

Contents

PART 1:

PART 1: Introduction.....	7
History.....	7
Purpose and Need.....	7
Consistency, Flexibility Collaboration and Sharing.....	8
Goals.....	8
Summary.....	8
Basic Architecture.....	9
Preliminary Assessment.....	9
Glossary.....	10
Example.....	13
Sustainability Framework.....	13
Glossary:.....	15
Examples.....	17
Before You Plan.....	21
Identify Planning Elements.....	21
Ecological Systems.....	21
Species.....	22
Watersheds.....	23

Species Groups.....	23
Sources and Process Record	25
Experts and Partners.....	25
Literature	26
PART 2: Using the ESE Planning Tool	27
System Requirements	27
Screen Resolution Specifications	27
Enabling Macros and Making the ESE Tool a “Trusted Site”	28
Linking Front End (Program) to Back End (Data Files)	37
Button and Screen Numbering Conventions	40
Step by Step Instructions	41
Button 1: Planning Area	41
Screen 1. 1: Planning Area/Planning Area	41
Screen 1.2: Planning Area/Ecological Region.....	43
Button 2: Preliminary Assessment.....	45
Screen 2.1.1: Preliminary Assessment/Systems/ID and Status	45
Screen 2.1.2 Preliminary Assessment/Systems/Link to Units	47
Screen 2.1.3: Preliminary Assessment/Systems/Unit Status.....	49
Screen 2.1.4: Preliminary Assessment/Systems/Reference Conditions	51
Screen 2.1.5: Preliminary Assessment/Systems/Stresses and Threats	53
Screen 2.2.1: Preliminary Assessment/Watersheds/ID and Status	56
Screen 2.2.2: Preliminary Assessment/Watersheds/Link to Units	58

Screen 2.2.3: Preliminary Assessment/Watersheds/Unit Status.....	60
Screen 2.2.4: Preliminary Assessment/Watersheds/Reference Conditions.....	62
Screen 2.2.5: Preliminary Assessment/Watersheds/Stresses and Threats	64
Screen 2.3.1: Preliminary Assessment/Species/ID and Status	66
Screen 2.3.1(A): Preliminary Assessment/Species/Aquatic Sensitivity and Susceptibility	68
Screen 2.3.2 (or 2.3.3 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Link to Units.....	70
Screen 2.3.3 (or 2.3.4 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Unit Status.....	72
Screen 2.3.4 (or 2.3.5 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Reference Conditions	74
Screen 2.3.5 (or 2.3.6 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Stresses and Threats	76
Screen 2.3.6 (or 2.3.7 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Habitat Associations.....	78
Screen 2.3.7 (or 2.3.8 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Watershed Associations.....	79
Screens 2.4.1-4: Preliminary Assessment/Priorities	81
Button 3: Sustainability Framework	83
Screen 3.1.1: Sustainability Framework/Systems/Selection (By Unit)	84
Screen 3.1.2: Sustainability Framework/Systems/Key Attributes and Indicators (By Unit)	86
Screen 3.1.3: Sustainability Framework/Systems/Attribute and Indicator Details (By Unit)	88
Screen 3.1.4: Sustainability Framework/Systems/Current Conditions (By Unit).....	93
Screen 3.1.5: Sustainability Framework/Systems/Review and Weighting (By Unit).....	95
Screen 3.2.1: Sustainability Framework/Watersheds/Selection (By Unit)	97
Screen 3.2.2: Sustainability Framework/Watersheds/Key Attributes and Indicators (By Unit).....	99
Screen 3.2.3: Sustainability Framework/Watersheds/Attribute and Indicator Details (By Unit).....	101
Screen 3.2.4: Sustainability Framework/Watersheds/Current Conditions (By Unit)	105

Screen 3.2.5: Sustainability Framework/Watersheds/Review and Weighting (By Unit).....	107
Screen 3.3.1: Sustainability Framework/Species/Selection (By Unit).....	109
Screen 3.4.1: Sustainability Framework/Species Groups/Define Groups (Global).....	111
Screen 3.4.2: Sustainability Framework/Species Groups/Link to Units.....	113
Screen 3.4.3: Sustainability Framework/Species Groups/Key Attributes and Indicators (By Unit).....	115
Screen 3.4.4: Sustainability Framework/Species Groups/Attribute and Indicator Details (By Unit).....	117
Screen 3.4.5: Sustainability Framework/Species Groups/Current Conditions (By Unit)	119
Screen 3.4.6: Sustainability Framework/Species Groups/Review and Weighting (By Unit)	121
Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit)	123
Screen 3.3.3: Sustainability Framework/Species/Attribute and Indicator Details (By Unit)	125
Screen 3.3.4: Sustainability Framework/Species/Current Conditions (By Unit).....	127
Screen 3.3.5: Sustainability Framework/Species/Review and Weighting (By Unit)	129
Screen 3.5.1: Sustainability Framework/Strategies/Alternatives	131
Screen 3.5.2: Sustainability Framework/Strategies/Strategies	133
Screen 3.5.3: Sustainability Framework/Strategies/Link to Stresses and Threats (By Unit)	135
Screen 3.5.4: Sustainability Framework/Strategies/Strategy Review (By Unit)	137
Screen 3.5.5: Sustainability Framework/Strategies/Plan Components.....	138
Screen 3.5.6: Sustainability Framework/Strategies/Plan Component Review	140
Screen 3.5.7: Sustainability Framework/Strategies/Alternative Review	141
Button 4: Expected Outcomes	142
Screen 4.1: Expected Outcomes/Set Time Periods.....	142
Screen 4.2: Expected Outcomes/Estimated Outcomes	144

Button/Screen 5: Add a Reference (popup)	146
Button/Screen 6: Reports	147
Queries	149
Querying the ESE Tool.....	149
Existing Queries.....	149
Composite Score Queries.....	149
Your Feedback.....	153
Appendix A: Sample Description of the ESE Process	154
Forest-wide Ecological System Sustainability	154
Appendix B: ESE Tool Prioritization Process Schematic.....	158
Appendix C: Tips.....	160
Tips In The ESE Tool	160
Tips in This Training Manual	162
Identify Planning Elements	162
Screen 2.1.1: Preliminary Assessment/Systems/ID and Status	162
Screen 2.1.2 Preliminary Assessment/Systems/Link to Units	163
Screen 2.1.4: Preliminary Assessment/Systems/Reference Conditions	163
Screen 2.1.5: Preliminary Assessment/Systems/Stresses and Threats	163
Screen 2.2.1: Preliminary Assessment/Watersheds/ID and Status	163
Screen 2.2.2: Preliminary Assessment/Watersheds/Link to Units	163
Screen 2.2.4: Preliminary Assessment/Watersheds/Reference Conditions.....	163
Screen 2.3.1: Preliminary Assessment/Species/ID and Status	163

Screen 2.3.2 (or 2.3.3 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Link to Units.....	163
Screen 2.3.4 (or 2.3.5 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Reference Conditions	164
Screen 3.1.2: Sustainability Framework/Systems/Key Attributes and Indicators (By Unit)	164
Screen 3.1.3: Sustainability Framework/Systems/Attribute and Indicator Details (By Unit)	164
Screen 3.1.4: Sustainability Framework/Systems/Current Conditions (By Unit).....	164
Screen 3.1.5: Sustainability Framework/Systems/Review and Weighting (By Unit)	164
Screen 3.2.3: Sustainability Framework/Watersheds/Attribute and Indicator Details (By Unit).....	165
Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit)	165
Screen 4.2: Expected Outcomes/Estimated Outcomes	165
Button/Screen 6: Reports	165
Queries.....	165
Appendix D: Glossary	167
Appendix B: ESE Tool Prioritization Process Schematic (pasted at end of current document)	
Appendix C: Tips (Compile all Tips in document and in tool—need to be the same!)	
Appendix D: Glossary (Create glossary of all terms in document and more as needed)	

PART 1: Introduction

The ESE tool is a strategic conservation planning tool used by the US Forest Service Southern Region for forest planning. Ecological systems, watersheds, terrestrial and aquatic species are carried through the preliminary assessment, sustainability framework (including strategies and plan alternatives) and expected outcomes. The tool utilizes a standardized process while being flexible, efficient and adaptable to forest specific priorities and needs. The ESE tool employs prioritization algorithms utilizing rank, importance rating, attributes and indicators, stresses and threats, scope and severity ratings, and management opportunities to assist and support management decisions while creating a standardized, credible and defensible process record.

To date, the current version of the ESE Tool holds conservation forest planning data from NFs in Mississippi, George Washington NF, Uwharrie NF, and Southern Appalachian National Forests. El Yunque NF, Francis Marion NF and Nantahala-Pisgah NF are using the ESE tool in 2013 for their forest planning efforts. All Southern Region forests will use the ESE tool in their upcoming forest plan revisions processes creating a complete database of R8 National Forests.

NOTE: Refer to FSH 1909.12: Land Management Planning Handbook, Chapter 10: The Assessment (sent earlier on Feb 19). Add Definitions from above document as needed into glossary/definitions.

History

The Ecological Sustainability Evaluation (ESE) tool is based on The Nature Conservancy Conservation Action Planning (CAP) process. The first version of the ESE Tool was developed cooperatively by Arkansas Game and Fish Commission, Conservation Southeast, Inc., and United States Forest Service (USFS) in 2004. The ESE Tool framework was used in the Ouachita, Ozark, Land Between the Lakes and Uwharrie Forest plan revisions. Version 0.20.12, released in 2009 was developed under contract with NatureServe and is being used by the National Forests in Mississippi, Uwharrie, and George Washington National Forest for their current Forest plan revisions.

Purpose and Need

It became apparent during the 2003 Southern Appalachian Forest Plan revisions that a standardized approach was needed for Regional planning. A collaborative effort began with USFS and non-government organization (NGO) conservation planners to create a framework for ecological sustainability evaluation. The vision for the protocol is a universal framework of standardized tools, common libraries, interfacing data for multi-users and uniform access via internal networks. A program was needed that was designed to be adaptive to individual forest management needs and priorities, be efficient for use of planning information across forests and organizations, and create standardized, credible and defensible process records.

Consistency, Flexibility Collaboration and Sharing

Housing and managing plan revision data in a common framework allows Units to share information regarding common or similar planning elements such as Ecosystems and Species that may occur on multiple Units. For example, information regarding various Species and Ecosystems in the longleaf matrix has already been populated by the National Forests of Mississippi and can be automatically imported into the planning tool for use in nearby Units that are ecologically and biologically similar, then easily adjusted to reflect local conditions and variables.

Likewise, data sets can also be exchanged with partners using similar planning architecture such NatureServe, The Nature Conservancy and others.

Whether shared internally within the Forest Service or externally with partners, the widespread adoption of the ESE Tool and protocols enhances data consistency, assures that the best aggregated scientific knowledge is available to all and significantly improves the efficiency and time requirements of future planning activities.

Goals

- To provide users with an efficient, credible, and defensible tool, that allows more Conservation Targets than the original CAP tool and links Ecosystems, habitat elements, specific Watersheds, Species Groups and other planning components to Species targets.
- To provide users with a tool that enables them to document planning processes, decisions and provide a record of the best available science used.

Summary

The ESE Tool:

- Is built in the Microsoft Access relational database framework
- Serves as a strategic planning tool
- Serves as guide to the ecological sustainability evaluation process
- Is based on TNC's Conservation Action Planning (CAP) Workbook
 - Is closely or directly compatible with many partners' planning tools
 - Builds on CAP by allowing an unlimited number of Conservation Targets
 - Allows for data sharing across multiple forests and partners' lands, greatly enhancing and accelerating future planning processes

Basic Architecture

The ESE Tool has two primary sections for planning: "Preliminary Assessment" and "Sustainability Framework".

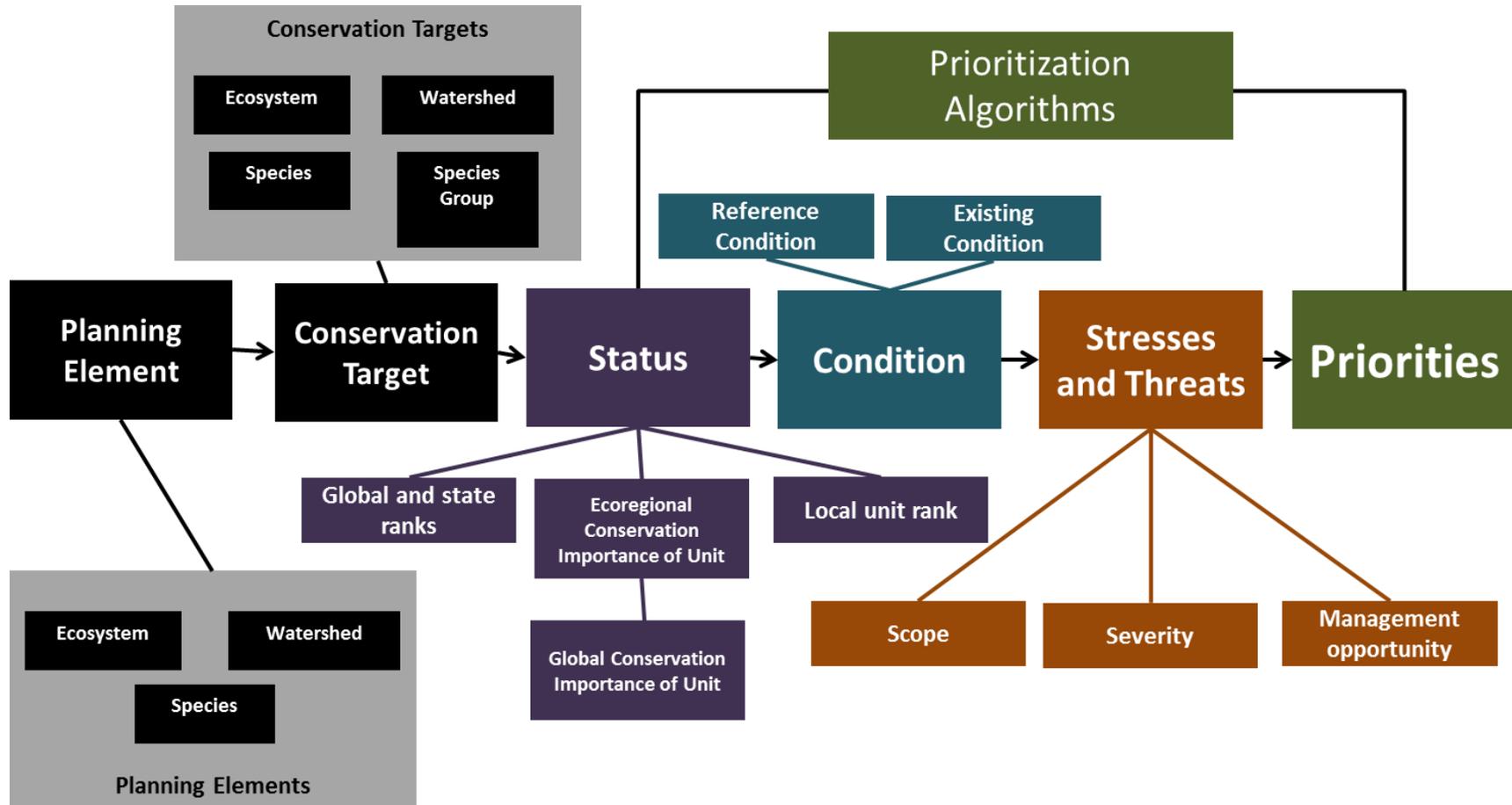
NOTE: For a description of the ESE process by a recent user, refer to Appendix A: Sample Description of the ESE Process.

Preliminary Assessment

The Preliminary Assessment is designed to compile strategically relevant science-based information about ecological systems, watersheds, and species. Although some ratings in the Preliminary Assessment will require expert judgment, all judgment should be based on best available science and the rationale and basis for that judgment should be well documented. In contrast, the Sustainability Framework is where you will make strategic decisions about what will be addressed in your plan and how it will be addressed.

The purpose of the Preliminary Assessment portion of the ESE Tool is to 1) document use of best available science as a basis for planning decisions, and 2) provide a prioritized ranking of elements (systems, watersheds, and species) and the stresses and threats that affect them on your unit to be used in deciding where to focus ecological planning. Priority scores are generated using standard algorithms and some of the variables you enter.

This diagram shows the basic relationship among parts of the Preliminary Assessment. Note that in many cases the relationships are one-to-many or many-to-many as you move from left to right. In other words, there may be more than one Stress for each Conservation Target and more than one Threat for each Stress, etc. Also note that all linked relationships in the core architecture (left-to-right) are assigned values by the user for more accurate and specific output products, such as prioritized Planning Element and Conservation Target lists.



Glossary

Planning Element: (or simply “Element”) A Species, ecological system or Watershed. The scale of ecological systems and Watersheds is usually based on the scale of the Planning Area. For example, fifth level HUCs and matrix-level ecological systems may best serve a large Planning Area while sixth level HUCs and smaller-scale vegetative communities may best serve a more geographically limited Planning Area. NOTE: The

sustainability of small-scale habitat and micro-habitat components (i.e. coarse woody debris, snags and den trees) is usually handled as Key Attributes of Conservation Targets (see Sustainability Evaluation below).

Planning Elements may be linked to one or more Conservation Targets (below) or may be Conservation Targets themselves. Planning Elements that are not currently of conservation concern but may become of concern at a later date may be listed in the ESE Tool for handy future use and not linked to Conservation Targets. These unlinked Element records are referred to as “not carried through” (see Screen 3.1.1: Sustainability Framework/Systems/Selection)

Conservation Target: (or simply “Target”) A strategic-level Planning Element, often an “umbrella” such as ecological system, Watershed or Species Group, for which Key Attributes and Indicators (see Sustainability Evaluation below) are identified in order to develop conservation Strategies. For example, while Longleaf Pine trees and numerous other species may be listed as Planning Elements, they are usually not managed individually at the forest planning scale. Instead, their needs are addressed by overarching Strategies developed to manage or restore the habitats in which they occur, such as Longleaf Pine-dominated ecological systems. Still other species are best covered by Species Groups (or “guilds”) that are associated with specific spatial, structural, composition, or disturbance attributes that cut across multiple ecological systems (fire-dependent savanna-grassland obligates, for example). Likewise at the forest planning scale, the needs of individual aquatic species are usually captured by Watershed-level Strategies.

Status: Global and State ranks, known as G ranks and S ranks respectively, are perhaps the most obvious and important prioritization tools that fall under the Status category. Other important tools include the importance of the Unit (usually the Planning Area/National Forest) to both the global and ecoregional sustainability of the Planning Element or Conservation Target. Optional ranks, such as State Wildlife Action Plan status, may be included for reference but are not considered in the algorithms use to prioritize Planning Elements, Conservation Targets and, ultimately, strategies.

Condition: Condition is captured primarily in narrative fields and is a broader overview of various size, condition and landscape context attributes that will be more specifically described, qualified and quantified later in the Sustainability Evaluation. “Reference Condition” is a description of the ideal state of a Conservation Target against which the “Existing Condition” will be measured. Reference Condition will also guide more detailed work later in the Sustainability Evaluation. See Screens 2.1.4, 2.2.4 and 2.3.4 for more information about how to describe Reference Conditions.

Stresses and Threats: “Stresses” are alterations in the size, condition and/or landscape context of Conservation Targets that may adversely impact the sustainability of a Conservation Target and its associated biodiversity. “Threats” are the sources of those Stresses. For example, a

Stress might be “Modification of vegetation” and the Threat, or source of the Stress, might be “Fire and fire suppression” regimes. Once Stresses and Threats are identified, there are three ways they must be rated:

Scope: The spatial extent of the problem within the known spatial extent of the Conservation Target

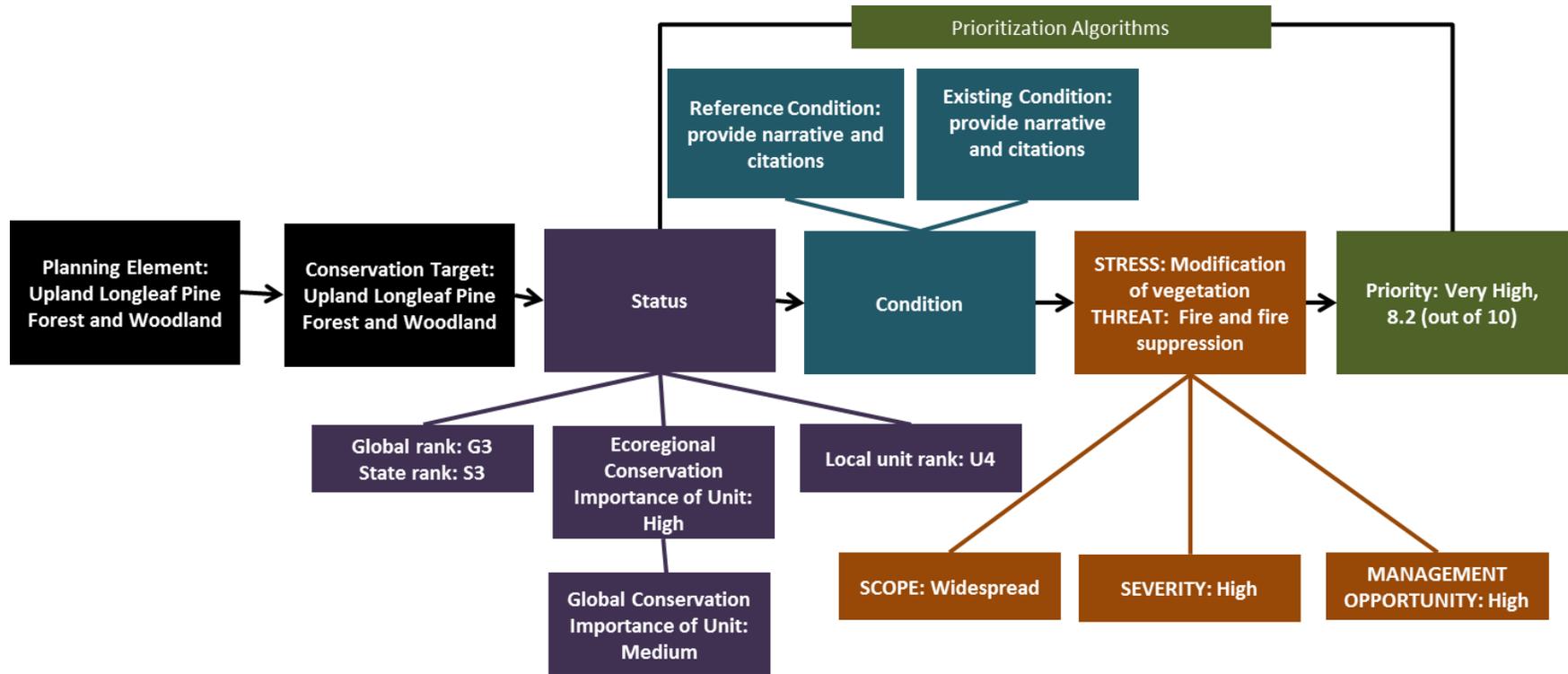
Severity: The acuity of the problem where it occurs

Management Opportunity: The extent to which USFS has the ability to restore or correct the problem

Priorities: The Preliminary Assessment, once fully populated, ranks Conservation Targets from highest to lowest priority. Please note that later, during the Sustainability Evaluation, *Strategies* are also ranked after Planning Elements (usually Species) are linked to Conservation Targets (usually ecological systems, Watersheds or Species Groups) as strategic umbrellas that capture their needs. Just because a Conservation Target ranks high or low in the Preliminary Assessment may not necessarily mean that its associated Strategies will rank as high or low after the Sustainability Evaluation is complete. For example, a G2 Conservation Target that supports numerous G5 species may not produce Strategies as urgent as a G3 Conservation Target that supports numerous G1 species.

Example

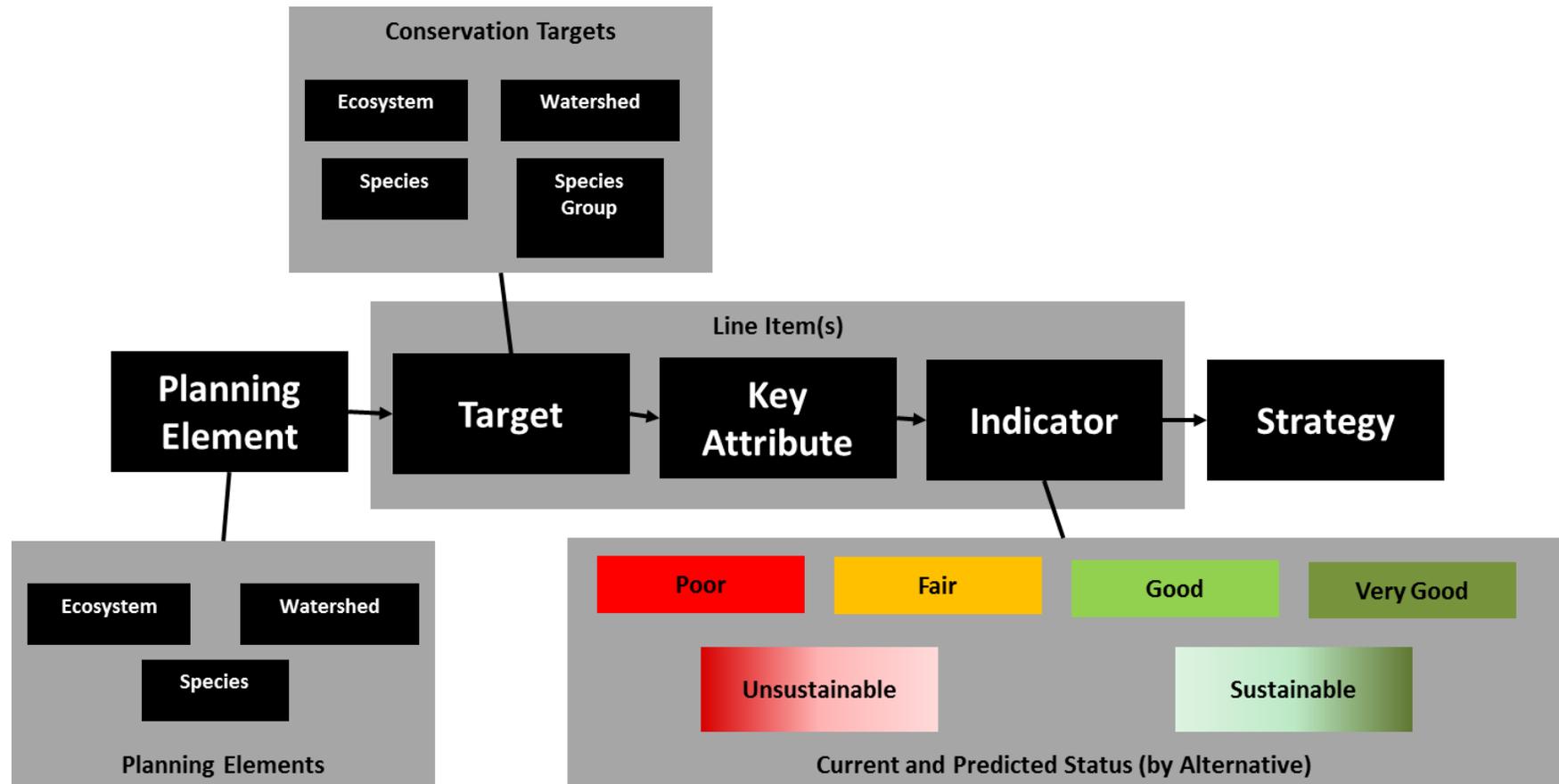
This example shows the Preliminary Assessment flow and logic with mock planning data included. In this example, Upland Longleaf Pine Forest and Woodland (an ecological system) is the Conservation Target. As mention previously, there is usually a one-to-many relationship as you progress left to right through the process. For brevity, only one Stress-Threat combination is shown in this diagram.



Sustainability Framework

As previously stated, the Sustainability Framework is where you will make strategic decisions about what will be addressed in your plan and how it will be addressed. This diagram shows the basic relationship among parts of the Sustainability Framework. Note that in many cases the relationships are one-to-many or many-to-many as you move from left to right. In other words, there may be more than one Key Attribute for each Conservation Target and more than one Indicator for each Key Attribute, etc. Also note that all linked relationships in the core architecture

(left-to-right) are weighted by the user for more accurate and specific output products, such as prioritized Planning Element and Conservation Target lists.



Glossary:

Planning Element: (or simply “Element”) A Species, ecological system or Watershed. The scale of ecological systems and Watersheds is usually based on the scale of the Planning Area. For example, fifth level HUCs and matrix-level ecological systems may best serve a large Planning Area while sixth level HUCs and smaller-scale vegetative communities may best serve a more geographically limited Planning Area. NOTE: The sustainability of small-scale habitat and micro-habitat components (i.e. coarse woody debris, snags and den trees) is usually handled as Key Attributes of Conservation Targets (below).

Planning Elements may be linked to one or more Conservation Targets (below) or may be Conservation Targets themselves. Planning Elements that are not currently of conservation concern but may become of concern at a later date may be listed in the ESE Tool for handy future use and not linked to Conservation Targets. These unlinked Element records are referred to as “not carried through” (see Screen 3.1.1: Sustainability Framework/Systems/Selection)

Conservation Target: (or simply “Target”) A strategic-level Planning Element, often an “umbrella” such as ecological system, Watershed or Species Group, for which Key Attributes and Indicators are identified in order to develop conservation Strategies. For example, while Longleaf Pine trees and numerous other species may be listed as Planning Elements, they are usually not managed individually at the forest planning scale. Instead, their needs are addressed by overarching Strategies developed to manage or restore the habitats in which they occur, such as Longleaf Pine-dominated ecological systems. Still other species are best covered by Species Groups (or “guilds”) that are associated with specific structural, composition, or disturbance attributes that cut across multiple ecological systems (fire-dependent savanna-grassland obligates, for example). Likewise at the forest planning scale, the needs of individual aquatic species are usually captured by using Watersheds as Conservation Targets and developing Strategies accordingly.

A Conservation Target may be linked to multiple Elements (above) and Key Attributes (below).

Key Attribute: An ecologically important characteristic of a Conservation Target. Key Attributes usually address habitat variables such as size, condition and landscape context. Some examples include fire regime, canopy conditions, understory/groundcover conditions, remoteness, and invasive Species.

A Key Attribute may be linked to multiple Conservation Targets (above) and Indicators (below).

Indicator: Quantifiable and, to the extent possible, objectively verifiable metrics, also known as “performance measures,” that measure specific details of Key Attributes against a widely-used, relatively universal scale. The user defines the ranges of measurements that fall into each threshold of the scale based on the best available science:

- **Poor:** (Unsustainable) Element conditions are severely inadequate. Associated Species’ populations are expected to severely decline; localized extirpations are occurring or are imminent.
- **Fair:** (Unsustainable) Element conditions are slightly inadequate; although associated Species’ populations may persist for some time, they may be subject to gradual decline.
- **Good:** (Sustainable) Element conditions are acceptable; associated Species’ populations should remain stable.
- **Very Good:** (Sustainable) Element conditions are optimal; associated Species’ populations should remain robust and potentially even expand.

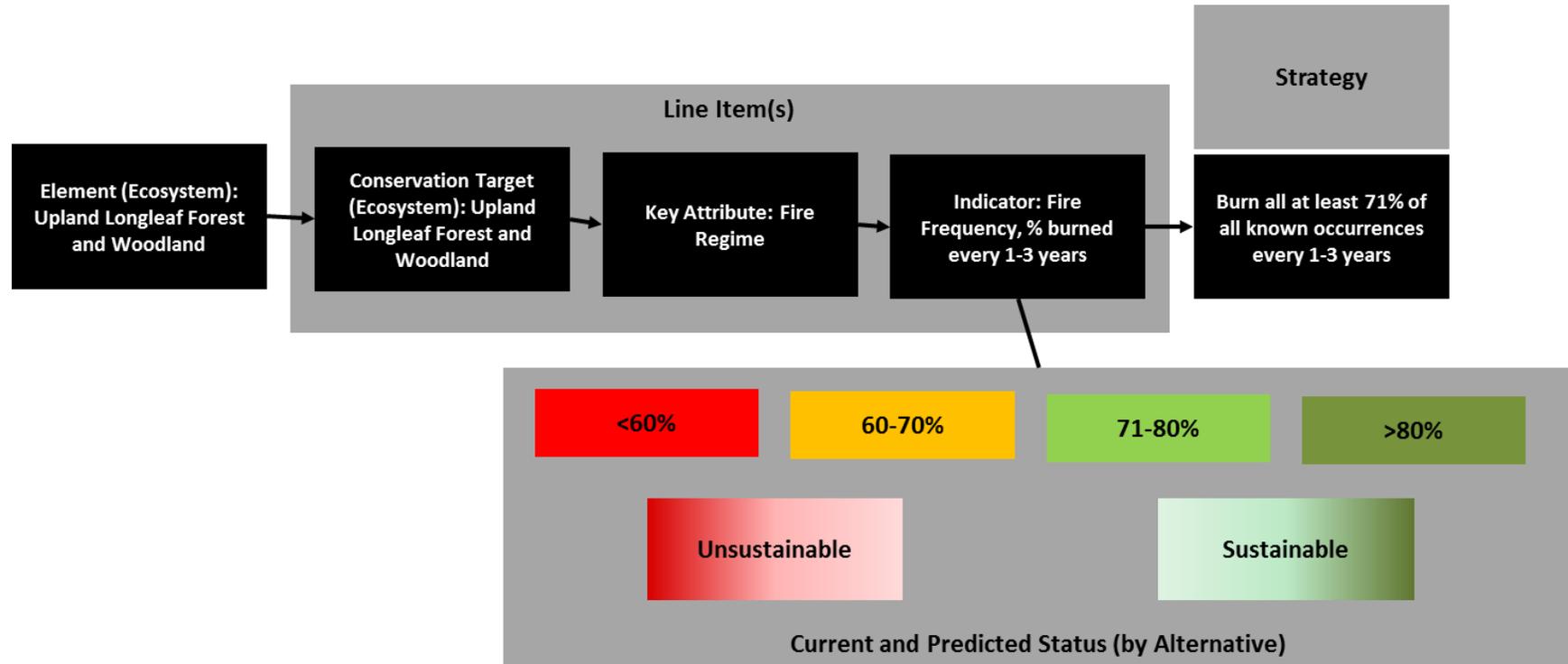
An Indicator may be linked to more than one Strategy (below).

Line Item: A Conservation Target-Key Attribute-Indicator combination. A Planning Element can be linked to any Conservation Target or Line Item or multiple Conservation Targets and Line Items. Likewise, any Conservation Target, Line Item or combination can be linked to any Strategy (below). When Species are combined into Species Groups, more than one Conservation Target may be present in a Line Item.

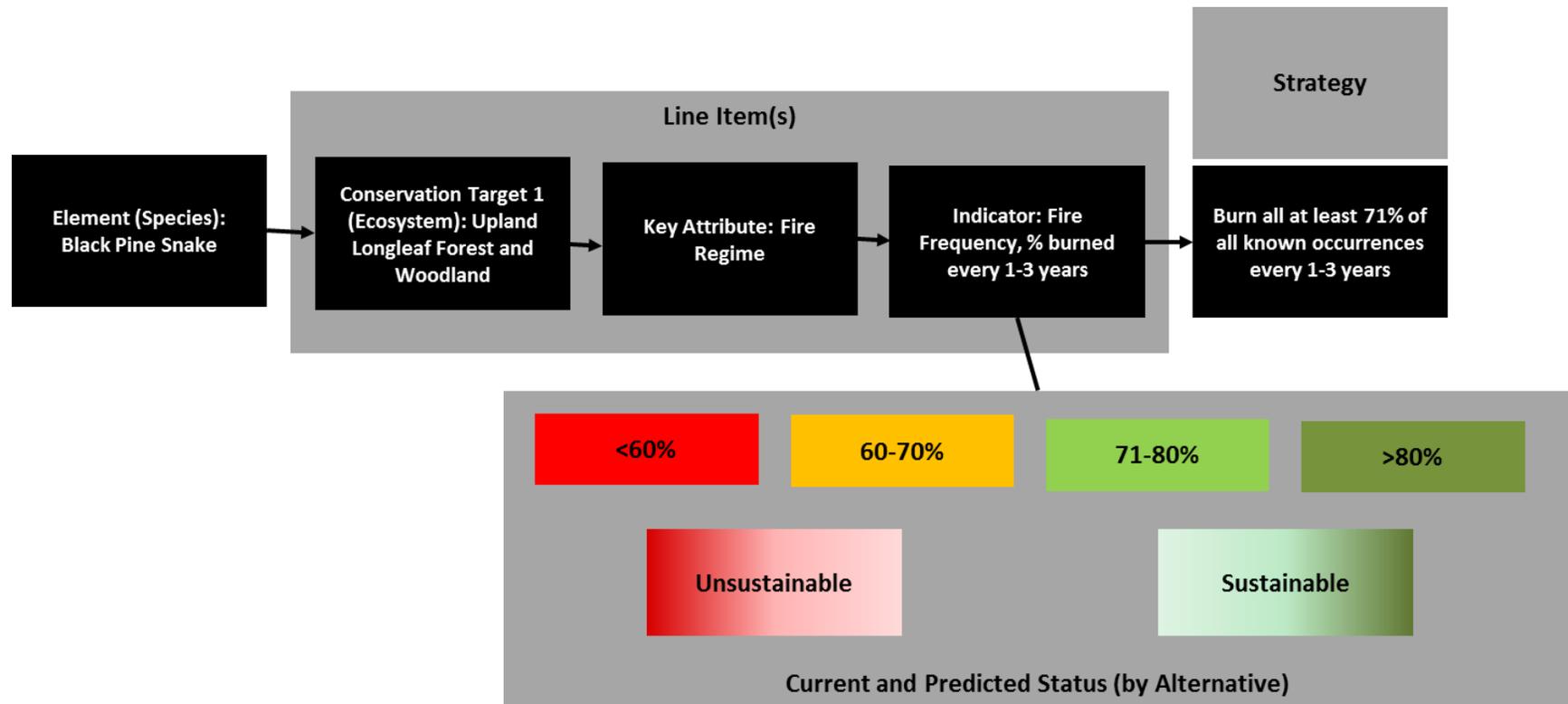
Strategy: A simple, direct conservation action to maintain or restore an Indicator value or multiple Indicator values to sustainable levels. Strategies are used to develop plan components such as Desired Future Conditions and Guidelines.

Examples

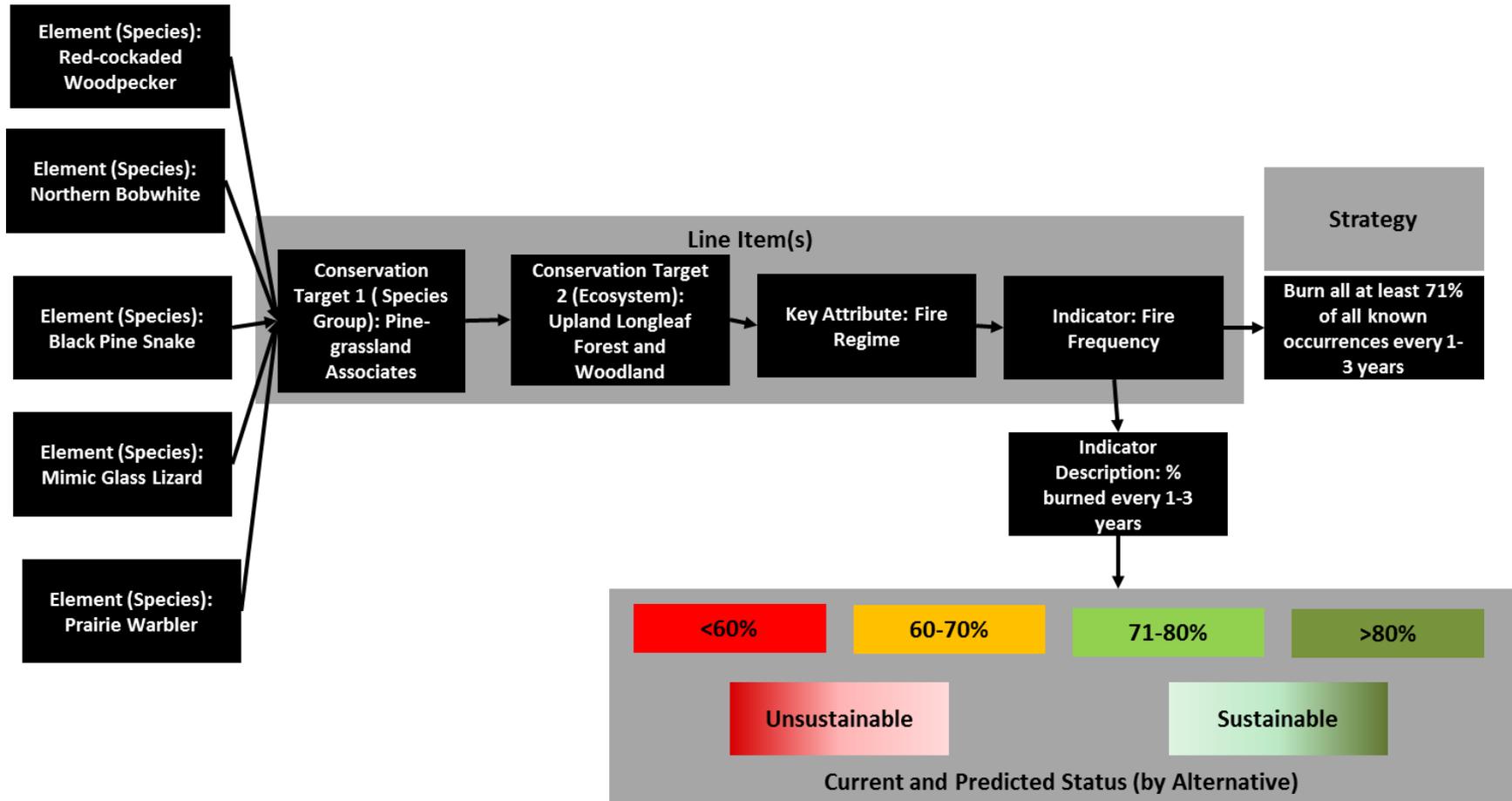
Example 1: In the example below, the Planning Element is an Ecosystem. The same Ecosystem is also a Conservation Target.



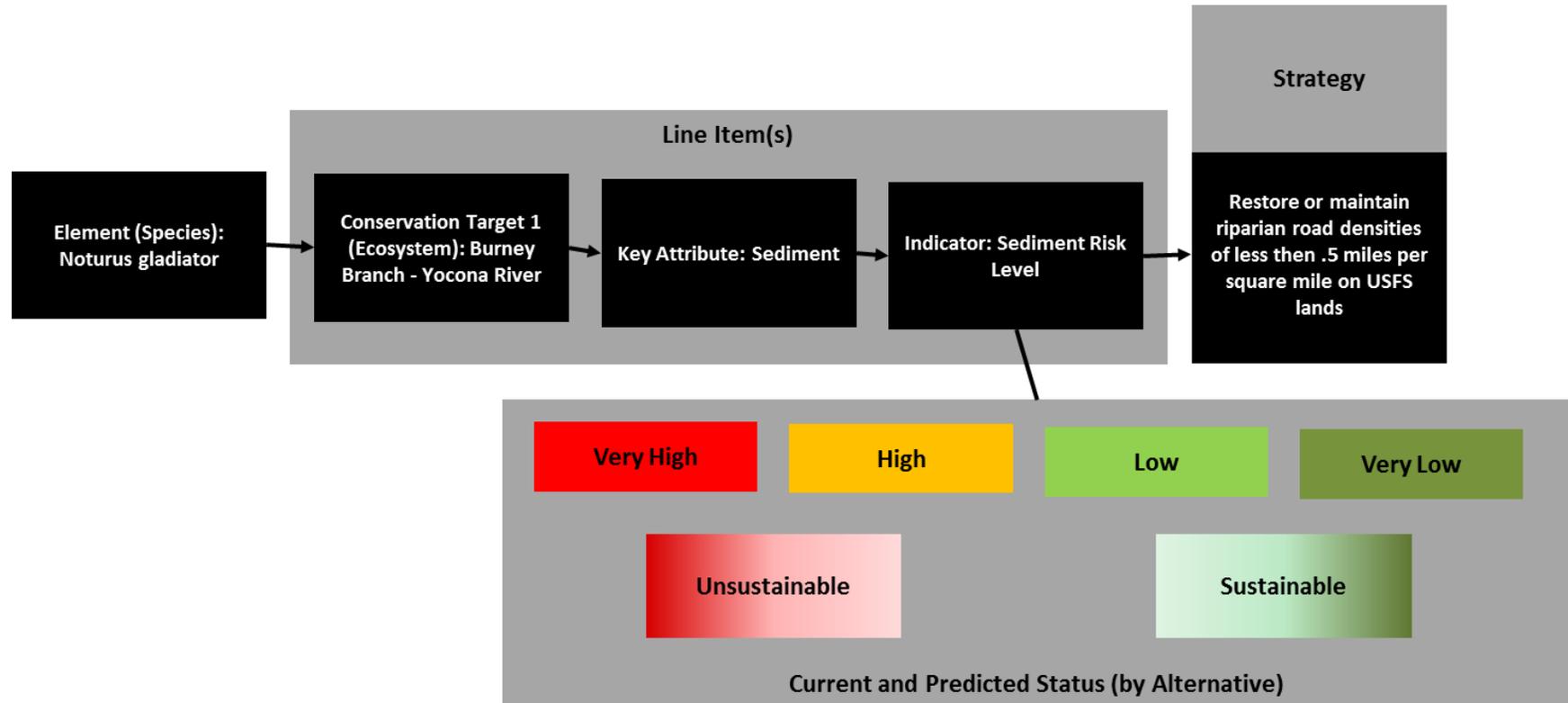
Example 2: In this example, the Planning Element is a Species and the Conservation Target is an Ecosystem in which the Species is known to occur.



Example 3: In the following example, multiple Planning Elements (Species) are combined into a Targeted Species Group, which is then linked to a specific Key Attribute-Indicator-Strategy Line Item of an Ecosystem. Note that there are two Conservation Targets in the Line Item.



Example 4: In the final example, the Planning Element is a Species and the Conservation Target is a Watershed.



Before You Plan

Identify Planning Elements

Ecological Systems

The National Vegetation Classification System (NVCS) was developed by NatureServe as a taxonomical hierarchy to describe vegetative communities at various scales, from landscape-level matrix systems to localized, smaller embedded communities. US Forest Service (USFS) Region 8 (R8) planning protocols require that all USFS land cover types be described according to NVCS definitions. If you are unfamiliar with the NVCS, contact the RO Biological and Physical Resources (BPR) or planning staff or visit www.natureseve.org.

Current Land Cover: If you have not already done so, begin cross-walking your current land cover types to the NVCS. To the extent possible, make sure every acre is accounted for and attributed to one of the NVCS Ecosystem types at a scale appropriate for the forest plan revision process. In general, the coarsest effective scale is usually the NVCS Ecosystem level. Many ecoregions have a prevailing matrix-level system, such as various longleaf pine systems in the southeastern coastal plain ecoregions, as well as smaller but ecologically important embedded communities such as various wetlands, glades and bottomland forest types. Make sure the scale(s) you use covers the needs of all the associated biodiversity, taking into account all ecologically important variations on both matrix-level and embedded communities.

TIP: Cross-walking current and potential land cover types to the NVCS is a time- and GIS-intensive process that must be complete before planning can begin in earnest. Costly delays can result if proper lead time and GIS resources are not committed early in the process, preferably prior to the commencement of other planning activities.

EXAMPLE: During the recently completed planning process for the National Forests of Mississippi, the following matrix-level and embedded Ecosystems were included in the ESE Tool evaluation. The process encompassed approximately 1.2 million acres across nine geographically and ecologically distinct Units (districts and sub-districts). In some cases, Ecosystem names were shortened for brevity (full NVCS names usually start with an ecoregional modifier such as “Lower East Gulf Coastal Plain...”) and NVCS system types were combined or split as circumstances warranted. In each case, amendments to the NVCS names were clearly described in narrative fields provided in the ESE Tool:

1. Black Belt Calcareous Prairie and Woodland
2. Canebrakes
3. Cypress Dominated Wetlands
4. Ephemeral Ponds and Emergent Wetlands

5. Floodplain Forest (combined from multiple NVCS floodplain and riparian forest types)
6. Herbaceous Seepage Bogs and Flats
7. Jackson Prairie and Woodland
8. Loblolly Pine Forest
9. Lower Mississippi River Bottomland and Floodplain Forest
10. Near-coast Pine Flatwoods
11. Northern Dry Upland Hardwood Forest
12. Northern Mesic Hardwood Forest
13. Permanent Lakes and Ponds
14. Rock Outcrops
15. Seeps, Springs, and Seepage Swamps
16. Shortleaf Pine-Oak Forest and Woodland
17. Slash Pine Forest
18. Southern Dry Upland Hardwood Forest
19. Southern Loblolly Pine-Hardwood Flatwoods
20. Southern Loess Bluff Forest
21. Southern Mesic Slope Forest
22. Upland Longleaf Pine Forest and Woodland
23. Wet Pine Savanna
24. Xeric Sandhills

Potential Future Land Cover and Desired Conditions (DC): Using locally appropriate site type variables such as climate, soils and geomorphology, determine which Ecosystems could *potentially* occur on each site within the Planning Area. For example, xeric sand or sandstone hills may support a variety of pine, oak or pine-oak woodland types. Once the current and potential Ecosystems of each acre are identified, DC can be developed to identify the relative abundance and location of potential cover types based on the best available science (below).

Species

If you haven't already done so, begin combining a thorough list of Species for consideration in the ESE process now. Various mandatory Species lists such as the Regional Forester's Sensitive Species (RFSS), Threatened and Endangered (T&E) and Species of Conservation Concern (SCC) lists

must obviously be included, but may not always capture the latest emerging issues regarding Species warranting consideration in the planning process. Check with federal, state, non-profit and academic partners for additions (or deletions) to your Species list based on the best science. Being too inclusive is more effective and defensible than making questionable omissions. Work with the appropriate Biological Physical Resources (BPR) personnel to assure your species lists meet Regional criteria.

Watersheds

For your convenience, identification of Watersheds at an appropriate scale (usually fifth or sixth level) and analysis of Watershed sustainability variables will be provided by R8 aquatic experts. The analysis includes a Watershed-wide (regardless of ownership) evaluation of variables such as road densities, land use, dams, stream crossings and point source permits. The analysis also quantifies land use profiles including the percent and acres of each Watershed in USFS ownership, which will help you separate USFS responsibilities from neighboring landowners and specifically describe the impacts, usually positive, of USFS management practices on Watershed health.

The information provided by R8 is usually in the form of surrogate data from which information about sediment, point source pollution, non-point source pollution, thermal integrity and flow regimes can be inferred. Since the R8 Watershed data is used for a variety of purposes and is not developed specifically for the ESE Tool, some cross-walking is required. Cross-walking the R8 analysis outputs to the ESE Tool Sustainability Framework is relatively simple but can be a bit confusing. Contact the appropriate Biological and Physical Resources (BPR) personnel if you have questions.

Species Groups

Develop a list of Species Groups (also known as “guilds,” “associations,” etc.) that occur in the Planning Area. Species Groups are usually defined as suites of Species that are associated with habitat characteristics, normally expressed as Key Attributes, of two or more Ecosystems or Watersheds. The groups will then be linked to those applicable Key Attributes across all applicable Ecosystems, which should provide for their sustainability needs.

In most cases, Species Groups will cover the sustainability needs of nearly everything on the Species list. In rare instances where a Species is exclusively endemic to a single Ecosystem, you may wish to proceed to directly to Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit) and link the Species directly to appropriate Ecosystem Line Items without first adding it to a group.

EXAMPLE: The following Species Groups were identified in the NFsMS planning process:

1. Aquatic Coarse Woody Debris Associates
2. Aquatic Species Sensitive to Non-native Invasive Species

3. Aquatic Species Sensitive to Non-Point Source Pollution
4. Aquatic Species Sensitive to Stream Sediment
5. Aquatic Species Sensitive to Stream Toxins
6. Aquatic Species Sensitive to Water Temperature Regime
7. Bat Roost Structure Group
8. Calciphiles
9. Canebrake Associates
10. Cypress Dominated Wetlands Associates
11. Demand Species
12. Den Tree Associates
13. Downed Wood Associates
14. Forest Interior Birds
15. Herbaceous Seepage Bogs and Flats Associates
16. Invasive Species
17. Mature Mesic Deciduous Forest Associates
18. Mature Open Pine-Grass Associates
19. Mature Riparian Forest Associates
20. Mature Upland Pine-Hardwood Associates
21. Open Water Associates
22. Pine Flatwoods Associates
23. Ponds and Emergent Wetlands Associates
24. Prairie Associates
25. Regenerating Forest Associates
26. Riverine Aquatic Species Sensitive to Recreational Traffic
27. Rock Outcrop Associates
28. Seeps, Springs, and Seepage Swamps Associates
29. Snag Associates
30. Species Dependent on Fire to Maintain Habitat
31. Species Needing Occurrence Protection
32. Species Sensitive to Canopy Cover Modification
33. Species Sensitive to Fire Injury
34. Species Sensitive to Hydrologic Modification of Wetlands
35. Species Sensitive to Modification of Instream Flow
36. Species Sensitive to Soil Disturbance

37. Stump and Stumphole Associates
38. Terrestrial and Non-riverine Aquatic Species Sensitive to Recreational Traffic
39. Wet Pine Savanna Associates
40. Xeric Sandhill Associates

Sources and Process Record

The ESE Tool is intended to objectively capture the best available science and requires that each data entry decision be well supported by citations from experts, literature or both.

Experts and Partners

The more your plan is based on unanimous consent of the scientific community, the more effective and defensible it will be. If you have not already done so, begin cultivating relationships with partners and experts on the flora, fauna and coarser-scale ecological issues in your Planning Area. The recommended sequential work flow for utilizing expert opinion is as follows:

1. Complete a draft of the ESE Tool using local internal USFS expertise
2. Review and amend the draft based on a professionally facilitated series of ecological and taxonomical meetings with external experts and partners.

Each expert meeting can be expected to last from one-half day to a full day or more depending on the topic. Meeting topics and lengths will vary by Planning Area. Previous ESE meetings have included “Ecosystem and Fire Day(s),” “Bird Day,” “Mammal Day,” “Herpetofauna Day,”

TIP: Plan Ahead! Experts from partner agencies, academia and the non-profit community are very busy and require significant lead time in order to attend meetings. A minimum of six weeks, preferably several months, is recommended in order to assure maximum participation. In extreme cases, emailed questionnaires and even office visits to experts may be required if meeting attendance is considered inadequate.

“Herbaceous Plant Day,” “Fish and Mussel Day,” etc. The goal of each of these meetings is to assure that the plan accounts for the ecological sustainability of all planning elements and that the best science available has been captured in the ESE Tool.

At each meeting, conversation or conference with internal or external experts make sure to record the date, participants and topics covered for your process record. Also take thorough notes to assure that the information exchanged in each setting is accurately captured and attributed, and then document a citation in “Sources” feature of ESE Tool.

Literature

Scientific literature is also an important resource to guide decision-making during the planning process. It is never too soon to begin compiling a bibliography of relevant literature and entering literature you plan to cite into the ESE Tool. Citations are required for most information you enter in the ESE Tool, but you only have to enter a source once. Afterwards, you can simply select it from a dropdown menu each time you enter information based on that source. See the section entitled “Button/Screen 5: Add a Reference (popup)” later in this manual to learn how to enter sources.

PART 2: Using the ESE Planning Tool

System Requirements

The ESE Tool requires Microsoft Access 2007 or higher.

The ESE Tool also works faster when used with a computer that has a faster processor and more memory.

Screen Resolution Specifications

The ESE database will properly function at 1024 x 768 dimensions if the “office ribbon” is minimized. To minimize the “office ribbon”, double-click on any of the ribbon tabs. To restore the “office ribbon” to its regular setting double-click on the tab. The “office ribbon” can be used when it’s minimized. This setting is the absolute minimum setting.

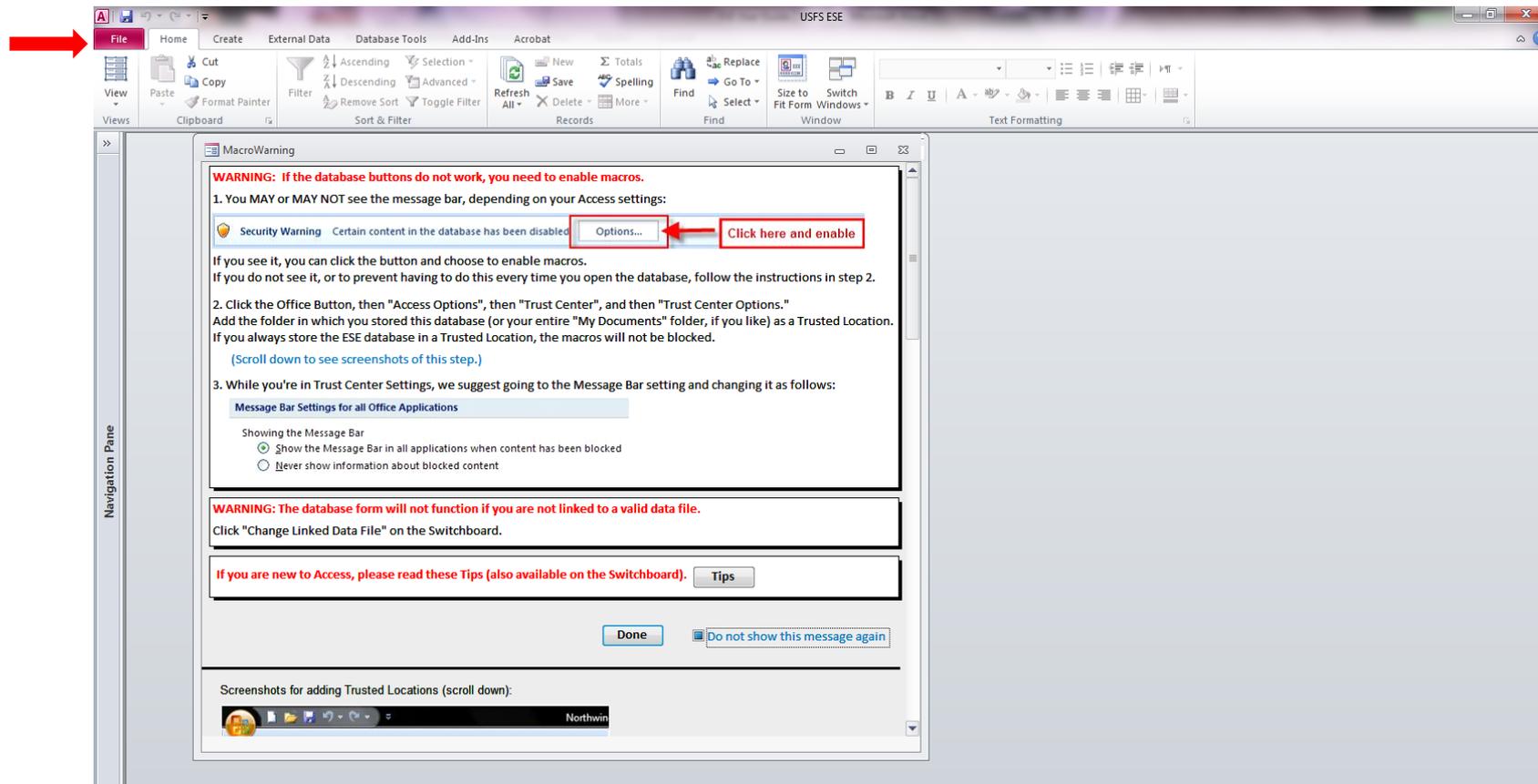
The maximum resolution setting on most laptops is 1280 x 800. At this setting the ribbon must be minimized for the entire form to show.

The ideal minimum setting for the ESE Tool is 1152 x 864. Higher resolutions may be used with the ESE Tool to make the forms appear larger.

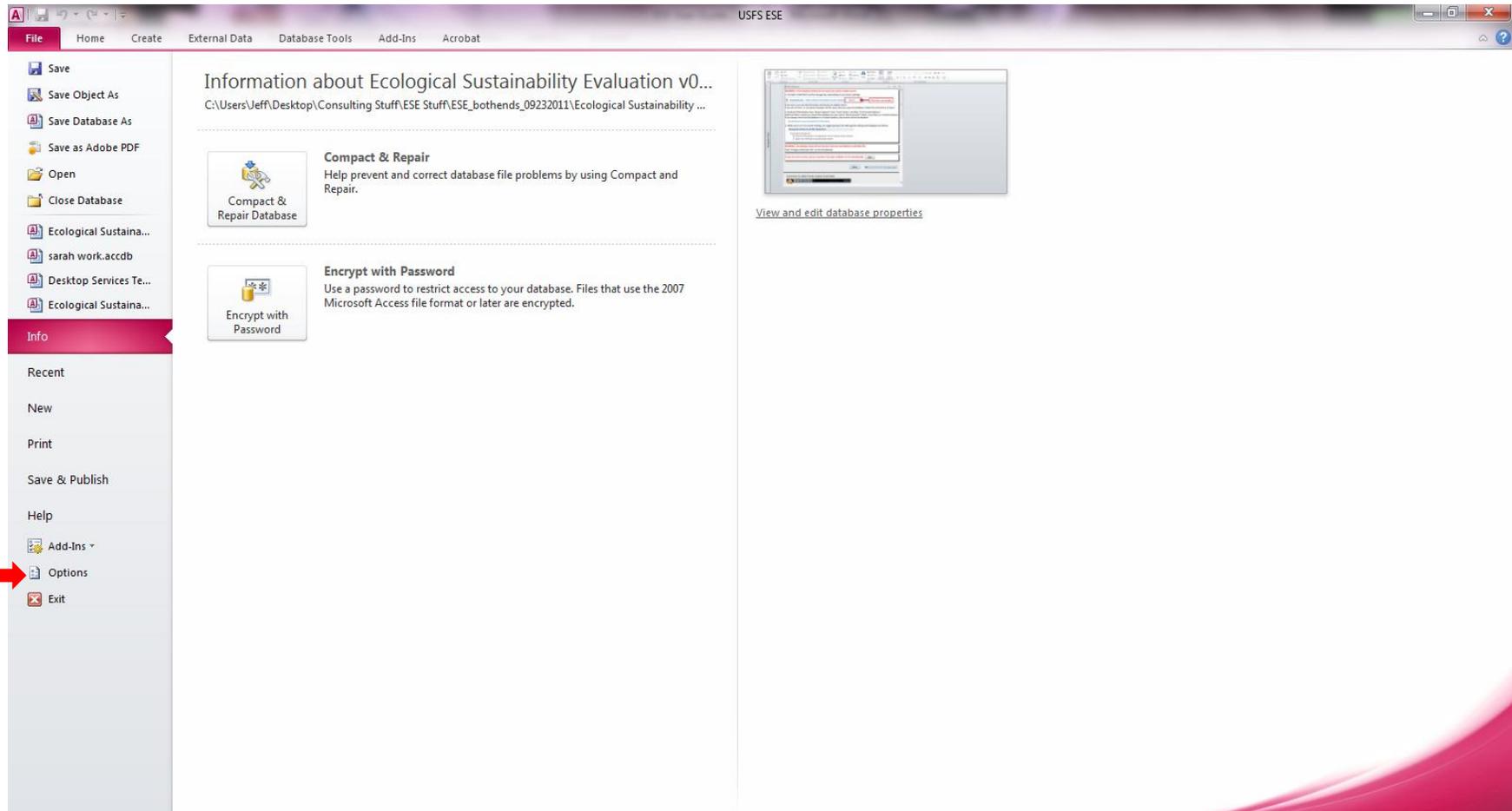
Enabling Macros and Making the ESE Tool a “Trusted Site”

When you open the database you will see the following screen with a “Macro Warning”. If the ESE database does not work after you have opened it, you will have to enable the macros by making the folder housing the ESE database a trusted site and enabling all macros. Instructions to do this follow the screenshot below.

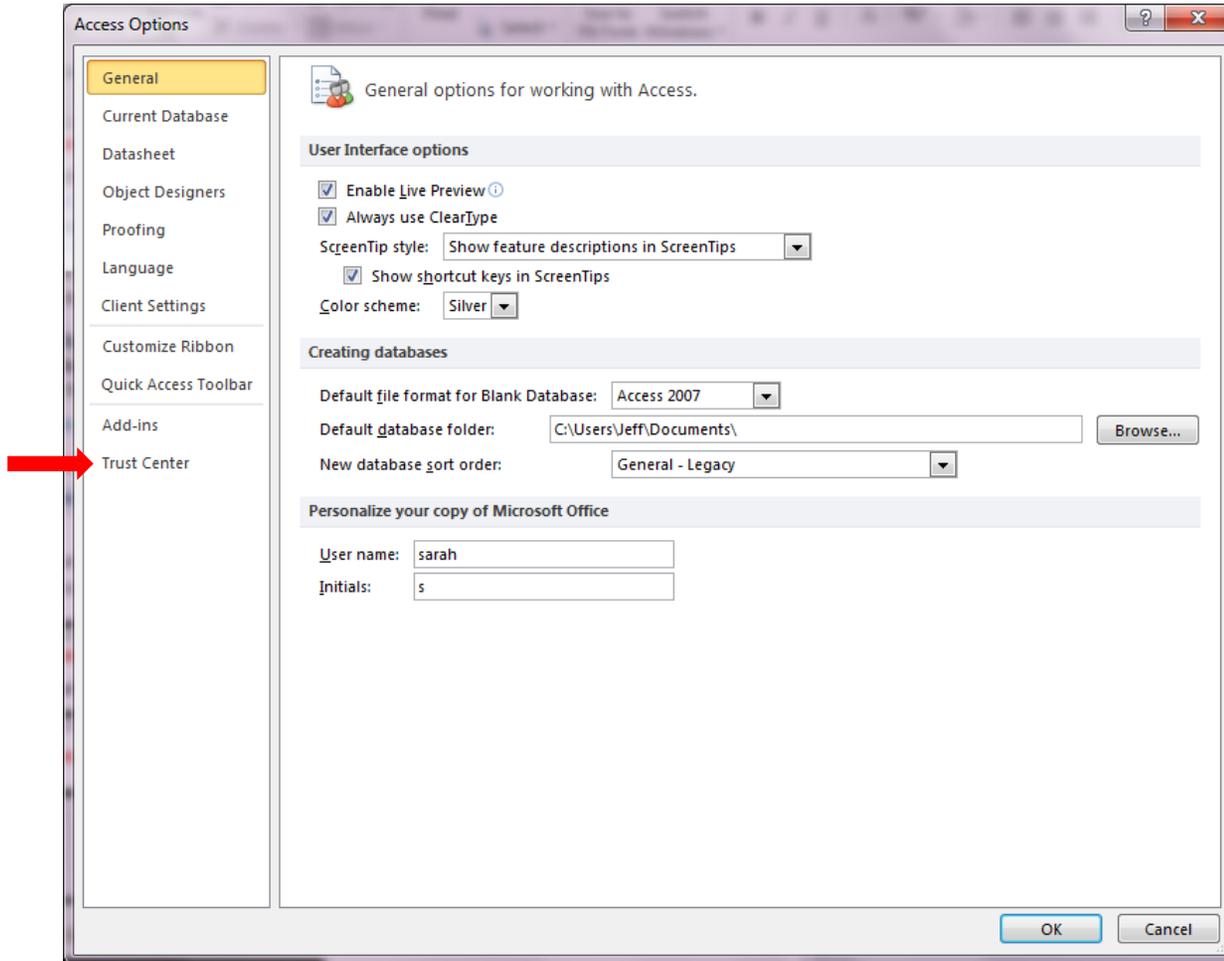
- Click on File tab



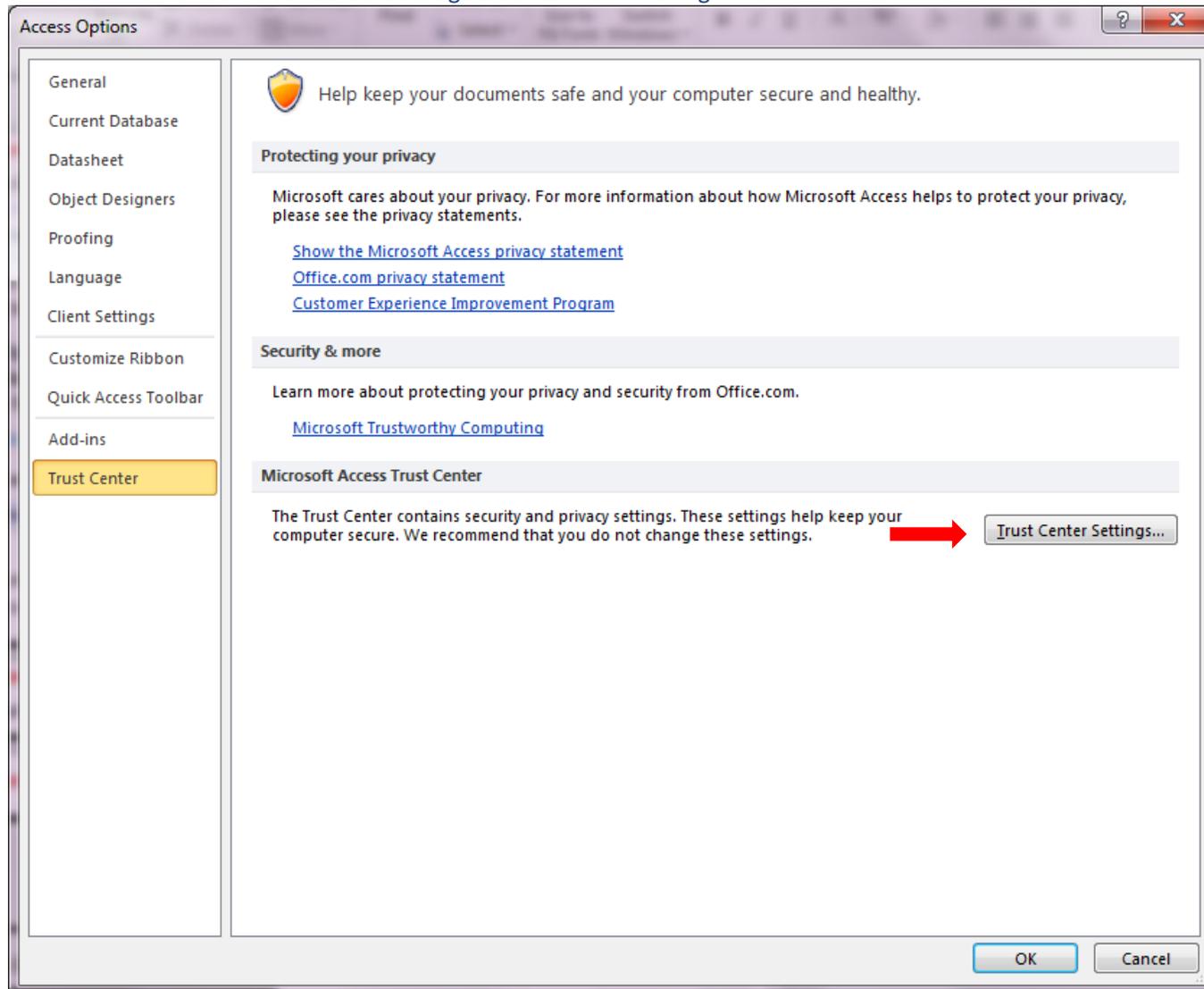
- Scroll down
- Click on options



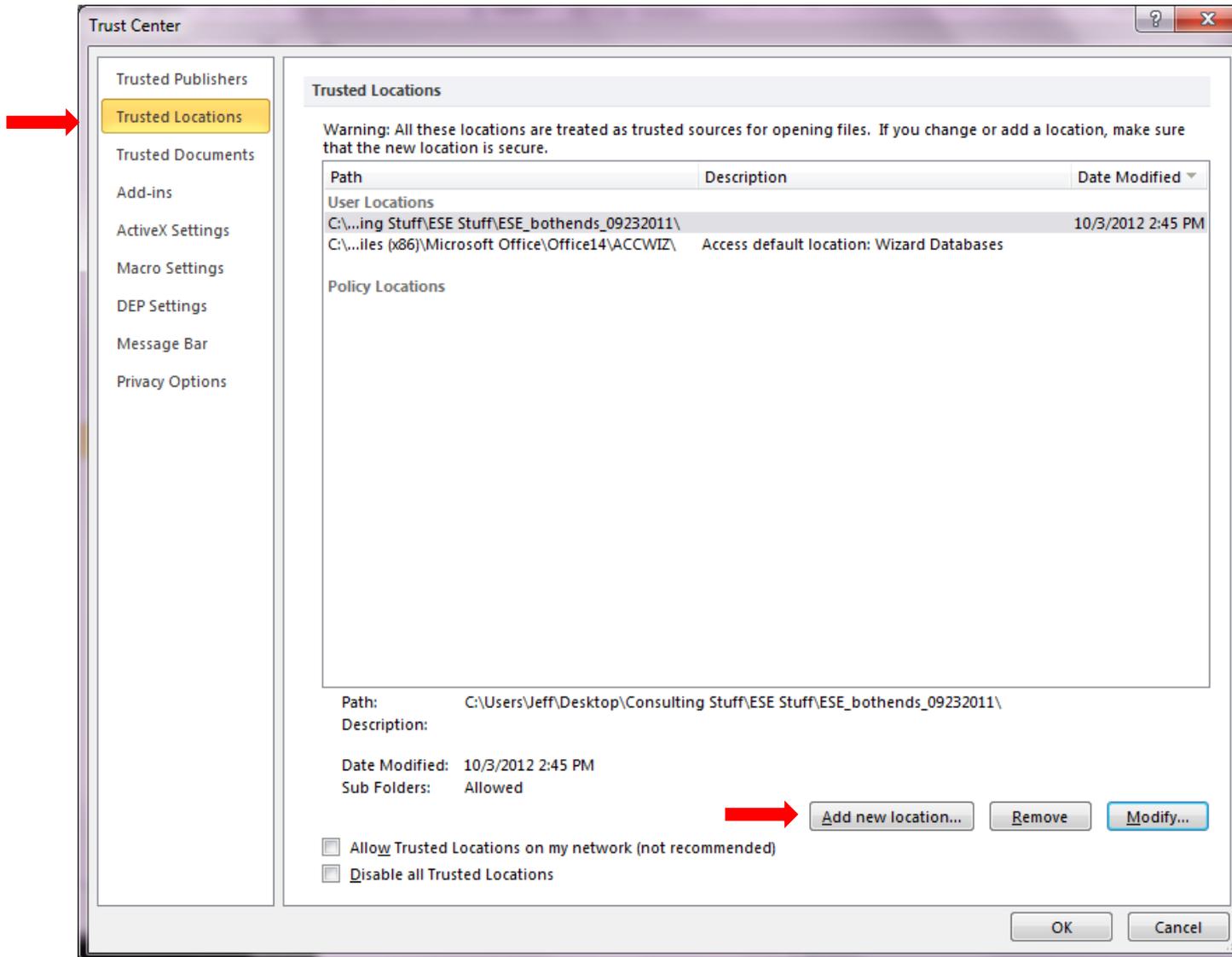
- Access options window opens
 - On left side click on “Trust Center”



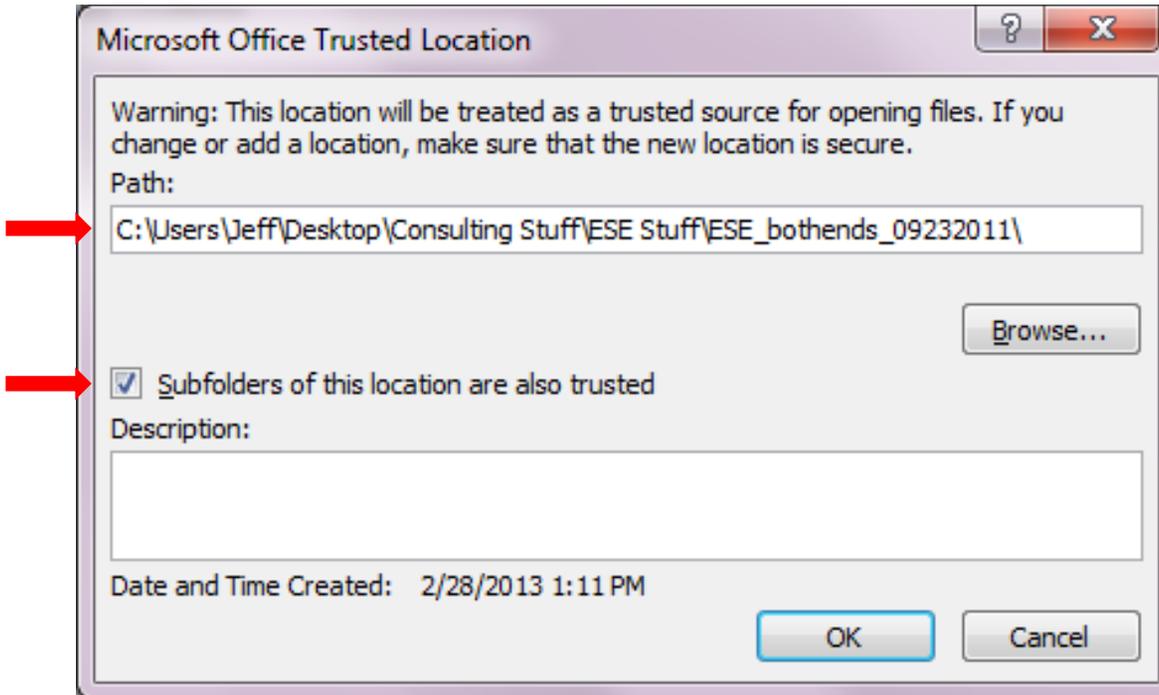
- Then “Trust Center Settings...” button on lower right



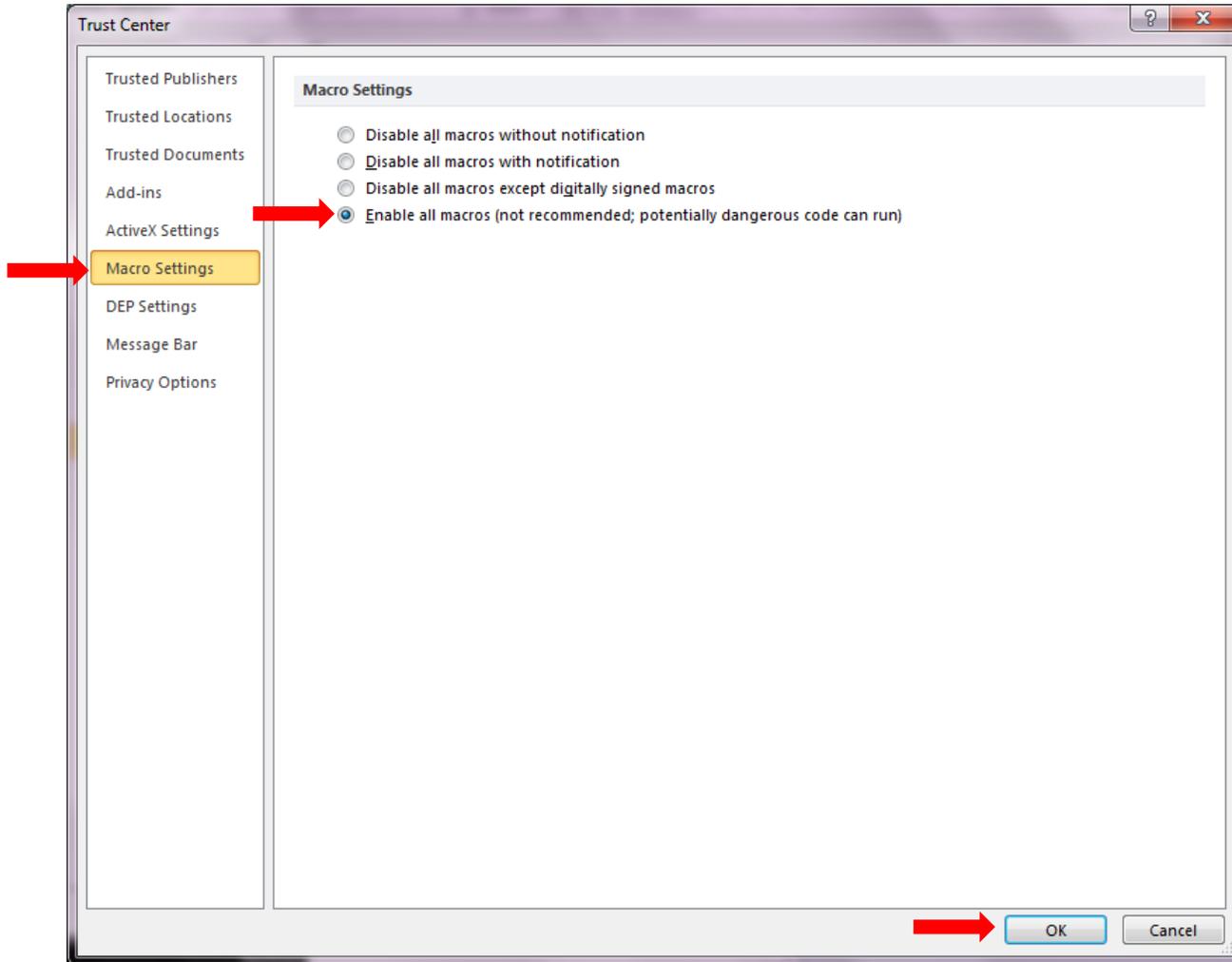
- Go to Trusted Locations button on left sidebar
 - Click “Add a New Location”



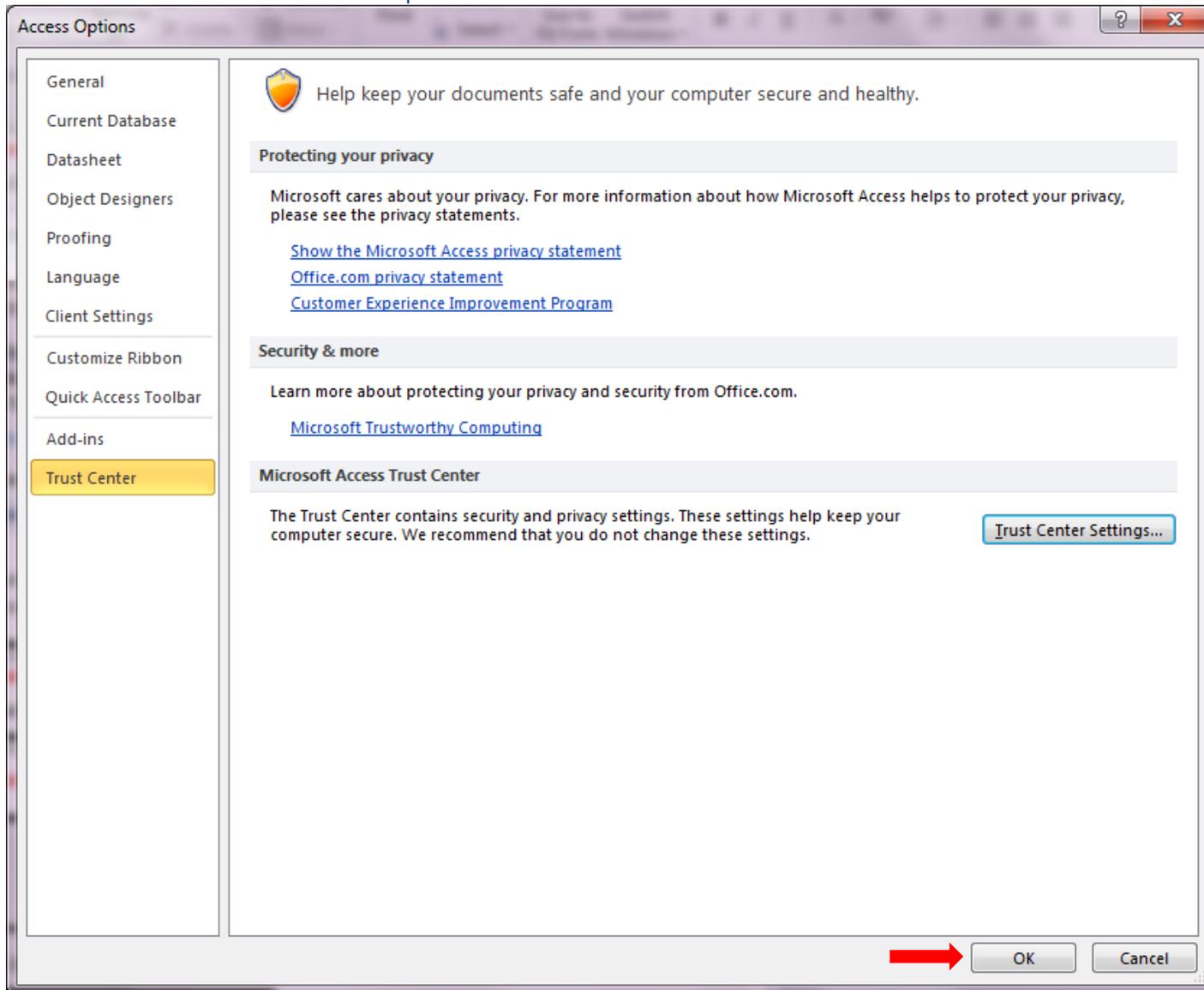
- Add folder in which ESE tool is stored, or chose entire “My Documents” folder
- Check sub-folders box



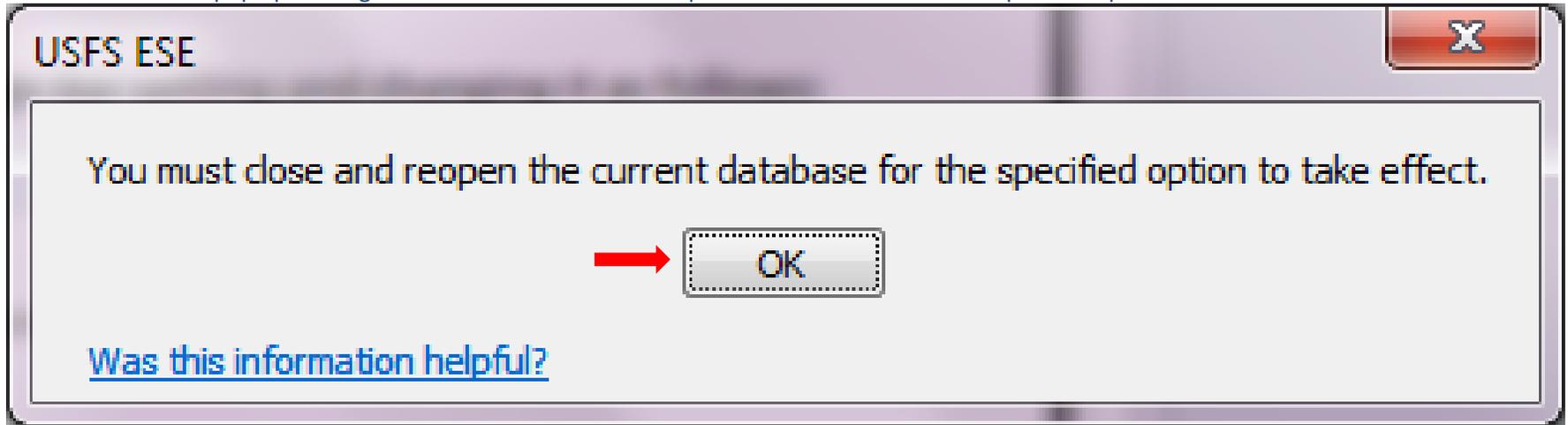
- Go to Macro Settings button on left sidebar
 - Click on “enable all macros” toggle button
 - Click OK at bottom of Trust Center window



- Click OK on bottom of Access Options window



- Click OK on pop up message box “You must close and reopen the current database for specified option to take effect”



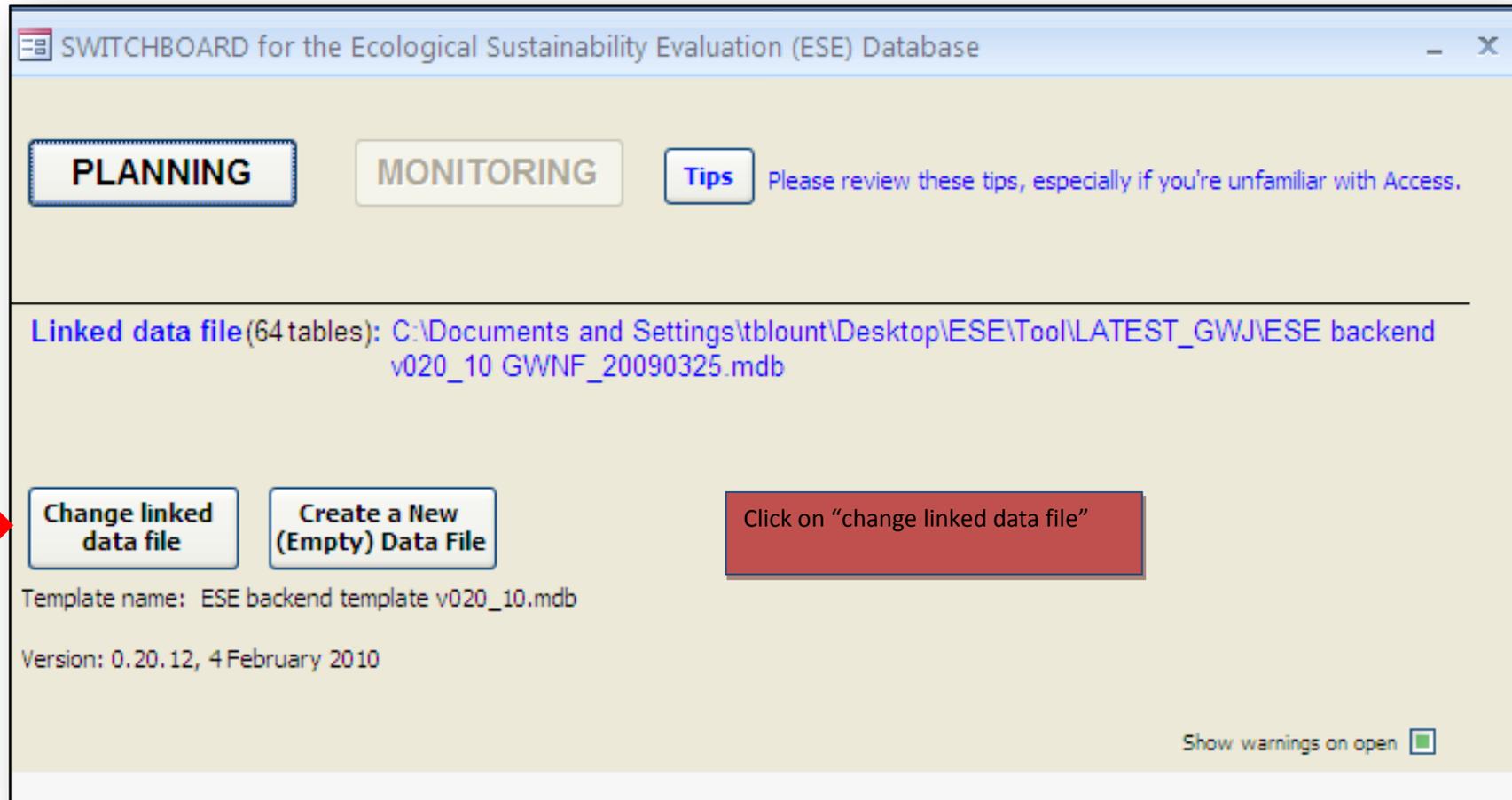
- Close and reopen ESE tool
- If you do not wish to see the instructions again, on Macro Warning page click on “do not show instructions” box
- Click “Done” button
- ESE tool should work properly

To add your trusted location click on “Add new location “and select the folder where the ESE database is stored. You will also want to change your Message Bar Settings as well.

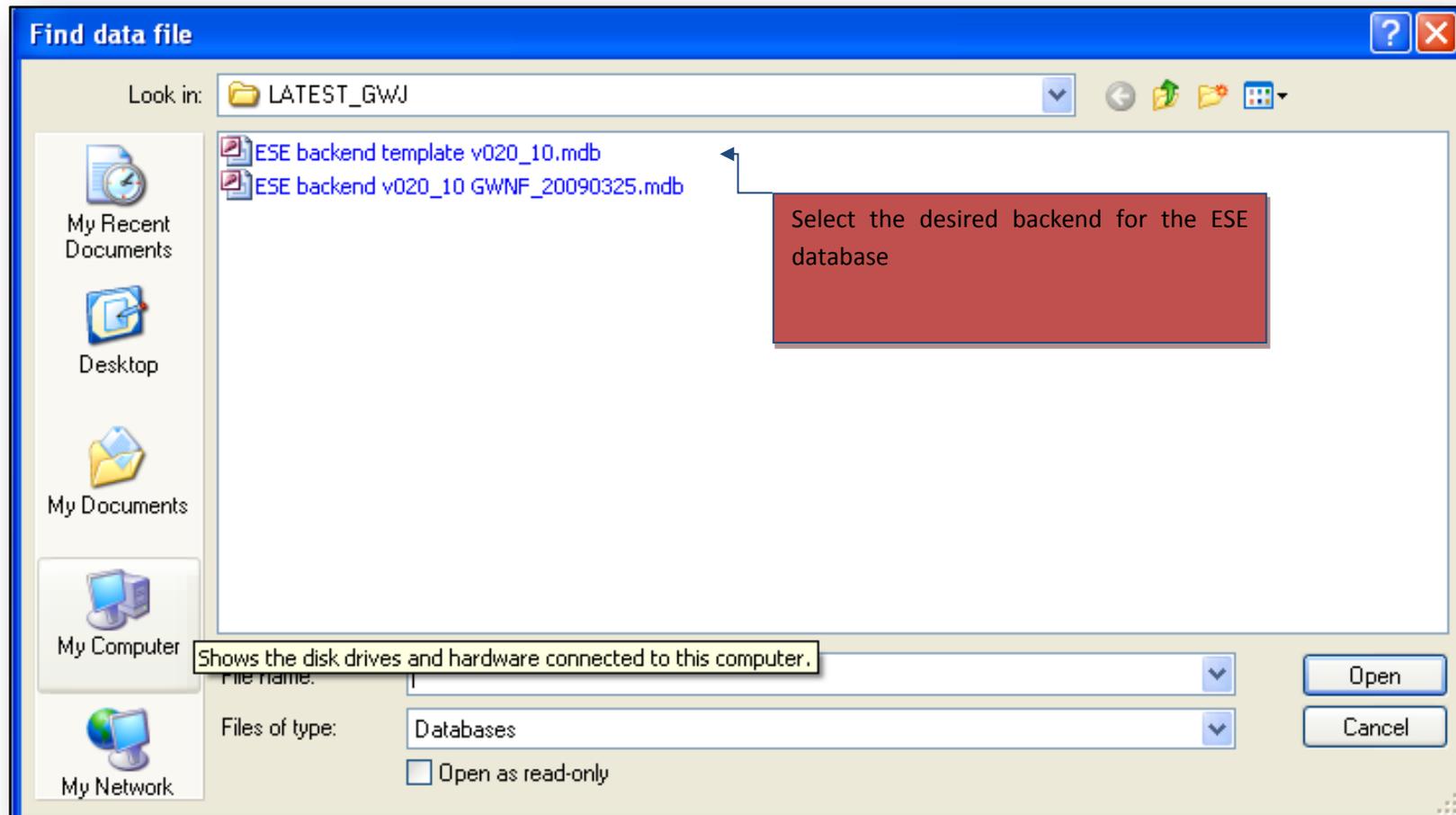
Linking Front End (Program) to Back End (Data Files)

Open up the front end of the database, called “Ecological Sustainability Evaluation v20_10.accb Microsoft Office Access 2007”.

Click on the “Change linked data file” button.



Select the back end that you want to link to the front end. If you have correctly linked the front end with the back end a small box will pop up indicating that the link has been updated.

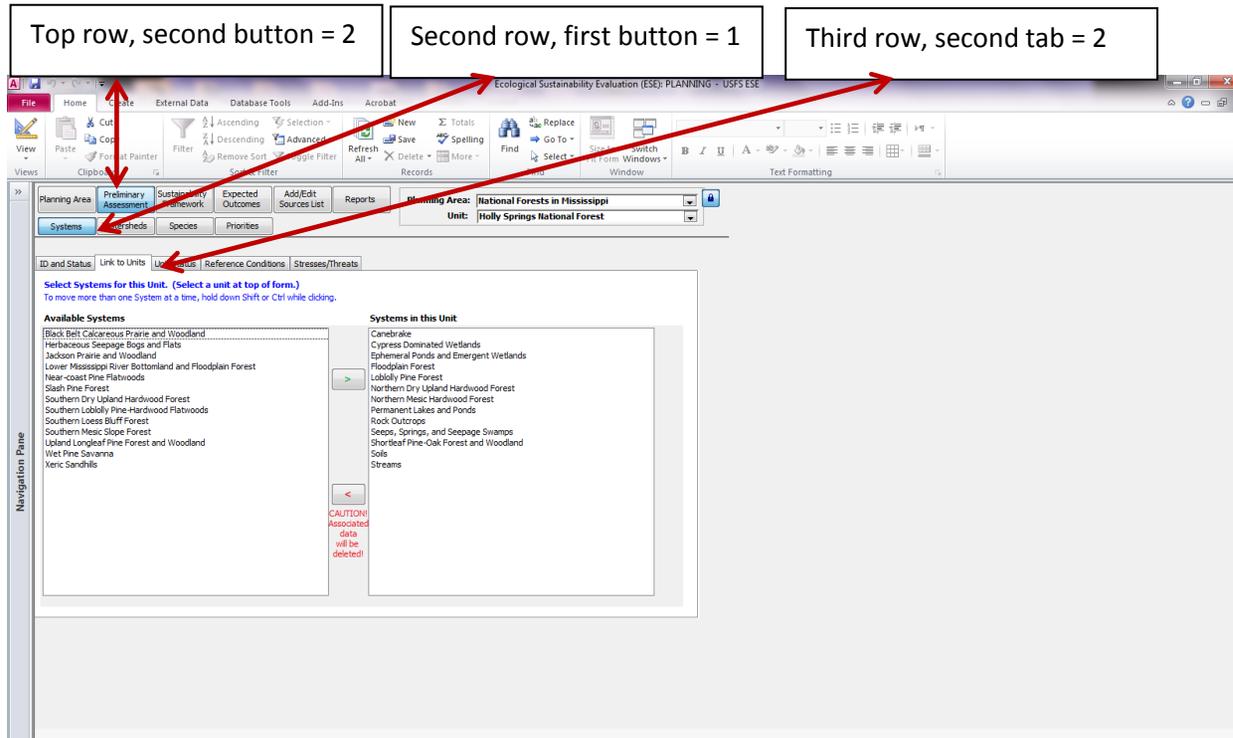


Button and Screen Numbering Conventions

There are buttons and tabs across the top of each page of the ESE Tool. Each set of buttons has its own set of nested buttons and/or tabs. For easy reference, each screen is given a numerical title based on a top-to-bottom, left-to-right system. Each value is separated by a period:

Top Row (Count from left to right). Second Row (Count from left to right). Third Row, if present (Count from left to right).

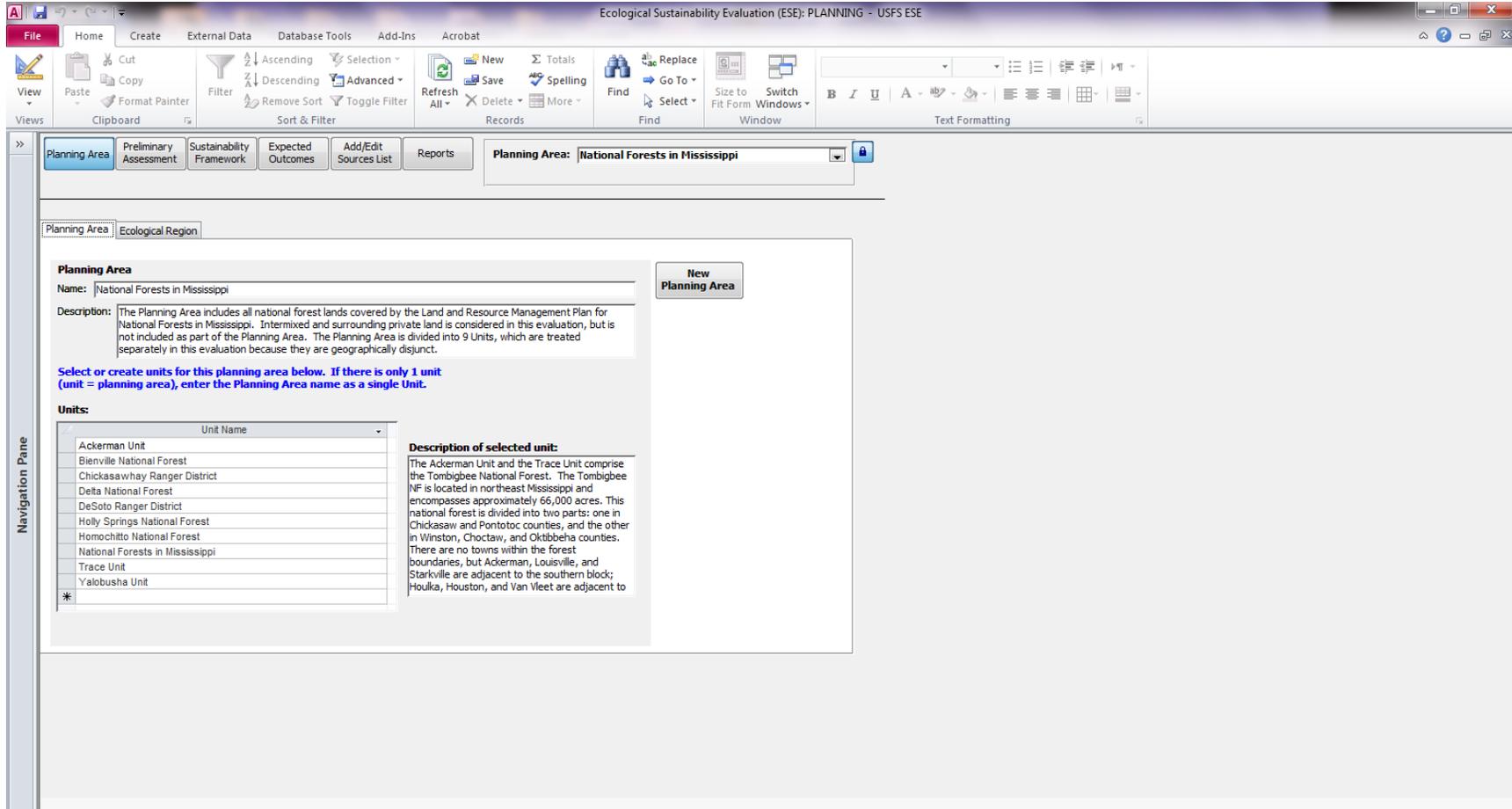
EXAMPLE: The following screen is given the reference number 2.1.2:



Step by Step Instructions

Button 1: Planning Area

Screen 1. 1: Planning Area/Planning Area



REQUIRED: This screen must be completed for the ESE Tool to function properly. Descriptions are optional on this ESE Tool screen, but needed for the plan narrative. It is strongly recommend that you populate them in this screen for later use.

1. Enter the name of the Planning Area. In most cases, since the forest plan revisions often take place at the forest level, the Planning Area will be the name of the National Forest.
2. Enter the names of geographically and ecologically distinct Units, usually districts or sub-districts, if needed.

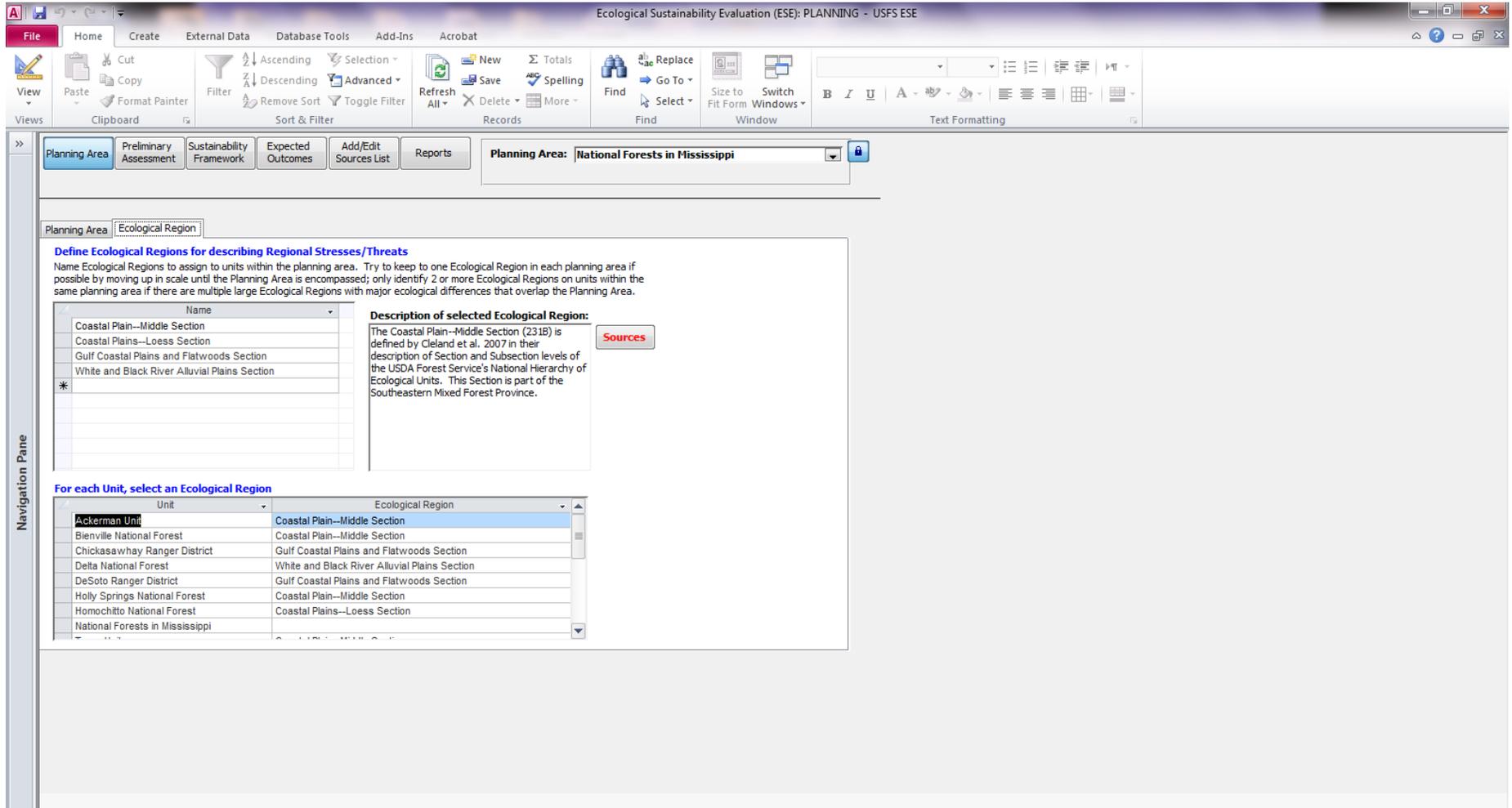
The following discussion does not generally apply to USFS Land and Resource Management Planning. For the purposes of planning at the National Forest level, the planning area will usually be the National Forest and not individual Ranger Districts. The following discussion is added for general knowledge and project level considerations.

Lumping vs. Splitting: There are valid arguments both for and against dividing a Planning Area into distinct Units. These decisions need to be weighed carefully based on local circumstances. As a general rule, geographically and ecologically distinct land parcels should be entered as separate Units but the extent of geographic and ecological uniqueness should also be considered.

Dividing a Planning Area into too many Units can create a more labor intensive and complex data set. Where similar or identical Ecosystems with similar or identical Indicators of ecological sustainability are present on two or more Units, the same or similar data must be entered for each Unit. On the other hand, lumping data for two or more geographically and ecologically distinct land parcels into a single Unit may result in a plan that is too general to provide clear guidance for project-level decisions.

Geographically distinct but ecologically similar Units present even more complex challenges. In cases where the same prevailing matrix-level systems dominate multiple geographically distinct land parcels, the decision whether to lump or split may rest in the degree of distinction between finer-scale planning elements such as embedded system types (glades, wetlands, etc.) and Species assemblages. In most cases, however, unless unusual circumstances exist, aggregating to the largest effective scale is recommended at the Forest Planning level.

Screen 1.2: Planning Area/Ecological Region



RECOMMENDED: This screen contains important scientific background information that is an important part of the process record but is not required for the ESE Tool to function properly.

1. Enter the ecoregions that occur within the Planning Area.

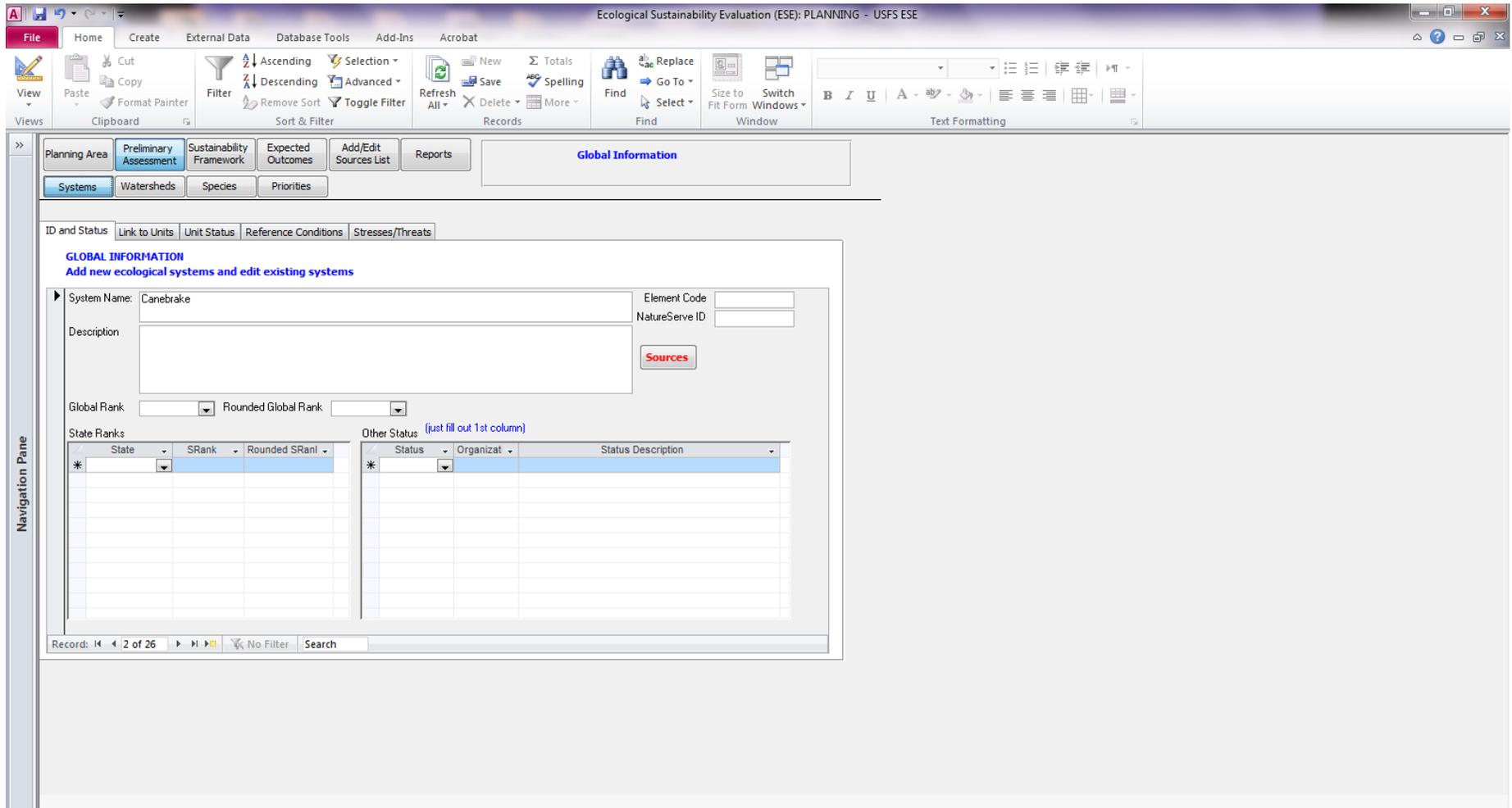
- a. While the cursor is still in the ecoregion field name, add a description in the field provided (right) and click the “Sources” button to select or add a citation.

TIP: Be as efficient as possible by using the largest effective ecoregional or physical province scale to limit the Planning Area ecoregions to four or fewer and the Unit ecoregions to one or two.

2. Enter the ecoregions that occur within each Unit.
 - a. While the cursor is still in the ecoregion field name, add a description in the field provided (right) and click the “Sources” button to add a citation or select from a pre-loaded menu of citations

Button 2: Preliminary Assessment

Screen 2.1.1: Preliminary Assessment/Systems/ID and Status

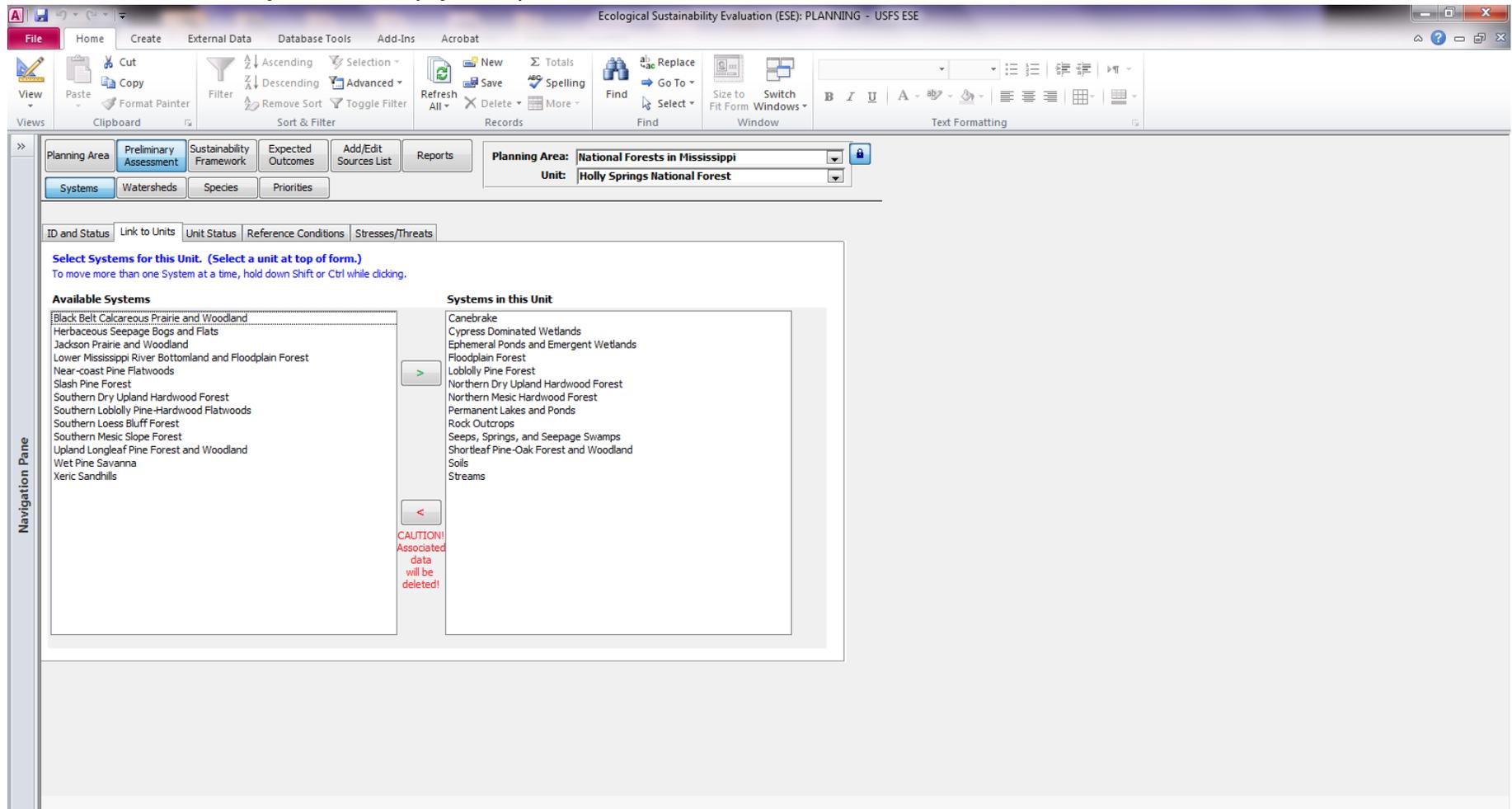


REQUIRED: This screen must be completed for the ESE Tool to function properly. **NOTE:** Some items below may be pre-populated.

1. Enter the name of the ecological system
2. Enter the Element Code and NatureServe ID (if known)(not applicable where two or more Ecosystems have been combined into a single “umbrella” system)
3. Enter a description of the ecological system; copying and pasting NatureServe NVCS descriptions is usually recommended. If two or more Ecosystems have been combined into a single umbrella system, paste all descriptions. The description field is a narrative field that can hold large amounts of text.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
4. Add global rank and rounded global rank
5. Add state, state rank and rounded state rank
6. (optional) Add other statuses from partners’ ranking systems by selecting from the dropdown field on the left; the two right columns will populate automatically.

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.1.2 Preliminary Assessment/Systems/Link to Units

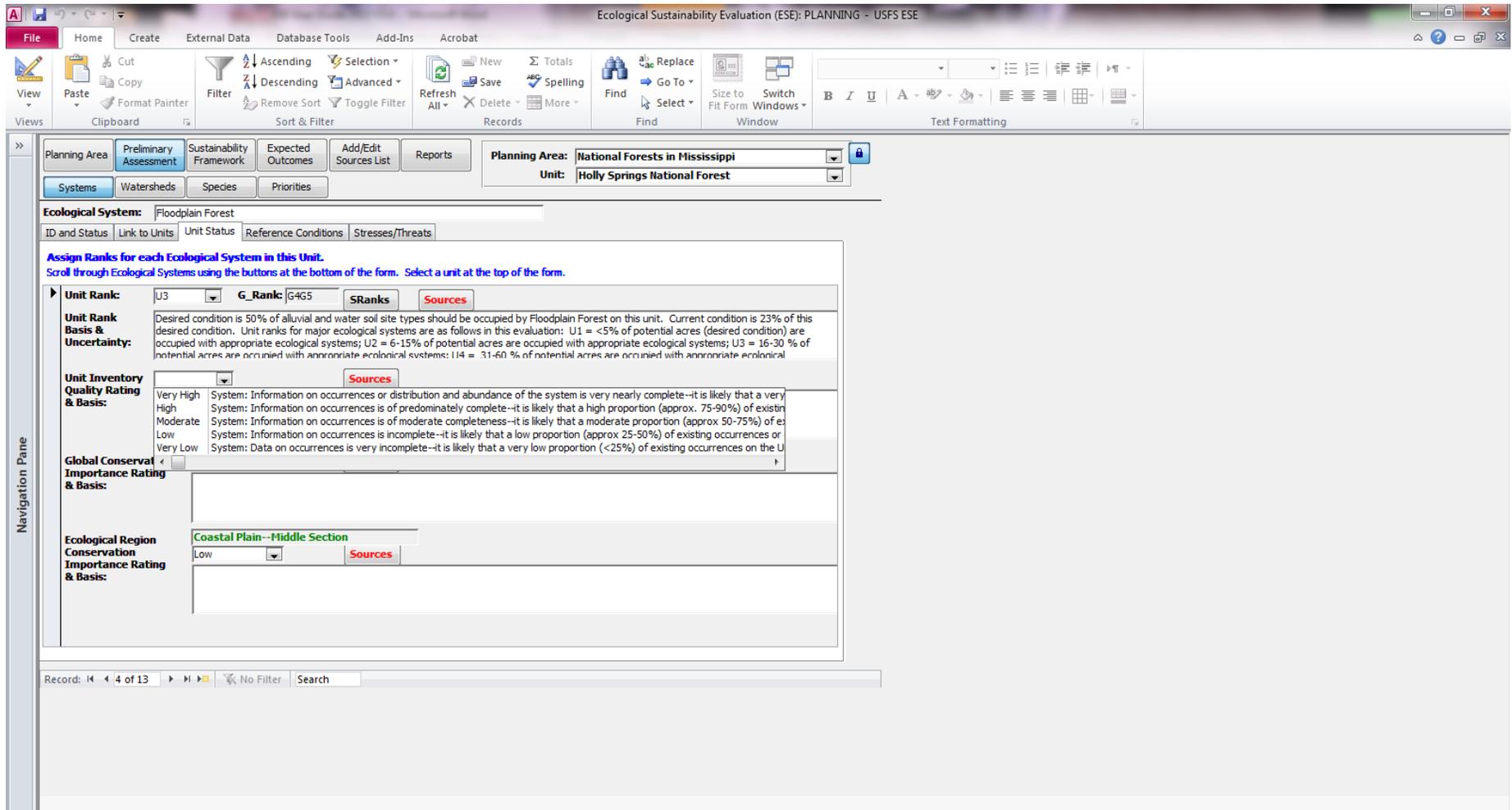


REQUIRED: This screen must be completed for the ESE Tool to function properly.

TIP: Start working on this screen only after you have entered all Ecosystems on the previous screen (2.1.1)

1. Select a Unit using the dropdown menu, upper right.
2. Using the left-to-right arrow, center, add Ecosystems known to occur in this Unit from the list of available Ecosystems, left, to the list Ecosystems in this Unit, right. If you make a mistake, select the Ecosystem you wish to remove from the column on the right and use the right-to-left arrow to return it to the list of available Ecosystems.

Screen 2.1.3: Preliminary Assessment/Systems/Unit Status

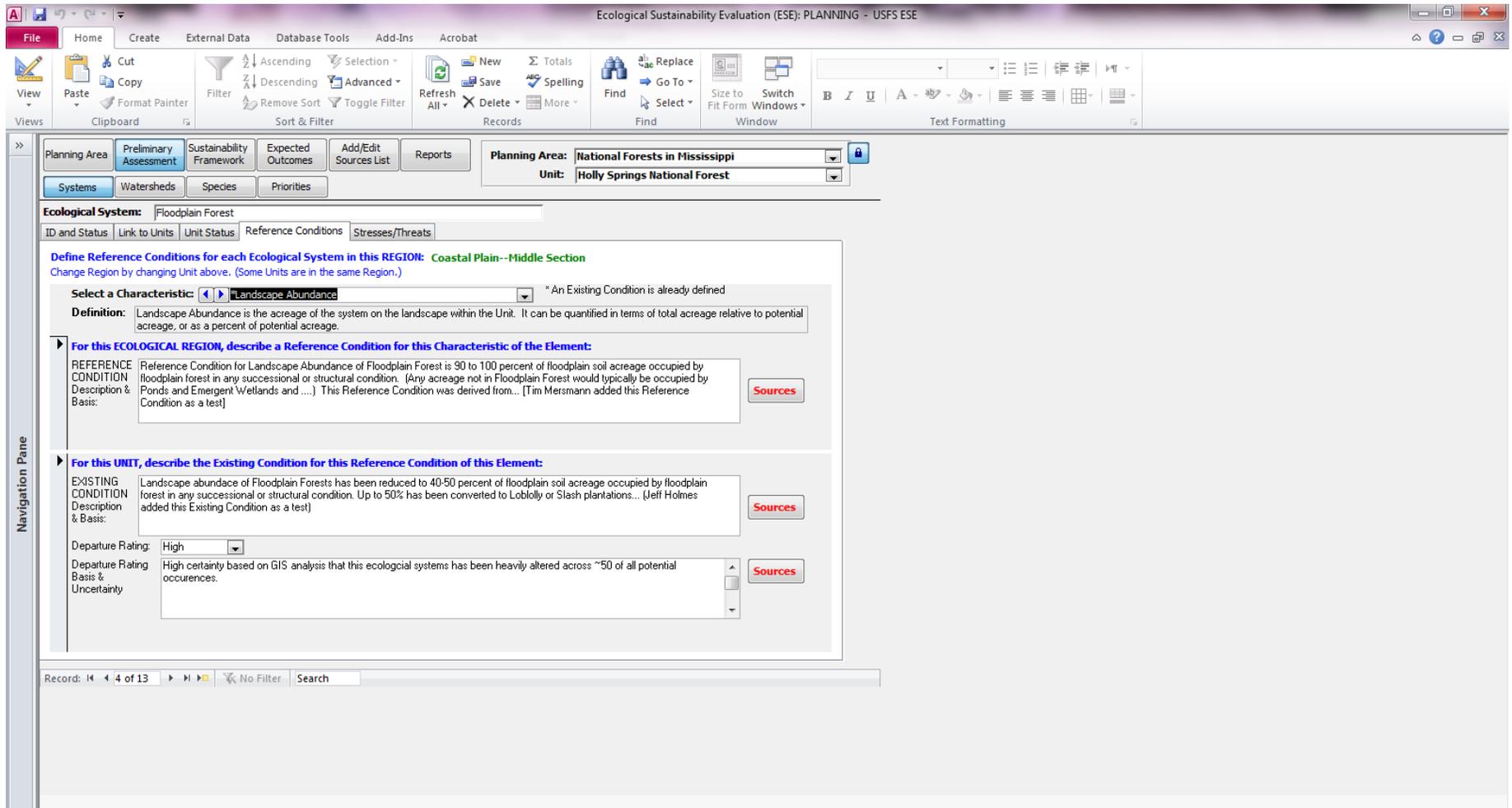


REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. UNIT INFORMATION
 - a. Select a Unit using the dropdown menu, upper right.

- b. Select an Ecosystem using the record scrolling arrows, lower left.
 - c. Using the dropdown menu provided, select a Unit rank based on the relative rarity of this system on the selected Unit. (The G rank field, if populated on the ID and Status screen 2.1.1 will populate automatically. S Ranks are also viewable by clicking the S Ranks button. Both G ranks and S ranks are displayed for reference purposes).
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - d. Add a brief narrative describing the Unit Rank assignment decisions in the Unit Rank Basis and Uncertainty field.
2. GLOBAL INFORMATION
- a. Using the dropdown provided, select the global importance rating that best describes the importance of the Unit to the sustainability of the Ecosystem range-wide.
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - b. Add a brief narrative describing the global importance rating in the field provided.
3. ECOREGIONAL INFORMATION
- a. Using the dropdown provided, select the ecoregional importance rating that best describes the importance of the Unit to the sustainability of the Ecosystem across the ecoregion. The ecoregion will appear automatically in green font based on the Unit selected.
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - b. Add a brief narrative describing the ecoregional importance rating in the field provided.

Screen 2.1.4: Preliminary Assessment/Systems/Reference Conditions



RECOMMENDED: This screen contains important scientific background information that is an important part of the process record but is not required for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.

2. Select an Ecosystem using the record scrolling arrows, lower left.
3. Using the dropdown menu provided, select a characteristic or add and define a new characteristic by clicking “add new” in the dropdown. The definition field below should automatically populate if the characteristic has been defined.
4. Describe the reference condition of this Ecosystem characteristic at the ecoregional level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
5. Describe the reference condition of this Ecosystem at the Unit level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
6. Using the dropdown provided, select a departure rating to describe the difference between the current condition and reference condition of this Ecosystem.
7. Using the field provided, briefly describe basis and uncertainty of the departure rating assigned in Step 5 above.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Ecosystem. Look carefully at the assemblages associated with each Ecosystem and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

Screen 2.1.5: Preliminary Assessment/Systems/Stresses and Threats

The screenshot shows the 'Preliminary Assessment' tab selected. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Ecological System' is 'Floodplain Forest'. The 'Stresses/Threats' section is active, showing a table with the following data:

Stress	Threat	Scope Ratio	Severity Ratio
1.1 Conversion and fragmentation	A Highly modified land uses	Widespread	High
1.2 Modification of vegetation	5.3 Timber harvest	Widespread	Moderate

The 'Comments & Basis for selection at left' box contains the text: 'Includes all modified land uses, such as agriculture and urban/suburban development.'

The 'UNIT-specific Stresses/Threats' section shows a list of stressors, with '1.1 Conversion and fragmentation' selected. The 'Navigation Pane' on the left lists various stressors and threats, including 'None or Unknown', 'None', 'Lack of knowledge', 'Unknown', 'Terrestrial System/Habitat Stresses', 'Aquatic System/Habitat Stresses', and 'Water temperature modification'.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

GLOSSARY:

Stress: An ongoing or imminent degradation or alteration in Ecosystem condition that is unfavorable for sustainability.

Threat: The source of a stress

Scope: The geographic scale of a stress

Severity: The acuity of a stress

1. Select a Unit using the dropdown menu, upper right.
2. Select an Ecosystem using the record scrolling arrows, lower left.
3. GLOBAL STRESSES
 - a. Using the dropdown provided, select a stress that impacts this Ecosystem range-wide.
 - b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
 - c. Identify the scope and severity of the stress using the dropdowns provided.
 - d. Describe your selection in the narrative box provided.
 - e. Click the "Sources" button to add a citation or select from a pre-

loaded menu of citations to support your selection.

- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified.

4. ECOREGIONAL STRESSES

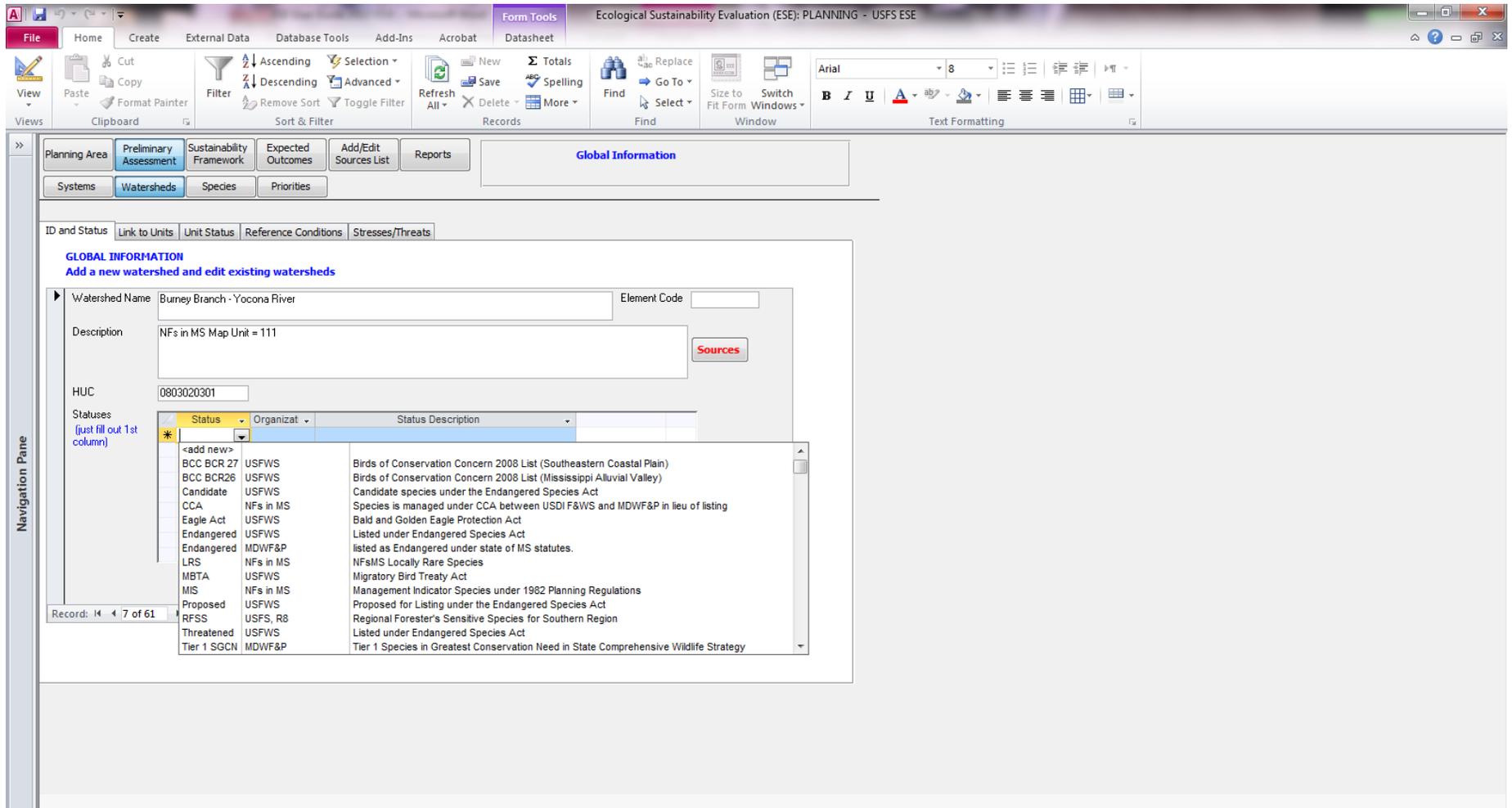
- a. Using the dropdown provided, select a global stress that impacts this Ecosystem In the Unit-specific ecoregion. The ecoregion will appear in green above the sub-form automatically based on the Unit selected.
- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
- e. Click the "Sources" button to add a citation or select from a pre-loaded menu of citations to support your selection.
- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified.

5. UNIT STRESSES (this information is REQUIRED for priority reports and queries)

- a. Using the dropdown provided, select a global stress that impacts this Ecosystem on the local Unit.
- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
- e. Click the "Sources" button to add a citation or select from a pre-loaded menu of citations to support your selection.

- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified

Screen 2.2.1: Preliminary Assessment/Watersheds/ID and Status



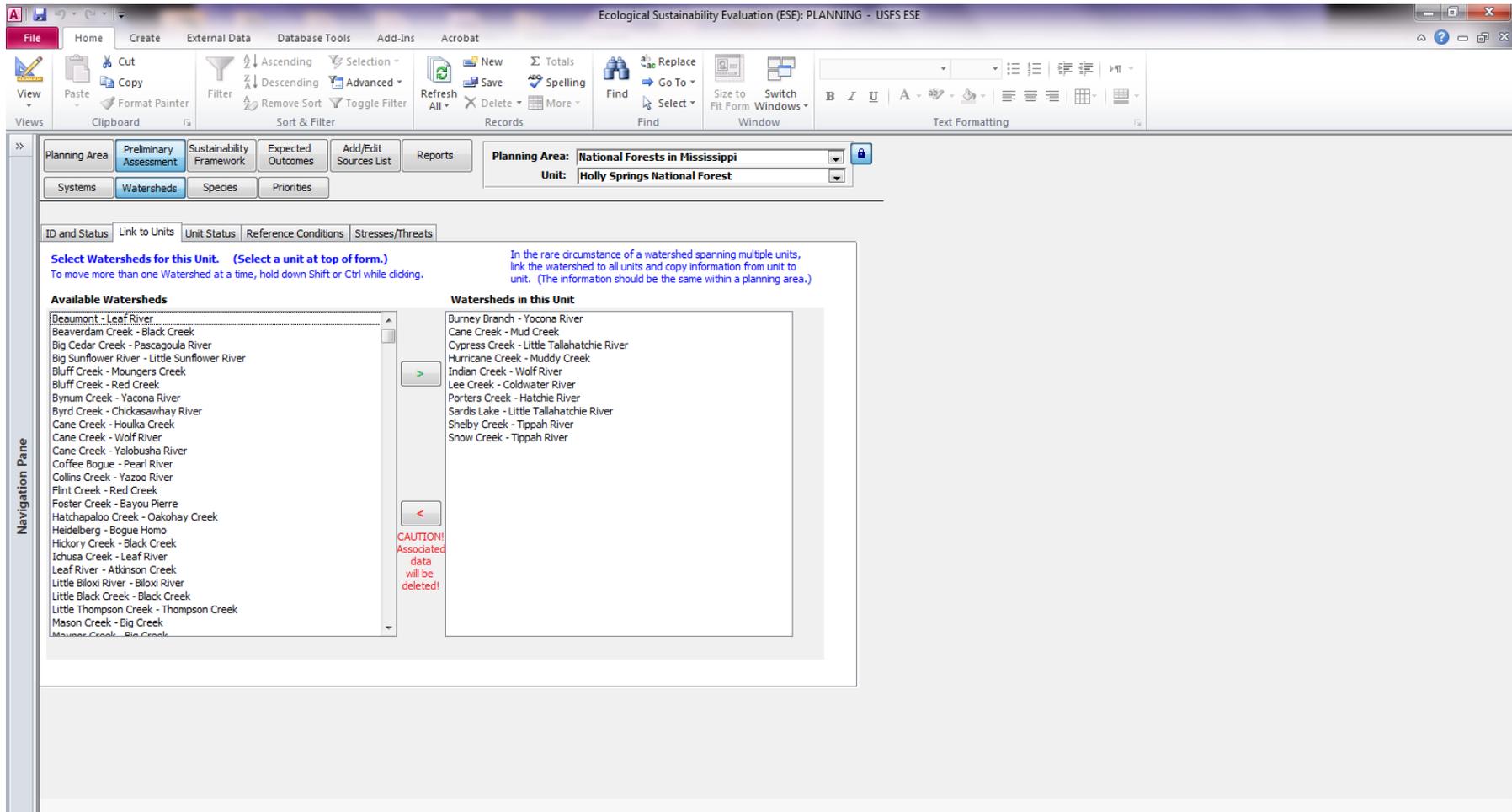
REQUIRED: This screen must be completed for the ESE Tool to function properly. **NOTE:** Some items below may be pre-populated.

1. Enter the name of the Watershed.
2. Enter the Hydrologic Unit Code (HUC).

3. Enter a description of the Watershed. In most cases, the description will include a narrative describing the geographic scope of the Watershed and/or reference to external maps or GIS products.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
4. (optional) Add other statuses from partners’ ranking systems by selecting from the dropdown field on the left; the two right columns will populate automatically. The dropdown currently includes a master list of both terrestrial and aquatic statuses; future versions of the ESE Tool will limit this dropdown to only those entries that apply to Watersheds.

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.2.2: Preliminary Assessment/Watersheds/Link to Units



REQUIRED: This screen must be completed for the ESE Tool to function properly.

TIP: Start working on this screen only after you have entered all Watersheds on the previous screen (2.1.1)

1. Select a Unit using the dropdown menu, upper right.

2. Using the left-to-right arrow, center, add Watersheds known to occur in this Unit from the list of available Watersheds, left, to the list Watersheds in this Unit, right. If you make a mistake, select the Watersheds you wish to remove from the column on the right and use the right-to-left arrow to return it to the list of available Watersheds.

Screen 2.2.3: Preliminary Assessment/Watersheds/Unit Status

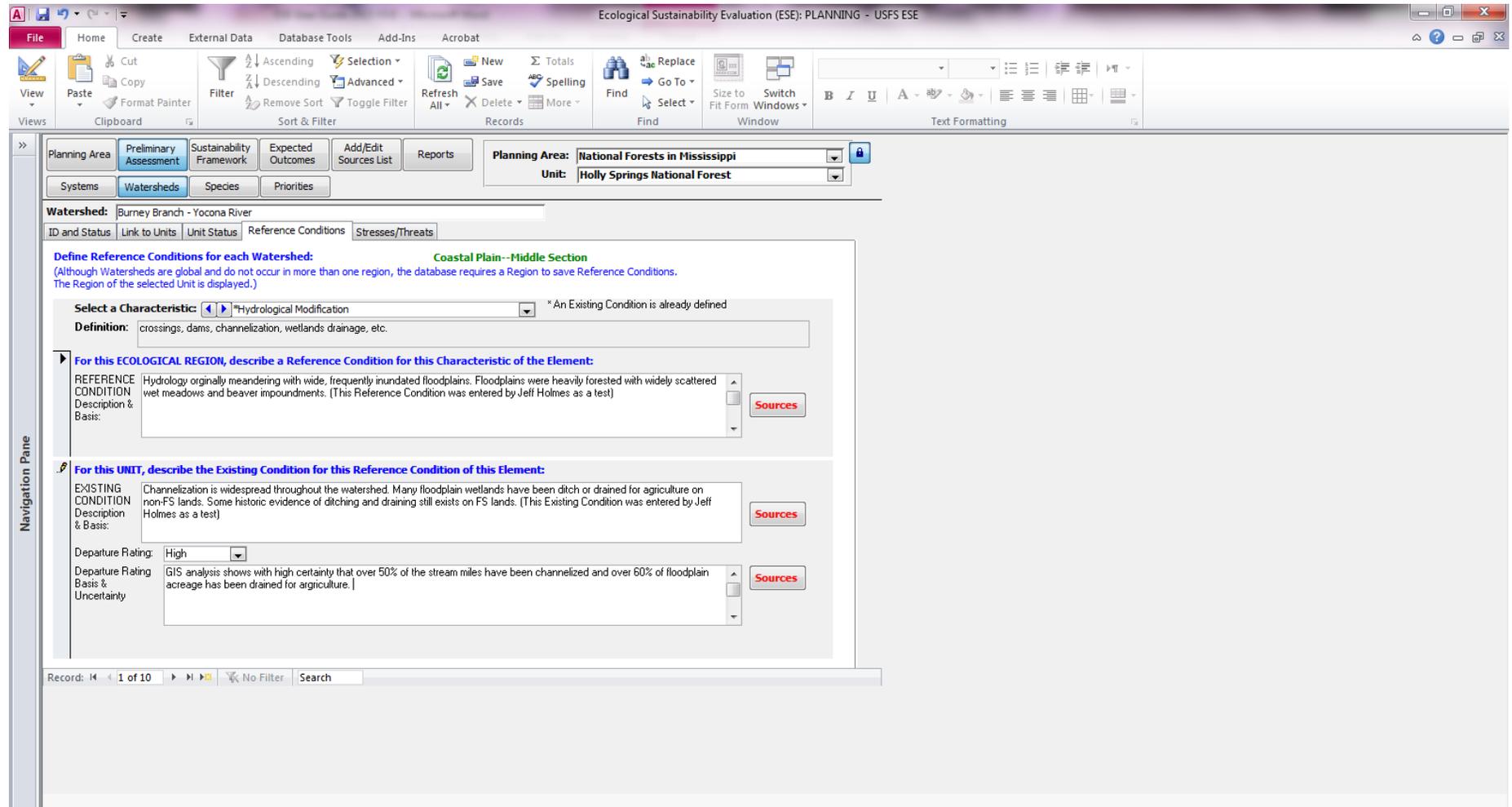
The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The ribbon includes tabs for File, Home, Create, External Data, Database Tools, Add-Ins, and Acrobat. The main interface has a 'Planning Area' dropdown set to 'National Forests in Mississippi' and a 'Unit' dropdown set to 'Holly Springs National Forest'. Below these are buttons for 'Systems', 'Watersheds', 'Species', and 'Priorities'. The 'Watershed' field is set to 'Burney Branch - Yocona River'. A section titled 'Assign Ratings for each Watershed in this Unit' contains a text area for '% of Watershed covered by unit:' with the value '5.6'. Below this are two sections: 'Unit Inventory Quality Rating & Basis' with a 'Moderate' dropdown and a 'Sources' button, and 'Global Conservation Importance Rating & Basis' with a dropdown menu showing options: Very High, High, Medium, Low (selected), and None. A record navigation bar at the bottom shows 'Record: 1 of 10' and a search field.

REQUIRED: This screen must be completed for the ESE Tool to function properly. **NOTE:** Some items below may be pre-populated.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Watershed using the record scrolling arrows, lower left.

3. Using the field provided, enter the percent of the Watershed acreage in USFS ownership (This information will be provided by the R8 Watershed analysis process).
4. Using the dropdown provided, select the inventory quality rating that best describes the current state of knowledge regarding the selected Watershed. NOTE: Limit the inventory quality rating to biological knowledge of the selected Watershed. Add a narrative describing your inventory quality selection in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
5. Using the dropdown provided, choose the global importance rating that best describes the importance of USFS ownership to the ecological health of the entire Watershed. Your selection should reflect the ownership percentage in Step 3 (above).
6. Add a narrative describing your global importance rating in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations

Screen 2.2.4: Preliminary Assessment/Watersheds/Reference Conditions



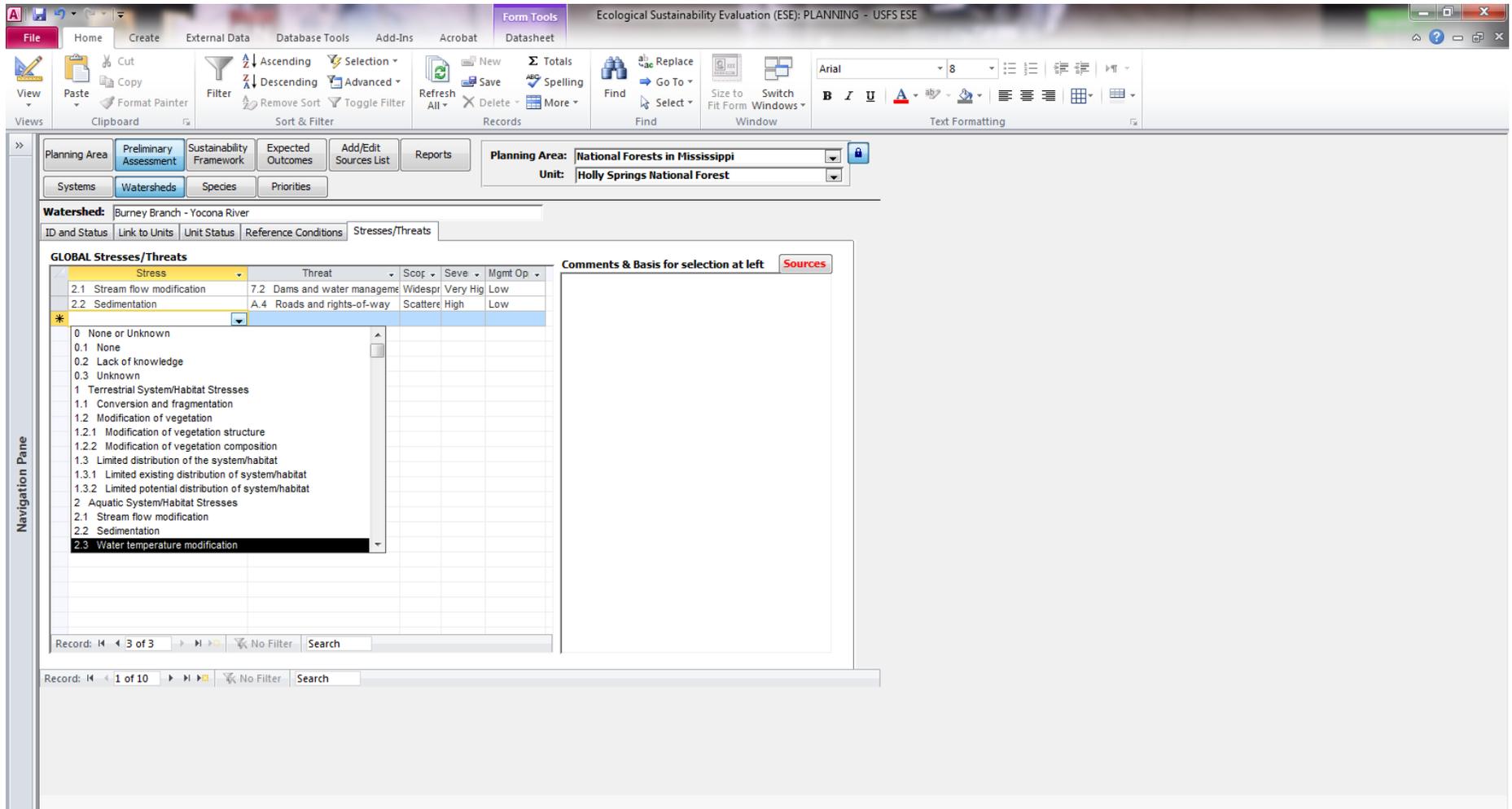
RECOMMENDED: This screen contains important scientific background information that is an important part of the process record but is not required for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.

2. Select a Watershed using the record scrolling arrows, lower left.
3. Using the dropdown menu provided, select a characteristic or add and define a new characteristic by clicking “add new” in the dropdown. The definition field below should automatically populate if the characteristic has been defined.
4. Describe the reference condition of this Watershed characteristic at the ecoregional level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
5. Describe the reference condition of this Watershed at the Unit level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
6. Using the dropdown provided, select a departure rating to describe the difference between the current condition and reference condition of this Watershed.
7. Using the field provided, briefly describe basis and uncertainty of the departure rating assigned in Step 5 above.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Watershed. Look carefully at the assemblages associated with each Watershed and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

Screen 2.2.5: Preliminary Assessment/Watersheds/Stresses and Threats



REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. GLOBAL STRESSES

- a. Using the dropdown provided, select a stress that impacts this entire Watershed, regardless of ownership.

- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
- e. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified.

Screen 2.3.1: Preliminary Assessment/Species/ID and Status

The screenshot displays the 'Preliminary Assessment' tab within the 'Species' section of the ESE Tool. The main form area is titled 'ID and Status' and contains the following information:

- GLOBAL INFORMATION**: Add a new species or update information for an existing species
- Species Name**: *Aimophila aestivalis*
- Common Name**: Bachman's Sparrow
- Element Code**: ABPEX91050
- NatureServe ID**: 2.105170
- Species Taxonomy**: Occurs on remnant prairies and longleaf ridges in southern Mississippi. Edge species. Tier 2 Species of Greatest Conservation Need in State Comprehensive Wildlife Strategy. The sparrow occupies restored pine lands managed for the endangered Red-cockaded Woodpecker (*Picoides borealis*) and therefore provides land managers with added benefit from their management of two declining species protected for the
- Global Rank**: G3
- Rounded Global Rank**: G3
- Taxonomic Group**: Bird
- Aquatic?**: **Terrestrial?**:
- State Ranks**:

State	SRank	Rounded SRank
Mississippi	S3B,S3S4N	S3
- Other Statuses (just fill out 1st column)**:

Status	Organizat	Status Description
MIS	NFs in MS	Management Indicator Species under 1982 Planning Regu
Tier 2 SGCN	MDWF&P	Tier 2 Species in Greatest Conservation Need in State Co
BCC BCR 27	USFWS	Birds of Conservation Concern 2008 List (Southeastern I
WL 2007 Red L	ABC	Red List (Continental US) WatchList 2007
RFSS	USFS, R8	Regional Forester's Sensitive Species for Southern Regi
* <add new>		
BCC BCR 27	USFWS	Birds of Conservation Concern 2008 List (Southeastern Coastal Plain)
BCC BCR 26	USFWS	Birds of Conservation Concern 2008 List (Mississippi Alluvial Valley)
Candidate	USFWS	Candidate species under the Endangered Species Act
CCA	NFs in MS	Species is managed under CCA between USDI F&WS and MDWF&P in lieu of listing
Eagle Act	USFWS	Bald and Golden Eagle Protection Act
Endangered	USFWS	Listed under Endangered Species Act
Endangered	MDWF&P	listed as Endangered under state of MS statutes.
LRS	NFs in MS	NFsMS Locally Rare Species
MBTA	USFWS	Migratory Bird Treaty Act
MIS	NFs in MS	Management Indicator Species under 1982 Planning Regulations
Proposed	USFWS	Proposed for Listing under the Endangered Species Act
RFSS	USFS, R8	Regional Forester's Sensitive Species for Southern Region
Threatened	USFWS	Listed under Endangered Species Act
Tier 1 SGCN	MDWF&P	Tier 1 Species in Greatest Conservation Need in State Comprehensive Wildlife Strategy

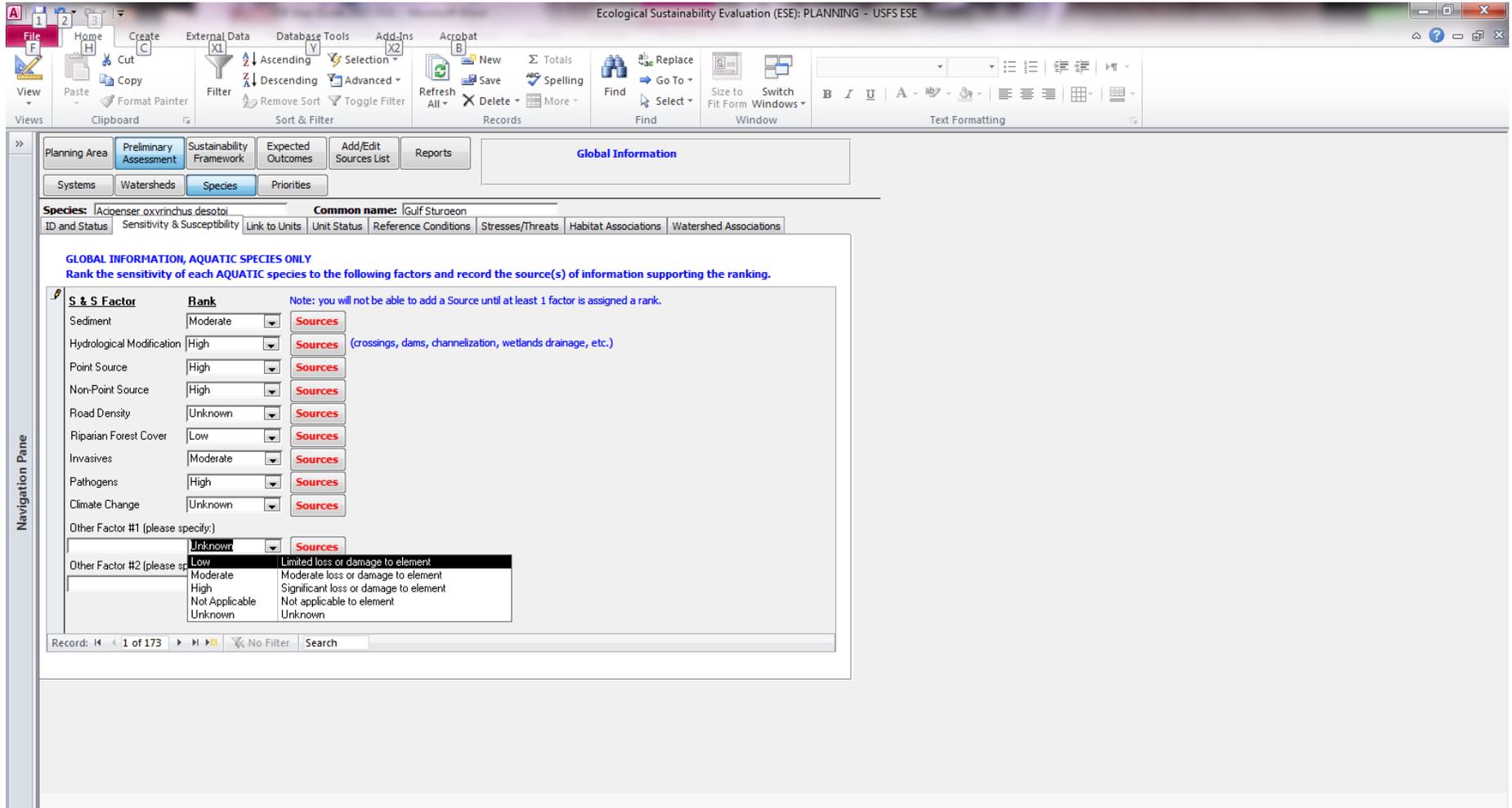
REQUIRED: This screen must be completed for the ESE Tool to function properly. **NOTE:** Some items below may be pre-populated.

1. Enter the scientific name of the Species.
2. Enter the common name, if known.

3. Enter the Element Code and NatureServe ID.
4. Enter a description of the ecological system; copying and pasting NatureServe NVCS descriptions is usually recommended.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
5. Add global rank and rounded global rank.
6. Select the taxonomy of the Species from the dropdown provided.
7. Check either the aquatic, terrestrial or both boxes based on the habitat requirements of the Species. NOTE: For ESE Tool purposes, “aquatic” usually refers to stream-dependent Species associated with Watershed health and not Species associated with ephemeral wetlands, seeps, bogs, etc.
8. Add state, state rank and rounded state rank
9. (optional) Add other statuses from partners’ ranking systems by selecting from the dropdown field on the left; the two right columns will populate automatically.

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.3.1(A): Preliminary Assessment/Species/Aquatic Sensitivity and Susceptibility

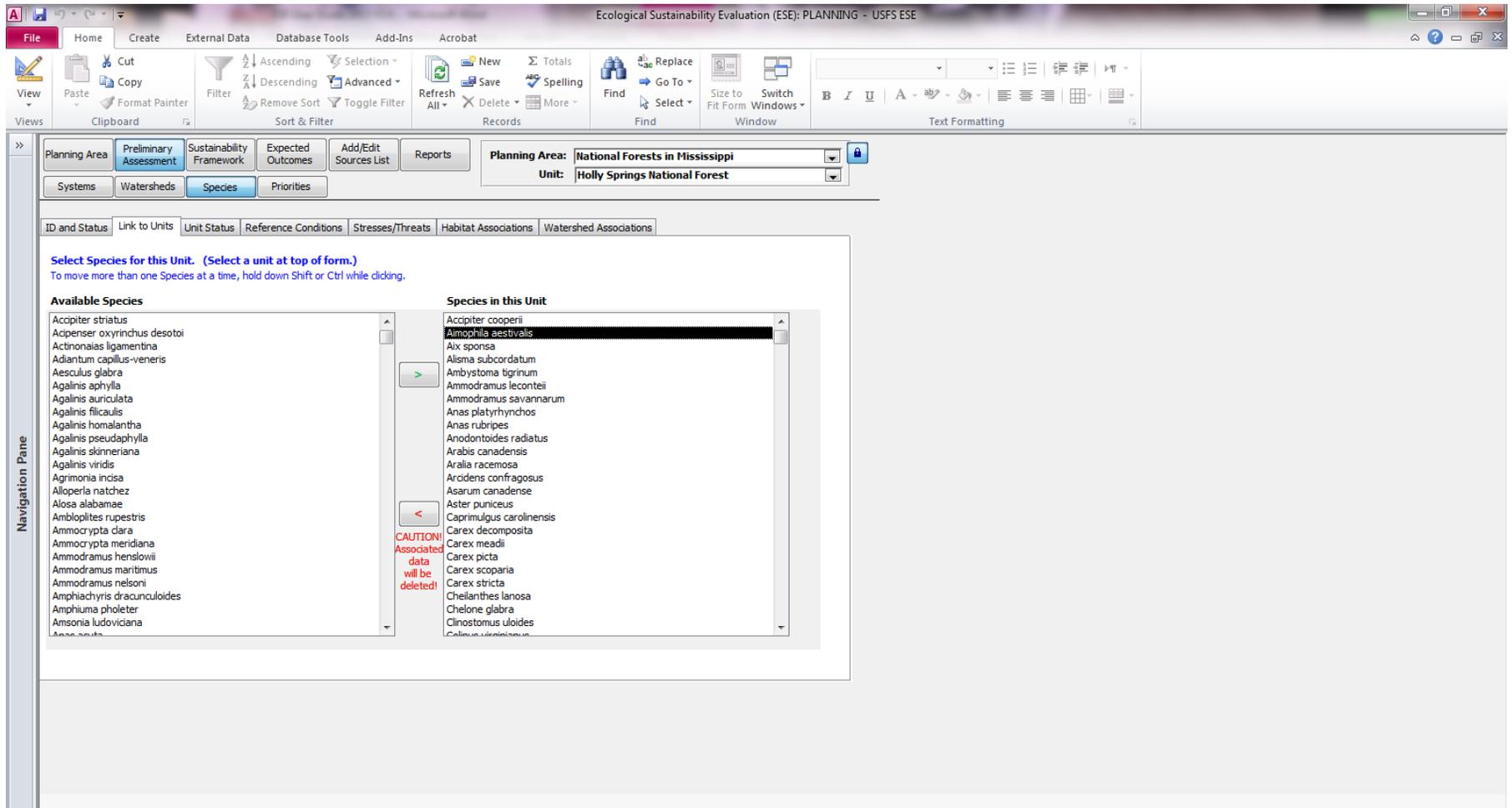


REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This screen is only visible when the “Aquatic” box is checked on Screen 2.3.1: Preliminary Assessment/Species/ID and Status. Tab appears to the right of “ID and Status.”

1. Select a Species using the record scrolling arrows, lower left.
2. Using the dropdowns provided, rank the selected Species' sensitivities to the Watershed variables listed. Add additional variables if needed using the fields provided at the bottom.
 - i. For each ranking, click the "Sources" button to add a citation or select from a pre-loaded menu of citations to support your selection.

Screen 2.3.2 (or 2.3.3 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Link to Units



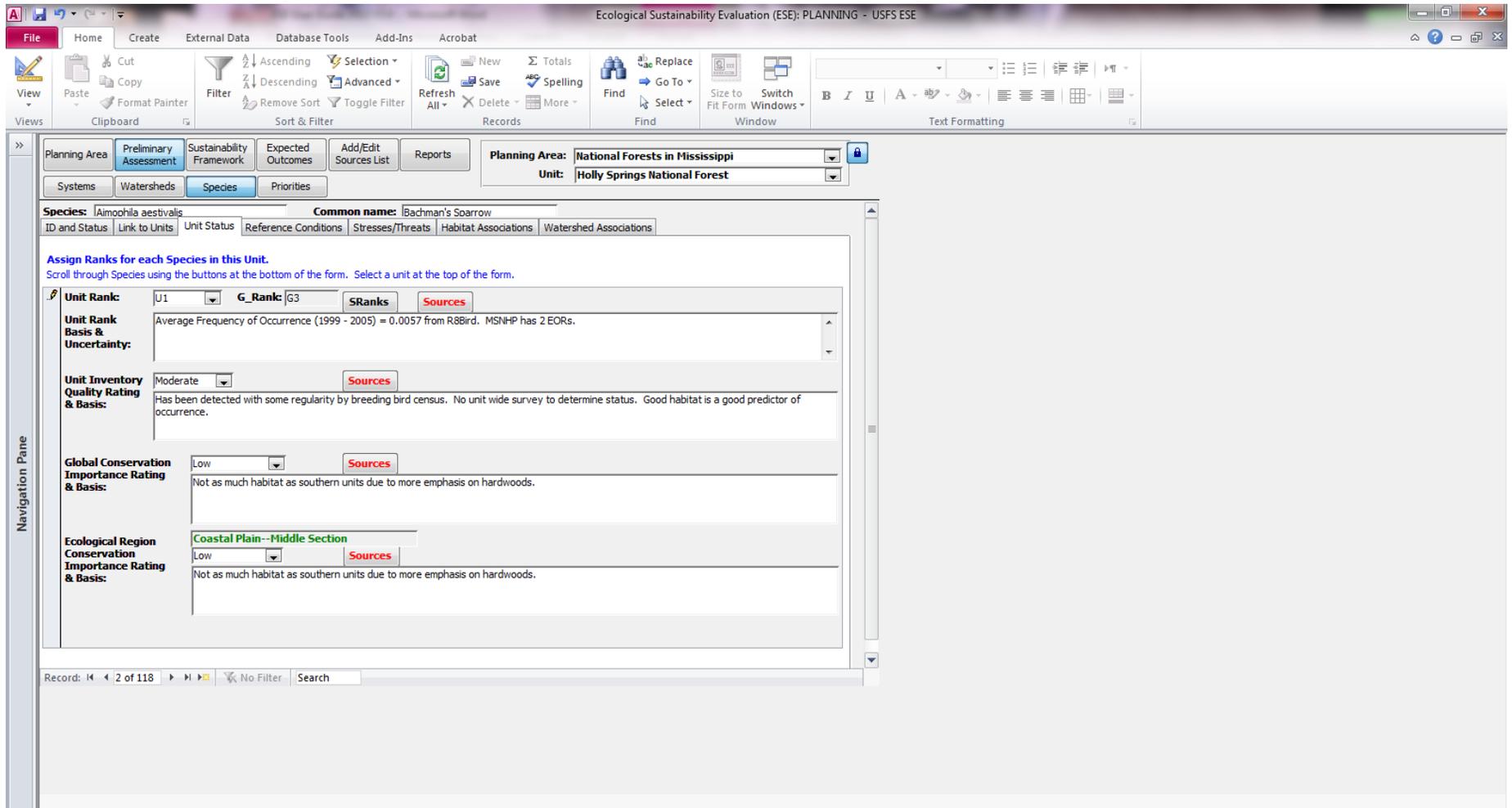
REQUIRED: This screen must be completed for the ESE Tool to function properly.

TIP: Start working on this screen only after you have entered all Species on the previous screen (2.3.1)

1. Select a Unit using the dropdown menu, upper right.

2. Using the left-to-right arrow, center, add Species known to occur in this Unit from the list of available Species, left, to the list Species in this Unit, right. If you make a mistake, select the Species you wish to remove from the column on the right and use the right-to-left arrow to return it to the list of available Species.

Screen 2.3.3 (or 2.3.4 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Unit Status

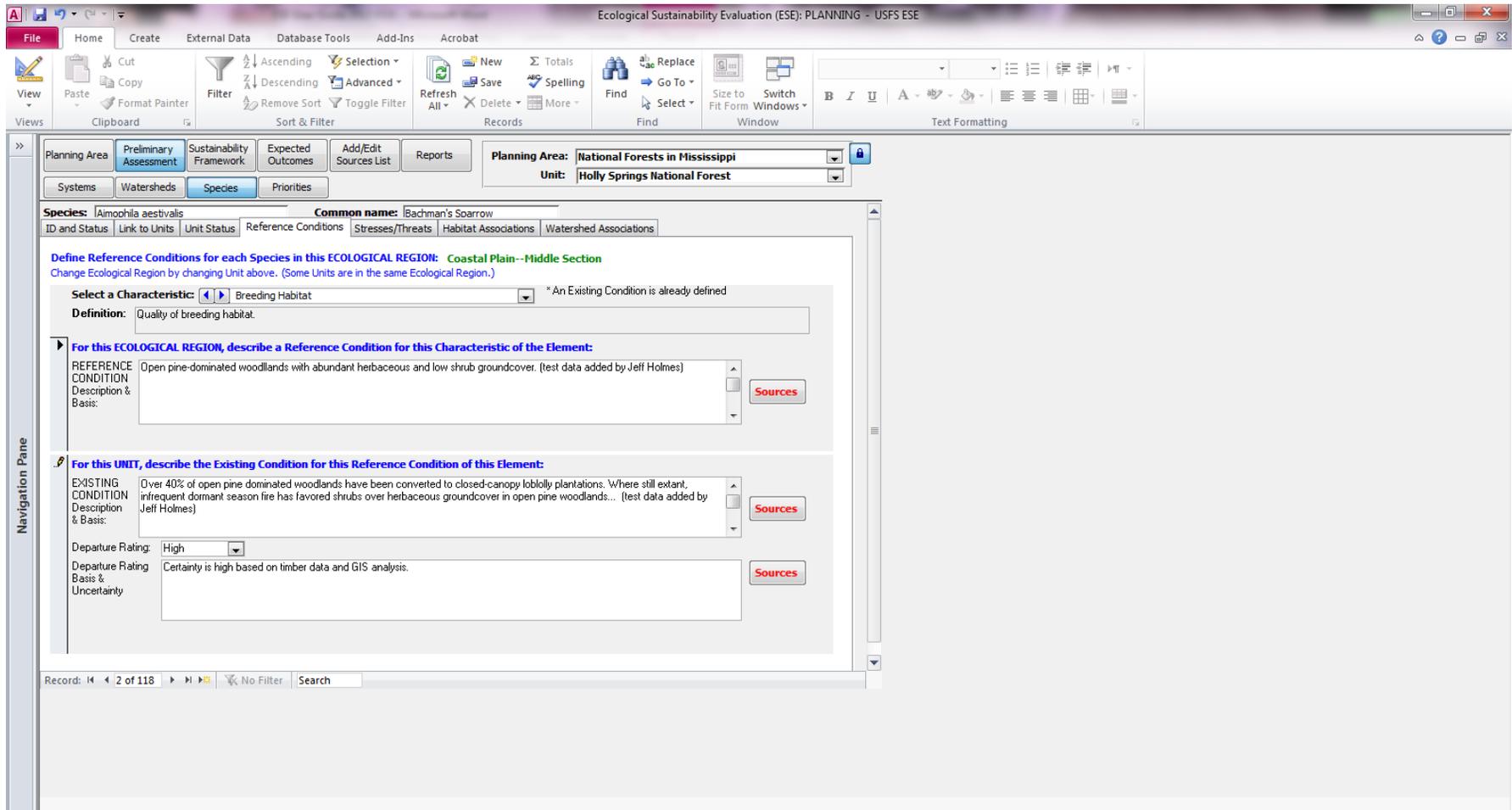


REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. UNIT INFORMATION
 - a. Select a Unit using the dropdown menu, upper right.

- b. Select a Species using the record scrolling arrows, lower left.
 - c. Using the dropdown menu provided, select a Unit rank based on the relative rarity of this Species on the selected Unit. (The G rank field, if populated on the ID and Status screen 2.1.1 will populate automatically. S Ranks are also viewable by clicking the S Ranks button. Both G ranks and S ranks are displayed for reference purposes).
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - d. Add a brief narrative describing the Unit Rank assignment decisions in the Unit Rank Basis and Uncertainty field.
2. GLOBAL INFORMATION
- a. Using the dropdown provided, select the global importance rating that best describes the importance of the Unit to the sustainability of the Species range-wide.
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - b. Add a brief narrative describing the global importance rating in the field provided.
3. ECOREGIONAL INFORMATION
- a. Using the dropdown provided, select the ecoregional importance rating that best describes the importance of the Unit to the sustainability of the Species across the ecoregion. The ecoregion will appear automatically in green font based on the Unit selected.
 - i. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
 - b. Add a brief narrative describing the ecoregional importance rating in the field provided.

Screen 2.3.4 (or 2.3.5 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Reference Conditions



RECOMMENDED: This screen contains important scientific background information that is an important part of the process record but is not required for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Watershed. Look carefully at the assemblages associated with each Watershed and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

2. Select a Species using the record scrolling arrows, lower left.
3. Using the dropdown menu provided, select a characteristic or add and define a new characteristic by clicking “add new” in the dropdown. The definition field below should automatically populate if the characteristic has been defined.
4. Describe the reference condition of this Species characteristic at the ecoregional level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
5. Describe the reference condition of this Species at the Unit level and the basis for your assertions in the field provided.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations
6. Using the dropdown provided, select a departure rating to describe the difference between the current condition and reference condition of this Species.
7. Using the field provided, briefly describe basis and uncertainty of the departure rating assigned in Step 5 above.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations

Screen 2.3.5 (or 2.3.6 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Stresses and Threats

The screenshot displays the 'Preliminary Assessment/Species/Stresses and Threats' screen in the ESE Tool. The interface is organized into several key sections:

- Menu and Toolbar:** Includes 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', 'Acrobat', 'Form Tools', 'Datasheet', 'Records', 'Find', 'Replace', 'Go To', 'Size to Fit Form', 'Switch Windows', and 'Text Formatting'.
- Planning Area:** A dropdown menu set to 'National Forests in Mississippi' and a 'Unit' dropdown set to 'Holly Springs National Forest'.
- Species and Common Name:** 'Species: Aimophila aestivalis' and 'Common name: Bachman's Sparrow'.
- Stresses/Threats Tables:** Three tables are shown:
 - GLOBAL Stresses/Threats:** 10 records, showing 'Terrestrial System/Habitat Stress' and 'Conversion and fragmentation' threats.
 - ECOLOGICAL REGION Stresses/Threats for: Coastal Plain--Middle Section:** 14 records, identical structure to the global table.
 - UNIT-specific Stresses/Threats:** 8 records, showing 'Terrestrial System/Habitat Stress' and 'Conversion and fragmentation' threats.
- Comments & Basis for selection at left:** A text area providing detailed information on why a species is selected, such as 'Species strongly affected by timber management of southern pine woodlands...'.
- Navigation Pane:** Located on the left side of the screen.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.

3. GLOBAL STRESSES

- a. Using the dropdown provided, select a stress that impacts this Species range-wide.
- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
- e. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified.

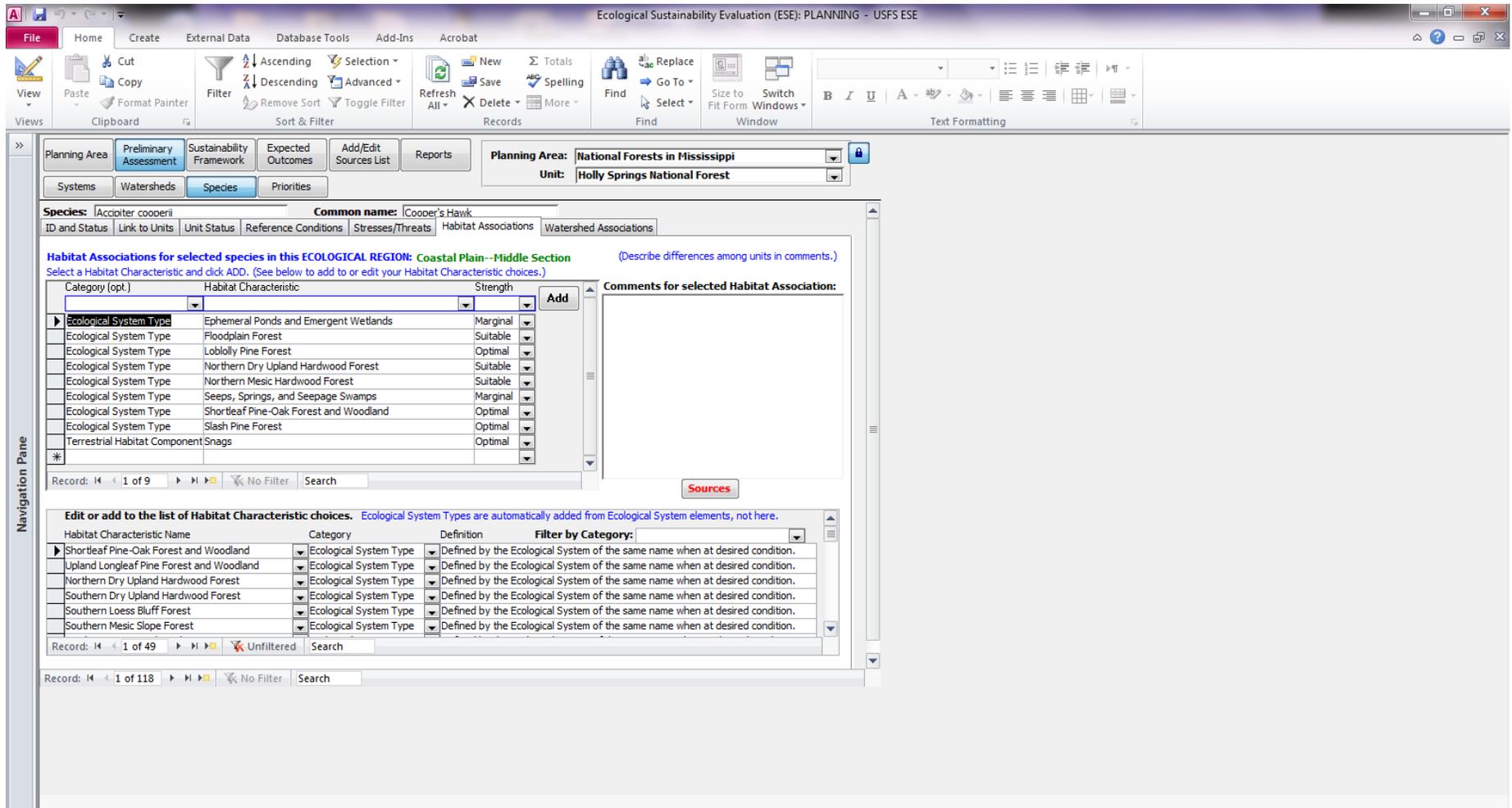
4. ECOREGIONAL STRESSES

- a. Using the dropdown provided, select a global stress that impacts this Species In the Unit-specific ecoregion. The ecoregion will appear in green above the sub-form automatically based on the Unit selected.
- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
- e. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified.

5. UNIT STRESSES

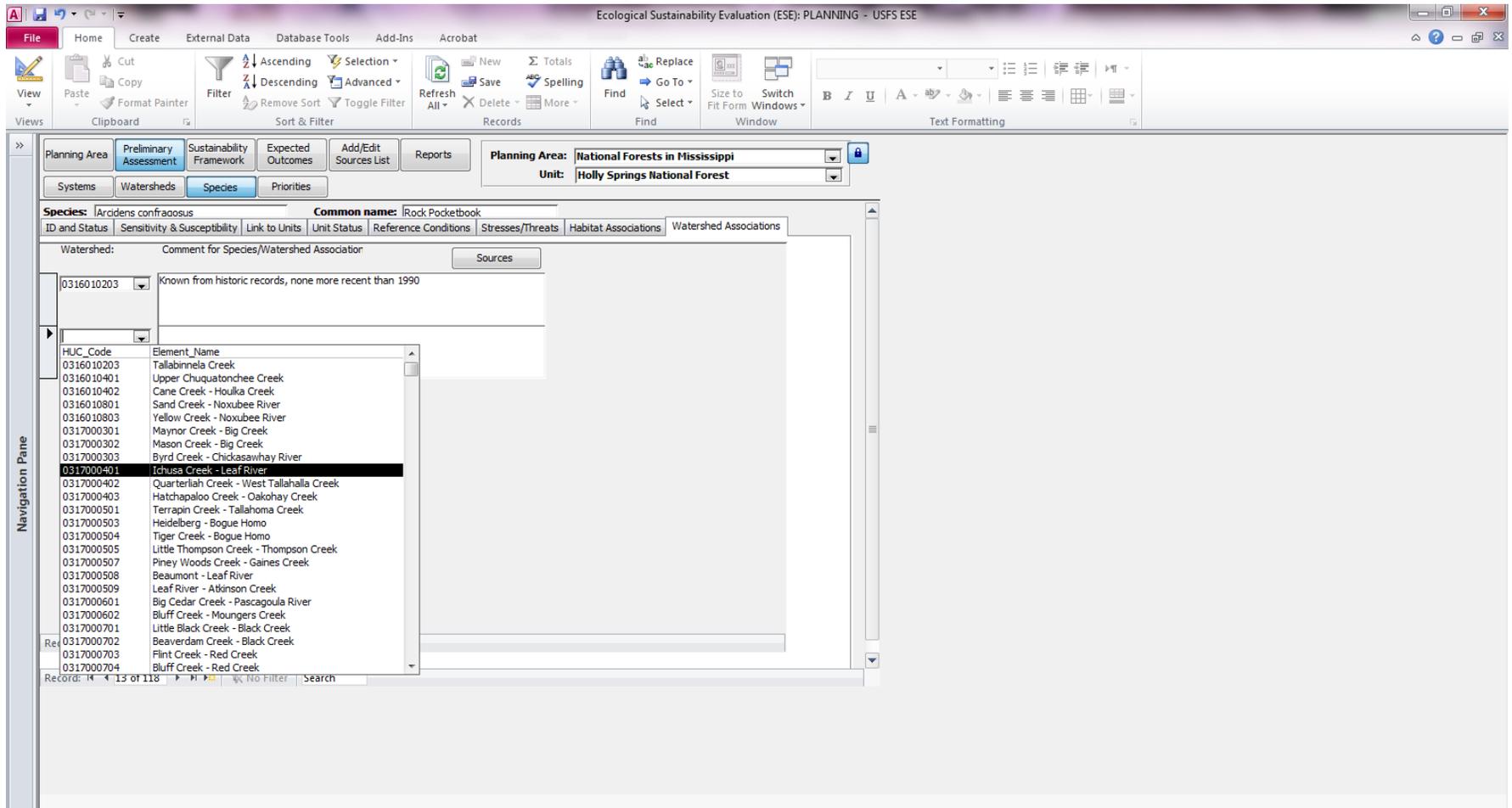
- a. Using the dropdown provided, select a global stress that impacts this Species on the local Unit.
- b. Using the dropdown provided, select a threat that most prominently contributes to the selected stress
- c. Identify the scope and severity of the stress using the dropdowns provided.
- d. Describe your selection in the narrative box provided.
- e. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
- f. Repeat as often as needed. If a stress has more than one contributing threat, the stress can be listed multiple times until all significant stress-threat relationships are identified

Screen 2.3.6 (or 2.3.7 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Habitat Associations



NOT RECOMMENDED: This screen requires information that is duplicated later in the Sustainability Framework section of the ESE Tool. Confusion may result if this screen is populated. In future versions of the ESE Tool this screen will either be significantly revised or omitted altogether.

Screen 2.3.7 (or 2.3.8 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Watershed Associations



REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This screen is currently incomplete and will be significantly enhanced in future versions of the ESE Tool. While Species may be linked to Watershed Line Items later in the process (Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit)), this screen is

currently the only means of elegantly capturing aquatic Species-to-Watershed links. These links are useful in filtering queries, reports and associated algorithms.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.
3. Using the dropdown list of available Watersheds, select all Watersheds in which this Species is known to occur.
4. Since there is only one “Source” button, upper left, use the comment field to support each Species-Watershed relationship with narrative and citations.
5. In addition to currently know occurrences, you may also link the Species to Watersheds where it is historically known or may potentially occur. If you list historic or potential Species-Watershed relationships, clearly say so in the comments field and support your assertions with citations.

Screens 2.4.1-4: Preliminary Assessment/Priorities

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The 'Preliminary Assessment' tab is active. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'SYSTEM Prioritization List' table is displayed with the following data:

System	GRank	Global Importz	Global Priority	Unit Re	Eco. Region Impc	Eco. Region Priority	System Priority
Cypress Dominated Wetlands	G4	Low	3 U1	Low	7	4.6	
Rock Outcrops	G4	Low	3 U1	Low	7	4.6	
Floodplain Forest	G4	Low	3 U3	Low	5	3.8	
Northern Dry Upland Hardwood Forest	G4	Low	3 U4	Medium	4	3.4	
Shortleaf Pine-Oak Forest and Woodland	G3	Medium	6 U4	Medium	4	5.2	
Northern Mesic Hardwood Forest	G4	Low	3 U5	Medium	2	2.6	
Canebrake			Not Prioritized	UU	Not Prioritized	Not Prioritized	
Loblolly Pine Forest			Not Prioritized	UNA	Not Prioritized	Not Prioritized	
Permanent Lakes and Ponds	G5		Not Prioritized		Not Prioritized	Not Prioritized	
Soils			Not Prioritized		Not Prioritized	Not Prioritized	
Ephemeral Ponds and Emergent Wetlands	G4	Low	3 UU	Low	Not Prioritized	Not Prioritized	
Seeps, Springs, and Seepage Swamps	G3	Low	5 UU	Low	Not Prioritized	Not Prioritized	
Streams	G4	Low	3	Low	Not Prioritized	Not Prioritized	

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding. This screen displays entered data which is algorithmically prioritized for the preliminary assessment. Use this screen for review purposes.

Includes the following screens:

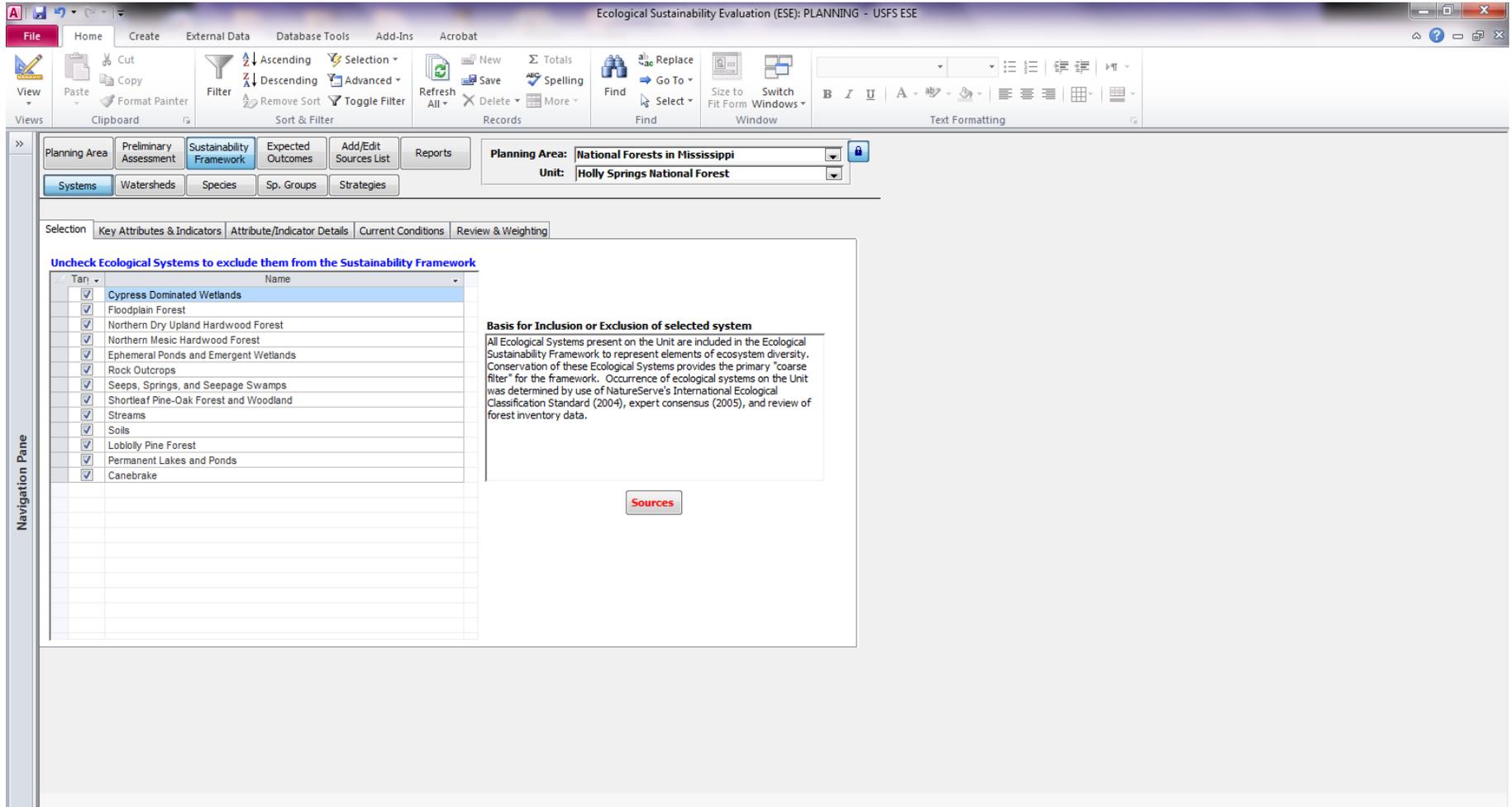
- Screen 2.4.1: Preliminary Assessment/Priorities/Systems
- Screen 2.4.2: Preliminary Assessment/Priorities/System Stresses and Threats
- Screen 2.4.3: Preliminary Assessment/Priorities/Species
- Screen 2.4.4: Preliminary Assessment/Priorities/Species Stresses and Threats

Use this screen to review data. This screen displays algorithmically calculated priority lists based on rarity and other variables from entered data. Prioritization can be changed by adjusting the entered data. These lists are useful as Preliminary Assessment review tools. However, this screen only calculates priorities based on data contained in the Preliminary Assessment section of the ESE Tool. Refer to ESE Tool Prioritization Process Schematic (Appendix D).

Button 3: Sustainability Framework

NOTE: Current versions of the ESE Tool may experience brief performance slowdowns when first opening the Sustainability Framework section, especially when working with large data sets. These issues are usually characterized by a temporary database “freeze up.” The database may also switch briefly to a different screen. The length of the freeze will vary depending on the size of the data set, lasting up to one minute or longer on particularly large data sets. The only recommended action is to not touch anything and wait. These performance issues will be repaired in subsequent software revisions.

Screen 3.1.1: Sustainability Framework/Systems/Selection (By Unit)



REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. A list of Ecosystems that were previously identified as occurring (Screen 2.1.2 Preliminary Assessment/Systems/Link to Units) in this Unit will automatically appear.

3. All Ecosystems will be automatically checked. Uncheck any Ecosystem that you do not wish to consider in the Sustainability Framework. The main reason for excluding an Ecosystem is extremely restricted distribution in the selected Unit. While the cursor is still on the selected Ecosystem:
 - a. Describe your decisions in the comment box provided.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

Screen 3.1.2: Sustainability Framework/Systems/Key Attributes and Indicators (By Unit)

The screenshot displays the Microsoft Excel interface for the Ecological Sustainability Evaluation (ESE) tool. The title bar reads "Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE". The ribbon includes "File", "Home", "Create", "External Data", "Database Tools", "Add-Ins", and "Acrobat".

The main interface features a "Navigation Pane" on the left with tabs for "Planning Area", "Preliminary Assessment", "Sustainability Framework", "Expected Outcomes", "Add/Edit Sources List", and "Reports". The "Sustainability Framework" tab is active, showing sub-tabs for "Systems", "Watersheds", "Species", "Sp. Groups", and "Strategies".

At the top right, there are dropdown menus for "Planning Area: National Forests in Mississippi" and "Unit: Holly Springs National Forest". Below these are buttons for "See all Framework data for: this Element-Unit", "this Element (all Units)", and "this Unit".

The central area is titled "Ecological System: Canebrake" and includes tabs for "Selection", "Key Attributes & Indicators", "Attribute/Indicator Details", "Current Conditions", and "Review & Weighting". The "Key Attributes & Indicators" tab is active, displaying a table with the following data:

FRAMEWORK	Key Attribute	Indicator
Ecological System Abundance		
Fire Regime		Percent of System Acres Burned at Desired Return Interval
Fire Regime		Percent of System Acres Burned During the Growing Season
Distance from Roads		ORV Trail Density
Distance from Roads		Unpaved Gated Road Density
Distance from Roads		Paved Open Road Density
Distance from Roads		Total Road and Trail Density
Distance from Roads		Unpaved Open Road Density
Invasive Species Abundance		Percent of Invasive Species Occupying System
Invasive Species Abundance		Reduction of Fire Ants
Invasive Species Abundance		Compliance with Invasive Species Guidelines
Ecological System Abundance at Desired Condition		Percent of potential acres with Appropriate System

On the right side of the table, there are buttons for "Add/Edit Key Attribute and/or Indicator Lists" and "View System Stresses/Threats". At the bottom, there are two record navigation bars: "Record: 1 of 12" and "Record: 1 of 13".

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select an Ecosystem using the record scrolling arrows, lower left.
3. Using the dropdowns at the top of the sub-form, select category (optional), Key Attribute and Indicator then click the “Add” button.
 - a. If you need to add or edit Key Attributes and Indicators, click the button on the right.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

TIP: If the Stresses/Threats screen is populated (Screen 2.1.5: Preliminary Assessment/ Systems/ Stresses and Threats), you can view the stresses and threats for this Unit-system combination by clicking the green font, far right. In most cases, Key Attributes and Indicators should reflect stresses and threats associated with a selected planning element.

HIGHLY RECOMMENDED:

To see all data associated with the selected Ecosystem or Unit in a handy tabular view, use the green buttons, upper right.

CAUTION: Do NOT attempt to add records in tabular view. Do NOT attempt to edit records in tabular view without the assistance of an experienced ESE Tool expert.

4. Repeat as often as needed to capture all the significant attributes of the selected Unit-Ecosystem combination.

Screen 3.1.3: Sustainability Framework/Systems/Attribute and Indicator Details (By Unit)

The screenshot displays the ESE Tool interface with the following details:

- Application:** Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE
- Navigation Pane:** Planning Area, Preliminary Assessment, Sustainability Framework, Expected Outcomes, Add/Edit Sources List, Reports, Systems, Watersheds, Species, Sp. Groups, Strategies.
- Planning Area:** National Forests in Mississippi (Unit: Holly Springs National Forest)
- Ecological System:** Canebrake
- Key Attributes:**
 - Key Attribute Name:** Distance from Roads
 - Description (Global):** The amount of an Ecological System or habitat that is a desired distance from roads or other similar sources of human disturbance.
 - Basis and Uncertainty for Key Attribute Selection:** [Empty text box]
 - Records:** 1 of 5
- Indicators for selected Key Attribute:**
 - Indicator Name:** ORV Trail Density
 - Description (Target-specific):** Maintain, or where necessary restore, the maximum number of known ORV trail miles to 0.5 miles per square mile across all known occurrences of this target.
 - Basis and Uncertainty for Indicator Selection:** [Empty text box]
 - Rating Criteria:**
 - Poor:** >2.0
 - Fair:** 1.26-2
 - Good:** 0.26-1.25
 - Very Good:** <0.25
 - Basis and Uncertainty for Setting Rating Criteria:** [Empty text box]
 - Records:** 1 of 13

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select an Ecosystem using the record scrolling arrows, lower left.
3. Select a Key Attribute using the record scrolling feature at the bottom of the Key Attribute sub-form, upper left.

TIP: There are three record scroll features on this screen:

1. The bottom scroll feature, outer lower left, is used to choose an Ecosystem in the selected Unit.
2. The scroll feature at the bottom of the Key Attribute sub-form, upper left, is used to choose a Key Attribute of the Unit-Ecosystem combination.
3. The scroll feature at the bottom of the Indicator sub-form, interior lower left, is used to choose an Indicator of the Unit-Ecosystem-Key Attribute combination.

- a. If the selected Key Attribute was fully populated when added (either as part of the pre-loaded dropdown menu or as a user-added selection), the description field should populate automatically.
- b. Briefly describe the rationale for selecting this Key Attribute in the “Basis and Uncertainty” field.
- c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Select an Indicator of the selected Key Attribute using the Indicator record scrolling feature at the bottom of the Indicator sub-form, interior lower left.
 - a. Enter a brief but thorough description of the Indicator in the field provided. Include clear details of quantitative Indicator metrics (Table 1).
 - b. Briefly describe the rationale for selecting this Indicator in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Enter the rating criteria in the fields provided. To the extent possible, rating criteria should be quantitative and measurable.
 - e. Briefly describe the rationale for selecting this rating criteria metrics and thresholds in the “Basis and Uncertainty” field.
 - f. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
5. Use the green fonts, interior upper right, to review data in tabular form if desired.

Table 1. Sample Key Attributes and Indicators adapted from the Upland Longleaf Pine Ecosystem on the DeSoto National Forest.

Key Attribute	Indicator Name	Indicator Description	Poor Criteria	Fair Criteria	Good Criteria	Very Good Criteria	Current Indicator Value	Current Indicator Rating
Remoteness (Distance from Roads)	ORV Trail Density	Miles per square mile across all known occurrences	>2.0	1.26-2	0.26-1.25	<0.25	0.23	Very Good
	Paved Open Road Density		>2.0	1.26-2	0.26-1.25	<0.25	0.52	Good
	Total Road and Trail Density		>2.0	1.26-2	0.26-1.25	<0.25	2.95	Poor
	Unpaved Gated Road Density		>2.0	1.26-2	0.26-1.25	<0.25	0.70	Good
	Unpaved Open Road Density		>2.0	1.26-2	0.26-1.25	<0.25	1.52	Fair
Spatial Ecology	Appropriate System Coverage	Percent of potential acres with appropriate system type	<50	50-74	75-89	>90	59	Fair
Fire Regime	Fire Frequency	Percent of system acres burned at desired return interval: 1-5 years	<25	25-50	51-75	>75	67.91	Good
	Fire	Percent of system acres burned	<21	21-40 or	41-60	61-80	20	Poor

	Seasonality/Intensity	during the growing season		>80				
Forest Age Diversity	Mature Forest Coverage	Percent of occurrences in mature stage (60+ years)	<45 or >75	45-49 or 71-75	50-54 or 66-70	55-65	59.31	Very Good
	Old Forest Coverage	Percent of occurrences in old stage (100+ years)	Data Need	Data Need	Data Need	Data Need	Data Need	Data Need
Invasive Species Abundance	Compliance with Invasive Species Guidelines	See Invasive Species Guidelines	Non-compliant	Not Used, Pass/Fail	Not Used, Pass/Fail	Compliant	Compliant	Very Good
	Percent of Invasive Species Occupying System	Percent of invasive species occupying system	>6	4-6	1-3	<1	Data Need	Data Need
	Reduction of Fire Ants	Percent of known mounds eradicated across all known occurrences	<30	30-69	70-89	>90	0	Poor
Understory Composition	Compliance with Understory Composition Guidelines	See Understory Composition Guidelines	Non-compliant	Not Used, Pass/Fail	Not Used, Pass/Fail	Compliant	Compliant	Very Good
Canopy	Canopy Conditions	Percent mature open and sparse	<5	>15	5-10	11-15	0	Poor

Structure		canopy						
	Canopy Conditions	Percent mature open canopy	<65	65-74	75-85	>85	16.92	Poor

Screen 3.1.4: Sustainability Framework/Systems/Current Conditions (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The 'Sustainability Framework' tab is active, and the 'Current Conditions' sub-tab is selected. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Ecological System' is 'Canebrake'. A table lists various indicators with their values and ratings. Below the table is a section for 'Basis and Uncertainty for Determining Selected Current Condition' with a 'Sources' button.

Category	Key Attribute	Indicator	Indicator Value	Indicator Rating	Poor	Fair	Good
Condition	Ecological System Abundance	Percent of potential acres with Appropriate System					
Condition	Fire Regime	Percent of System Acres Burned at Desired Return Interv	data need		<25	25-50	51-75
Condition	Fire Regime	Percent of System Acres Burned During the Growing Sei	data need		<21	21-40	41-60
Condition	Invasive Species Abundance	Compliance with Invasive Species Guidelines	Compliant	Very Good			
Condition	Invasive Species Abundance	Percent of Invasive Species Occupying System	data need		>6	4-6	1-3
Condition	Invasive Species Abundance	Reduction of Fire Ants	0	Poor	<30	30-69	70-89
Context	Distance from Roads	ORV Trail Density	data need		>2.0	1.26-2	0.26-1.2
Context	Distance from Roads	Paved Open Road Density	data need		>2.0	1.26-2	0.26-1.2
Context	Distance from Roads	Total Road and Trail Density	data need		>2.0	1.26-2	0.26-1.2
Context	Distance from Roads	Unpaved Gated Road Density	data need		>2.0	1.26-2	0.26-1.2
Context	Distance from Roads	Unpaved Open Road Density	data need		>2.0	1.26-2	0.26-1.2

REQUIRED: This screen must be completed for the ESE Tool to function properly.

TIP: Be consistent with capitalization, punctuation, terminology and other text variables that may impact how the ESE Tool sorts and filters data.

1. Select a Unit using the dropdown menu, upper right.
2. Select an Ecosystem using the record scrolling arrows, lower left.

- a. The Key Attributes, Indicators and rating criteria will automatically be displayed for the selected Unit- Conservation Target combination. Scroll right, bottom of the sub-form, if all the data is not visible. NOTE: The interior record scrolling feature below the sub-form preforms the same function as scrolling up or down from record to record.
3. Starting with the top record, enter the raw Indicator value in the field provided. If the value is unknown, enter “Data Need.” (Refer back to Table 1 for examples as needed)
4. Check the raw Indicator value against the rating criteria to the right, and then enter the Indicator rating using the dropdown provided in the field.
 - a. Describe the methodology used to determine the Indicator value in the “Basis and Uncertainty” field, lower center.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
5. Repeat until all Indicators are populated.

Screen 3.1.5: Sustainability Framework/Systems/Review and Weighting (By Unit)

The screenshot displays the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The ribbon includes 'Form Tools' and 'Datashheet'. The main interface shows the 'Sustainability Framework' tab selected. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Ecological System' is 'Canebrake'. Below this, there are tabs for 'Selection', 'Key Attributes & Indicators', 'Attribute/Indicator Details', 'Current Conditions', and 'Review & Weighting'. The 'Review & Weighting' tab is active, showing a table of 'Line Item Weights' and a text box for 'Basis and Uncertainty of Weighting for selected Line Item:'. A 'Sources' button is located below the text box.

Ty	Target Name	Key Attribute	Indicator	Weight
ES	Canebrake	Distance from Roads	ORV Trail Density	High
ES	Canebrake	Distance from Roads	Paved Open Road Density	Very High
ES	Canebrake	Distance from Roads	Total Road and Trail Density	Very High
ES	Canebrake	Distance from Roads	Unpaved Gated Road Density	Low
ES	Canebrake	Distance from Roads	Unpaved Open Road Density	Moderate
ES	Canebrake	Ecological System Abundance	Percent of potential acres with Appr	High
ES	Canebrake	Fire Regime	Percent of System Acres Burned at	Very High
ES	Canebrake	Fire Regime	Percent of System Acres Burned Du	Low
ES	Canebrake	Invasive Species Abundance	Compliance with Invasive Species G	Very High
ES	Canebrake	Invasive Species Abundance	Percent of Invasive Species Occup	High
ES	Canebrake	Invasive Species Abundance	Reduction of Fire Ants	Moderate

REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Select a Unit using the dropdown menu, upper right.
2. Select an Ecosystem using the record scrolling arrows, lower left.

- a. The Key Attributes and Indicators will automatically be displayed for the selected Unit- Conservation Target combination. NOTE:

HIGHLY RECOMMENDED!

Once all data is entered, use the “Copy these Line Items to other Units” button, upper right, if a Conservation Target occurs across multiple Units. Simply select the other Units where the Conservation Target occurs and the associated Unit-System combination will automatically populate.

CAUTION: Just because a Conservation Target occurs on multiple Units does not mean that all of its ecological variables are identical. Review and edit your shared information as needed to adjust for local circumstances.

The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.

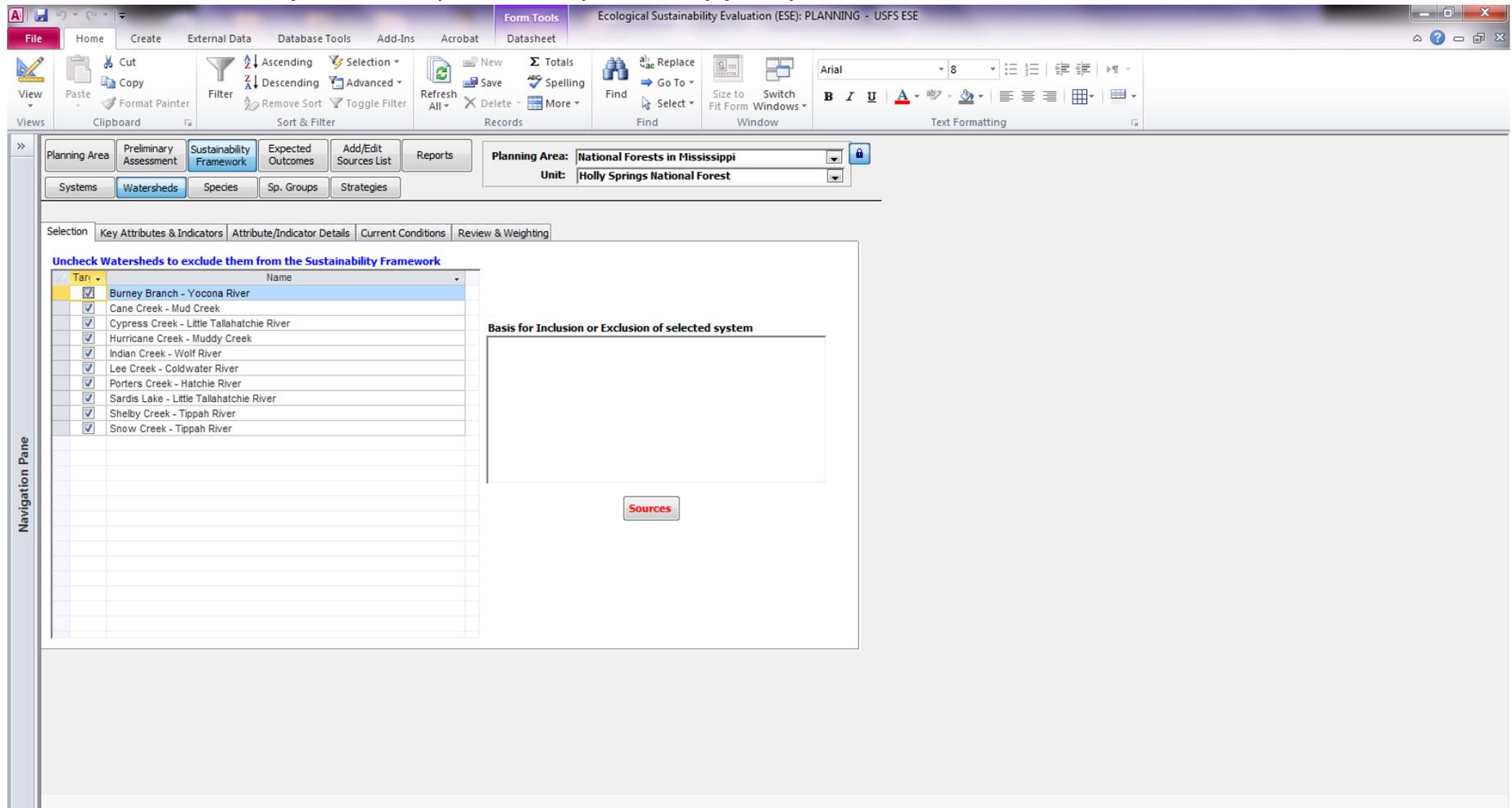
3. Starting with the top record, weigh the importance of the Key Attribute-Indicator combination to the sustainability of the selected Unit-Ecosystem combination using the dropdown provided in the “Weight” field.

a. Briefly describe the rationale for the selected weight in the “Basis and Uncertainty” field, right.

b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

4. Repeat until all relationships are weighed.

Screen 3.2.1: Sustainability Framework/Watersheds/Selection (By Unit)



REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. A list of Watersheds that were previously identified as occurring (Screen 2.2.2: Preliminary Assessment/Watersheds/Link to Units) in this Unit will automatically appear.

3. All Watersheds will be automatically checked. Removal of Watersheds by unchecking them is not recommended unless new information emerges showing that the Watershed boundaries and Unit boundaries do not overlap. In this event, return to Screen 2.2.2: Preliminary Assessment/Watershed s/Link to Units and remove the Watershed in question from the list of Watersheds occurring in the selected Unit.
 - a. Describe your decisions in the comment box provided (this step is optional unless there are questions about the boundaries of either the Unit or the Watershed that must be explained).
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

Screen 3.2.2: Sustainability Framework/Watersheds/Key Attributes and Indicators (By Unit)

The screenshot displays the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The ribbon includes 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', and 'Acrobat'. The 'Filter' group contains 'Filter', 'Ascending', 'Descending', 'Advanced', 'Remove Sort', and 'Toggle Filter'. The 'Sort & Filter' group includes 'Refresh All', 'Delete', and 'More'. The 'Records' group has 'New', 'Save', 'Spelling', 'Find', 'Go To', and 'Select'. The 'Find' group includes 'Replace', 'Go To', and 'Select'. The 'Window' group has 'Size to Fit Form' and 'Switch Windows'. The 'Text Formatting' group includes bold, italic, underline, text color, background color, and text alignment options.

The main interface shows the following configuration:

- Planning Area:** National Forests in Mississippi
- Unit:** Holly Springs National Forest
- Watershed:** Burney Branch - Yocona River

The 'Sustainability Framework' tab is active, showing a table of key attributes and indicators. The table has columns for 'Category (opt.)', 'Key Attribute', and 'Indicator'. The 'FRAMEWORK' column is set to 'Coarse Woody Debris Abundance'. The 'Key Attribute' column lists various attributes, and the 'Indicator' column lists corresponding indicators. An 'Add' button is present for each row. A search bar at the bottom of the table shows 'Record: 1 of 15'.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Watershed using the record scrolling arrows, lower left.
3. Using the dropdowns at the top of the sub-form, select category (optional), Key Attribute and Indicator then click the “Add” button.

- a. If you need to add or edit Key Attributes and Indicators, click the button on the right.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Repeat as often as needed to capture all the significant attributes of the selected Unit-Watershed combination. In most cases, R8 will provide data for the following variables:
 - a. Sediment
 - b. Point Source Pollution
 - c. Non-point Source Pollution
 - d. Thermal Regimes
 - e. Flow Regimes
 - i. Other variables, such as coarse woody debris retention, invasive Species, etc. can be added using local knowledge if desired.

Screen 3.2.3: Sustainability Framework/Watersheds/Attribute and Indicator Details (By Unit)

The screenshot displays the Microsoft Access application window titled "Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE". The interface includes a ribbon with tabs for File, Home, Create, External Data, Database Tools, Add-Ins, and Acrobat. The main workspace is divided into several sections:

- Navigation Pane:** Located on the left, it contains buttons for Planning Area, Preliminary Assessment, Sustainability Framework (selected), Expected Outcomes, Add/Edit Sources List, Reports, Systems, Watersheds (selected), Species, Sp. Groups, and Strategies.
- Planning Area:** A dropdown menu set to "National Forests in Mississippi" with a lock icon.
- Unit:** A dropdown menu set to "Holly Springs National Forest".
- Watershed:** A dropdown menu set to "Burney Branch - Yocona River".
- Attribute/Indicator Details:**
 - Key Attributes:** A section titled "Key Attributes (scroll through)" showing a table with columns for Key Attribute Name and Description. The selected attribute is "Coarse Woody Debris Abundance" with the description "The abundance of large pieces of wood within aquatic systems (Global)". Below this is a text box for "Basis and Uncertainty for Key Attribute Selection" and a "Sources" button.
 - Indicators for selected Key Attribute:** A section titled "Indicators for selected Key Attribute" showing a table with columns for Indicator Name and Description. The selected indicator is "Compliance with Coarse Woody Debris Guidelines" with the description "This is a pass/fail indicator. Each unit is either in compliance with guidelines or not. Failure to comply with guidelines results in a default status of poor. Compliance with guidelines results in a default status of very good." Below this are text boxes for "Basis and Uncertainty for Indicator Selection" and "Basis and Uncertainty for Setting Rating Criteria", each with a "Sources" button.
- Record Navigation:** At the bottom, there are three record navigation bars: "Record: 1 of 7", "Record: 1 of 1", and "Record: 1 of 10", each with navigation arrows and a "Search" button.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Watershed using the record scrolling arrows, lower left.
3. Select a Key Attribute using the record scrolling feature at the bottom of the Key Attribute sub-form, upper left.

TIP: There are three record scroll features on this screen:

1. The bottom scroll feature, outer lower left, is used to choose an Ecosystem in the selected Unit.
2. The scroll feature at the bottom of the Key Attribute sub-form, upper left, is used to choose a Key Attribute of the Unit-Watershed combination.
3. The scroll feature at the bottom of the Indicator sub-form, interior lower left, is used to choose an Indicator of the Unit-Watershed - Key Attribute combination.

- a. If the selected Key Attribute was fully populated when added (either as part of the pre-loaded dropdown menu or as a user-added selection), the description field should populate automatically.
- b. Briefly describe the rationale for selecting this Key Attribute in the “Basis and Uncertainty” field.
- c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Select an Indicator of the selected Key Attribute using the Indicator record scrolling feature at the bottom of the Indicator sub-form, interior lower left.
 - a. Enter a brief but thorough description of the Indicator in the field provided. Include clear details of quantitative Indicator metrics (Table 2).
 - b. Briefly describe the rationale for selecting this Indicator in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Enter the rating criteria in the fields provided. To the extent possible, rating criteria should be quantitative and measurable.
 - e. Briefly describe the rationale for selecting this rating criteria metrics and thresholds in the “Basis and Uncertainty” field.
 - f. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

Table 2. Sample Watershed data. The same metrics are used for all Watersheds in most cases.

Key Attribute	Indicator Name	Indicator Description	Poor Criteria	Fair Criteria	Good Criteria	Very Good Criteria	Current Indicator Value	Current Indicator Rating	Weight
Coarse Woody Debris Abundance	Riparian Land Use Rating*	Number of pieces of CWD per mile or expert opinion	1 or 2	3	4	5	2	Poor	Very High
Hydrologic Function	Dam Density Rating*	Number of dams per mile	1 or 2	3	4	5	2	Poor	Very High
	Riparian Road Density Rating*	Miles of road per square mile within the riparian	1 or 2	3	4	5	2	Poor	Very High
	Road Crossings Rating*	Number of road/stream crossings per square mile	1 or 2	3	4	5	2	Poor	Very High
Water Quality--Sediment	Sediment Risk Rating*	The relationship between sediment loads and the aquatic community	1 or 2	3	4	5	5	Very Good	Very High
Water Quality--Toxics	Non-Point Source Rating*	Percent of the watershed in urban and agriculture	1 or 2	3	4	5	3	Fair	Very High

	Point Source Rating*	Number of point sources per square mile	1 or 2	3	4	5	4	Good	Very High
Water Temperature Regime	Riparian Land Use Rating*	Percentage of riparian that is non-forested and expert opinion	1 or 2	3	4	5	2	Poor	Very High

* Indicators marked with an asterisk are supplied by R8. These ratings are indexed scores derived for each Watershed based on current conditions verses background (historic) conditions. Note that the potential range of variability is divided into quintiles in the Rating Criteria fields and the two lowest ratings are combined under the “Poor” condition.

If you have questions about how to capture R8 Watershed analysis data, contact the appropriate RO BPR or planning staff or an experienced ESE Tool expert.

Screen 3.2.4: Sustainability Framework/Watersheds/Current Conditions (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The interface includes a ribbon menu with tabs like 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', 'Acrobat', and 'Form Tools'. Below the ribbon, there are navigation buttons for 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework', 'Expected Outcomes', 'Add/Edit Sources List', and 'Reports'. The 'Sustainability Framework' tab is active, showing sub-tabs for 'Systems', 'Watersheds', 'Species', 'Sp. Groups', and 'Strategies'. The 'Watersheds' sub-tab is selected, displaying a table of indicators for the 'Burney Branch - Yocona River' watershed. The table has columns for 'Indicator Value' and 'Indicator Rating', with a 'Sources' button next to it. Below the table, there is a section for 'Basis and Uncertainty for Determining Selected Current Condition' with a text area and a 'Sources' button. The interface also includes a 'Navigation Pane' on the left and record navigation controls at the bottom.

Category	Key Attribute	Indicator	Indicator Value	Indicator Rating	Poor	Fair	Good
Condition	Coarse Woody Debris Abundance	Compliance with Coarse Woody Debris Guidelines	Compliant	Very Good	non-com		
Condition	Hydrologic Function	Compliance with Hydrologic Function Guidelines	Compliant	Very Good	non-com		
Condition	Hydrologic Function	Dam Density Rating	2	Poor	1 or 2	3	4
Condition	Hydrologic Function	Riparian Road Density Rating	2	Poor	1 or 2	3	4
Condition	Hydrologic Function	Road Crossings Rating	2	Poor	1 or 2	3	4
Condition	Invasive Species Abundance	Compliance with Invasive Species Guidelines	Compliant	Very Good	non-com		
Condition	Water Quality--Sediment	Compliance with Sediment-related BMPs for Forest Management	Compliant	Very Good	non-com		
Condition	Water Quality--Sediment	Compliance with Sediment-related BMPs for Roads Management	Compliant	Very Good	non-com		
Condition	Water Quality--Sediment	Forest Cover Rating	3	Fair	1 or 2	3	4
Condition	Water Quality--Sediment	Road Density Rating	3	Fair	1 or 2	3	4
Condition	Water Quality--Sediment	Sediment Risk Rating	5	Very Good	1 or 2	3	4
Condition	Water Quality--Toxics	Non-Point Source Rating	3	Fair	1 or 2	3	4
Condition	Water Quality--Toxics	Point Source Rating	4	Good	1 or 2	3	4

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Watershed using the record scrolling arrows, lower left.

- a. The Key Attributes, Indicators and rating criteria will automatically be displayed for the selected Unit- Conservation Target combination. Scroll right, bottom of the sub-form, if all the data is not visible. NOTE: The interior record scrolling feature below the sub-form preforms the same function as scrolling up or down from record to record.
3. Starting with the top record, enter the raw Indicator value in the field provided. If the value is unknown, enter “Data Need.” (Refer back to Table 1 for examples as needed)
4. Check the raw Indicator value against the rating criteria to the right, and then enter the Indicator rating using the dropdown provided in the field.
 - a. Describe the methodology used to determine the Indicator value in the “Basis and Uncertainty” field, lower center.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
5. Repeat until all Indicators are populated.

Screen 3.2.5: Sustainability Framework/Watersheds/Review and Weighting (By Unit)

The screenshot displays the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The interface includes a standard Microsoft Office-style ribbon with tabs for 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', 'Acrobat', and 'Form Tools'. Below the ribbon, there are navigation buttons for 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework', 'Expected Outcomes', 'Add/Edit Sources List', and 'Reports'. The 'Sustainability Framework' tab is active, showing sub-tabs for 'Systems', 'Watersheds', 'Species', 'Sp. Groups', and 'Strategies'. The 'Watersheds' sub-tab is selected, and the 'Review & Weighting' sub-tab is active within the 'Watersheds' section.

The main content area shows the following information:

- Planning Area:** National Forests in Mississippi
- Unit:** Holly Springs National Forest
- Watershed:** Burney Branch - Yocona River

Below this information, there is a table titled 'Line Item Weights' with the following columns: 'Ty', 'Target Name', 'Key Attribute', 'Indicator', and 'Weight'. The first row is highlighted in blue:

Ty	Target Name	Key Attribute	Indicator	Weight
WS	Burney Branch - Yocona River	Coarse Woody Debris Abundan	Compliance with Coarse Woody Deb	Very High
WS	Burney Branch - Yocona River	Hydrologic Function	Compliance with Hydrologic Function	Very High
WS	Burney Branch - Yocona River	Hydrologic Function	Dam Density Rating	High
WS	Burney Branch - Yocona River	Hydrologic Function	Riparian Road Density Rating	High
WS	Burney Branch - Yocona River	Hydrologic Function	Road Crossings Rating	High
WS	Burney Branch - Yocona River	Invasive Species Abundance	Compliance with Invasive Species G	Very High
WS	Burney Branch - Yocona River	Water Quality--Sediment	Compliance with Sediment-related BI	Very High
WS	Burney Branch - Yocona River	Water Quality--Sediment	Compliance with Sediment-related BI	Very High
WS	Burney Branch - Yocona River	Water Quality--Sediment	Forest Cover Rating	High
WS	Burney Branch - Yocona River	Water Quality--Sediment	Road Density Rating	High
WS	Burney Branch - Yocona River	Water Quality--Sediment	Sediment Risk Rating	High
WS	Burney Branch - Yocona River	Water Quality--Toxics	Non-Point Source Rating	High
WS	Burney Branch - Yocona River	Water Quality--Toxics	Point Source Rating	High
WS	Burney Branch - Yocona River	Water Temperature Regime	Riparian Land Use Rating	High

To the right of the table is a text box titled 'Basis and Uncertainty of Weighting for selected Line Item:' with a 'Sources' button below it. At the bottom of the screen, there are record navigation controls showing 'Record: 1 of 14' and 'Record: 1 of 10'.

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Watershed using the record scrolling arrows, lower left.

- a. The Key Attributes and Indicators will automatically be displayed for the selected Unit- Conservation Target combination. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
3. Starting with the top record, weigh the importance of the Key Attribute-Indicator combination to the sustainability of the selected Unit-Watershed combination using the dropdown provided in the “Weight” field.
 - a. Briefly describe the rationale for the selected weight in the “Basis and Uncertainty” field, right.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Repeat until all relationships are weighed.

Screen 3.3.1: Sustainability Framework/Species/Selection (By Unit)

The screenshot shows the ESE Tool interface with the following components:

- Navigation Pane:** Contains buttons for Planning Area, Preliminary Assessment, Sustainability Framework (selected), Expected Outcomes, Add/Edit Sources List, Reports, Systems, Watersheds, Species (selected), Sp. Groups, and Strategies.
- Planning Area:** Set to 'National Forests in Mississippi'.
- Unit:** Set to 'Holly Springs National Forest'.
- Selection Tab:** Includes sub-tabs for Key Attributes & Indicators, Attribute/Indicator Details, Current Conditions, and Review & Weighting.
- Table:** A table titled 'Uncheck Species to exclude them from the Sustainability Framework' with columns: Tar, Species Name, Reason for Exclusion, and FS Designa.
- Table Data:**

Tar	Species Name	Reason for Exclusion	FS Designa
<input type="checkbox"/>	Accipiter cooperii	Species is common and demonstrably secure on the	
<input checked="" type="checkbox"/>	Aimophila aestivalis		RFSS
<input checked="" type="checkbox"/>	Aix sponsa		SO*
<input checked="" type="checkbox"/>	Alisma subcordatum		SO*
<input type="checkbox"/>	Ambystoma tigrinum	No occurrences or habitat known on the Unit.	
<input type="checkbox"/>	Ammodramus leconteii	Species is unaffected by management.	
<input type="checkbox"/>	Ammodramus savannarum	No occurrences or habitat known on the Unit.	
<input checked="" type="checkbox"/>	Anas platyrhynchos		SO*
<input checked="" type="checkbox"/>	Anas rubripes		SO*
<input checked="" type="checkbox"/>	Arabis canadensis		SO*
<input checked="" type="checkbox"/>	Aralia racemosa		SO*
<input checked="" type="checkbox"/>	Arcidens confragosus		SO*
<input checked="" type="checkbox"/>	Asarum canadense		SO*
<input checked="" type="checkbox"/>	Aster puniceus		SO*
<input type="checkbox"/>	Caprimulgus carolinensis	Species is common and demonstrably secure on the	
<input checked="" type="checkbox"/>	Carex decomposita		RFSS
<input checked="" type="checkbox"/>	Carex meadii		SO*
<input checked="" type="checkbox"/>	Carex picta		SO*
<input type="checkbox"/>	Carex scoparia	No occurrences or habitat known on the Unit.	
<input checked="" type="checkbox"/>	Carex stricta		SO*
<input type="checkbox"/>	Cheilanthes lanosa	No occurrences or habitat known on the Unit.	
<input checked="" type="checkbox"/>	Chelone glabra		SO*
- Text Area:** A box titled 'Basis for Inclusion or Exclusion of selected species:' with a 'Sources' button below it.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

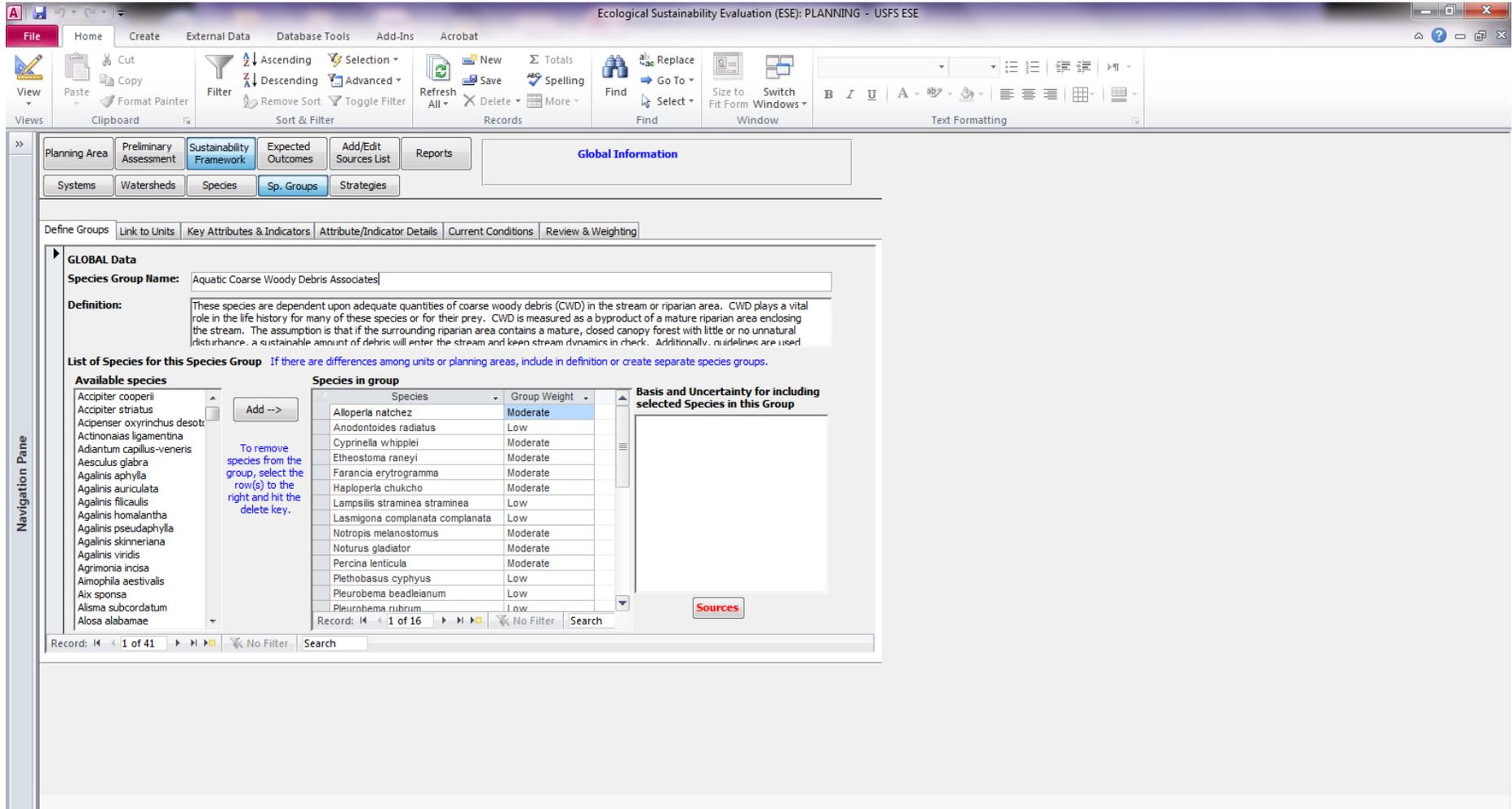
1. Select a Unit using the dropdown menu, upper right.
2. A list of Species that were previously identified as occurring (Screen 2.3.2 Preliminary Assessment/Species/Link to Units) in this Unit will automatically appear.

- a. All Species will be automatically checked. Uncheck any Species that you do not wish to consider in the Sustainability Framework. If you choose to exclude a Species from further consideration in the planning process, use the dropdown menu in the center column to select the reason for exclusion that best describes your decision.
 - b. Using the dropdown menu in the right column, select the USFS designation that most accurately applies to the selected Species. An “Other” option is included in the menu for Species with no official USFS designation.
 - c. Describe your decisions in the comment box provided.
 - d. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
3. Repeat until the list of Species checked for further consideration is complete.
 - a. All unchecked Species should have a reason for exclusion selected in the center column.
 - b. All checked Species should have a USFS designation selected in the right column.

IMPORTANT NOTE:

The screen order will be interrupted here and will skip to Species Groups to reflect the recommended work flow. It is strongly recommended that you complete all Species Groups screens before resuming work on Species.

Screen 3.4.1: Sustainability Framework/Species Groups/Define Groups (Global)



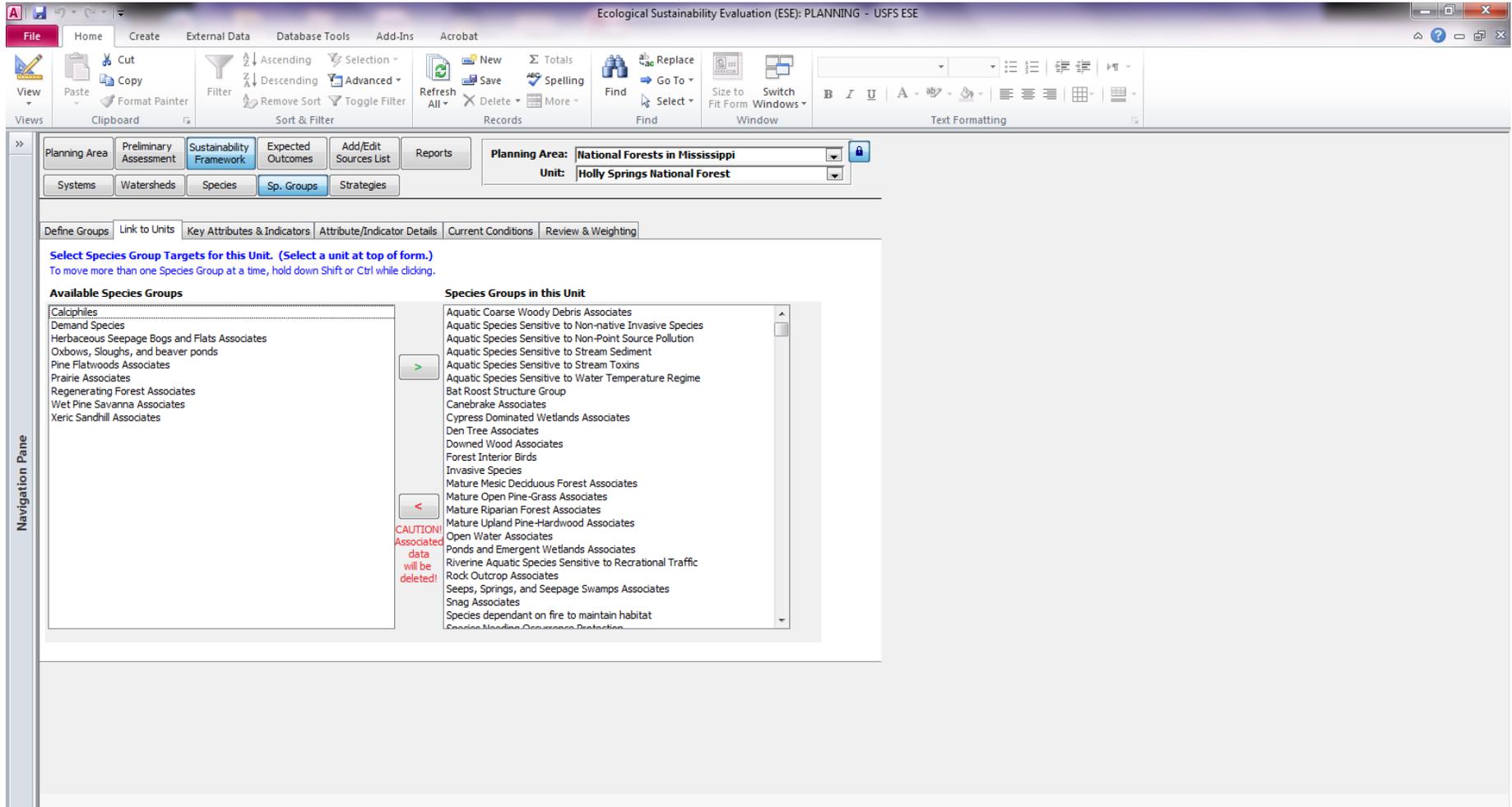
REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: In future versions of the ESE Tool, this screen will be moved to the Preliminary Assessment section.

1. Enter the name of a Species Group.

2. From the list of available Species, left, use the “Add” button to add a Species to the group.
3. Using the dropdown provided “group Weight” field, weigh the importance of the group to the Species’ sustainability needs. For each Species added:
 - a. Describe your decisions in the comment box provided
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Repeat until all associated Species are added to the group.

Screen 3.4.2: Sustainability Framework/Species Groups/Link to Units



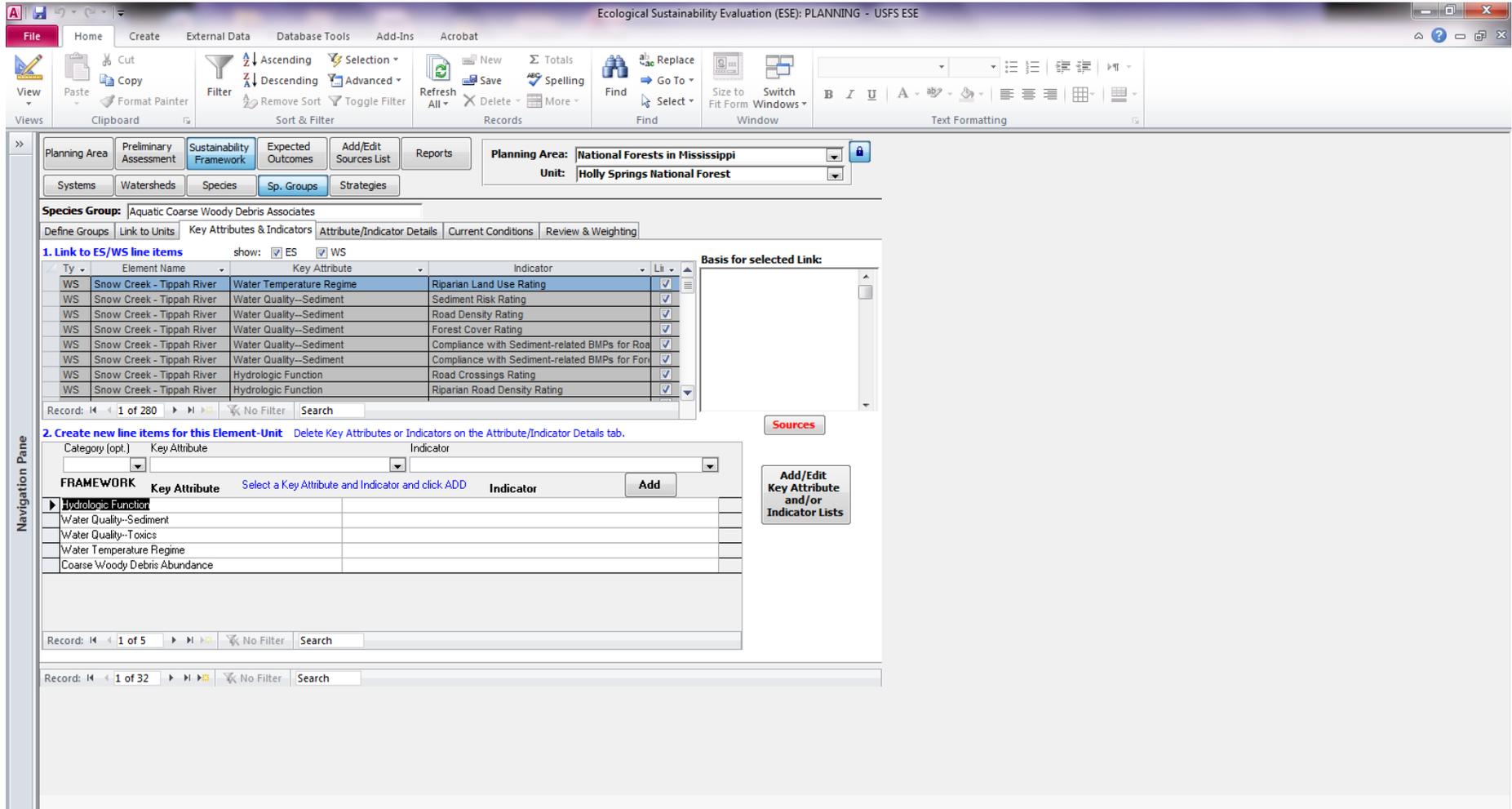
REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: In future versions of the ESE Tool, this screen will be moved to the Preliminary Assessment section.

1. Select a Unit using the dropdown menu, upper right.

2. Using the left-to-right arrow, center, add Species Groups known to occur in this Unit from the list of available Species Groups, left, to the list of Species Groups in this Unit, right. If you make a mistake, select the Species Group you wish to remove from the column on the right and use the right-to-left arrow to return it to the list of available Species Groups.

Screen 3.4.3: Sustainability Framework/Species Groups/Key Attributes and Indicators (By Unit)



REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species Group using the record scrolling arrows, lower left.

3. Sub-form One:
 - a. All of the Conservation Targets, Key Attributes and Indicators (Line Items) will automatically be displayed for the selected Unit.
NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
 - b. To filter the displayed Line Items, check “ES” for terrestrial Ecosystems and/or “WS” for Watersheds.
 - c. Using the checkbox provided, right, check a Line Item that impacts the sustainability of the selected Species Group.
 - i. Describe your decisions in the comment box provided
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Repeat until all applicable Line Items are checked.
4. Sub-form Two, if Ecosystem or Watershed Line Items selected in sub-form one are not adequate to cover all of the Species Group’s needs:
 - a. Using the dropdowns at the top of the sub-form, select category (optional), Key Attribute and Indicator then click the “Add” button. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
 - i. If you need to add or edit Key Attributes and Indicators, click the button on the right.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - b. Repeat as often as needed to capture all the significant attributes of the selected Unit-Ecosystem combination.

Screen 3.4.4: Sustainability Framework/Species Groups/Attribute and Indicator Details (By Unit)

The screenshot displays the ESE Tool interface with the following details:

- Application:** Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE
- Navigation Pane:** Planning Area, Preliminary Assessment, Sustainability Framework, Expected Outcomes, Add/Edit Sources List, Reports, Systems, Watersheds, Species, Sp. Groups, Strategies.
- Planning Area:** National Forests in Mississippi
- Unit:** Holly Springs National Forest
- Species Group:** Mature Open Pine-Grass Associates
- Key Attributes:**
 - Key Attribute Name:** Habitat Element Abundance
 - Description (Global):** Abundance of the habitat element on the unit
 - Basis and Uncertainty for Key Attribute Selection:** Uses timber data and GIS analysis to determine the abundance of mature pine-grassland habitat types across multiple ecological systems.
- Indicators for selected Key Attribute:**
 - Indicator Name:** % of Benchmark Acres of Mature Forest Systems
 - Description (Target-specific):** Percent of potential acres in actual coverage of mature pine-grassland conditions.
 - Basis and Uncertainty for Indicator Selection:** High certainty based on timber data and GIS analysis.
 - Rating Criteria:**
 - Poor:** <25%
 - Fair:** 25-50%
 - Good:** 51-75%
 - Very Good:** >75%
 - Basis and Uncertainty for Setting Rating Criteria:** Consensus among expert partners and relevant scientific literature, very high certainty.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This entire form should populate automatically for Line Items selected from Ecosystem and/or Watershed data. You will need to populate this form only if you added Line Items specifically for the selected Species Group/Unit combination.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species Group using the record scrolling arrows, lower left.
3. Select a Key Attribute using the record scrolling feature at the bottom of the Key Attribute sub-form, upper left.
 - a. If the selected Key Attribute was fully populated when added (either as part of the pre-loaded dropdown menu or as a user-added selection), the description field should populate automatically.
 - b. Briefly describe the rationale for selecting this Key Attribute in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Select an Indicator of the selected Key Attribute using the Indicator record scrolling feature at the bottom of the Indicator sub-form, interior lower left.
 - a. Enter a brief but thorough description of the Indicator in the field provided. Include clear details of quantitative Indicator metrics (Table 1).
 - b. Briefly describe the rationale for selecting this Indicator in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Enter the rating criteria in the fields provided. To the extent possible, rating criteria should be quantitative and measurable.
 - i. Briefly describe the rationale for selecting this rating criteria metrics and thresholds in the “Basis and Uncertainty” field.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

Screen 3.4.5: Sustainability Framework/Species Groups/Current Conditions (By Unit)

The screenshot displays the 'Current Conditions' tab within the 'Sustainability Framework' section. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Species Group' is 'Mature Open Pine-Grass Associates'. Below the navigation tabs, a table lists various indicators and their current values and ratings.

Category	Key Attribute	Indicator	Indicator Value	Indicator Rating	Poor	Fair	Good
Condition	Habitat Element Abundance	% of Benchmark Acres of Mature Forest Systems	23%	Poor	<25%	25-50%	51-75%
Condition	Habitat Element Abundance	Compliance with Den Tree Guidelines	compliant	Very Good	non-corr		
Condition	Habitat Element Abundance	Compliance with Downed Wood Guidelines	compliant	Good	non-corr		
Condition	Habitat Element Abundance	Compliance with Snag Guidelines	compliant	Fair	non-corr		
Condition	Habitat Element Abundance	Compliance with Stump and Stumphole Guidelines	compliant	Poor	non-corr		
Condition	Understory Composition	Compliance with Understory Composition Guidelines	compliant	Very Good	non-corr		
Condition	Vegetation Structure	Compliance with Canopy Cover Sensitivity Guidelines	compliant	Very Good	non-corr		

Below the table, there is a section titled 'Basis and Uncertainty for Determining Selected Current Condition' with the text: 'Very high certainty based on timber data and GIS analysis.' and a 'Sources' button.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This entire form should populate automatically for Line Items selected from Ecosystem and/or Watershed data. You will need to populate this form only if you added Line Items specifically for the selected Species Group/Unit combination.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species Group using the record scrolling arrows, lower left.
 - a. The Key Attributes, Indicators and rating criteria will automatically be displayed for the selected Unit- Conservation Target combination. Scroll right, bottom of the sub-form, if all the data is not visible. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
3. Starting with the top record, enter the raw Indicator value in the field provided. If the value is unknown, enter “Data Need.” (Refer back to Table 1 for examples as needed)
4. Check the raw Indicator value against the rating criteria to the right, and then enter the Indicator rating using the dropdown provided in the field.
 - a. Describe the methodology used to determine the Indicator value in the “Basis and Uncertainty” field, lower center.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
5. Repeat until all Indicators are populated.

Screen 3.4.6: Sustainability Framework/Species Groups/Review and Weighting (By Unit)

The screenshot displays the 'Ecological Sustainability Evaluation (ESE)- PLANNING - USFS ESE' application window. The interface includes a menu bar (File, Home, Create, External Data, Database Tools, Add-Ins, Acrobat, Form Tools, Datasheet) and a ribbon with various tool groups like Filter, Sort & Filter, Records, Find, and Window. The main workspace is divided into several sections:

- Navigation Pane:** Located on the left, it contains buttons for Planning Area, Preliminary Assessment, Sustainability Framework, Expected Outcomes, Add/Edit Sources List, Reports, Systems, Watersheds, Species, Sp. Groups, and Strategies.
- Planning Area:** A dropdown menu set to 'National Forests in Mississippi' and a 'Unit' dropdown set to 'Holly Springs National Forest'.
- Species Group:** A dropdown menu set to 'Aquatic Coarse Woody Debris Associates'.
- Linked ES/WS Line Item Weights:** A table with columns: Ty, ES/WS Name, Key Attribute, Indicator, and Weight. It lists various items like 'Streams' and 'Hurricane Creek - Muddy Creek' with their respective indicators and weights.
- Species Group Line Item Weights:** An empty table with columns: Ty, Target Name, Key Attribute, Indicator, and Weight.
- Basis and Uncertainty of Weighting:** Two text boxes on the right, one for the selected ES/WS Line Item and one for the selected Species Group Line Item, both currently empty.

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species Group using the record scrolling arrows, lower left.

- a. The Key Attributes and Indicators will automatically be displayed for the selected Unit- Conservation Target combination. NOTE: The interior record scrolling feature below the sub-form preforms the same function as scrolling up or down from record to record.
3. Starting with the top record, weigh the importance of the Key Attribute-Indicator combination to the sustainability of the selected Unit-Species Group combination using the dropdown provided in the “Weight” field.
 - a. Briefly describe the rationale for the selected weight in the “Basis and Uncertainty” field, right.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Repeat until all relationships are weighed.

IMPORTANT NOTE:

The screen order will return to Species now. The data entered on the Species Groups screens will be display automatically when selecting Key Attributes and Indicators for Species.

Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit)

The screenshot displays the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The interface includes a ribbon menu with tabs like 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', 'Acrobat', and 'Datashheet'. The main workspace is divided into several sections:

- Planning Area:** A dropdown menu set to 'National Forests in Mississippi' and a 'Unit' dropdown set to 'Holly Springs National Forest'.
- Species:** A dropdown menu set to 'Aimophila aestivalis' and a 'Common Name' field set to 'Bachman's Sparrow'.
- 1. Line items inherited from species groups (FYI):** A table with columns: Species-Group, Sp-Grp We, ES/WS Name, Ty, Key Attribute, and Indicator. It lists various forest types and their associated indicators like 'Distance from Roads' and 'ORV Trail Density'.
- 2. Link to ES/WS line items:** A table with columns: Ty, Element Name, Key Attribute, Indicator, and Li. It lists various hydrologic and riparian indicators for the 'Burney Branch - Yocona River' area.
- 3. Create new line items:** A form with fields for 'Category (opt.)', 'Key Attribute', and 'Indicator', and an 'Add' button.

Navigation and search controls are visible on the left and bottom of the main workspace.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.
3. Sub-form One for reference purposes only:

- a. All of the Line Items associated with the Species Groups linked to the selected Species will automatically be displayed for the selected Unit. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
- 4. Sub-form Two, in rare instances where Species Group Line Items selected in sub-form one are not adequate to cover all of the selected Species' needs:
 - a. All of the Line Items associated with the Ecosystems and Watersheds in the selected Unit. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
 - b. To filter the displayed Line Items, check "ES" for terrestrial Ecosystems and/or "WS" for Watersheds.
 - c. If needed, select additional Line Items from the Ecosystem and/or Watershed Line Items by clicking the checkbox, right.
 - i. Describe the basis for your decisions in the comment box provided.
 - ii. Click the "Sources" button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Repeat as often as needed to capture all the significant attributes of the selected Unit-Species combination.
- 5. Sub-form Three, in rare instances where Species Group, Ecosystem or Watershed Line Items selected in sub-forms one and two are not adequate to cover all of the Species' needs:
 - a. Using the dropdowns at the top of the sub-form, select category (optional), Key Attribute and Indicator then click the "Add" button. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
 - i. If you need to add or edit Key Attributes and Indicators, click the button on the right.
 - ii. Describe the basis for your decisions in the comment box provided.
 - iii. Click the "Sources" button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - b. Repeat as often as needed to capture all the significant attributes of the selected Unit-Ecosystem combination.

TIP: Avoid duplication. If a Conservation Target-Key Attribute-Indicator is selected in the Species Group sub-form, you can save time and bytes by NOT selecting it again in the Ecosystem-Watershed sub-form.

Screen 3.3.3: Sustainability Framework/Species/Attribute and Indicator Details (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The interface includes a ribbon menu with tabs like 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', and 'Acrobat'. Below the ribbon, there are navigation buttons for 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework', 'Expected Outcomes', 'Add/Edit Sources List', and 'Reports'. The 'Sustainability Framework' tab is active, showing sub-tabs for 'Systems', 'Watersheds', 'Species', 'Sp. Groups', and 'Strategies'. The 'Species' sub-tab is selected, displaying details for 'Aimophila aestivalis' (Common Name: Bachman's Sparrow). The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Key Attributes' section shows a table with one entry: 'Ecological System Abundance at D' with a description 'The abundance of the Ecological System that is at Desired Condition. (Global)'. Below this, there are sections for 'Indicators for selected Key Attribute', including 'Percent of potential acres with Appropriate System', with fields for 'Description (Target-specific)', 'Basis and Uncertainty for Indicator Selection', 'Rating Criteria' (Poor, Fair, Very Good, Good), and 'Basis and Uncertainty for Setting Rating Criteria'. A 'Navigation Pane' is visible on the left side of the application window.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This entire form should populate automatically for Line Items selected from Species Group, Ecosystem and/or Watershed data. You will need to populate this form only if you added Line Items specifically for the selected Species /Unit combination.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.
3. Select a Key Attribute using the record scrolling feature at the bottom of the Key Attribute sub-form, upper left.
 - a. If the selected Key Attribute was fully populated when added (either as part of the pre-loaded dropdown menu or as a user-added selection), the description field should populate automatically.
 - b. Briefly describe the rationale for selecting this Key Attribute in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Select an Indicator of the selected Key Attribute using the Indicator record scrolling feature at the bottom of the Indicator sub-form, interior lower left.
 - a. Enter a brief but thorough description of the Indicator in the field provided. Include clear details of quantitative Indicator metrics (Table 1).
 - b. Briefly describe the rationale for selecting this Indicator in the “Basis and Uncertainty” field.
 - c. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Enter the rating criteria in the fields provided. To the extent possible, rating criteria should be quantitative and measurable.
 - i. Briefly describe the rationale for selecting this rating criteria metrics and thresholds in the “Basis and Uncertainty” field.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.

Screen 3.3.4: Sustainability Framework/Species/Current Conditions (By Unit)

The screenshot displays the 'Sustainability Framework' tab in the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The interface includes a menu bar (File, Home, Create, External Data, Database Tools, Add-Ins, Acrobat, Form Tools, Datasheet) and a toolbar with various icons for file operations, editing, and data management. The main workspace is divided into several sections:

- Navigation Pane:** Located on the left, it contains buttons for 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework' (selected), 'Expected Outcomes', 'Add/Edit Sources List', and 'Reports'. Below these are 'Systems', 'Watersheds', 'Species' (selected), 'Sp. Groups', and 'Strategies'.
- Form Fields:** 'Planning Area: National Forests in Mississippi' and 'Unit: Holly Springs National Forest' are displayed in dropdown menus.
- Species Information:** 'Species: Aimophila aestivalis' and 'Common Name: Bachman's Sparrow' are shown.
- Current Conditions Table:** A table with columns: 'Categr', 'Key Attribute', 'Indicator', 'Indicator Value', 'Indicator Rating', 'Poor', 'Fair', and 'Good'. The first row shows 'Ecological System Abundance at Percent of potential acres with Appropriate System' with an 'Indicator Value' of 50% and an 'Indicator Rating' of 'Fair'. A dropdown menu is open for the 'Indicator Rating' cell, showing options: 'Very Good', 'Good', 'Fair', and 'Poor'.
- Text Box:** A text box titled 'Basis and Uncertainty for Determining Selected Current Condition' contains the following text: 'NOTE: Species-specific Key Attributes are seldom required unless the ecological system, Watershed or Species Group line items on the previous screen (3.3.2) fail to meet the needs of the individual species.' A 'Sources' button is located to the right of the text box.

REQUIRED: This screen must be completed for the ESE Tool to function properly.

NOTE: This entire form should populate automatically for Line Items selected from Species Group, Ecosystem and/or Watershed data. You will need to populate this form only if you added Line Items specifically for the selected Species /Unit combination.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.
 - a. The Key Attributes, Indicators and rating criteria will automatically be displayed for the selected Unit- Conservation Target combination. Scroll right, bottom of the sub-form, if all the data is not visible. NOTE: The interior record scrolling feature below the sub-form performs the same function as scrolling up or down from record to record.
3. Starting with the top record, enter the raw Indicator value in the field provided. If the value is unknown, enter “Data Need.” (Refer back to Table 1 for examples as needed)
4. Check the raw Indicator value against the rating criteria to the right, and then enter the Indicator rating using the dropdown provided in the field.
 - a. Describe the methodology used to determine the Indicator value in the “Basis and Uncertainty” field, lower center.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
5. Repeat until all Indicators are populated.

Screen 3.3.5: Sustainability Framework/Species/Review and Weighting (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The interface includes a ribbon menu with tabs like 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', and 'Acrobat'. Below the ribbon are various toolbars for clipboard, sort & filter, records, find, and text formatting. The main workspace is divided into several sections:

- Navigation Pane:** Located on the left, it contains buttons for 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework', 'Expected Outcomes', 'Add/Edit Sources List', 'Reports', 'Systems', 'Watersheds', 'Species', 'Sp. Groups', and 'Strategies'.
- Form Fields:** At the top right, there are dropdown menus for 'Planning Area: National Forests in Mississippi' and 'Unit: Holly Springs National Forest'.
- Species Information:** Below the form fields, it shows 'Species: Aimophila aestivalis' and 'Common Name: Bachman's Sparrow'. There are also tabs for 'Selection', 'Key Attributes & Indicators', 'Attribute/Indicator Details', 'Current Conditions', and 'Review & Weighting'.
- Table 1: Line items inherited from species groups, with weights given to species group (FYI)**

Species-Group	Sp-Grp We	ES/WS Name	T	Key Attribute	Indicator	Wei
Mature Open Pine-Grass Ass	Very High	Loblolly Pine Forest	ES	Distance from Roads	ORV Trail Density	High
Mature Open Pine-Grass Ass	Very High	Shortleaf Pine-Oak Forest and W	ES	Distance from Roads	ORV Trail Density	High
Mature Open Pine-Grass Ass	Very High	Shortleaf Pine-Oak Forest and W	ES	Distance from Roads	Paved Open Road Density	Very H
Mature Open Pine-Grass Ass	Very High	Loblolly Pine Forest	ES	Distance from Roads	Total Road and Trail Density	Very H
- Table 2: Weights for Linked ES/WS Line Items**

Ty	ES/WS Name	Key Attribute	Indicator	Weigh
- Table 3: Weights for Species Line Items**

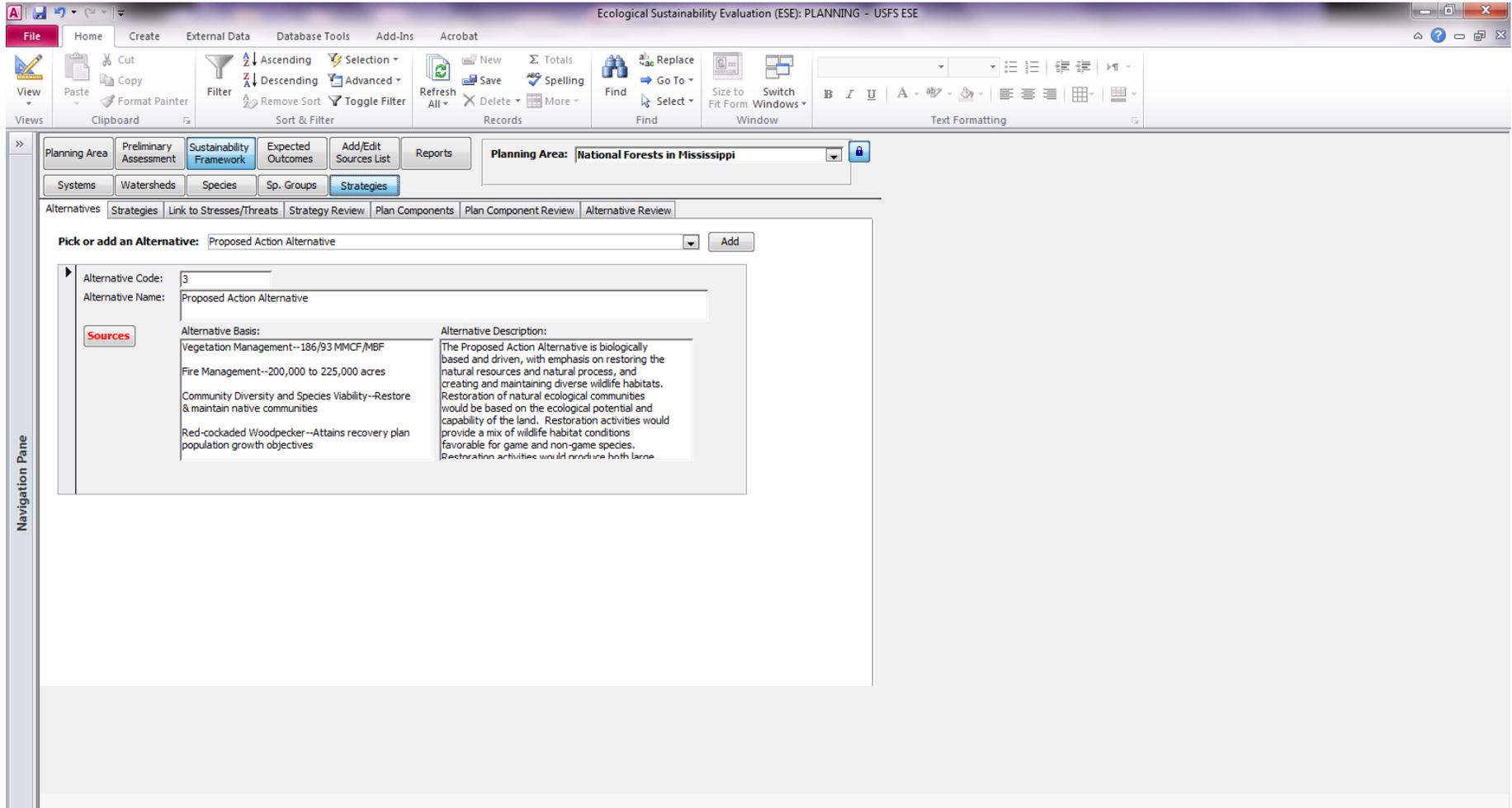
Ty	Target Name	Key Attribute	Indicator	Weight
- Text Boxes:** To the right of each table is a text box titled 'Basis and Uncertainty of Weighting for selected ES/WS Line Item:' and 'Basis and Uncertainty of Weighting for selected Species Line Item:'. Both boxes are currently empty.
- Record Navigation:** At the bottom, there are record navigation controls showing 'Record: 1 of 70' and search filters.

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

NOTE: This entire form should populate automatically for Line Items selected from Species Group, Ecosystem, Watershed and Species-specific data. You will only need to weigh Line Items you added specifically for the selected Species /Unit combination.

1. Select a Unit using the dropdown menu, upper right.
2. Select a Species using the record scrolling arrows, lower left.
 - a. The Key Attributes and Indicators will automatically be displayed for the selected Unit- Conservation Target combination. NOTE: The interior record scrolling features below the sub-forms perform the same function as scrolling up or down from record to record.
3. Starting with the top record in sub-form three, weigh the importance of the Key Attribute-Indicator combination to the sustainability of the selected Unit-Species combination using the dropdown provided in the “Weight” field.
 - a. Briefly describe the rationale for the selected weight in the “Basis and Uncertainty” field, right.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
4. Repeat until all relationships are weighed.

Screen 3.5.1: Sustainability Framework/Strategies/Alternatives



REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Select or add an Alternative in the field provided.
2. Enter the Alternative Code, usually a number, in the field provided. This number can be used for quick reference throughout the planning process.

3. In the Alternative Basis field, explain why the selected Alternative is a valid option.
 - a. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your assertions.
4. Describe the Alternative in the field provided. This description can be copied and pasted and should be consistent across all planning documents.

Screen 3.5.2: Sustainability Framework/Strategies/Strategies

Navigation Pane

Planning Area | Preliminary Assessment | **Sustainability Framework** | Expected Outcomes | Add/Edit Sources List | Reports

Systems | Watersheds | Species | Sp. Groups | **Strategies**

Alternatives | Strategies | Link to Stresses/Threats | Strategy Review | Plan Components | Plan Component Review | Alternative Review

Pick or add a Strategy: Protect and Manage Streamside Management Zones Add [See Tips for help deleting strategies.](#)

Strategy Name: Protect and Manage Streamside Management Zones Sources Link to Alternatives

Strategy Description: IUCN Strategy Type: Sources

Strategy Basis:

Link Selected Strategy to Line Items show: ES WS SG SP

Lit	Typ	Target Name	Key Attribute Name	Indicator Name	Unit_Name
<input type="checkbox"/>	ES	Black Belt Calcareous f	Distance from Roads	ORV Trail Density	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Distance from Roads	Paved Open Road Density	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Distance from Roads	Total Road and Trail Density	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Distance from Roads	Unpaved Gated Road Density	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Distance from Roads	Unpaved Open Road Density	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Ecological System Abundance at D	Percent of potential acres with Appropriate Sy	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Fire Regime	Percent of System Acres Burned at Desired R	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Fire Regime	Percent of System Acres Burned During the G	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Indicator Species Status	Population Trend of [indicator species name]	Trace Unit
<input type="checkbox"/>	ES	Black Belt Calcareous f	Invasive Species Abundance	Compliance with Invasive Species Guidelines	Trace Unit

Basis for selected Link Sources

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Sub-form One:
 - a. Select or add a Strategy in the field provided. Click “Add.”

- b. Select or add an IUCN Strategy Type (if known).
 - c. Describe the Description in the field provided. Be clear: this description should be worded carefully so it can easily be copied and pasted later as a Plan Component.
 - i. Describe the basis for the Strategy selection and description in the field provided.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - d. Link the Strategy to all applicable Alternatives by clicking the button provided.
2. Sub-form Two:
- a. A list of all Line Items for the entire Planning Area will be displayed.
 - i. To filter the displayed Line Items, check “ES” for terrestrial Ecosystems, “WS” for Watersheds, “SG” for Species Groups and/or “SP” for Species.
 - b. Using the check box, left, identify all Line Items the selected Strategy is expected to address.
 - i. Describe the basis for each Strategy-Line Item link in the field provided.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your link.

Screen 3.5.3: Sustainability Framework/Strategies/Link to Stresses and Threats (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application window. The 'Sustainability Framework' tab is active, and the 'Link to Stresses/Threats' sub-tab is selected. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. A strategy is selected: 'Emphasize Mature Closed Forest Condition in Floodplain Forests'. Below this, a table lists 'Link Selected Strategy to Unit Stresses/Threats' with columns for 'Li', 'Tyr', 'Target Name', 'Stress', and 'Threat'. The table contains 18 rows of data. At the bottom, there is a 'Basis for selected link' text area and a 'Sources' button.

Li	Tyr	Target Name	Stress	Threat
<input type="checkbox"/>	SP	Aimophila aestivalis	1.1 Conversion and fragmentation	A Highly modified land uses
<input type="checkbox"/>	SP	Aimophila aestivalis	1.1 Conversion and fragmentation	A.1 Residential and commercial develo
<input type="checkbox"/>	SP	Aimophila aestivalis	1.1 Conversion and fragmentation	A.2 Agriculture
<input type="checkbox"/>	SP	Aimophila aestivalis	1.1 Conversion and fragmentation	A.2.2 Plantation forestry
<input type="checkbox"/>	SP	Aimophila aestivalis	1.1 Conversion and fragmentation	A.4 Roads and rights-of-way
<input type="checkbox"/>	SP	Aimophila aestivalis	1.2 Modification of vegetation	5.3 Timber harvest
<input type="checkbox"/>	SP	Aimophila aestivalis	1.2 Modification of vegetation	7.3.1 Silvicultural treatments
<input type="checkbox"/>	SP	Aix sponsa	1.2.1 Modification of vegetation structure	5.3 Timber harvest
<input type="checkbox"/>	SP	Anas platyrhynchos	1.1 Conversion and fragmentation	A Highly modified land uses
<input type="checkbox"/>	SP	Anas platyrhynchos	1.1 Conversion and fragmentation	A.1 Residential and commercial develo
<input type="checkbox"/>	SP	Anas platyrhynchos	1.1 Conversion and fragmentation	A.2 Agriculture
<input type="checkbox"/>	SP	Anas platyrhynchos	1.1 Conversion and fragmentation	A.2.2 Plantation forestry
<input type="checkbox"/>	SP	Anas platyrhynchos	1.1 Conversion and fragmentation	A.4 Roads and rights-of-way
<input type="checkbox"/>	SP	Anas platyrhynchos	1.2.1 Modification of vegetation structure	5.3 Timber harvest
<input type="checkbox"/>	SP	Anas rubripes	1.1 Conversion and fragmentation	A Highly modified land uses
<input type="checkbox"/>	SP	Anas rubripes	1.1 Conversion and fragmentation	A.1 Residential and commercial develo
<input type="checkbox"/>	SP	Anas rubripes	1.1 Conversion and fragmentation	A.2 Agriculture
<input type="checkbox"/>	SP	Anas rubripes	1.1 Conversion and fragmentation	A.2.2 Plantation forestry

RECOMMENDED: This screen contains important scientific background information that is an important part of the process record but is not required for the ESE Tool to function properly.

If Stresses and Threats are populated in the Preliminary Assessment section of the ESE Tool:

1. Select a Unit using the dropdown menu, upper right.
2. Select a Strategy from the dropdown provided.
3. A list of all Stresses and Threats for the Elements in the selected Unit will be displayed.
 - a. To filter the displayed Line Items, check “ES” for terrestrial Ecosystems, “WS” for Watersheds, “SG” for Species Groups and/or “SP” for Species.
4. Using the check box, left, identify all Stresses and Threats the selected Strategy is expected to address.
 - a. Describe the basis for each Strategy-Stress-Threat link in the field provided.
 - b. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your link.

Screen 3.5.4: Sustainability Framework/Strategies/Strategy Review (By Unit)

The screenshot shows the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The 'Sustainability Framework' tab is active, and the 'Strategies' sub-tab is selected. The 'Planning Area' is set to 'National Forests in Mississippi' and the 'Unit' is 'Holly Springs National Forest'. The 'Key Attribute & Indicator Strategies Review' table is displayed with the following data:

Type	Target Name	Key Attribute	Indicator	Strategy
ES	Canebrake	Distance from Roads	ORV Trail Density	
ES	Canebrake	Distance from Roads	Paved Open Road Density	
ES	Canebrake	Distance from Roads	Total Road and Trail Density	
ES	Canebrake	Distance from Roads	Unpaved Gated Road Density	
ES	Canebrake	Distance from Roads	Unpaved Open Road Density	
ES	Canebrake	Ecological System Abundanc	Percent of potential acres with Appropri	
ES	Canebrake	Fire Regime	Percent of System Acres Burned at Des	
ES	Canebrake	Fire Regime	Percent of System Acres Burned During	
ES	Canebrake	Invasive Species Abundanc	Compliance with Invasive Species Guide	
ES	Canebrake	Invasive Species Abundanc	Percent of Invasive Species Occupying	
ES	Canebrake	Invasive Species Abundanc	Reduction of Fire Ants	
ES	Cypress Dominated Wetland	Distance from Roads	ORV Trail Density	

The 'Stress/Threat Strategies Review' table is also displayed with the following data:

Type	Target Name	Stress	Threat	Strategy
SP	Lycopodium digitatum = flat	0.1 None	0.1 None	
SP	Neonympha mitchelli	0.2 Lack of knowledge	0.1 None	
SP	Juglans cinerea	1 Terrestrial System/Habitat	7.1 Fire and fire suppression	
SP	Plethodon websteri	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Aimophila aestivalis	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Myotis austroriparius	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Schisandra glabra	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Silene ovata	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Eudocimus albus	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Osmorhiza longistylis	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Hemidactylum scutatum	1.1 Conversion and fragmen	A Highly modified land uses	
SP	Galeaxis sncetabilis	1.1 Conversion and fragmen	A Highly modified land uses	

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Select a Unit using the dropdown menu, upper right.
2. Review the lists of Strategy-Line Item and Strategy-Stress-Threat links.
3. If errors or omissions are found, return to the previous screens and make corrections as needed.

Screen 3.5.5: Sustainability Framework/Strategies/Plan Components

The screenshot displays the 'Ecological Sustainability Evaluation (ESE): PLANNING - USFS ESE' application. The ribbon includes 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Add-Ins', and 'Acrobat'. The main workspace shows the 'Sustainability Framework' tab selected. The 'Planning Area' is set to 'National Forests in Mississippi'. The 'Pick or add a Plan Component' section shows 'DC for Shortleaf Pine-Oak Forest Age Diversity' selected. The 'Link Selected Plan Component to Strategies' table is as follows:

Link	Strategy Type	Strategy Name
<input type="checkbox"/>		Emphasize Mature Closed Forest Condition in Floodplain Forests
<input type="checkbox"/>		Emphasize Mature Closed Forest Condition in Northern Mesic Slope Forests
<input type="checkbox"/>		Monitor Rare Community Condition
<input type="checkbox"/>		Protect and Manage Streamside Management Zones
<input type="checkbox"/>		Protect Existing Rare Community Occurrences
<input checked="" type="checkbox"/>		Provide Desired Levels of Mature Shortleaf Pine-Oak Forests
<input type="checkbox"/>		Provide Desired Levels of Regeneration in Northern Dry Upland Hardwood Forest
<input checked="" type="checkbox"/>		Provide Desired Levels of Regeneration in Shortleaf Pine-Oak Forests
<input type="checkbox"/>		Provide Desired Mix of Tree Ages in Northern Upland Hardwood Forests
<input type="checkbox"/>		Provided Desired Levels of Mature Northern Dry Upland Hardwood Forest
<input type="checkbox"/>		Restore Abundance of Canebrakes
<input type="checkbox"/>		Restore Abundance of Floodplain Forest
<input type="checkbox"/>		Restore Abundance of Northern Dry Upland Hardwood Forests
<input type="checkbox"/>		Restore Abundance of Northern Mesic Hardwood Forest

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Sub-form One:
 - a. Select or add a Plan Component in the field provided. Click “Add.”
 - b. Enter the Plan Component ID and name in the fields provided.

- c. Using the dropdown provided, identify the Plan Component type
 - d. Enter the Plan Component Language in the field provided.
 - i. Describe the basis for the Plan Component selection in the field provided.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your selection.
 - e. Link the Strategy to all applicable Alternatives by clicking the button provided.
2. Sub-form Two:
- a. A list of all Strategies for the entire Planning Area will be displayed.
 - b. Using the check box, left, identify all Strategies the selected Plan Component is expected to address.
 - i. Describe the basis for each Plan Component-Strategy link in the field provided.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your link.

Screen 3.5.6: Sustainability Framework/Strategies/Plan Component Review

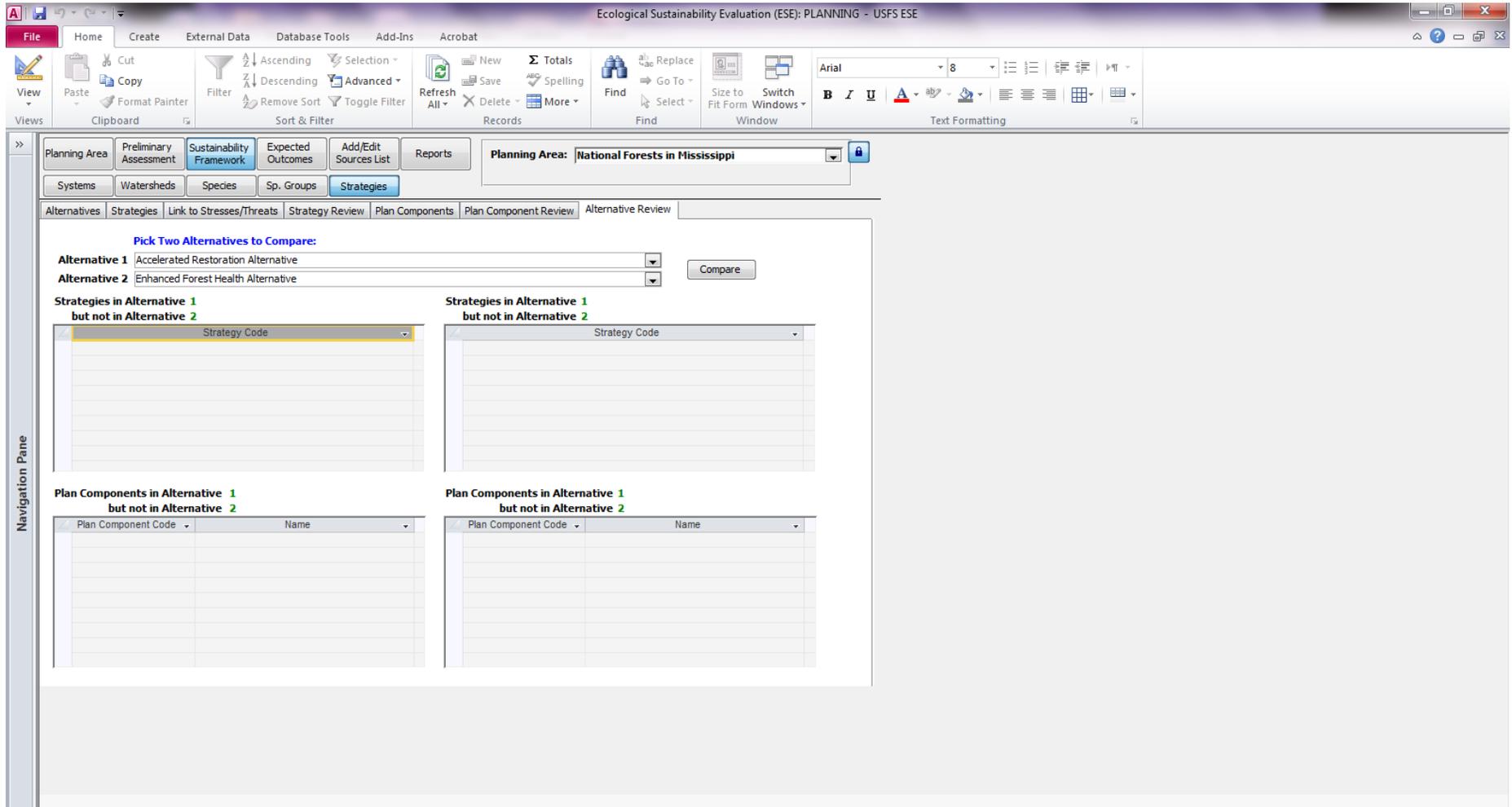
The screenshot displays the 'Strategy Plan Component Review' window. At the top, there are navigation tabs: 'Planning Area', 'Preliminary Assessment', 'Sustainability Framework', 'Expected Outcomes', 'Add/Edit Sources List', and 'Reports'. Below these are sub-tabs: 'Systems', 'Watersheds', 'Species', 'Sp. Groups', and 'Strategies'. The 'Strategies' sub-tab is active, showing further sub-tabs: 'Alternatives', 'Strategies', 'Link to Stresses/Threats', 'Strategy Review', 'Plan Components', 'Plan Component Review', and 'Alternative Review'. The 'Plan Component Review' sub-tab is selected, displaying a table with the following data:

Strategy	Plan Component
Emphasize Mature Closed Forest Condition in Floodplain Forests	
Emphasize Mature Closed Forest Condition in Northern Mesic Slope Forests	
Monitor Rare Community Condition	
Protect and Manage Streamside Management Zones	
Protect Existing Rare Community Occurrences	DC for Shortleaf Pine-Oak Forest Structure
Provide Desired Levels of Mature Shortleaf Pine-Oak Forests	DC for Shortleaf Pine-Oak Forest Age Diversity
Provide Desired Levels of Mature Shortleaf Pine-Oak Forests	Objective for Mature Acres of Shortleaf Pine Forests
Provide Desired Levels of Regeneration in Northern Dry Upland Hardwood Forests	
Provide Desired Levels of Regeneration in Shortleaf Pine-Oak Forests	DC for Shortleaf Pine-Oak Forest Age Diversity
Provide Desired Levels of Regeneration in Shortleaf Pine-Oak Forests	Objective for Shortleaf Pine-Oak Regeneration
Provide Desired Levels of Regeneration in Shortleaf Pine-Oak Forests	Objective for Regen Acres in Shortleaf Pine-Oak Forests
Provide Desired Mix of Tree Ages in Northern Upland Hardwood Forests	
Provide Desired Levels of Mature Northern Dry Upland Hardwood Forests	
Restore Abundance of Canebrakes	
Restore Abundance of Floodplain Forest	
Restore Abundance of Northern Dry Upland Hardwood Forests	
Restore Abundance of Northern Mesic Hardwood Forest	
Restore Abundance of Northern Mesic Slope Forest	
Restore Abundance of Northern Upland Hardwood Forest	
Restore and Maintain Existing Rare Community Occurrences	
Restore Desired Levels of Mature Closed Forest Structure in Northern Mesic Slope Forests	
Restore Desired Levels of Mature Closed Structures in Northern Dry Upland Hardwood Forests	
Restore dominant vegetation characteristic of Upland Longleaf Pine Forests	
Restore Fire Frequency to Upland Longleaf Pine Forest and Woodland Systems	
Restore Fire Regime in Northern Dry Upland Hardwood Forest	
Restore Fire Regime in Northern Mesic Hardwood Forest	

RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Review the lists of Plan Component-Strategy links.
2. If errors or omissions are found, return to the previous screens and make corrections as needed.

Screen 3.5.7: Sustainability Framework/Strategies/Alternative Review



RECOMMENDED REVIEW: This screen contains important information that should be reviewed and edited, as needed, before proceeding.

1. Pick any two Alternatives to compare.

2. Review the differences between the Strategies and Plan Components in the selected Alternatives.
3. If errors or omissions are found, return to the previous screens and make corrections as needed.

Button 4: Expected Outcomes

Screen 4.1: Expected Outcomes/Set Time Periods

Screen 4.2: Expected Outcomes/Estimated Outcomes

Navigation Pane

- Planning Area
- Preliminary Assessment
- Sustainability Framework
- Expected Outcomes**
- Add/Edit Sources List
- Reports

Planning Area: National Forests in Mississippi

1. Select a Line Item

Unit Name	Target Name	Key Attribute Name	Indicator Name
Chickasawhay Ranger District	Upland Longleaf Pine Forest and Woodland	Distance from Roads	ORV Trail Density
Chickasawhay Ranger District	Upland Longleaf Pine Forest and Woodland	Fire Regime	Percent of System Acres Burned During the Gr
Chickasawhay Ranger District	Upland Longleaf Pine Forest and Woodland	Fire Regime	Percent of System Acres Burned at Desired Re
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Understory Composition	Compliance with Understory Composition Guide
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Invasive Species Abundance	Reduction of Fire Ants
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Invasive Species Abundance	Percent of Invasive Species Occupying System
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Vegetation Structure	% Mature Open Canopy
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Vegetation Structure	% Old Growth
Bienville National Forest	Upland Longleaf Pine Forest and Woodland	Vegetation Structure	% Mature Moderately-Closed Canopy

Record: 174 of 2924

2. Selected Line Item Current Indicator Value:

Current Indicator Value: 5.8
 Current Indicator Rating: Poor

Indicator Rating Criteria:

- >85 = Very Good
- 75-85 = Good
- 65-74 = Fair
- <65 = Poor

3. Enter Estimated Outcomes for selected Line Item

Alternative	Time Peri	Est. Indicator Value	Rat
3 Proposed Action Alternative	1: 10 yrs	34.29	Poor
3 Proposed Action Alternative	2: 50 yrs	75.17	Good
1 Custodial Management Alternative	1: 10 yrs	21.72	Poor
1 Custodial Management Alternative	2: 50 yrs	64.10	Poor
2 No Action Alternative	1: 10 yrs	23.80	Poor
2 No Action Alternative	2: 50 yrs	75.01	Good
4 Accelerated Restoration Alternative	1: 10 yrs	24.52	Poor

Record: 1 of 10

4. Comments & Basis (edit in subform)

1147

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Sub-form One:

- a. A list of all Unit-Line item combinations will be displayed. Use the scroll bar, lower right, to view additional fields that are off screen to the right.
 - b. Select a Unit-Line Item combination by clicking anywhere in the row.
- TIP: The list of Unit-Line Item combinations can be overwhelming. To focus on smaller subsets of the entire list, use the arrows in the right corner of the column headings to filter or sort.
2. Sub-form Two (for reference purposes only):
 - a. For the selected Unit-Line Item combination, the current Indicator value, rating and rating criteria will appear automatically.
 3. Sub-form Three:
 - a. Select an Alternative using the dropdown menu, left.
 - b. In the second column, select the time period from the dropdown provided.
 - c. In the Estimated Indicator Value field, enter the Indicator value you expect for the selected Unit-Line Item-Alternative-time period combination. NOTE: Indicator values should ideally be based on predictive models.
 - d. (Scroll right if necessary) Enter the corresponding Indicator Rating in the field provided by measuring the estimated Indicator value against the Indicator rating criteria (in Sub-form Two).
 - e. (Scroll right if necessary) Enter comments as needed in the field provided (far right).
 - i. Describe the basis for your estimated future Indicator value/rating in the “Comments and Basis” field provided.
 - ii. Click the “Sources” button to add a citation or select from a pre-loaded menu of citations to support your estimated Indicator value/rating.
 - f. Repeat until all time periods for all Alternatives have been completed for all Unit-Line Item Combinations.
 - g. Periodically click the “Review” button for a tabular overview of your progress.

Button/Screen 5: Add a Reference (popup)

Scroll up to see existing references. Cancel Done

▶ Source Type: Short Citation:

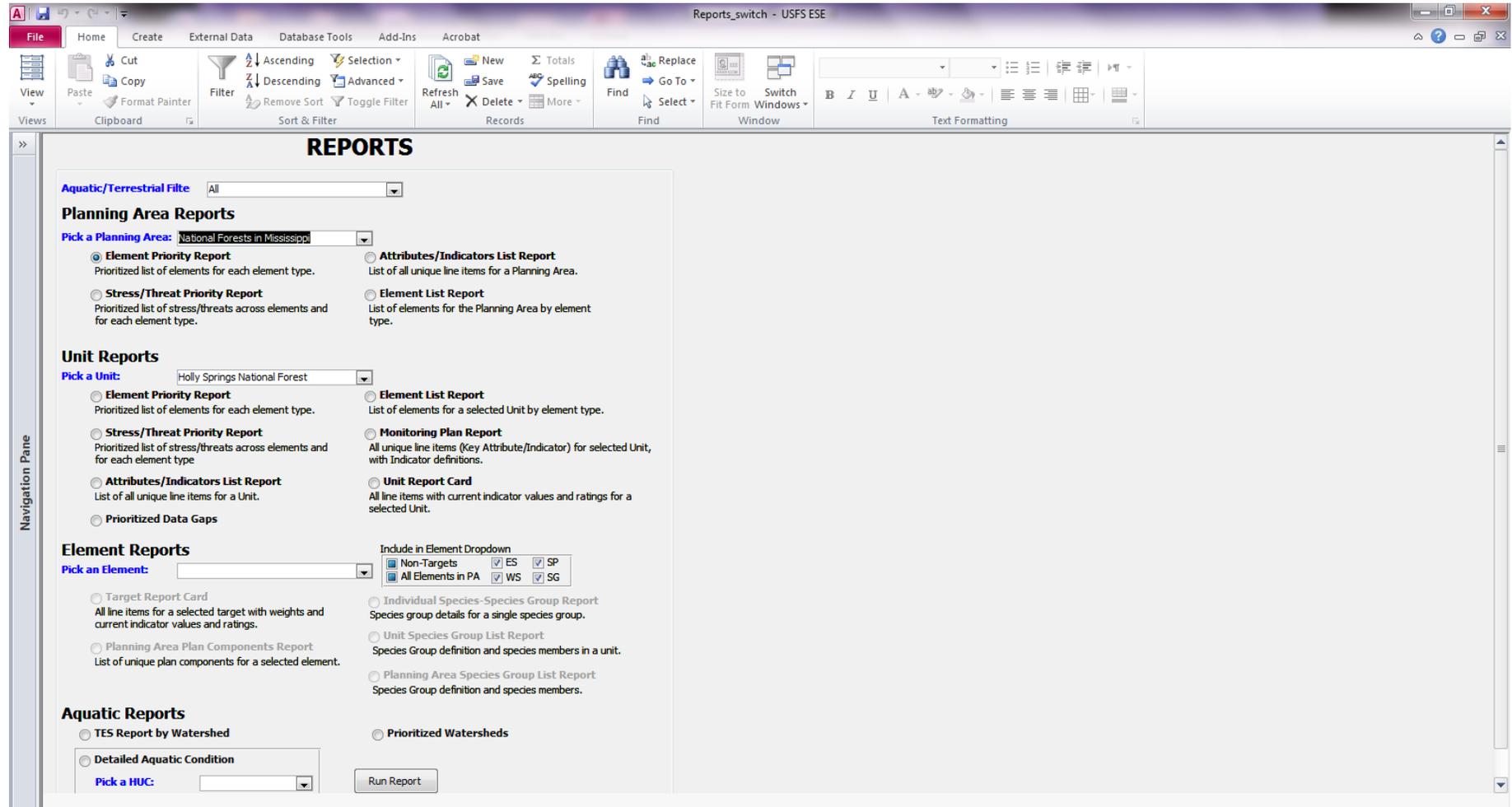
Full Citation

Record: 194 of 194 No Filter Search

REQUIRED: This screen must be completed for the ESE Tool to function properly.

1. Using the dropdown provided, select a source type.
2. Enter a short citation, usually author(s) and year(s).
3. Enter the full citation as you would expect it to appear in a formal scientific document.

Button/Screen 6: Reports



NOTE: The Reports menu is incomplete and may not function properly depending the data you choose. If tabular or graphic data is needed, reports are of limited utility; see the next section: Queries.

1. Use the Terrestrial/Aquatics filter, top, to filter data as needed.

2. Planning Area Reports (taking into account all data from across the entire Planning Area)

- a. Select a priority report from the two options, left, by clicking in the circular button.
- b. Click "Run report," bottom right.
 - i. Priorities are ranked from 0-10 with 10 being the highest priority.
- c. Select a list report from the two options, right.
- d. Click "Run report," bottom right.

TIP:

Hitting the "X" in the top right corner of the screen closes the entire ESE Tool, so use the escape key to leave a report and return to the report menu. You can also click on the small "x" below the big "X" in the embedded screen to return to the report menu. If a report is open, click on the "Close Report Preview" button to return to the report menu.

3. Unit Reports (filtered by Unit)

- a. Select a Unit from the dropdown provided.
- b. Select a report for the selected unit by clicking in the circular button.
- c. Click "Run report," bottom right.

4. Element Reports

- a. Select and Element from the dropdown provided. To narrow down the list, use the check boxes, right, to filter the dropdown selections.
- b. Select a report for the selected unit by clicking in the circular button.
- c. Click "Run report," bottom right.

5. Aquatic Reports

- a. TES Report by Watershed: not functional
- b. Prioritized Watersheds: not functional
- c. Detailed Aquatic Condition (functional)
 - i. Select a HUC from the dropdown menu provided.
 - ii. Select "Detailed Aquatic Condition" by clicking in the circular button.
 - iii. Click "Run report," bottom right.

Queries

Queries are useful because they can provide tabular data or, when pasted into external programs such as Microsoft Excel, graphic depictions of data. Both tabular and graphic data are important components of well-written planning documents.

Querying the ESE Tool

Because of the complexities of the current ESE Tool structure, querying is recommended for advanced Microsoft Access users and intermediate users under the supervision of an experienced ESE Tool expert.

Before you attempt to query ESE Tool data tables, click “Database Tools” on the top menu bar and select “Relationships.” Make sure you thoroughly understand the table relationships before proceeding. If you have any reservations about proceeding, contact the appropriate ROBPR or planning staff with your questions.

Existing Queries

The ESE Tool comes with a number of pre-loaded queries. To view these queries, click the “Navigation Pane” bar on the left side of the screen then select “Queries” from the dropdown menu at the top. Right click on the query you wish to view and select “Open.”

The list of existing queries contains almost any combination of data needed for most planning documents. In most cases, the best way to incorporate query data into a planning document is to copy it into Microsoft Excel, sort and filter as needed, format the data for the appearance that best suits your needs, then paste the Excel data into the planning document.

Composite Score Queries

WARNING:

Do NOT change, edit or in any way alter the existing queries that come with your ESE Tool. This includes filtering and sorting. If you need to filter, sort or change an existing query, you can either:

A: Copy the query tabular view into an Excel spreadsheet and manipulate the data in Excel.

Or...

B. Create a new query that queries the existing query.

The variety of data available in existing queries is too vast to list in detail here, but the composite score suite of queries is worth highlighting because they address THE most fundamental issues addressed by the ESE Tool: How sustainable are the Elements of the plan?

Composite scores use algorithms that take into account all Line Items and weighted relationships that are linked to an Element to derive a composite score based on the Indicator rating criteria scale (Table 3)

Table 3. Composite Score Rating Scale.

Range of Condition Score	Condition	Definition of ESE Score Applied To Planning Elements
3.51 - 4.0	Very Good	Element conditions are optimal; associated Species' populations should remain robust and potentially even expand.
2.51 - 3.50	Good	Element conditions are acceptable; associated Species' populations should remain stable.
1.51 - 2.50	Fair	Element conditions are slightly inadequate; although associated Species' populations may persist for some time, they may be subject to gradual decline.
1.00 - 1.50	Poor	Element conditions are severely inadequate. Associated Species' populations are expected to severely decline; localized extirpations are occurring or are imminent.

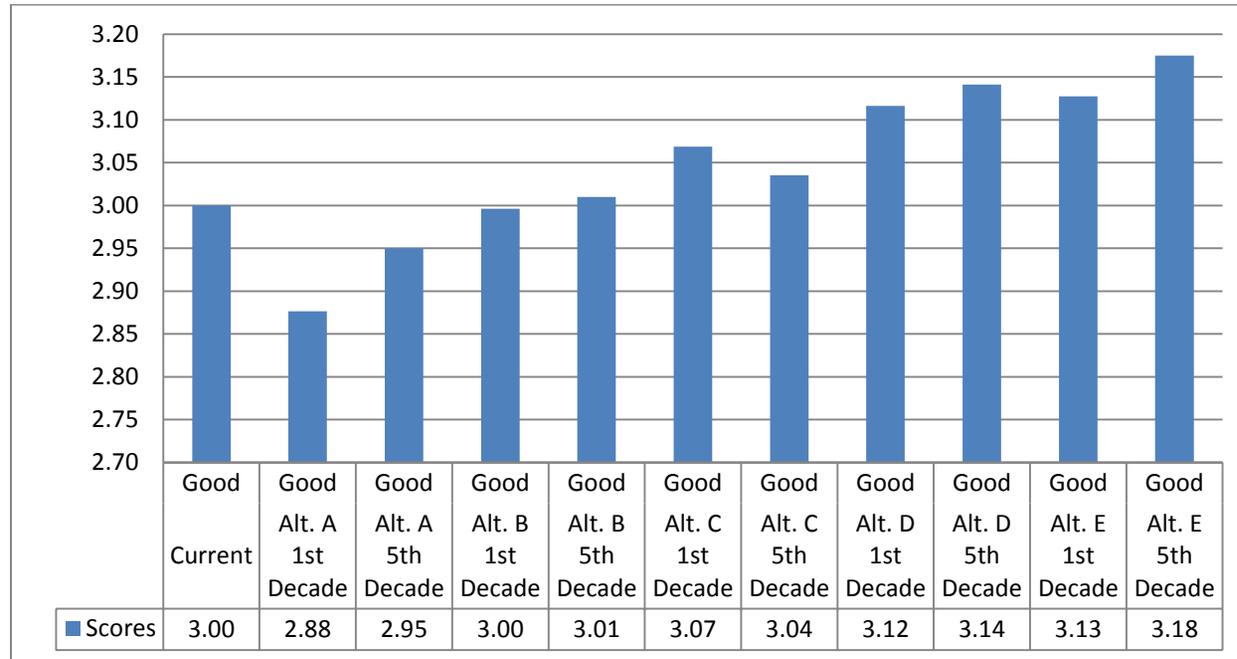
Composite scores are calculated at both the Unit and Planning Area Scales. They are also calculated for current status as well as by Alternative-time period combination. For example, Table 4 shows how data from composite score queries can be displayed in a tabular form in planning documents. In this case, the Conservation Target is Mature Deciduous Forest Associates (NFsMS) and the data is presented by Unit, Alternative and time period in one handy table (formatted via Excel).

Table 4. Mature Deciduous Forest Associates, composite scores and ratings by Unit and Alternative.

Unit	Current	Alt. A 1st Decade	Alt. A 5th Decade	Alt. B 1st Decade	Alt. B 5th Decade	Alt. C 1st Decade	Alt. C 5th Decade	Alt. D 1st Decade	Alt. D 5th Decade	Alt. E 1st Decade	Alt. E 5th Decade
Ackerman	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	2.77	2.75	2.88	2.92	2.88	2.92	2.71	3.08	3.04	3.08	3.04
Bienville	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	3.21	3.19	2.96	3.26	3.04	3.26	3.04	3.26	3.37	3.26	3.37
Chickasawhay	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	3.24	3.00	3.00	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07
DeSoto	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	3.18	2.73	2.73	2.96	2.85	2.96	2.85	2.92	2.81	3.04	2.92
Holly Springs	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	2.86	2.96	3.31	3.04	3.27	3.27	3.50	3.27	3.38	3.35	3.46
Homochitto	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	2.79	2.88	2.77	2.88	2.90	2.96	2.90	3.00	2.98	3.04	3.10
Trace	Good	Fair	Good								
	2.61	2.50	2.62	2.77	2.77	2.81	2.69	2.81	2.96	2.81	2.96

Yalobusha	Good	Very Good	Very Good	Very Good	Good	Good						
	3.34	3.00	3.33	3.07	3.30	3.30	3.52	3.52	3.52	3.37	3.48	

In the example below, the same Species Group, Mature Deciduous Forest Associates (NFsMS), is analyzed at the Planning Area scale and presented graphically (via Excel):



The composite score queries can be accessed in the Navigation Pane and are given the following self-explanatory titles (NOTE: the underscores are part of the titles):

- CompositeScoreEcosystemsByUnit

- ___CompositeScoreWatershedsByUnit
- ___CompositeScoreSpeciesGroupsByUnit
- ___CompositeScoreSpeciesByUnit
- ___CompositeScoreWatershedsByPA
- ___CompositeScoreSpeciesGroupsByPA
- ___CompositeScoreSpeciesByPA
- ___CompositeScoreEcosystemsByPA

Your Feedback

If you have suggestions on how to improve the structure, functionality or user interface of the ESE Tool, please contact the appropriate RO Biological and Physical Resources (BPR) or planning staff. Your feedback is essential to the ongoing refinement of the ESE Tool and your comments are encouraged!

NOTE: Please do not attempt to alter the structure, functionality or user interface of the ESE Tool yourself without first contacting the appropriate RO Biological and Physical Resources or planning staff.

Appendix A: Sample Description of the ESE Process

The following description of the ESE process is taken from the draft Environmental Impact Statement for the National Forests of Mississippi’s (NFsMS) plan revision by Williamson and Gordon, 2011.

Forest-wide Ecological System Sustainability

The Species and ecological system sustainability evaluation framework for the NFsMS was built around principles developed by The Nature Conservancy (TNC) in their Conservation Action Planning Workbook (TNC 2005). Although built on the TNC structure, this document generally uses Forest Service terminology rather than TNC terms to refer to parts of the framework. Table 4.1 provides a crosswalk between relevant Forest Service and TNC terminology.

Table 4.1 Crosswalk between planning terms of USFS and TNC

Forest Service Terms	The Nature Conservancy Terms
Ecological Systems, Threatened and Endangered Species, Regional Forester’s Sensitive Species (RFSS) Locally Rare Species (LRS) Species of Conservation Concern (SCC)	Conservation Targets
Characteristics of Ecological system sustainability (key characteristics), Appropriate Ecological Conditions for specific [Species]	Key Ecological Attributes
Performance Measures	Indicators

[no equivalent]	Indicator Ratings
Plan Components	Strategies

The Forest Service developed a relational database, the Ecological Sustainability Evaluation (ESE) tool, based on the structure of the TNC planning tool. The ESE Tool served as the primary process record for the Species and Ecosystem diversity analysis. This tool includes documentation of scientific and other sources consulted, uncertainties encountered, and strategic choices made during development of the database. Additionally, the tool documented the many relationships among parts of the framework. For example, Species were often related to one or more characteristics of ecological systems, and a given plan component frequently affected multiple ecological systems or Species.

The following steps were used to build an ecological Sustainability Framework, with each step documented within the ESE Tool. This iterative process was methodical and utilized sequential steps, as described below.

1. Identify and define ecological systems

To define terrestrial ecological system sustainability, all terrestrial ecological systems on the NFsMS were identified using NatureServe’s International Ecological Classification Standards (NatureServe 2004a, 2004b). Through coordination with NatureServe, systems were added, removed, or renamed (as needed) to ensure all systems on national forest land were represented. Each system was defined in terms of existing Forest Service forest types and Natural Resources Conservation Service (NRCS) soil drainage types (Appendix 1 and 2). All identified terrestrial ecological systems were included in the ecological Sustainability Framework. Current acreage of each system was calculated using Forest Service Geographical Information System (GIS) data.

2. Identify Species

To assess Species diversity, a comprehensive list of plant and animal Species was compiled by combining Species lists from a variety of sources, including: federally-listed threatened and endangered (T&E) Species obtained from the U.S. Fish and Wildlife Service, State Species of Conservation obtained from the Mississippi Natural Heritage Program, State Comprehensive Wildlife Conservation Strategy, the Birds of Conservation Concern list compiled by the U.S. Fish and Wildlife Service, and the Forest Service’s list of sensitive Species. Additional Species were added based on input from recognized conservation experts within the state. Species were then screened for inclusion in the framework and designated as either T&E, RFSS, or LRS.

3. Identify and define characteristics of ecological system sustainability and related performance measures

To identify key characteristics and performance measures for terrestrial ecological systems, a series of 8 meetings with experts knowledgeable about ecological conditions and Species in Mississippi were held in January 2005. Experts reviewed lists and definitions of ecological systems and suggested important ecological characteristics and performance measures to be addressed during planning. Final determinations of ecological sustainability components were based on expert input, subsequent additional information from a variety of sources, and habitat needs of associated Species.

The framework for sustainability of aquatic ecological systems was based on Watersheds. Included in the ESE database were all 5th level hydrologic/Watershed Units (HUCs) that contained national forest land (Clingenpeel and Leftwich 2006). The framework for addressing characteristics and performance measures for Watersheds was developed by regional Forest Service staff for use during national forest planning across the Southern Region. It involved use of standard GIS datasets to assess Watersheds in terms of sediment loads, pollution point sources, flow modification by dams and road crossings, and riparian land use.

As performance measures were identified for both terrestrial and aquatic systems, criteria were set for rating each performance measure as “poor,” “fair,” “good,” and “very good” relative to ecological sustainability. In general, “poor” and “fair” ratings indicated areas of concern for ecological system sustainability (Table 4.2). Rationale and sources used in making choices were recorded in the ESE Tool.

Table 4.2. Element Condition Scores

Range of Condition Score	Condition	Definition of ESE Score Applied To Planning Elements
3.51 - 4.0	Very Good	Element conditions are optimal; associated Species' populations should remain robust and potentially even expand.
2.51 - 3.50	Good	Element conditions are acceptable; associated Species' populations should remain stable.
1.51 - 2.50	Fair	Element conditions are slightly inadequate; although associated Species' populations may persist for some time, they may be subject to gradual decline.
1.00 - 1.50	Poor	Element conditions are severely inadequate. Associated Species' populations are expected to severely decline; localized extirpations are occurring or are imminent.

4. Link Species to the ecological systems and Watersheds and identify any additional needs of Species

In the January 2005 meetings, experts helped link terrestrial and aquatic Species to ecological systems and Watersheds in which they occur. It was determined that Species' needs were best met when Species were grouped before linking them to systems and, in particular, characteristics (Key Attributes) of systems that specifically address a given Species Groups' needs. This linkage allowed us to assess how well the ecological system and Watershed frameworks covered needs of these Species. Where ecological conditions for these Species were not covered by the ecological Sustainability Framework, additional characteristics, performance measures, and rating criteria were added so these Species would be covered. Therefore, all Species have their needs covered by ecological Sustainability Framework, or a combination of the ecological Sustainability Framework and other additional plan components.

5. Assess current condition of performance measures

Current values and ratings of all performance measures were estimated using a variety of methods. Many current values were derived through analysis of existing GIS databases. Assumptions and methods for determining current values and ratings are recorded in the ESE Tool.

6. Develop Forest Plan components

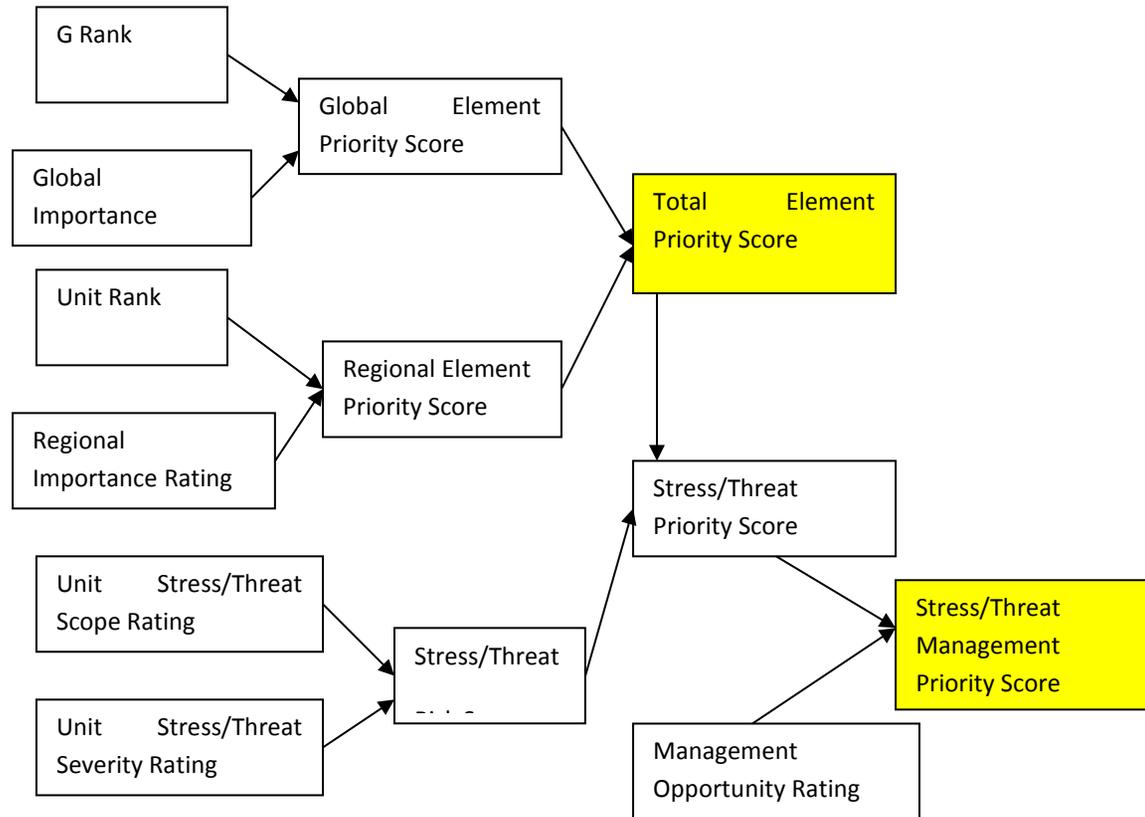
Forest Plan components were proposed with the goal of providing ecological system sustainability and ecological conditions for identified Species based on the ESE Tool. In some cases, current requirements and processes outside of the Forest Plan were identified that address this goal. All elements of the ecological Sustainability Framework will be addressed by appropriate management direction in the Forest Plan.

7. Assess future outcomes

To assess the adequacy of proposed management direction under the Forest Plan, values and ratings of performance measures were projected 10 and 50 years into the future. Many of these projected values were derived from a series of spreadsheets that were developed to predict ecological system type heterogeneity and vegetation structural conditions that would result from implementing the revised Forest Plan's proposed management activities. For some Watershed performance measures, a model was used to predict changes in sediment load resulting from Forest Plan implementation. Where projected outcomes were rated as "poor" or "fair," adjustments to Forest Plan direction were made (where possible) to improve these outcomes. In some cases, improving expected outcomes to "good" and "very good" ratings was not possible due to factors beyond Forest Service control (i.e., limits to expected budgets and program levels, and trade-offs with other uses).

This report serves as a description of background, current status, and desired conditions for ecological systems on the NFsMS. Current conditions for ecological system characteristics reported here are based on a "snapshot in time." Conditions on the NFsMS are constantly changing and new techniques improve how data can be used to measure progress. Data should be updated in 5-year intervals to measure progress towards achieving desired conditions.

Appendix B: ESE Tool Prioritization Process Schematic



Appendix C: Tips

Tips In The ESE Tool

These tips are found by clicking the “Tips” button first opening the ESE Tool.

Tips/Instructions

1. When in doubt, hit Esc! More than once!

Exiting dropdown menus and deleting records entered using drop-down menus:

When you click the arrow to view a drop-down menu, it’s easy to mistakenly assign one of the menu choices to the blank record. To undo this, hit the Esc key twice. The first time undoes your edit to the field, and the second time undoes your edit to the record. If the record is saved and you want to remove a dropdown entry, either highlight the entry and hit the Delete key to clear it (if you want to keep other data in the record), or delete the entire record as explained below.

2. How do I delete records??

Deleting records:

For example, to delete a strategy under Sustainability Framework/Strategies/Strategies tab, click on the grey vertical bar on the left side of the strategy section so that it is highlighted black, then press the Delete key on your keyboard. This method also works in grids. For example, on the Strategy Review tab, click in the grey square to the left of the row you want to delete, and press the Delete key on your keyboard.

3. I don’t see my species, system or watershed!

Viewing a species, system, or watershed:

In order to see a species, system, or watershed in the Preliminary Assessment (after the “Link to Units” tab) or the Sustainability Framework, you must first link the species, system, or watershed to the Unit you are working with. This is done on the “Link to Units” tab in the Preliminary Assessment.

4. The columns are too narrow – I can't read all of the text! Or they're too wide, and I can't see all of the columns!

Resizing columns in drop-down menus:

To adjust the width of a column in a drop-down menu, place the cursor over the right edge of the column header. When the cursor appears as a double-headed arrow, click, hold and drag the column edge to the left or right to narrow or widen it. Click the Save button or Ctrl-S to save this change for later.

5. I want to sort the data.

Sorting and filtering fields in grids:

To sort on a column, place the cursor over the small black arrow toward the right edge of the column on which you would like to sort. Click on the arrow and then choose either "Sort A to Z" or "Sort Z to A." In this dropdown you can also filter the records in the grid by checking or unchecking the boxes.

6. I want to save my changes, and I can't tell if they're being saved!

Updating/saving records:

If you add a new record or update an existing record, the change is not saved until you move to the next record or tab. Records are automatically saved as soon as you move to the next record or tab. To manually save a record while still editing that record, hit Ctrl-S or click Save in the Records section of the ribbon. If the record selector (grey bar to left of record) is visible, you will see a pencil if the record is edited and not saved, and an arrow (or nothing) if it is saved.

7. I want the changes I just made to show up without having to close the database!

Refreshing records:

To refresh the view of the records, either hit the F5 key, or click on the Refresh button in the Records section of the ribbon. If that doesn't work, try changing tabs or closing and reopening the form. You should not need to close out of the database.

8. I can't read all of the text in the field because it's too long.

Zooming in on a field:

To zoom in to the field, click in the field and hit Shift-F2. A separate window containing the field contents will pop up. Hit OK when you're finished viewing or editing it.

9. I want to search for a particular name or word.

Using Find:

Use Ctrl-F to find a record with text in a particular field. Be sure to select the appropriate choice in the "Match" dropdown.

10. The value in a field is repeated in many records and I don't want to have to re-type the same information 50 times!

Copying from one record to the next:

Use Ctrl-“ to copy data from the same field in the previous record.

11. The main Planning form doesn't display everything without me having to scroll

Minimum recommended resolution:

Make sure your screen resolution is set to at least 1280x1024. The scrollbars should disappear at that resolution or higher

Tips in This Training Manual

Identify Planning Elements

TIP: Cross-walking current and potential land cover types to the NVCS is a time- and GIS-intensive process that must be complete before planning can begin in earnest. Costly delays can result if proper lead time and GIS resources are not committed early in the process, preferably prior to the commencement of other planning activities.

Screen 2.1.1: Preliminary Assessment/Systems/ID and Status

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.1.2 Preliminary Assessment/Systems/Link to Units

TIP: Start working on this screen only after you have entered all Ecosystems on the previous screen (2.1.1)

Screen 2.1.4: Preliminary Assessment/Systems/Reference Conditions

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Ecosystem. Look carefully at the assemblages associated with each Ecosystem and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

Screen 2.1.5: Preliminary Assessment/Systems/Stresses and Threats

GLOSSARY:

Stress: An ongoing or imminent degradation or alteration in Ecosystem condition that is unfavorable for sustainability.

Threat: The source of a stress

Scope: The geographic scale of a stress

Severity: The acuity of a stress

Screen 2.2.1: Preliminary Assessment/Watersheds/ID and Status

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.2.2: Preliminary Assessment/Watersheds/Link to Units

TIP: Start working on this screen only after you have entered all Watersheds on the previous screen (2.1.1)

Screen 2.2.4: Preliminary Assessment/Watersheds/Reference Conditions

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Watershed. Look carefully at the assemblages associated with each Watershed and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

Screen 2.3.1: Preliminary Assessment/Species/ID and Status

TIP: Use the record scroll arrows, lower left, to navigate between records or add new records.

Screen 2.3.2 (or 2.3.3 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Link to Units

TIP: Start working on this screen only after you have entered all Species on the previous screen (2.3.1)

Screen 2.3.4 (or 2.3.5 if aquatic box is checked on 2.3.1): Preliminary Assessment/Species/Reference Conditions

TIP: In many cases, the most important attribute of reference conditions are that they are capable of sustaining all native biodiversity associated with the Watershed. Look carefully at the assemblages associated with each Watershed and make sure the reference condition meets their needs. Reference condition and departure rating provide the basis for the required NRV narrative.

Screen 3.1.2: Sustainability Framework/Systems/Key Attributes and Indicators (By Unit)

TIP: If the Stresses/Threats screen is populated (Screen 2.1.5: Preliminary Assessment/ Systems/ Stresses and Threats), you can view the stresses and threats for this Unit-system combination by clicking the green font, far right. In most cases, Key Attributes and Indicators should reflect stresses and threats associated with a selected planning element.

HIGHLY RECOMMENDED:

To see all data associated with the selected Ecosystem or Unit in a handy tabular view, use the green buttons, upper right.

CAUTION: Do NOT attempt to add records in tabular view. Do NOT attempt to edit records in tabular view without the assistance of an experienced ESE Tool expert.

Screen 3.1.3: Sustainability Framework/Systems/Attribute and Indicator Details (By Unit)

TIP: There are three record scroll features on this screen:

1. The bottom scroll feature, outer lower left, is used to choose an Ecosystem in the selected Unit.
2. The scroll feature at the bottom of the Key Attribute sub-form, upper left, is used to choose a Key Attribute of the Unit-Ecosystem combination.
3. The scroll feature at the bottom of the Indicator sub-form, interior lower left, is used to choose an Indicator of the Unit-Ecosystem-Key Attribute combination.

Screen 3.1.4: Sustainability Framework/Systems/Current Conditions (By Unit)

TIP: Be consistent with capitalization, punctuation, terminology and other text variables that may impact how the ESE Tool sorts and filters data.

Screen 3.1.5: Sustainability Framework/Systems/Review and Weighting (By Unit)

HIGHLY RECOMMENDED!

Once all data is entered, use the “Copy these Line Items to other Units” button, upper right, if a Conservation Target occurs across multiple Units. Simply select the other Units where the Conservation Target occurs and the associated Unit-System combination will automatically populate.

CAUTION: Just because a Conservation Target occurs on multiple Units does not mean that all of its ecological variables are identical. Review and edit your shared information as needed to adjust for local circumstances.

Screen 3.2.3: Sustainability Framework/Watersheds/Attribute and Indicator Details (By Unit)

TIP: There are three record scroll features on this screen:

1. The bottom scroll feature, outer lower left, is used to choose an Ecosystem in the selected Unit.
2. The scroll feature at the bottom of the Key Attribute sub-form, upper left, is used to choose a Key Attribute of the Unit-Watershed combination.
3. The scroll feature at the bottom of the Indicator sub-form, interior lower left, is used to choose an Indicator of the Unit-Watershed -Key Attribute combination.

Screen 3.3.2: Sustainability Framework/Species/Key Attributes and Indicators (By Unit)

TIP: Avoid duplication. If a Conservation Target-Key Attribute-Indicator is selected in the Species Group sub-form, you can save time and bytes by NOT selecting it again in the Ecosystem-Watershed sub-form.

Screen 4.2: Expected Outcomes/Estimated Outcomes

TIP: The list of Unit-Line Item combinations can be overwhelming. To focus on smaller subsets of the entire list, use the arrows in the right corner of the column headings to filter or sort.

Button/Screen 6: Reports

TIP:

Hitting the “X” in the top right corner of the screen closes the entire ESE Tool, so use the escape key to leave a report and return to the report menu. You can also click on the small “x” below the big “X” in the embedded screen to return to the report menu. If a report is open, click on the “Close Report Preview” button to return to the report menu.

Queries

WARNING:

Do NOT change, edit or in any way alter the existing queries that come with your ESE Tool. This includes filtering and sorting. If you need to filter, sort or change an existing query, you can either:

A: Copy the query tabular view into an Excel spreadsheet and manipulate the data in Excel.

Or...

B. Create a new query that queries the existing query.

Appendix D: Glossary

Planning Element: (or simply “Element”) A Species, ecological system or Watershed. The scale of ecological systems and Watersheds is usually based on the scale of the Planning Area. For example, fifth level HUCs and matrix-level ecological systems may best serve a large Planning Area while sixth level HUCs and smaller-scale vegetative communities may best serve a more geographically limited Planning Area. NOTE: The sustainability of small-scale habitat and micro-habitat components (i.e. coarse woody debris, snags and den trees) is usually handled as Key Attributes of Conservation Targets (see Sustainability Evaluation below).

Planning Elements may be linked to one or more Conservation Targets (below) or may be Conservation Targets themselves. Planning Elements that are not currently of conservation concern but may become of concern at a later date may be listed in the ESE Tool for handy future use and not linked to Conservation Targets. These unlinked Element records are referred to as “not carried through” (see Screen 3.1.1: Sustainability Framework/Systems/Selection)

Conservation Target: (or simply “Target”) A strategic-level Planning Element, often an “umbrella” such as ecological system, Watershed or Species Group, for which Key Attributes and Indicators (see Sustainability Evaluation below) are identified in order to develop conservation Strategies. For example, while Longleaf Pine trees and numerous other species may be listed as Planning Elements, they are usually not managed individually at the forest planning scale. Instead, their needs are addressed by overarching Strategies developed to manage or restore the habitats in which they occur, such as Longleaf Pine-dominated ecological systems. Still other species are best covered by Species Groups (or “guilds”) that are associated with specific spatial, structural, composition, or disturbance attributes that cut across multiple ecological systems (fire-dependent savanna-grassland obligates, for example). Likewise at the forest planning scale, the needs of individual aquatic species are usually captured by Watershed-level Strategies.

Status: Global and State ranks, known as G ranks and S ranks respectively, are perhaps the most obvious and important prioritization tools that fall under the Status category. Other important tools include the importance of the Unit (usually the Planning Area/National Forest) to both the global and ecoregional sustainability of the Planning Element or Conservation Target. Optional ranks, such as State Wildlife Action Plan status, may be included for reference but are not considered in the algorithms use to prioritize Planning Elements, Conservation Targets and, ultimately, strategies.

Condition: Condition is captured primarily in narrative fields and is a broader overview of various size, condition and landscape context attributes that will be more specifically described, qualified and quantified later in the Sustainability Evaluation. “Reference Condition” is a description of the ideal state of a Conservation Target against which the “Existing Condition” will be measured. Reference Condition will also

guide more detailed work later in the Sustainability Evaluation. See Screens 2.1.4, 2.2.4 and 2.3.4 for more information about how to describe Reference Conditions.

Stresses and Threats: “Stresses” are alterations in the size, condition and/or landscape context of Conservation Targets that may adversely impact the sustainability of a Conservation Target and its associated biodiversity. “Threats” are the sources of those Stresses. For example, a Stress might be “Modification of vegetation” and the Threat, or source of the Stress, might be “Fire and fire suppression” regimes. Once Stresses and Threats are identified, there are three ways they must be rated:

Scope: The spatial extent of the problem within the known spatial extent of the Conservation Target

Severity: The acuity of the problem where it occurs

Management Opportunity: The extent to which USFS has the ability to restore or correct the problem

Priorities: The Preliminary Assessment, once fully populated, ranks Conservation Targets from highest to lowest priority. Please note that later, during the Sustainability Evaluation, *Strategies* are also ranked after Planning Elements (usually Species) are linked to Conservation Targets (usually ecological systems, Watersheds or Species Groups) as strategic umbrellas that capture their needs. Just because a Conservation Target ranks high or low in the Preliminary Assessment may not necessarily mean that its associated Strategies will rank as high or low after the Sustainability Evaluation is complete. For example, a G2 Conservation Target that supports numerous G5 species may not produce Strategies as urgent as a G3 Conservation Target that supports numerous G1 species.

Key Attribute: An ecologically important characteristic of a Conservation Target. Key Attributes usually address habitat variables such as size, condition and landscape context. Some examples include fire regime, canopy conditions, understory/groundcover conditions, remoteness, and invasive Species.

A Key Attribute may be linked to multiple Conservation Targets (above) and Indicators (below).

Indicator: Quantifiable and, to the extent possible, objectively verifiable metrics, also known as “performance measures,” that measure specific details of Key Attributes against a widely-used, relatively universal scale. The user defines the ranges of measurements that fall into each threshold of the scale based on the best available science:

- **Poor:** (Unsustainable) Element conditions are severely inadequate. Associated Species' populations are expected to severely decline; localized extirpations are occurring or are imminent.
- **Fair:** (Unsustainable) Element conditions are slightly inadequate; although associated Species' populations may persist for some time, they may be subject to gradual decline.
- **Good:** (Sustainable) Element conditions are acceptable; associated Species' populations should remain stable.
- **Very Good:** (Sustainable) Element conditions are optimal; associated Species' populations should remain robust and potentially even expand.

An Indicator may be linked to more than one Strategy (below).

Line Item: A Conservation Target-Key Attribute-Indicator combination. A Planning Element can be linked to any Conservation Target or Line Item or multiple Conservation Targets and Line Items. Likewise, any Conservation Target, Line Item or combination can be linked to any Strategy (below). When Species are combined into Species Groups, more than one Conservation Target may be present in a Line Item.

Strategy: A simple, direct conservation action to maintain or restore an Indicator value or multiple Indicator values to sustainable levels. Strategies are used to develop plan components such as Desired Future Conditions and Guidelines