop	T24NR9ES22	Open mixed deciduous and hardwood	2	1	0	0	1	15	B
69	Harrisville State Park	T26NR9ES13	Mixed conifer and hardwood	4	1	2	0	1	Many	N
70	Sturgeon Point Lighthouse	T27NR9ES30	Mixed conifer and hardwood; Fairly wet	4	1	0	0	1	50	B
71	Horseshoe Lake	T26NR6ES31	Mixed hardwood and conifer; Fairly dry	0	0	0	0	0	0	N
72	Ausable Vista Overlook	T25NR5ES11	Oak, maple, and aspen.	0	0	0	0	0	0	N
73	Pere- Marquette Rail Trail	T16NR3WS14	Ash, aspen, cherry, and boxelder in drainage ditch	3	1	0	0	1	Over 50	N
74	Herrick Park	T16NR4WS1	Very variable site; Open area with planted trees; Red pine plantations; Natural stand of basswood and white ash; Not large enough for an eval plot.	2	0	2	0	2	Moderate	B

75	Shamrock Park	T17NR4WS26	Open grassy and planted; All deciduous, maple beech, cherry, and ash	2	1	2	0	1	9	P
76	Pettit Park	T17NR4WS27	Campground; Open grass with planted deciduous trees	5	1	2	0	4	Many	P
76 A	Pettit Park- Natural Area	---	Natural area is wet with green ash, silver maple, and elm	5	1	0	0	1	Many	N
77	US 27 Rest Stop, Clare	T17NR4WS22	Mowed open grassy area with planted deciduous trees and red pine	2	1	0	0	1	Few	P
78	US 27 Rest Stop	T21NR4WS4	Mixed conifer and hardwood, red and white pine, maple, and oak	0	0	0	0	0	0	B
79	Reedsburg Dam State Forest Campground	T23NR5WS25	Campground has mixed conifers and hardwoods; Along the dam edge is willow black spruce and speckled alder; Wet areas some green and black areas	4	1	0	3	5	Moderate	N
80	South Higgins Lake State Park	T24NR3WS33	Native vegetation of oak, maple, and white pine; Disturbed parts of the campground has many planted ash	4	1	2	0	2	Many	Mostly P
81	Onaway State Park	T35NR2ES6	Natural area has mixed hardwoods and white pine; Campground is white pine, red and sugar maple with a few large ash; Picnic area has green ash	4	1	2	3	1	Moderate	Mostly N
82	Ocqueoc Falls Forest Campground and Picnic Area	T35NR3ES27	Dry oaks, red pine, and white pine	0	0	0	0	0	0	N
83	US 23 Rest Stop	T37NR2ES14	Boreal with conifer and deciduous trees	2	1	0	0	1	15	B
84	P.H. Hoeft State Park	T36NR5ES32	Boreal with conifer and oaks	4	1	0	0	1	Moderate	B
85	Presque Isle Lighthouse	T34NR8ES17	Arborvitae and mixed deciduous aspen, maple, and ash	2	1	0	0	1	20	B
86	Huron Beach	T36NR3ES17	Arborvitae and pines	0	0	0	0	0	0	N
86 A	Bell's Landing	T36NR3ES22	Boreal	0	0	0	0	0	0	
87	Wixom Lake	T17NR1WS36	Oak, maple, and aspen	0	0	0	0	0	0	B
88	M 30 Rest Stop	T20NR1ES33	Mixed deciduous and white pine, and arborvitae	2	1	0	0	1	5	P
89	Loon Lake Recreation Area	T25NR2ES36	Dry oaks, aspen, and pines	0	0	0	0	0	0	N
90	Island Lake Campground	T25NR2ES36	Dry oaks, pines, and arborvitae	0	0	0	0	0	0	N
91	Wagner Lake Campground	T25NR2ES13	Dry oaks, jack, and red pine	0	0	0	0	0	0	N

92	Make Lake Campground	T25NR3ES10	Jack pine, oaks, red pine, and aspen	0	0	0	0	0	0	N
93	Oscoda County Park	T26NR2ES12	Open, park-like with many planted and natural trees; Oak, jack pine, red maple, and ash	4	1	2	0	4	30-40	B
94	Smith Lake Picnic Park	T27NR3ES17	Open, planted picnic area; Including maples and ash	4	1	2	0	4	50	P
95	USFS Ausable River Access	T26NR3ES11	Pine, aspen, and green ash on disturbed site	4	1	0	0	1	20	N
96	Whirlpool Access Site	T27NR2ES31	Mixed conifers and hardwoods	0	0	0	0	0	0	N
97	M 33/DNR River Access Site	---	Oaks, maples, aspen, and white spruce	0	0	0	0	0	0	B
98	Mio Pond	T26NR2ES11	Oak, maple, paper birch, and ash.	3	1	2	0	4	5	N
99	Ausable River Scenic Overlook	T26NR3ES9	Jack pine, oaks, and aspen	0	0	0	0	0	0	N
100	Camp Ten Bridge	T26NR2ES3	Aspen, pine, willow, and balsam fir	0	0	0	0	0	0	N
101	Paramatee Bridge State Forest Campground	T26NR1ES3	Red pine, pin oak, red spruce, trembling aspen, fir, and birch	0	0	0	0	0	0	B
102	Smith Bridge	---	Aspen, birch, and white pine	0	0	0	0	0	0	N
103	William Mitchell State Park Cmgd	T21NR9WS7	Maple, pine, ash, spruce, and oak	5	0	2	0	2	Many	P
104	Kenwood City Park	T21NR9WS6	Deciduous, with white pine	4	1	2	0	1	30	Mostly P
105	Hemlock Campground	T21NR10WS10	Mixed conifers and deciduous; Heavy hemlock	3	1	2	0	2	20	N
106	Harvey Bridge	T24NR11WS28	Arborvitae	4	1	0	0	1	20	N
107	William Mitchell State Park Picnic and Beach Area	---	Oak, pine, and maple in open grassy area	0	0	0	0	0	0	B
108	Baxter State Forest Campground	---	Red and white pine plantation along the river with aspen, locust, and maple.	0	0	0	0	0	0	B
109	Baxter Bridge Access Site	T24NR10WS9	Primarily green ash along river's edge	4	1	0	0	1	Over 30	N
110	Woodward Lake Picnic Area	T22NR10WS17	Maple, beech, and cherry	0	0	0	0	0	0	N
111	US 131 Roadside Park/Manistee River Access Site	T24NR9WS9	Ash and arborvitae	5	1	2	3	3	Moderate	N
112	Old 131 Manistee River Access Site	T24NR9WS8	Boreal, mixed conifers, and hardwoods	1	1	0	0	1	Few	N
113	Goose Lake Forest Campground	T23NR8WS26	Dry oak site with red and white pine	0	0	0	0	0	0	B

114	North Higgins Lake State Park	T25NR4WS35	Oak, maple, white spruce, arbutus, and locust	4	0	2	3	2	20	B
115	Old 131 Campground	T24NR9WS8	Deciduous hardwood conifer site	0	0	0	0	0	0	N
116	US 131 Roadside Park	T24NR9WS9	Upland maple site	0	0	0	0	0	0	N
117	Kensington Metro Park-Nature Area	T2NR6ES36	Variable with upland maple, oak and lowland black ash	5	1	0	3	3	Many	N
118	Kensington Metro Park-Maple Beach	T2NR7ES32	Mixed hardwood	5	1	0	0	1	15	P
119	Kensington Metro Park- Spring Hill Picnic Area	T2NR7ES33	Oak and hickory	5	1	2	0	2	20	B
120	Island Lake Rec Area - Kent Lake Beach/Picnic Area	T1NR6ES4	Open mowed area with many planted ash; Natural area is primarily oak	5	1	2	0	4	Many	P
121	Holly Recreation Area - Heron Lake Beach	T5NR8ES29	Open grown planted area with maple and ash.	5	1	0	0	1	15	P
122	Holly Rec Area - Campground	T5NR8ES28	Natural oak with some planted trees	5	1	0	0	1	Over 20	B
122	Holly Rec Area - Natural Area	---	Wet deciduous hardwood forest with some ash	5	1	0	0	1	Over 50	N
123	Ortonville Rec Area - Big Fish Lake	---	Open grown planted oak, maple, and ash	5	1	2	0	1	20	P
124	Groveland Oaks County Park	T5NR8ES29	Open planted with oak and ash (Cmgd locked)	5	1	0	0	1	Over 20	P
125	Seven Lakes State Park - Sand Lake Campground	T5NR7ES29	Newly developed campground, maple, ash, pine, and spruce	5	1	2	0	4	Over 20	P
125	Seven Lakes State Park - area in park with natural ash	---	Not analysed yet	5	--	--	--	NV	Many	N
125	Seven Lakes State Park - Big Seven Shelter Area	T5NR7ES30	Open, mowed, and planted; Norway maple and ash	5	1	0	0	1	Over 30	P
126	Waterloo Rec Area - Sugarloaf Lake Cmgd	T1SR3ES31	Oak, maple, and hickory	4	1	0	0	1	10	B
127	Waterloo Rec Area - Mud Lake access site	---	Maple and oak	0	0	0	0	0	0	N
128	Chelsea City Park	---	Mowed picnic area with oak, maple, cherry walnut, and honey locust	0	0	0	0	0	0	B
129	Waterloo Rec Area - Crooked Lake	---	Oak and cedar	0	0	0	0	0	0	N
130	Pinckney Rec Area - Bruin Lake	T1SR3ES2	Oak, hickory, and maple	4	0	2	0	2	50	B

130 A	Hadley Rd, private land near Unadillo	---	Not analysed yet	N V	--	--	--	NV	--	N
131	Pinckney Rec Area - Silver Lake	T1SR4ES4	Mowed picnic area with planted maple, oak, locust, and cedar	5	0	2	0	2	50	P
132	Pinckney Rec Area - Halfmoon Lake	T1SR4ES6	Open grown oaks and maple; Some ash	4	0	2	0	2	11	P
133	Brighton Rec area - Bishop Lake Campground	T1NR5ES3	Open grown planted cmgd; Oak, maple, honey locust, sycamore, and ash	5	0	2	0	2	Over 40	P
134	Brighton Lake Rec Area - Appleton Lake Campground	T1NR5ES3	Oak and some pine	0	0	0	0	0	0	N
135	Proud Lake Rec Area - Proud Lake Campground	T2NR8ES20	Natural oak along lake shore; Cmgd very diverse including maple, cedar, oak, locust, red pine, and white pine	1	1	0	0	1	3	B
136	Proud Lake Rec Area - Huron River Fishing Site	T2NR8ES18	Disturbed area next to road; Primarily ash	5	1	0	0	1	15	N
137	Highland Rec Area - Field Trial Area #1, Silo Course	T3NR7ES26	Very disturbed area with mostly planted ash	5	0	2	0	2	Over 20	P
138	Dodge Brothers State Park - Dodge #10	T3NR7ES26	Maple, oak, and red pine	0	0	0	0	0	0	B
139	Proud Lake Rec Area - Powers Beach	T2NR7ES13	Dry oak; No ash	0	0	0	0	0	0	N
140	US 23 Rest Stop	---	Mowed open area has maple, oak, and ash; Natural area has oak, hickory, basswood, and ash	5	1	2	0	4	20	b
141	US 23 Rest Stop, Fenton	T5NR6ES14	Mowed rest stop has oak, maple, honey locust, ash, and red pine; Natural forest is oak and red maple	5	0	2	0	2	15	P
142	Heritage Park, Frankenmuth	T11NR6ES27	Open, mowed, and planted; Mostly ash	5	0	2	0	2	50	Mostly P
143	Dexter - Huron Metro Park	T2SR5ES4	Natural forest has oak, maple, and hickory	5	1	2	0	4	Over 20	P
144	Delhi Metro Park	T2SR5ES11	Picnic area is mowed with planted maple, ash, and sycamore; Oak and ash near river	5	1	0	0	1	Over 20	Mostly P
145	Barton Nature Area	T2SR6ES17	Oak, aspen, and ash (Most ash already dead)	5	1	0	0	1	Over 10	N
146	Barton Park	T2SR6ES18	Willow, cottonwood, and bur oak	5	1	0	0	1	Few	N
147	Hudson - Mills Metro Park	T1SR5ES20	Maple and oak; Many planted ash in park	5	1	2	0	1	Over 50	P

148	Independence Lake Co. Park	T1SR5ES12	Elm and ash planted in parking lots; Mixed deciduous forest in natural areas	5	0	2	0	2	20	Mostly P
149	Waterloo Rec Area - Cedar Lake	T2SR3ES9	Oak, maple, and bigtooth aspen	0	0	0	0	0	0	N
150	Waterloo Rec Area - Crooked Lake	T2SR3ES8	Oak and red maple	0	0	0	0	0	0	N
151	Waterloo Rec Area - Horseman's Campground and Frontier Cabins	T1SR3ES31	Dry oaks	0	0	0	0	0	0	N
152	I 94 Rest Stop, Ann Arbor	T2SR5ES17	Open, mowed area with maple, oaks, and ash	5	0	2	0	2	12	P
153	I 23 Rest Stop, Ann Arbor	T1SR6ES32	Oak and maple	0	0	0	0	0	0	Mostly P
154	I 75 Rest Stop, Monroe	T7SR9ES	Planted oaks, maple, and ash.	5	1	2	0	1	20	P
155	M 50, Dundee Community Center	---	Well developed picnic area; Maple, pine, ash, sycamore, and crabapple	5	1	2	0	1	12	Mostly P
156	Waterloo Park - Monroe	---	Cottonwood and ash.	5	1	0	0	1	Over 10	P
157	Sterling C Monroe State Park	T7SR9ES2	Open grown developed cmgd with crabapple, oak, and maple	2	1	0	0	1	2	N
158	Chippewassee Park / N Chippewa River Walk	T14NR2ES17	Oak, maple, cottonwood, and ash	5	1	0	0	1	Over 15	B
159	Currie Golf Course	T14NR2ES17	Golf course is all planted and diverse; Natural area is deciduous hardwoods with ash	5	1	0	3	5	Over 50	B
160	Tridge by Farmer's Market	T14NR2ES17	Deciduous hardwoods	5	1	0	0	1	Over 15	B
161	Emerson Park	T14NR2ES17	Open, planted maples and ash	5	1	0	0	1	Over 20	Mostly P
162	Tittabawassee Park	T13NR3ES34	Cottonwood, maple, and aspen	2	1	0	0	1	Few	B
163	Memorial Park, Freeland	T13NR3ES21	Maple and oak	1	1	0	0	1	2	P
164	Roselawn Cemetary	T12NR4ES29	Mixed conifers and hardwoods	5	1	0	0	1	Over 50	P
165	Pere - Marquette Rail Trail, Coleman	T16NR2WS30	Aspen, ash, and locust	5	1	0	0	1	20-50	N
166	Imerman Memorial Park/M 47	T12NR3ES3	Mowed picnic area with maple and ash; Large natural wet area has ash	5	1	0	0	1	Many	Mostly N
167	I 75 Rest Stop, Gaylord	T30NR3WS28	Oak and red pine	0	0	0	0	0	0	B
168	I 75 Rest Stop, Grayling- North	T27NR3WS7	Oak, maple, and aspen	0	0	0	0	0	0	B
170	I 75 Rest Stop, Near	T11NR5ES26	Mostly pine and maple	0	0	0	0	0	0	P

	Saginaw									
171	I 27 Rest Stop, Higgins Lake	T24NR4WS27	Oak and pine	0	0	0	0	0	0	B
172	Michigan DNR, stand 10 - thin	T37NR6WS20	Northern hardwoods; ash, maple, and beech	5	0	2	0	2	Many	N
173	Michigan DNR, stand 10 - nat	T37NR6WS20	Northern hardwoods; ash, maple, and beech	5	0	2	0	2	Many	N
174	Michigan DNR, stand 8 - thin	T37NR6WS20	Northern hardwoods; ash, maple and beech	5	0	2	0	2	Many	N
175	Michigan DNR, stand 8 - nat	T37NR6WS20	Northern hardwoods; ash, maple and beech	5	0	2	0	2	Many	N
176	Michigan DNR, stand 29 - thin	T37NR6WS32	Northern hardwoods; ash, maple and beech	5	0	2	0	2	Many	N
177	Michigan DNR, stand 29 - nat	T37NR6WS32	Northern hardwoods; ash, maple, beech	5	0	2	0	2	Many	N
178	Univ Mich Botanical Gardens	---	Oak, maple, and ash	5	1	2	0	1	Many	Mostly N
179	Lower Huron Metro Park	---	Recommended by MSU; Not visited yet	5	--	--	--	NV	Many	--
180	Maybury State Park	---	Recommended by DNR; Not visited yet	5	--	--	--	NV	Many	--
181	Sturgis	---	Northern hardwoods: ash, maple, and beech	5	0	2	0	2	Many	N
182	Osceola (Ken Ford - private)	---	Northern hardwoods: ash, maple, and beech	5	--	--	--	NV	Many	N
183	Barry (MUCC, Jim Bruce)	---	Not visited yet	5	--	--	--	NV	Many	N
184	Calhoun (Mucc, Jim Bruce)	---	Not visited yet	5	--	--	--	NV	Many	N
185	Ives Road Ren (Nat. Conser)	---	Not visited yet	5	--	--	--	NV	--	N
186	YMCA Camp, Shiawassee R.	---	Not visited yet	5	--	--	--	NV	--	N
187	Sharon Hollow Preserve	---	Not visited yet	5	--	--	--	NV	--	N
188	Mesic School Forest - thin	---	Maple, beech, and ash	5	0	2	0	2	Many	N
189	Mesic School Forest - wet area	---	Maple, beech, and ash	5	0	2	0	2	Many	N
191	Mesic School Forest - thin	---	Maple, beech, and ash	5	0	2	0	2	Many	N
192	Steve K's Property	---	Northern hardwoods and ash	5	0	2	0	2	Many	N
193	Steve's 92 year old property	---	Maple, beech, and ash	5	0	2	0	2	20	N
194	Belle Isle	---	Mixed deciduous and hardwoods	5	pump kin			NV		P
195	Hartwick Pine's State Park	---	Maple, beech, and white pine	1	1	2	0	4	Few	N

Table 3: Plots visited and sampled during Fall 2003. Data includes type of plot, status of EAB, DBH, tree vigor, and % dieback.

Key:

Status: 1 = Data collected in 2003, 2 = Plot located in 2003 but no data collected, 3 = Potential detection site for 2004

Ownership:

1 = MDNR-Parks	7 = City Parks/School Forests	12 = University
2 = MDNR-Forestry	8 = Metro Parks	13 = MDNR Game
3 = MDNR-Boat Access	9 = Federal/USFS	Area/Research Area
4 = MDOT	10 = Federal/Department of	
5 = County Parks	Interior	
6 = Township Parks	11 = Private/Nonprofit	

Plot	Location	TRS	County	Ownership	Status
5	Cecil Bay County Park	T39NR4WS29	Emmet	5	1
58	Bayfront Park, Petoskey	T39NR5WS6	Emmet	7	1
2	Burt Lake State Park	T35NR3WS25	Cheboygan	1	1
3	Maple Bay State Forest Campground	T36NR3WS24	Cheboygan	2	1
6	Wallace Nunn Center	T39NR3WS18	Cheboygan	4	1
7	Mill Creek Historical Park	T39NR3WS27	Cheboygan	1	1
11	Aloha State Park	T36NR1WS8	Cheboygan	1	1
9	US 23 Roadside Park	T38NR2WS6	Cheboygan	4	1
12	Cheboygan State Park	T38NR1WS22	Cheboygan	1	1
81	Onaway State Park	T35NR2ES6	Presque Isle	1	1
83	US 23 Rest Stop	T37NR2ES14	Presque Isle	4	2
84	P.H. Hoeft State Park	T36NR5ES32	Presque Isle	1	2
85	Presque Isle Lighthouse	T34NR8ES17	Presque Isle	1	2
	Alpena	T31NR8ES22	Alpena	7	3
	J.L. Sanborn County Park	T29NR8ES12	Alpena	5	3
	Michekewis City Park	T31NR8ES33	Alpena	7	3
	Hunt Creek Fisheries Area	T29NR2ES25	Montmorency	13	3
	Clear Lake State Park	T32NR2ES24	Montmorency	1	3
	East Twin Lake	T29NR1ES27	Montmorency	3	3
	West Twin Lake	T29NR1ES30	Montmorency	3	3
	Pigeon River Forest Campground	T32NR1WS10	Otsego	2	3
	Pigeon Bridge Forest Campground	T32NR1WS18	Otsego	2	3
	Pickeral Lake Forest Campground	T32NR2WS11	Otsego	2	3
	Otsego Lake State Park	T32NR3WS32	Otsego	1	3
	Otsego County Park	T30NR3WS29	Otsego	5	3
	Pinney Bridge	T30NR6WS10	Antrim	3	3
	Graves Crossing Forest Campground	T31NR6WS32	Antrim	2	3
	Jordan River Fish Hatchery	T30NR5WS6	Antrim	13	3
	Torch Lake	T31NR8WS7	Antrim	3	3
	Intermediate Lake	T30NR7WS6	Antrim	3	3

60	Fisherman Island State Park	T34NR8WS32	Charlevoix	1	1
61	US 31 Rest Stop	T34NR7WS9	Charlevoix	4	1
	Young State Park	T33NR6WS21	Charlevoix	1	3
	Boyne River/ US 131	T32NR5WS16	Charlevoix	3	3
	Sleeping Bear Dunes	T28NR14WS3	Leelanau	10	3
	Leelanau State Park	T32NR11WS18	Leelanau	1	3
	Peterson Township Park	T32NR11WS29	Leelanau	6	3
	Sutton's Bay	T30NR11WS28	Leelanau	7	3
	Platte River	T27NR15WS20	Benzie	10	3
	Betsie Lake	T26NR16WS27	Benzie	3	3
	Platte River Forest Campground	T26NR14WS22	Benzie	2	3
	Traverse City State Park	T27NR10WS8	Grand Traverse	1	3
	Interlocken State Park	T26NR12WS28	Grand Traverse	1	3
	City Park	T27NR11WS3	Grand Traverse	7	3
	Arbutus Forest Campground	T26NR10WS4	Grand Traverse	2	3
	Lake Skegemog	T28NR8WS7	Kalkaska	3	3
	Smithville Forest Campground	T25NR7WS32	Kalkaska	2	3
	Manistee River Access Site	T25NR7WS22	Kalkaska	3	3
	CCC Bridge Forest Campground	T26NR6WS26	Kalkaska	2	3
	Manistee River Access Site	T25NR6WS3	Kalkaska	3	3
	Manistee River Access Site, near River View	T26NR5WS11	Kalkaska	3	3
114	North Higgins Lake State Park	T25NR4WS35	Crawford	1	1
	Hartwick Pines State Park	T27NR3WS10	Crawford	1	3
	Kneff Lake Campground	T26NR2WS20	Crawford	9	3
	Wakeley Bridge	T26NR2WS12	Crawford	3	3
	Chase Bridge	T25NR2WS21	Crawford	3	3
93	Oscoda County Park	T26NR2ES12	Oscoda	5	1
94	Smith Lake Picnic Area	T27NR3ES17	Oscoda	5	1
95	Ausable River Access Site	T26NR3ES11	Oscoda	3	1
69	Harrisville State Park	T26NR9ES13	Alcona	1	1
70	Sturgeon Point Lighthouse Park	T27NR9ES30	Alcona	1	1
	Negwegon State Park	T28NR9ES3	Alcona	1	3
	Black River Access Site	T28NR9ES13	Alcona	3	3
	Alcona Dam	T25NR5ES14	Alcona	3	3
65	Oscoda Ausable Chamber of Commerce	T23NR9ES10	Iosco	6	1
66	Ausable River Mouth Access Site	T23NR9ES10	Iosco	1	1
67	Oscoda Township Beach Park	T23NR9ES3	Iosco	6	1
19	East Tawas City Park	T23NR9ES4	Iosco	7	1
20	Tawas State Park	T23NR9ES5	Iosco	1	1
68	US 23 Rest Stop, North of Oscoda	T24NR9ES22	Iosco	4	1
	Loud Dam Pond	T24NR6ES20	Iosco	3	3
	Foote Dam Pond	T24NR8ES28	Iosco	3	3
	Cooke Dam Pond	T23NR7ES15	Iosco	3	3

	Rifle River Forest Campground	T23NR3ES27	Ogemaw	2	3
	Rifle River Access Site 1	T23NR3ES14	Ogemaw	3	3
	Rifle River Access Site 2	T23NR3ES11	Ogemaw	3	3
80	South Higgins Lake State Park	T24NR3WS33	Roscommon	1	1
	Houghlon Lake Wildlife Research Area	T22NR4WS6	Roscommon	13	3
57	Ben D. Jeff's Muskegon River Park	T23NR5WS33	Missaukee	4	1
79	Reedsburg Dam State Forest Campground	T23NR5WS25	Missaukee	2	1
	Muskegon River/Houghton Wildlife Research	T22NR5WS2	Missaukee	13	3
103	Willam Mitchell State Park	T21NR9WS7	Wexford	1	1
104	Kenwood City Park	T21NR9WS6	Wexford	7	1
105	Hemlock Campground	T21NR10WS10	Wexford	9	1
106	Harvey Bridge	T24NR11WS28	Wexford	3	1
109	Baxter Bridge Access Site	T24NR10WS9	Wexford	3	1
111	US 131 Roadside Park/Manistee River Access Site	T24NR9WS9	Wexford	4	1
51	Orchard Beach State Park	T22NR17WS25	Manistee	1	1
	Audubon Center	T22NR16WS18	Manistee	11	2
53	Manistee River, High Bridge Access Site	T22NR14WS33	Manistee	3	1
47	Ludington State Park - Cedar Campground	T19NR18WS20	Mason	1	2
47	Ludington State Park - Hamlin Beach/Boat Dock	T19NR18WS20	Mason	1	1
	Baldwin Area	T17NR13WS3	Lake	7	3
	Bray Creek Campground	T18NR13WS35	Lake	2	3
	Big Star Lake Access Site	T17NR14WS34	Lake	3	3
	Marlb Bridge	T17NR13WS23	Lake	3	3
	Spencer Bridge	T19NR13WS3	Lake	3	3
	Silver Creek Forest Campground	T20NR12WS24	Lake	2	3
	Riverside Park, Ewart	T17NR8WS3	Osceola	7	3
	Crawford Park Access Site	T18NR7WS16	Osceola	3	3
1	Wilson State Park	T19NR4WS17	Clare	1	1
76	Pettit Park	T17NR4WS27	Clare	7	1
	Temple Forest Campground	T19NR6WS21	Clare	2	3
	Lake George Access Site	T18NR5WS8	Clare	3	3
	Beaverton	T17NR2WS12	Gladwin	7	3
	Gladwin	T18NR2WS1	Gladwin	7	3
	Wildwood Forest Campground	T20NR2ES1	Gladwin	2	3
	Molasses River Flooding No. 5	T19NR2ES4	Gladwin	3	3
18	US 23 Rest Stop	T19NR5ES21	Arenac	4	1
63	Rifle River, Omer	T19NR5ES15	Arenac	4	1
64	Singing Bridge Public Access	T20NR7ES12	Arenac	3	1
14	Bay City State Recreation Area	T14NR5ES32	Bay	1	1
	I 75 Rest Stop, near Saginaw	T13NR4ES13	Bay	4	2
15	Pinconning Park Campground	T17NR4ES19	Bay	5	1

16	US 23 Rest Stop, Linwood	T16NR4ES29	Bay	4	1
165	Pere-Marquette Rail Trail, Coleman	T16NR2WS30	Midland	1	2
158	Chippewassee Park/North Chippewa River Walk	T14NR2ES17	Midland	7	2
159	Currie Golf Course	T14NR2ES17	Midland	11	2
161	Emerson Park	T14NR2ES17	Midland	7	2
160	Tridge/Farmer's Market	T14NR2ES17	Midland	7	2
	Vet's Memorial Park	T14NR2ES16	Midland	7	3
	Sanford Lake Park	T15NR1ES13	Midland	5	3
73	Pere-Marquette Rail Trail	T16NR3WS14	Isabella	1	1
74	Herrick Park	T16NR4WS1	Isabella	5	1
	Veit's Wood, Central Michigan University	T14NR4WS22	Isabella	12	2
	Mt. Pleasant	T14NR4WS15	Isabella	7	3
	Mecosta	T15NR10WS15	Mecosta	7	3
	Tubbs Lake Area	T15NR8WS1	Mecosta	3	3
	Haysmarsh Lake Flooding	T16NR9WS23	Mecosta	3	3
	Morley Pond	T13NR9WS30	Mecosta	3	3
	Big Rapids	T15NR10WS10	Mecosta	7	3
	Roger's Dam Pond	T14NR10WS11	Mecosta	3	3
	White River Campground	T14NR12WS16	Newaygo	9	3
	Newaygo State Park	T13NR11WS23	Newaygo	1	3
	Newaygo City Park	T12NR12WS19	Newaygo	7	3
	Nichols Lake Campground	T15NR13WS6	Newaygo	9	3
	White Cloud Park	T13NR12WS6	Newaygo	7	3
43	Silver Lake State Park	T15NR18WS29	Oceana	1	3
	Rothbury Park	T13NR17WS21	Oceana	7	1
	Pentwater River Game Area	T16NR18WS25	Oceana	13	3
	Muskegon State Game Area	T10NR16WS10	Muskegon	13	3
	Muskegon Lake	T10NR17WS16	Muskegon	3	3
	Flat River Game Area	T9NR8WS27	Montcalm	13	3
	Greenville	T9NR8WS15	Montcalm	7	3
	Stanton Game Area	T10NR6WS6	Montcalm	13	3
	Gratiot-Saginaw State Game Area	T10NR1WS22	Gratiot	13	3
	Maple River State Game Area	T9NR2WS27	Gratiot	13	3
	Alma	T12NR3WS27	Gratiot	7	3
166	Imerman Memorial Park/M 47	T12NR3ES3	Saginaw	5	2
164	Roselawn Cemetary, Saginaw	T12NR4ES29	Saginaw	11	2
	Saginaw	T12NR4ES28	Saginaw	7	3
	Shiawassee National Wildlife Refuge	T11NR4ES15	Saginaw	10	3
	Shiawassee State Game Area	T11NR3ES3	Saginaw	13	3
	St. Charles	T10NR3ES5	Saginaw	7	3
142	Heritage Park, Frankenmuth	T11NR6ES27	Saginaw	7	1
	Zilwaukee/Bay City Road/Crow Island State Game Area	T13NR5ES32	Saginaw	13	3

	Bay Park	T15NR8ES29	Tuscola	1	3
	Vassar State Game Area	T12NR8ES26	Tuscola	13	3
	Vassar	T11NR8ES7	Tuscola	7	3
	Fort Crescent State Park	T18NR12ES10	Huron	1	3
	Albert E. Sleeper State Park	T18NR11ES20	Huron	1	3
	Sebewaing River, Sebewaing	T15NR9ES7	Huron	3	3
	Caseville	T18NR10ES35	Huron	7	3
	Port Hope	T17NR15ES4	Huron	7	3
	Harbor Beach	T16NR15ES1	Huron	1	3
	Port Austin	T19NR13ES30	Huron	3	3
	Bad Axe	T16NR13ES30	Huron	7	3
	Sanilac State Game Area	T14NR12ES16	Sanilac	13	3
	Port Sanilac	T12NR16ES35	Sanilac	3	3
	Sandusky	T12NR14ES32	Sanilac	7	3
	Lexington	T10NR16ES30	Sanilac	7	3
	Algonac State Park	T3NR16WS31	St. Clair	1	3
	Lakeport State Park	T8NR17ES20	St. Clair	1	3
	Port Huron	T7NR17ES34	St. Clair	7	3
	Port Huron State Game Area	T7NR16ES9	St. Clair	13	3
	St. Clair Flats Wildlife Area	T2NR16ES	St. Clair	13	3
	St. John's Marshland Recreation Area	T3NR16ES30	St. Clair	1	3
	Lapeer State Game Area	---	Lapeer	13	3
	Lapeer	T7NR10ES5	Lapeer	7	3
	Metamore Hadley Recreation Area	---	Lapeer	1	3
123	Ortonville Recreation Area, Big Fish Lake	---	Lapeer	1	1
	Imlay City	T7NR12ES17	Lapeer	7	3
140	US 23 Rest Stop, Flushing	---	Genesee	4	1
	Flint River, Gale Rd	T7NR8ES9	Genesee	7	3
	Flint River, Flushing	T8NR5ES27	Genesee	7	3
	Flint	T8NR7ES29	Genesee	7	3
	Lake Fenton	T5NR6ES2	Genesee	7	3
141	US 23 Rest Stop, Near Fenton	T5NR6ES14	Shiawassee	4	1
	Rose Lake Wildlife Recreation Area	T5NR1ES21	Shiawassee	13	3
	Owosso	T7NR2ES22	Shiawassee	7	3
23	Sleepy Hollow State Park	T7NR1WS34	Clinton	1	1
	Maple River State Game Area	T8NR4WS15	Clinton	13	3
	Rose Lake Wildlife Research Area	T5NR1WS22	Clinton	13	3
	Ionia Recreation Area	T7NR7WS34	Ionia	1	3
	Portland State Game Area	T5NR5WS18	Ionia	13	3
	Grand Rapids - Cemetary	T7NR12WS1	Kent	7	3
	Lowell State Game Area	T7NR9WS23	Kent	13	3
	Grand Rapids Park	T7NR11WS	Kent	11	3
	Rogue River State Game Area	T10NR12WS14	Kent	13	3

	Lake Macatawa	T5NR16WS27	Ottawa	3	3
	Plainwell	T1NR12WS24	Allegan	7	3
	Otsego	T1NR12WS23	Allegan	7	3
	Allegan State Game Area	T2NR14WS15	Allegan	13	3
	Barry State Game Area	T3NR9WS32	Barry	13	3
	Yankee Springs Recreation Area	T3NR10WS24	Barry	1	3
	Charlotte	T2NR5WS13	Eaton	7	3
	Eaton Rapids	T2NR3WS34	Eaton	7	3
	Grand Ledge	T4NR4WS2	Eaton	7	3
	MSU Campus	T4NR1WS31	Ingham	12	3
	East Lansing	T4NR1WS7	Ingham	7	3
	Lake Lansing	T4NR2WS3	Ingham	7	3
	Danville State Game Area	T2NR1ES34	Ingham	13	3
117	Kensington Metro Park - Entrance and Nature Center	T2NR6ES36	Livingston	8	2
120	Island Lake Recreation Area, Kent Lake Beach	T1NR6ES4	Livingston	1	1
133	Brighton Recreation Area, Bishop Lake Campground	T1NR5ES3	Livingston	1	1
125	Seven Lakes State Park, Sand Lake Campground	T5NR7ES29	Oakland	1	1
118	Kensington Metro Park - Maple Beach	T2NR7ES32	Oakland	8	1
119	Kensington Metro Park - Spring Hill Picnic Area	T2NR7ES33	Oakland	8	1
121	Holly Recreation Area - Heron Lake Beach	T5NR8ES29	Oakland	1	1
122	Holly Recreation Area - Campsite	T5NR8ES28	Oakland	1	1
124	Groveland Oak County Park	T5NR8ES29	Oakland	5	2
125	Seven Lake State Park; Big - Seven Shelter Area B	T5NR7ES30	Oakland	1	1
136	Proud Lake Recreation Area - Huron River Fishing Access Site	T2NR8ES18	Oakland	1	1
137	Highland Recreation Area - Field Trial Area #1; Silo Course	T3NR7ES26	Oakland	1	1
	Marshbank Metro Park	T2NR9ES9	Oakland	8	3
	Stony Creek Metro Park	T4NR12ES31	Macomb	8	3
	Rochester - Utica Recreation Area	T3NR12ES29	Macomb	1	3
	Mount Clemens	T2NR13ES11	Macomb	7	3
	Sterling Heights	T2NR12ES12	Macomb	7	3
	Utica	T3NR12ES34	Macomb	7	3
	Metropolitan Beach	T2NR14ES	Macomb	7	3
	Lower Huron Metro Park	T4SR9ES6	Wayne	8	3
	Belleville Lake	T3SR8ES20	Wayne	3	3
	Belle Isle Park	---	Wayne	7	3
	Windmill Pointe	T1SR13ES	Wayne	7	3
	University of Michigan - Dearborn	---	Wayne	12	3

	Grosse Isle	T4SR10ES	Wayne	7	3
	Mayberry State Park	T1SR8ES6	Wayne	1	3
	Gibraltar	T4SR9ES34	Wayne	7	3
130	Pinckney Recreation Area, Bruin Lake	T1SR3ES2	Washtenaw	1	1
131	Pinckney Recreation Area, Silver Lake	T1SR4ES4	Washtenaw	1	1
132	Pinckney Recreation Area, Halfmoon Lake	T1SR4ES6	Washtenaw	1	1
126	Waterloo Recreation Area, Sugarloaf Lake Campground	T1SR3ES31	Washtenaw	1	1
143	Dexter - Huron Metro Park	T2SR5ES4	Washtenaw	8	1
147	Hudson - Mills Metro Park	T1SR5ES20	Washtenaw	8	1
144	Delhi Metro Park	T2SR5ES11	Washtenaw	8	1
148	Independence County Park	T1SR5ES12	Washtenaw	5	1
152	I 94 Rest Stop, 5 Miles West of Ann Arbor	T2SR5ES17	Washtenaw	4	1
	Clear Lake, Waterloo Recreation Area	T2SR2ES2	Jackson	1	3
	Portage Lake, Waterloo Recreation Area	T2SR2ES6	Jackson	1	3
	Walter J. Hayes State Park	T4SR2ES36	Jackson	1	3
	I 94 Rest Stop, Grass Lake	T2SR2ES17	Jackson	4	3
	I 94 Rest Stop, Jackson	T2SR2ES25	Jackson	4	3
	Jackson	T2SR1ES34	Jackson	7	3
	Brooklyn	T4SR1ES24	Jackson	7	3
	Center Lake Access Site	T3SR1ES15	Jackson	3	3
25	I 69 Rest Stop, Marshall	T2SR6WS3	Calhoun	4	1
	Marshall	T3SR5WS7	Calhoun	7	3
	I 94 Rest Stop, Marshall	T2SR5WS20	Calhoun	4	3
	US 27 Rest Stop, Near Nattawassepee	T4SR6WS3	Calhoun	4	3
	Battle Creek	T2SR7WS6	Calhoun	7	3
	Albion	T3SR4WS2	Calhoun	7	3
	Tekonsha, Michigan Highway 60	T4SR6WS21	Calhoun	4	1
	Fort Custer Recreation Area	T2SR9WS10	Kalamazoo	1	3
	I 94 Rest Stop, Galesburg	T2SR10WS26	Kalamazoo	4	3
	I 94 Rest Stop, Kalamazoo	T3SR12WS1	Kalamazoo	4	3
	Western Michigan University	---	Kalamazoo	12	3
	Kalamazoo	T2SR11WS3	Kalamazoo	7	3
	US 131 Rest Stop	T1SR12WS25	Kalamazoo	4	3
	Gull Lake - MSU Biological Station	T1SR9WS7	Kalamazoo	12	3
	Long Lake/Austin Lake	T3SR10WS30	Kalamazoo	3	3
	Mattawan	T3SR13WS15	Van Buren	7	3
	Decatur	T4SR14WS20	Van Buren	7	3
	Paw Paw	T3SR14WS12	Van Buren	7	3
	Bangore	T2SR16WS12	Van Buren	7	3
	Hartford	T3SR16WS16	Van Buren	7	3
26	I 94 Rest Stop, Near Indiana Line	T8SR21WS14	Berrien	4	1
27	Warren Dunes State Park	T6SR20WS35	Berrien	1	1
	Niles	T7SR17WS26	Berrien	7	3

	Dowagiac	T6SR15WS6	Cass	7	3
	Cassopolis	T6SR15WS26	Cass	7	3
	Diamond Lake Park	T6SR15WS35	Cass	7	3
	Sturgis	T7SR10WS35	St. Joseph	7	3
	White Pigeon	T8SR12WS12	St. Joseph	7	3
	Three Rivers	T6SR11WS18	St. Joseph	7	3
	Colon	T6SR9WS11	St. Joseph	7	3
	Three Rivers State Game Area	T7SR12WS7	St. Joseph	13	3
	Coldwater	T6SR6WS22	Branch	7	3
	Quincy	T6SR5WS21	Branch	7	3
	Coldwater Lake	T6SR6WS19	Branch	7	3
	Coldwater River	T6SR6WS22	Branch	7	3
	Hillsdale	T6SR3WS25	Hillsdale	7	3
	Lost Nation State Game Area	T7SR2WS25	Hillsdale	13	3
	Jonesville	T6SR3WS4	Hillsdale	7	3
	US 12 Rest Stop, Jonesville	T5SR3WS35	Hillsdale	4	3
	Litchfield	T5SR4WS10	Hillsdale	4	3
	Lake Hudson Recreation Area	T7SR1ES25	Lenawee	1	3
	Morenci	T9SR2ES6	Lenawee	7	3
	Walter J. Hayes State Park	T5SR3ES3	Lenawee	1	3
	Adrian	T7SR3ES2	Lenawee	7	3
	Blissfield	T7SR5ES29	Lenawee	7	3
	Tecumseh	T5SR4ES27	Lenawee	7	3
154	I 75 Rest Stop, Monroe	T7SR9ES	Monroe	4	1
156	Waterloo Park, Monroe	---	Monroe	7	2
155	M 50 Park Area, Dundee Community Center	---	Monroe	7	1