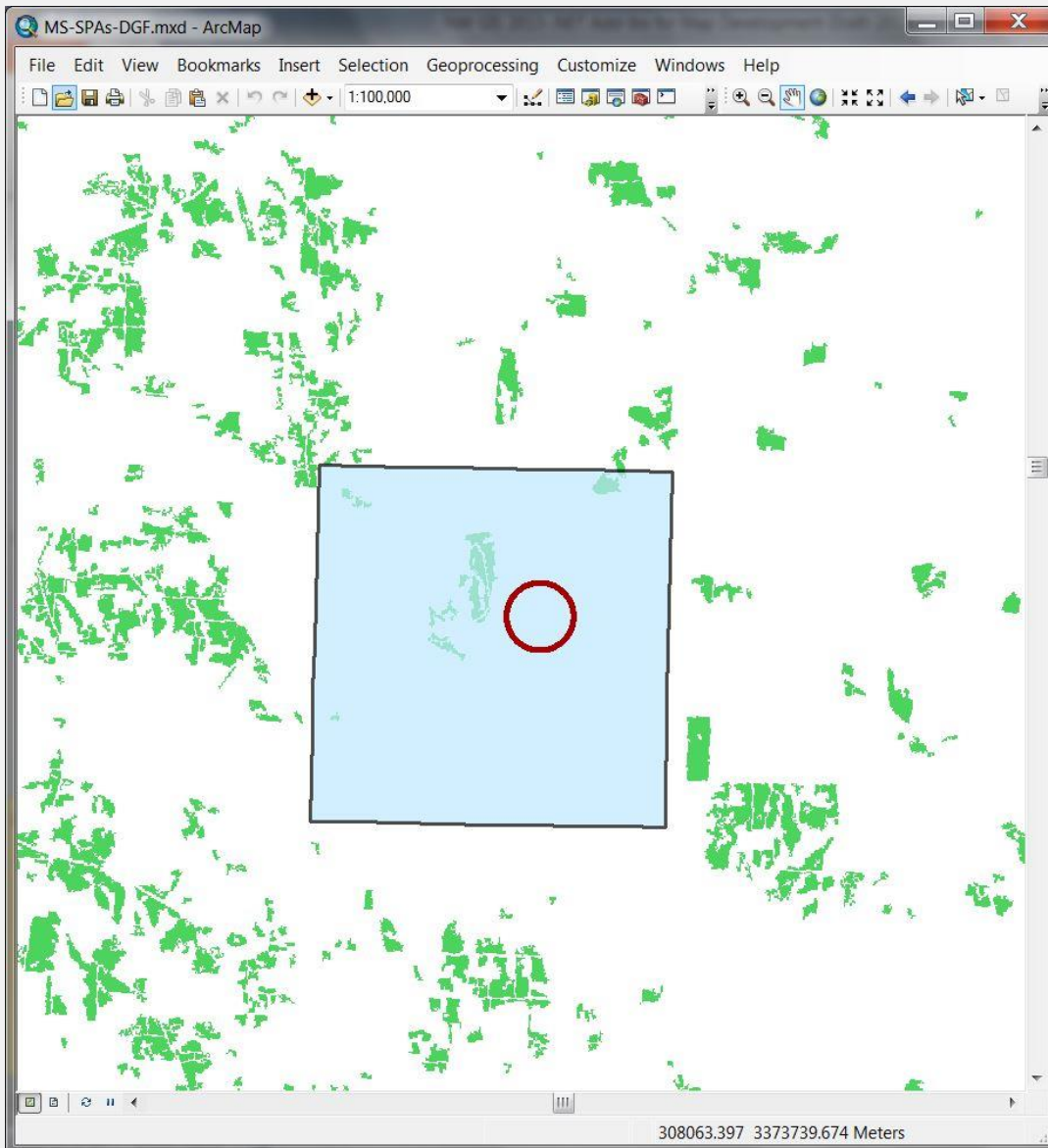


Species Protection Area Development with .NET

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Species Protection Area Tools – Primary Area



SPA Tools

State: MS

Units: < > Load Filter: None Use Selection

Current: 1 Count: 13 w/SPAs: 9 Zoom To UTM Info

SPAs: Create Set Attributes Identify Primary Apply to all

Reset Data Checks Create Buffered Unit

QC Status: 0 Assign Create ZS Tables Create NLCD tables

Start Point: Get Use point

Sel. pt at X: 8 Y: 8 Use Outside %:

Shift Limit X: Y: Use Allowable spill %: 0.001

Sel. pt adj. factor X: 1.00 Y: 1.00 Use

Sel. pts rotation angle: 0 Use

Sections: Buffer Distance: Create Secs. Get Position: SW Set Corner

Reset Create Q. Secs Create SPA-Sec. Sel

#	ID	Manual Primary	Auto Primary	Unit Count	C81 Area	C82 Area	C81 + C82 Area	Rejected	Rejection Reasons
5	5	0	0	2	1095300	67500	1162800	False	
6	6	1	1	2	827100	67500	894600	False	
7	101	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - Y
8	102	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - X
9	103	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - X

Messages

Clear Messages

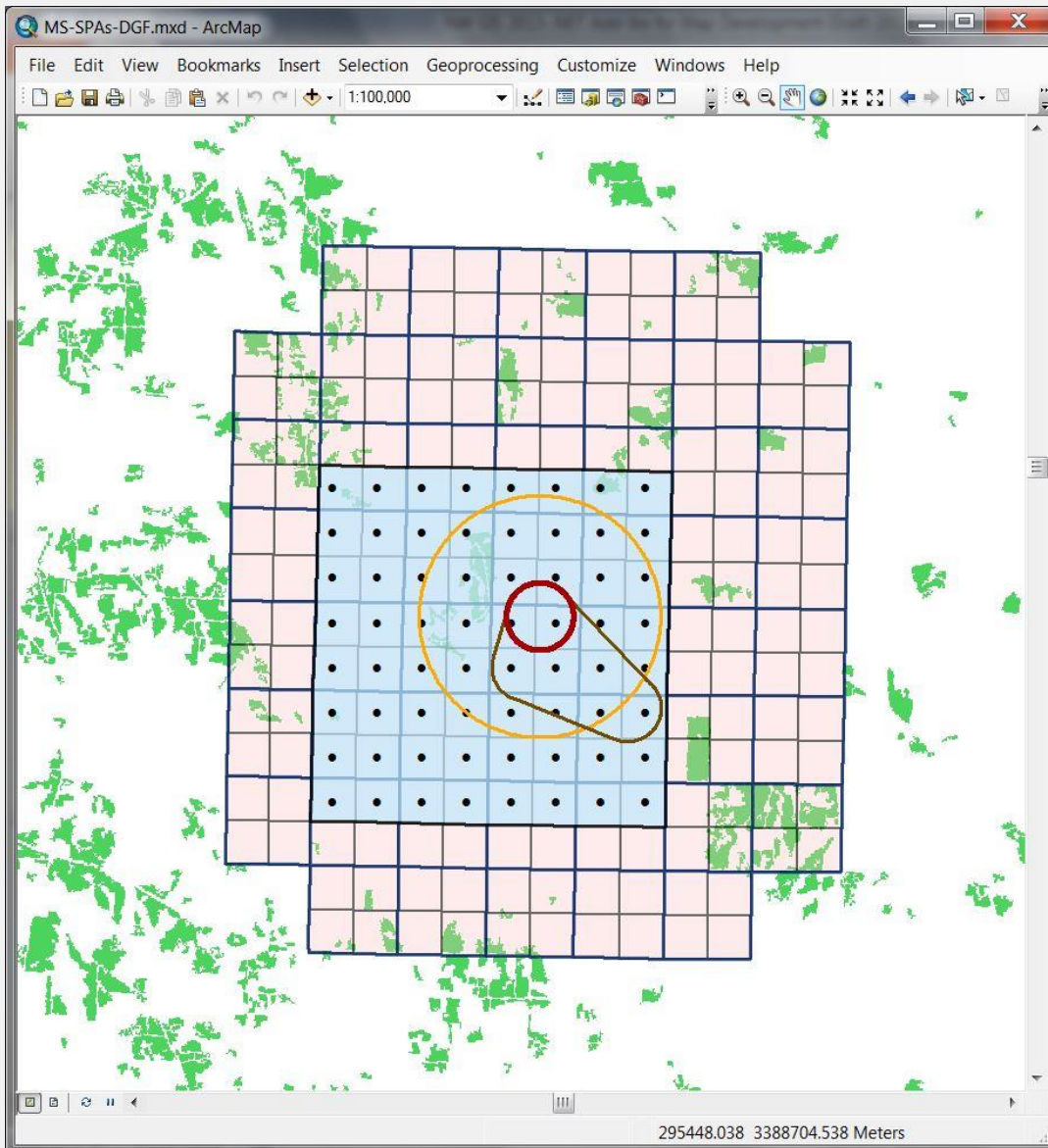
Reset Form

Goal: define protection areas for species habitat locations according to rules that vary from state to state

Example:

- US FWS Critical Habitat (CH) locations
- Polygon based on aggregation of selected quarter sections
- Positioning rules:
 - Maximize number of overlapping CH locations
 - Minimize area of agricultural land cover

Species Protection Area Tools – Area Construction



SPA Tools

SPA Development

#	Unit ID	SPAs Created	Primary SPA Found	QC Status
1	1	1	1	0
2	2	1	1	0
3	3	1	1	0
4	4	1	1	0
5	5	1	1	0
6	6	1	1	0
7	8	0	0	0
8	9	0	0	0
9	10	0	0	0
10	11	1	1	0
11	13	1	1	0

State: MS

Units: < > Load Filter: None Use Selection

Current: 1 Count: 13 w/SPAs: 9 Zoom To UTM Info

SPAs: Create Set Attributes Identify Primary Apply to all

Reset Data Checks Create Buffered Unit

QC Status: 0 Assign Create ZS Tables Create NLCD tables

Start Point: Get Use point

Sel. pt at X: 8 Y: 8 Use Outside %:

Shift Limit X: Y: Use Allowable spill %: 0.001

Sel. pt adj. factor X: 1.00 Y: 1.00 Use

Sel. pts rotation angle: 0 Use

Sections: Buffer Distance: Create Secs. Get Position: SW Set Corner

Reset Create Q. Secs. Create SPA-Sec. Sel

#	ID	Manual Primary	Auto Primary	Unit Count	C81 Area	C82 Area	C81 + C82 Area	Rejected	Rejection Reasons
5	5	0	0	2	1095300	67500	1162800	False	
6	6	1	1	2	827100	67500	894600	False	
7	101	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - Y
8	102	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - X
9	103	-1	-1	2	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - X

Messages

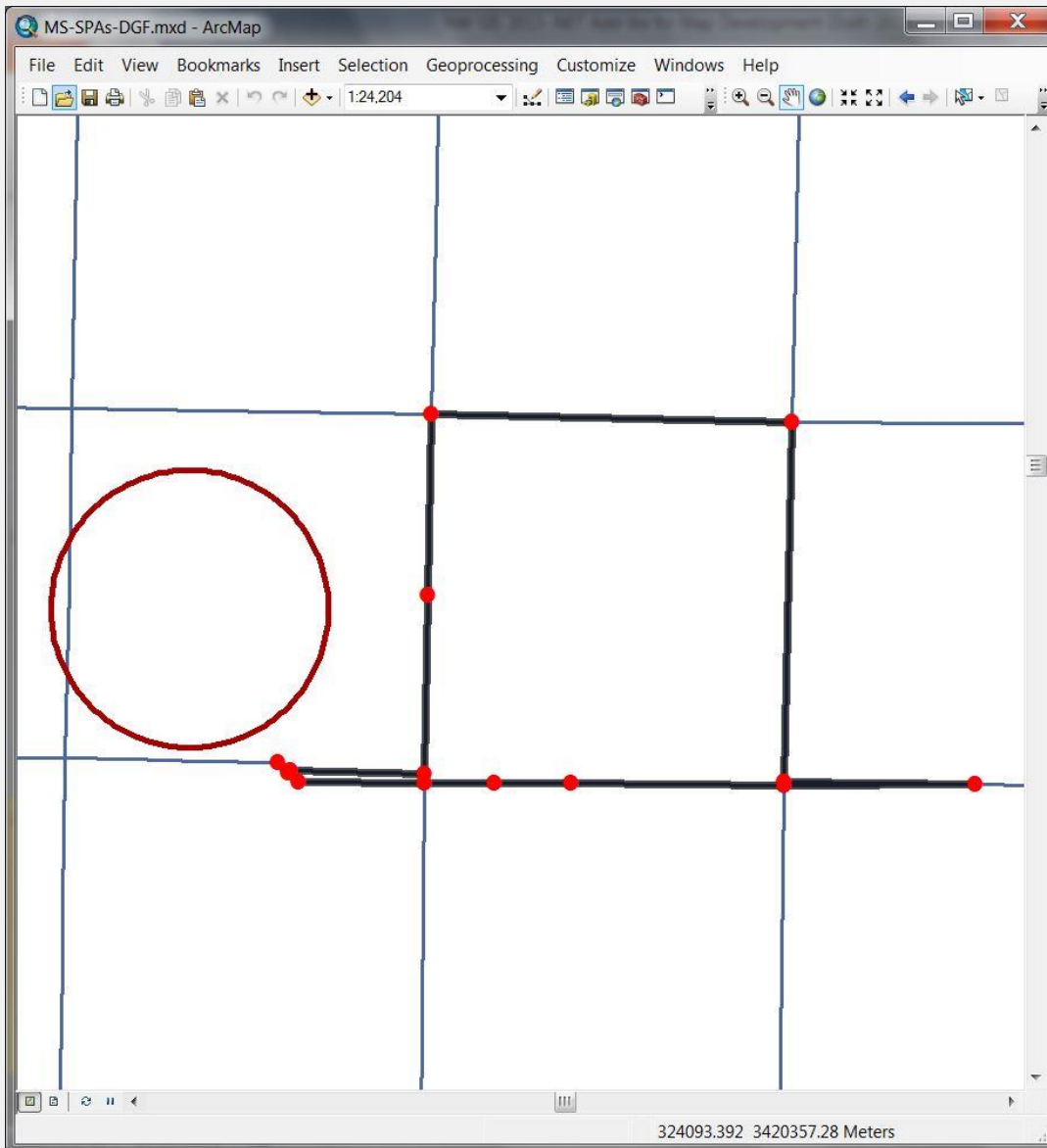
Clear Messages

Reset Form

Key datasets:

- Public Land Survey Sections
- Derived quarter sections
- Critical Habitat locations
- Buffered Critical Habitat locations
- Selection points
- 2006 National Land Cover Data (NLCD)

Species Protection Area Tools – Challenges



The screenshot shows the SPA Tools window. It includes a table for SPA Development, a list of units, and various configuration options for creating and managing Species Protection Areas.

#	Unit ID	SPAs Created	Primary SPA Found	QC Status
4	4	1	1	0
5	5	1	1	0
6	6	1	1	0
7	8	0	0	0
8	9	0	0	0
9	10	0	0	0
10	11	1	1	0
11	13	1	1	0
12	14	0	0	0
13	15	1	1	0

Configuration options include: State: MS, Units: 9, Count: 13, w/SPAs: 9, Filter: None, Zoom To: UTM Info, Create Core Files, Create, Set Attributes, Identify Primary, Apply to all, Reset Data, Checks, Create Buffered Unit, QC Status: 0, Assign, Create ZS Tables, Create NLCD tables, Start Point, Sel. pt at X, Y, Outside %, Shift Limit X, Y, Allowable spill %, Sel. pt adj. factor X, Y, Sel. pts rotation angle, Sections, Buffer Distance, Create Secs., Position: SW, Set Corner, Reset, Create Q. Secs, Create SPA-Sec. Sel.

#	ID	Manual Primary	Auto Primary	Unit Count	C81 Area	C82 Area	C81 + C82 Area	Rejected	Rejection Reasons
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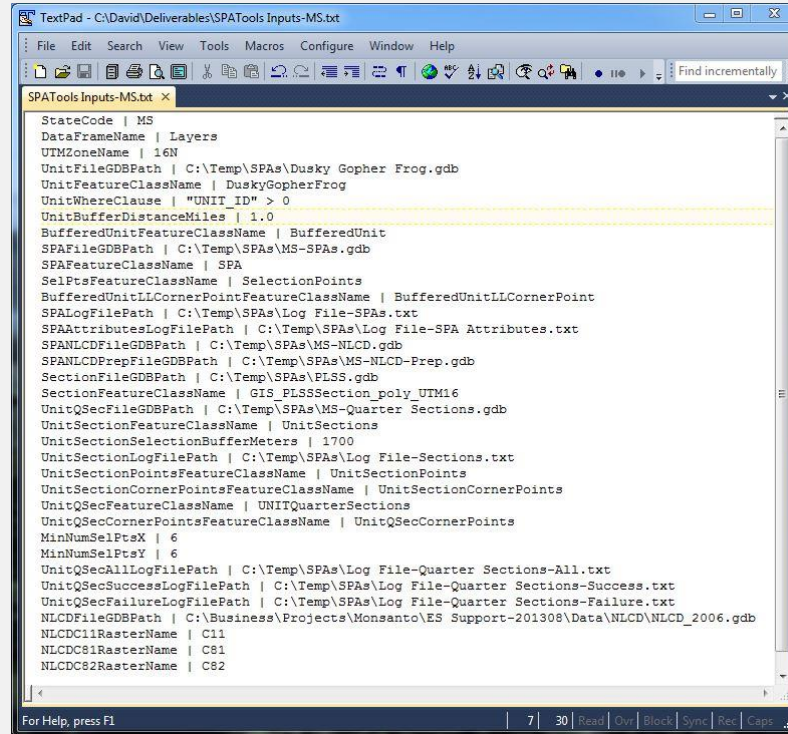
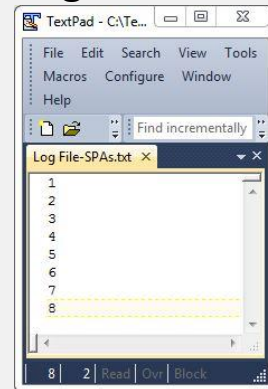
Messages section with Clear Messages and Reset Form buttons.

- Quarter section creation problem due to inability to automatically find corners
- Manually define corners and pass to procedure

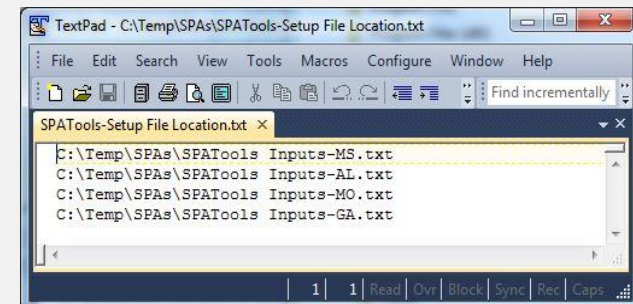
Species Protection Area Tools – Operation

Setup file

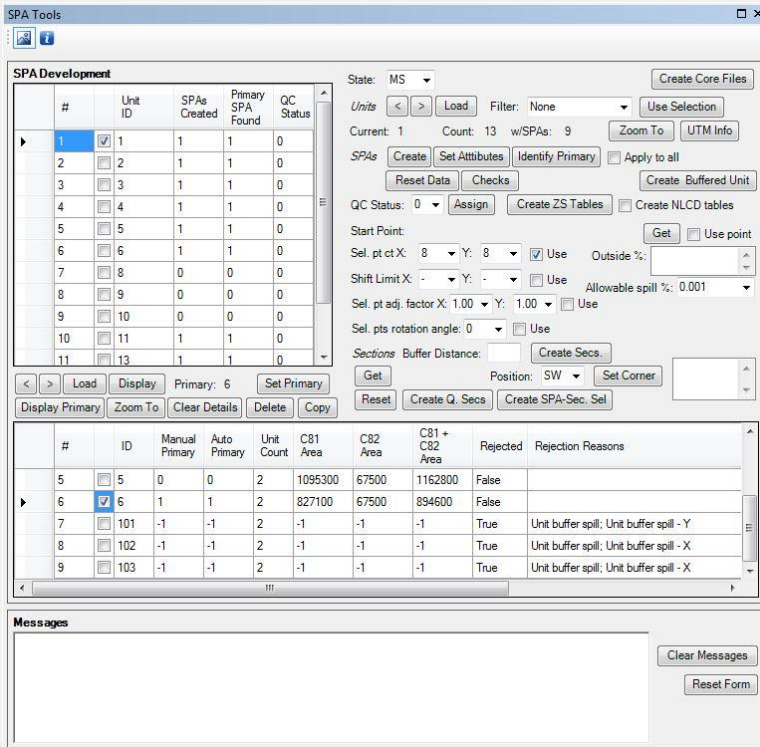
Log file



Tools



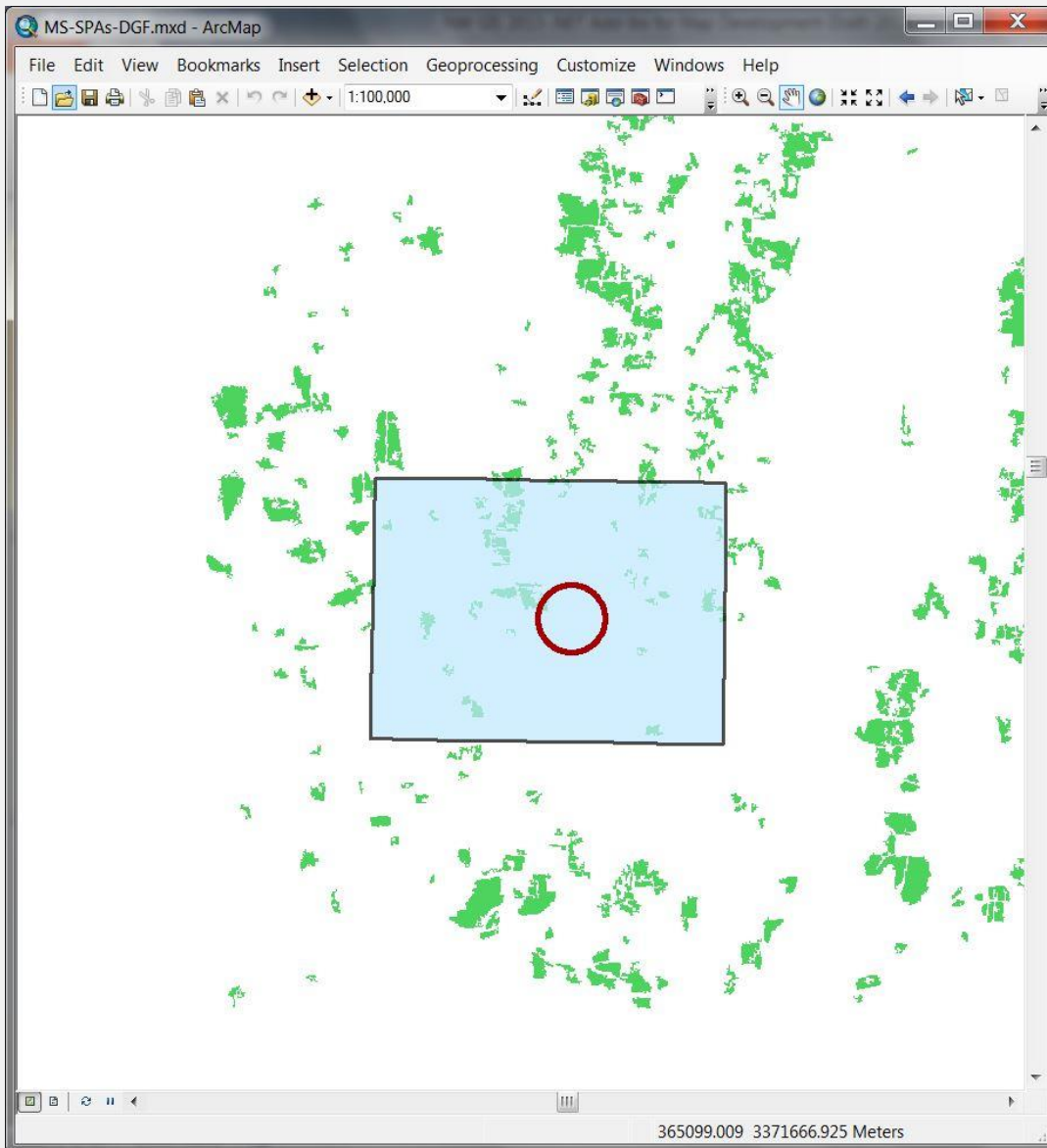
Setup file location file



Deliverables

Name	Date modified	Type	Size
Code	10/13/2013 2:17 PM	File folder	
MS-Quarter Sections.gdb	10/13/2013 2:25 PM	File folder	
MS-SPAs.gdb	10/13/2013 2:25 PM	File folder	
MS-SPAs-DGF.mxd	10/13/2013 1:18 PM	ArcGIS ArcMap Document	2,439 KB
SPAs-MS-DGF-20131013-1420.zip	10/13/2013 2:20 PM	Compressed (zipped) Folder	1,078 KB
SPATools Inputs-MS.txt	10/13/2013 2:11 PM	TXT File	2 KB
SPATools-20131013-1415.esriaddin	10/13/2013 1:18 PM	Esri AddIn File	265 KB

Species Protection Area Tools – Deliverable



SPA Tools

SPA Development

#	Unit ID	SPAs Created	Primary SPA Found	QC Status
4	4	1	1	0
5	5	1	1	0
6	6	1	1	0
7	8	0	0	0
8	9	0	0	0
9	10	0	0	0
10	11	1	1	0
11	13	1	1	0
12	14	0	0	0
13	15	1	1	0

State: MS

Units: < > Load Filter: None Use Selection

Current: 13 Count: 13 w/SPAs: 9 Zoom To

SPAs

Start Point: ☐ Use point

Sel. pt. at X: 8 Y: 6 ☒ Use

Shift Limit X: - Y: - ☐ Use

Sel. pt. adj. factor X: 1.00 Y: 1.00 ☐ Use

Sel. pts rotation angle: 0 ☐ Use

Allowable spill %: 0.001

< > Load Display Primary: 2 Set Primary

Display Primary Zoom To Clear Details

#	ID	Manual Primary	Auto Primary	Unit Count	C81 Area	C82 Area	C81 + C82 Area	Rejected	Rejection Reasons
1	1	0	0	1	1314900	179100	1494000	False	
2	2	1	1	1	1188900	179100	1368000	False	
3	101	-1	-1	1	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - Y
4	102	-1	-1	1	-1	-1	-1	True	Unit buffer spill; Unit buffer spill - X

Messages

Clear Messages

Reset Form

- Read-only version of tools (functionality hidden as required)
- Tools appearance is a low priority
- Main priority is output data