

Appropriate & Inappropriate uses of REA data/results: Current Status

Part 4d: MIR/NWP Workshop

So...
how don't we
use it?

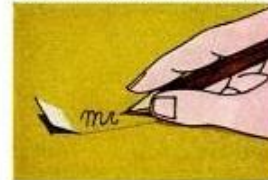


new! new! new! new!

IT'S Looks frosty on the roll, but once you press it down, you hardly know it's there! It's the perfect tape for mending torn books, valuable documents or papers... wherever you don't want the mended part to show!



YOU CAN WRITE ON IT! Takes pencil or pen—even typewriter—and blends in with the paper! Perfect for mending school notes, address books—anything you want to write on! That's "Scotch" Brand "Magic" Tape, the new transparent SUPER tape.

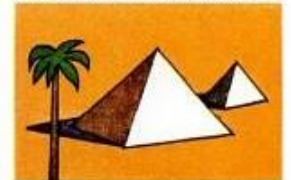


IT RESISTS MOISTURE!

Shrugs off dampness! "Magic" Tape is perfect for mending shelf paper, plastic tablecloths, appliance covers.



IT'S "Magic" Tape, the new transparent SUPER tape, lasts as long as the material it's taped on! **PERMANENT!** For mending anything you want to stay mended. Does what no tape of any kind ever could do before! Won't change color, shrink or crack on the roll or on the job.



MINNESOTA MINING & MANUFACTURING CO. WHERE RESEARCH IS THE KEY TO TOMORROW

"Scotch" and the plaid design are trademarks of the 3M Co.

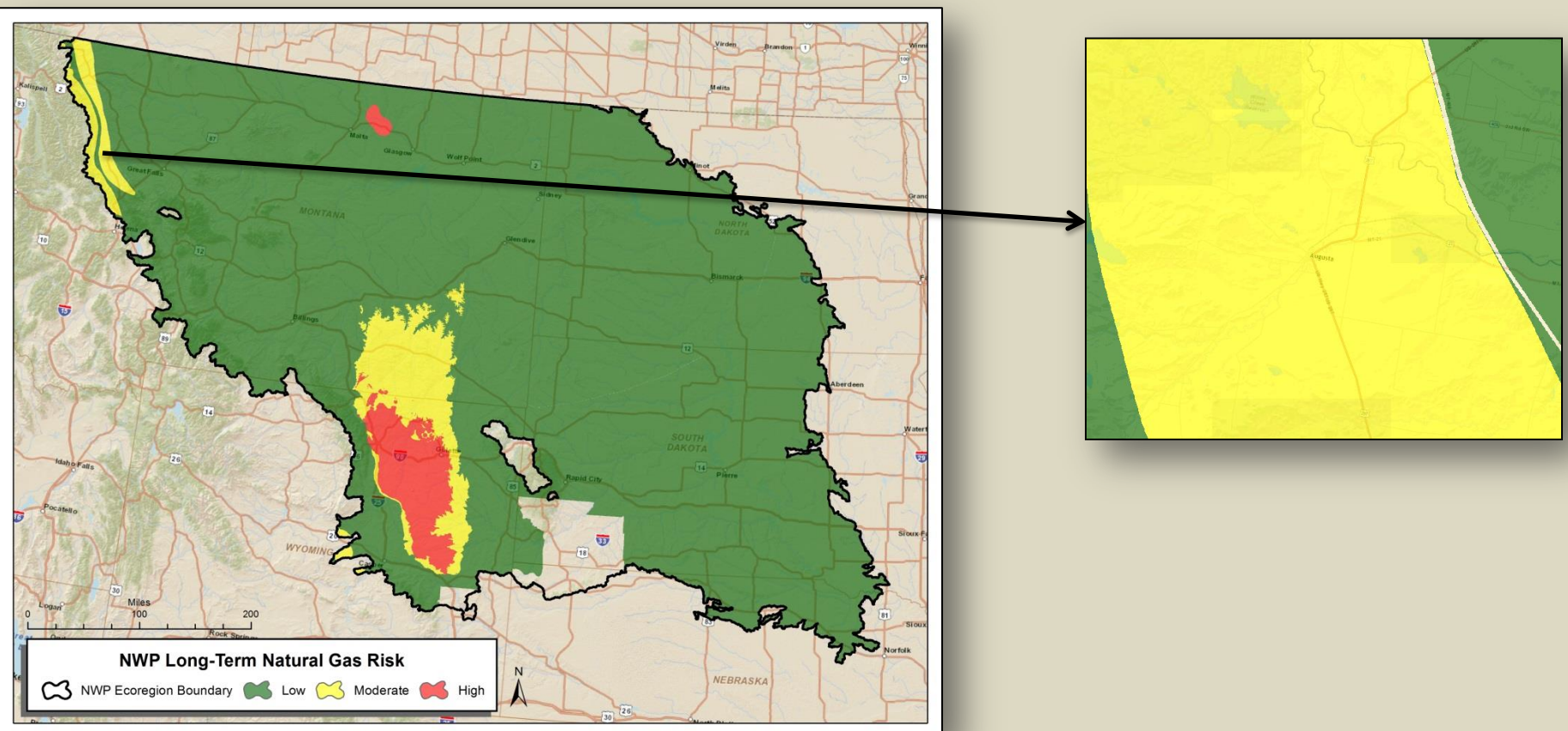
Common Mistakes

- Scale violations
- Misinterpretation
- Legends: flipping, misleading symbolization
- Not understanding data limitations

Scale

Inappropriate Uses

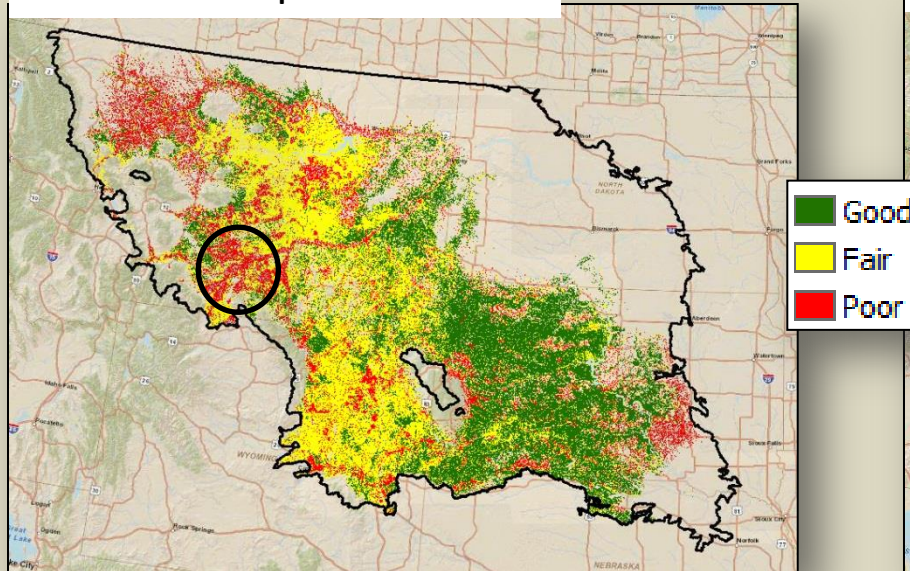
- Clipping to a small area and ignoring the context around it
- Analyzing a single pixel value to determine entire answer
- Resampling to a smaller scale (30m)



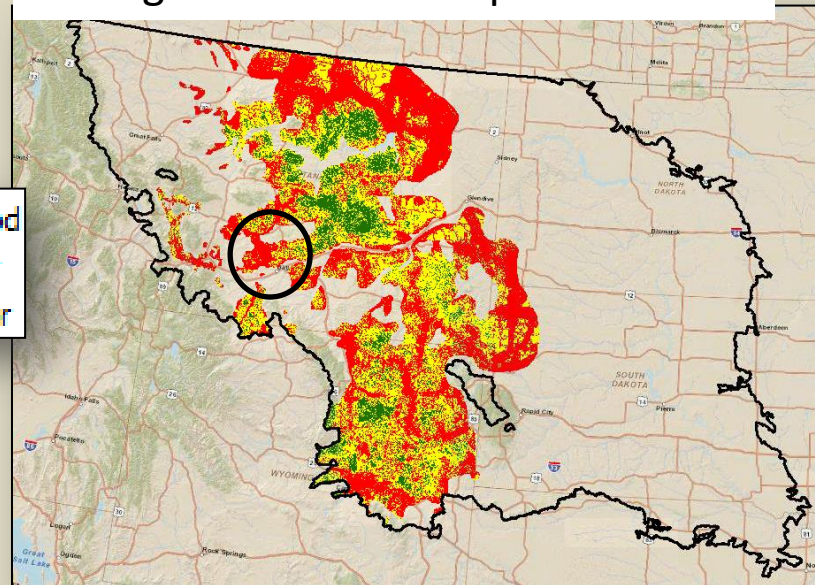
Misinterpretation...of the results

- Comparing indices from one species to another
 - Not always, it depends! **Interpretation** is required depending on responses to anthropogenic disturbances
 - Consider the species/subject

BTPD Development Status



Gr. Sage-Grouse Development Status

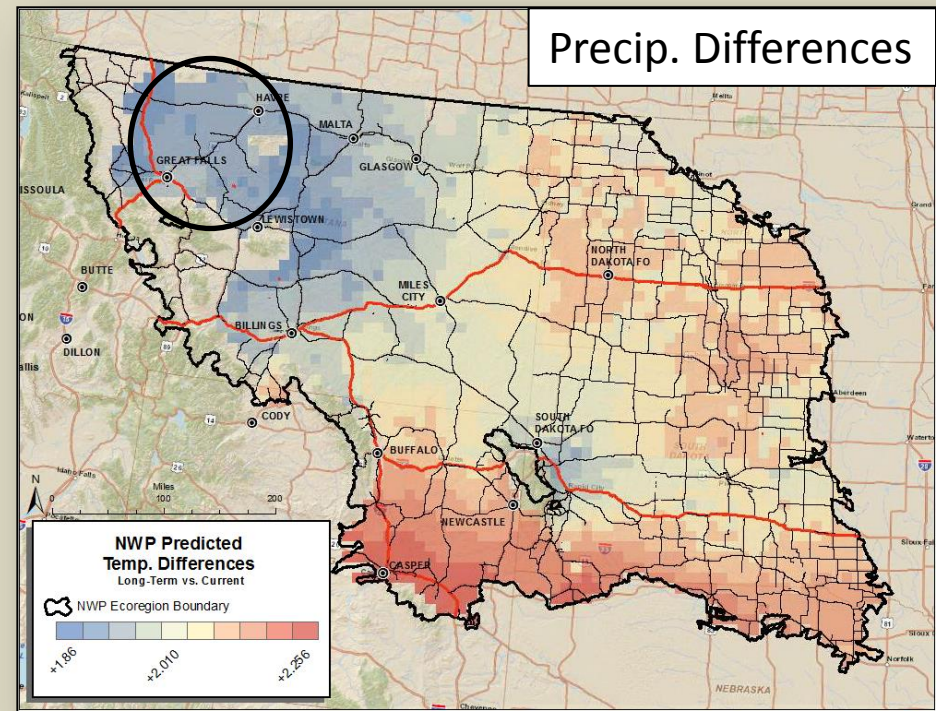
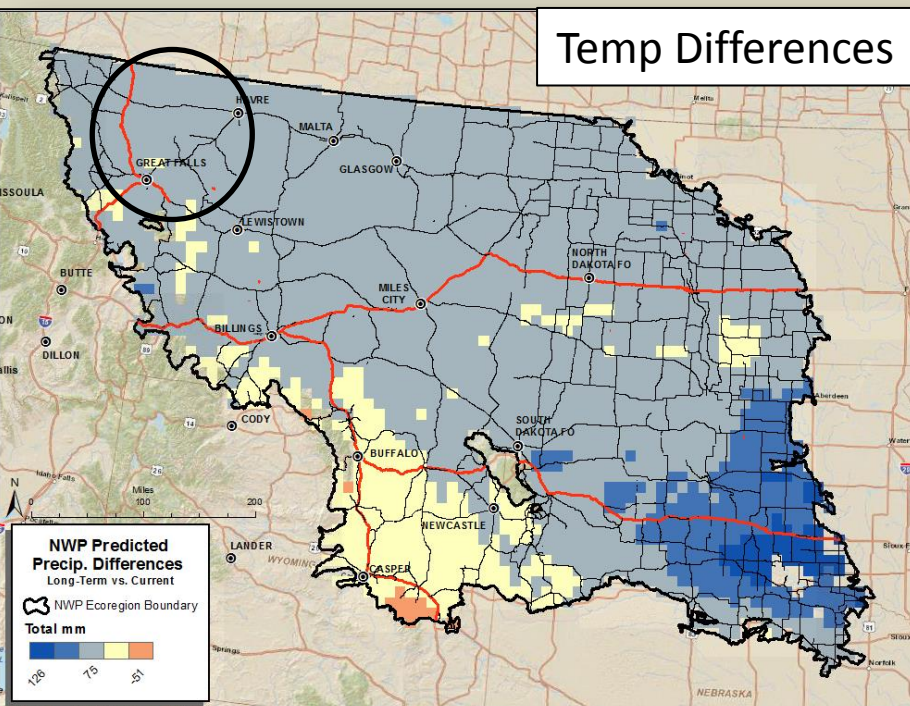


“The BTPD’s habitat in this area is the same quality as sage-grouse..”

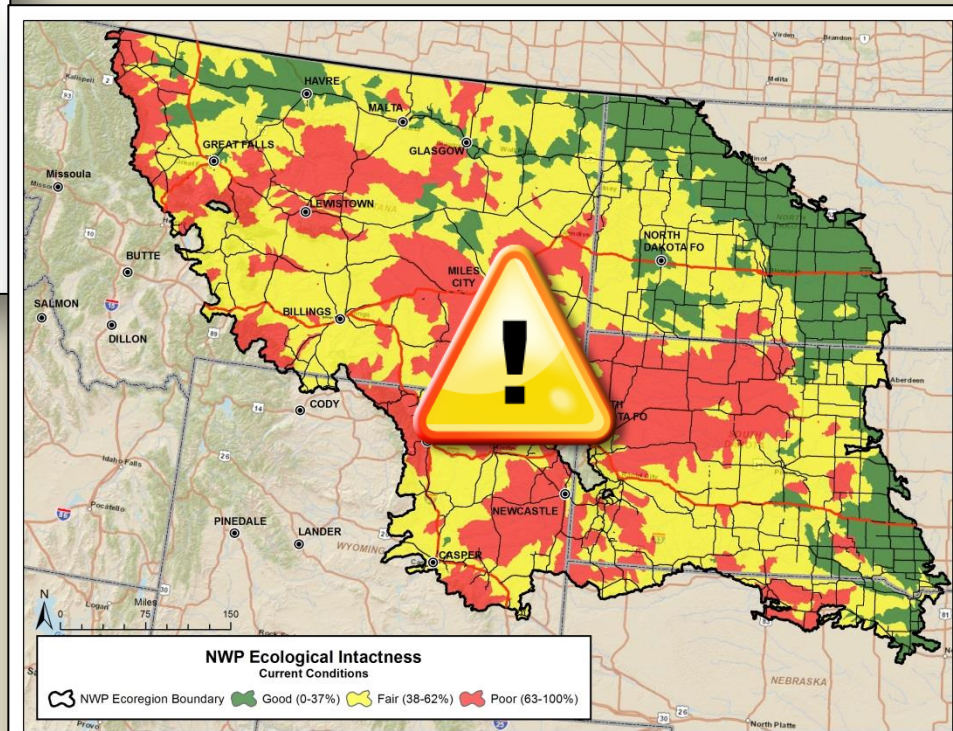
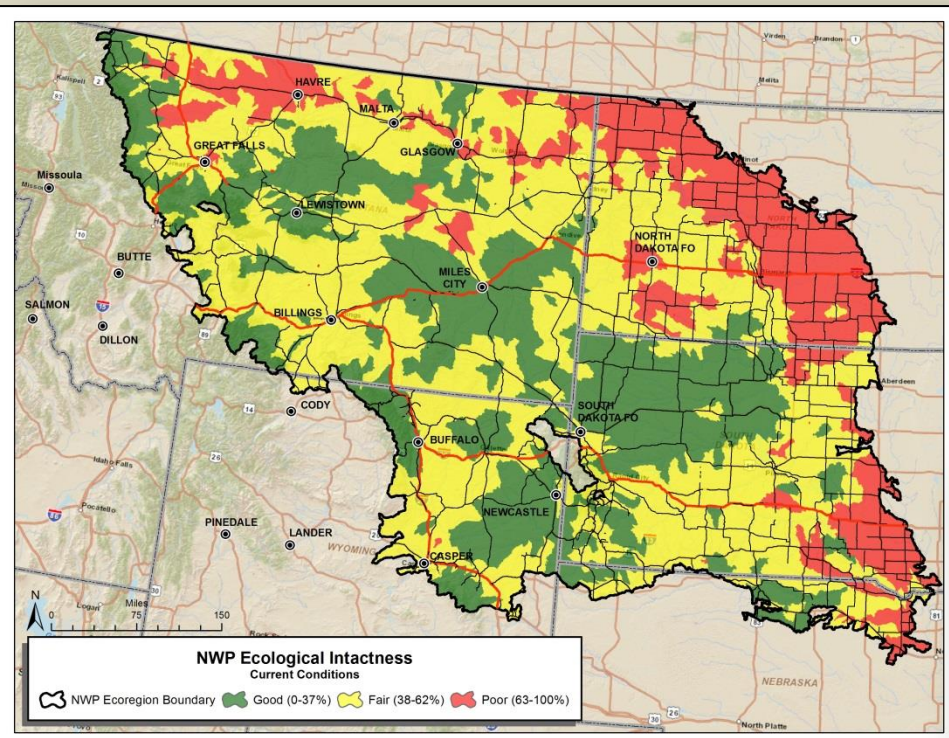
Misinterpretation...of the results

“The areas highlighted below show that climate change isn’t a significant factor for the NWP ecoregion”

Not always, it depends! **Interpretation** is required! Critical analysis of the legend and the subject is very important. This area shows an increase in precipitation (~126 mm/year) and an increase of ~1.8° temperature. That could be significant...



Legends : Flipping



Consider Inputs

- Accuracy
- Age
- Completeness
- Issues/gaps
- Alternative datasets

REA's are comprised of the best available landscape data..

Each dataset was evaluated against a DOI 11 criteria list and scored accordingly

Datasets with *low* score were evaluated with AMT for recommendations

Table F-2. Data Quality Evaluation Summary (Subset) for Northwestern Plains Ecoregion

REA Use	ISO Category	Category	Dataset Name	Source	Score (Out of 44)	Notes
CA Development (Energy)	Utilities/Comm	Renewable Energy	Biomass (2005)	NREL	35	Coverage for the entire United States at the county level, good metadata
CA Development (Energy)	Utilities/Comm	Renewable Energy	Biomass (2008)	NREL	21	Coverage for the entire United States at the county level, no metadata
CA Development (Energy)	Utilities/Comm	Renewable Energy	Potential Geothermal Area	NREL	18	Partial Ecoregion Coverage
CA Development (Energy)	Utilities/Comm	Renewable Energy	Transmission Lines	FEMA	19	Full United States coverage, limited attributes
CE Greater Sage Grouse	Biota	Greater Sage Grouse	Sage Grouse Core Area	BLM	34	

80%

47%

41%

43%

77%

REAs and Accuracy

- “Garbage in garbage out”
 - All datasets went through DQE
 - Assumptions and models supported by literature
- “All models are wrong, some are useful”
 - There is no true “accuracy assessment,” since what we model is not measured (index)
 - How do you appropriately interpret
- Accuracy assessment vs. sensitivity analysis

REAs and Accuracy

- “Best available” data and NEPA
 - Availability
 - Cost
- What data are you collecting that will help?
 - AIM/NRI
- What do you use and what do you need to make decisions?
 - If you have it, what do you do with it?
 - Future work and requirements

Sensitivity Analysis

- How important are your assumptions for the analysis results?
 - If I change an assumption how do my results change
 - Data and assumptions that “drastically” change results with smaller “differences” are more sensitive
 - USGS comparison of REA techniques

Example of Using REA's to prioritize

An NWP REA hypothetical use scenario

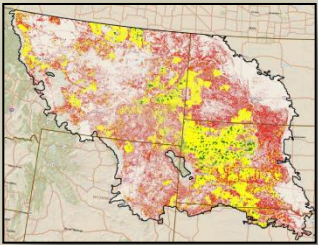


Focal area identification: NWP

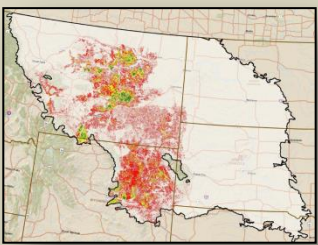
- Where are **grassland** and **shrubland** habitats that are currently in **good** condition from a broad scale perspective?
 - Where is **BLM** a significant land manager?
- What local assessment should be planned for these areas?
 - In these areas, what are the limiting factors (KEAs)?
 - What actions to take?

Initial questions

- How was status assessed in the REA?
 - Is this the same question?
 - Look at conceptual model and process models
- What are my assumptions?
 - Grass OR shrub
 - How much BLM needed?
 - Is my goal preservation or restoration?
 - Any KEAs that are a “no go?”



Grassland
Status
(Good/Fair/Poor)



Shrubland
Status
(Good/Fair/Poor)

Max

Grass/Shrub
Status
(Good/Fair/Poor)

Select "Good"
areas

Grass/Shrub
Status
(Good only)

6th level HUCs with >25% of
area "Good"

Grass/Shrub
Status at 6th
level HUC
(Good only)

Select HUCs with >20% BLM

BLM Lands
(Surface Management
Agency)

Status of BLM
managed
Grass/Shrub at
6th level HUC
(Good only)

Status of BLM
managed
Grass/Shrub at
6th level HUC
(Good only)

Intersect

Focal Areas

Minimum status
input category

Limiting factor
for BLM focal
area

BLM
Management
Practices

This dataset
doesn't currently
exist in a spatial
format

Status Inputs

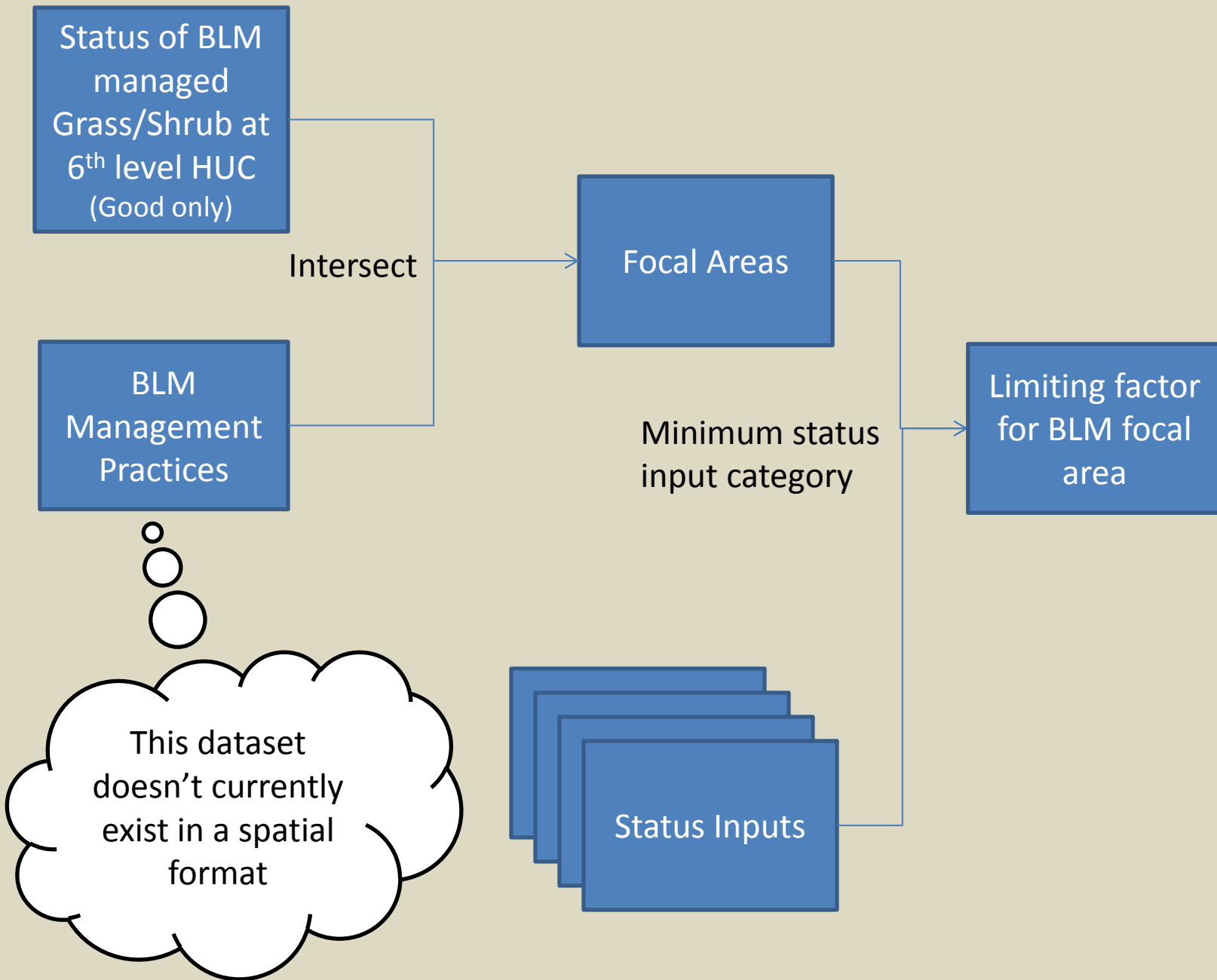
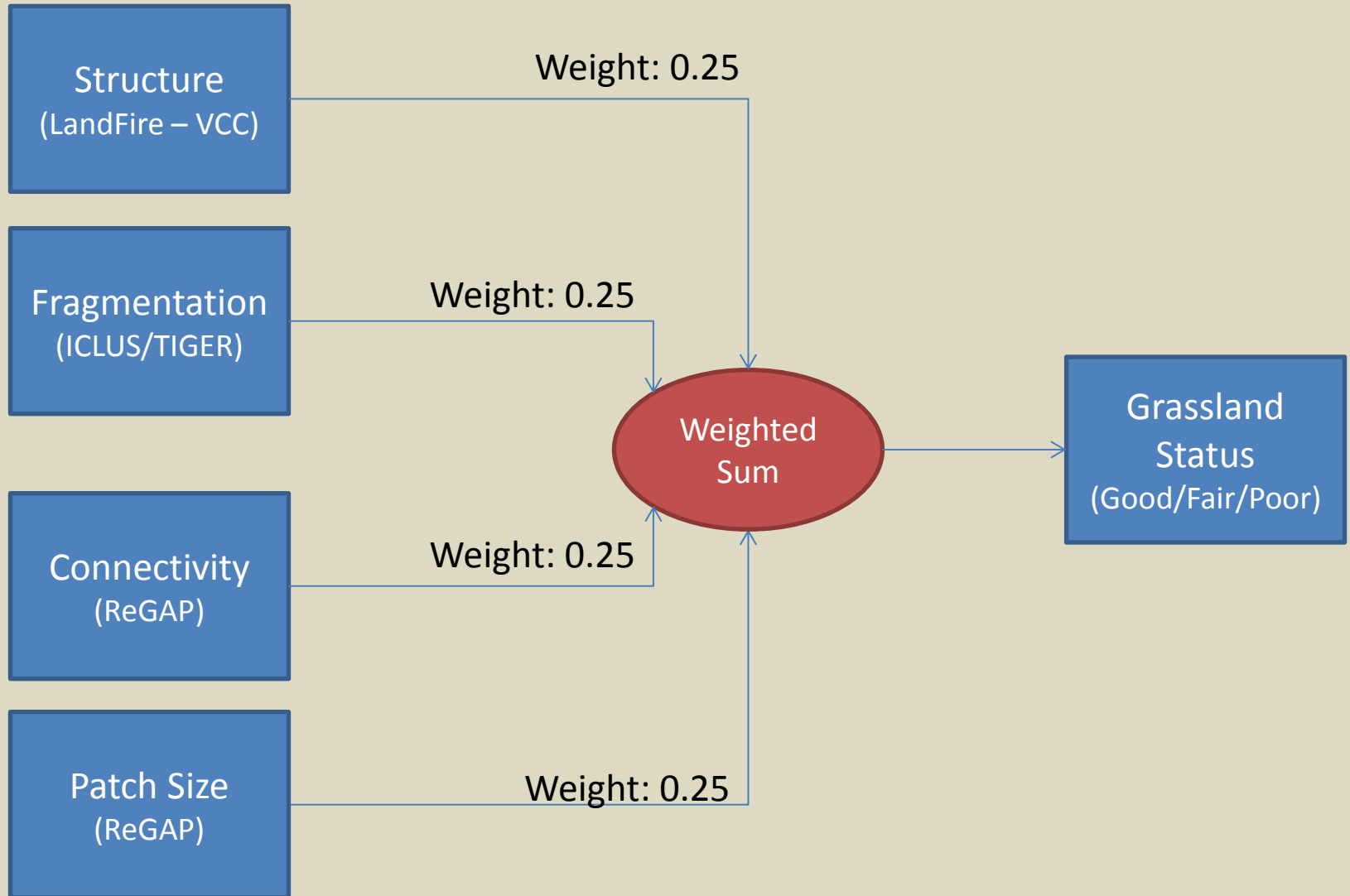


Table D-3-3. Key Ecological Attributes for the **Grassland Vegetation Systems Coarse-Filter Conservation Element for the Northwestern Plains Ecoregion**

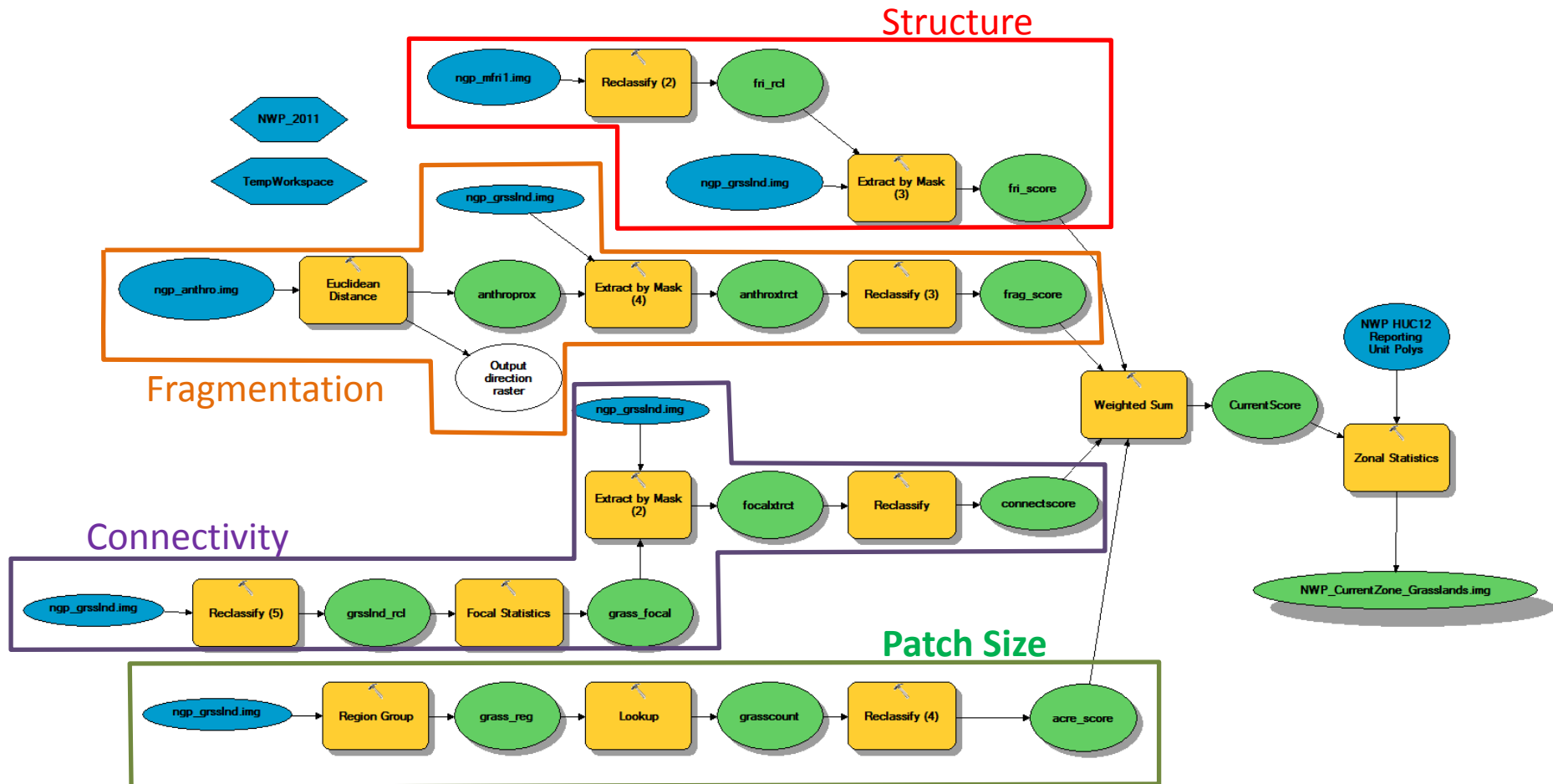
Category	Ecological Attribute	Indicator / Unit of Measure	Metric			Data Source	Citation	Weight
			Poor = 3	Fair = 2	Good = 1			
Size	Patch Size	Acres	< 4,335	4,335-74,790	>74,790	ReGAP/ GAP	RRT Guidance (Geometric Interval classification)	0.25
Landscape Structure	Structure	Mean FRI (years)	0-5	5-15	15-30	LANDFIRE	RRT Guidance	0.25
	Fragmentation	Distance Decay Proximity to anthropogenic layer (m)	< 500 m	500 to 2,500 m	>2,500 m	Integrated Climate and Land Use Scenarios (ICLUS) Topologically Integrated Geographic Encoding and Referencing (TIGER)	Professional judgment; Herkert (1994); Johnson and Igl (2001).	0.25
	Connectivity	Percent of similar habitat (1 kilometer [km] neighborhood)	< 15%	15-30%	>30%	ReGAP/GAP		0.25

Analysis Unit = 30-m pixel
Reporting Unit = 6th level HUC

Grassland Conceptual Model



Grassland Geoprocessing Model



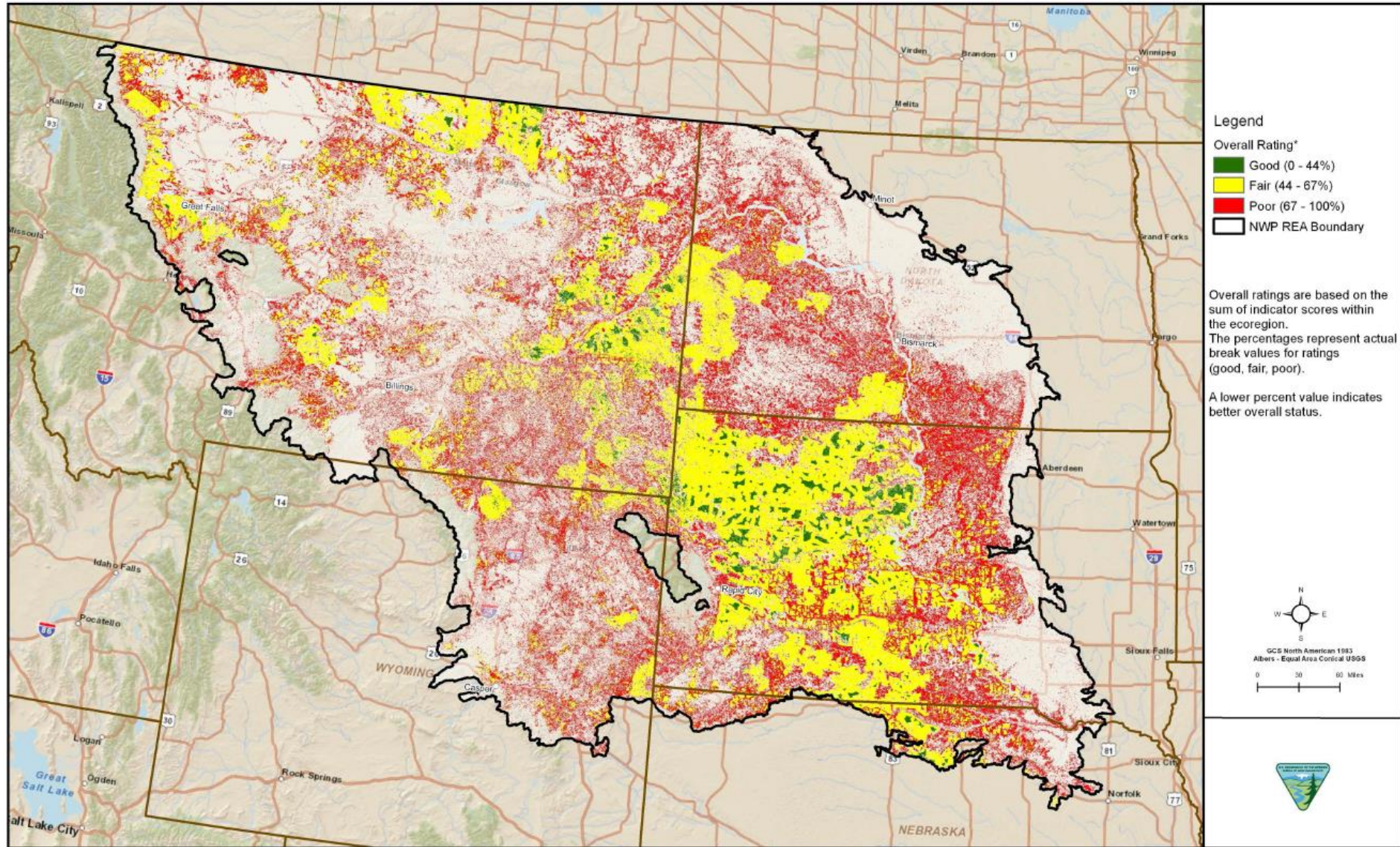


Figure D-3-7. Northwestern Plains Grassland Current Status

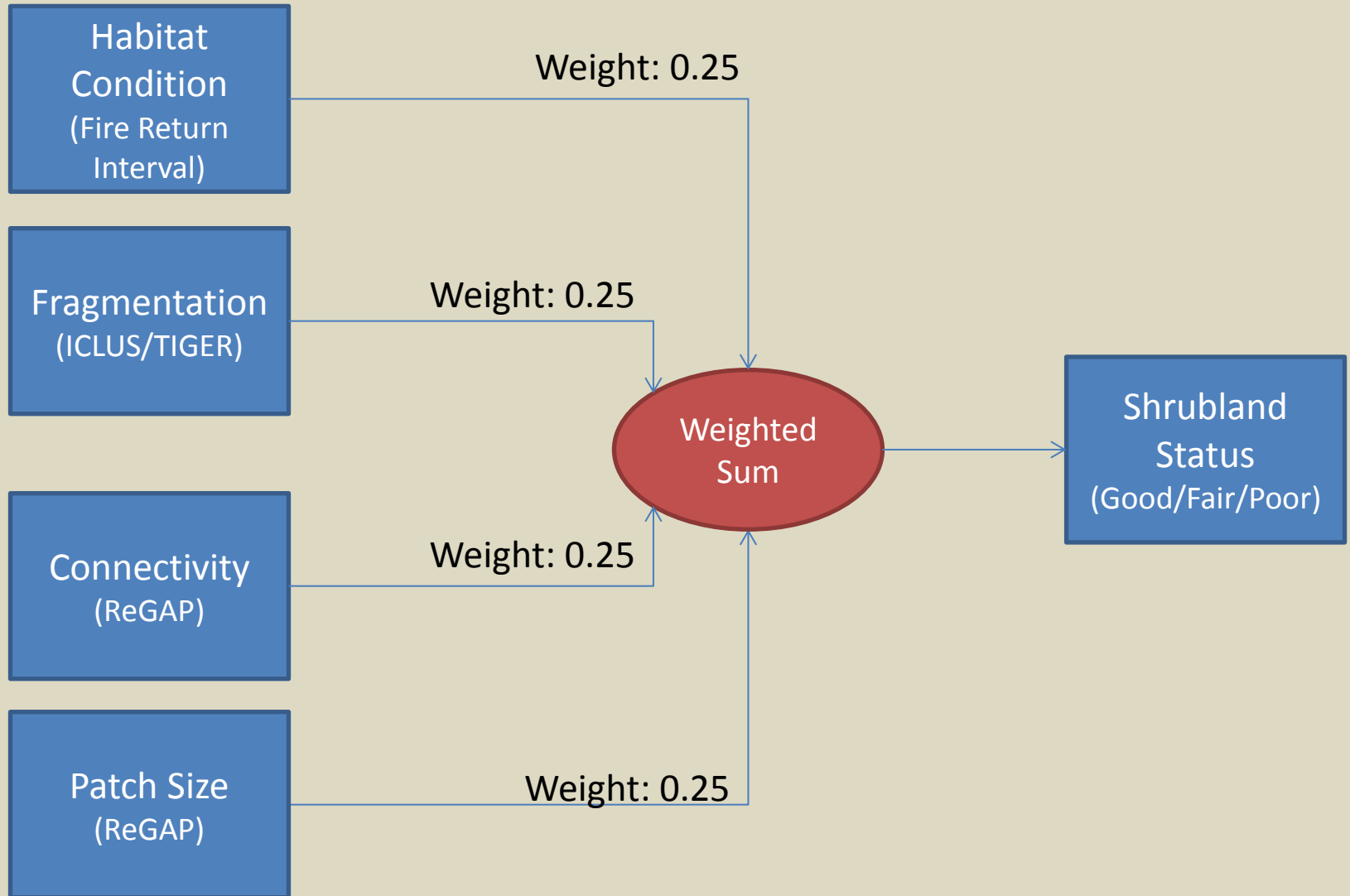
Shrubland Conceptual Model

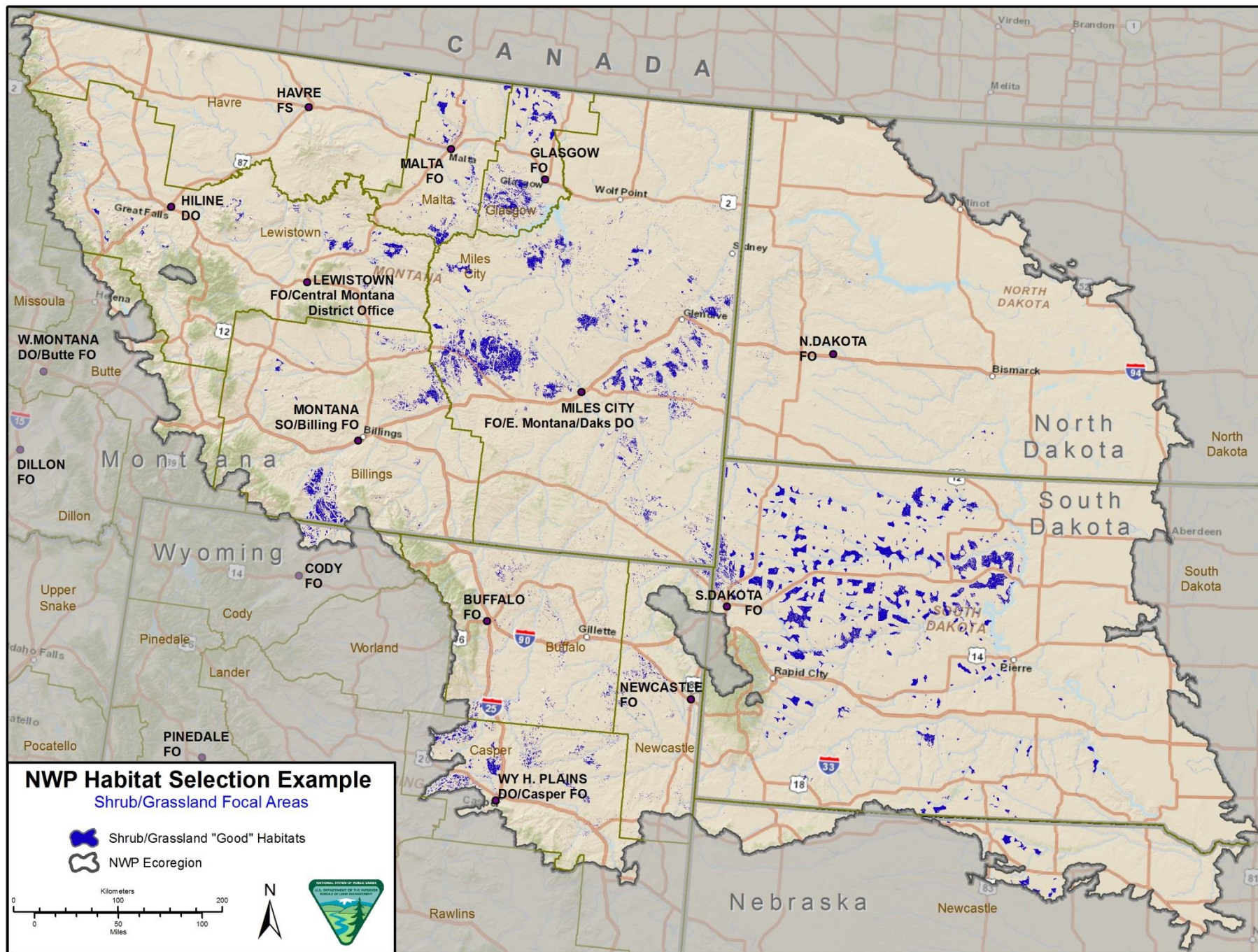
Table D-4-3. Key Ecological Attribute Table for the Shrubland Vegetation Systems Coarse-Filter Conservation Element for the Northwestern Plains Ecoregion

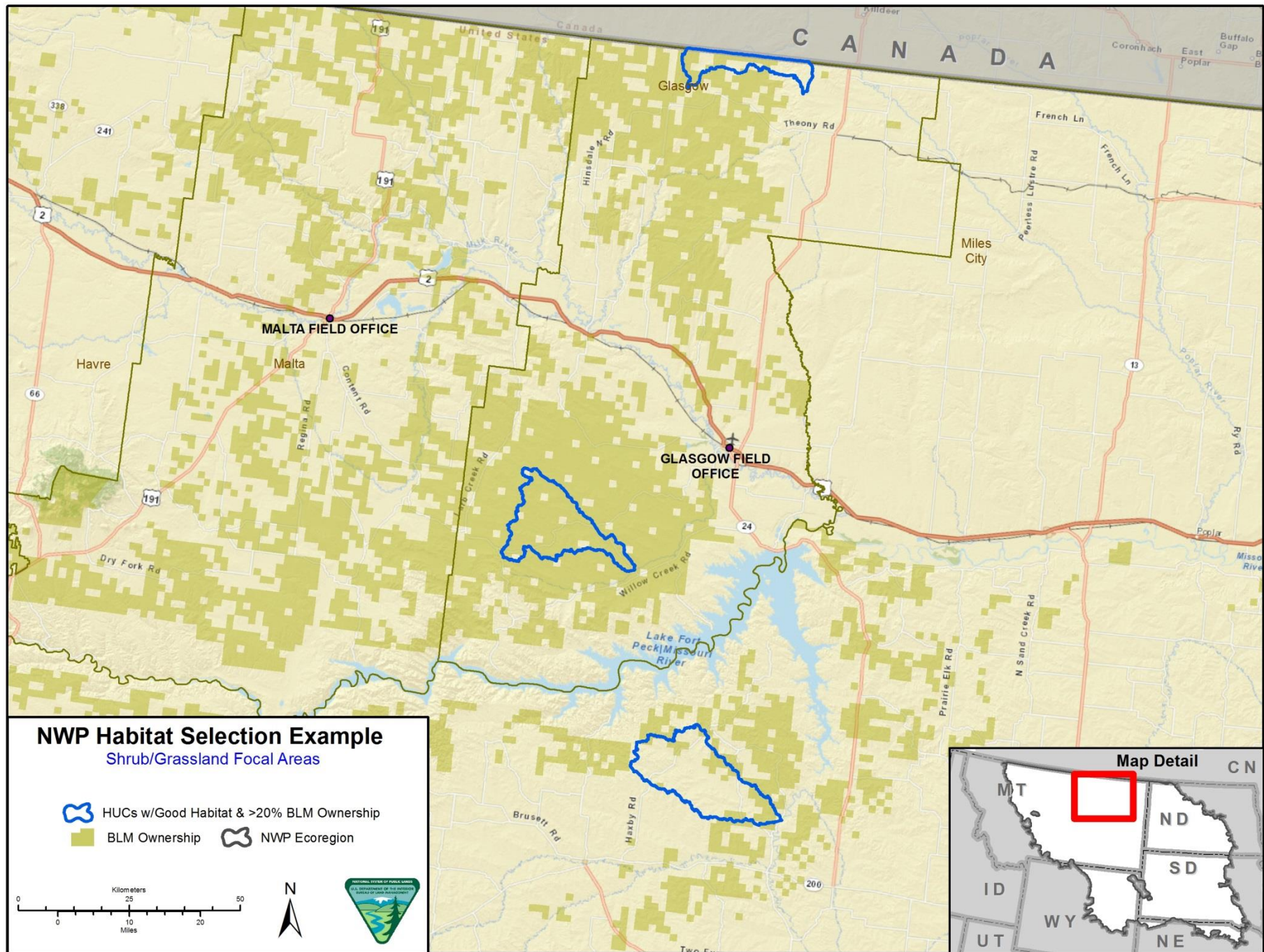
Category	Attribute	Indicator/ Unit of Measure	Metric			Data Source	Weight
			Poor = 3	Fair = 2	Good = 1		
Size	Patch Size	Acres	<3,361	3,361- 57,993	>57,993	ReGAP	0.25
Condition	Habitat Condition	Mean FRI	0-10 years	10-20 years	20-25 years	Landfire FRI	0.25
Context	Fragmentation	Distance to anthropogenic	<0.5 kilometers (km)	0.5 km- 2.5 km	>2.5 km	Linear Features; Power Lines; Oil and Gas Wells Pads, ReGAP	0.25
	Connectivity	Distance to similar habitat	<15 percent	15-30 percent	>30 percent	ReGAP	0.25

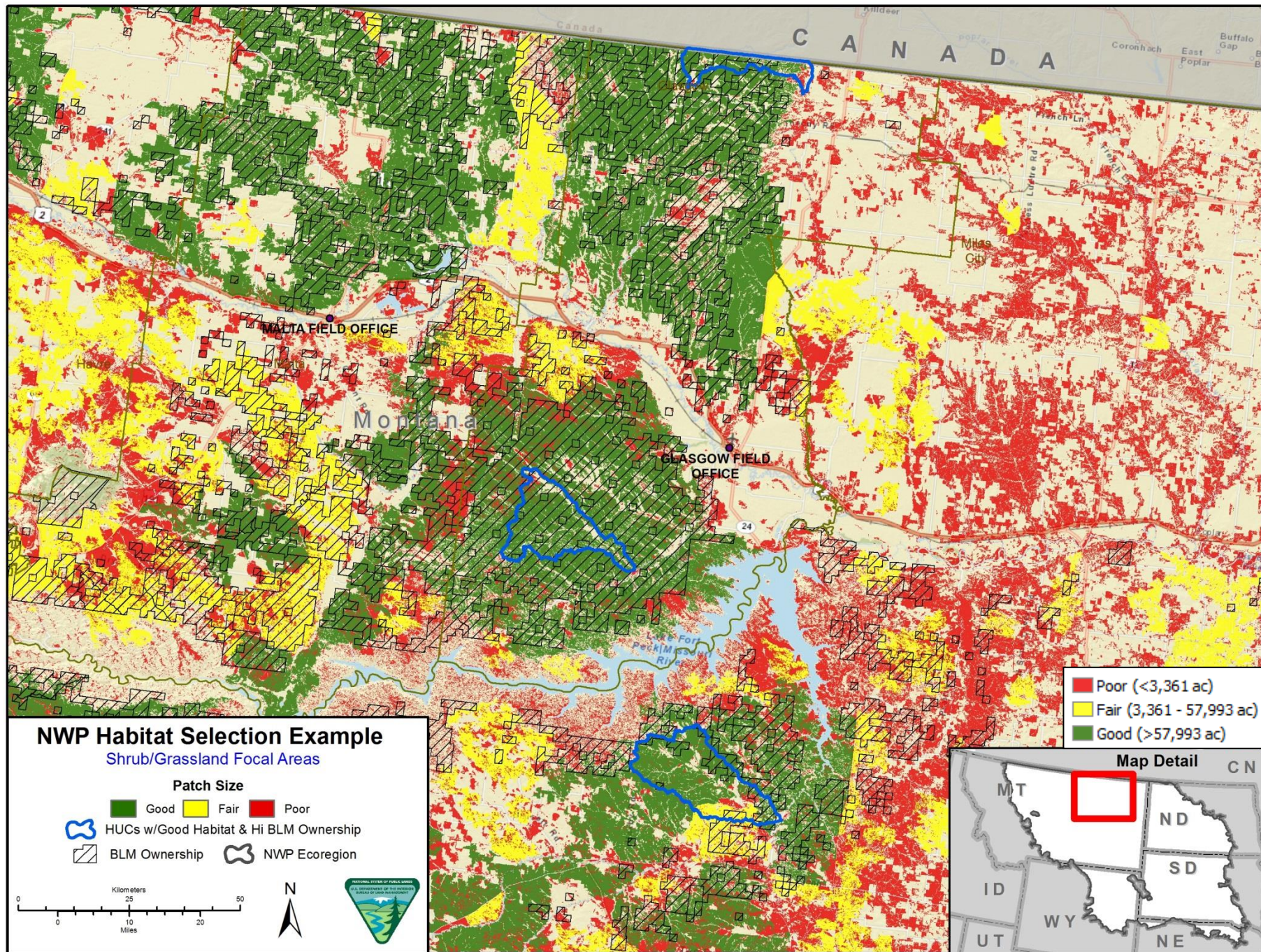
All analysis units were 30-m pixels and reporting units were Hydrologic Unit Code (HUC) 12.

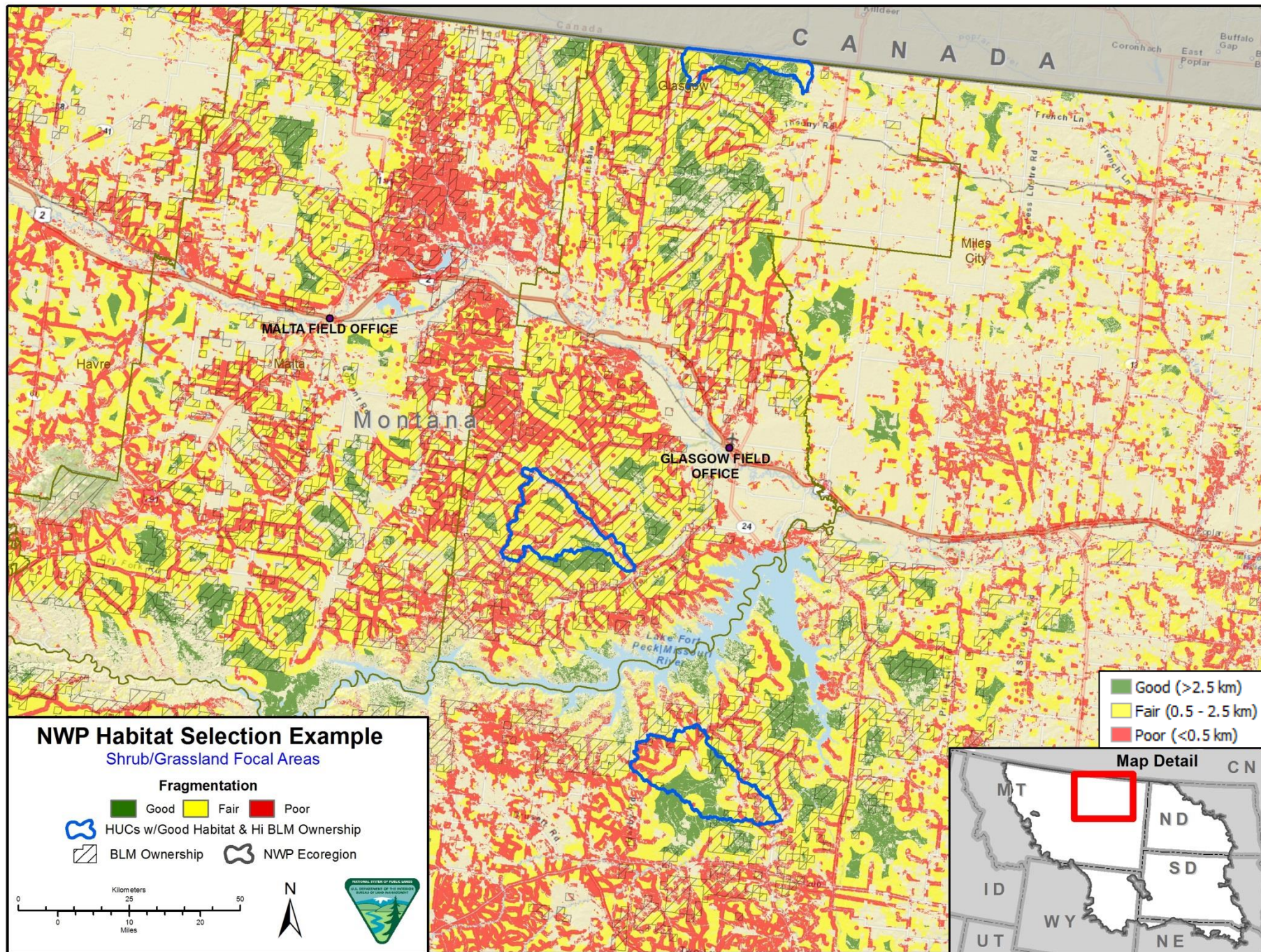
Shrubland Conceptual Model

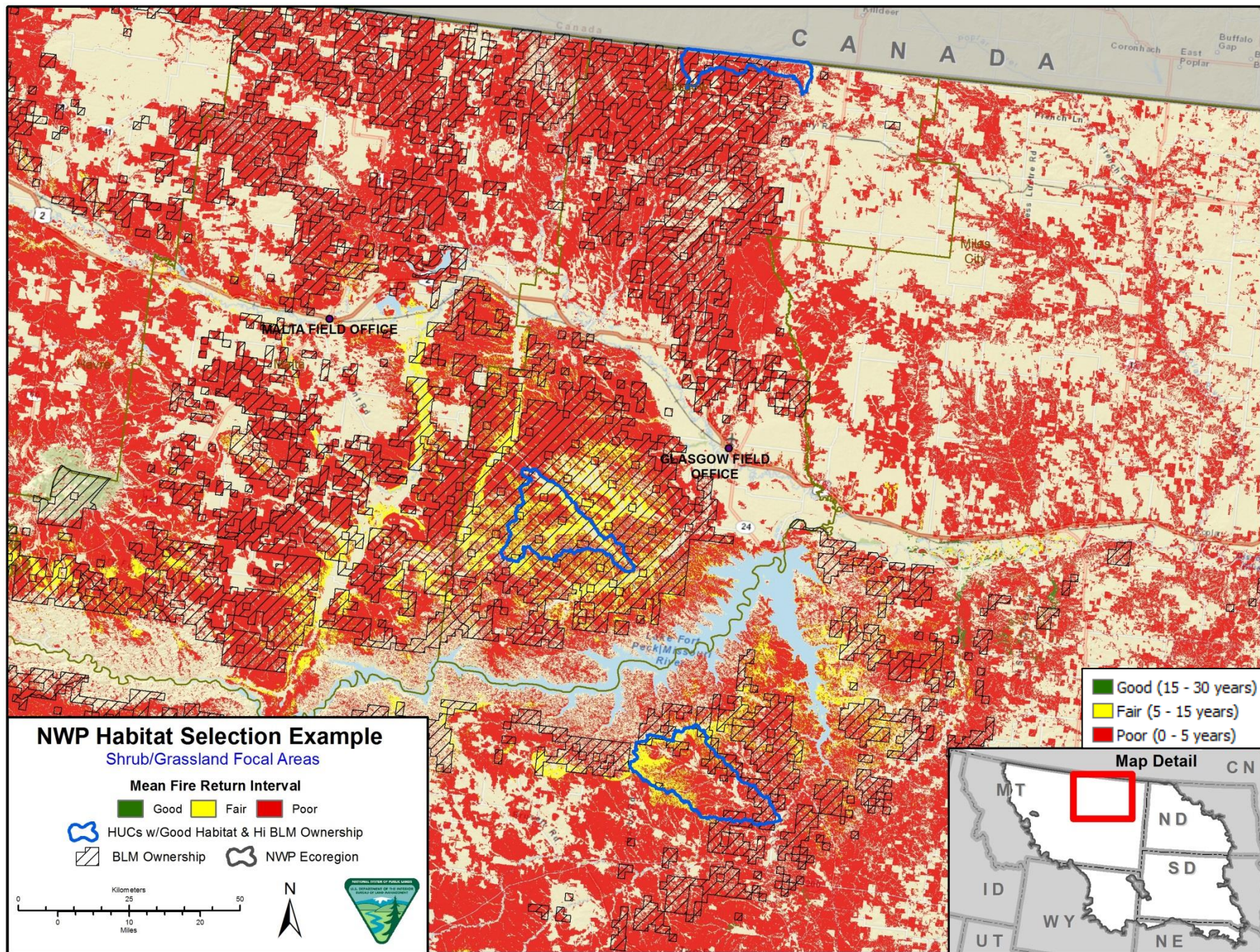






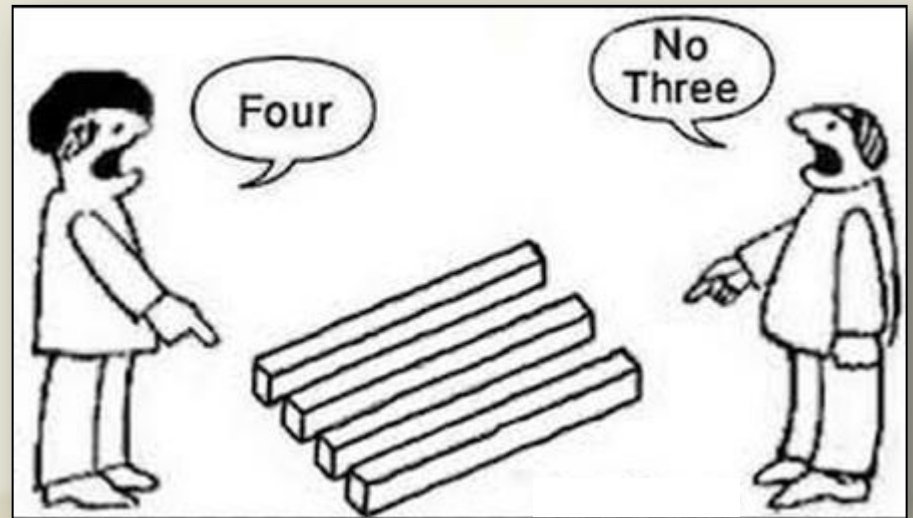






Extending REA results for additional use

- Many REA products are general and not very specific
- Conceptual & geospatial models provided to allow modifications
- What if we removed the structure & condition parameters from shrubland/grassland assessments?



Modifying the **Grasslands/Shrublands** Assessments

- What was it based upon within the REA
- Why is that not adequate
- How to modify
- Review results



Table D-3-3. Key Ecological Attributes for the Grassland Vegetation Systems Coarse-Filter Conservation Element for the Northwestern Plains Ecoregion

Category	Ecological Attribute	Indicator / Unit of Measure	Metric			Data Source	Citation	Weight
			Poor = 3	Fair = 2	Good = 1			
Size	Patch Size	Acres	< 4,335	4,335-74,790	>74,790	ReGAP/ GAP	RRT Guidance (Geometric Interval classification)	0.25
Landscape Structure	Structure	Mean FRI (years)	0-5	5-15	15-30	LANDFIRE	RRT Guidance	0.25
	Fragmentation	Distance Decay Proximity to anthropogenic layer (m)	< 500 m	500 to 2,500 m	>2,500 m	Integrated Climate and Land Use Scenarios (ICLUS) Topologically Integrated Geographic Encoding and Referencing (TIGER)	Professional judgment; Herkert (1994); Johnson and Igl (2001).	0.25
	Connectivity	Percent of similar habitat (1 kilometer [km] neighborhood)	< 15%	15-30%	>30%	ReGAP/GAP		0.25

Analysis Unit = 30-m pixel
Reporting Unit = 6th level HUC

What is this modification based upon?

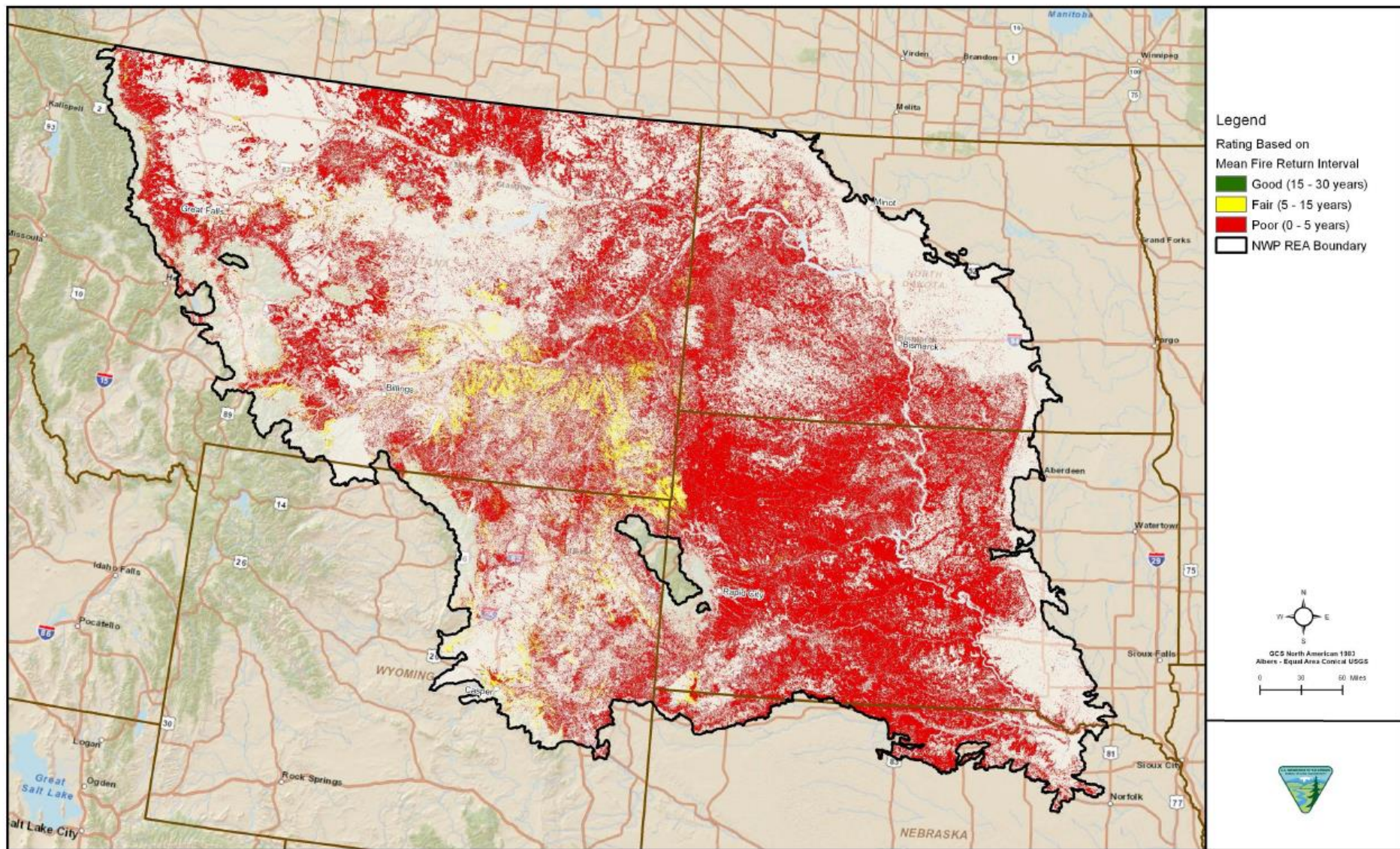


Figure D-3-4. Northwestern Plains Grassland Mean Fire Return Interval

Mean Fire Return Interval

“The results of this analysis should be used with the understanding that this KEA (Fire Frequency) is not known to be as accurate for grasslands as for forested areas. Based on the mean FRI from LANDFIRE and the metrics used for this KEA, no grassland areas of this ecoregion returned a result of good. Many of the grasslands in the Northwestern Plains returned a poor result because the interval was in the 0-5 year range.”

NWP Final Memo II-3-C, Appendix D. pg. 85

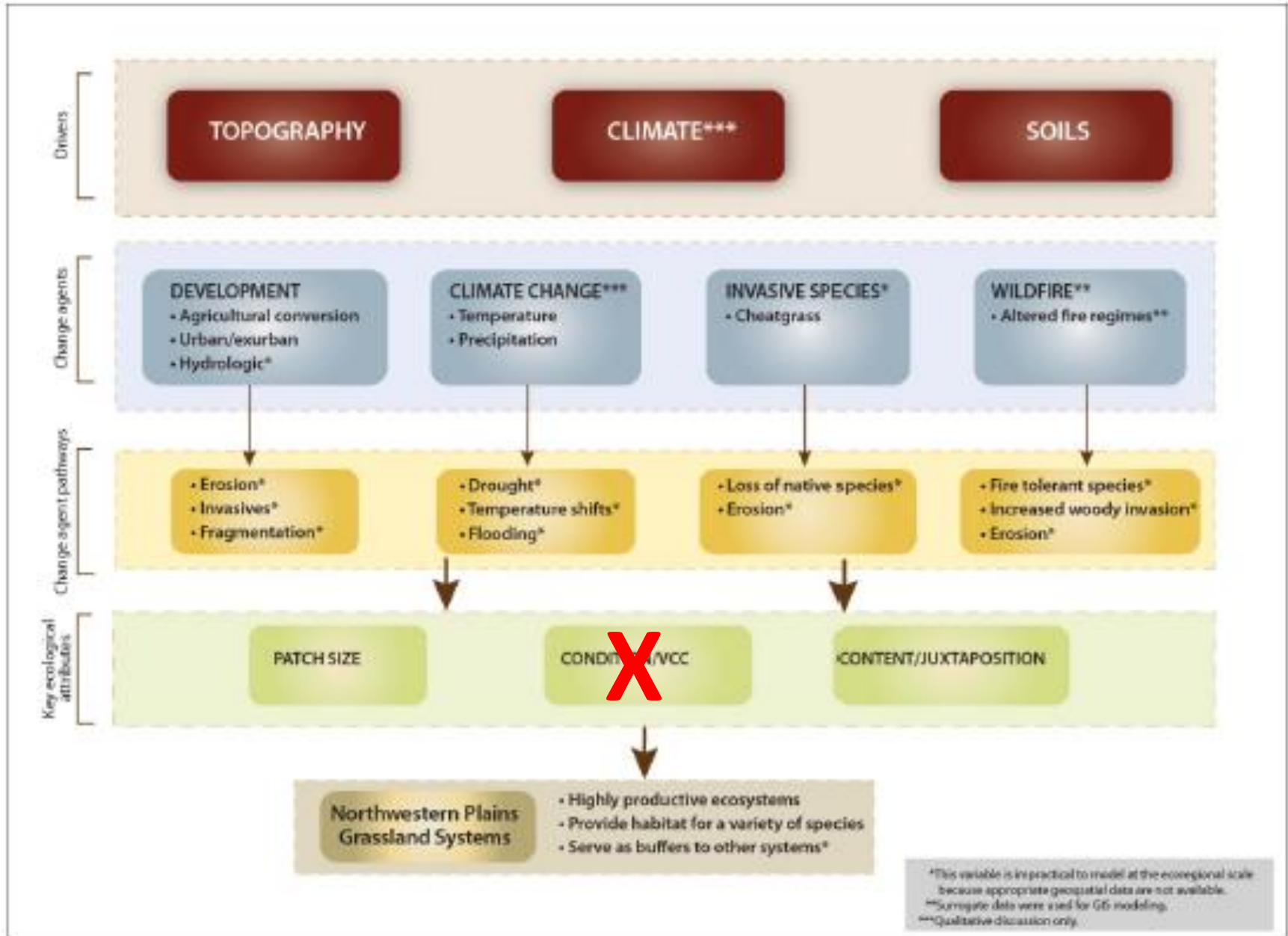


Figure D-3-2. Northwestern Plains Grassland System-Level Conceptual Model

Modified

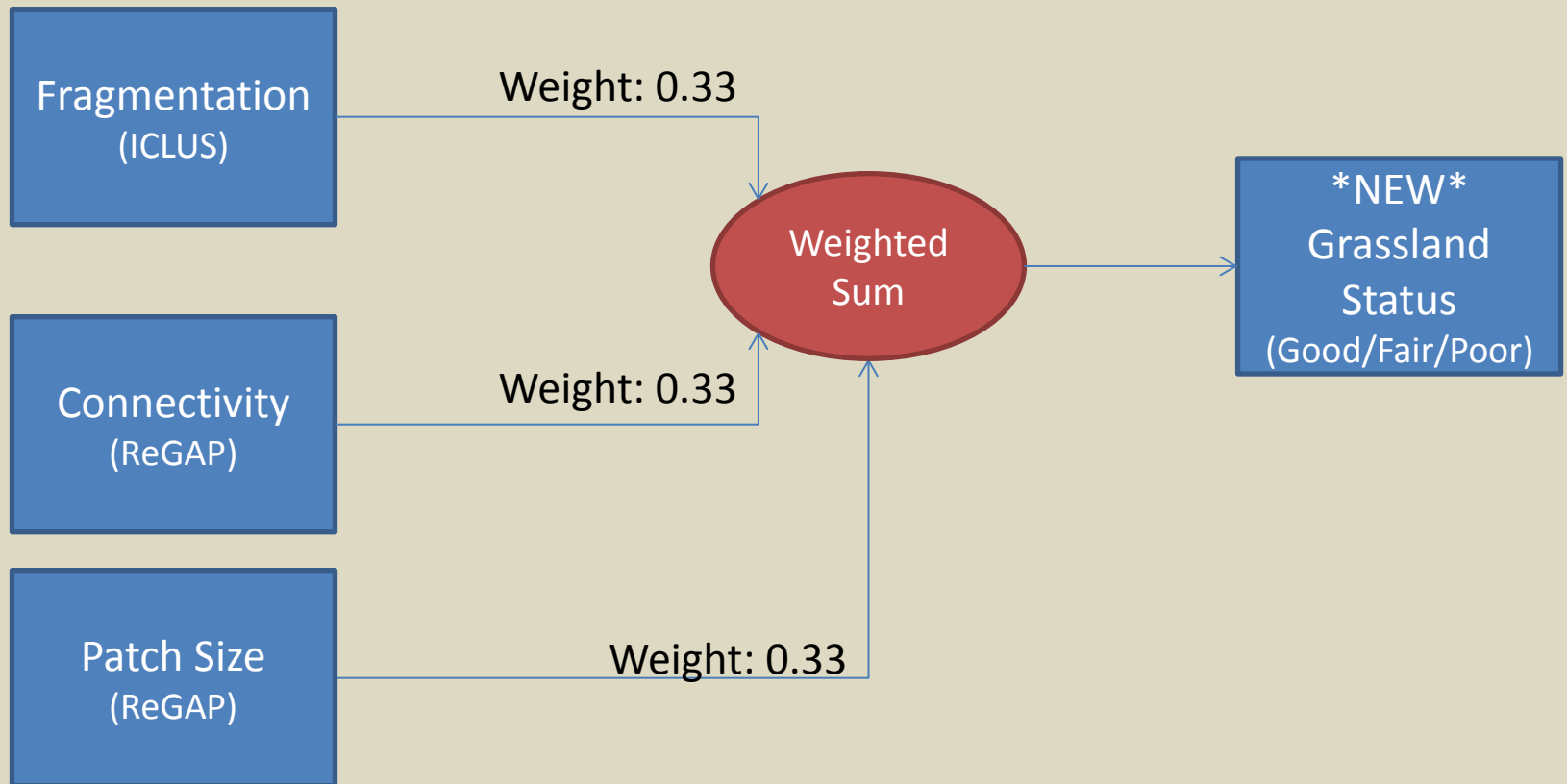
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Category	Ecological Attribute	Indicator / Unit of Measure	Metric			Data Source	Citation	Weight
			Poor = 3	Fair = 2	Good = 1			
Size	Patch Size	Acres	< 4,335	4,335-74,790	>74,790	ReGAP/ GAP	RRT Guidance (Geometric Interval classification)	0.33
Landscape Structure	Fragmentation	Distance Decay Proximity to anthropogenic layer (m)	< 500 m	500 to 2,500 m	>2,500 m	Integrated Climate and Land Use Scenarios (ICLUS) Topologically Integrated Geographic Encoding and Referencing (TIGER)	Professional judgment; Herkert (1994); Johnson and Igl (2001).	0.33
	Connectivity	Percent of similar habitat (1 kilometer [km] neighborhood)	< 15%	15-30%	>30%	ReGAP/GAP		0.33

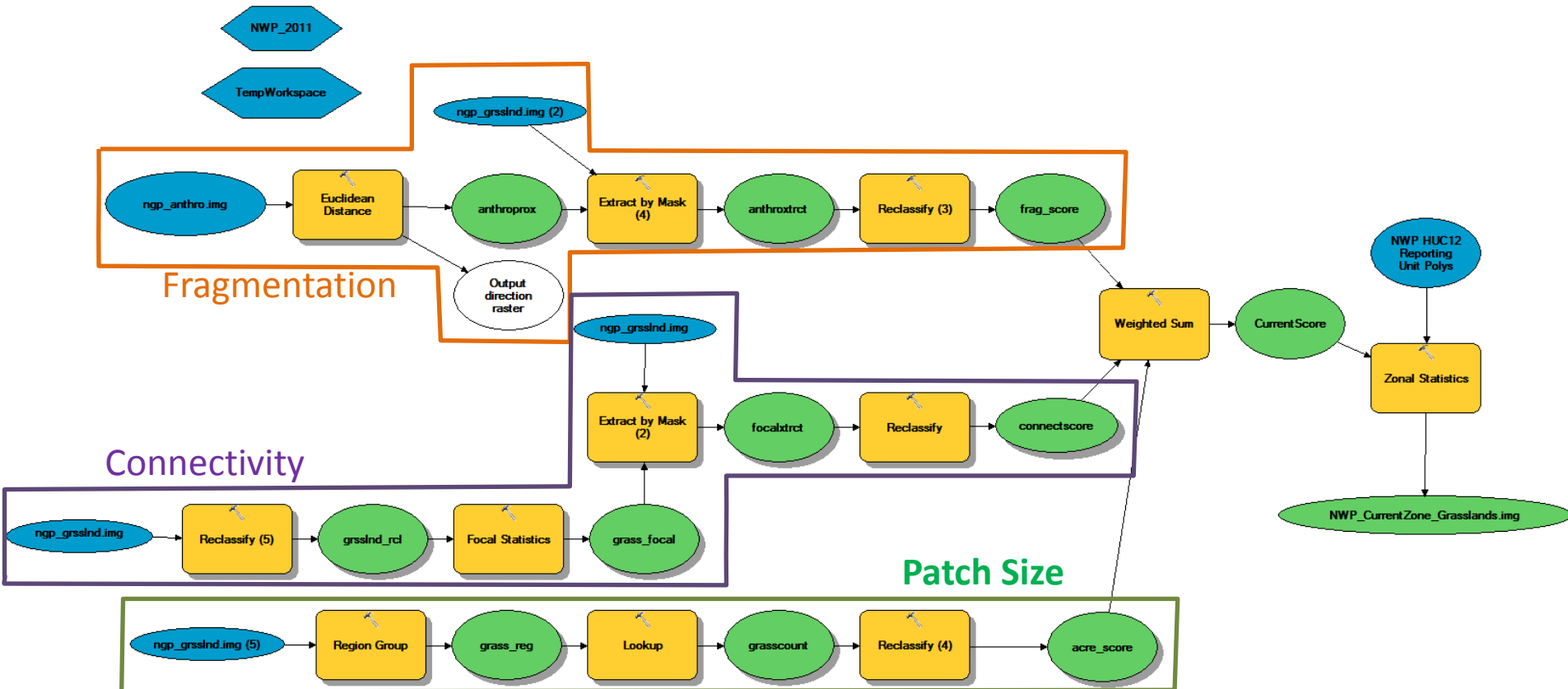
Analysis Unit = 30-m pixel
Reporting Unit = 6th level HUC

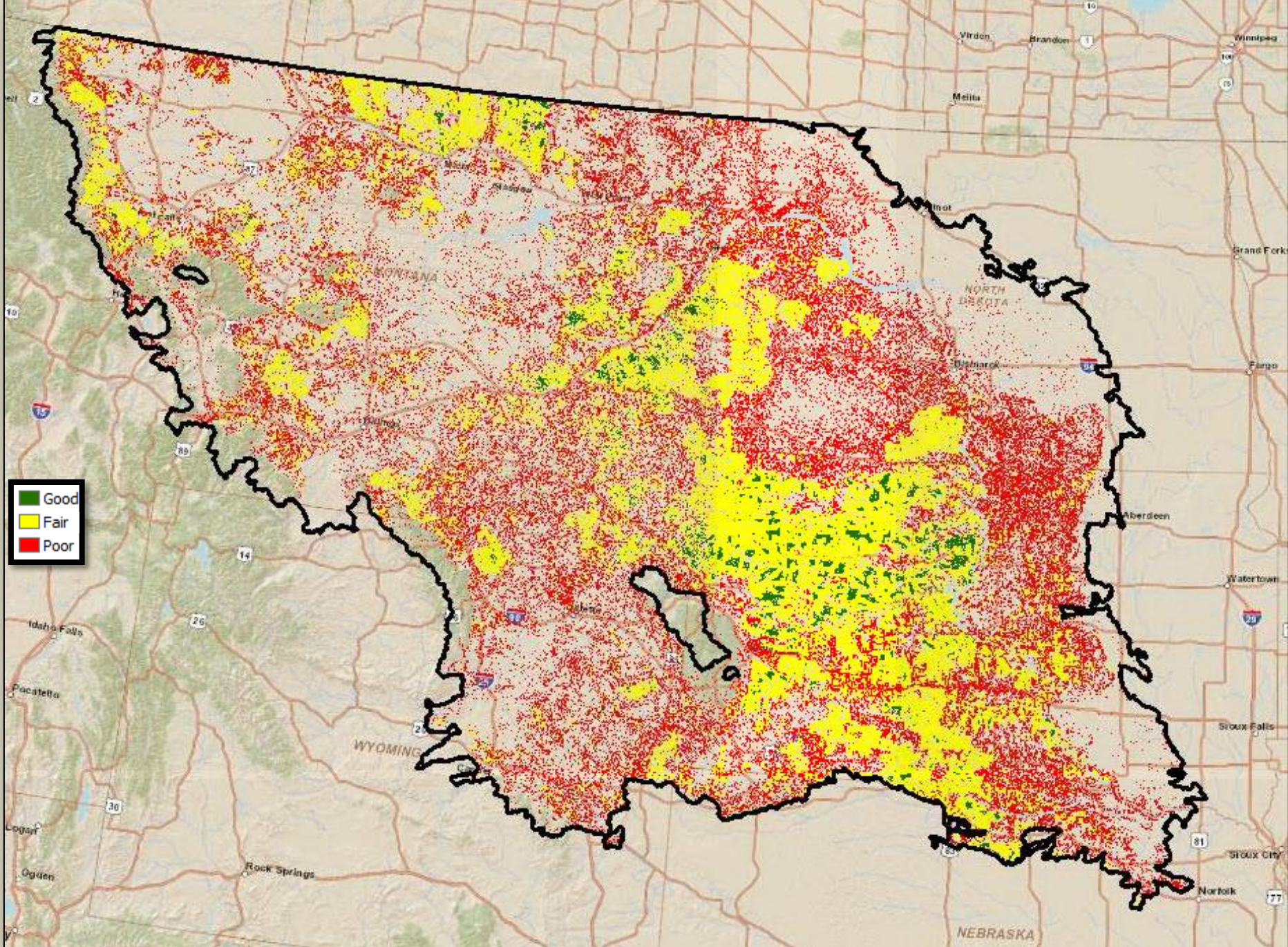
Mean Fire Return Interval
removed, weights adjusted

Modified Grassland Conceptual Model



Modified Grassland Geoprocessing Model





Grasslands without condition (Fire Return Interval removed)

Grasslands with condition (REA product)

Shrubland Key Ecological Attributes

Table D-4-3. Key Ecological Attribute Table for the Shrubland Vegetation Systems Coarse-Filter Conservation Element for the Northwestern Plains Ecoregion

Category	Attribute	Indicator/ Unit of Measure	Metric			Data Source	Weight
			Poor = 3	Fair = 2	Good = 1		
Size	Patch Size	Acres	<3,361	3,361- 57,993	>57,993	ReGAP	0.25
Condition	Habitat Condition	Mean FRI	0-10 years	10-20 years	20-25 years	Landfire	0.25
Context	Fragmentation	Distance to anthropogenic	<0.5 kilometers (km)	0.5 km- 2.5 km	>2.5 km	Linear Features; Power Lines; Oil and Gas Wells Pads, ReGAP	0.25
	Connectivity	Distance to similar habitat	<15 percent	15-30 percent	>30 percent	ReGAP	0.25

All analysis units were 30-m pixels and reporting units were Hydrologic Unit Code (HUC) 12.

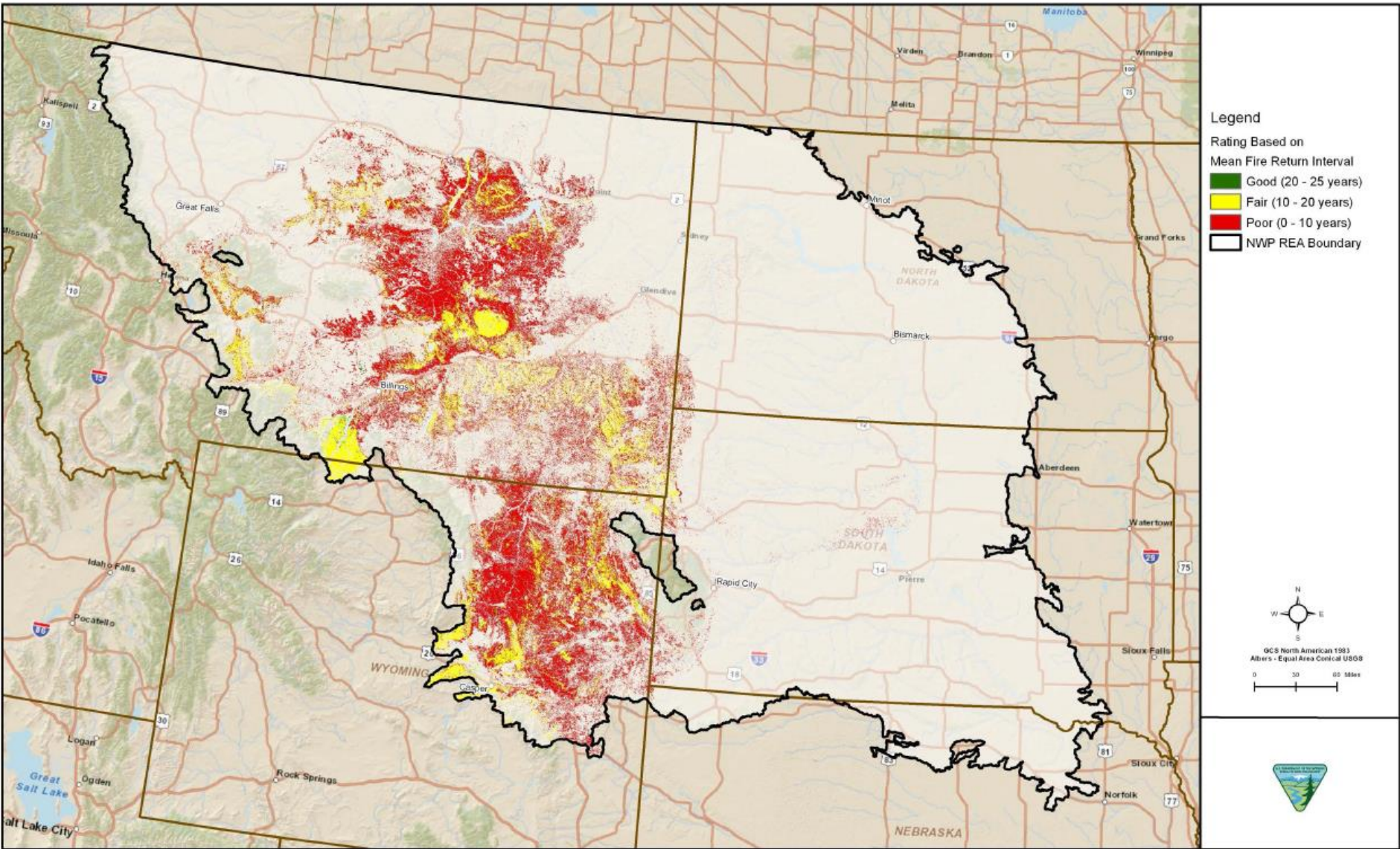


Figure D-4.4. Northwestern Plains Shrubland and Savanna Mean Fire Return Interval

Modified

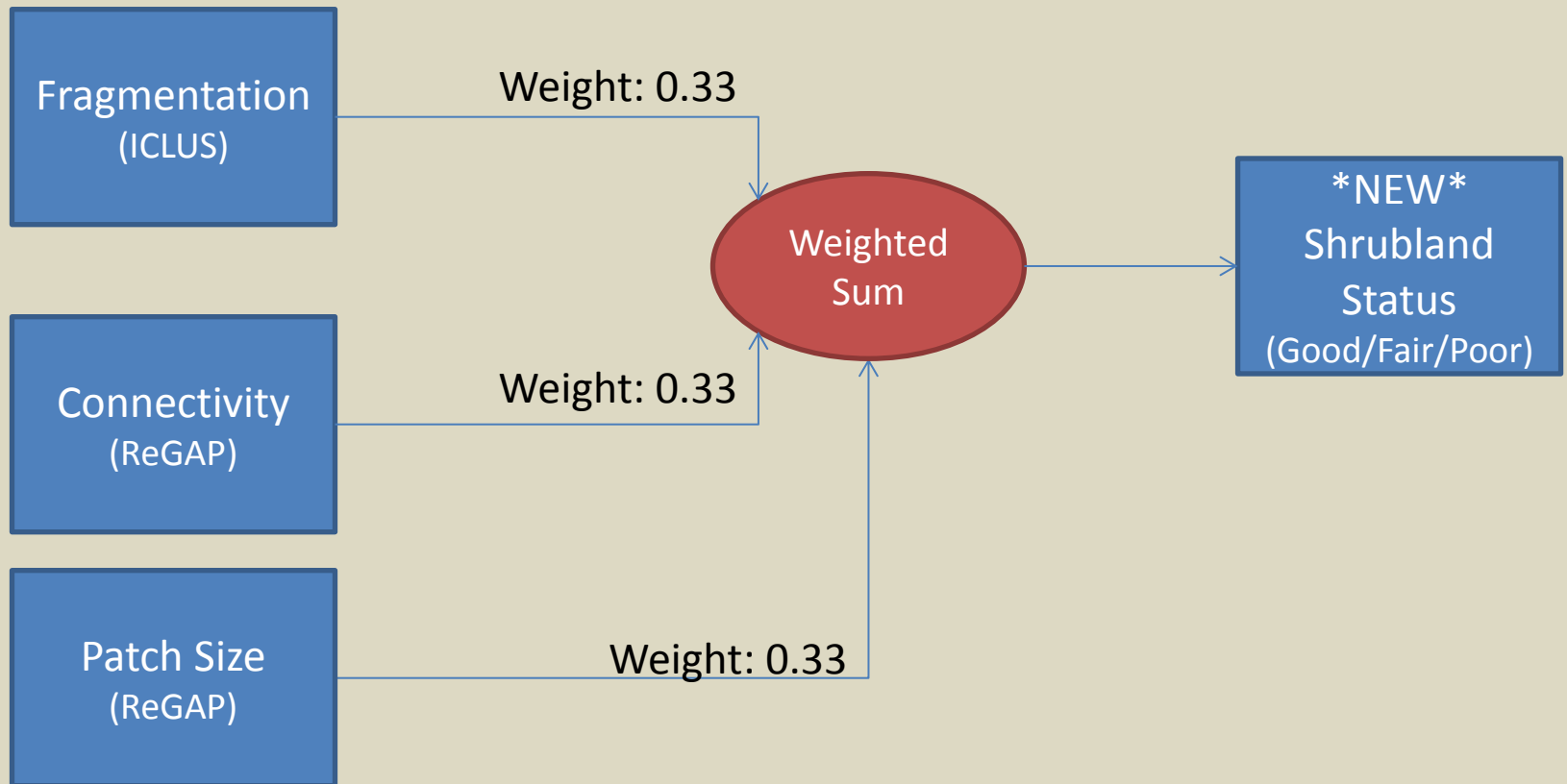
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Context	Fragmentation	Distance to anthropogenic	<0.5 kilometers (km)	0.5 km- 2.5 km	>2.5 km	Linear Features; Power Lines; Oil and Gas Wells Pads, ReGAP	0.33
	Connectivity	Distance to similar habitat	<15 percent	15-30 percent	>30 percent	ReGAP	0.33

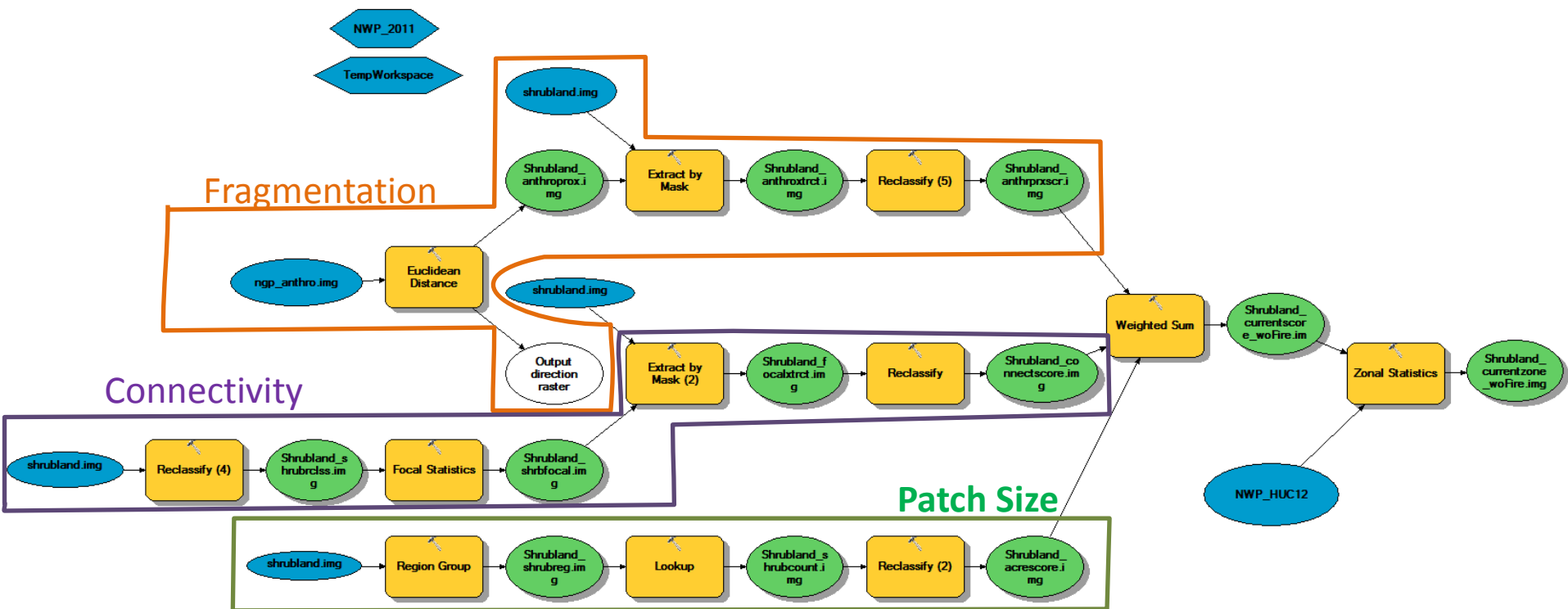
All analysis units were 30-m pixels and reporting units were Hydrologic Unit Code (HUC) 12.

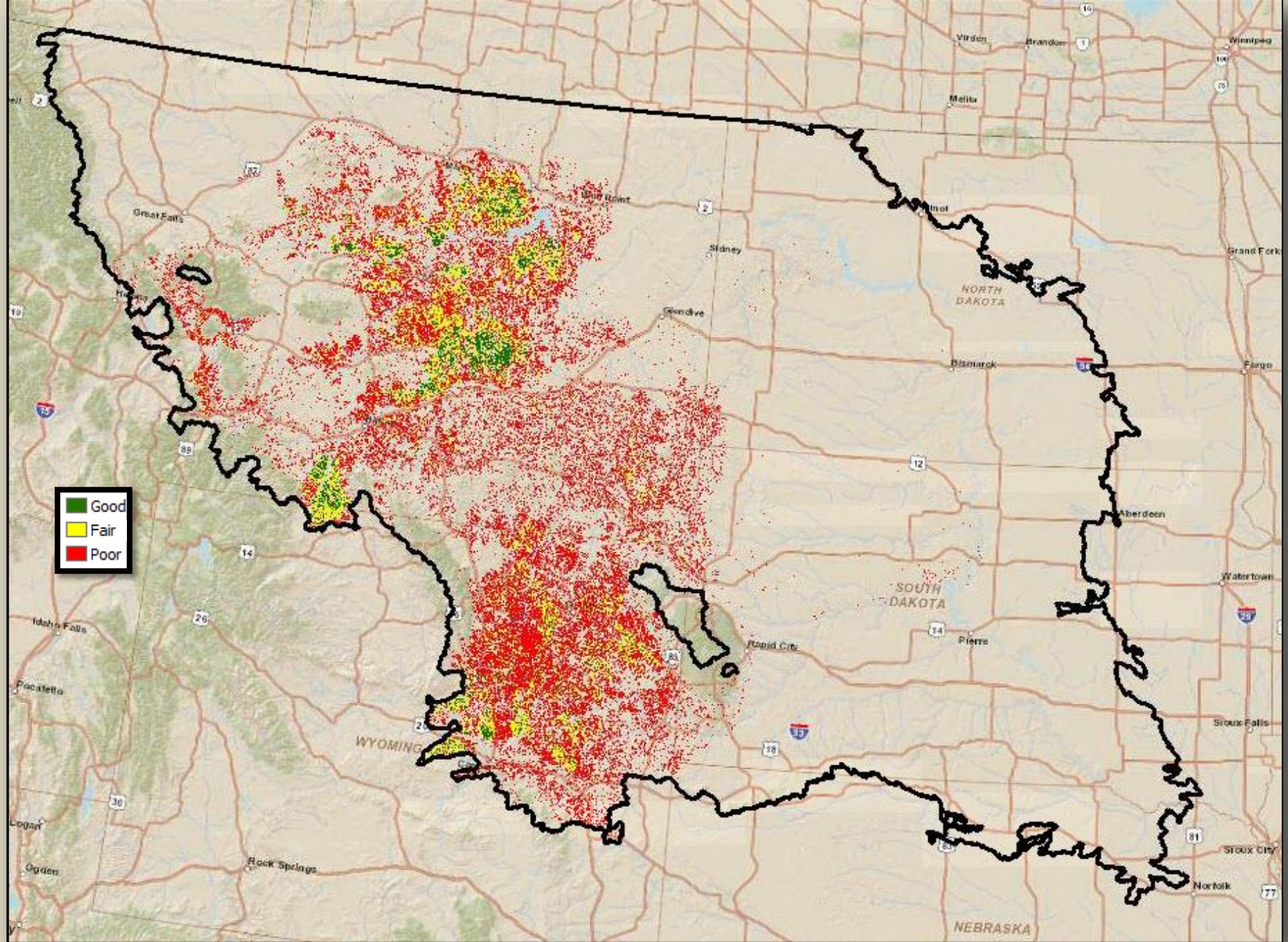
Mean Fire Return Interval remove, weights adjusted

Modified Shrubland Conceptual Model



Modified Shrublands Geoprocessing Model





NEW

Grassland
Status
(Good/Fair/Poor)

NEW

Shrubland
Status
(Good/Fair/Poor)

Max

Grass/Shrub
Status
(Good/Fair/Poor)

Select "Good"
areas

Grass/Shrub
Status
(Good only)

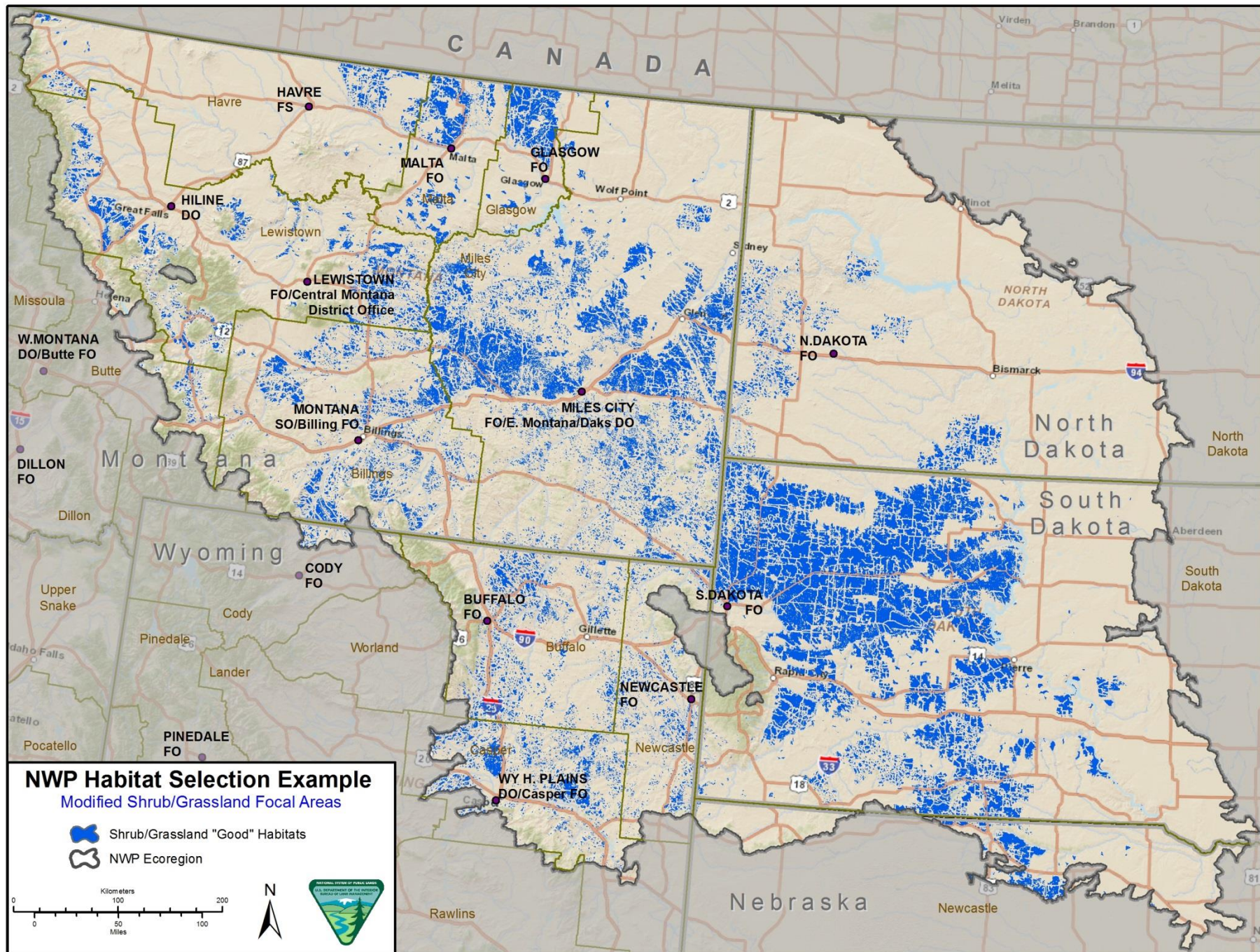
6th level HUCs with >25% of
area "Good"

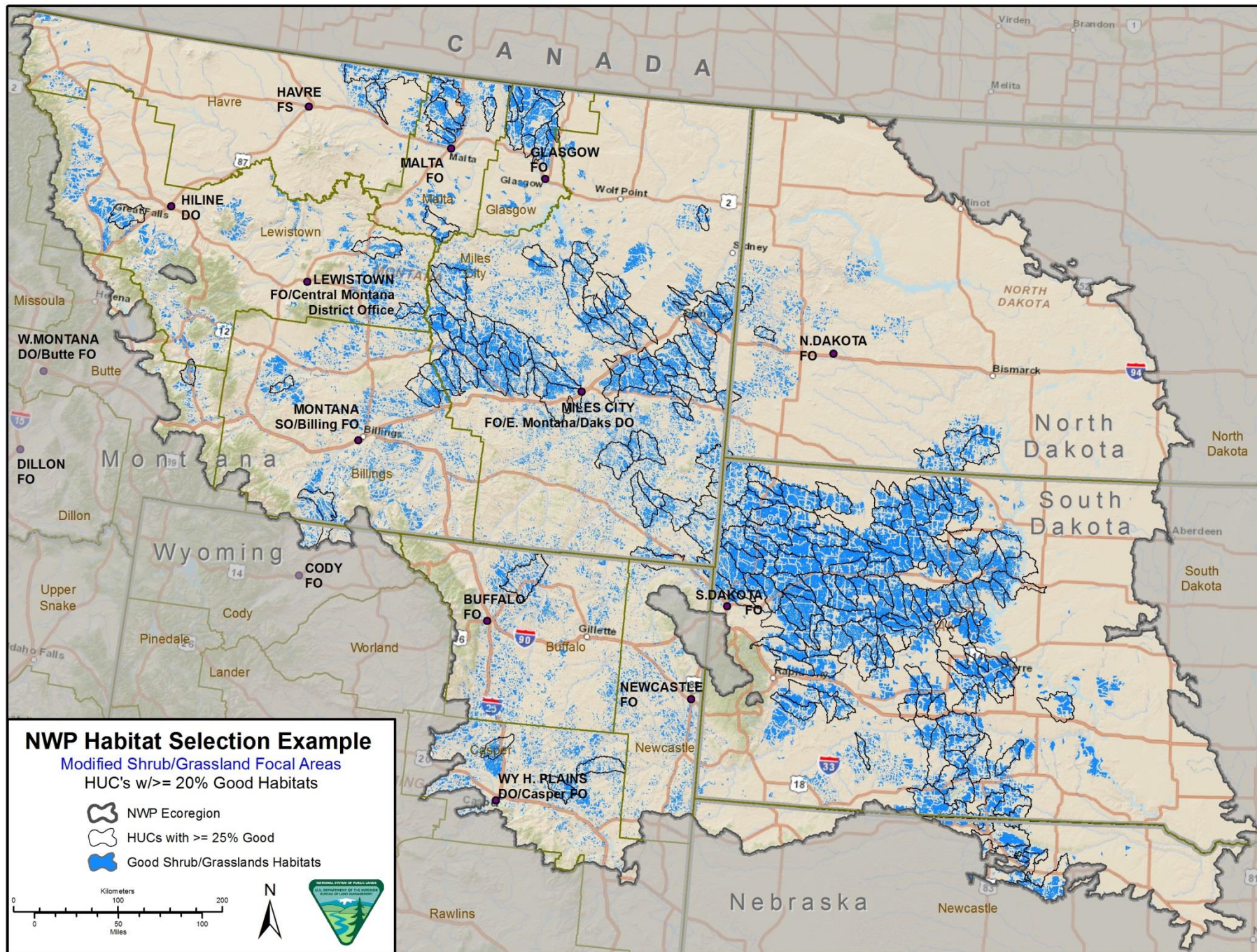
Grass/Shrub
Status at 6th
level HUC
(Good only)

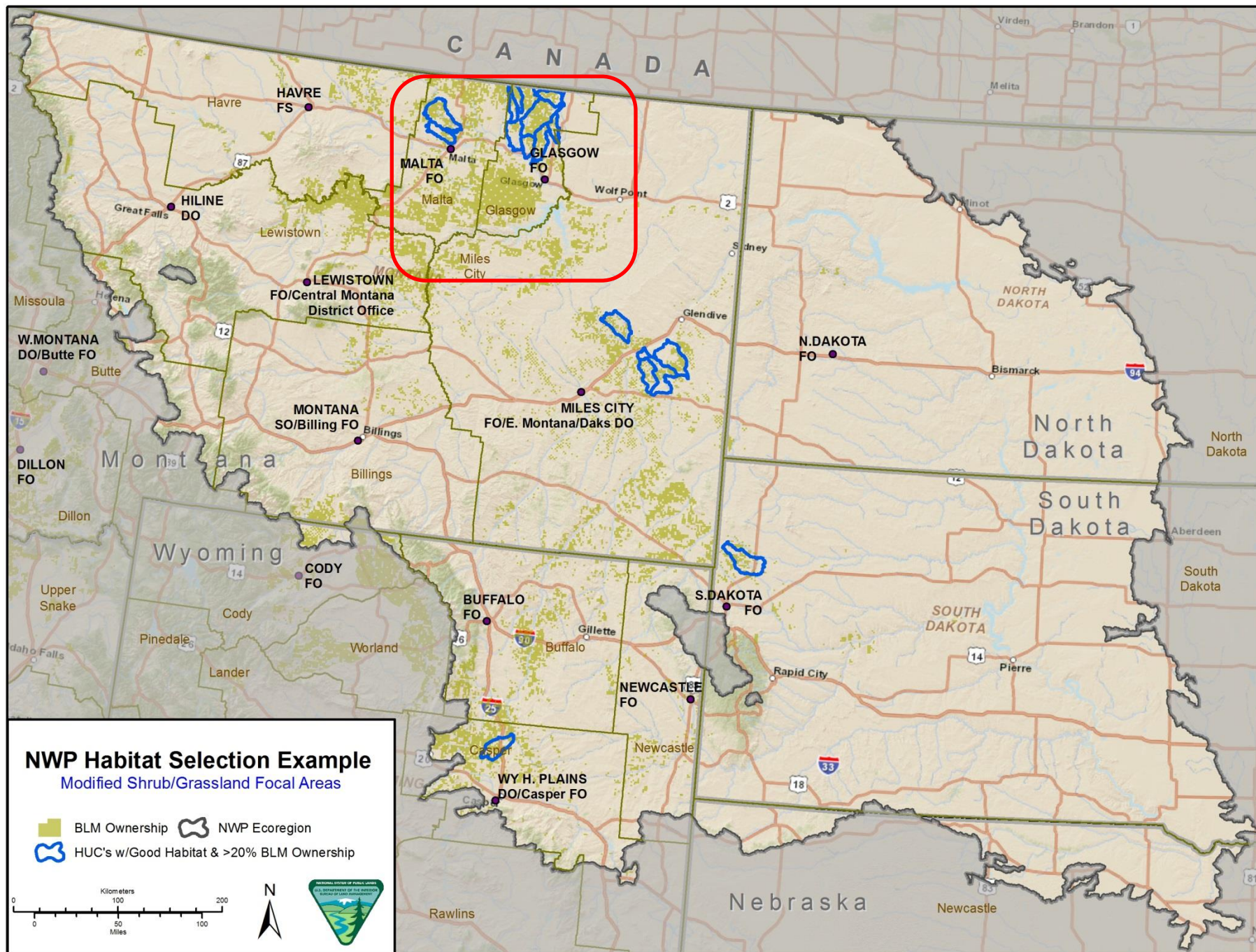
Select HUCs with >20% BLM

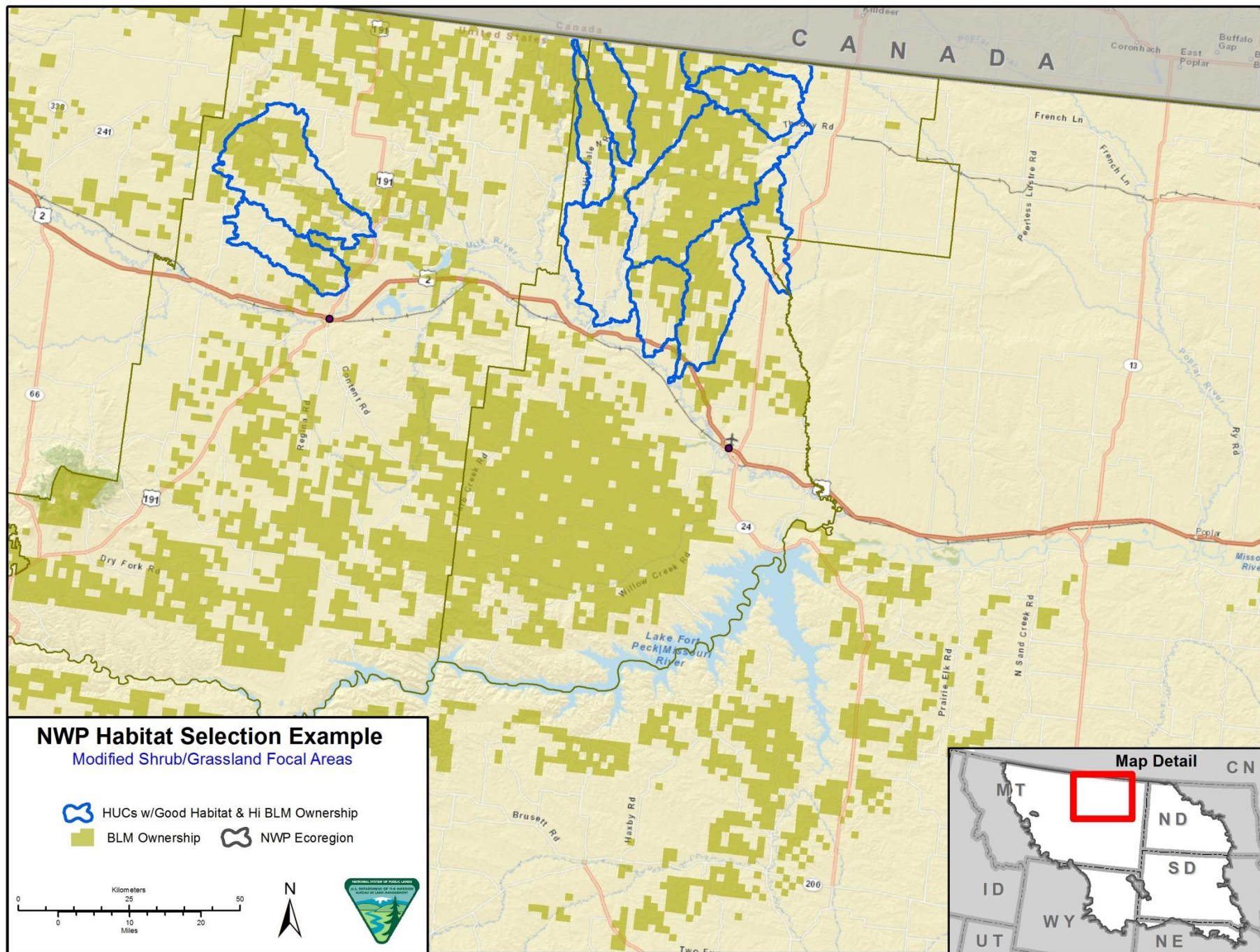
BLM Lands
(Surface Management
Agency)

Status of BLM
managed
Grass/Shrub at
6th level HUC
(Good only)







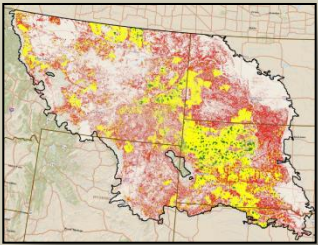


Now what?

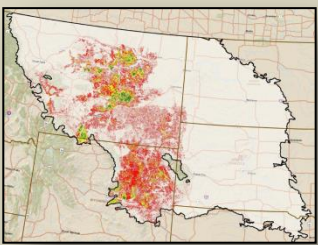
- What additional data/questions do I have?
 - Other CEs?
 - Specific local values/datasets?
- Submit project for funding
 - Field assessment
 - ID specific projects
 - Restoration work?
- Partnerships
 - Who else works in the landscape
 - What management/objectives are in place

Part D Exercise

- **Hands on Practice: Using a REA for Grass-Shrub Focal Areas**
 - What is your question?
 - How can REA data be used to answer them?
 - What are your assumptions?
 - What specific local data can you add?



Grassland
Status
(Good/Fair/Poor)



Shrubland
Status
(Good/Fair/Poor)

Max

Grass/Shrub
Status
(Good/Fair/Poor)

Select "Good"
areas

Grass/Shrub
Status
(Good only)

6th level HUCs with >25% of
area "Good"

Grass/Shrub
Status at 6th
level HUC
(Good only)

Select HUCs with >20% BLM

BLM Lands
(Surface Management
Agency)

Status of BLM
managed
Grass/Shrub at
6th level HUC
(Good only)

BLM Data and
Objectives

Focal Areas

