

Escalante Watershed Context Analysis

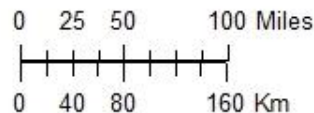
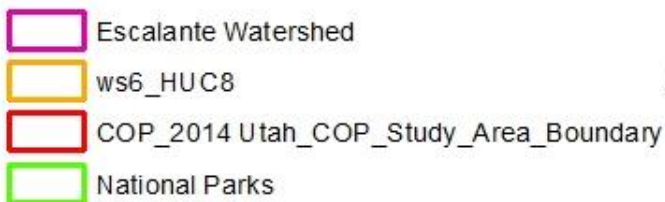
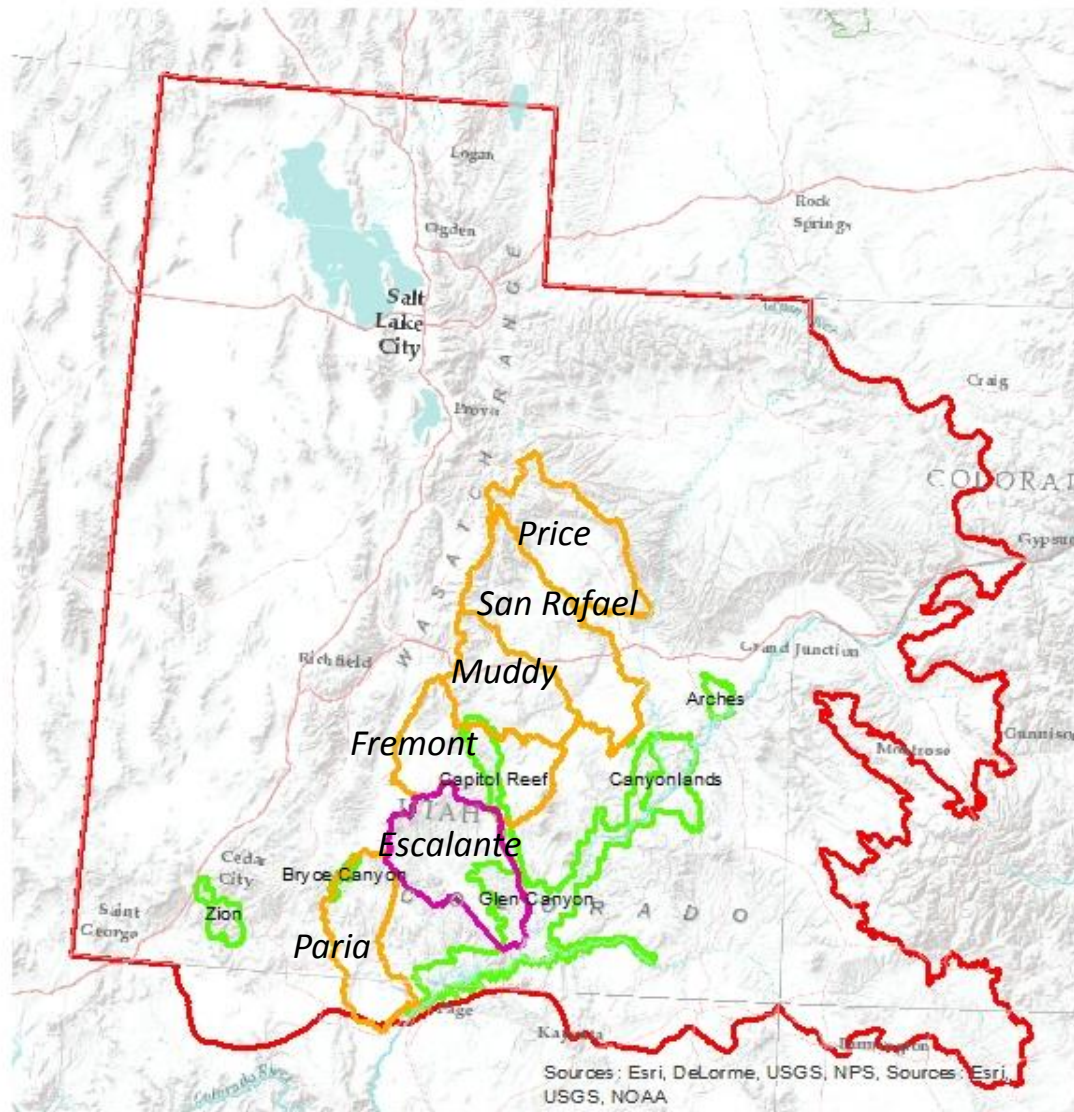
– 6 HUC8s and 6 NPs/NRA

Using Aquatic Intactness and Terrestrial Intactness
from COP 2014 Rapid Ecoregional Assessment

Boundaries – what is a useful area to give context to Escalante?

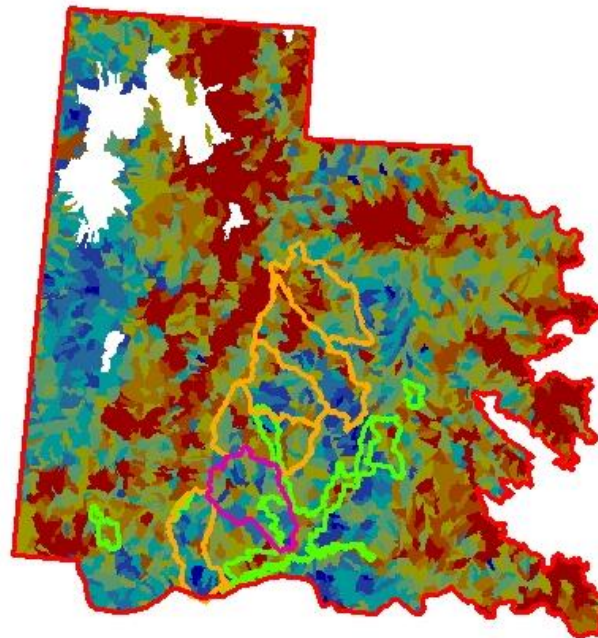
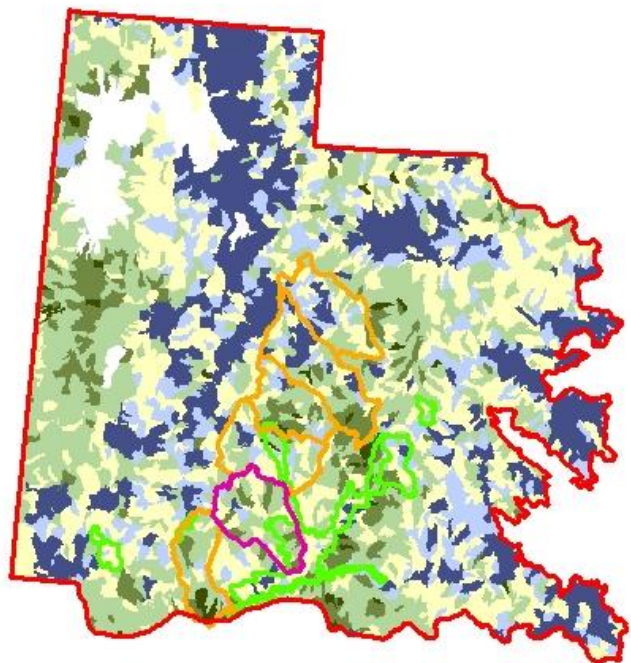
- Escalante is a HUC 8 watershed
- Other HUC 8s: Fremont, Muddy, Paria, Price, San Rafael
- National Parks: Arches, Bryce Canyon, Canyonlands, Zion, Capitol Reef, Glen Canyon
 - These were determined by area $> 100 \text{ km}^2$ and proximity

HUC8 and NPS/NRA Boundaries used for Aquatic and Terrestrial Intactness Context Analyses



Aquatic Intactness - COP 2014

original legend (left) and 0.2 bin legend (right)



- COP_2014 Utah_COP_Study Area
- Escalante
- Context HUC8s
- Context_NPSbnds



0 25 50 100 Miles
0 50 100 200 Km

Aquatic Intactness

- Very High
- High
- Moderately High
- Moderately Low
- Low
- Very Low

Aquatic Intactness (0.2 bins)

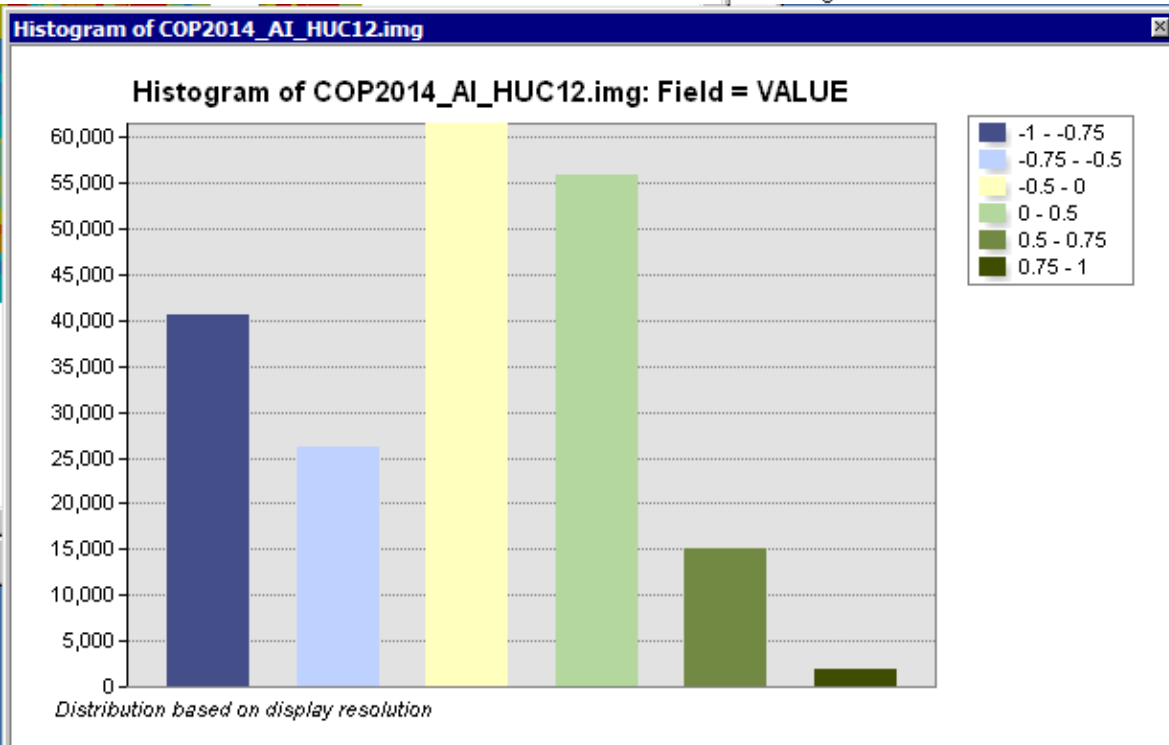
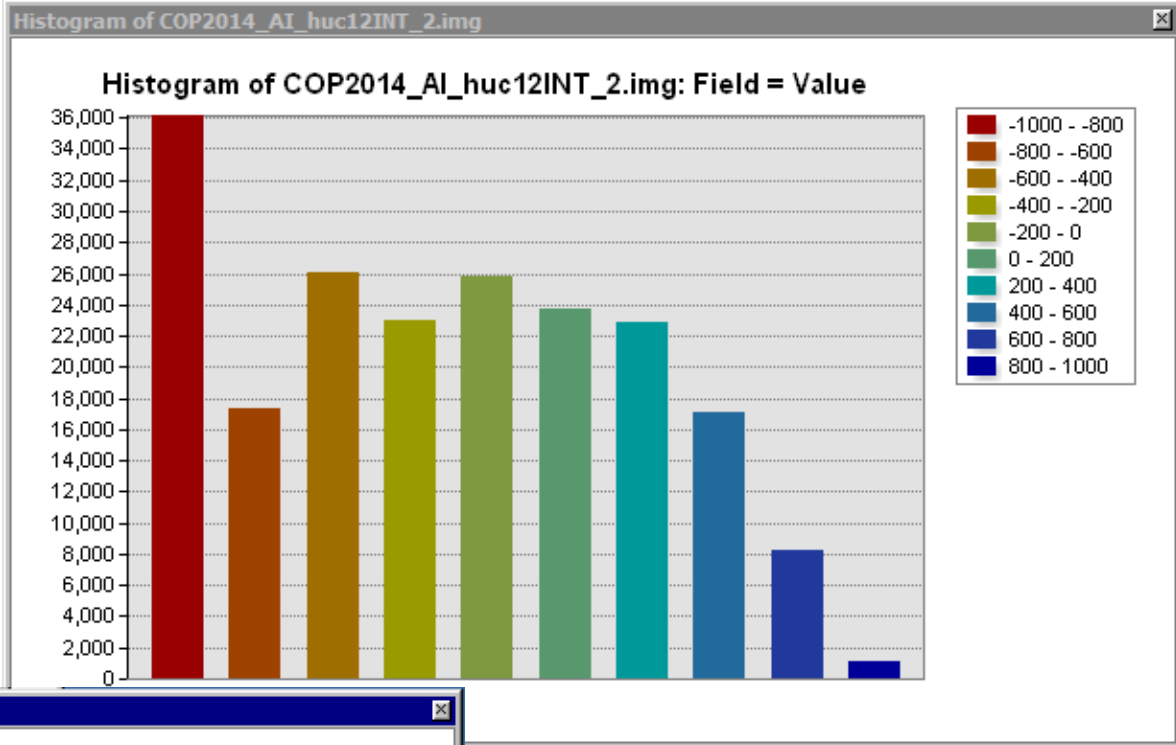
- 1 -- -0.8
- 0.8 -- -0.6
- 0.6 -- -0.4
- 0.4 -- -0.2
- 0.2 - 0

- 0 - 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1

The difference between the two maps is in the precision of the legend. AI is scaled as follows

- Very Low -1 to -0.75
- Low -0.75 to -0.5
- Mod. Low -0.5 to 0
- Mod. High 0 to 0.5
- High 0.5 to 0.75
- Very High 0.75 to 1

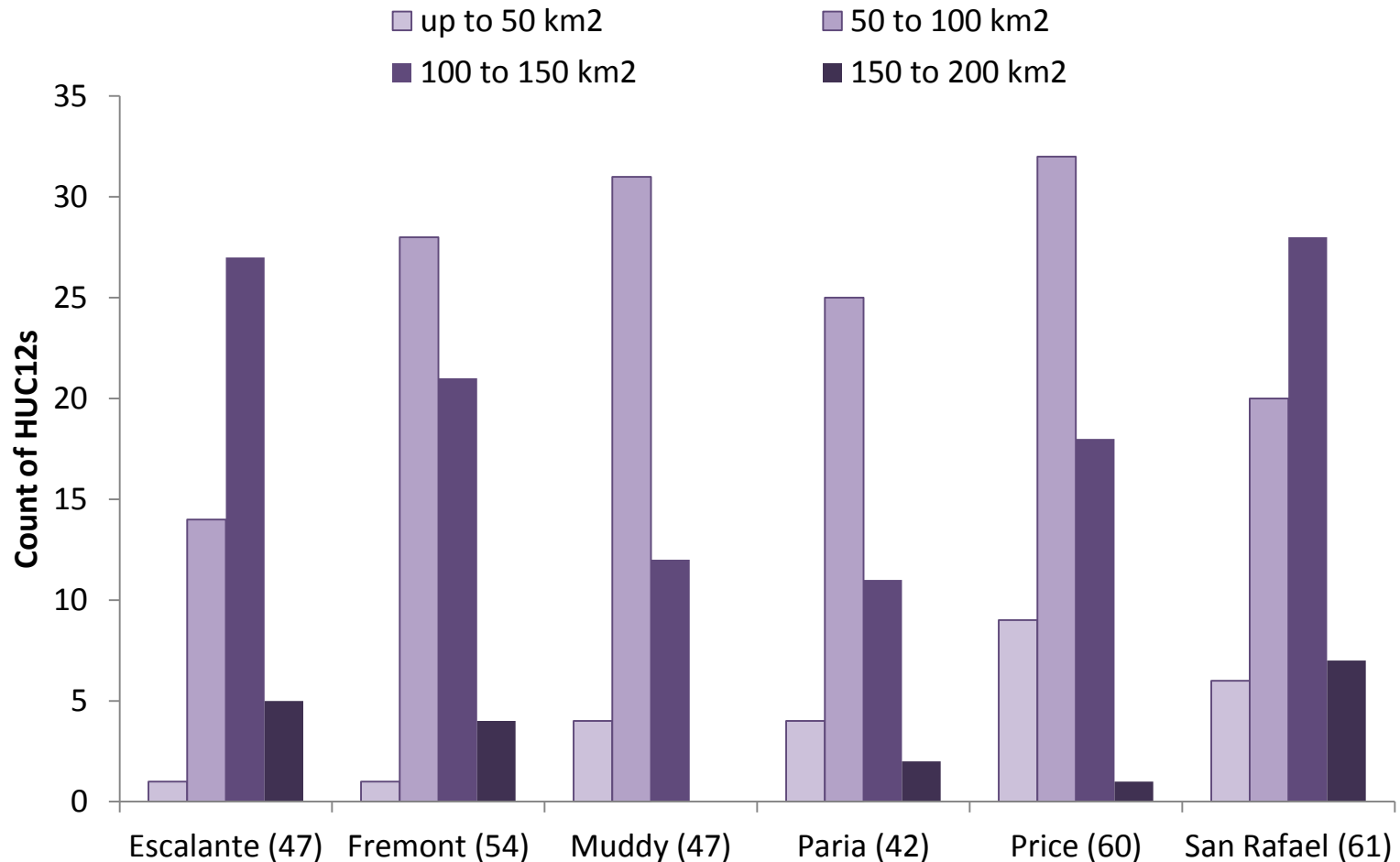
AI frequency plots
using original legend
(below) and legend at
0.2 increments
between -1 and +1
(right)



These plots are directly from ArcGIS and give the overall context using the full extent of the AI dataset. From a reporting perspective, the colors match the maps well but multiple graphs would need to be run, i.e., one each for each area (polygon), 12 in all.

The y-axis shows the count of cells in each bin, hence the difference in axes values; fewer bins results in a larger cell count. Almost 29,000 cells have the value of -1. The top right plot, in increments of 0.2 has been multiplied by 1000 (to obtain integers) and still represents values between -1 and +1.

Area distribution of HUC 12s in each HUC 8 watershed that is used for context. Total number of HUC 12s in each HUC 8 is shown in ().

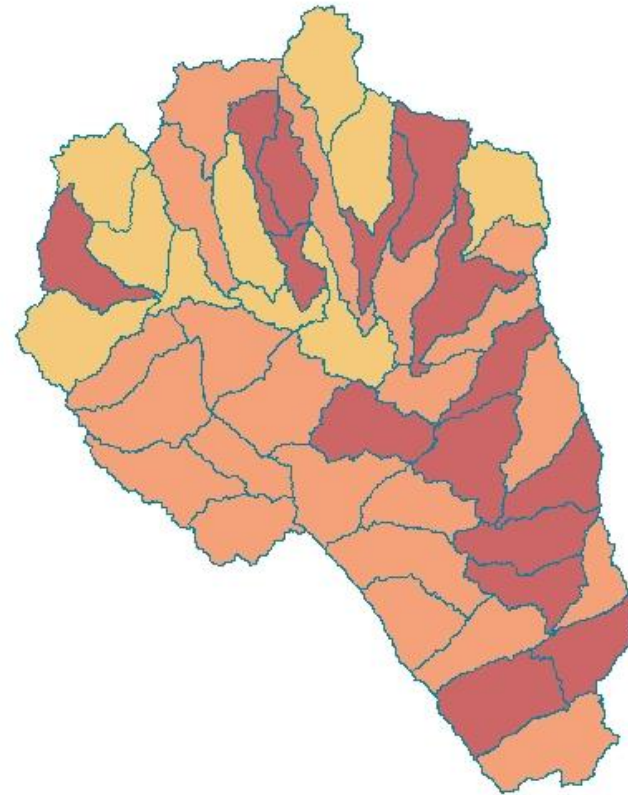
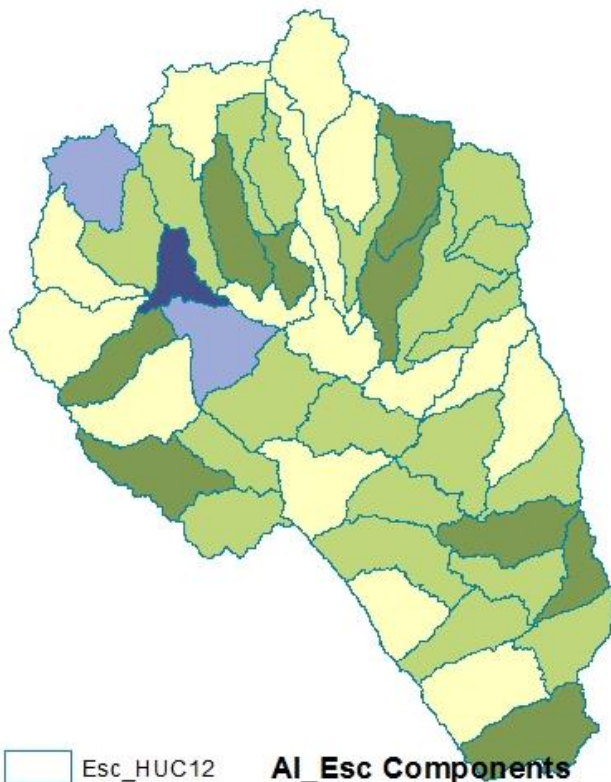


Aquatic Intactness - Escalante

Aquatic Intactness

Components of Aquatic Intactness:

Hydrologic Alteration (HA), Water Quality (WQ), Habitat (Hab)



Esc_HUC12

AI_Esc Components

AI_Esc

Lo2Lo_AI

HiAquaticI

HAWQ

Very High

HabHA

High

HabWQ

Moderately High

Moderately Low

Low

Very Low

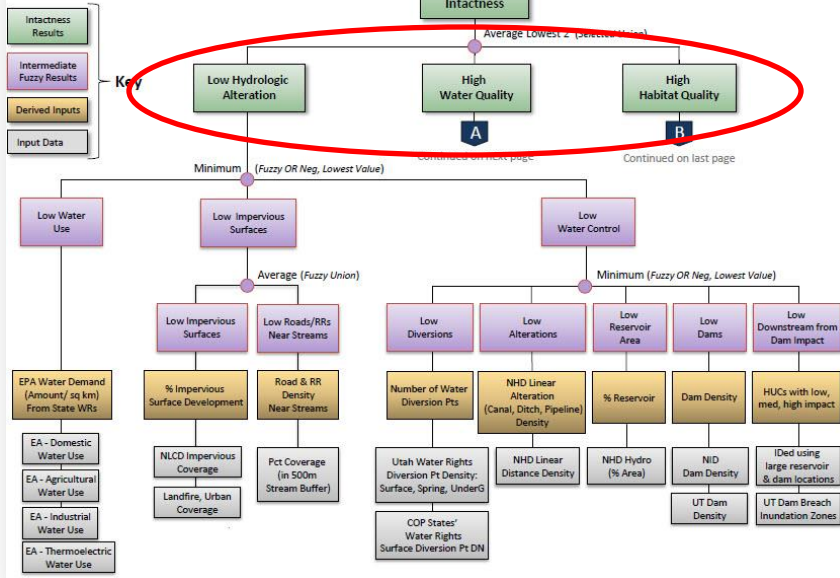


0 10 20 40 Miles

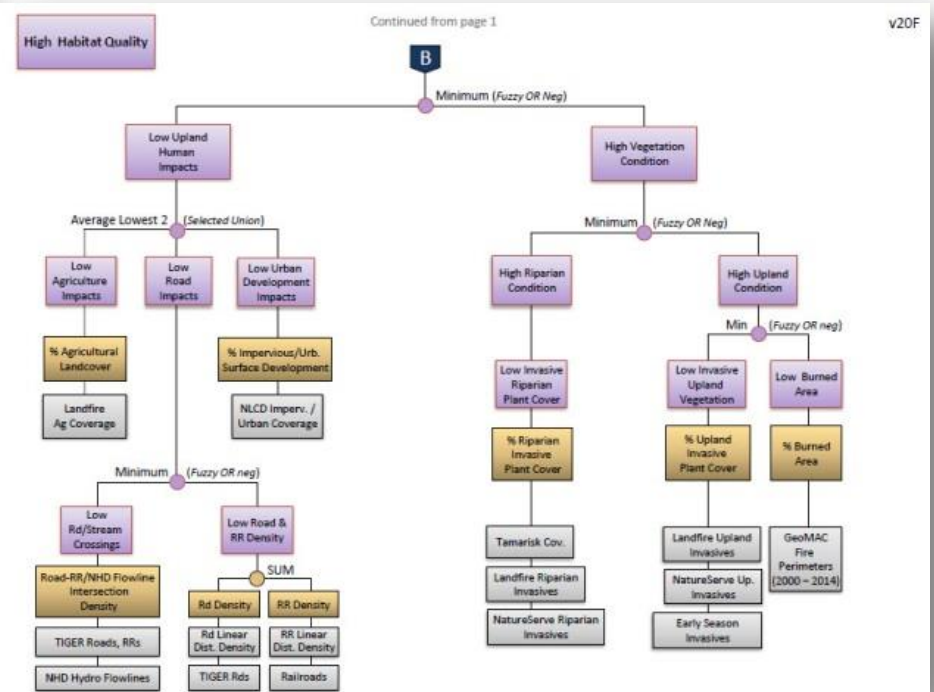
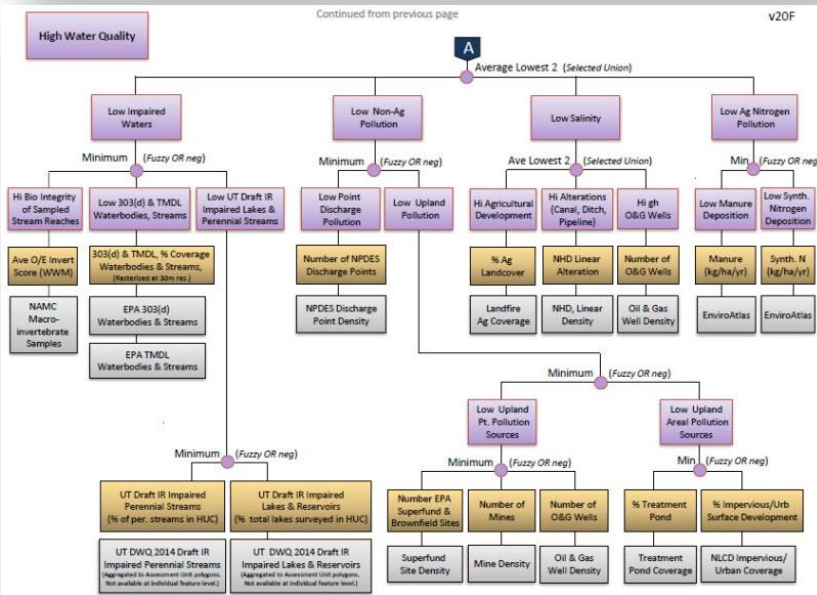
0 15 30 60 Kilometers

AI is the average of values from the lowest 2 components (HA, WQ, Hab)

Utah & Colorado Plateau Aquatic Intactness Model, 12-Digit HUC

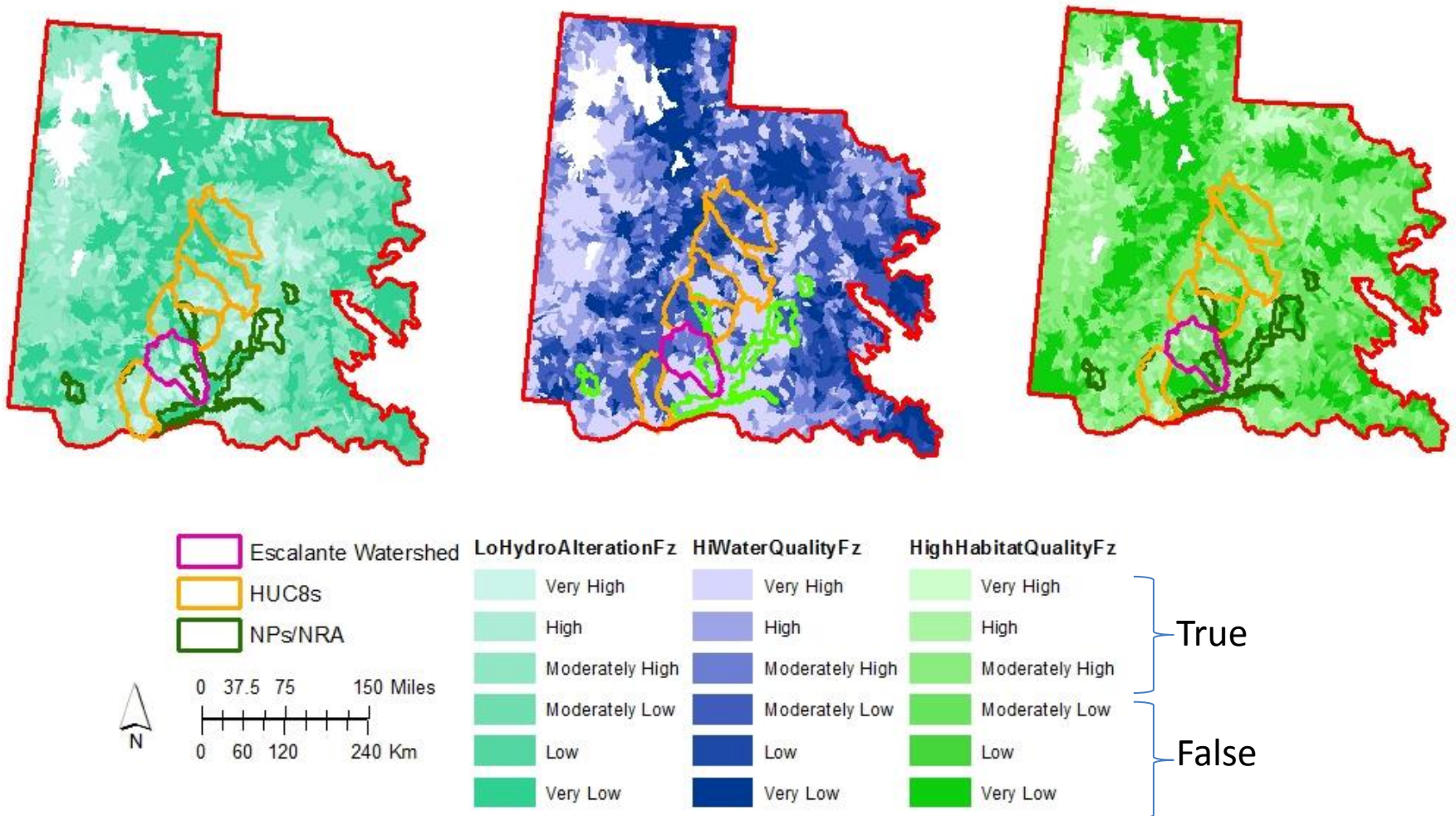


The next slides show analyses of the tier 2 model components ->



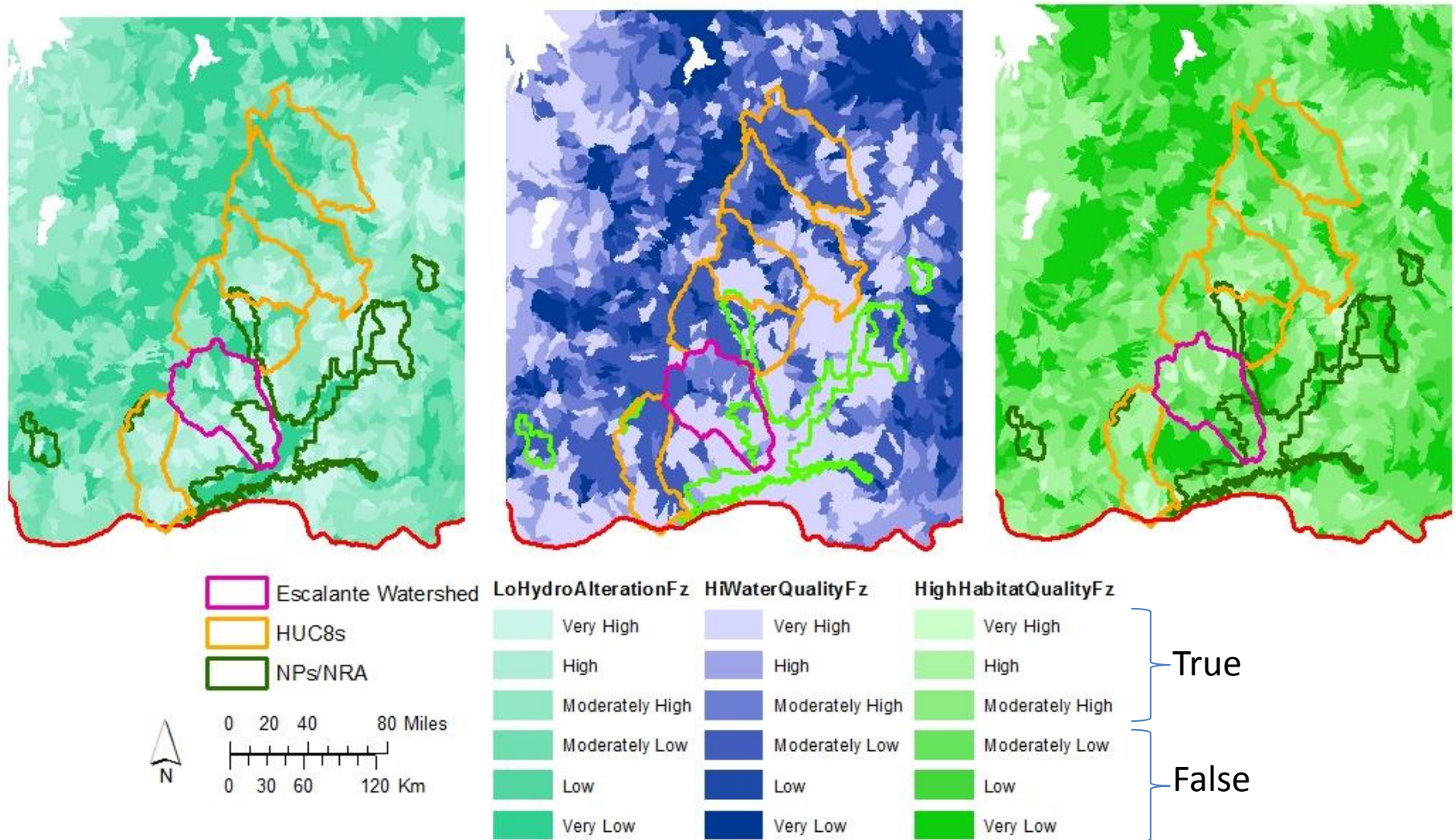
Aquatic Intactness Tier 2 inputs

Hydrologic Alterations, Water Quality, and Habitat Quality



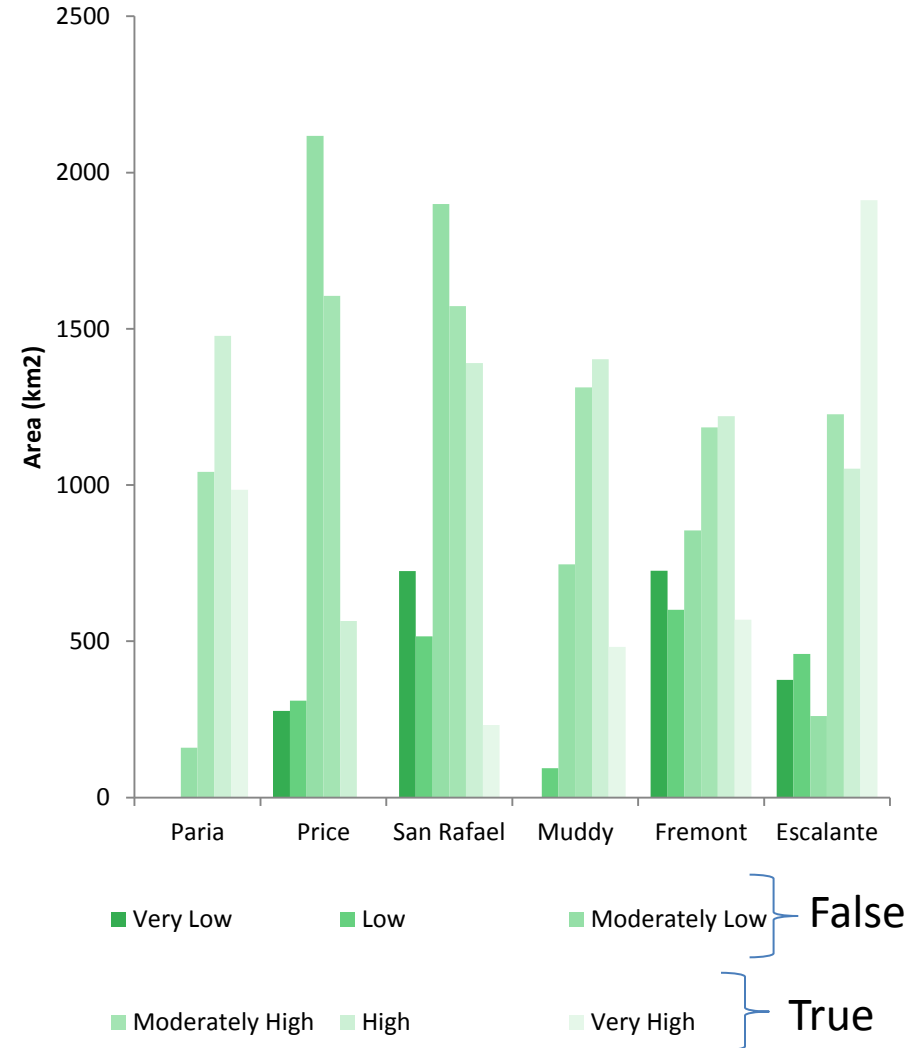
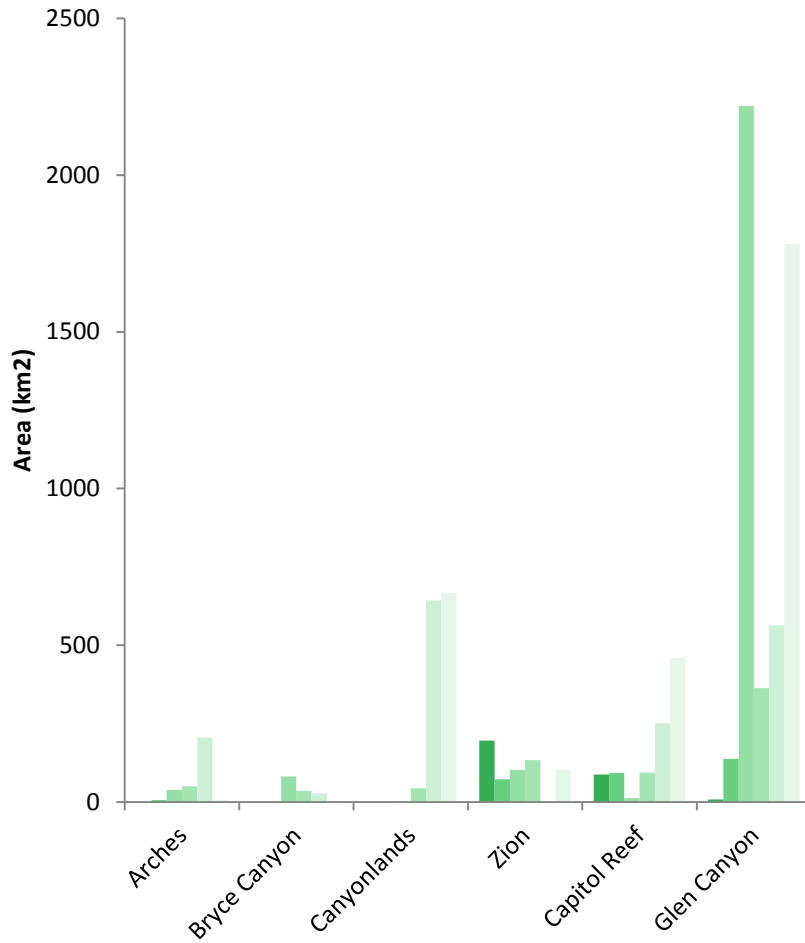
Aquatic Intactness Tier 2 inputs (zoomed in to HUC8s and NPs/NRA)

Hydrologic Alterations, Water Quality, and Habitat Quality



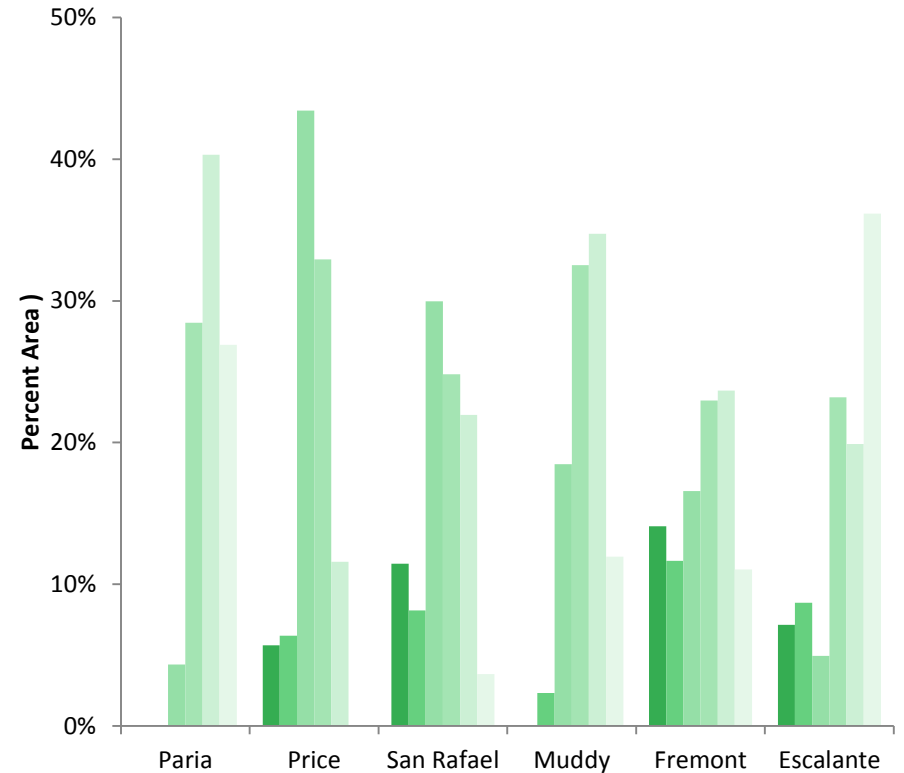
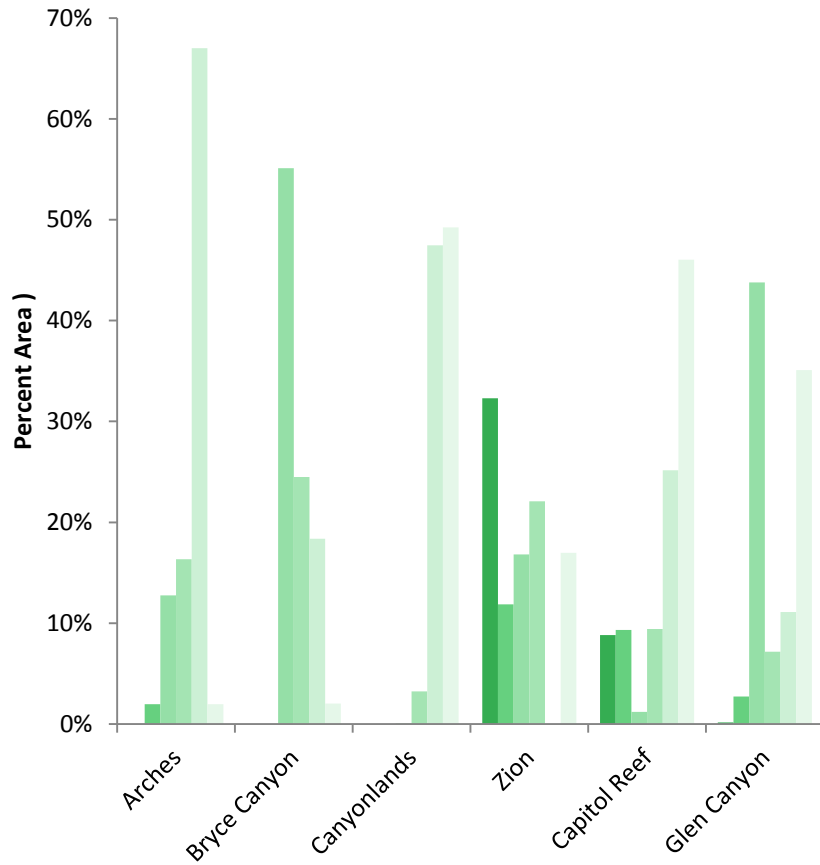
AI: Low Hydrologic Alterations

(by map display legend and area in km²)



AI: Low Hydrologic Alterations

(by map display legend and percent area)



Very Low

Low

Moderately Low

False

Moderately High

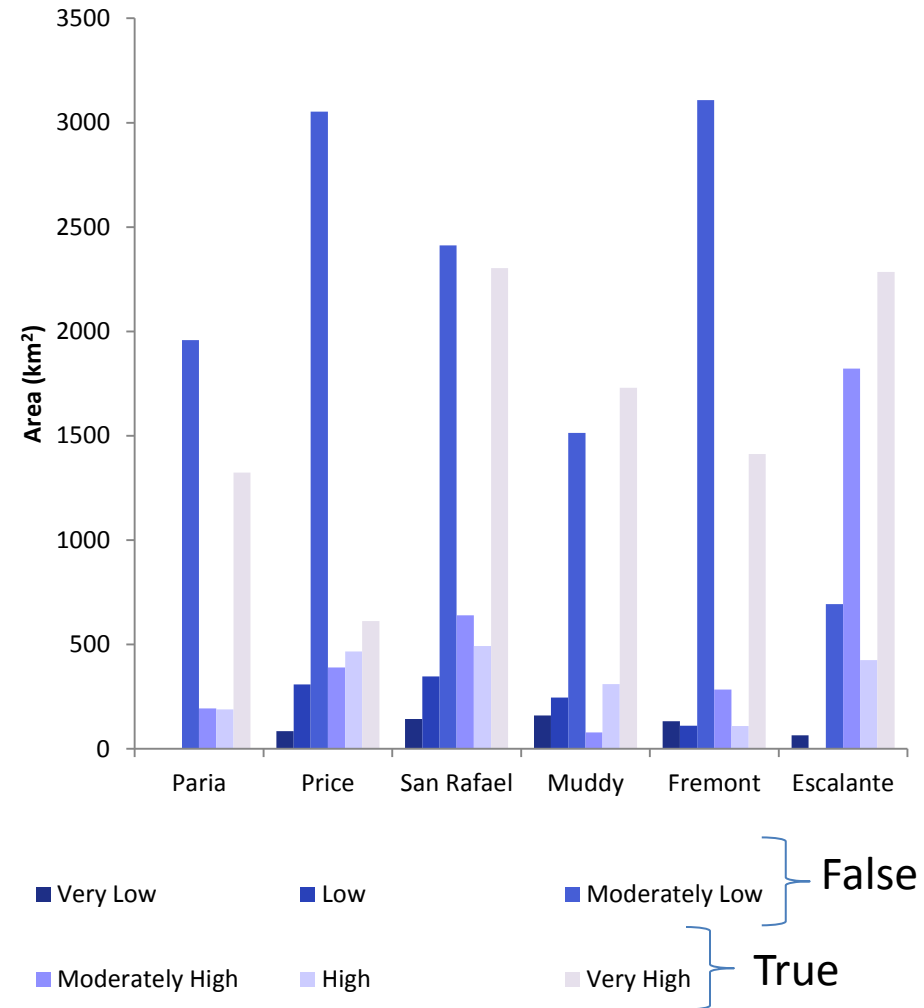
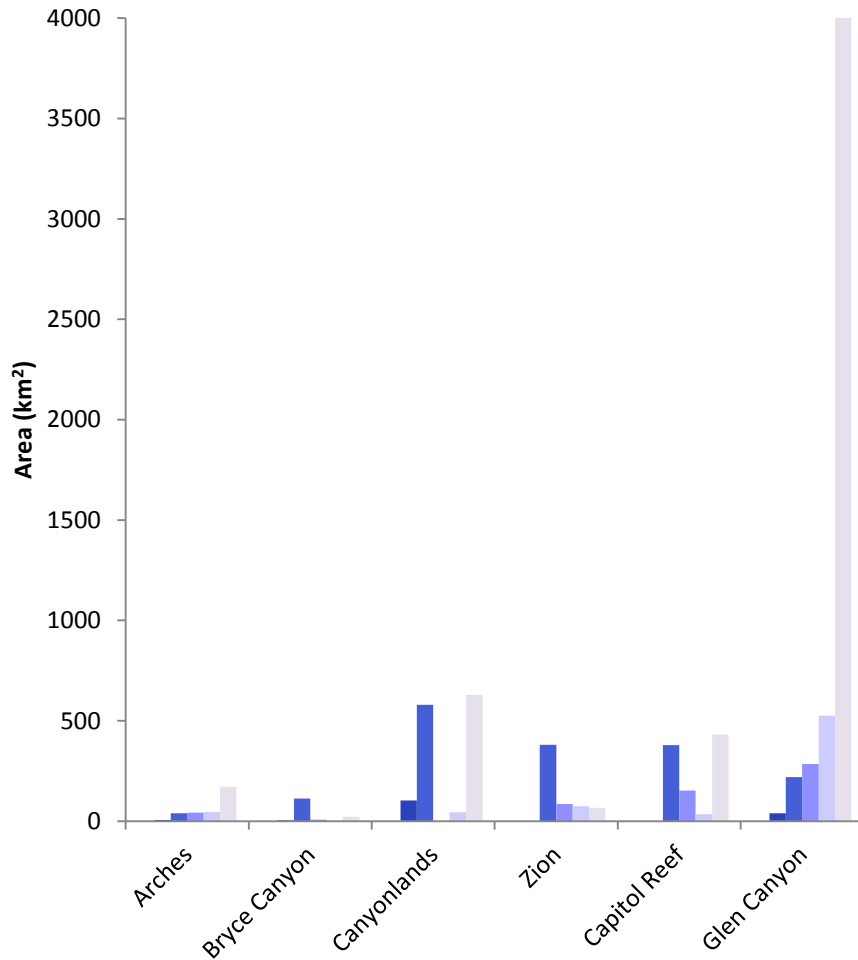
High

Very High

True

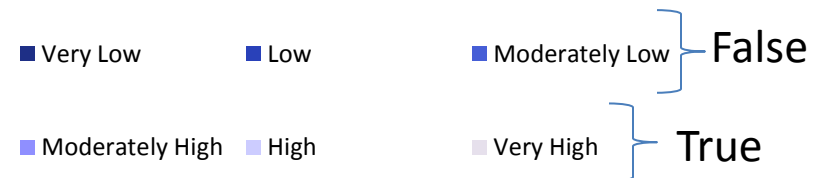
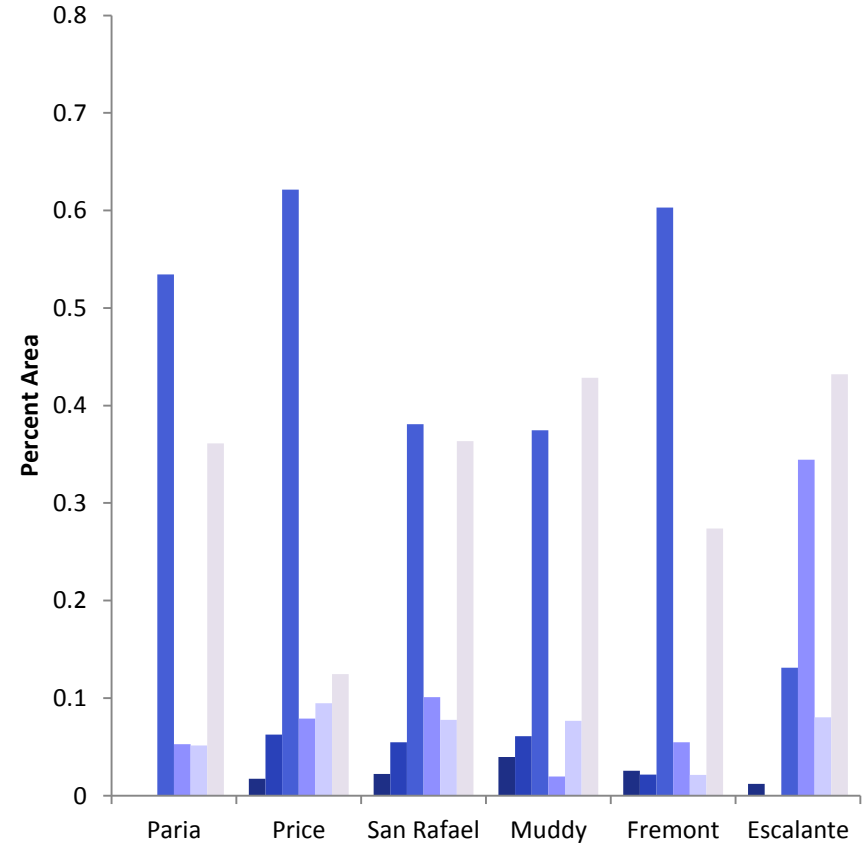
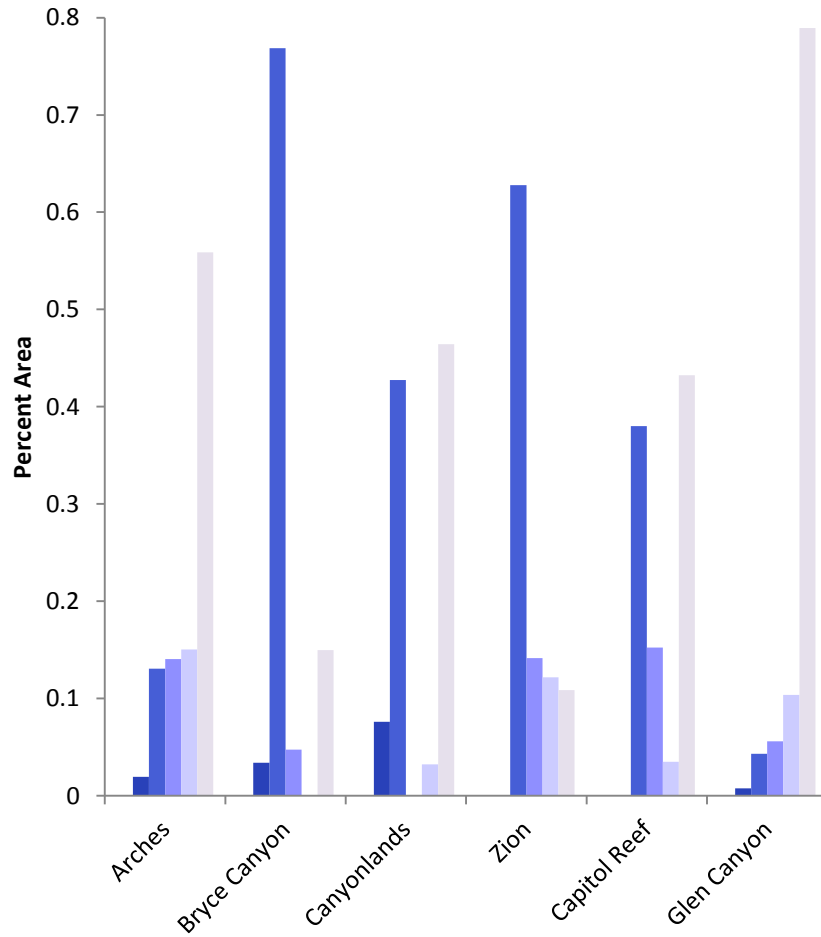
AI: High Water Quality

(by area in km²)



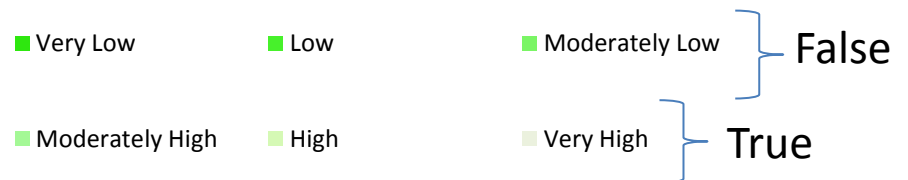
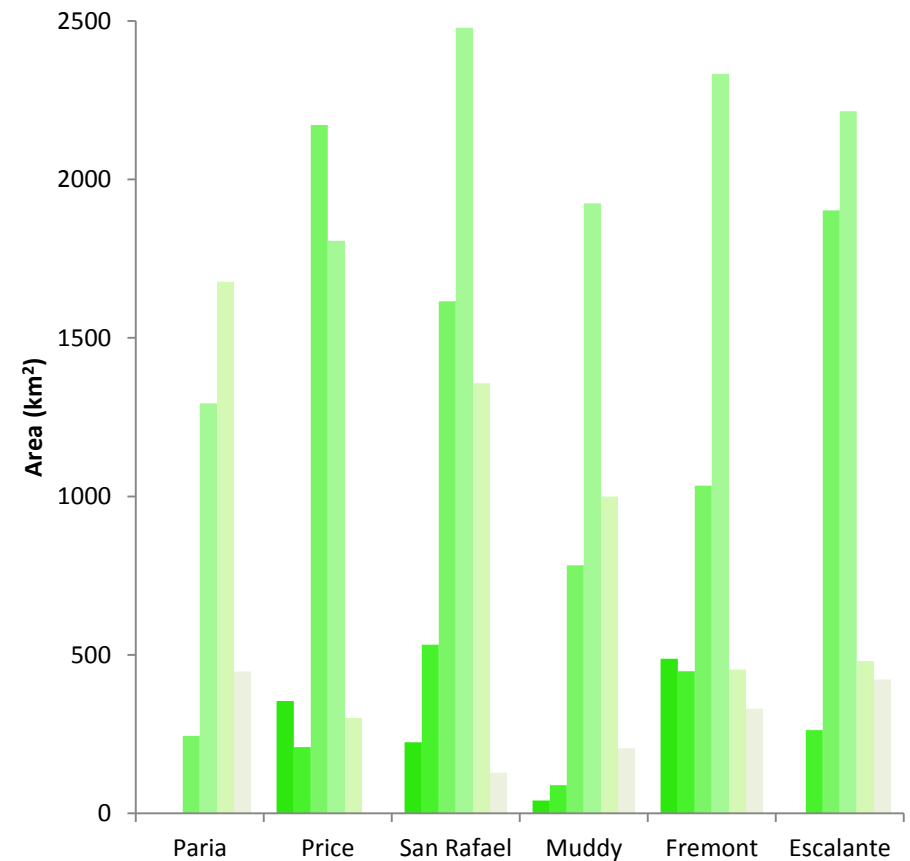
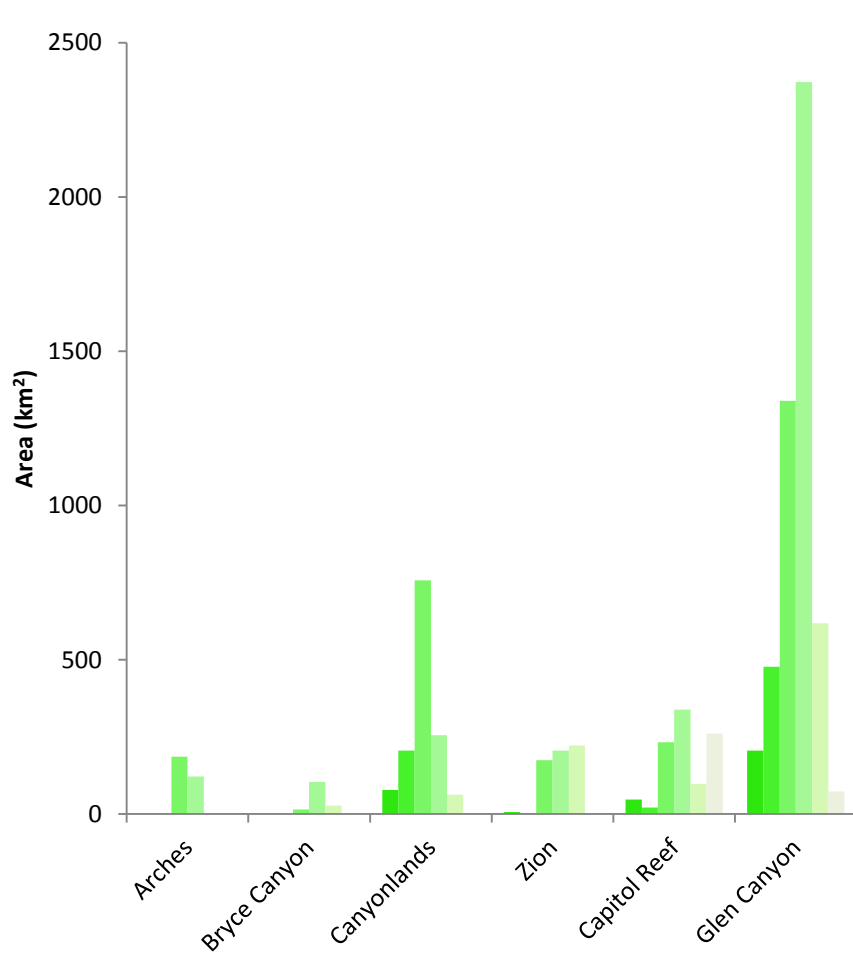
AI: High Water Quality

(by percent area)



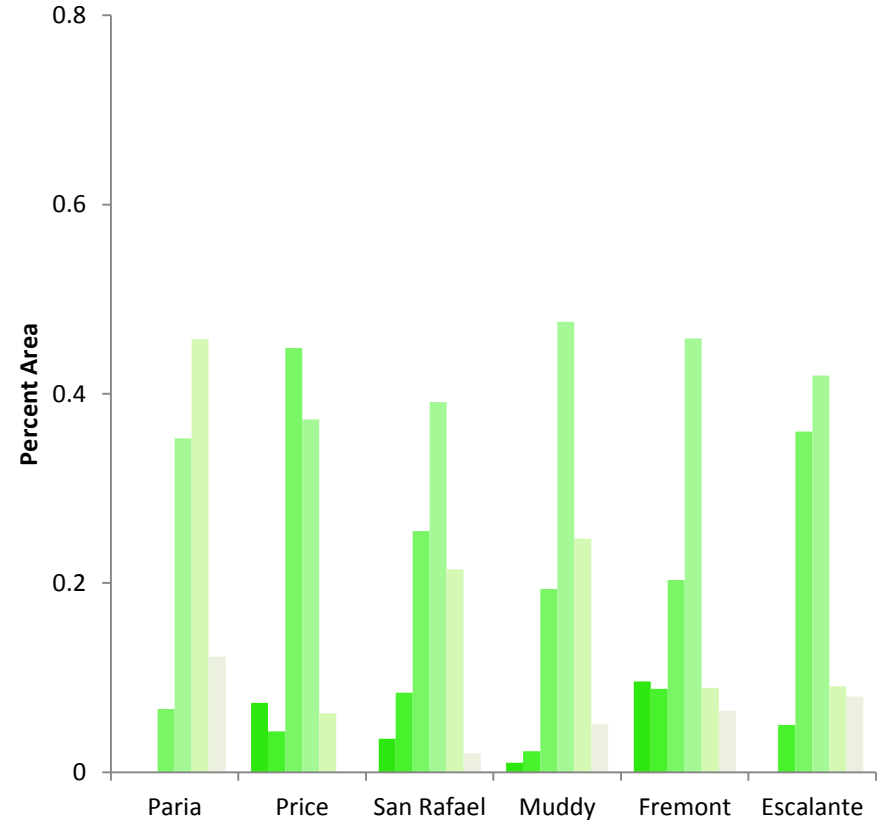
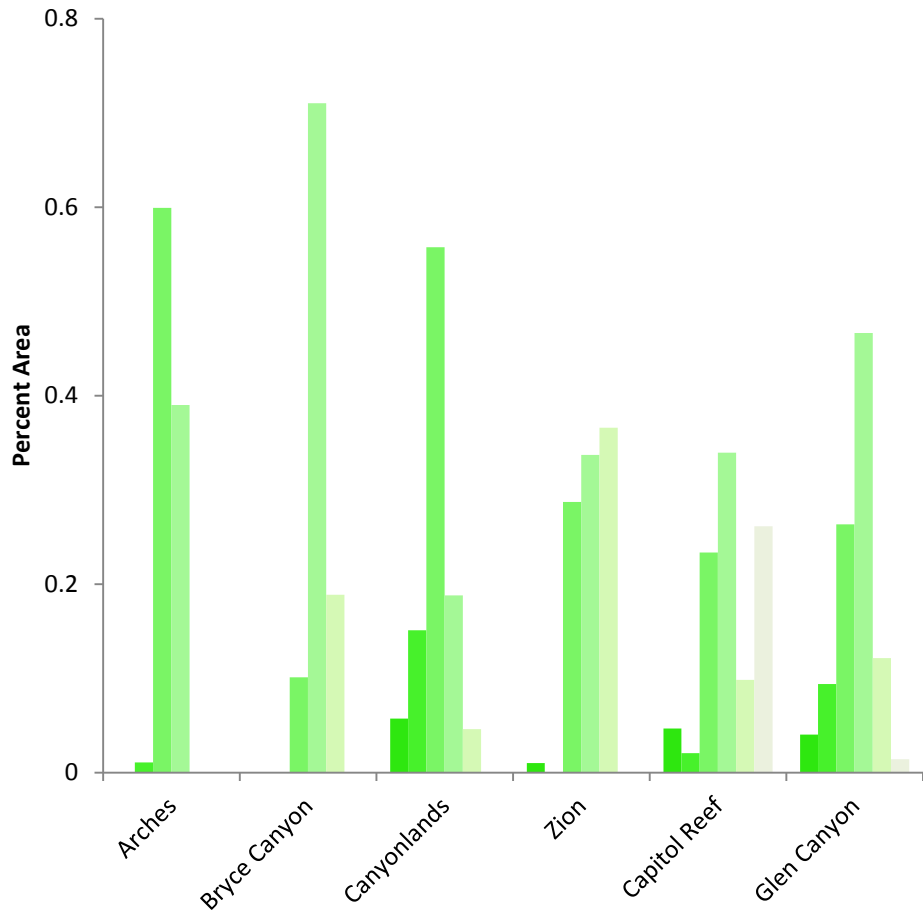
AI: High Habitat Quality

(by area in km²)



AI: High Habitat Quality

(by percent area)



Very Low

Low

Moderately Low

Moderately High

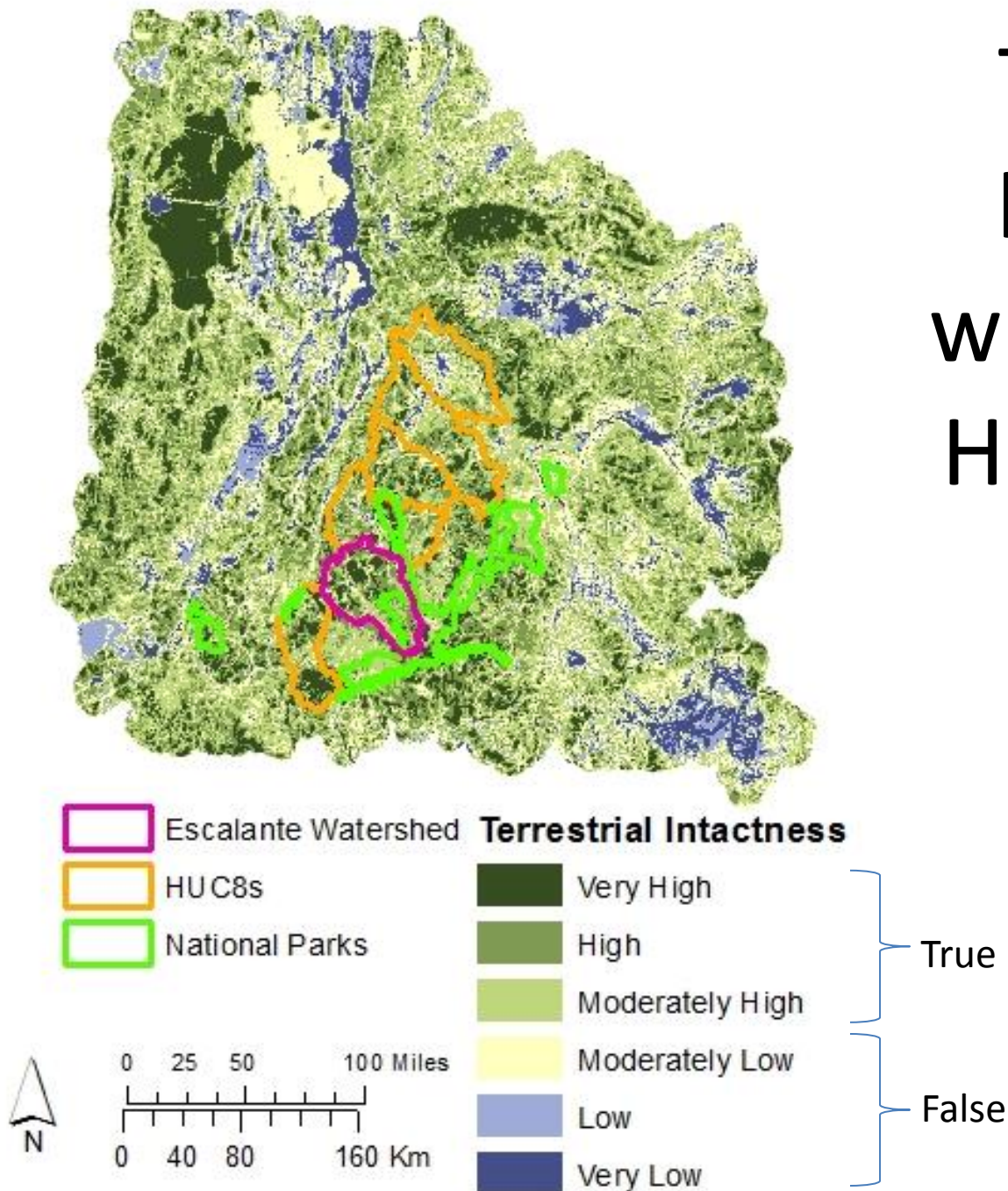
High

Very High

} False

} True

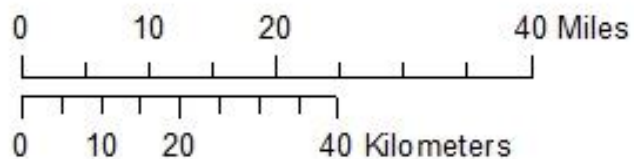
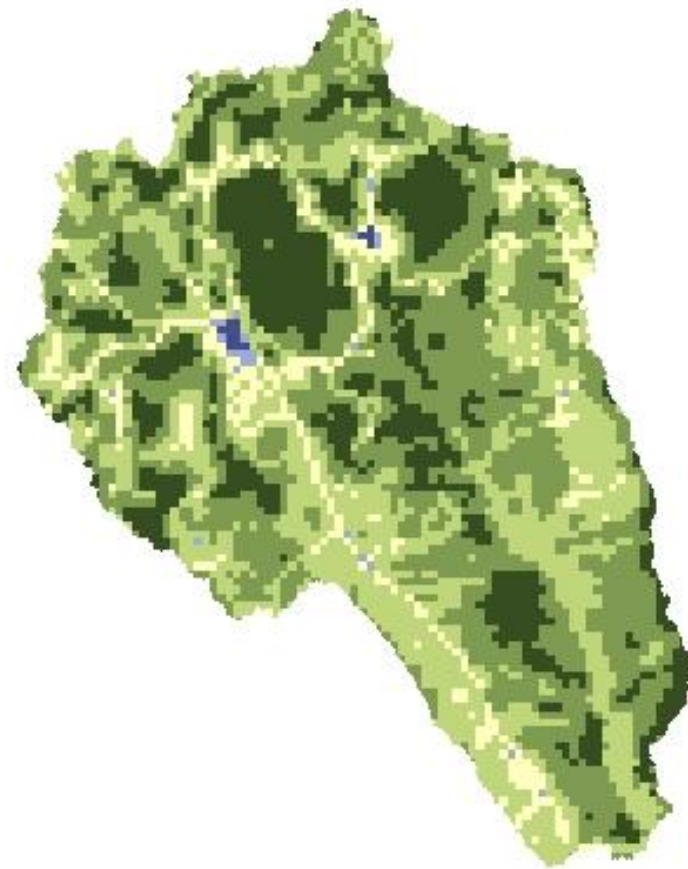
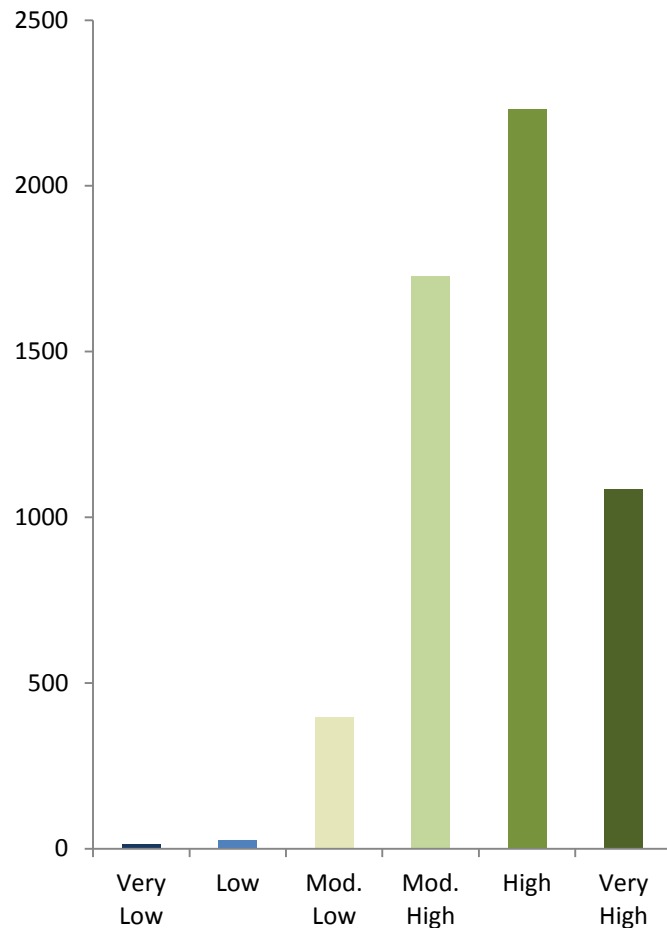
Terrestrial Intactness with selected HUC8s and 6 NPs/NRA



Escalante Watershed Intactness - COP 2014

TI

Terrestrial Intactness
summarized at 1 km²



Intactness

Very High

High

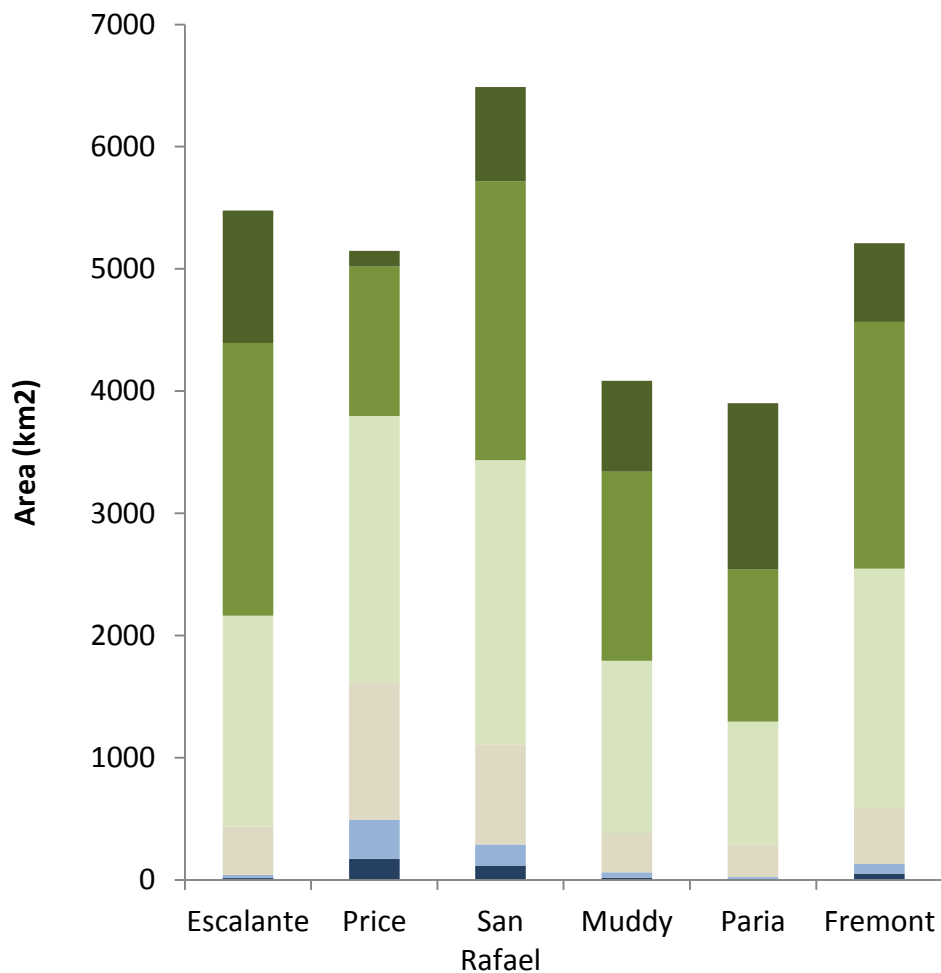
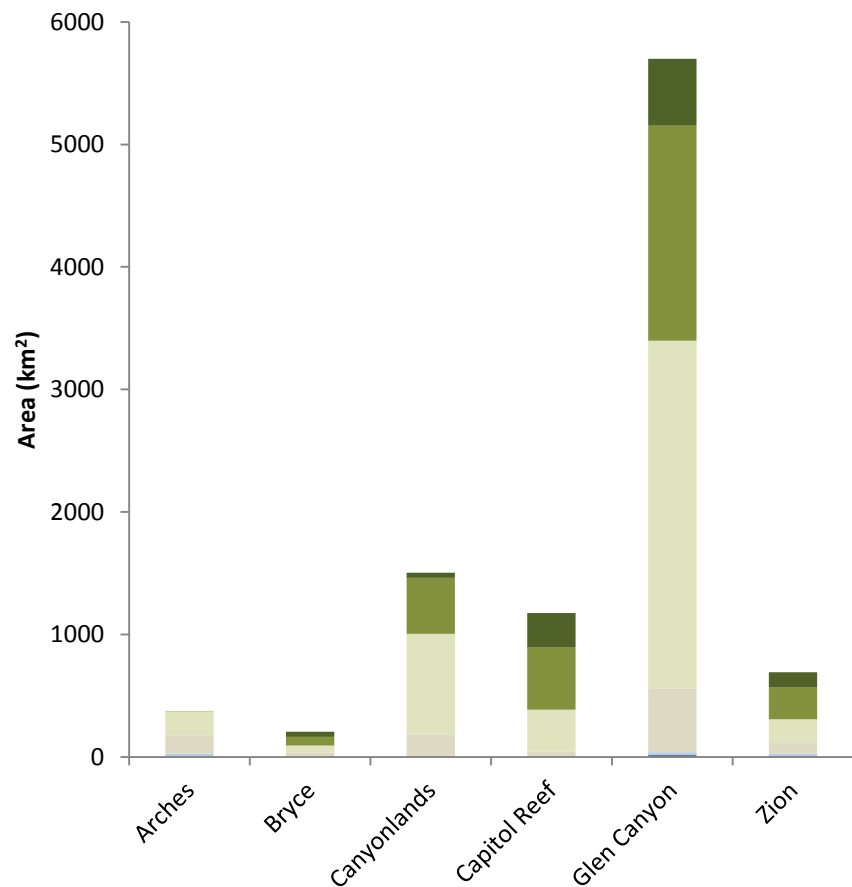
Moderately High

Moderately Low

Low

Very Low

Terrestrial Intactness for 6 HUC8s (left) and 6 NPs/NRA (right) by area in km²



True

False

Very High

High

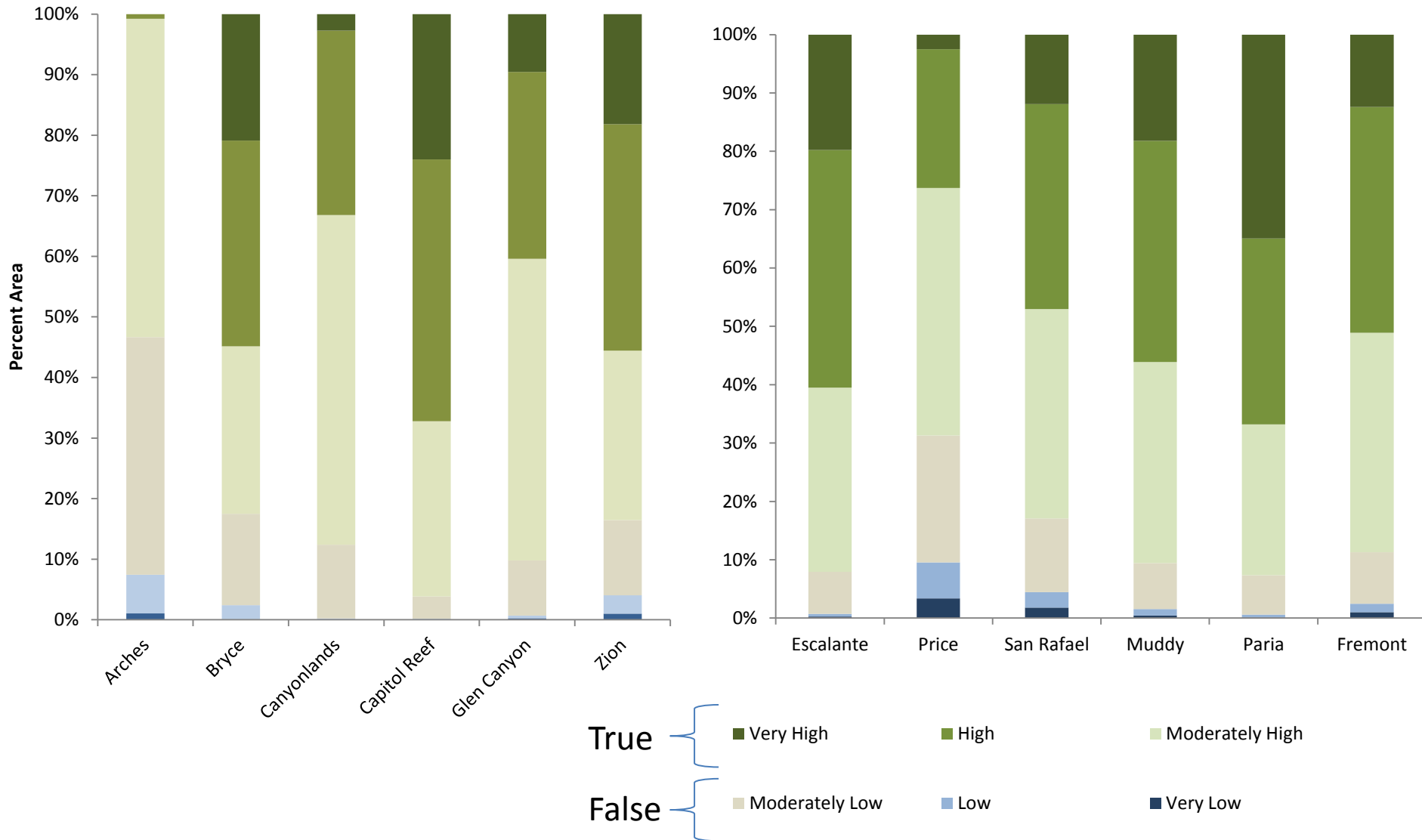
Moderately High

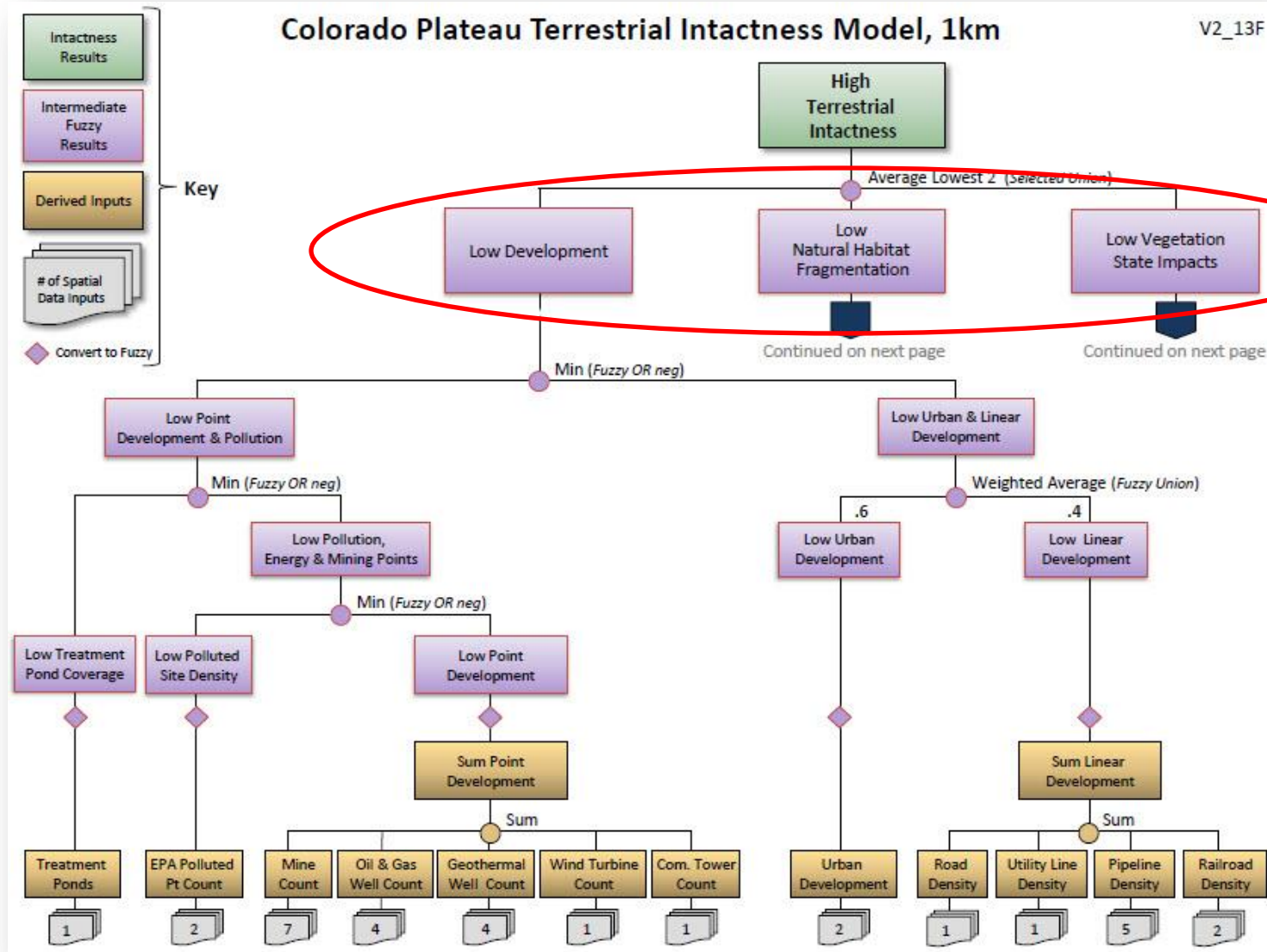
Moderately Low

Low

Very Low

Terrestrial Intactness for 6 HUC8s (left) and 6 NPs/NRA (right) by percent area





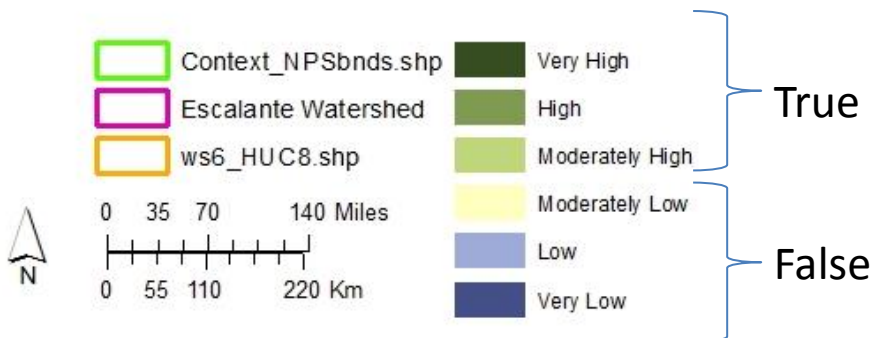
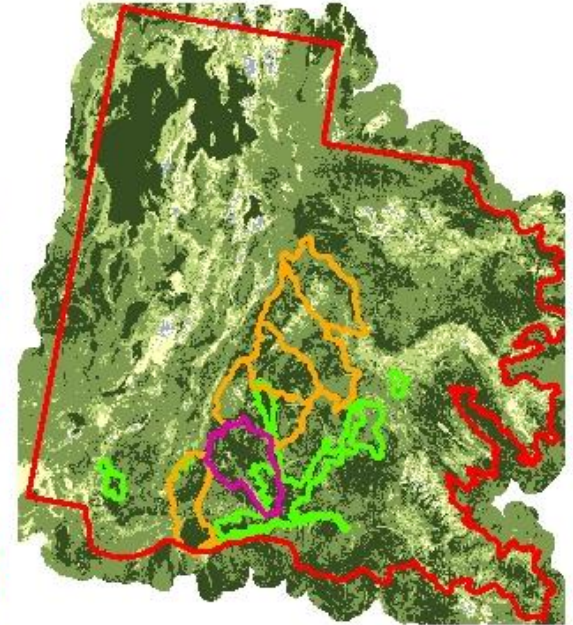
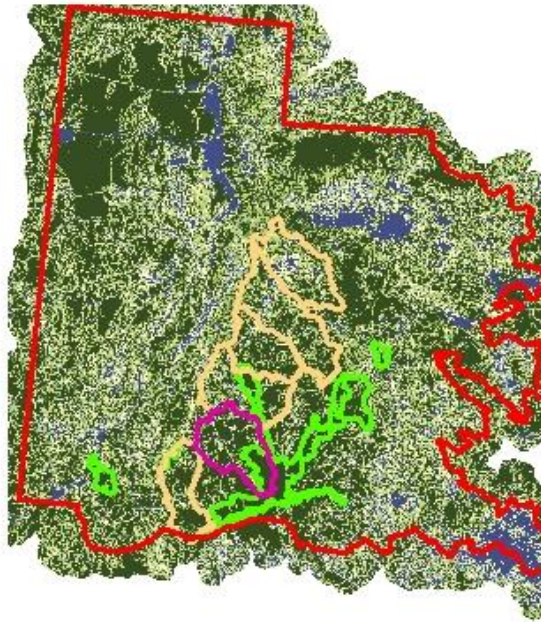
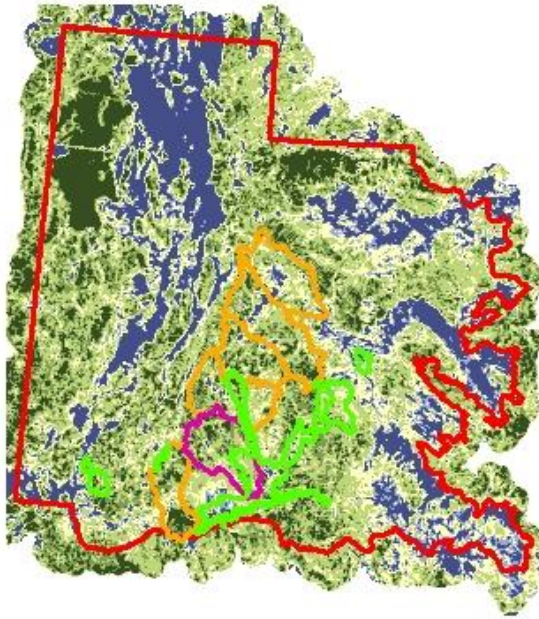
The next slides show analyses for the tier 2 model components ->

TI: tier 2 inputs using original legend bins

Low Fragmentation

Low Permanent Development

Low Vegetation State Impacts



TI is the average of the
lowest 2 inputs from tier 2.

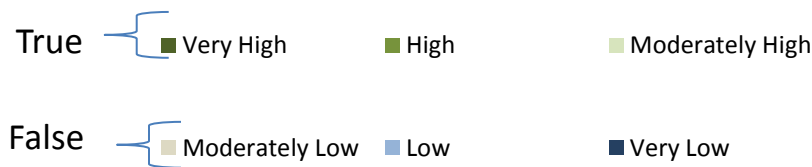
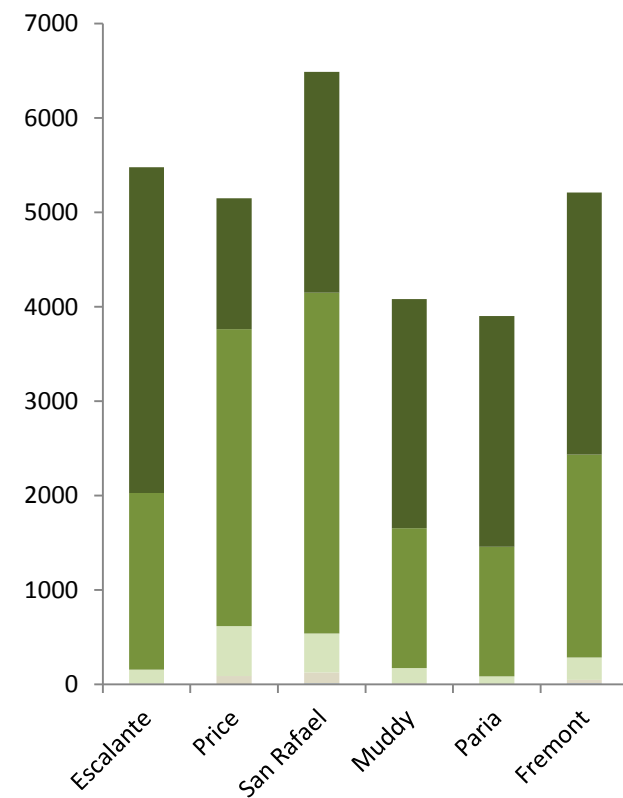
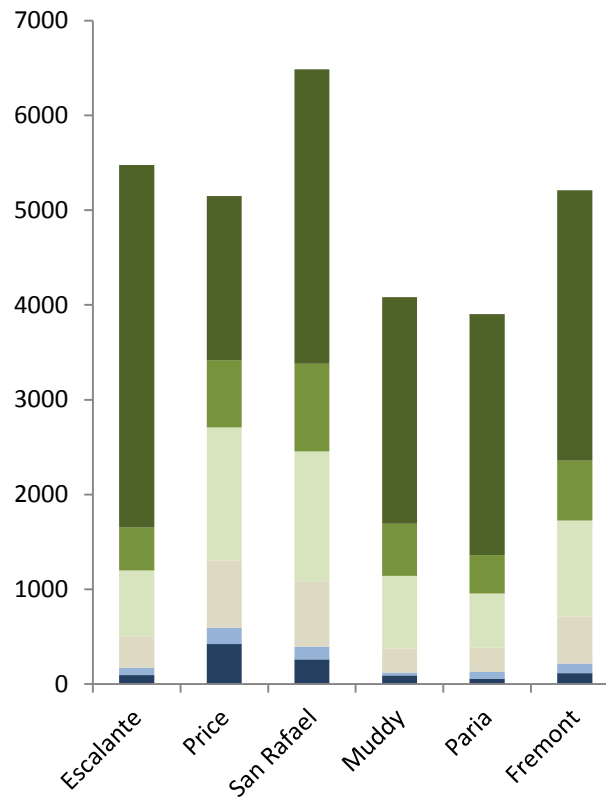
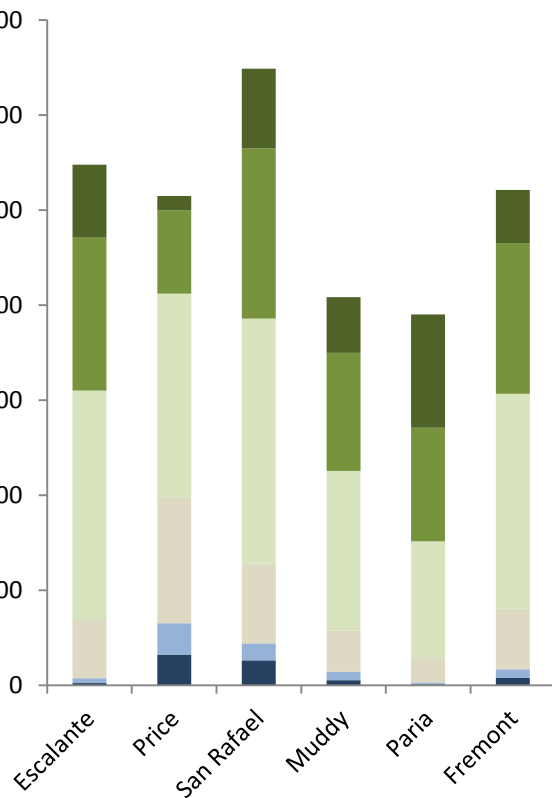
TI: Tier 2 inputs for HUC8s

using original legend bins, area in km²

Habitat Fragmentation

Permanent Development

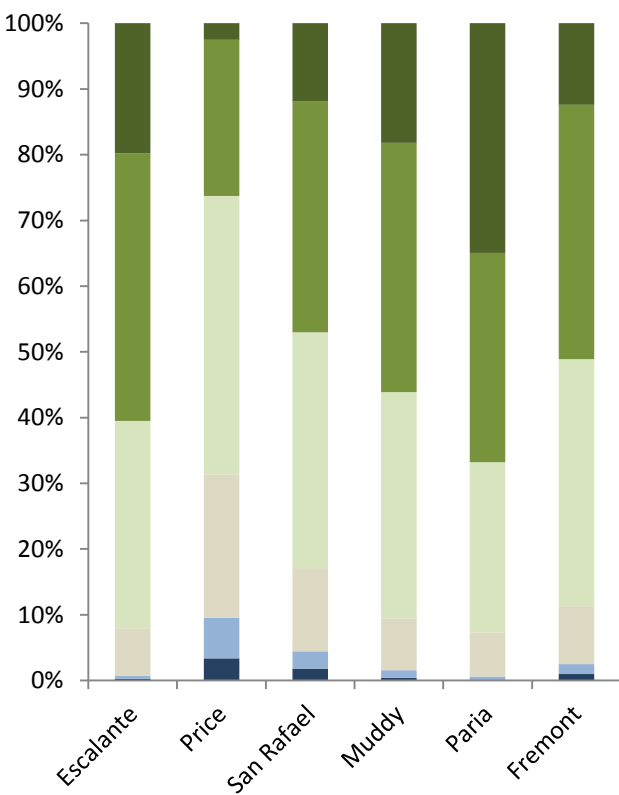
Vegetation State



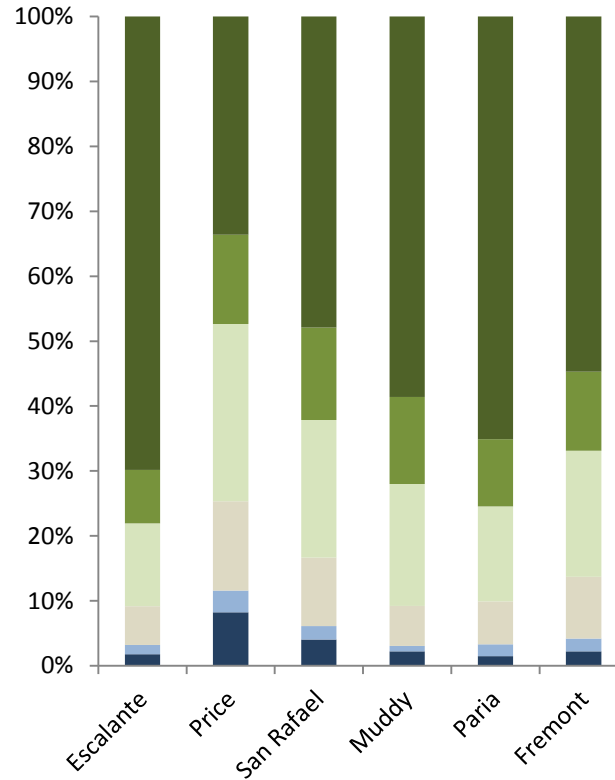
TI: Tier 2 inputs for HUC8s

using original legend bins, percent area

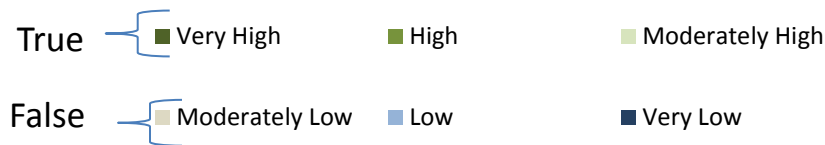
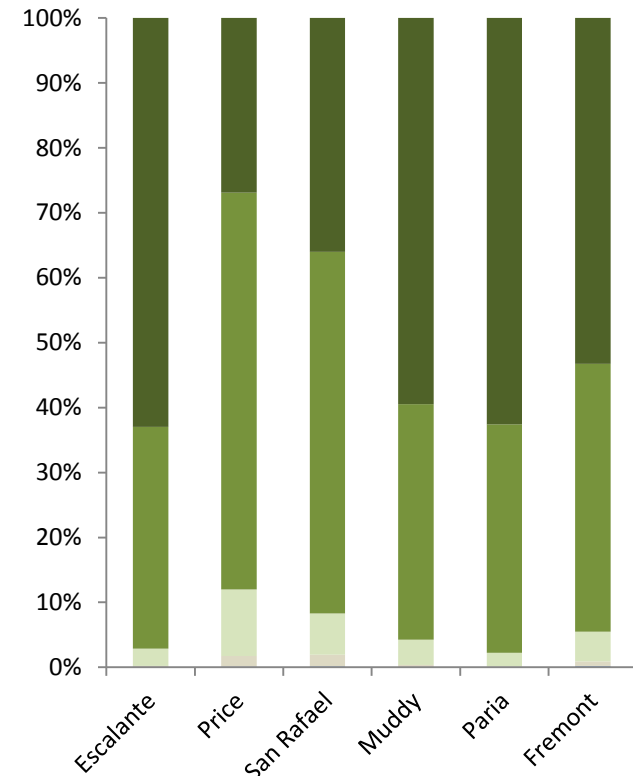
Habitat Fragmentation



Permanent Development



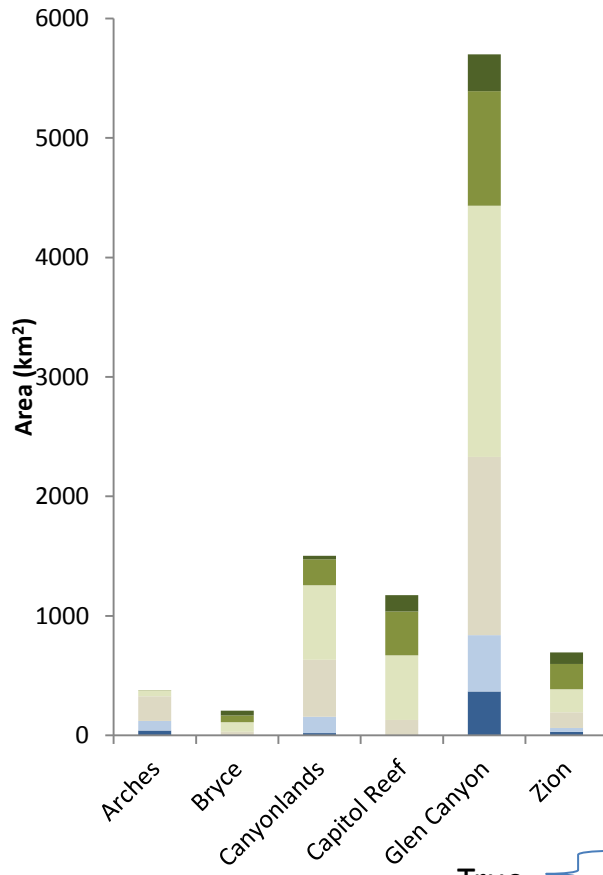
Vegetation State



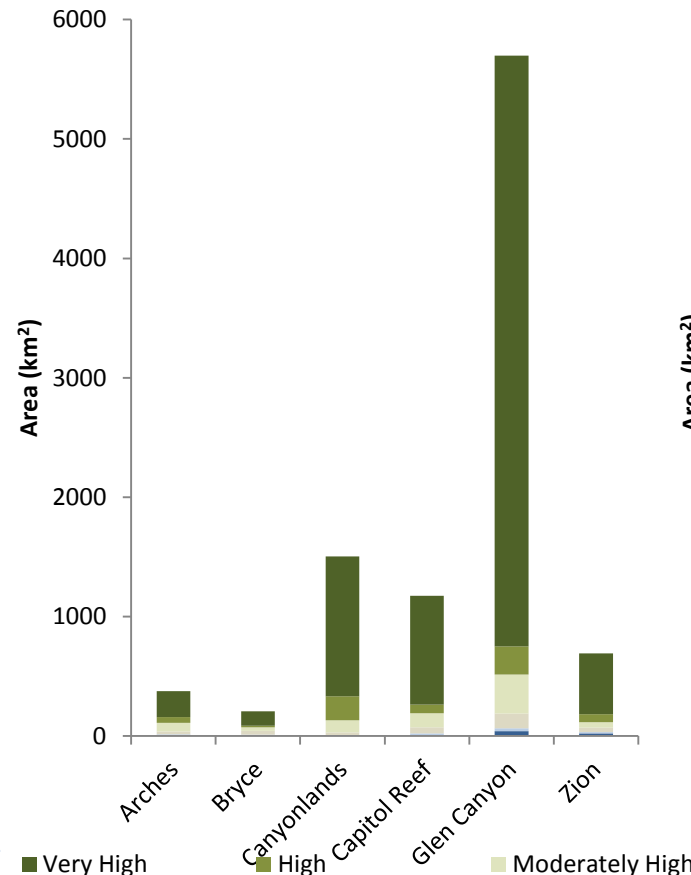
TI: Tier 2 inputs for 6 NPs/NRA

using original legend bins, area in km²

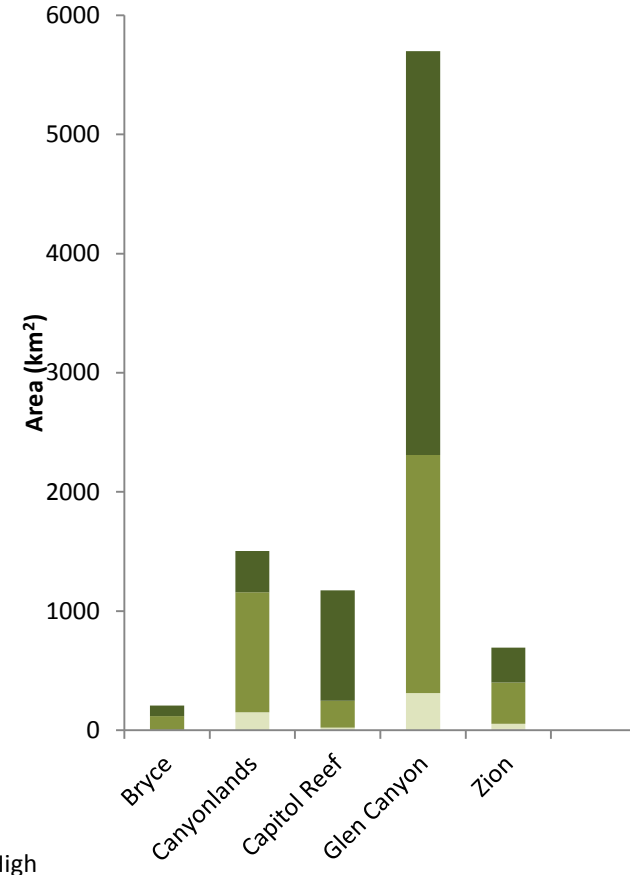
Habitat Fragmentation



Permanent Development



Vegetation State



True { Very High High Moderately High

False { Moderately Low Low Very Low

TI: Tier 2 inputs for 6 NPs/NRA

using original legend bins, percent area

