



# **Invasive Species Geodatabase Presentation**

**Central Florida Invasive Species Working  
Group (CFISWG)**

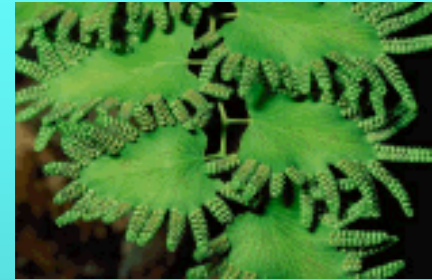
**Information provided by:**

**Orange County Environmental Protection Division**

**Green PLACE Program**

# Invasive Species Tracking

- Track presence of invasive plant species
- Track treatment of invasive plant species
  - Invasive Species Geodatabase
- A Geodatabase is created in ESRI ArcCatalog and links GIS information with Microsoft Access Information
  - Advantages
    - Ability to link GIS shapefiles with database information.
    - Ability to view and create invasive species maps on GIS.
    - Ability to track information in a database and create reports.
    - This Geodatabase allows shapefiles as points, lines and polygons.



# Needed Applications & Equipment

- Trimble GPS Unit & software
- Trimble GPS Pathfinder or ArcPad Software
- ESRI ArcGIS (ArcMap & ArcCatalog)
- Microsoft Access



GPS Pathfinder Office.Ink



ArcCatalog.Ink



Arcmap.Ink



# Tracking Invasive Species- GPS

- Add a data dictionary to a GPS unit through Pathfinder (Trimble GeoXT)
- GPS in either a Point, Line or Polygon Feature
- Transfer data into the Geodatabase through GPS Pathfinder and ArcCatalog



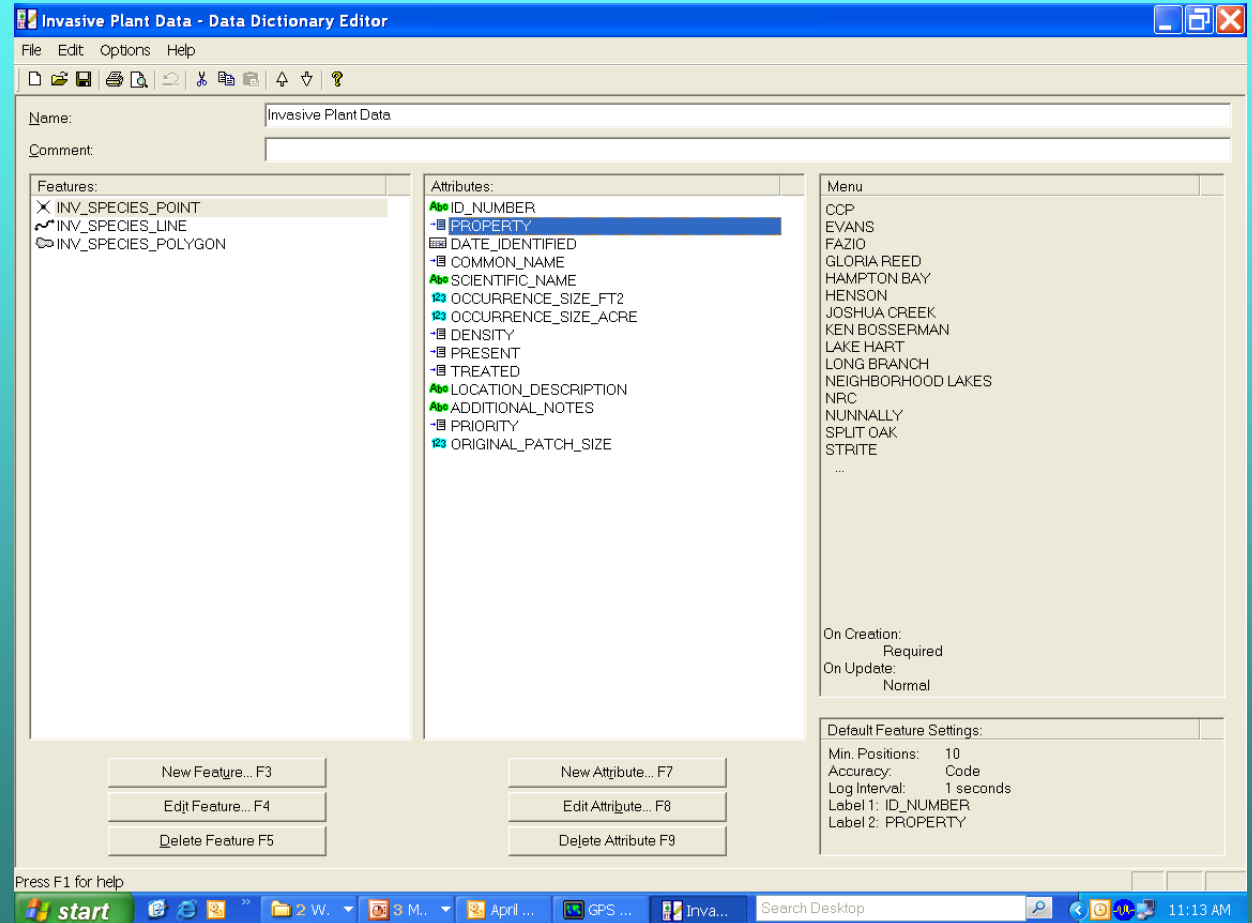
# GPS Pathfinder – Data Dictionary

- \*A data dictionary is created in GPS Pathfinder and transferred into a handheld GPS unit.

- The invasive species data dictionary includes information such as date, species name, occurrence size, location, if it has been treated, etc.

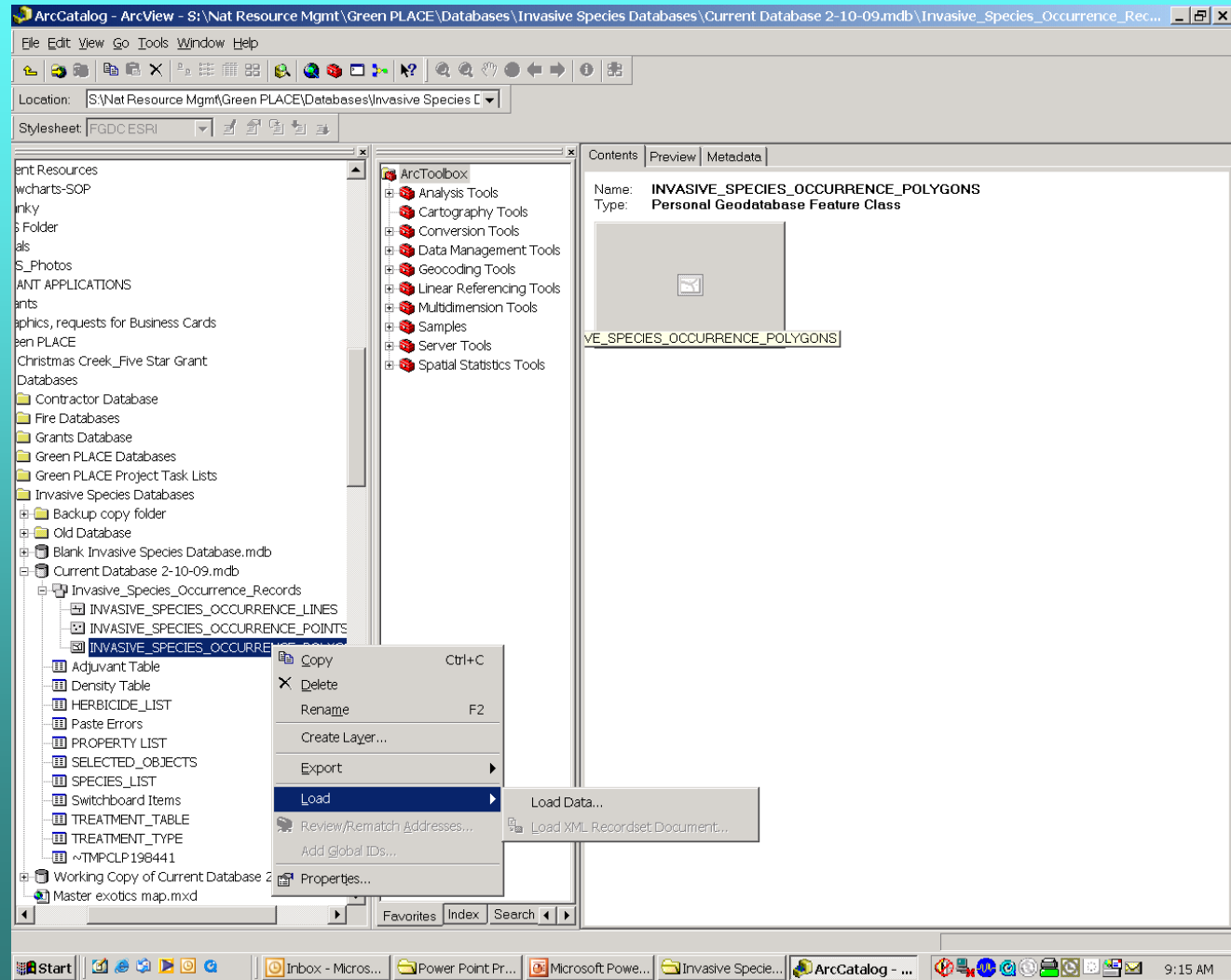
- This information is filled out while in the field collecting GPS locations of invasive species.

- \*We use Pathfinder, but it can also be created in ArcPad.



# Invasive Species Geodatabase

- Information collected from a handheld GPS is transferred into shapefiles and loaded into the Invasive Species Geodatabase.
- Information is loaded into the Geodatabase using ArcCatalog.
- Points, lines, and polygons are loaded separately.

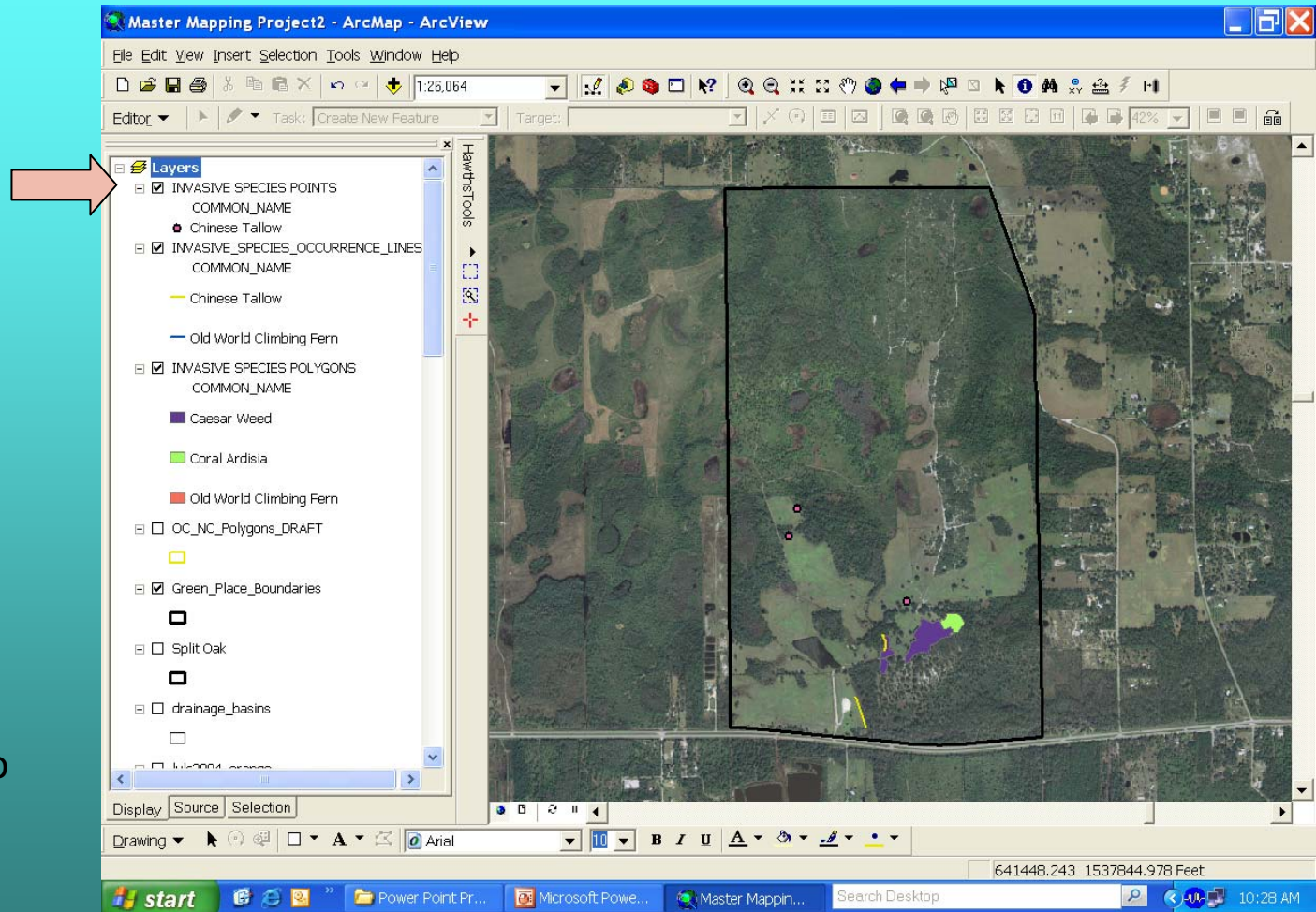


# GIS – ArcMap Applications

- Once information is loaded into the Geodatabase through ArcCatalog, the newly loaded shapefiles are then added onto a GIS map using ArcMap.

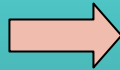
- It displays shapefiles for the different features collected.

- Shapefiles may also be drawn instead of taking GPS coordinates.



# GIS – ArcMap Applications

- Displays shapefile information for each point, line or polygon



Master Mapping Project2 - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

1:12,554

Editor Task: Create New Feature Target:

Chinese Tallow  
INVASIVE\_SPECIES\_OCCURRENCE\_LINES  
COMMON\_NAME  
Chinese Tallow  
Old World Climbing Fern  
INVASIVE\_SPECIES\_POLYGONS  
COMMON\_NAME  
Coral Ardisia

Identify

Identify from: <Top-most layer>

INVASIVE SPECIES POLYGOI  
Caesar Weed  
Coral Ardisia

Location: 645,257.838 1,529,538.328 F

Field	Value
OBJECTID	8
SHAPE	Polygon
ID_NUMBER	A0008
PROPERTY	CCP
DATE_IDENTIFIED	2/1/2008
COMMON_NAME	Coral Ardisia
SCIENTIFIC_NAME	Ardisia crenata
OCCURRENCE_SIZE_FT2	1
OCCURRENCE_SIZE_ACRE	0
DENSITY	Moderate
PRESENT	Yes
TREATED	No
LOCATION_DESCRIPTION	within caesar we
ADDITIONAL_NOTES	
PRIORITY	A
ORIGINAL_PATCH_SIZE	435600
SHAPE_Length	1677.095254

Identified 2 features

645362.455 1529538.328 Feet

start Power Point Pr... Microsoft Powe... Master Mappin... Search Desktop 10:36 AM

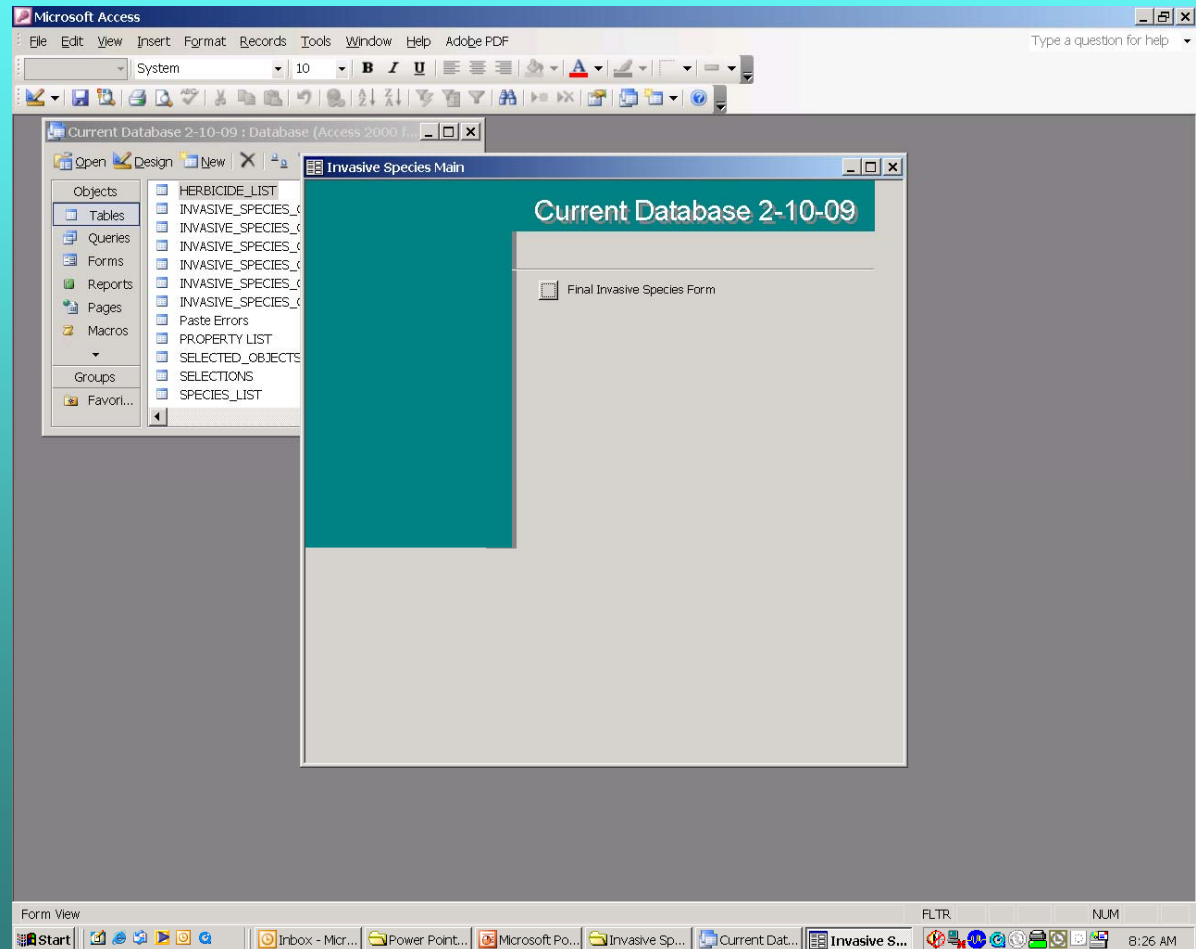
# **Microsoft Access Invasive Species Database and GIS Invasive Species Geodatabase Communication**

- Once information is loaded into the Invasive Species Geodatabase through ArcCatalog, it is also automatically imported into the Microsoft Access Invasive Species Database.
- The Microsoft Access Invasive Species Database and the Invasive Species Geodatabase are connected and able to communicate information with each other.
- Information may also be entered into the Microsoft Access Database first, which will automatically enter the information into the Invasive Species Geodatabase.

# How to Create the Microsoft Access Invasive Species Database

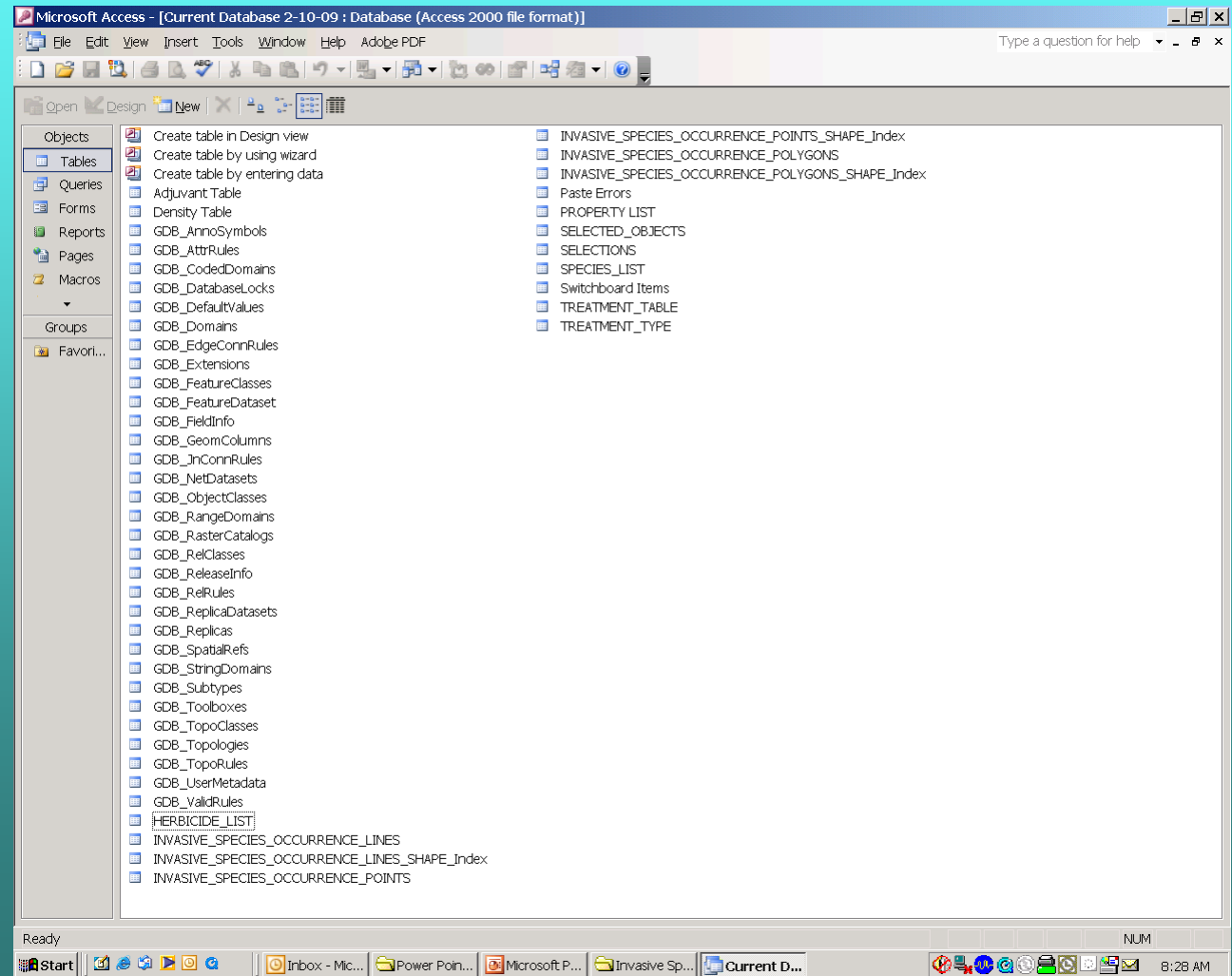
- This is a created main page for the Invasive Species Access Database.

- A Switchboard Manager can be created to have quick links to reports and/or forms. This may also be used to restrict access to the setup features of the database.



# Microsoft Access Invasive Species Database – Tables

• Tables are created in Microsoft Access to connect to or create entry forms and queries for invasive species occurrences and treatment methods.



# Microsoft Access Invasive Species Database – Forms

- The Access Form can be used for entering additional data that hasn't been automatically entered from the GPS Data Dictionary. Information entered into the occurrence portion (point, line, or polygon) of this form includes such items as date identified, species, occurrence size, density, location, and a treatment form for that specific occurrence.

The screenshot displays two Microsoft Access forms. The top form, titled 'Points', is for record ID 0008. It includes fields for ID\_NUMBER (0008), PROPERTY (Hampton Bay), DATE\_IDENTIFIED (2/15/2008), COMMON\_NAME (Corel Ardisia), SCIENTIFIC\_NAME (Ardisia crenata), OCCURRENCE\_SIZE\_FT2 (10), OCCURRENCE\_SIZE\_ACRE (0.00022), DENSITY (Sparse), PRESENT (Yes), TREATED (No), LOCATION DESCRIPTION (on entrance road), PRIORITY (B), and ORIGINAL PATCH SIZE FT2 (10). Below this is a 'TREATMENT TABLE' with columns for ID NUMBER, PROPERTY, DATE OF TREATMENT, APPLICATORS INITIALS (no periods), CONTRACTOR, COMMON NAME, OZ/GAL (1), OZ/GAL (2), % SOLUTION (1), % SOLUTION (2), and GALLONS SPRAYED. The table contains one row with ID C0009, Hampton Bay, 5/5/2009, Aquatic Vegetation Control, Inc., and Coral Ardisia, with 128 oz/gal of solution (1) and 100% solution (1) applied.

The bottom form, titled 'Lines', is for record ID B0007. It includes fields for ID\_NUMBER (B0007), PROPERTY (Eagle's Roost), DATE\_IDENTIFIED (3/12/2008), COMMON\_NAME (Chinese Tallow), SCIENTIFIC\_NAME (Sapium sebiferum), OCCURRENCE\_SIZE\_FT2 (3000), OCCURRENCE\_SIZE\_ACRE (0.068), DENSITY (Moderate), PRESENT (Yes), TREATED (Yes), LOCATION DESCRIPTION, PRIORITY, and ORIGINAL PATCH SIZE FT2 (3000). The ADDITIONAL NOTES field contains 'caesar weed; philodendron'.

# Microsoft Access Invasive Species Database - Forms Continued

- The treatment portion of the Access Form is connected to each specific shapefile (occurrence) and allows treatment information to be entered into the database. The treatment table includes a variety of data including date of treatment, description of site, herbicide and adjuvants used, % solution used, etc.

Microsoft Access - [Final Invasive Species Form : Form]

File Edit View Insert Format Records Tools Window Help Adobe PDF

Type a question for help

MS Sans Serif 8 B I U

SCIENTIFIC NAME *Sapum sebiferum* DESCRIPTION OF TREATMENT AREA

TYPE OF TREATMENT Hack & Squirt

HERBICIDE USED (1) Am i amix

Record: 1 of 22

### Polygon

ID\_NUMBER A0005 DENSITY Sparse PRIORITY B

PROPERTY SCCP PRESENT Yes ORIGINAL PATCH SIZE 27985

DATE\_IDENTIFIED 2/1/2008 TREATED No FT2

COMMON\_NAME Caesar Weed LOCATION DESCRIPTION along road and in oak hammock

SCIENTIFIC\_NAME *Urena lobata* ADDITIONAL NOTES

OCCURRENCE\_SIZE\_FT2 27985

OCCURRENCE\_SIZE\_ACRE 0.64

### TREATMENT TABLE

ID NUMBER A0005 OZ/GAL (1) 0.034

PROPERTY SCCP OZ/GAL (2)

DATE OF TREATMENT 5/8/2008

APPLICATORS INITIALS (no periods)

CONTRACTOR Aquatic Vegetation Control, Inc. % SOLUTION (1) 0.03

COMMON NAME Caesar Weed % SOLUTION (2)

SCIENTIFIC NAME *Urena lobata* GALLONS SPRAYED 15

TYPE OF TREATMENT Enlar DESCRIPTION OF TREATMENT AREA

Record: 1 of 45

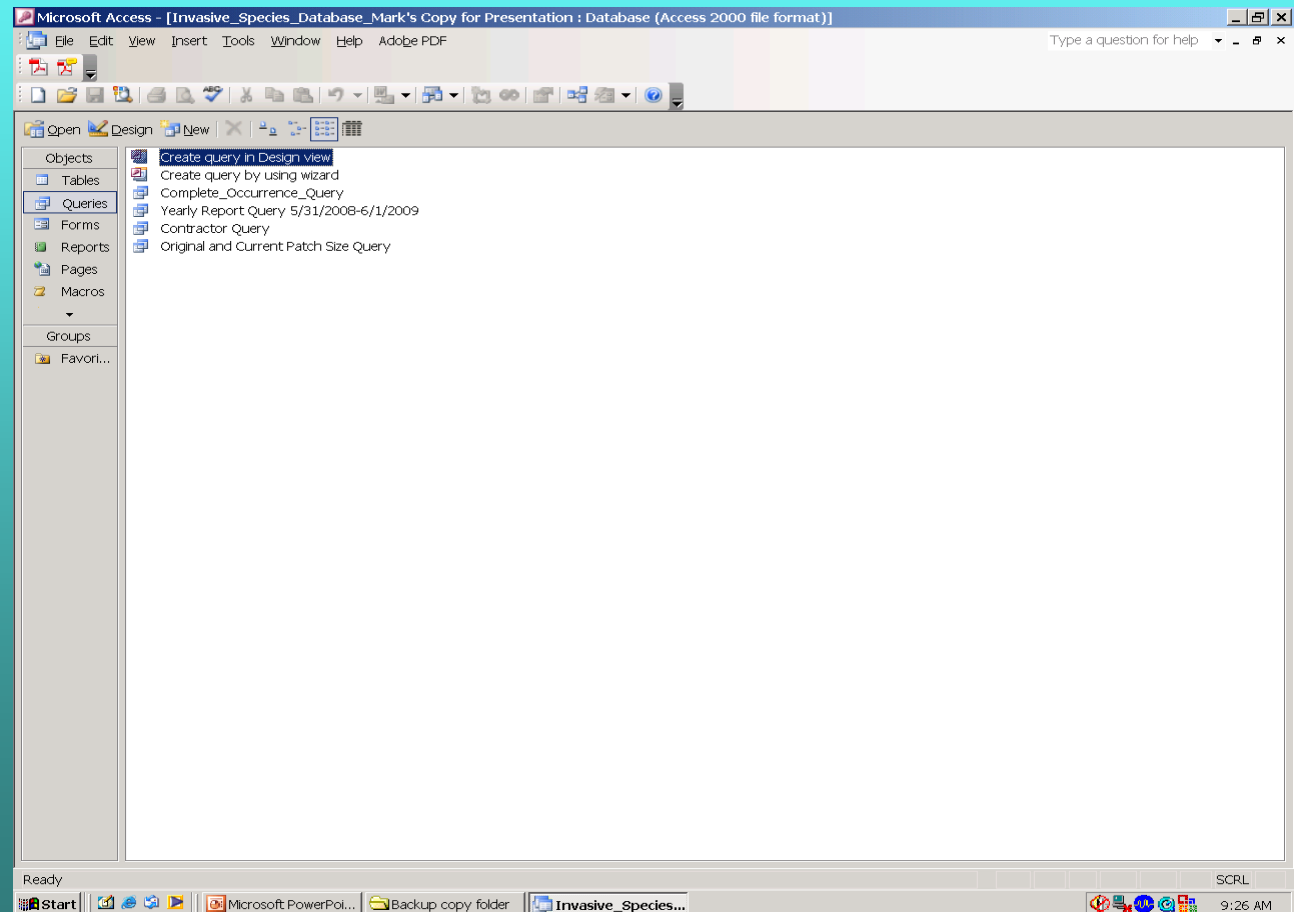
Record: 1 of 1

Form View NUM

Start | Inboxes - Mic... | Power Poin... | Microsoft P... | Invasive Sp... | Current Da... | Final Inva... | 8:31 AM

# Microsoft Access Invasive Species Database – Queries

- A query is generated from tables.
- A variety of queries are used to generate reports of invasive species information.



# Microsoft Access Invasive Species Database – Query Continued

- Allows you to query information that you want to show in a report.

Microsoft Access - [Original and Current Patch Size Query : Select Query]

Type a question for help

Property	Common Name	Occurrence Size (ft2)	Occurrence Size (acres)	Original Patch Size (ft2)
▶ Christmas Creek Preserve	Chinese Tallow	1000	0	1000
Christmas Creek Preserve	Chinese Tallow	600	0	600
Christmas Creek Preserve	Caesar Weed	10000	0.23	10000
Christmas Creek Preserve	Caesar Weed	8000	0	8000
Christmas Creek Preserve	Coral Ardisia	435600	0	40000
Christmas Creek Preserve	Chinese Tallow	20000	0	20000
Christmas Creek Preserve	Chinese Tallow	14150	0	14150
Christmas Creek Preserve	Chinese Tallow	0	0	0
Christmas Creek Preserve	Caesar Weed	600	0	600
Hampton Bay	Old World Climbing Fern	435600	0	435600
Hampton Bay	Old World Climbing Fern	120000	0	120000
Hampton Bay	Coral Ardisia	10	0	10
Hampton Bay	Sword Fern	100	0	100
Hampton Bay	Lantana	600	0	600
Lake Hart	Tropical Soda Apple	100	0	100
Lake Hart	Lantana	600	0	600
Lake Hart	Chinese Tallow	4000	0	4000
Lake Hart	Chinese Tallow	3000	0	3000
Lake Hart	Chinese Tallow	34100	0	34100
Lake Hart	Chinese Tallow	3000	0	3000
Long Branch	Cogon Grass	1000	0	1000
Long Branch	Cogon Grass	600	0	600
Long Branch	Cogon Grass	1000	0	1000
NRC	Chinese Tallow	2000	0	2000
NRC	Chinese Tallow	8100	0	8100
*		0	0	0

Record: 1 of 25

Datasheet View

SCRL

9:49 AM

# Microsoft Access Invasive Species Database – Reports

- Reports are created using tables and queries.

- Reports can display information in a variety of ways depending on what information is required.

The screenshot shows a Microsoft Access window titled 'Microsoft Access - [Original and Current Patch Size Query]'. The window displays a report titled 'Original Patch Size Report'. The report contains a table with three columns: 'Property', 'Common Name', and 'Original Size (ft<sup>2</sup>)'. Below the table, there are summary statistics for 'Total Original Size (sq ft)' and 'Total Original Size (acres)'. The report is dated 'Monday, July 21, 2008' and is 'Page 1 of 1'. The Windows taskbar at the bottom shows the Start button and several open applications, including Microsoft PowerPoint, Invasive\_Species..., and Original and Curr... The system clock shows 9:57 AM.

Property	Common Name	Original Size (ft <sup>2</sup> )
Chinese at Creek Preserve	Chinese Tallow	1000
Chinese at Creek Preserve	Chinese Tallow	600
Chinese at Creek Preserve	Coastal Weed	10000
Chinese at Creek Preserve	Coastal Weed	8000
Chinese at Creek Preserve	Coral Anemone	40000
Chinese at Creek Preserve	Chinese Tallow	20000
Chinese at Creek Preserve	Chinese Tallow	14150
Chinese at Creek Preserve	Chinese Tallow	0
Chinese at Creek Preserve	Coastal Weed	600
Hampden Bay	Old World Climbing	436500
Hampden Bay	Old World Climbing	120000
Hampden Bay	Coral Anemone	10
Hampden Bay	Sword Fern	100
Hampden Bay	Lantana	600
Lake Hart	Tropical Soda Apple	100
Lake Hart	Lantana	600
Lake Hart	Chinese Tallow	4000
Lake Hart	Chinese Tallow	3000
Lake Hart	Chinese Tallow	34100
Lake Hart	Chinese Tallow	3000
Long Branch	Cogon Grass	1000
Long Branch	Cogon Grass	600
Long Branch	Cogon Grass	1000
NRC	Chinese Tallow	2000
NRC	Chinese Tallow	8100

Total Original Size (sq ft): 708,160  
Total Original Size (acres): 16.26

Monday, July 21, 2008 Page 1 of 1

# Information Sharing

- Invasive Species Information should be shared with other agencies/organizations
  - Florida Natural Areas Inventory (FNAI)
  - Florida Exotic Pest Plant Council (FLEPPC)
  - The Nature Conservancy's Invasive Species Program (Lygodium)
  - Other Neighboring Public & Private Lands (WMD, FWC, FDEP, FDOF, County, etc.)



# Contact Information

- The Orange County Environmental Protection Division (OCEPD) Green PLACE Program created the Geodatabase used in this presentation. If needed, this Geodatabase can be modified with little effort to suit the needs of the user. More information can be acquired from OCEPD by contacting Mark Rizzo at 407-836-1536, or Melanie Brodhead at 407-836-1540.