Planning for Growth and Open Space Conservation

This webinar series is sponsored by:
USDA Forest Service
State and Private Forestry - Cooperative Forestry

Organized by
Rick Pringle, Susan Stein, Sara Comas, Susan Guynn (Clemson University)
and the
Forest Service National Open Space Conservation Group

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Session #13: City and County Open Space Programs

This program presents growth and open space conservation planning for cities and counties. Speakers will present the Trust for Public Land's Conservation Almanac and LandVote resources that are available online for researching conservation activities, and public funding for land conservation. We will also learn about open space conservation planning processes, ordinances, funding mechanisms, and partnerships employed in Missoula, Montana, and Baltimore County, Maryland.

- **Mary Bruce Alford** Trust for Public Land
- **Jackie Corday** City of Missoula, Montana
- **Don Outen** Baltimore County, Maryland

Link to video presentation
Link to PDF Presentation
Link to resources from this webinar

Session #12: Greening Grey Infrastructure: Federal Highway Administration's Eco-Logical Approach and Case Studies from National Forests in Ohio and Washington

Session #11: An All Lands Approach to Ecosystem Services for Water

Session #10: Tools for Conservation Planning

Webinar Resources and Tools

Find relevant resources for each webinar session here!
If you have relevant resources to share please send them to us!

Session #18 – Planning for Climate Change Adaptation: forests, wildlife and land use

Wednesday, September 4th at 2:00 pm Eastern

Dave Peterson

USFS Pacific Northwest Research Station

Bruce Stein

National Wildlife Federation

Phil Berke

University of North Carolina

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Session #17: Conservation Planning Tools and Resources

Scott Story
Western Governors' Association

Kai Henifin
Conservation Biology Institute

Patrick Crist
NatureServe

Logistics – Q&A

- **Continuing Education Credits**
  - Attend entire presentation
- **Questions for speakers – chat pod**
- **Technical difficulties – chat pod or**

  email Susan Guynn: SGUYNN@clemson.edu

Getting to Know You!

Scott Story

Western Governors' Association

Using the Western Governor's Association *Crucial Habitat Assessment Tool* and State CHATs for Land Use Planning

Practical examples from the Montana State CHAT

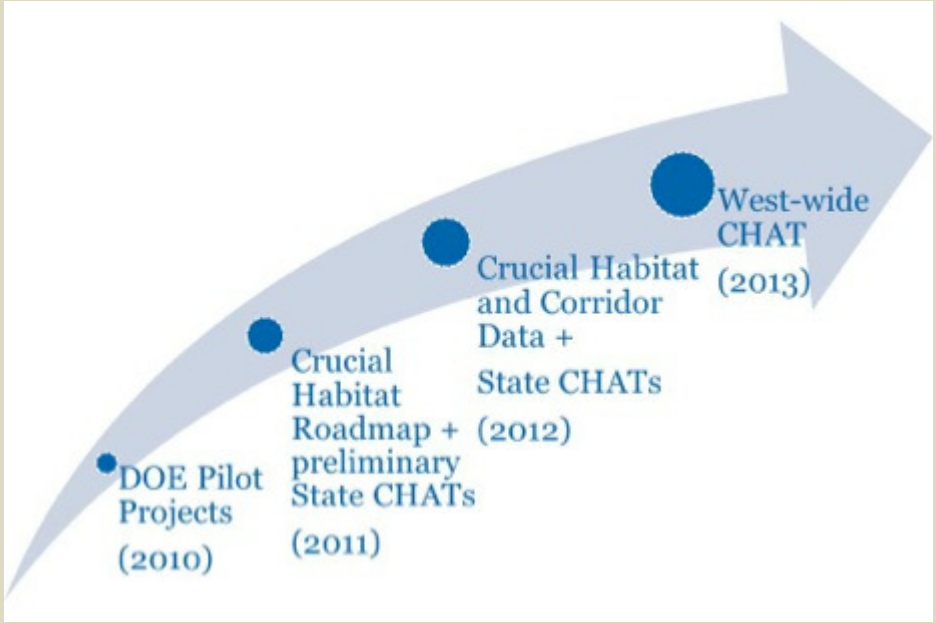
presented by
Scott Story, Montana State Library
and Adam Messer, Montana Fish, Wildlife and Parks

Western Governors' Association

CAPS

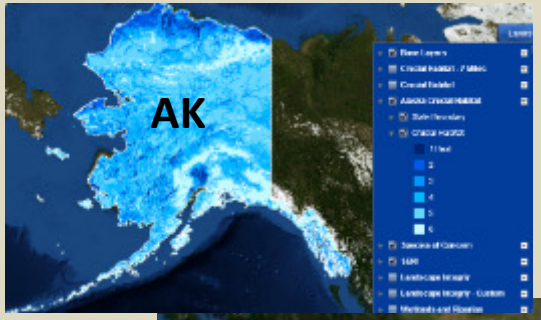
What is the WGA CHAT?

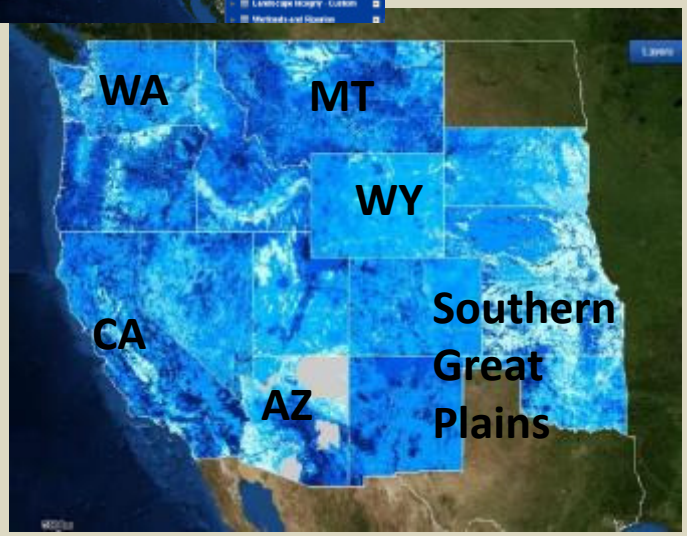
- **Born of the Wildlife Corridors and Crucial Habitat Initiative**
- **Meant to provide for improved planning of large-scale development projects and land conservation opportunities spanning multiple jurisdictions across the west**
- **Uses a consistent regional approach for displaying important fish and wildlife <u>values</u>.**



WESTERN GOVERNORS' ASSOCIATION

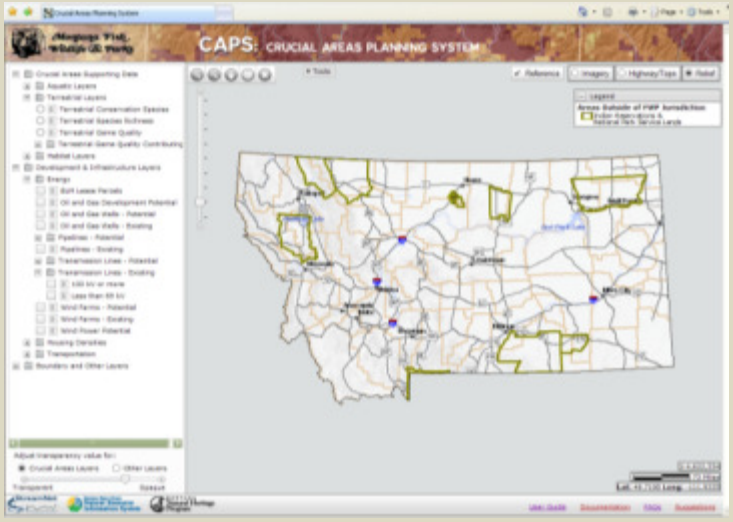
Regional CHAT





Landing Page

State CHAT



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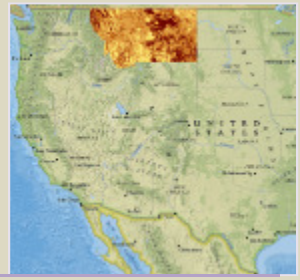
What Types of Data Will Be Available?

1) **Quality Habitat for Species of Economic Importance**
   - **Terrestrial Game Quality**
   - **Game Fish Quality**

2) **Species & Habitat**
   - **Terrestrial Species of Concern**
   - **Watershed Integrity (Aquatic Surrogate)**



3) **Landscape Integrity (Large Intact Blocks)**
   - **Areas with least human influence**
   - **Varies by Eco-division (forest, grassland…)**

4) **Connectivity**
   - **Landscape (not species) level**
   - **Built on same foundation as Landscape Integrity**

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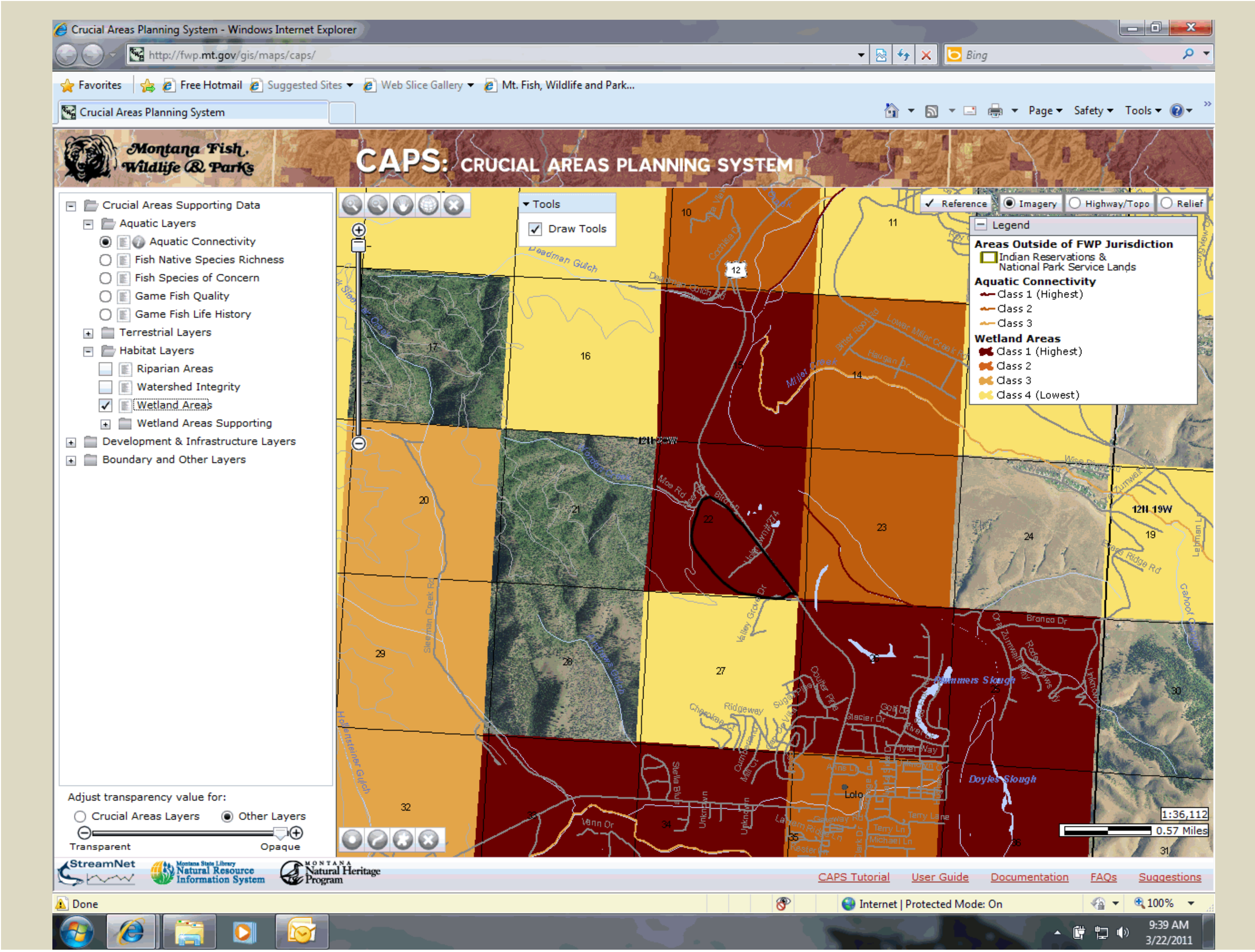
Appropriate Uses of Regional and State CHATs

"First Response": A Preliminary Look at Fish/Wildlife Resources in the Vicinity of a Potential Subdivision, Energy Development, Highway Improvement, or Conservation/Parks Project

"First Look": A Preliminary Evaluation of What Fish/Wildlife Resources Might be Affected by a Proposed Development

Western Governors' Association

CAPS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Suggested Sites
Web Slice Gallery
Mt. Fish, Wildlife and Park...
Crucial Areas Planning System
Page
Safety
Tools
Montana Fish, Wildlife & Parks
CAPS: CRUCIAL AREAS PLANNING SYSTEM
Crucial Areas Supporting Data
Aquatic Layers
Aquatic Connectivity
Fish Native Species Richness
Fish Species of Concern
Game Fish Quality
Game Fish Life History
Terrestrial Layers
Habitat Layers
Riparian Areas
Watershed Integrity
Wetland Areas
Wetland Areas Supporting
Development & Infrastructure Layers
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Tools
Draw Tools
Reference
Imagery
Highway/Topo
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Areas Outside of FWP Jurisdiction
Indian Reservations &
National Park Service Lands
Aquatic Connectivity
Class 1 (Highest)
Class 2
Class 3
Wetland Areas
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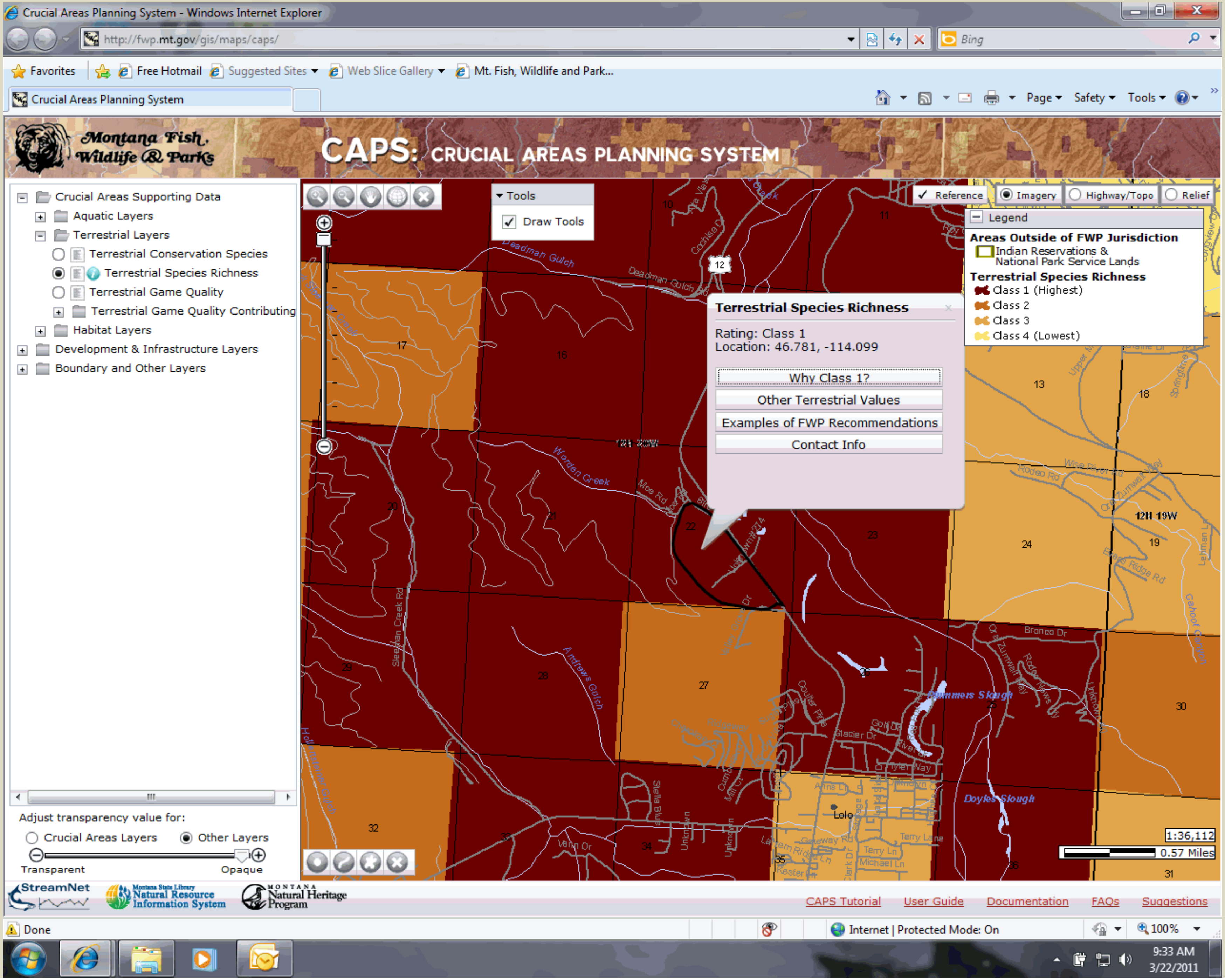
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Suggested Sites
Web Slice Gallery
Mt. Fish, Wildlife and Park...
Crucial Areas Planning System
Page
Safety
Tools
Montana Fish, Wildlife & Parks
CAPS: CRUCIAL AREAS PLANNING SYSTEM
Crucial Areas Supporting Data
Aquatic Layers
Terrestrial Layers
Terrestrial Conservation Species
Terrestrial Species Richness
Terrestrial Game Quality
Terrestrial Game Quality Contributing
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Development & Infrastructure Layers
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Areas Outside of FWP Jurisdiction
Indian Reservations &
National Park Service Lands
Terrestrial Species Richness
Class 1 (Highest)
Class 2
Class 3
Class 4 (Lowest)
Terrestrial Species Richness
Rating: Class 1
Location: 46.781, -114.099
Why Class 1?
Other Terrestrial Values
Examples of FWP Recommendations
Contact Info
Deadman Gulch
Woodan Creek
Andrews Gulch
Sleeman Creek Rd
Lolo
Summers Slough
Doyles Slough
Bronco Dr
Glacier Dr
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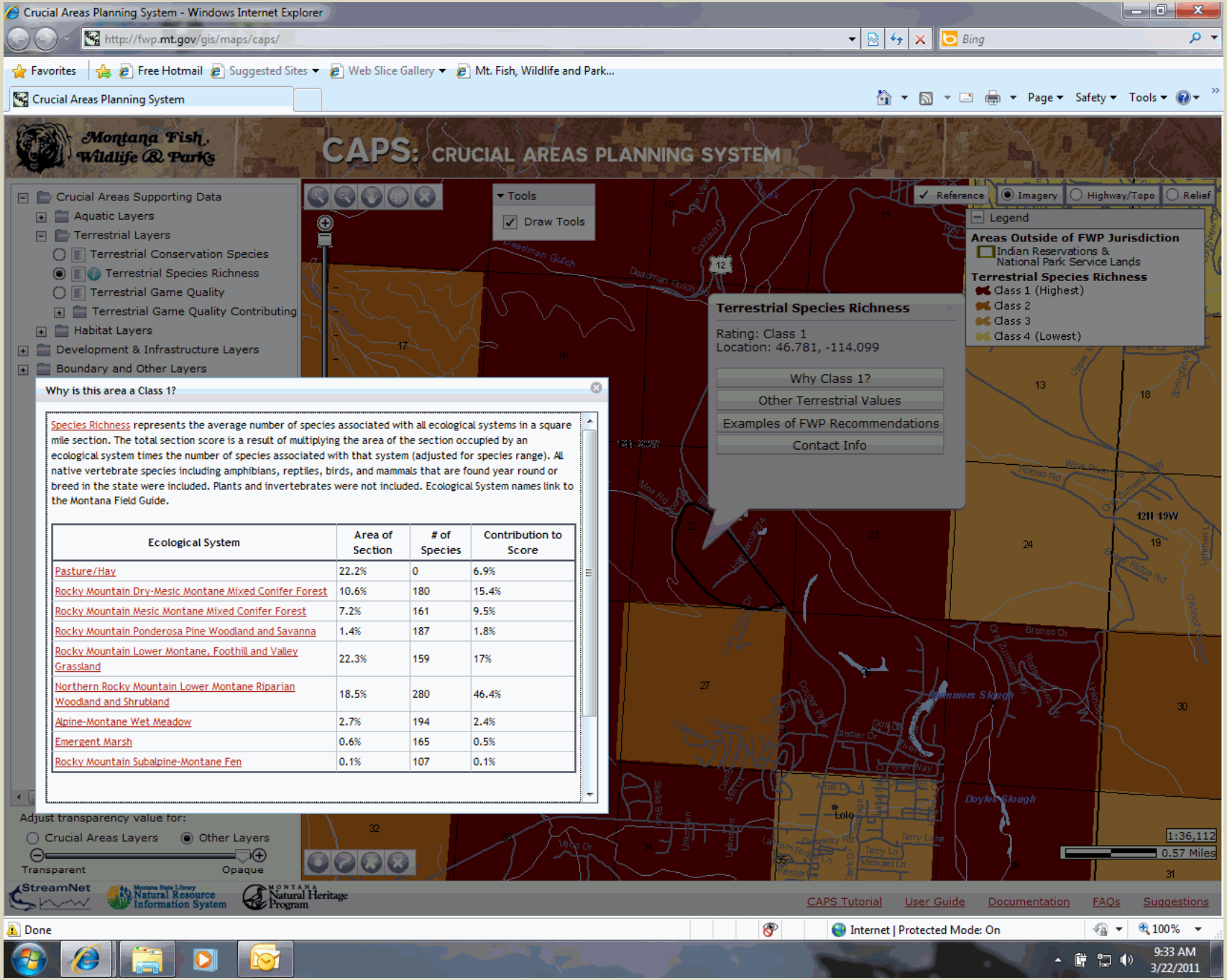
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Crucial Areas Planning System
Page
Safety
Tools
Montana Fish, Wildlife & Parks
CAPS: CRUCIAL AREAS PLANNING SYSTEM
Crucial Areas Supporting Data
Aquatic Layers
Terrestrial Layers
Terrestrial Conservation Species
Terrestrial Species Richness
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Class 3
Class 4 (Lowest)
Terrestrial Species Richness
Rating: Class 1
Location: 46.781, -114.099
Why Class 1?
Other Terrestrial Values
Examples of FWP Recommendations
Contact Info
Why is this area a Class 1?
Species Richness represents the average number of species associated with all ecological systems in a square mile section. The total section score is a result of multiplying the area of the section occupied by an ecological system times the number of species associated with that system (adjusted for species range). All native vertebrate species including amphibians, reptiles, birds, and mammals that are found year round or breed in the state were included. Plants and invertebrates were not included. Ecological System names link to the Montana Field Guide.
Ecological System | Area of Section | # of Species | Contribution to Score
Pasture/Hay | 22.2% | 0 | 6.9%
Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest | 10.6% | 180 | 15.4%
Rocky Mountain Mesic Montane Mixed Conifer Forest | 7.2% | 161 | 9.5%
Rocky Mountain Ponderosa Pine Woodland and Savanna | 1.4% | 187 | 1.8%
Rocky Mountain Lower Montane, Foothill and Valley Grassland | 22.3% | 159 | 17%
Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland | 18.5% | 280 | 46.4%
Alpine-Montane Wet Meadow | 2.7% | 194 | 2.4%
Emergent Marsh | 0.6% | 165 | 0.5%
Rocky Mountain Subalpine-Montane Fen | 0.1% | 107 | 0.1%
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Documentation
FAQs
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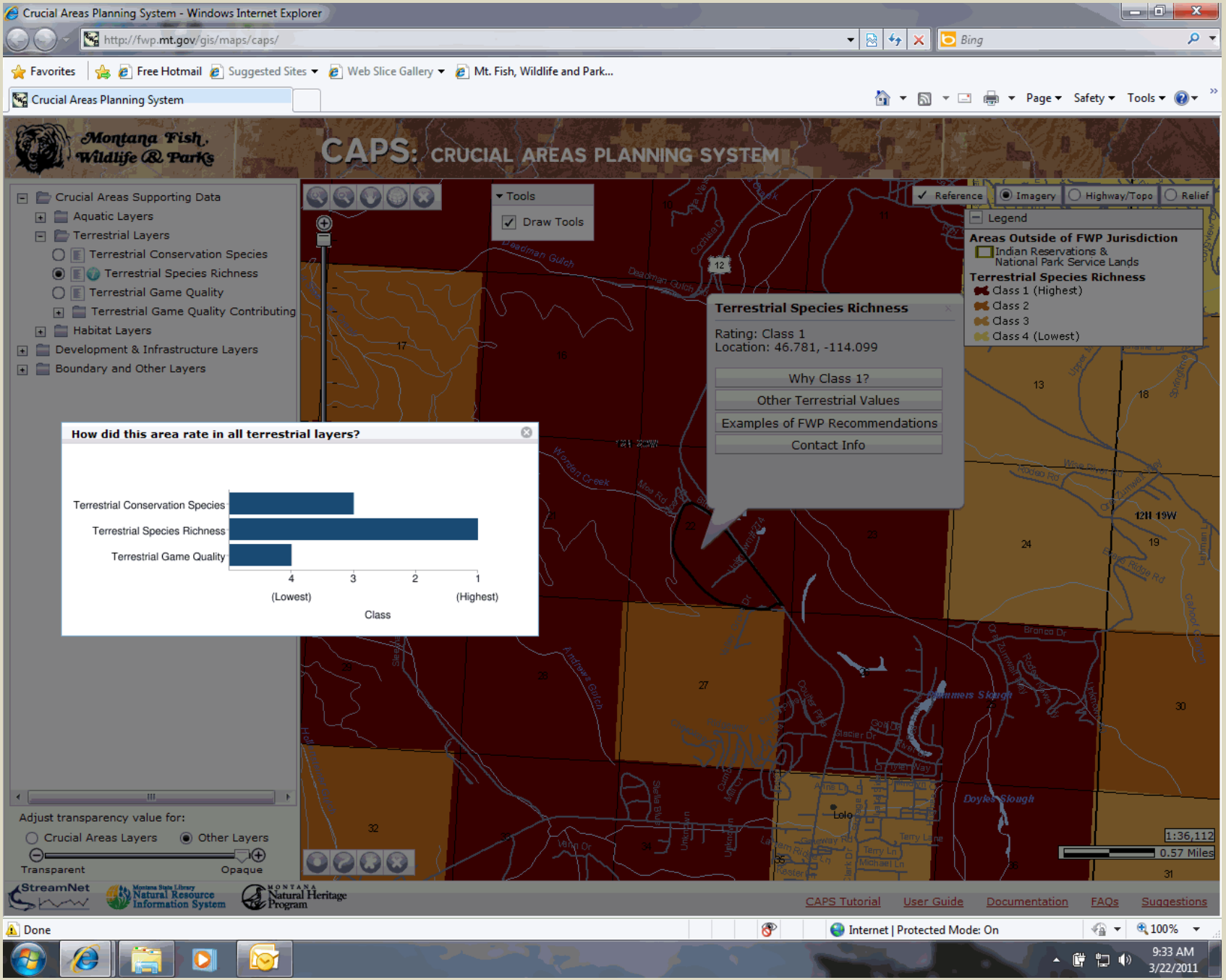
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Suggested Sites
Web Slice Gallery
Mt. Fish, Wildlife and Park...
Crucial Areas Planning System
Page
Safety
Tools
Montana Fish, Wildlife & Parks
CAPS: CRUCIAL AREAS PLANNING SYSTEM
Crucial Areas Supporting Data
Aquatic Layers
Terrestrial Layers
Terrestrial Conservation Species
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Development & Infrastructure Layers
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Tools
Draw Tools
Reference
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Class 2
Class 3
Class 4 (Lowest)
Terrestrial Species Richness
Rating: Class 1
Location: 46.781, -114.099
Why Class 1?
Other Terrestrial Values
Examples of FWP Recommendations
Contact Info
How did this area rate in all terrestrial layers?
Terrestrial Conservation Species
Terrestrial Species Richness
Terrestrial Game Quality
4
3
2
1
(Lowest)
(Highest)
Class
Adjust transparency value for:
Crucial Areas Layers
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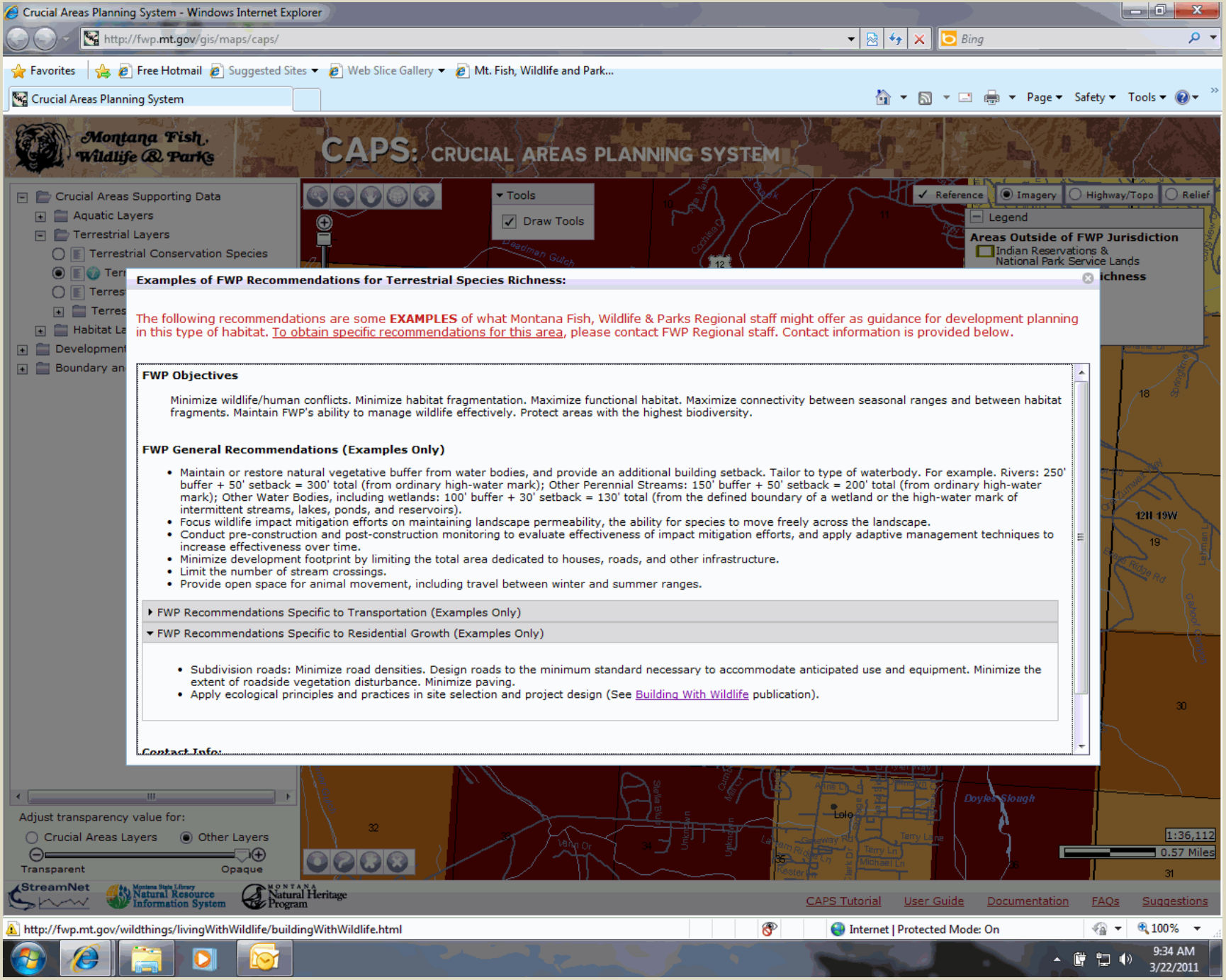
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Page
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ichness
Examples of FWP Recommendations for Terrestrial Species Richness:
The following recommendations are some EXAMPLES of what Montana Fish, Wildlife & Parks Regional staff might offer as guidance for development planning in this type of habitat. To obtain specific recommendations for this area, please contact FWP Regional staff. Contact information is provided below.
FWP Objectives
Minimize wildlife/human conflicts. Minimize habitat fragmentation. Maximize functional habitat. Maximize connectivity between seasonal ranges and between habitat fragments. Maintain FWP's ability to manage wildlife effectively. Protect areas with the highest biodiversity.
FWP General Recommendations (Examples Only)
Maintain or restore natural vegetative buffer from water bodies, and provide an additional building setback. Tailor to type of waterbody. For example. Rivers: 250' buffer + 50' setback = 300' total (from ordinary high-water mark); Other Perennial Streams: 150' buffer + 50' setback = 200' total (from ordinary high-water mark); Other Water Bodies, including wetlands: 100' buffer + 30' setback = 130' total (from the defined boundary of a wetland or the high-water mark of intermittent streams, lakes, ponds, and reservoirs).
Focus wildlife impact mitigation efforts on maintaining landscape permeability, the ability for species to move freely across the landscape.
Conduct pre-construction and post-construction monitoring to evaluate effectiveness of impact mitigation efforts, and apply adaptive management techniques to increase effectiveness over time.
Minimize development footprint by limiting the total area dedicated to houses, roads, and other infrastructure.
Limit the number of stream crossings.
Provide open space for animal movement, including travel between winter and summer ranges.
FWP Recommendations Specific to Transportation (Examples Only)
FWP Recommendations Specific to Residential Growth (Examples Only)
Subdivision roads: Minimize road densities. Design roads to the minimum standard necessary to accommodate anticipated use and equipment. Minimize the extent of roadside vegetation disturbance. Minimize paving.
Apply ecological principles and practices in site selection and project design (See Building With Wildlife publication).
Contact Info:
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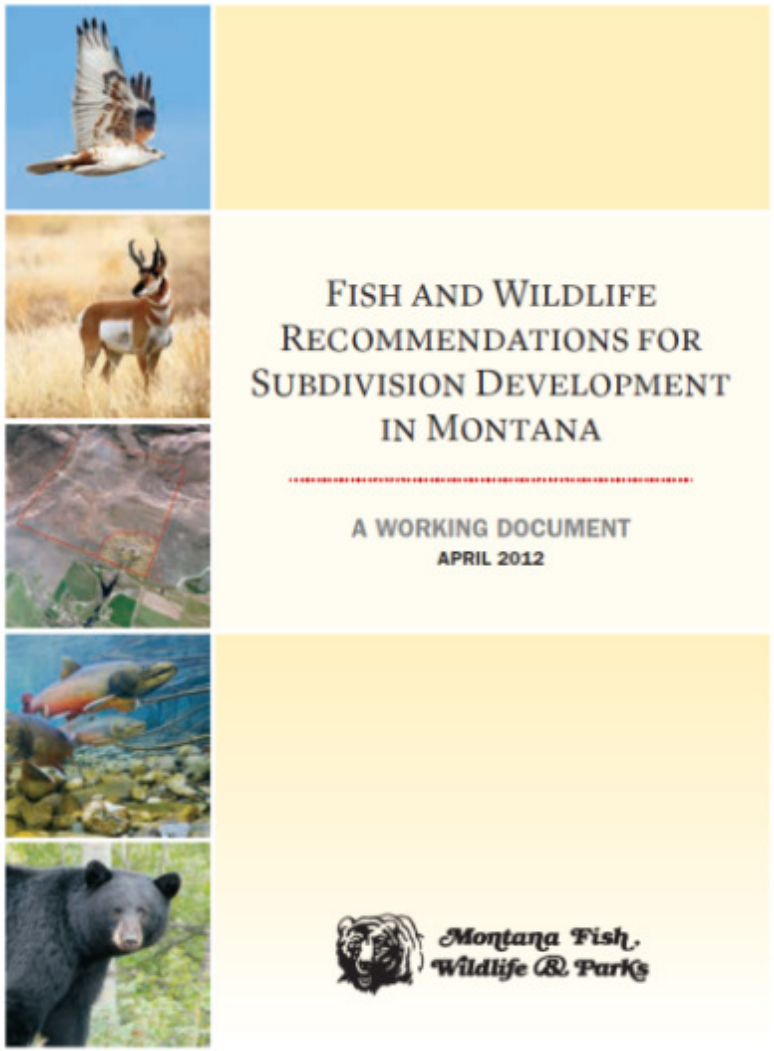
Recommendations Help Increase Credibility and Usefulness



B. Big Game Winter Range

(see Appendix C.2 for supporting documentation)

(1) List of Pertinent Definitions (see Section III for actual definitions)

Big game, development, existing development, habitat fragmentation, habitat patch, habituation, line of sight, linkage, problematic concentrations, professionally trained biologist, subdivision design features, summer range, and winter range.

(2) Objectives

- Minimize habitat fragmentation and loss of winter range.
- Maintain the ability of big game animals to travel freely within a winter range habitat patch, and between winter range habitat patches and other seasonal ranges.
- Maintain FWP's ability to manage wildlife effectively and as non-habituated herds.
- Minimize the potential for subdivisions to lead to problematic concentrations of big game.
- Minimize wildlife/human conflicts, including negative impacts on adjacent properties (e.g., game damage on agricultural lands).

(3) Recommended Approach to Subdivision Design

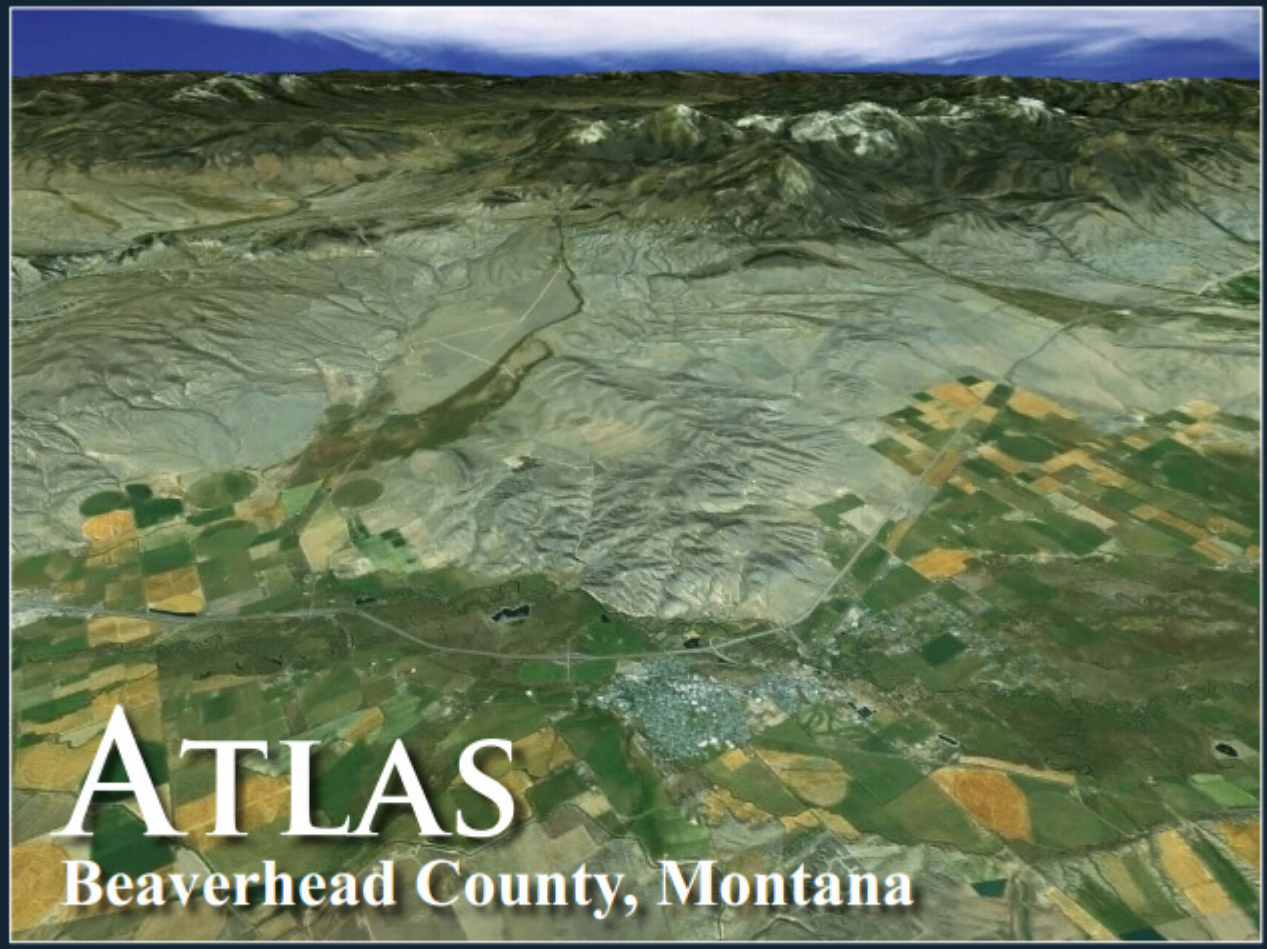
In designing the proposed subdivision, the subdivider is encouraged to follow the four steps outlined below.[4] Local FWP wildlife biologists are encouraged, when contacted by the subdivider or the subdivider's representative, to make time for the consultation described in subsections b. and c. below.

a. Consult FWP's Crucial Areas Planning System (CAPS)[5] and/or other publicly available sources of wildlife habitat information, for a preliminary indication of whether the property proposed for subdivision may be located in or adjacent to big game winter range.

b. Consult with the local FWP wildlife biologist, or other professionally trained biologist, to verify the preliminary assessment. If consulted, the FWP biologist should provide the subdivider with a written determination of whether or not the property proposed for subdivision is located in or adjacent to big game winter range.[6]

www.beaverheadcounty.o ×

www.beaverheadcounty.org/bc_atlas_012012_new.pdf



Beaverhead County Atlas

Terrestrial Species Diversity

"Species Diversity" refers to the average number of Montana native terrestrial species associated with the habitats predicted to occur in each one-mile section. This information was drawn from Montana Natural Heritage Program's (MNHP) database of which species find which habitats suitable.
Beaverhead County contains approximately half of the 81 habitat types found across Montana. Species diversity in the County ranges from a low of 8 predicted species in alpine vegetation found at highest elevations, to a high of 280 predicted species in riparian vegetation found along rivers and streams at lower elevations. Besides its riparian habitat, Beaverhead County's communities of sagebrush steppe, conifer forests, and grasslands are also associated with many different terrestrial species.

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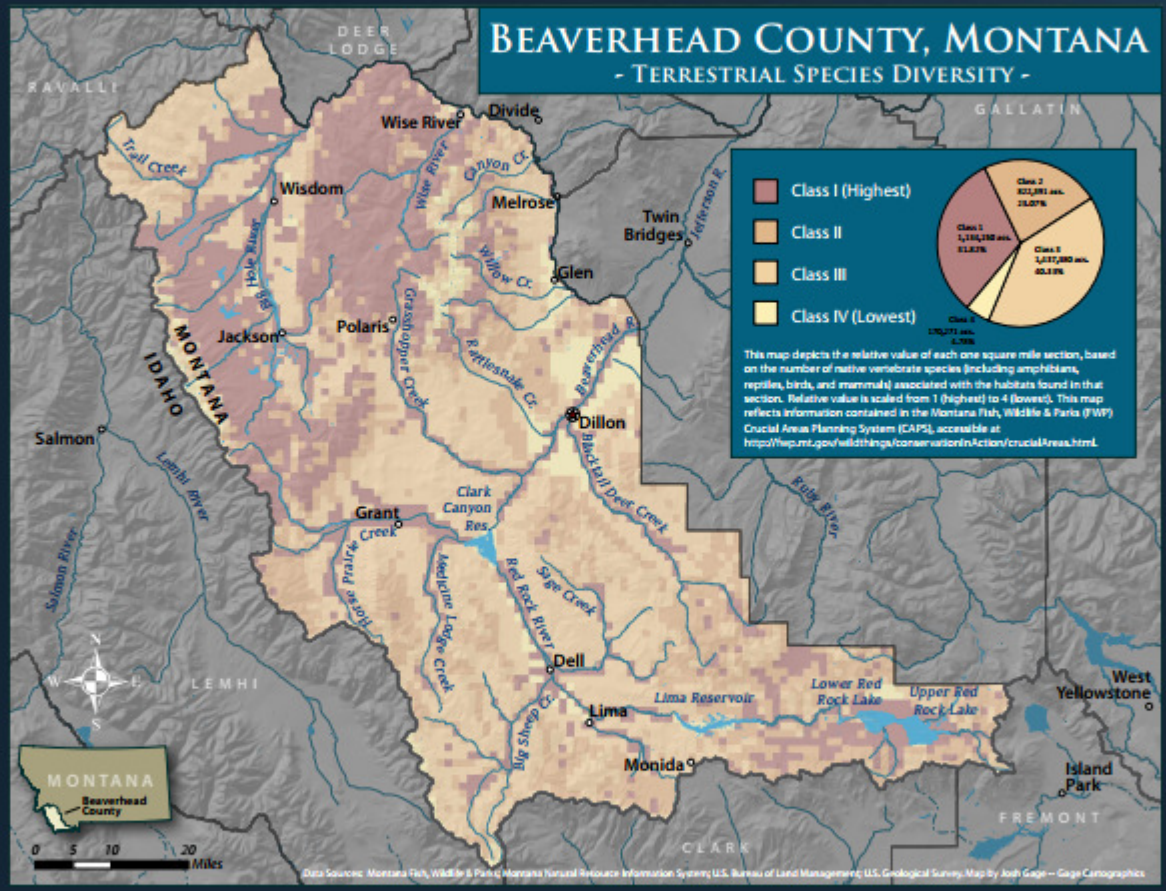
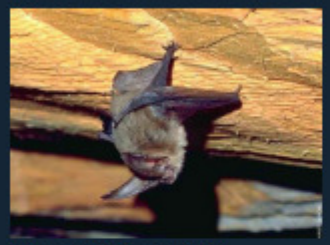
www.beaverheadcounty.org/bc_atlas_012012_new.pdf





Townsend's Big-eared Bat
- Kristi DuBois

Wolverine - Montana FWP

Black-tailed Jackrabbit
- Kristi DuBois

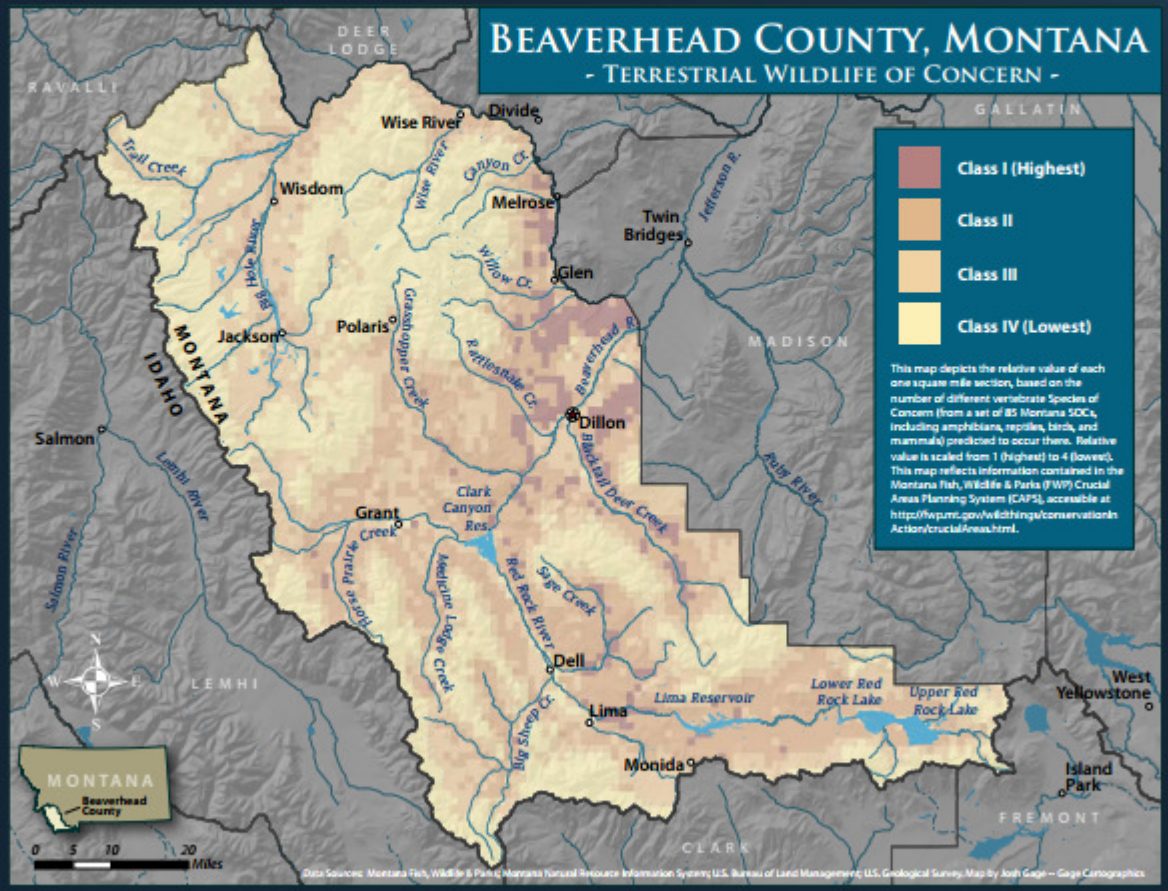
Ferruginous Hawk
-Montana Natural Heritage Program

Wildlife Species of Concern

Montana's terrestrial "Species of Concern" (SOCs) are native amphibians, reptiles, birds, and mammals considered to be "at risk" due to declining population, threats to their habitats, and/or restricted distribution. The Montana Natural Heritage Program (MNHP) consults with Montana Department of Fish, Wildlife and Parks (MFWP) and other experts to make Montana SOC determinations. Montana's SOC list includes those species that are federally listed as Threatened or Endangered.

Beaverhead County is home to 38 terrestrial SOCs. Thirty-one of these SOCs are bird species, including Clark's nutcracker, Brewer's sparrow, Sage thrasher, Ferruginous hawk, Veery, and Northern goshawk. Non-bird SOCs in Beaverhead County are Western toad, Townsend's big-eared bat, Black-tailed jack rabbit, Pygmy rabbit, Great Basin pocket mouse, Grizzly bear, Western spotted skunk and Wolverine

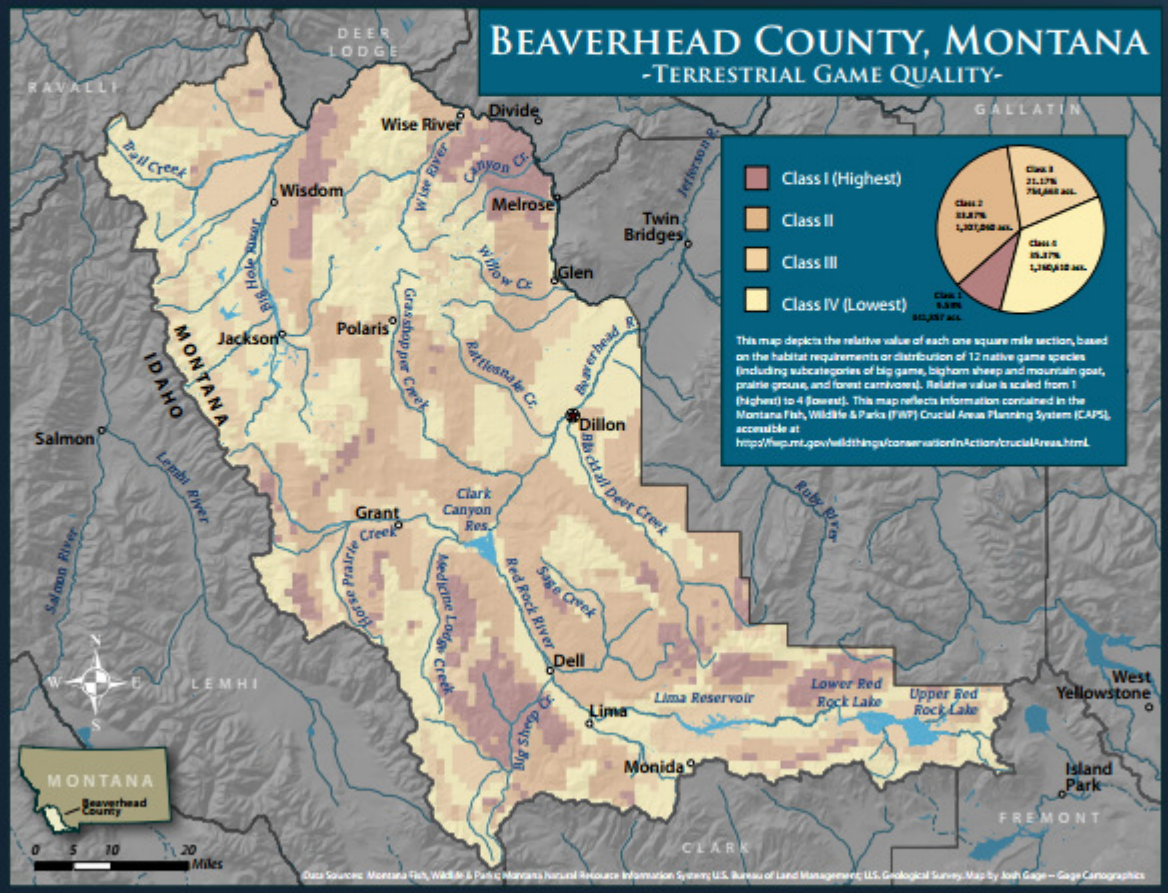
Class I sections rank in the top 18% of the state, for number of different SOCs and highest level of concern. Class II sections represent the next 33%.


BEAVERHEAD COUNTY, MONTANA
- TERRESTRIAL WILDLIFE OF CONCERN -
Class I (Highest)
Class II
Class III
Class IV (Lowest)
This map depicts the relative value of each one square mile section, based on the number of different vertebrate Species of Concern (from a set of 85 Montana SOCs, including amphibians, reptiles, birds, and mammals) predicted to occur there. Relative value is scaled from 1 (highest) to 4 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationActions/crucialAreas.html.
DEER LODGE
RAVALLI
GALLATIN
MADISON
LEMHI
CLARK
FREMONT
MONTANA
IDAHO
Wise River
Divide
Wisdom
Melrose
Twin Bridges
Glen
Jackson
Polaris
Dillon
Salmon
Grant
Dell
Lima
Monida
West Yellowstone
Island Park
Trail Creek
Wise River
Canyon Cr.
Jefferson R.
Big Hole River
Willow Cr.
Grasshopper Creek
Rattlesnake Cr.
Beaverhead R.
Blacktail Deer Creek
Ruby River
Lemhi River
Salmon River
Clark Canyon Res.
Prairie Creek
Horse
Medicine Lodge Creek
Red Rock River
Sage Creek
Big Sheep Cr.
Lima Reservoir
Lower Red Rock Lake
Upper Red Rock Lake
MONTANA
Beaverhead County
0 5 10 20 Miles
Data Sources: Montana Fish, Wildlife & Parks; Montana Natural Resource Information System; U.S. Bureau of Land Management; U.S. Geological Survey. Map by Josh Gage – Gage Cartographics

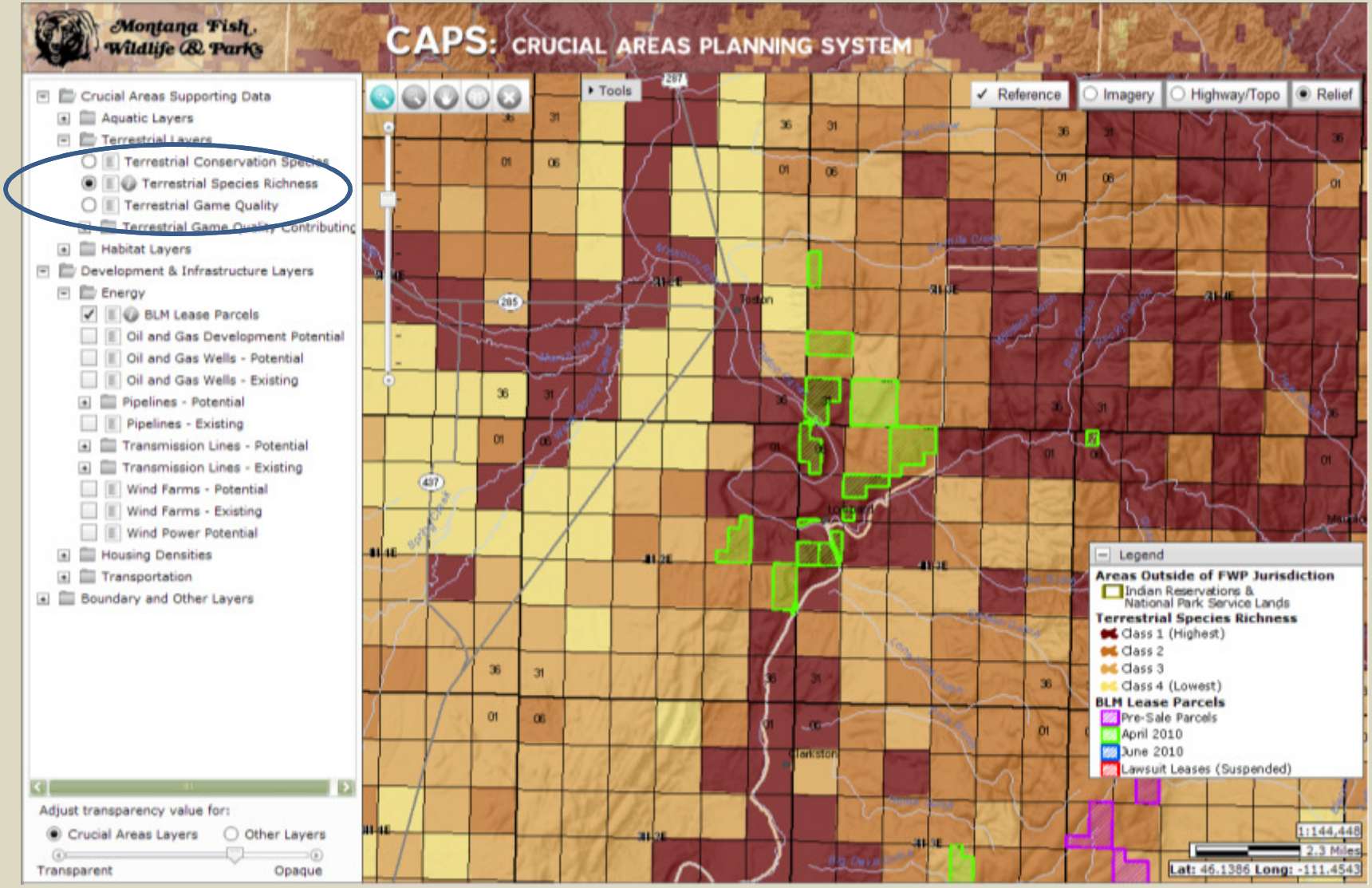
Terrestrial Game Quality

Montana Fish Wildlife &Parks biologists used the presence and habitat requirements of 12 Montana native, terrestrial game (hunted or trapped) species to rank each one-mile section in the state according to its "Game Quality". The 12 species are: bighorn sheep, mountain goat, wolverine, fisher, marten, sage-grouse, sharp-tailed grouse, pronghorn antelope, elk, moose, mule deer, and white-tailed deer. All but fisher and sharp-tailed grouse can be found in Beaverhead County.

Class I sections rank in the top 4% of the state. Class II sections rank in the next 33%. Beaverhead County provides substantial Class I and Class II habitat for several game species, especially elk, pronghorn antelope, moose, and sage grouse.

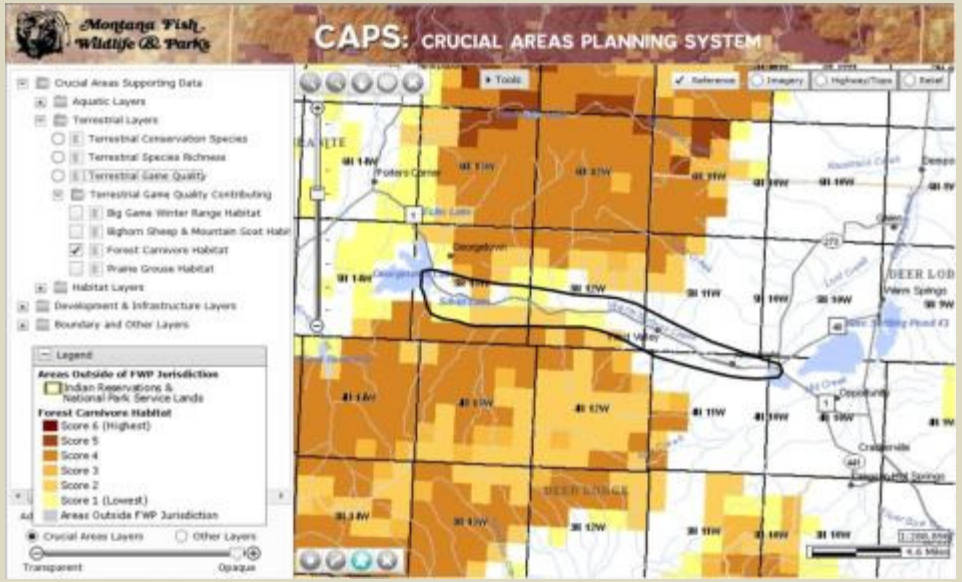

BEAVERHEAD COUNTY, MONTANA
-TERRESTRIAL GAME QUALITY-
Class I (Highest)
Class II
Class III
Class IV (Lowest)
This map depicts the relative value of each one square mile section, based on the habitat requirements or distribution of 12 native game species (including subcategories of big game, bighorn sheep and mountain goat, prairie grouse, and forest carnivores). Relative value is scaled from 1 (highest) to 4 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationInAction/crucialAreas.html.
Wise River
Divide
Wisdom
Melrose
Twin Bridges
Glen
Polaris
Jackson
Dillon
Salmon
Grant
Dell
Lima
Monida
West Yellowstone
Island Park
Lima Reservoir
Lower Red Rock Lake
Upper Red Rock Lake
Clark Canyon Res.
Red Rock River
Sage Creek
Medicine Lodge Creek
Big Sheep Cr.
Prairie Creek
Grasshopper Creek
Rattlesnake Cr.
Beaverhead R.
Big Hole River
Willow Cr.
Canyon Cr.
Wise River
Trail Creek
Jefferson R.
Blacktail Deer Creek
Ruby River
Lemhi River
Salmon River
DEER LODGE
RAVALLI
GALLATIN
LEMHI
CLARK
FREMONT
MONTANA
IDAHO
MONTANA
Beaverhead County
0 5 10 20
Miles

BLM Resource Management Plans and Oil & Gas Lease Reviews by MFWP



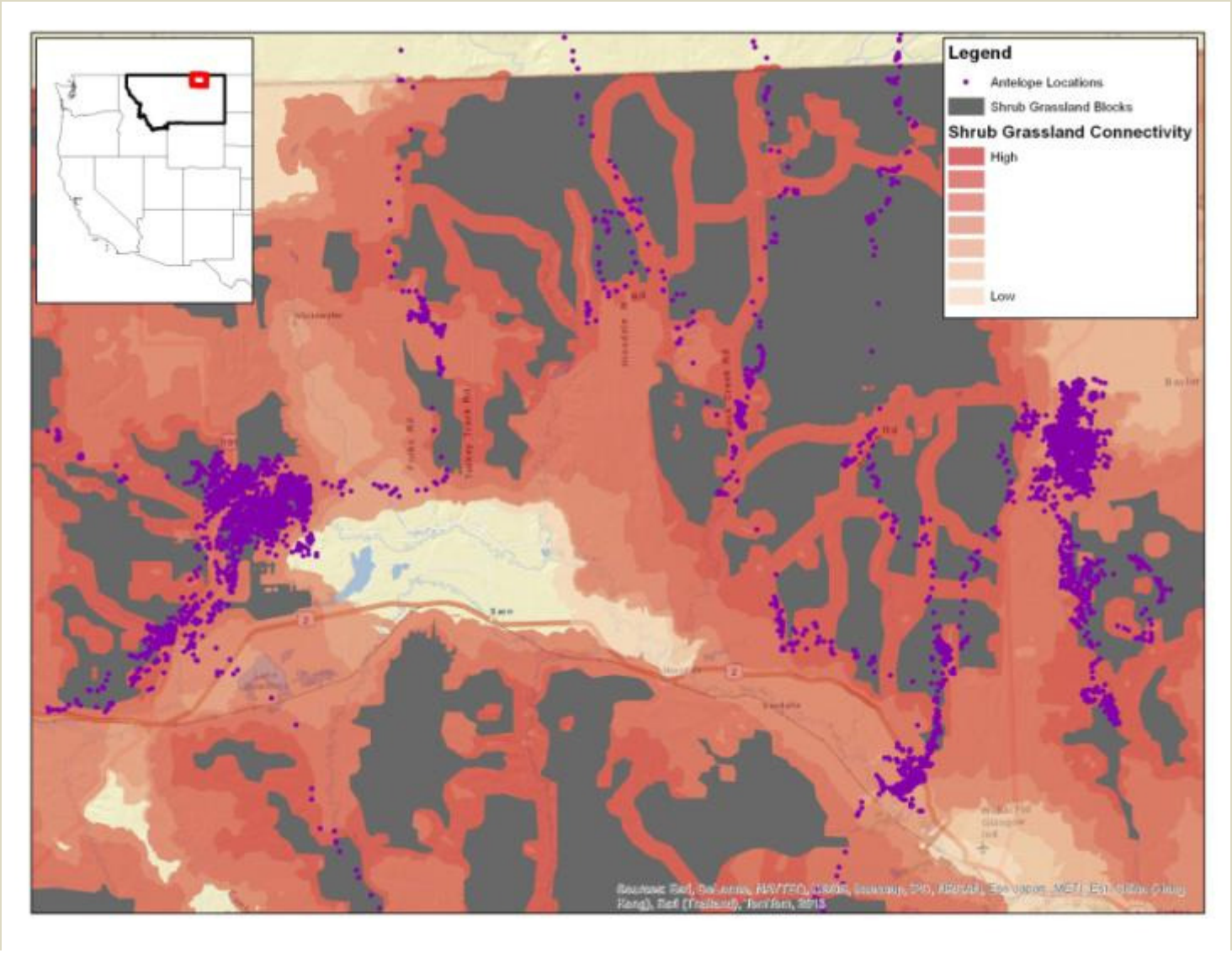
Use of the Montana CHAT in Transportation Planning

- Montana Department of Transportation (MDT) *Corridor Planning Studies*.
- 2012-2016 MDT *Statewide Transportation Improvement Program*.



- 2012 draft under revision, FHWA. *Montana Forest Highway Long-Range Transportation Coordination Plan*.
- Citizen advocacy for wildlife connectivity: *Montanans for Safe Wildlife Passage*.

Supporting Broader Scale Connectivity



Feedback We Have Received

- Easier integration of fish *and* wildlife values in review and acquisition
- Provide consistent approach and recommendations across state
- Decision support is “data driven”, creating more defensible and compelling argument
- Increases efficiency - areas of higher importance are clearly identified
- Allows the conversation to begin on a much higher level – County Planner
- Gives you a start in knowing who you have to contact for further information. Gives you a good broad-scale look.
- Makes a large amount of information available in one place and it is easy to access.

Western Governors' Association

CAPS

Parting Thoughts

- Working Across Multiple Scales
  - Regional (cross-jurisdictional) Planning
  - Move to state CHATs for more localized planning
  - Consult with biologists\ecologists on the ground!
- Examine Different Wildlife Values
  - Species in greatest need of conservation
  - Species valued for their economic contribution and cultural significance
- Apply the Tools
  - Get stakeholders to incorporate the data into planning & review processes
  - Facilitate the pursuit of more detailed inquiry
  - Provide recommendations
- WGA Regional CHAT will be launched publicly in **December 2013**
- Several state CHATs are already available
- Use the CHAT data in conjunction with other datasets and tools

Western Governors' Association

CAPS

Resources and Contacts

Web Sites

- Western Governor's Association - Initiative on Wildlife Corridors and Crucial Habitat
- Montana's Crucial Areas Planning System
- Living With Wildlife - Montana Subdivision Recommendations
- Beaverhead County Atlas

Western Governor's Association

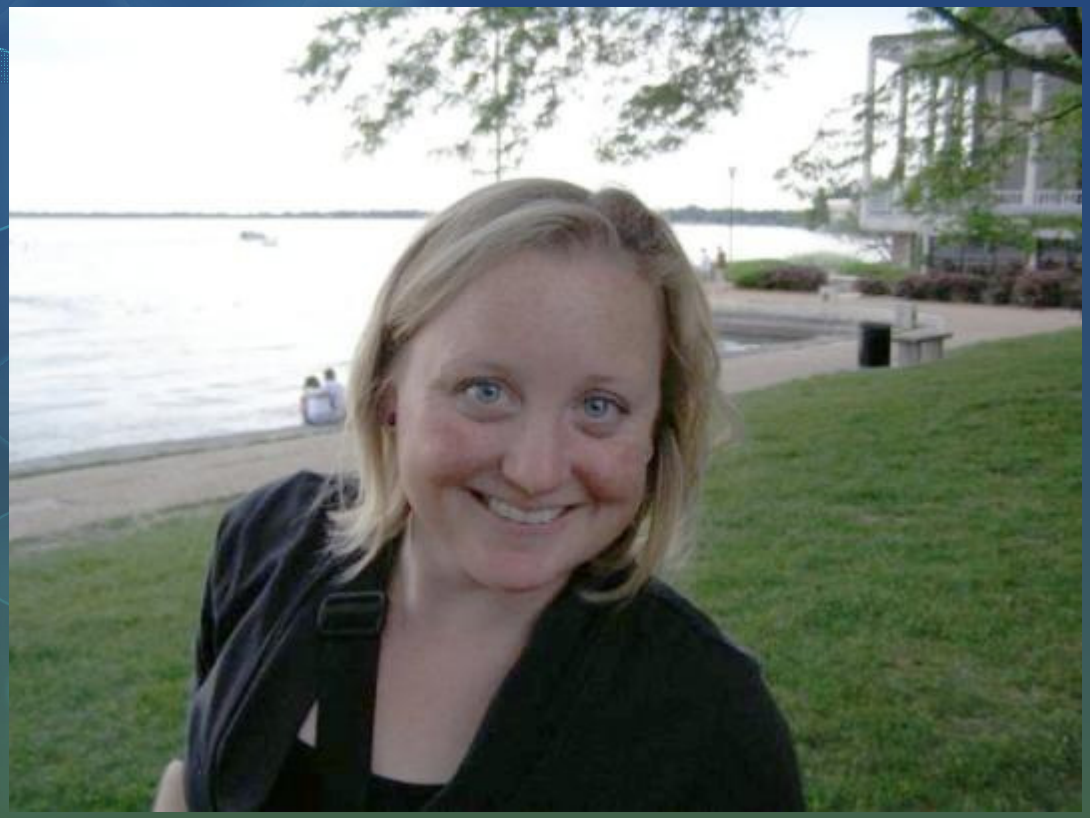
Carlee Brown · cbrown@westgov.org · 303-623-9378

Montana Fish, Wildlife, and Parks

Paul Sihler · Field Services Supervisor · psihler@mt.gov · 406-444-3196 · (policy)

Rob Brooks · Strategic Planner · robrooks@mt.gov · 406-444-5786 (implementation)

Lydia Bailey · GIS Manager · lbailey@mt.gov · 406-444-5365 (technical)



Kai Henifin

Conservation Biology Institute

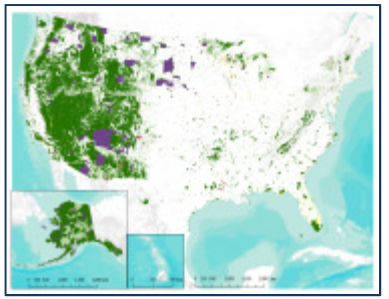
Creating Custom Solutions for Conservation Planning: Using Data Basin and Protected Areas Data

Kai Henifin
Cultural Ecologist & GIS Specialist
Conservation Open Space – August 21, 2013

Goals & Purpose

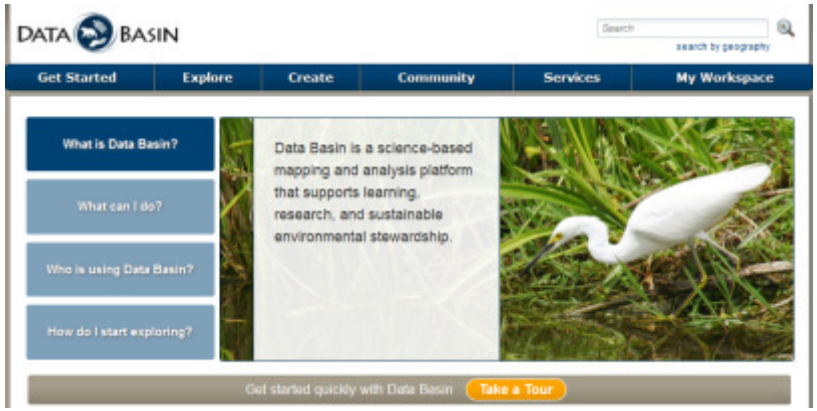
- Produce high quality protected areas datasets for the United States
- Design tools to give users access to protected areas data along with other conservation related datasets
- Customize tools and applications to address conservation planning needs using spatial datasets

Protected Areas Databases For the U.S.



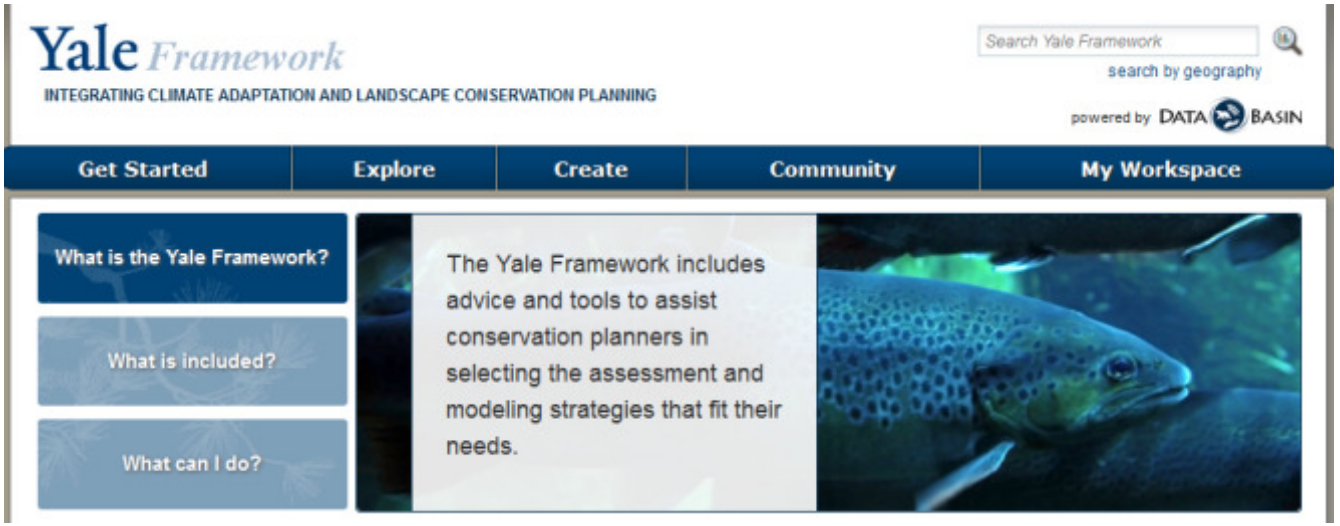
- Protected Areas Database of the United States, PAD-US (CBI Edition) – released October 2012
- National Conservation Easement Database (NCED) – released July 2013
- Terrestrial Conservation Estate – available on Data Basin to download
- Protected Areas Database for Aviators (PAD-A) – released April 2010

Open Access on Data Basin (www.databasin.org)



- Search protected areas datasets
- Download data directly to your computer
- Visualize the data in a mapping viewer
- Create and share custom maps
- Use spatial tools for basic analysis

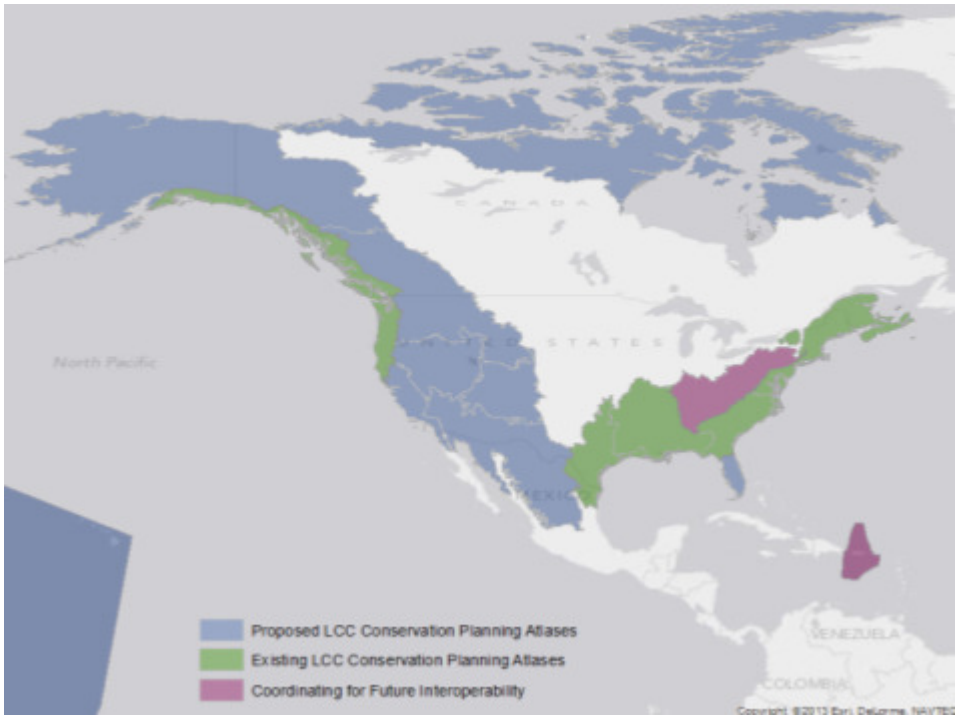
Data Basin Gateways



- Customized pages
- Curated data, maps and publications
- Analysis tools to meet the needs of organizations and multi-institutional projects

Custom Gateways for LCC

- Conservation Planning Atlases (CPAs) powered by Data Basin
  - South Atlantic
  - Gulf Coastal Plains and Ozarks
  - Southeast Region
  - North Atlantic
  - Gulf Coast Prairie
  - North Pacific



Conservation Planning Atlases

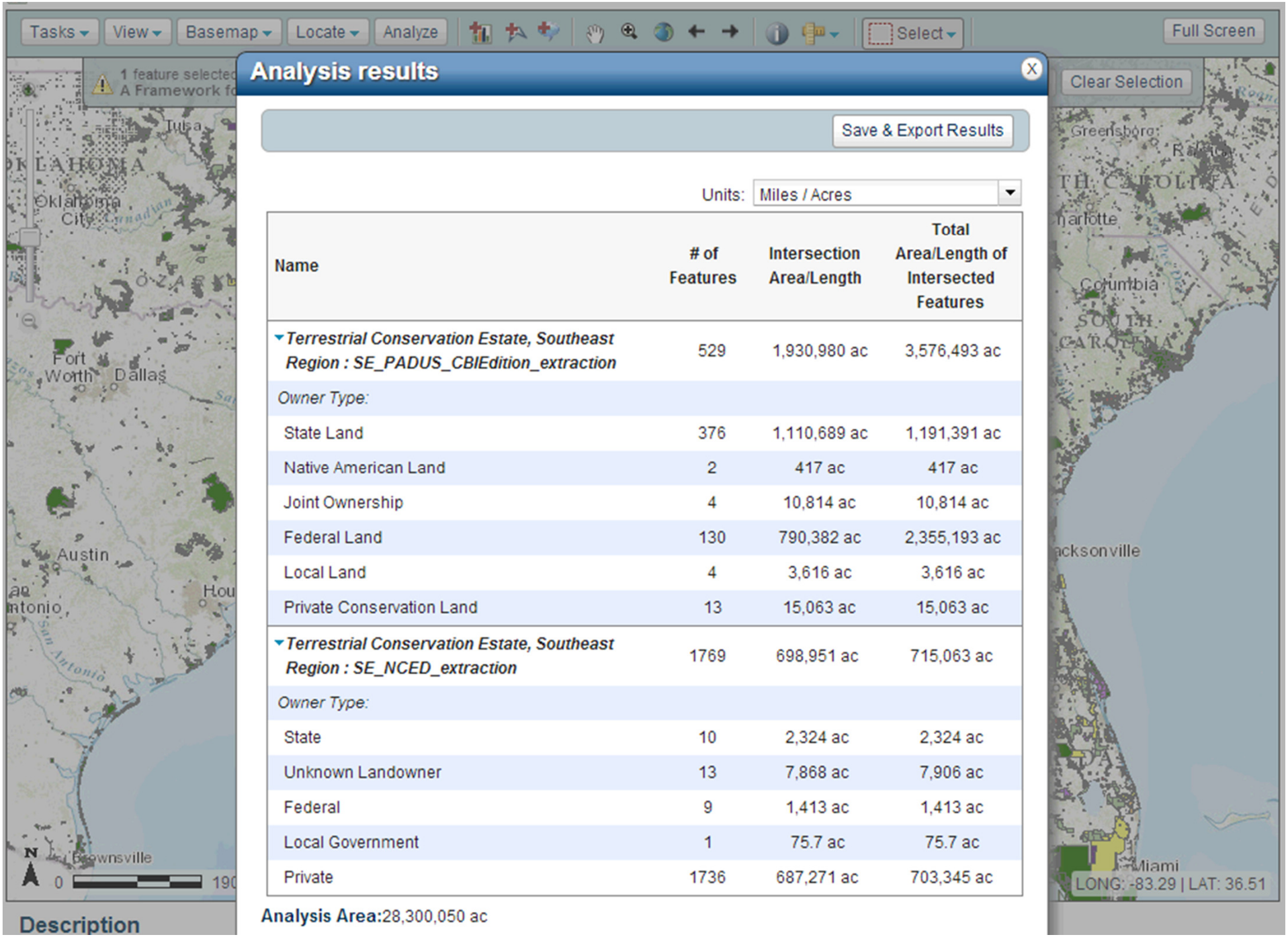
- Allow users to find, visualize and perform basic spatial data analyses
- Serves data in a consistent manner and allows end-users to easily discover, access, and integrate existing data and tools
- Relies on both web services to expose data/tools that are maintained by remote providers and local storage for serving data/tools maintained in the system

Functions of CPA's

- Central location for data
- Increase connectivity even without direct coordination
- Users with out desktop GIS have access to basic GIS functionality

Analysis Scenario

- Example from Gulf Coastal Plains and Ozarks LCC
  - To use the CPA to access conservation activities in the Mississippi Alluvial Valley (MAV)
  - Find counties with land in the MAV Bird Conservation Region with greater than 10,000 acres in the Conservation Reserve Program
  - Find current protected fee lands within these counties


Tasks
View
Basemap
Locate
Analyze
Select
Full Screen
Clear Selection
Analysis results
Save & Export Results
Units: Miles / Acres
Name
# of Features
Intersection Area/Length
Total Area/Length of Intersected Features
Terrestrial Conservation Estate, Southeast Region : SE_PADUS_CBIEdition_extraction
529
1,930,980 ac
3,576,493 ac
Owner Type:
State Land
376
1,110,689 ac
1,191,391 ac
Native American Land
2
417 ac
417 ac
Joint Ownership
4
10,814 ac
10,814 ac
Federal Land
130
790,382 ac
2,355,193 ac
Local Land
4
3,616 ac
3,616 ac
Private Conservation Land
13
15,063 ac
15,063 ac
Terrestrial Conservation Estate, Southeast Region : SE_NCED_extraction
1769
698,951 ac
715,063 ac
Owner Type:
State
10
2,324 ac
2,324 ac
Unknown Landowner
13
7,868 ac
7,906 ac
Federal
9
1,413 ac
1,413 ac
Local Government
1
75.7 ac
75.7 ac
Private
1736
687,271 ac
703,345 ac
Analysis Area:28,300,050 ac
Description
LONG: -83.29 | LAT: 36.51

Conclusion

- High quality protected areas datasets available for the United States
- Platform to access a rich library of spatial dataset including protected areas
- Custom tools and applications available to address conservation planning needs using spatial datasets

For more information please visit:

Data Basin www.databasin.org

PAD-US (CBI Edition)
www.consbio.org/products/projects/pad-us-cbi-edition

National Conservation Easement Database (NCED)
www.conservationeasement.us

Data Basin Gateways
www.databasin.org/services/gateways

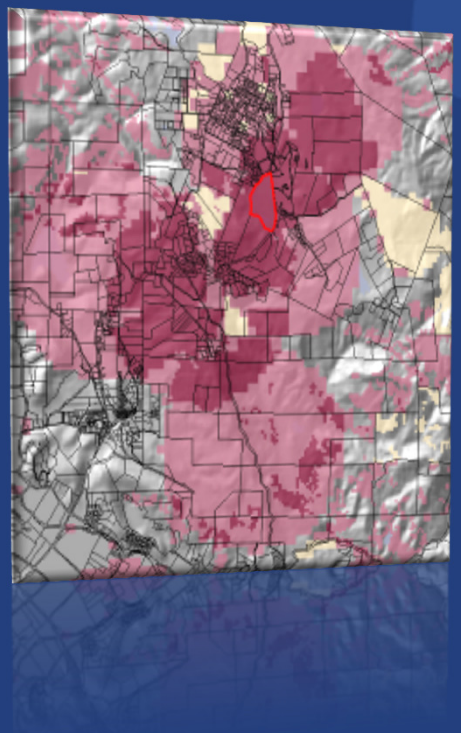
To contact Kai Henifin, please email khenifin@consio.org

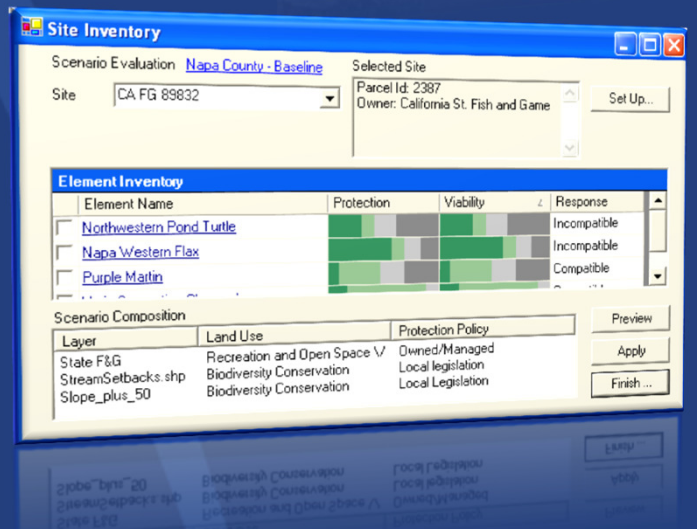
Patrick Crist

NatureServe

NatureServe VISTA

Integrating Conservation & land use with NatureServe Vista DSS

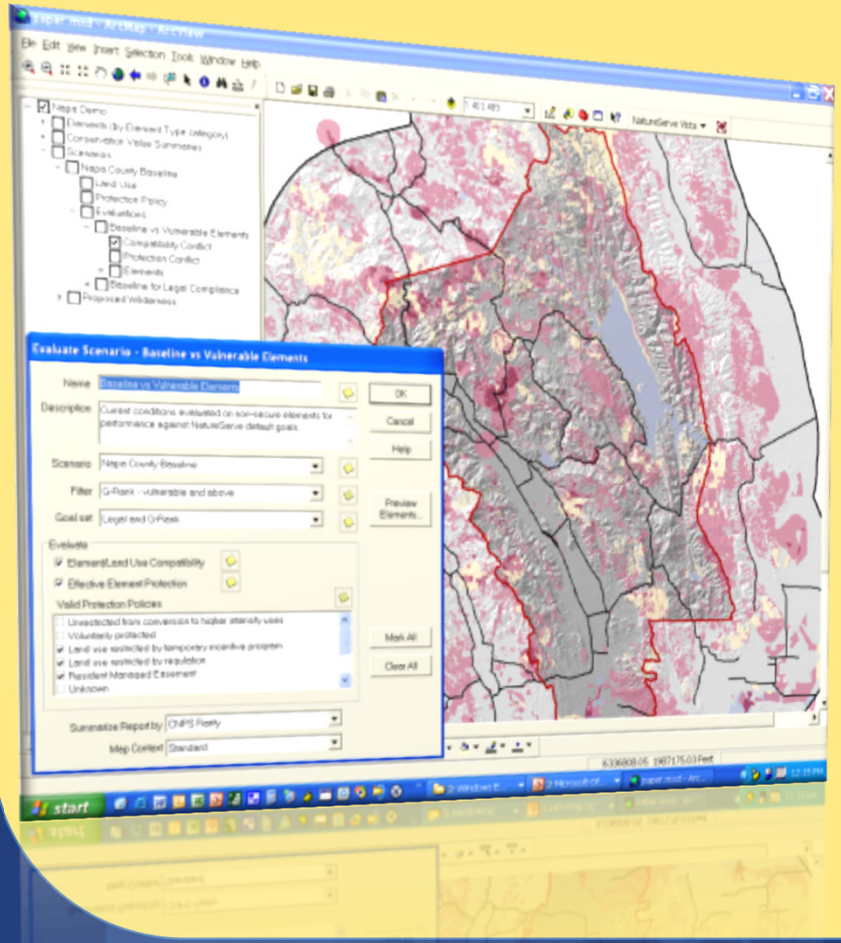




Patrick Crist, PhD
Director of Conservation Planning
NatureServe

NatureServe VISTA

On the land, in the water, anywhere on the globe



- Free extension to ESRI's ArcMap 10.x with spatial analyst
- Multi-objective planning tool with a focus on integrated land use and conservation
- Full integrated help manual, live technical support, available training in person or by web
- ~$4M investment in development & has endowment to support continued maintenance and development

What Does Vista Help You Do?

- Helps you **organize and visualize spatial data**
- **Incorporate expert knowledge**: expert knowledge about biodiversity requirements and sensitivities is the scientific backbone that drives Vista analyses and good planning
- Analyses **incorporate well-vetted concepts** from scenario-based planning, *cumulative effects assessment*, *mitigation hierarchy, systematic conservation planning, and ecosystem-based management & climate adaptation*
- Define a variety of **scenarios** that incorporate unlimited issues and **evaluate** their ability to support species and ecosystems
- Explore the outputs and test the effects of **changes in policy or conditions** (zoning, climate change, etc)
- **Create alternatives** at a site specific level or systematically across the planning region
- **Integrate with other tools** to support more in-depth analyses (e.g., aquatics, offsite mitigation, optimization, etc.)

What Vista does– It is actually simple

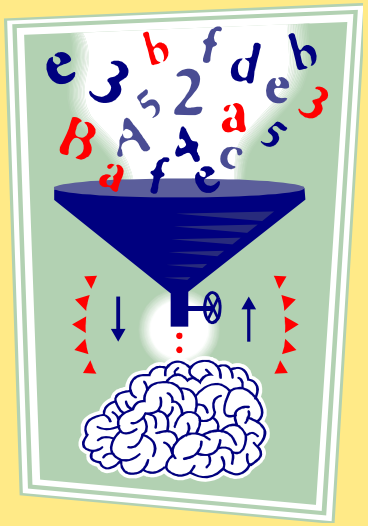
Coastal Live Oak – Redbay series
Photo courtesy of Sally Morehead

Things you care about: Elements

Information about your elements

What will happen to the things you care about

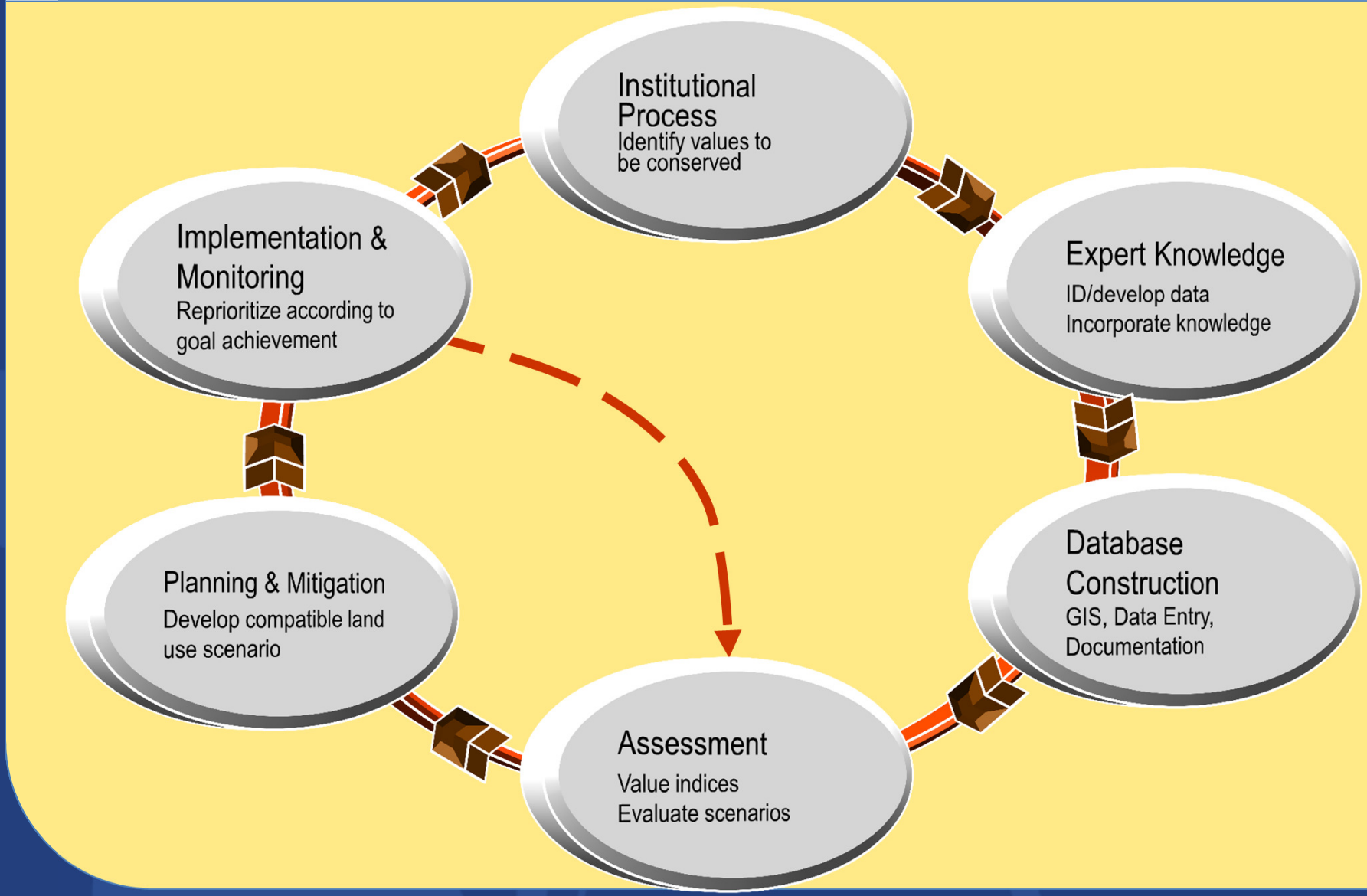
Decision
SUPPORT
Tool



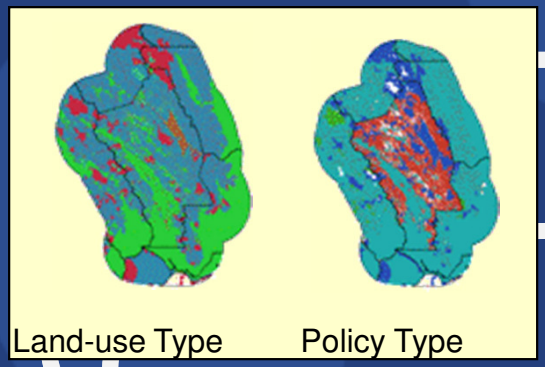
Things that affect your elements: Scenarios

What you want to happen to meet multiple objectives

Vista Supported Adaptive Planning Process

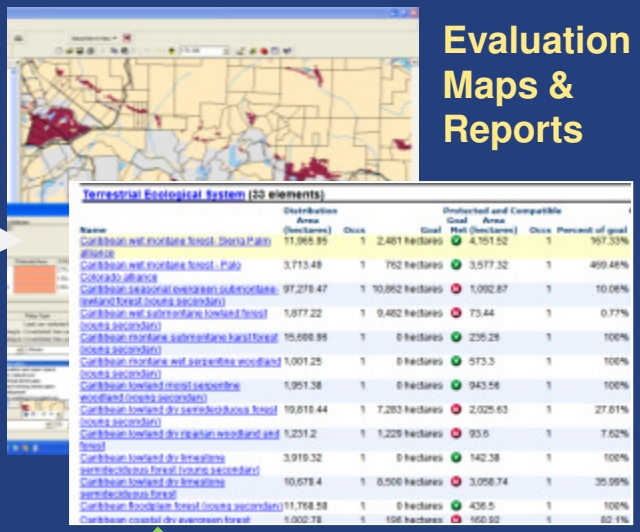


Vista Analytical Process



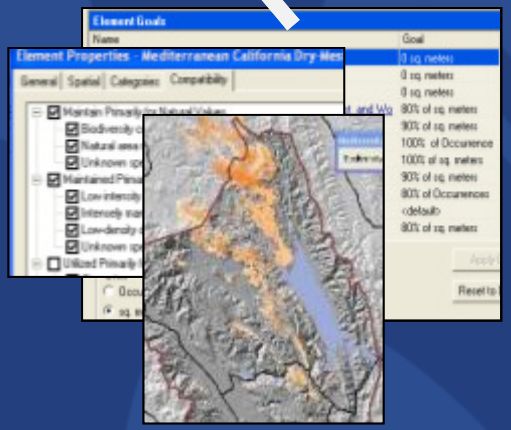
Categorical Response

Condition Model Response

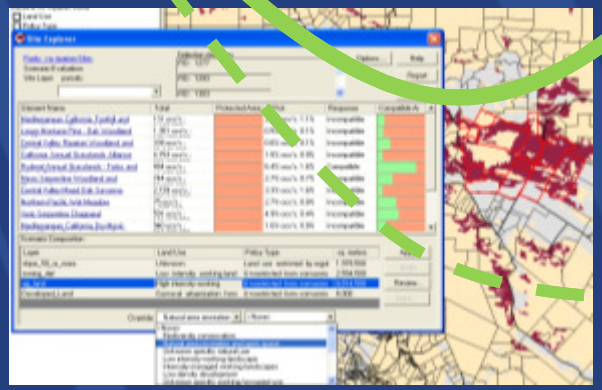


Evaluation Maps & Reports

Scenario Outputs baseline, buildout, trends, alternatives



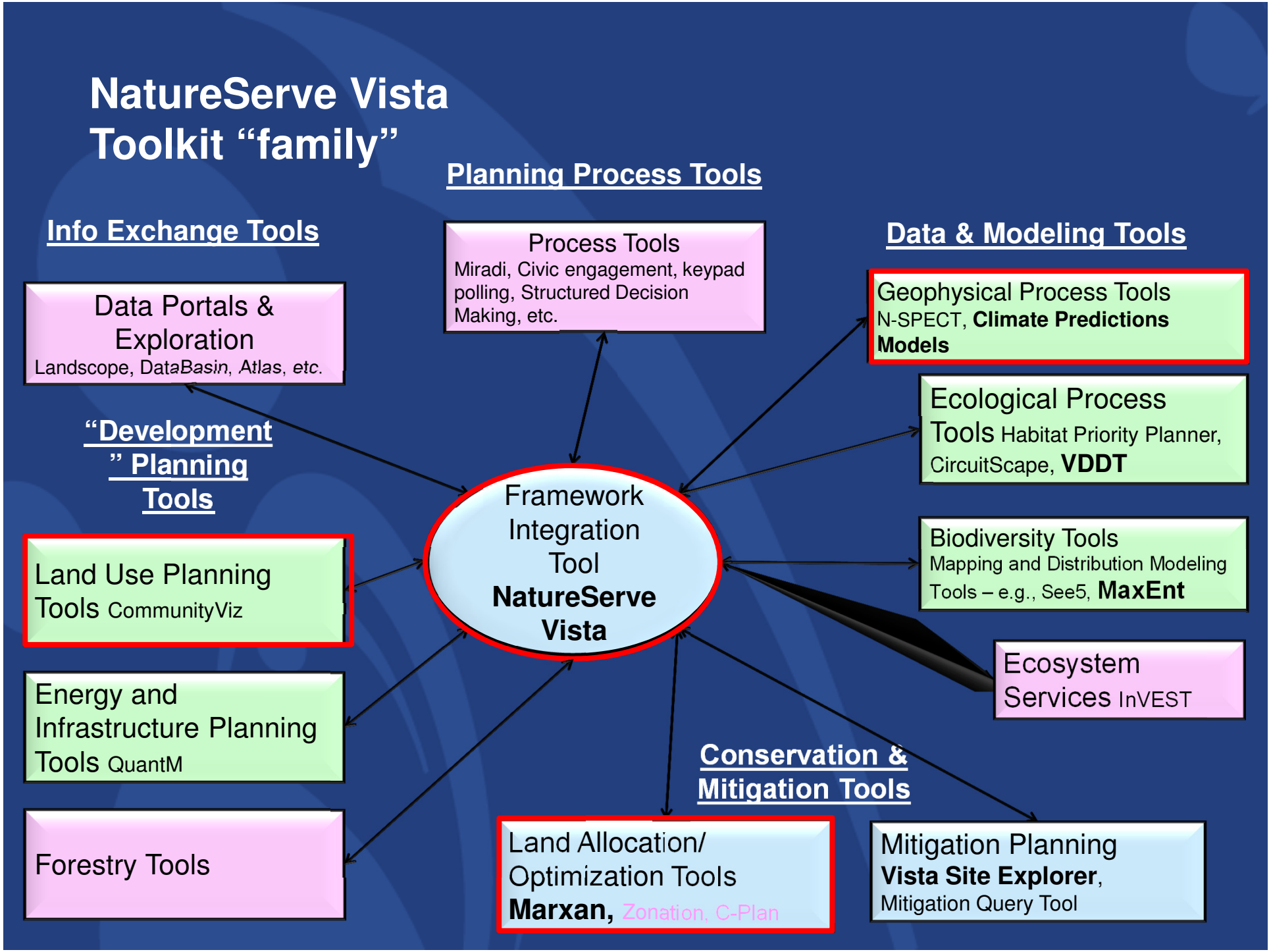
Elements, values, & expert knowledge



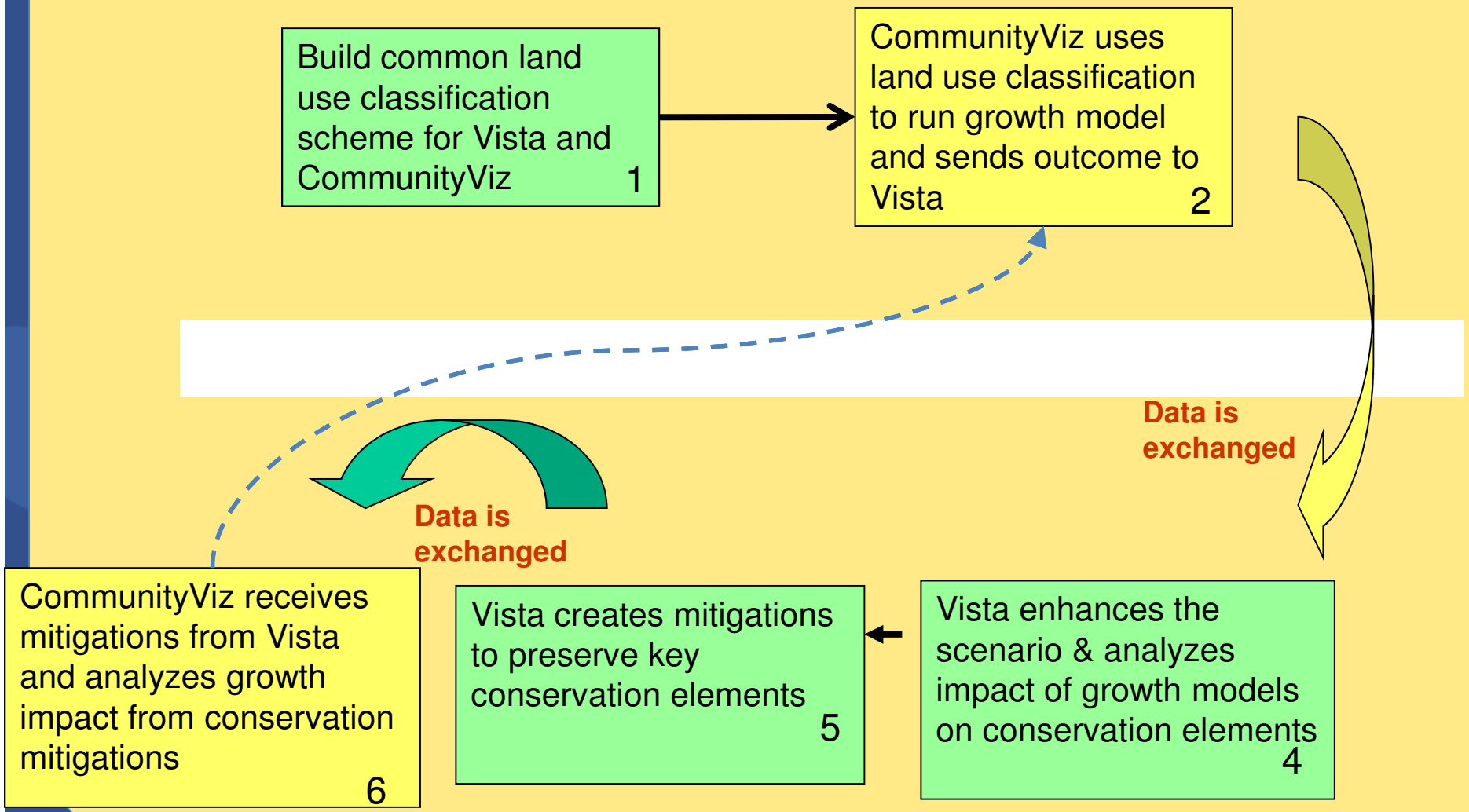
Mitigation & alternative scenario development

Optimized spatial solution generation via interoperating tools

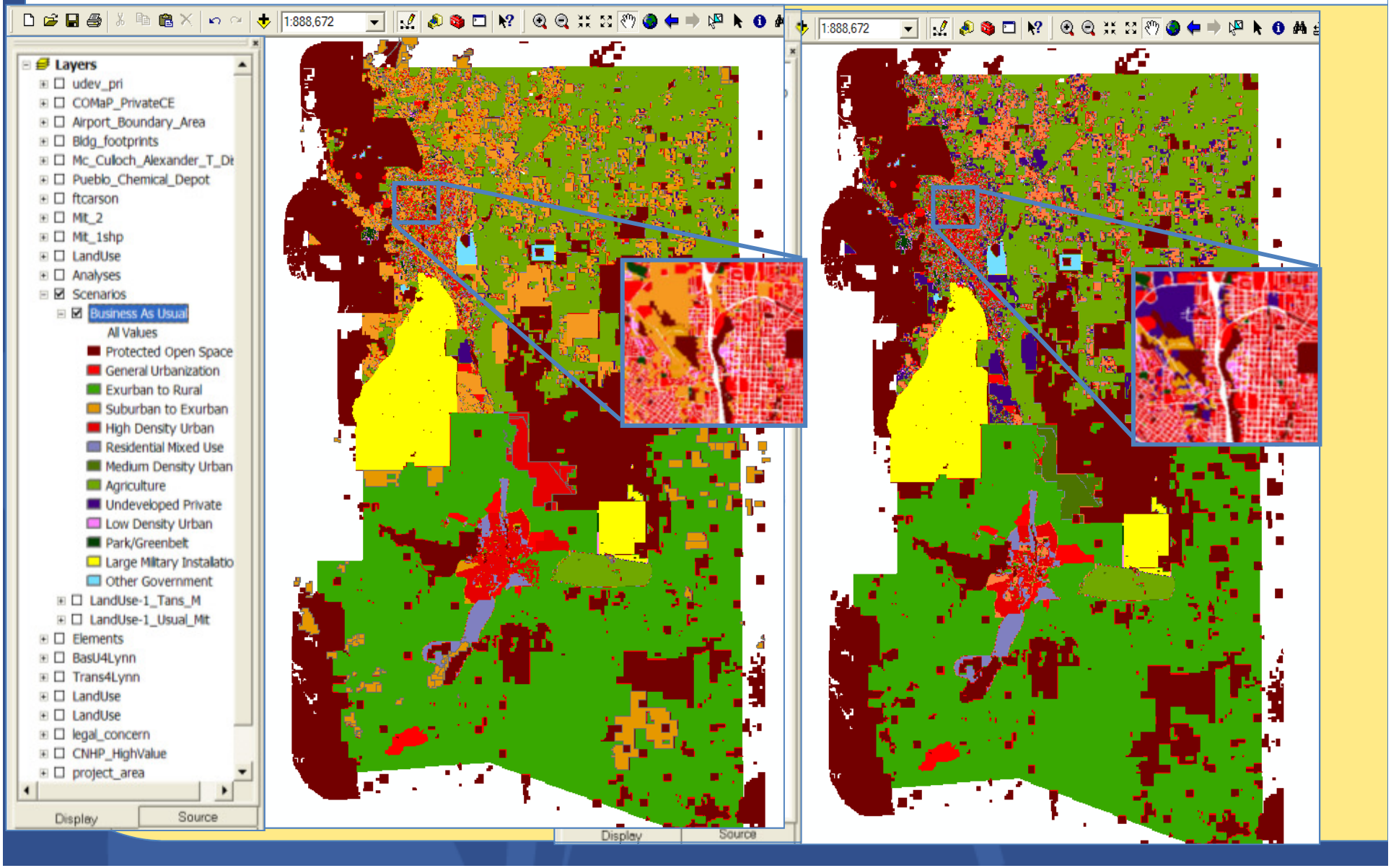
NatureServe Vista Toolkit "family"



Pikes Peak COG: Vista and CommunityViz Interaction Model



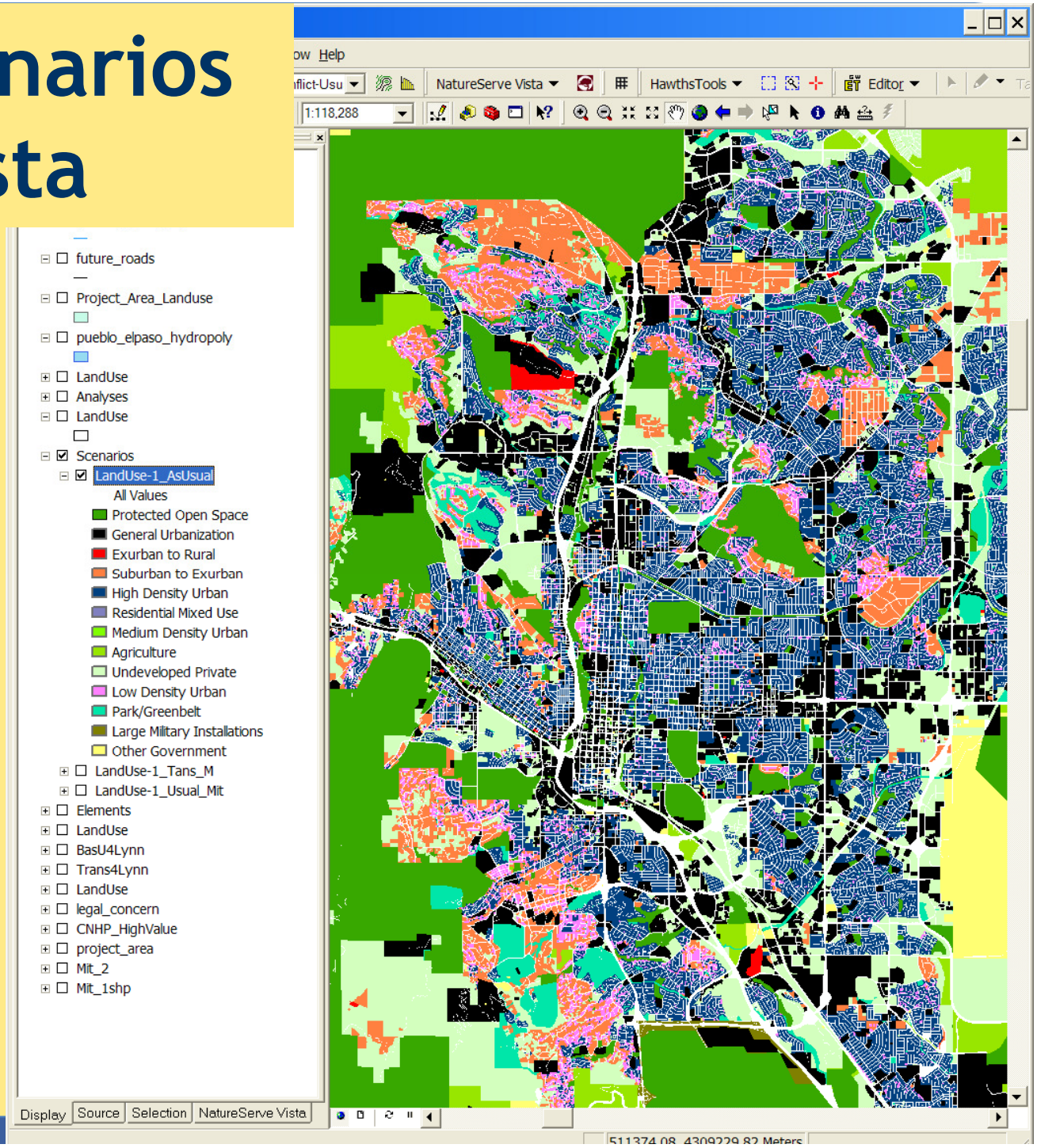
Baseline vs. Business As Usual: CommunityViz



Import Scenarios into Vista

Augment CViz scenarios with features important to your elements:

- Invasive species
- Climate change effects
- Wildfire
- Recreation
- Land management practices, etc…



Evaluate Scenarios in Vista

Scenario Evaluation Report : Usual_M

Back Forward Stop Refresh Print Export Show XML Customize

Goal Performance by Element Type

Summary

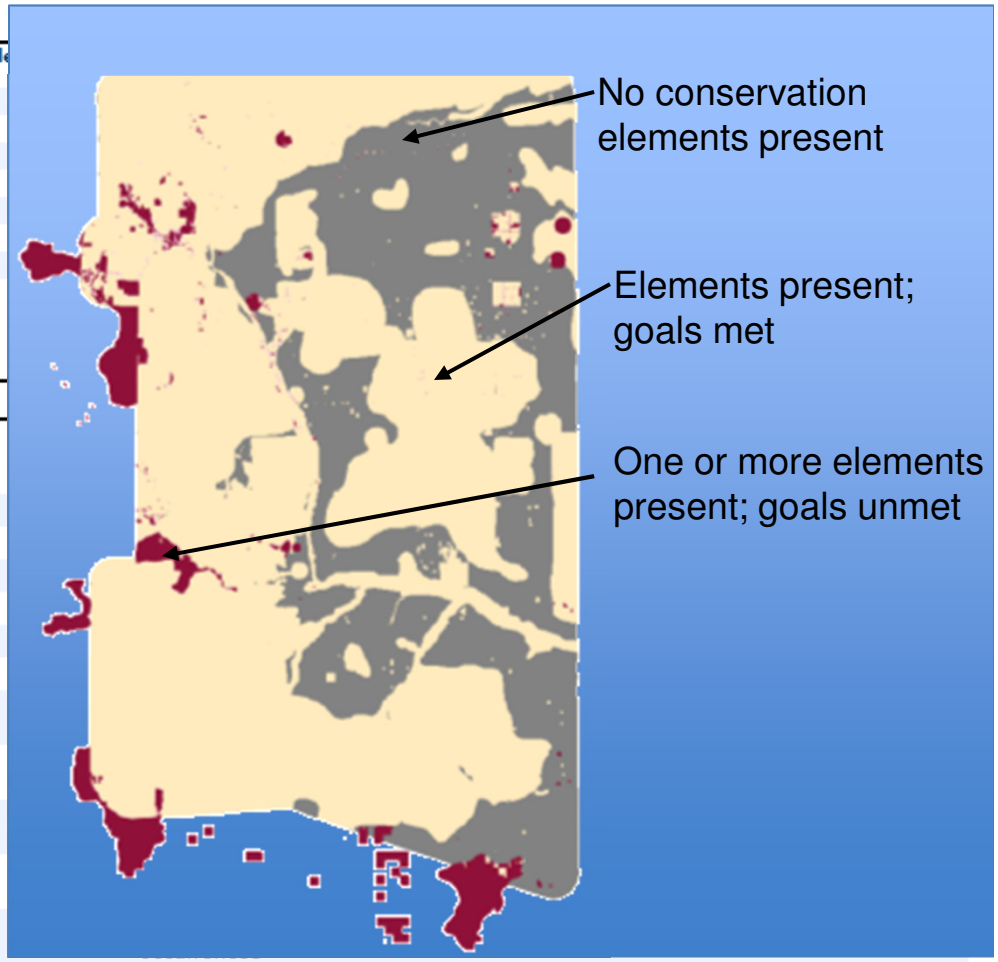
Name	Protected and Compatible Goal Met For
Mammal (12 elements)	
Bird (9 elements)	
Reptile (3 elements)	
Amphibian (2 elements)	
Freshwater Fish (3 elements)	
Vascular Plant (23 elements)	
Invertebrate Animal (6 elements)	

Back to top

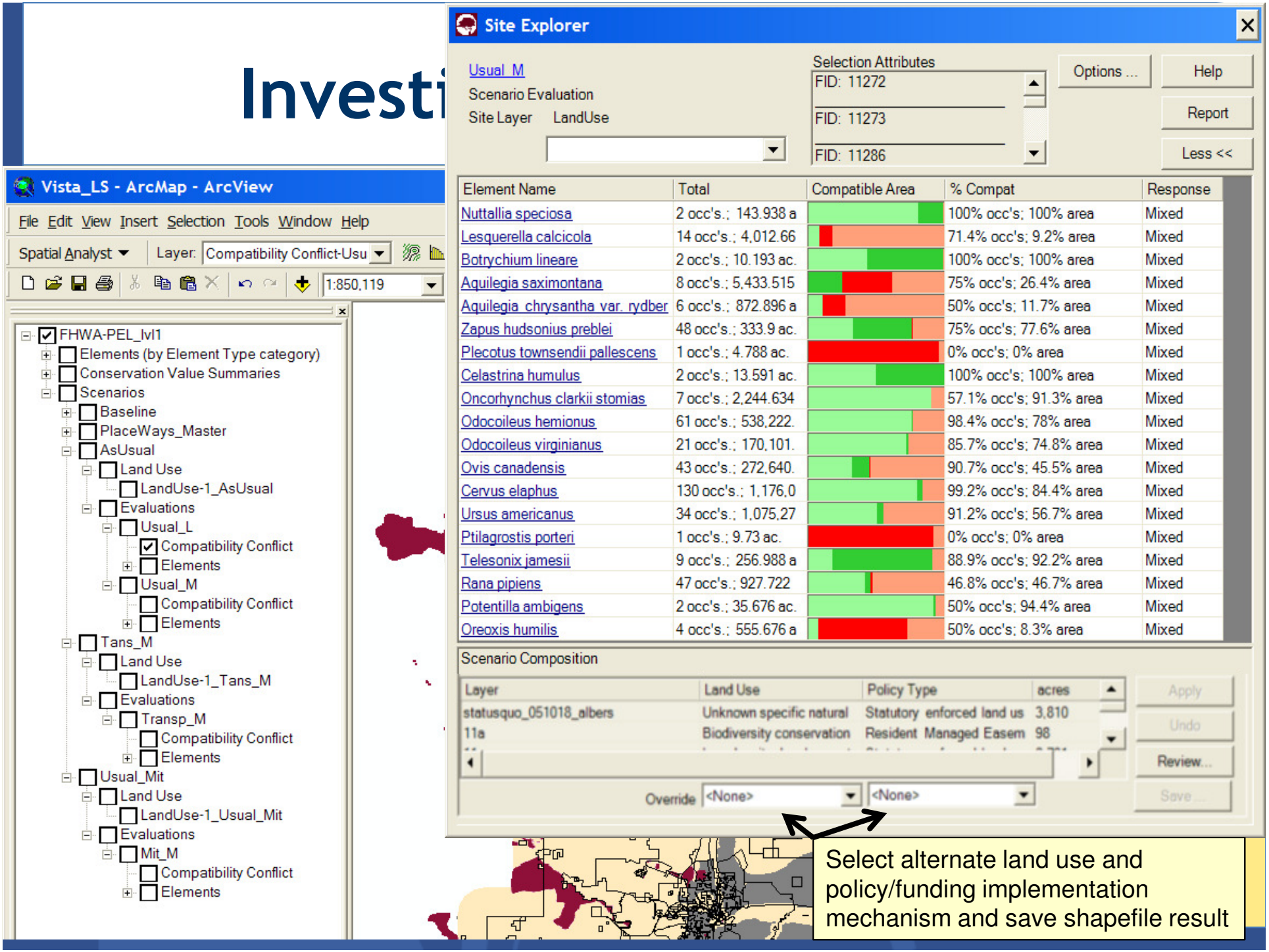
Details

Mammal (12 elements)

Name	Distribution Area (acres)	Occs	Avg Condition
Odocoileus virginianus	170,101.52	21	NaN
Antilocapra americana	1,063,224.41	50	NaN
Odocoileus hemionus	538,222.71	61	NaN
Cervus elaphus	1,176,092.24	130	NaN
Ursus americanus	1,075,273.06	34	NaN
Ovis canadensis	272,640.7	43	NaN
Zapus hudsonius preblei	333.9	48	NaN
Vulpes velox	24,215.14	5	NaN
Plecotus townsendii pallescens	4.79	1	NaN
Cynomys ludovicianus	21,466.72	74	NaN
Cynomys gunnisoni	458.07	3	NaN

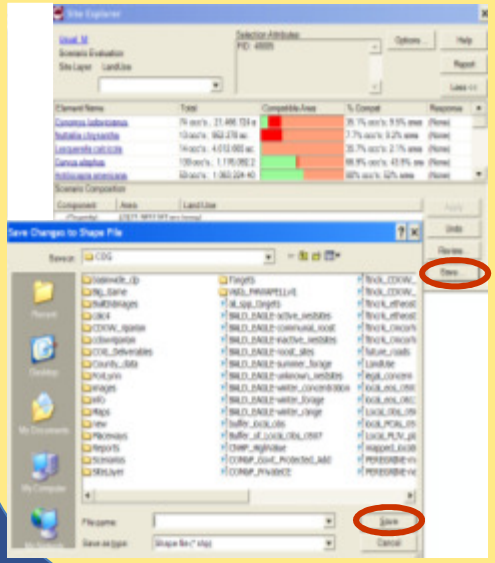


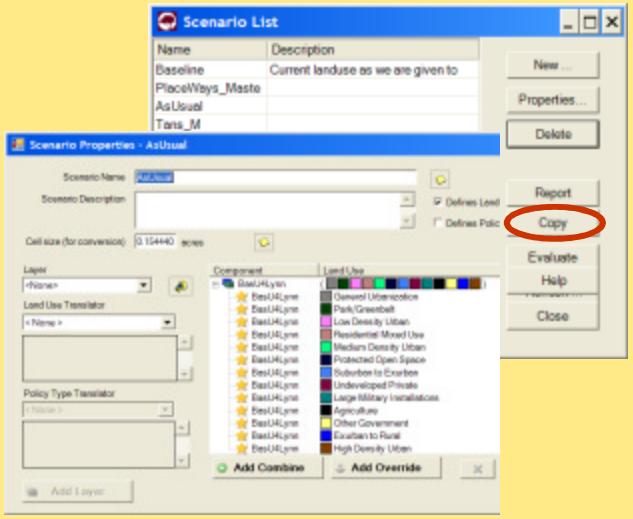
Investi

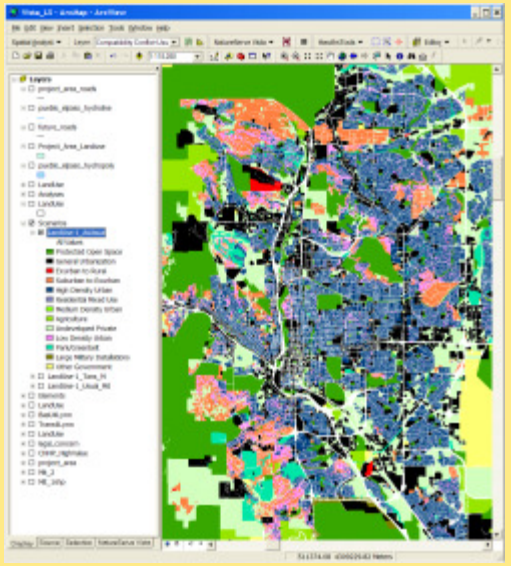

Site Explorer
Usual_M
Scenario Evaluation
Site Layer LandUse
Selection Attributes
FID: 11272
FID: 11273
FID: 11286
Options ...
Help
Report
Less <<
Element Name | Total | Compatible Area | % Compat | Response
Nuttallia speciosa | 2 occ's.; 143.938 a | 100% occ's; 100% area | Mixed
Lesquerella calcicola | 14 occ's.; 4,012.66 | 71.4% occ's; 9.2% area | Mixed
Botrychium lineare | 2 occ's.; 10.193 ac. | 100% occ's; 100% area | Mixed
Aquilegia saximontana | 8 occ's.; 5,433.515 | 75% occ's; 26.4% area | Mixed
Aquilegia chrysantha var. rydber | 6 occ's.; 872.896 a | 50% occ's; 11.7% area | Mixed
Zapus hudsonius preblei | 48 occ's.; 333.9 ac. | 75% occ's; 77.6% area | Mixed
Plecotus townsendii pallescens | 1 occ's.; 4.788 ac. | 0% occ's; 0% area | Mixed
Celastrina humulus | 2 occ's.; 13.591 ac. | 100% occ's; 100% area | Mixed
Oncorhynchus clarkii stomias | 7 occ's.; 2,244.634 | 57.1% occ's; 91.3% area | Mixed
Odocoileus hemionus | 61 occ's.; 538,222. | 98.4% occ's; 78% area | Mixed
Odocoileus virginianus | 21 occ's.; 170,101. | 85.7% occ's; 74.8% area | Mixed
Ovis canadensis | 43 occ's.; 272,640. | 90.7% occ's; 45.5% area | Mixed
Cervus elaphus | 130 occ's.; 1,176,0 | 99.2% occ's; 84.4% area | Mixed
Ursus americanus | 34 occ's.; 1,075,27 | 91.2% occ's; 56.7% area | Mixed
Ptilagrostis porteri | 1 occ's.; 9.73 ac. | 0% occ's; 0% area | Mixed
Telesonix jamesii | 9 occ's.; 256.988 a | 88.9% occ's; 92.2% area | Mixed
Rana pipiens | 47 occ's.; 927.722 | 46.8% occ's; 46.7% area | Mixed
Potentilla ambigens | 2 occ's.; 35.676 ac. | 50% occ's; 94.4% area | Mixed
Oreoxis humilis | 4 occ's.; 555.676 a | 50% occ's; 8.3% area | Mixed
Scenario Composition
Layer | Land Use | Policy Type | acres
statusquo_051018_albers | Unknown specific natural | Statutory enforced land us | 3,810
11a | Biodiversity conservation | Resident Managed Easem | 98
Apply
Undo
Review...
Save ...
Override <None> <None>
Vista_LS - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help
Spatial Analyst
Layer: Compatibility Conflict-Usu
1:850,119
FHWA-PEL_lvl1
Elements (by Element Type category)
Conservation Value Summaries
Scenarios
Baseline
PlaceWays_Master
AsUsual
Land Use
LandUse-1_AsUsual
Evaluations
Usual_L
Compatibility Conflict
Elements
Usual_M
Compatibility Conflict
Elements
Tans_M
Land Use
LandUse-1_Tans_M
Evaluations
Transp_M
Compatibility Conflict
Elements
Usual_Mit
Land Use
LandUse-1_Usual_Mit
Evaluations
Mit_M
Compatibility Conflict
Elements
Select alternate land use and policy/funding implementation mechanism and save shapefile result

Closing the Loop, Iterative Planning with Tools

- Export Vista mitigation alternative into Cviz
- Re-evaluate in Cviz
- Iterate until multi-objectives are reached
- Optimization tools can help!







Ongoing Implementation & Adaptive Planning

- In seconds, evaluate any proposed land action
- Find “next best” alternatives when politics/economics override the plan
- Update plans with new/revised data and science

Integration with online DSS

- Not an either or, both sets of tools important and useful!
- Download source input data or synthesized products from online to Vista
- Upload analytical results from Vista for use in online tools

That all sounds complicated, how can planners get help?

- Advising, training, tech support: NatureServe
- Biodiversity expertise: Natural Heritage Programs in every state
- Other useful data sources
  - Landscape Conservation Cooperatives
  - BLM Rapid Ecoregional Assessments
  - Western states “CHATs”
  - Landscope.org (data download coming soon)
  - DataBasin

Conclusion

- Vista is Free!
- Register and download at www.natureserve.org/vista
- New version coming out September 2013

- Follow up: patrick_crist@natureserve.org

Questions and Answers

Ask questions through the chat pod

Session #18 – Planning for Climate Change Adaptation: forests, wildlife and land use

Wednesday, September 4th at 2:00 pm Eastern

Dave Peterson

USFS Pacific Northwest Research Station

Bruce Stein

National Wildlife Federation

Phil Berke

University of North Carolina

CLEMSON
School of AGRICULTURAL, FOREST, AND ENVIRONMENTAL SCIENCES

Future Webinar Topics

- **October –** Collaborative Forest Landscape Restoration
- **November –** Community Wildfire Protection Planning
- **December** – Planning for Urban Forests

Give us your feedback!

www.fs.fed.us/openspace/webinars

Or Contact

Susan Stein – sstein@fs.fed.us
Sara Comas - scomas@fs.fed.us
Rick Pringle – rpringle@fs.fed.us