



# Nevada Conservation Credit System

Gain Direction on  
Proposed Mitigation Ratios

**July 10, 2014 – SEC Meeting**

# Today's Goal

Gain clear direction on how to refine proposed mitigation ratio numbers

***Aspiration:*** Refine and gain agreement on specific mitigation ratio numbers

# Today's Agenda

- 1) Credit System Goal & Objectives
- 2) Key Design Elements and Terms
- 3) Project Scenarios Used to Illustrate Proposals
- 4) Mitigation Ratio Proposals & Feedback

# Future Items

## **August/September**

- Baseline – informed by Habitat Suitability Model
- Seasonal Habitat Scarcity Factor approach
- Reserve Account: Wildfire factor

## **September – Manual Overall**

- Durability on federal lands & Reserve Account: Competing Land Uses factor
- Habitat Quantification Tool updates

## **Quarter 4 2015**

- Contract template
- Customized Management Plan template

## **2015 & Future Adaptive Management**

- Integration of anthropogenic disturbances into Habitat Suitability Model

# Credit System Goal & Objectives

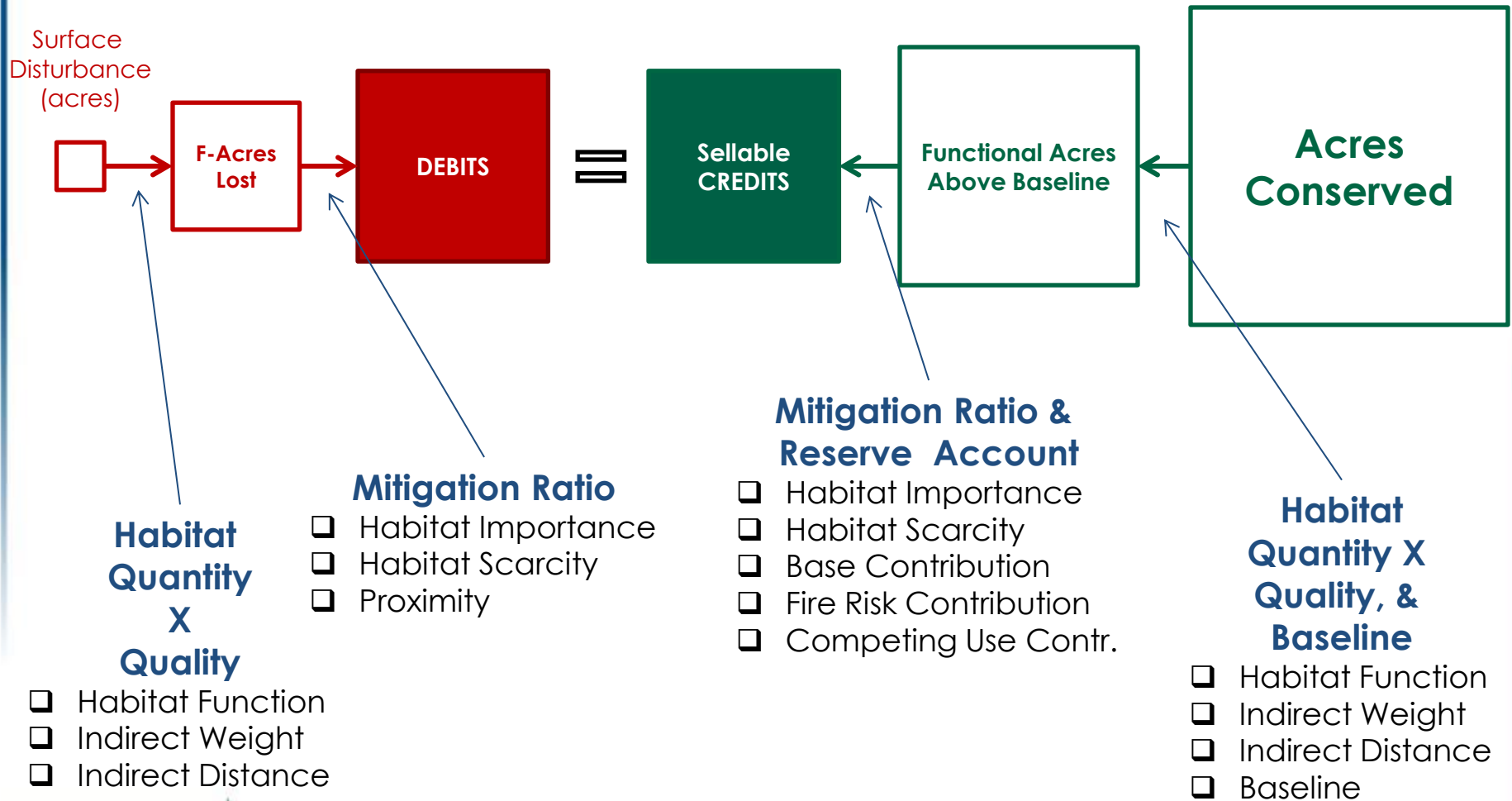
**Goal:** No net unmitigated loss to GrSG habitat from anthropogenic disturbances

**Objectives:**

- 1) Fully mitigate direct and indirect impacts of anthropogenic disturbances
- 2) Guide impacts to avoid high quality and limiting habitat
- 3) Guide conservation to protect high quality and limiting habitat
- 4) Address cumulative impacts and fragmentation
- 5) Ensure more credits than debits in the System
- 6) Foster transparency, accountability and credibility
- 7) Efficiently and effectively adapt as scientific and other information becomes available
- 8) Develop more effective yet practical mitigation program than alternatives

# Key Design Elements

(Box sizes only illustrate direction of change, they are NOT to scale)



# Credit System Objectives & Design Elements

## Objective

## Design Element

1) Fully mitigate direct and indirect impacts of anthropogenic disturbances	<ul style="list-style-type: none"> <li>▪ Habitat Function</li> <li>▪ Indirect Weight</li> <li>▪ Indirect Distance</li> </ul>
2) Guide impacts to avoid high quality and limiting habitat	<ul style="list-style-type: none"> <li>▪ Habitat Function</li> <li>▪ Debit Mitigation Ratio</li> </ul>
3) Guide conservation to protect high quality and limiting habitat	<ul style="list-style-type: none"> <li>▪ Habitat Function</li> <li>▪ Credit Mitigation Ratio</li> </ul>
4) Address cumulative impacts and fragmentation	<ul style="list-style-type: none"> <li>▪ Proximity Mitigation Ratio Factor</li> <li>▪ Existing Anthropogenic Disturbance</li> </ul>
5) Ensure more credits than debits in the System	<ul style="list-style-type: none"> <li>▪ Reserve Account (Base, Fire Risk &amp; Competing Use)</li> <li>▪ Financial Assurances</li> </ul>
6) Foster transparency, accountability and credibility	<ul style="list-style-type: none"> <li>▪ Credit System Manual</li> <li>▪ HQT Methods Document</li> <li>▪ Annual Reporting</li> </ul>
7) Efficiently and effectively adapt as scientific and other information becomes available	<ul style="list-style-type: none"> <li>▪ Management System</li> </ul>
8) Make more effective yet practical than other mitigation alternatives	<ul style="list-style-type: none"> <li>▪ Habitat Function</li> <li>▪ Indirect Impacts</li> <li>▪ Credit System Manual</li> <li>▪ HQT Methods Document</li> </ul>

# HQT Scales - Area & Attributes

Habitat  
Objectives  
table 2-6  
in EIS  
+  
Best  
available  
science  
+  
TRG input

Scale	Area Assessed	Attributes Measured or Delineated
<b>1st Order</b>	The range for the species in Nevada	Statewide population recovery goals
<b>2nd Order</b>	Key habitat for maintaining the species at statewide scales	<ul style="list-style-type: none"> <li>• Habitat importance</li> <li>• Seasonal Habitat Scarcity</li> <li>• Proximity between Credit and Debit</li> <li>• Resistance &amp; Resilience</li> </ul>
<b>3rd Order</b>	Habitat surrounding a proposed project site (local scale)	<ul style="list-style-type: none"> <li>• Density of anthropogenic features</li> <li>• Contiguous sagebrush cover</li> <li>• Extent of conifer cover</li> </ul>
<b>4th Order</b>	Delineated acreage of credit or debit project	<ul style="list-style-type: none"> <li>• <b>Nesting habitat attributes</b></li> <li>• <b>Late Brood-Rearing habitat attributes</b></li> <li>• <b>Winter habitat attributes</b> <ul style="list-style-type: none"> <li>• Modifiers</li> </ul> </li> </ul>

Mitigation  
Ratio

Habitat  
Function



# Habitat Function, Indirect Impact Distance & Indirect Impact Weight

**Direct Impact = Area X Habitat Function**

6 f-acres = 60 acres X 10% function

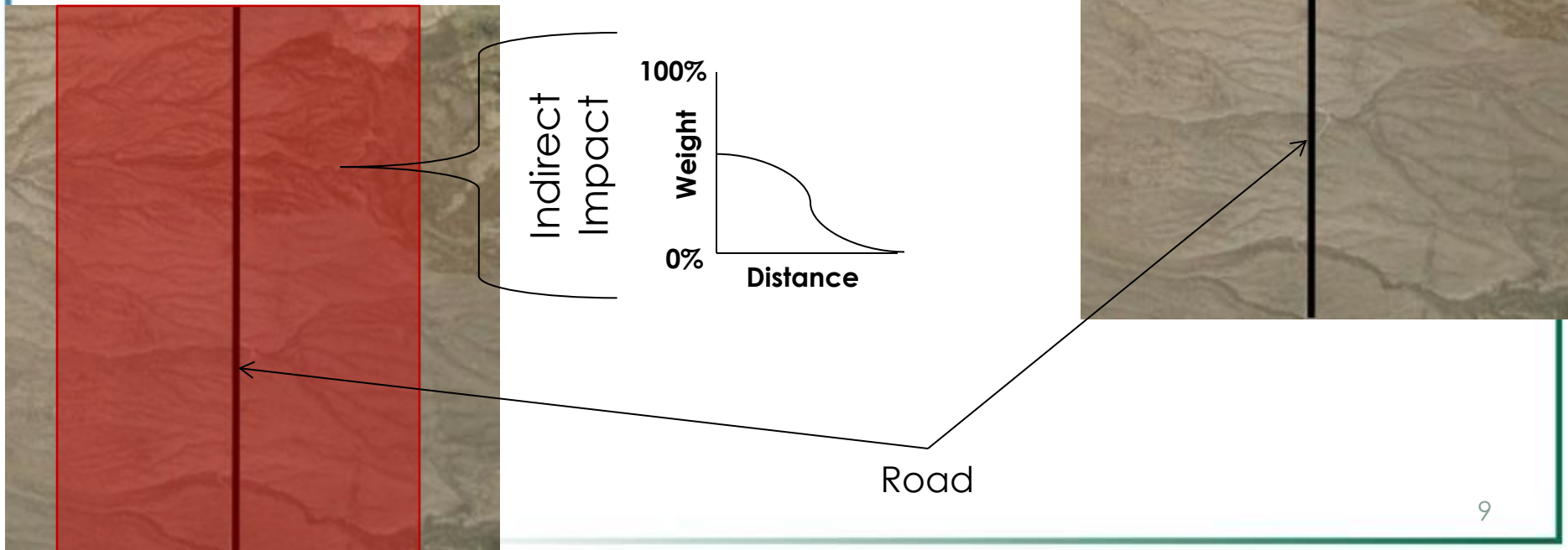
**Indirect Impact =**

**Indirect Area(Distance)**

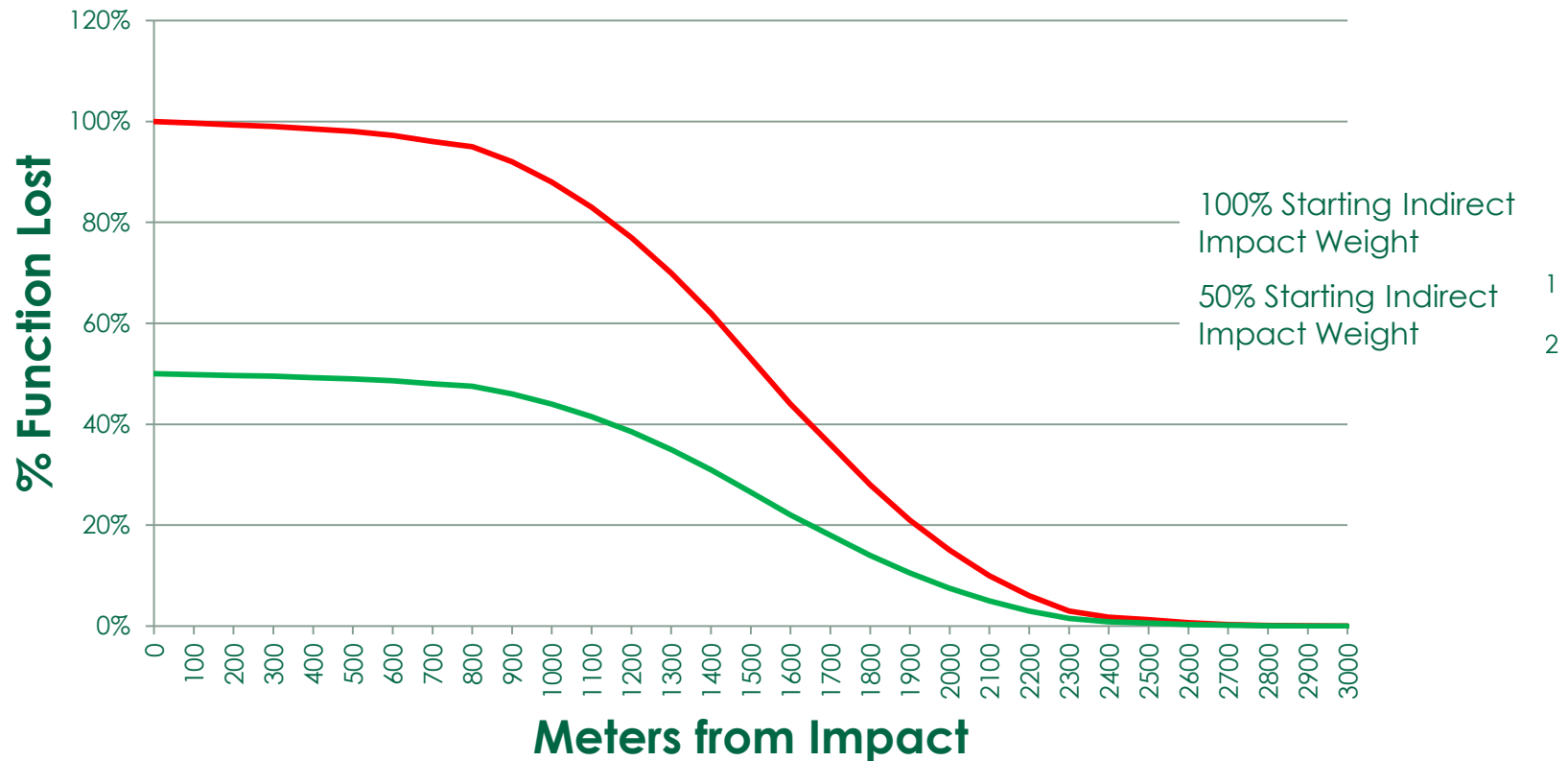
**X Habitat Function**

**X Functional Loss (Starting Weight to 0%)**

357 f-acres = 14,266 acres X 10% function X 25% avg. loss



# Rapidly Decreasing Decay-Curve



# Habitat Quantification Tool Update

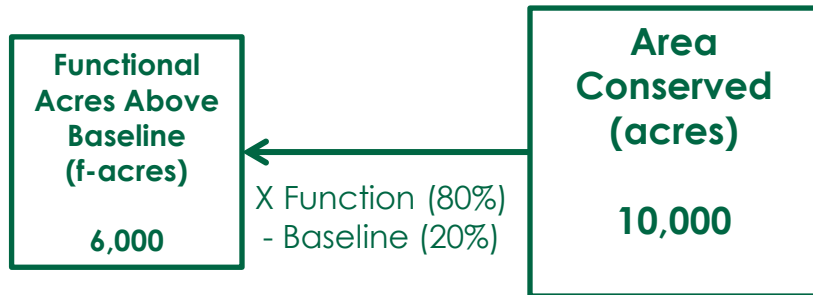
- Credits and debits are highly sensitive to habitat function and indirect impact area
- Currently
  - 1) Revising 4<sup>th</sup> Order measurement methods
  - 2) Developing 3<sup>rd</sup> Order measurement methods
  - 3) Defining indirect weights and distances for anthropogenic disturbances

<b>Anthropogenic Disturbance</b>	<b>Starting Weight</b>	<b>Distance</b>	<b>Rationale</b>
Improved Gravel Road	50%	3 km	...
Mine	100%	6 km	...
Oil or Gas Well	100%	3 km	...

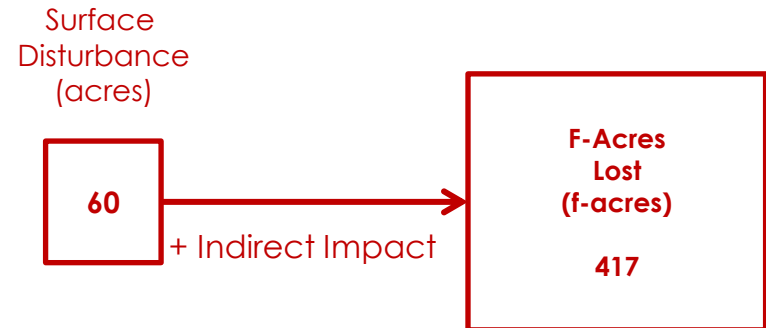
- SEC will be asked to weigh in on proposal in August/September

# Key Terms

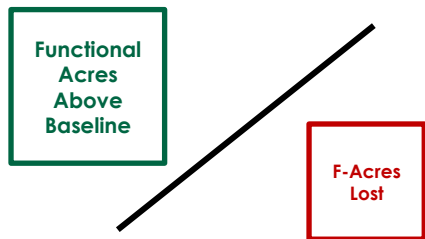
## Functional Acres Above Baseline



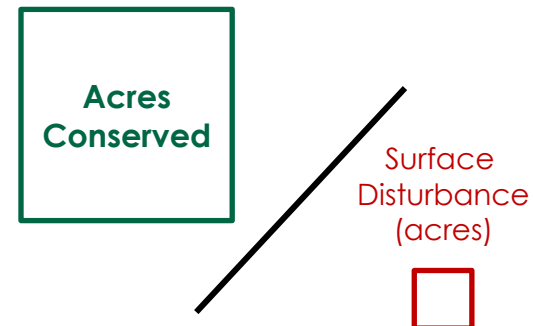
## Functional Acres Lost



## Functional Acre Improvement (%)



## Conserved Area to Direct Impact Area



# Project Scenarios

## Development Projects

10,000 Acre Mine  
with  
6 Mi. Road

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6 Mi. Road

## Conservation Projects

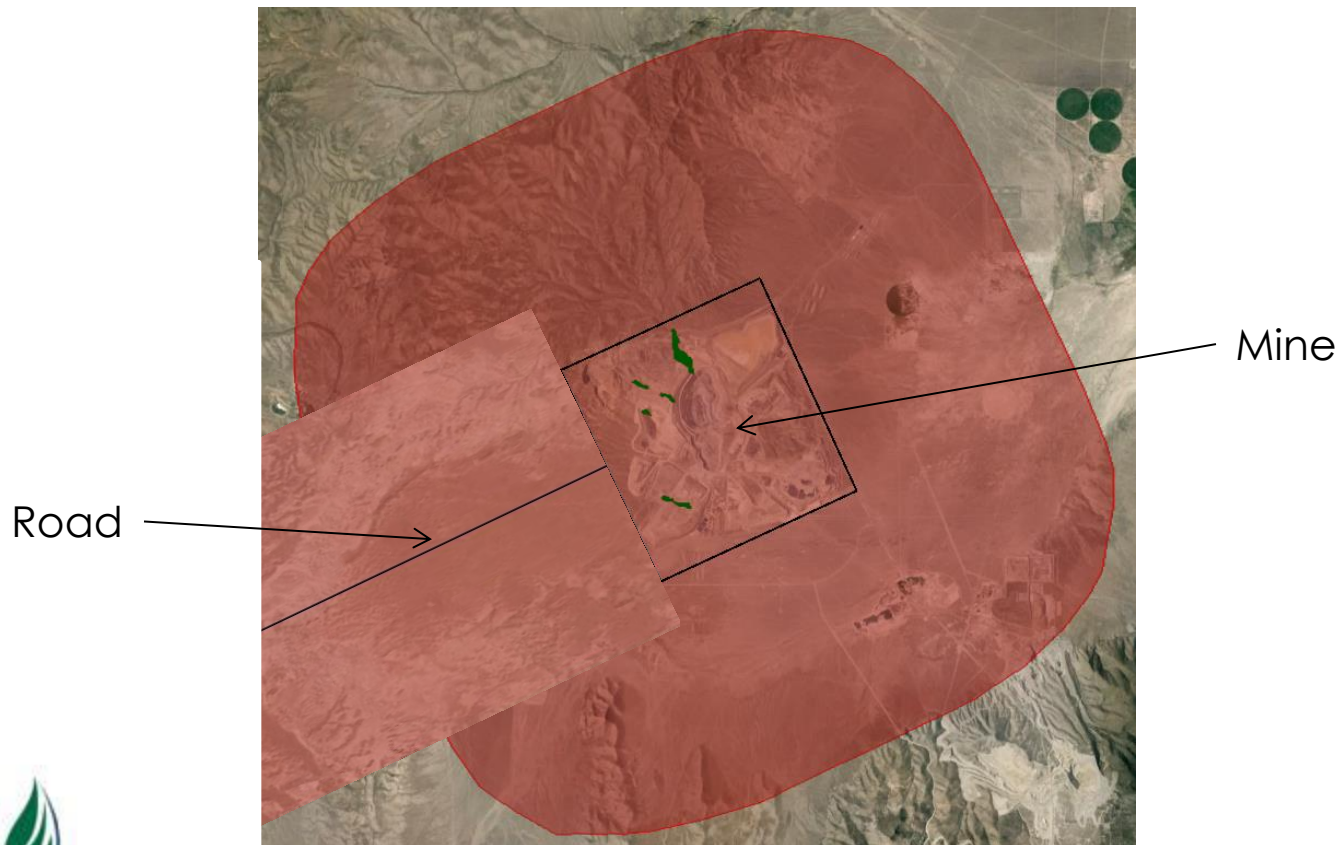
25,000 Acre with  
Conifer Removal

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10,000 Acre with  
Riparian Area  
Improvements

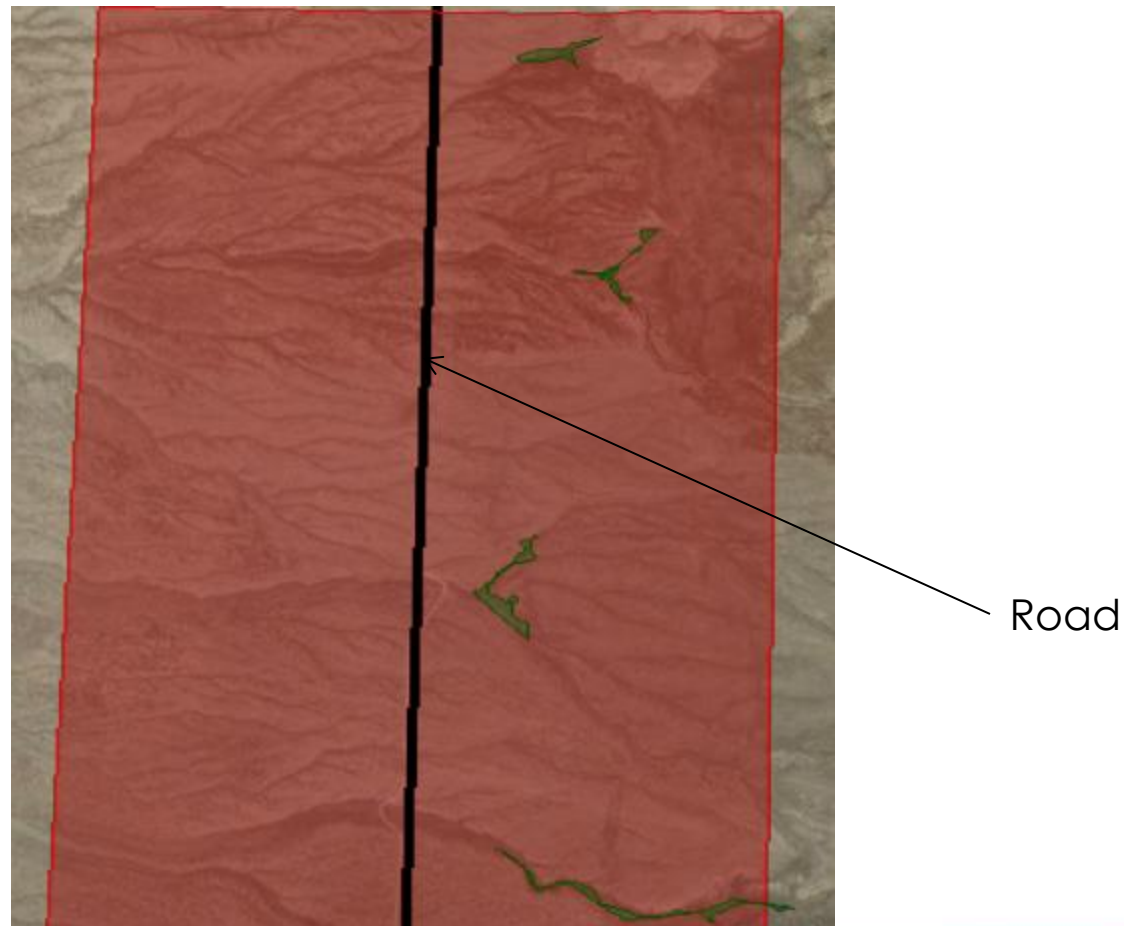
# 10,000 Acre Mine with 6 Mile Road Project Scenario

- 10,060 acre surface disturbance
- Worst case includes 100 acres of limited late brood-rearing habitat (green area) **directly** impacted



# 6 Mile Improved Gravel Road

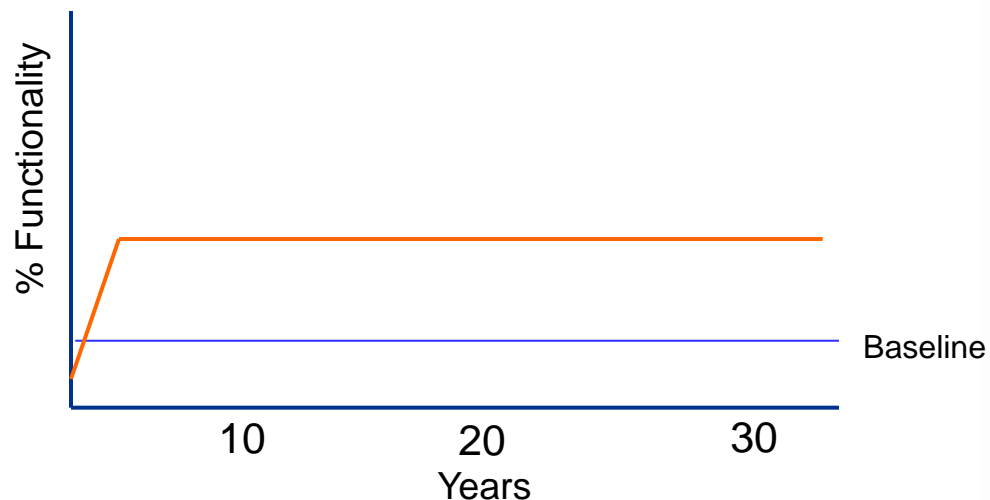
- 60 acre surface disturbance
- Worst case includes 50 acres of limited late brood-rearing habitat (green area) **indirectly** impacted





# 25,000 Acre Site with Conifer Removal

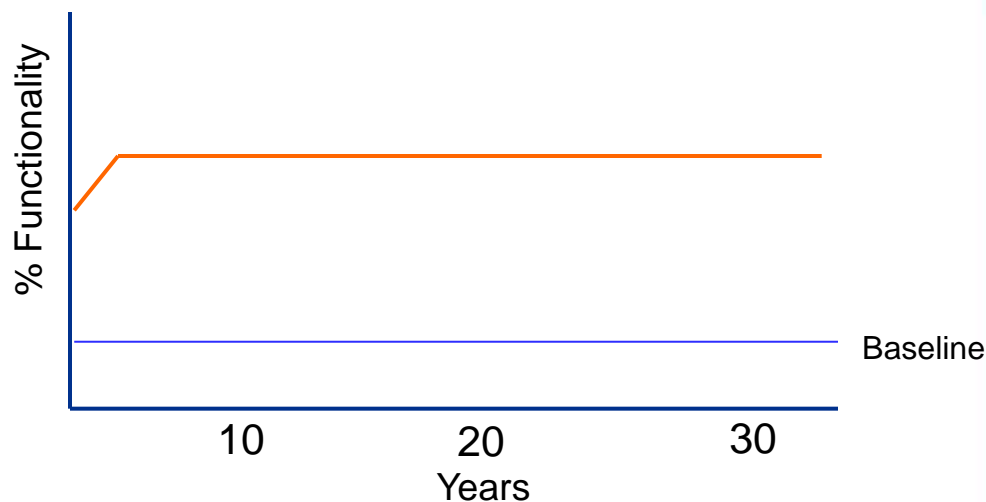
- 25,000 acres on BLM land protected using conservation right-of-way
- Phase I conifer removal from 200 acres
- Habitat function that must be maintained is defined in customized management and backed by financial assurances





# 10,000 Acre Site with Riparian Area Improvements

- 10,000 acres of privately owned land protected using conservation easement
- 30 acres of limiting habitat, minimal stream channel restoration, protective riparian area fencing and fence flagging
- Habitat function that must be maintained is defined in customized management and backed by financial assurances



# Project Scenarios

## Development Projects

10,000 Acre Mine with 6 Mi. Road

6 Mi. Road

### “Worst Case”

- 70% Avg Func
- All Core
- 100 (Mine)/30 (Road) Acres Limiting @ 80% Avg Func

### “Middle of the Road”

- 40% Avg Func
- All Priority
- 100 (Mine)/30 (Road) Acres Moderately Limiting @ 55% Avg Func

### “Best Case”

- 10% Avg Func
- All General
- No Limiting

## Conservation Projects

25,000 Acre with Conifer Removal

10,000 Acre with Riparian Area

Improvements

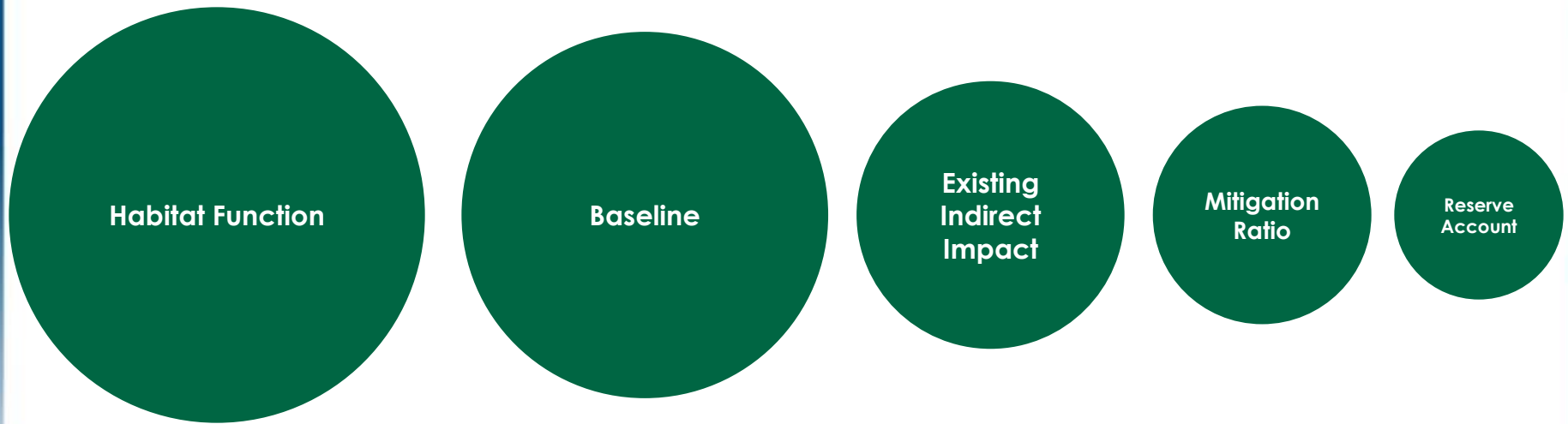
### “Best Case”

- 70% Avg Func
- All Core
- #2 with 100 Acres Limiting @ 80% Avg Func

### “Middle of the Road”

- 50% Avg Func
- All Priority
- #2 with 100 Acres Moderately Limiting @ 55% Avg Func

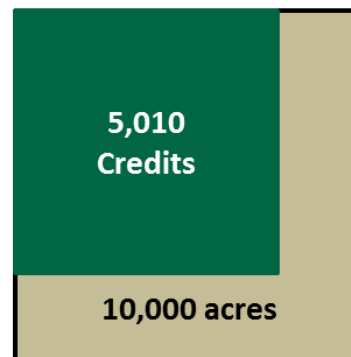
# Credit Design Element Relative Sensitivity



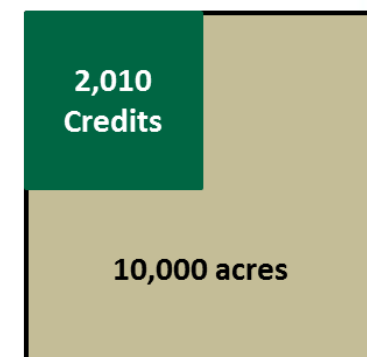
# Credit Baseline

- Baseline has a significant influence on credits generated from a site
- Proposal is to use the average index value from Nevada's HSM for each WAFWA Zone and Seasonal Habitat Type

**Baseline = 20%**



**Baseline = 50%**



## Seasonal Habitat Type

**WAFWA  
Mgmt  
Zones**

**Zone III**

**Zone IV**

**Zone V**

**Nesting**

**Late  
Brood-Rearing**

**Wintering**

20%

20%

20%

20%

20%

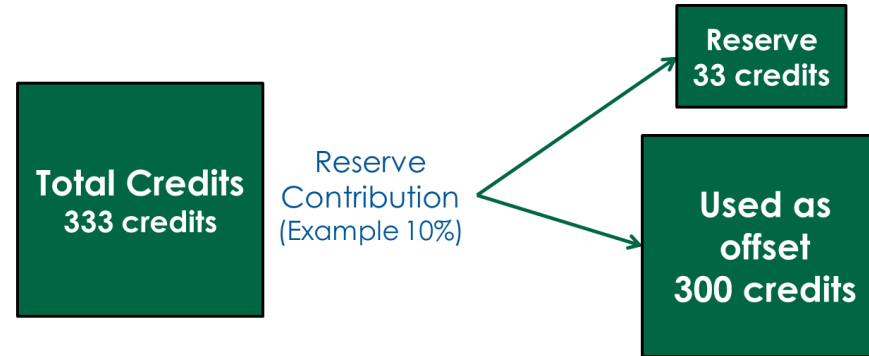
20%

20%

20%

20%

# Reserve Account



- Credits are not highly sensitive to Reserve Account contributions relative to other factors
- Fire Risk and Competing Use evaluation methods are currently under development
- SEC will be asked to weigh in on proposal in August/September

# Credit Mitigation Ratio

## Habitat Importance Factor

- Multiplied by the entire project area, so small changes have a significant impact

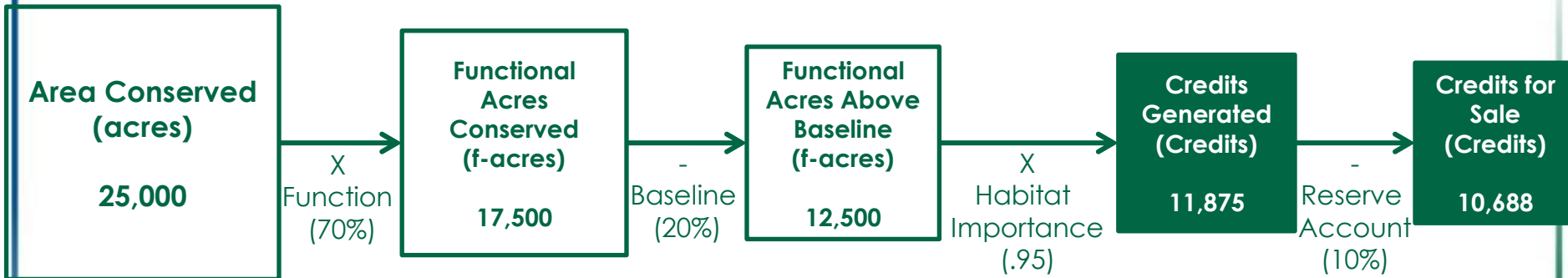
## Seasonal Habitat Scarcity Factor

- Multiplied by only the area of limiting habitat, which will be small relative to entire conservation project area
- Small areas of limiting habitat significantly increase the function of surrounding non-limiting habitat

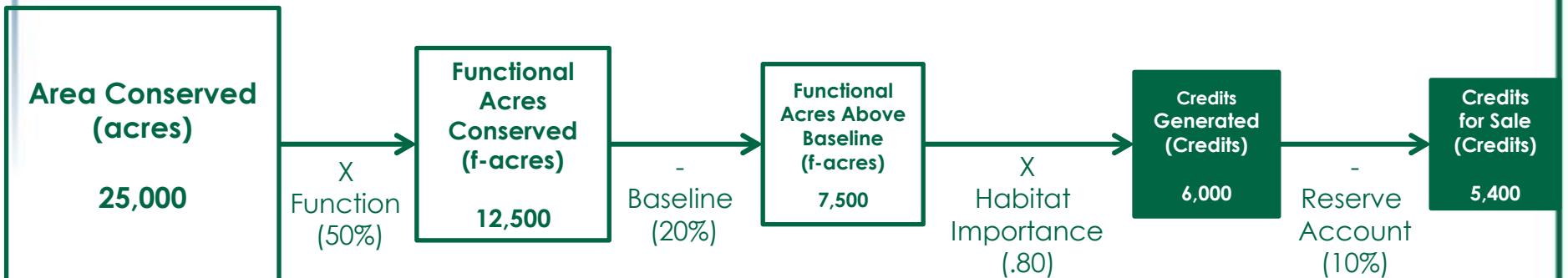
Credit Mitigation Ratio		
Habitat Importance Factor		
Credit Site Factor		
Core	Priority+Connected	0.95
Priority	General+Connected	0.80
Seasonal Habitat Scarcity Factor		
Credit Site Factor		
Limiting		30.0
Moderately Limiting		20.0
Abundant		0.0

# 25,000 Acre Conservation Project Calculations

## Best Case



## Medium Case



# 10,000 Acre Conservation Project Calculations

## Best Case

**Area  
Conserved  
(acres)**  
  
**10,000**

X  
Function  
(70%)

**Functional  
Acres  
Conserved  
(f-acres)**  
  
**7,010**

-  
Baseline  
(20%)

**Functional  
Acres Above  
Baseline  
(f-acres)**  
  
**5,010**

X  
Habitat  
Importance  
(.95)  
+  
Habitat Scarcity  
(100 acres X 30)

**Credits  
Generated  
(Credits)**  
  
**6,560**

-  
Reserve  
Account  
(10%)

**Credits for  
Sale  
(Credits)**  
  
**5,904**

## Medium Case

**Area  
Conserved  
(acres)**  
  
**10,000**

X  
Function  
(50%)

**Functional  
Acres  
Conserved  
(f-acres)**  
  
**5,005**

-  
Baseline  
(20%)

**Functional  
Acres Above  
Baseline  
(f-acres)**  
  
**3,005**

X  
Habitat  
Importance  
(.80)  
+  
Habitat Scarcity  
(100 acres X 20)

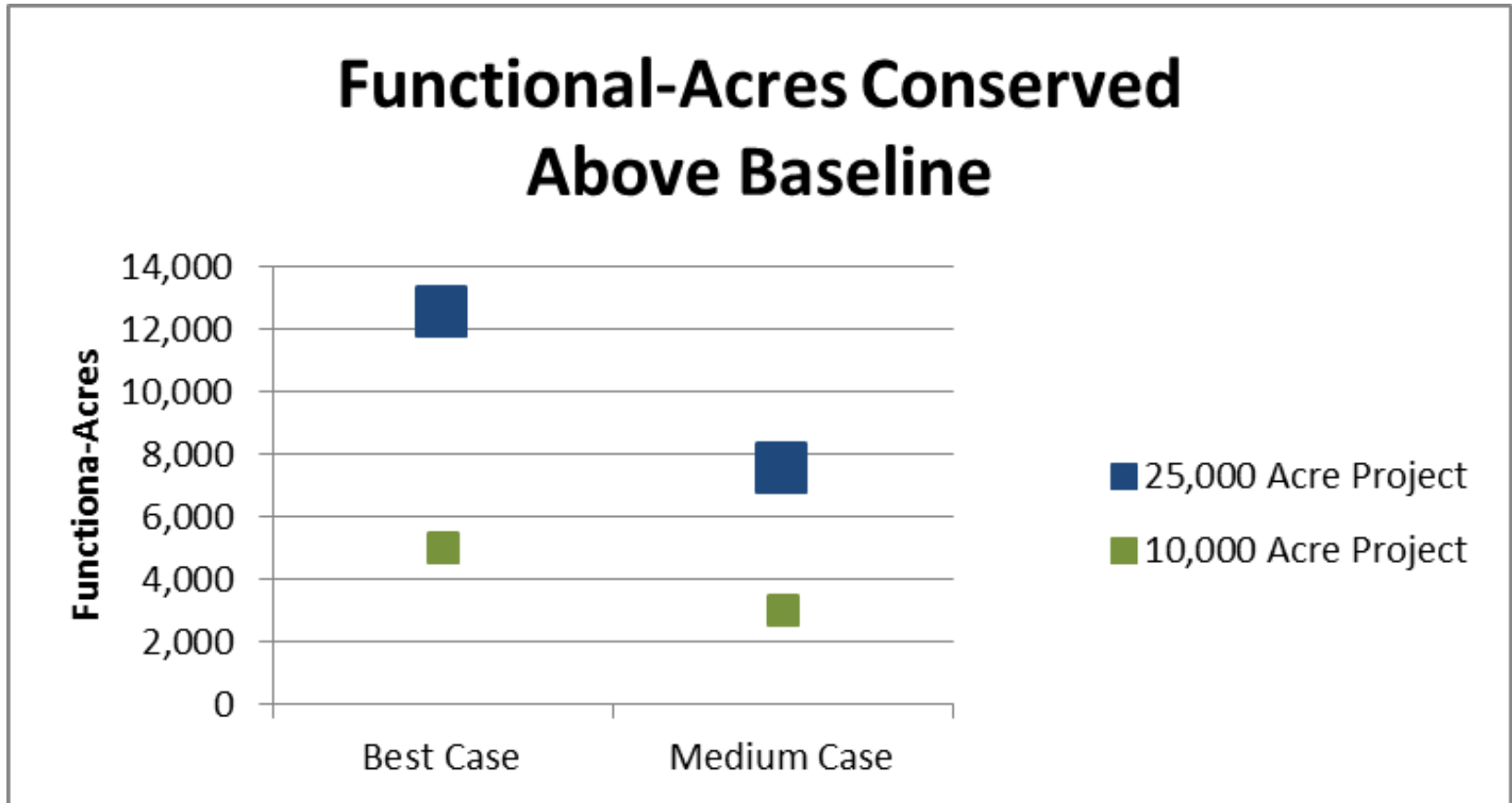
**Credits  
Generated  
(Credits)**  
  
**3,104**

-  
Reserve  
Account  
(10%)

**Credits for  
Sale  
(Credits)**  
  
**2,794**

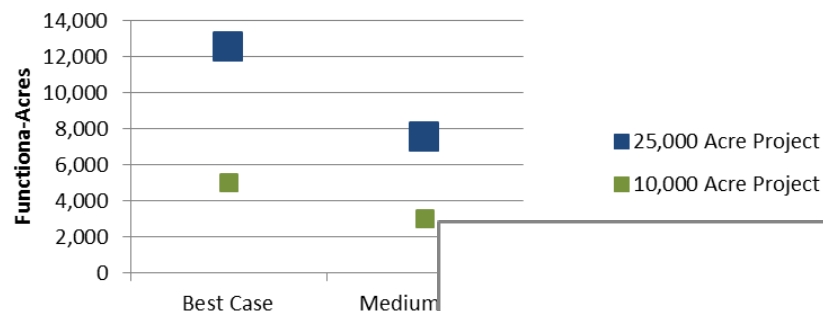


# Credit Project Scenario Change in Functional-Acres Above Baseline

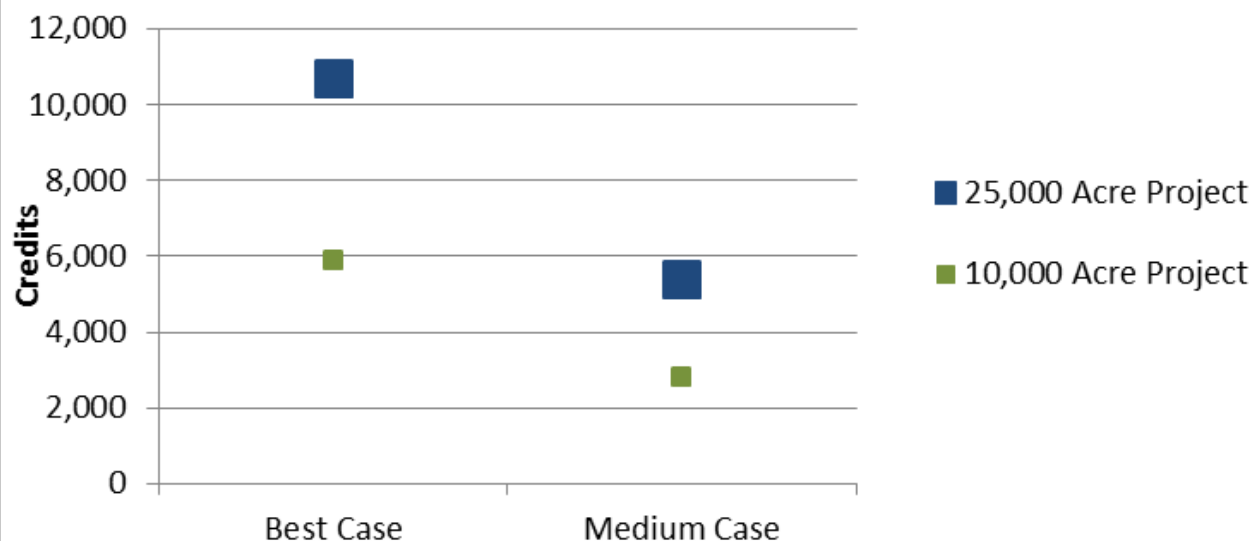


# Credit Project Scenario Change in Credits Generated

**Functional-Acres Conserved  
Above Baseline**

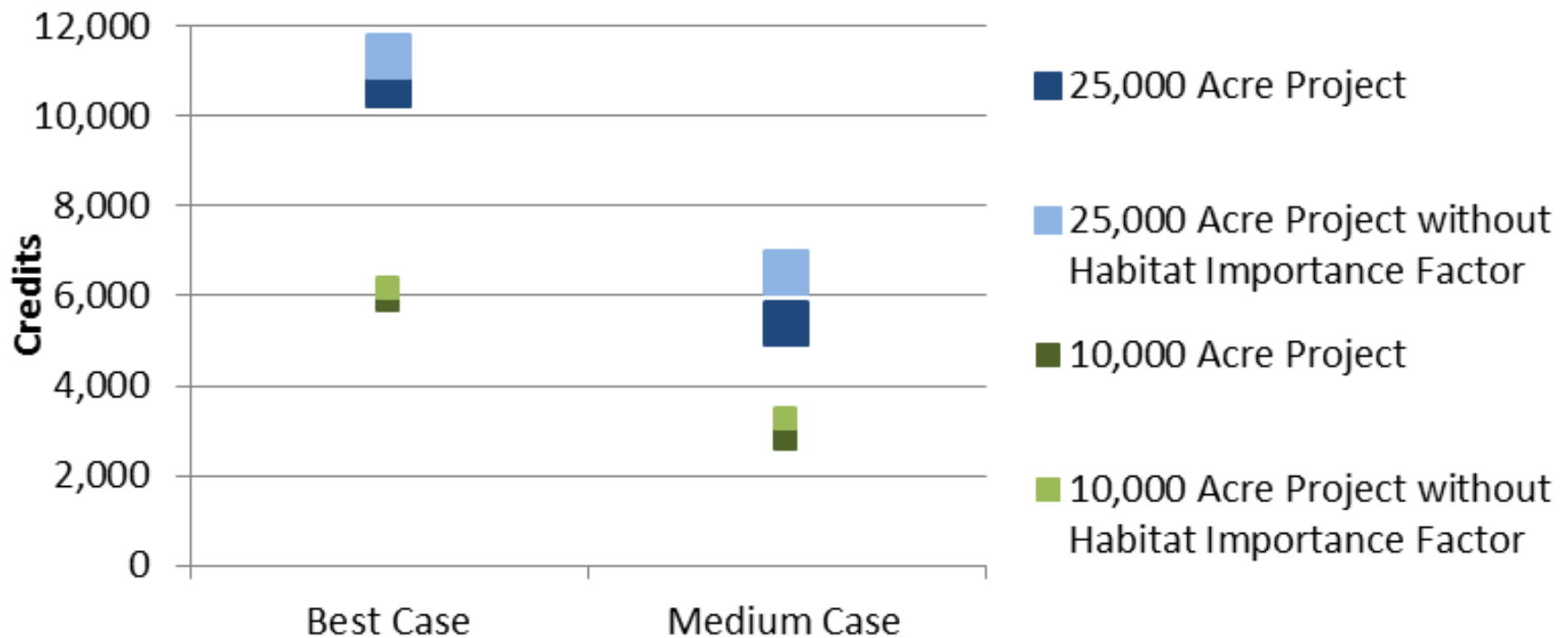


**Credits Generated**

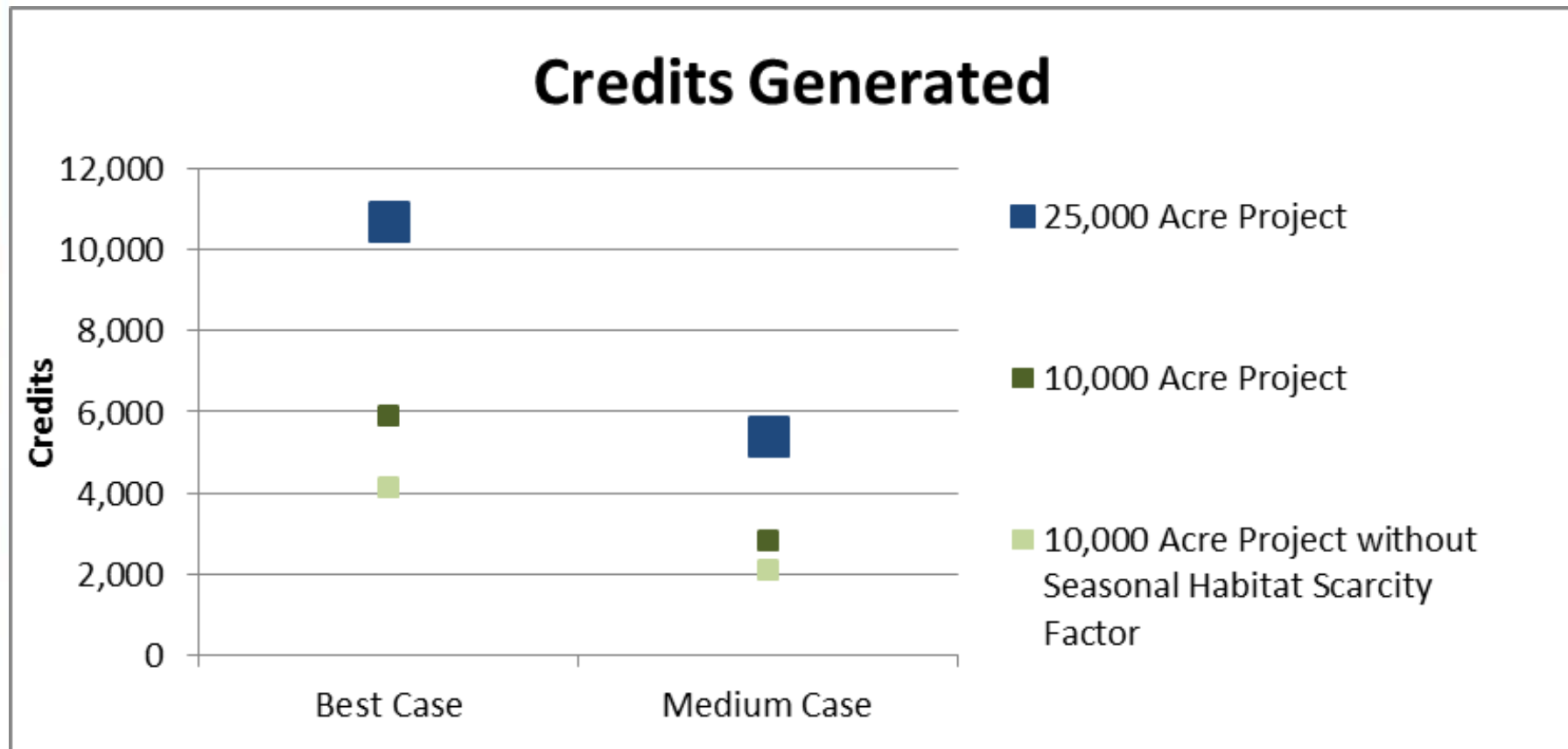


# Habitat Importance Factor Influence on Credits Generated

## Credits Generated

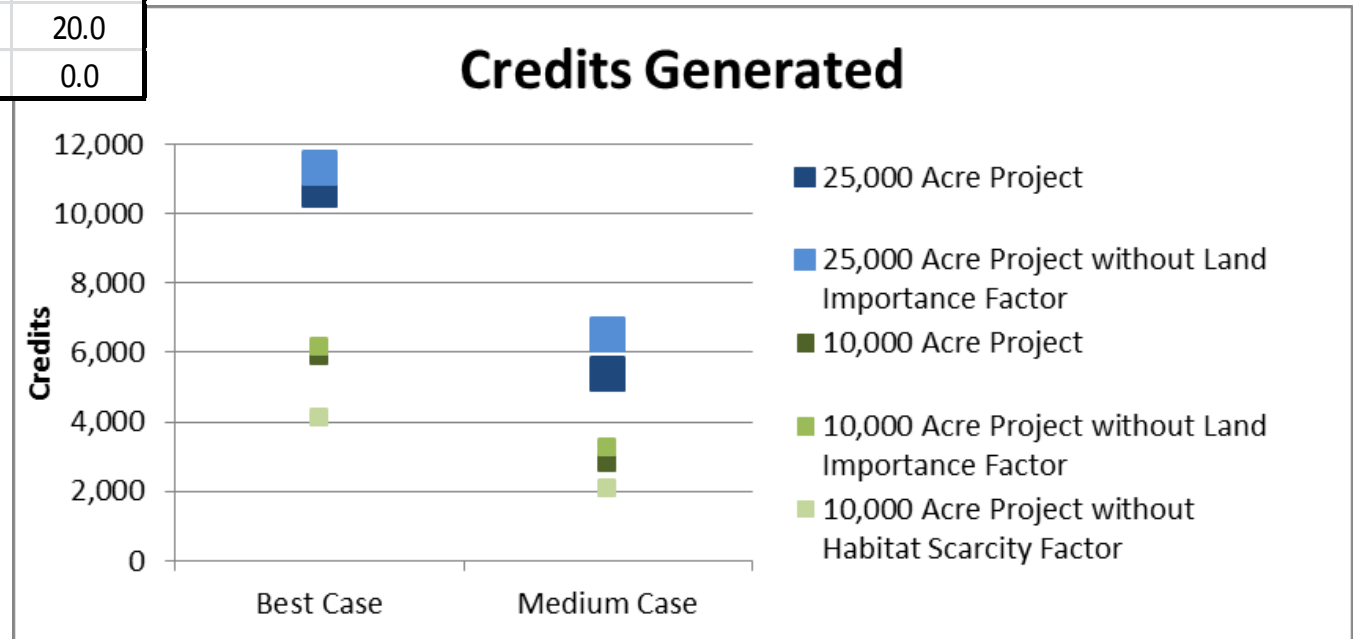


# Seasonal Habitat Scarcity Factor Influence on Credits Generated

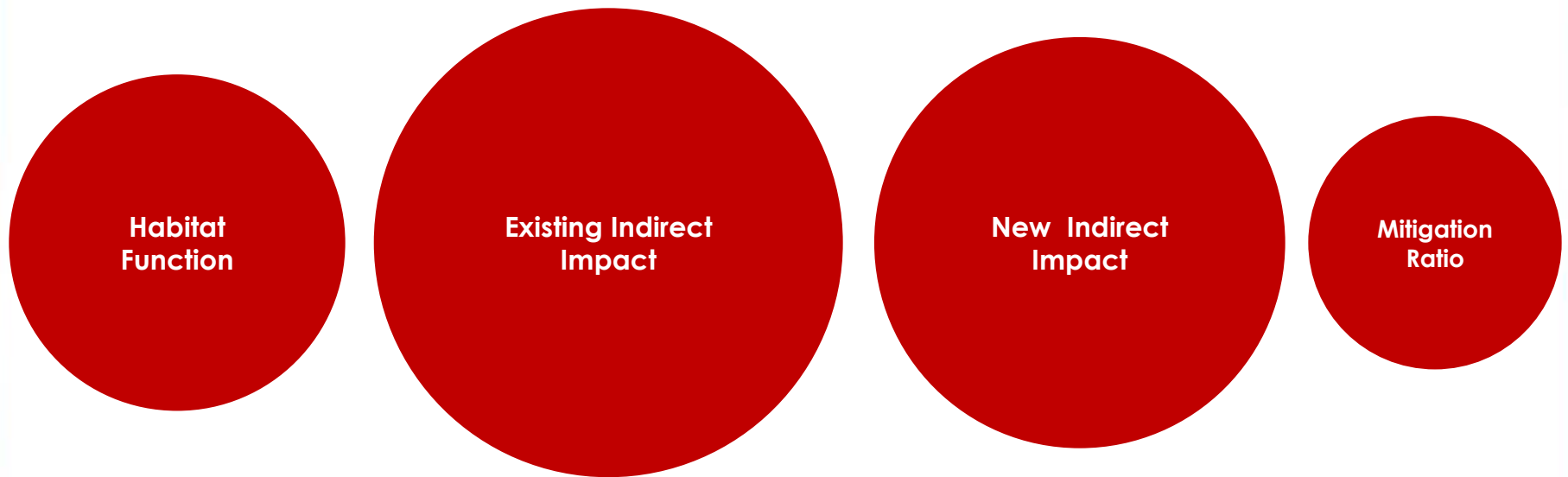


# Mitigation Ratio Influence on Credits Generated

Credit Mitigation Ratio		
Habitat Importance Factor		
Credit Site Factor		
Core	Priority+Connected	0.95
Priority	General+Connected	0.80
Seasonal Habitat Scarcity Factor		
Credit Site Factor		
Limiting		30.0
Moderately Limiting		20.0
Abundant		0.0



# Debit Design Element Relative Sensitivity



# Debit Mitigation Ratio

## Habitat Importance Factor

- Multiplied by the entire project area, so small increments have a significant impact

## Seasonal Habitat Scarcity Factor

- Multiplied by only the area of limiting habitat, which will be small relative to entire conservation project area
- Small areas of limiting habitat significantly increase the function of surrounding non-limiting habitat

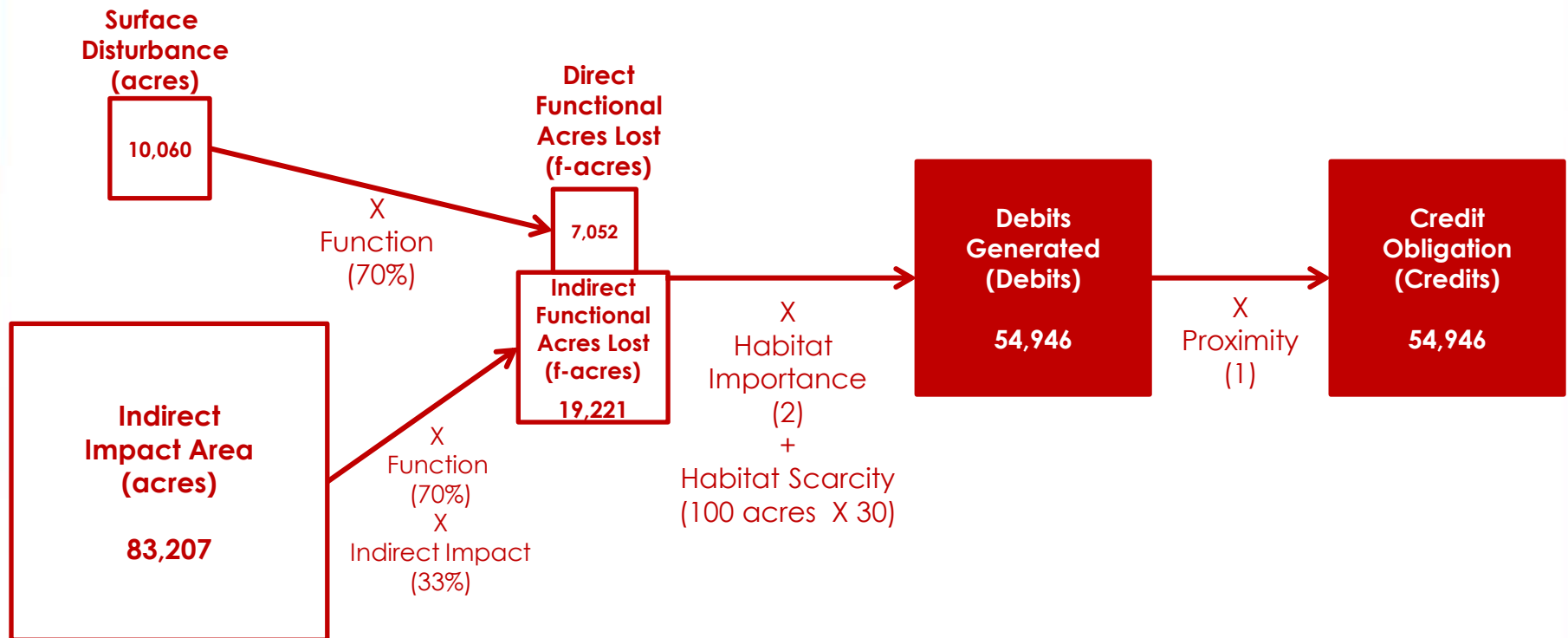
## Proximity Factor

- Multiplied by the entire project area, so small increments have a significant impact
- It is more important to mitigate within the same PMU than within WAFWA

Debit Mitigation Ratio			
Habitat Importance Factor			
Debit Site Factor			
General			1.0
Priority	General+Connected		1.5
Core			2.0
Seasonal Habitat Scarcity Factor			
Debit Site Factor			
Abundant			0.0
Moderately Limiting			20.0
Limiting			30.0
Credit/Debit Proximity Factor			
State			1.75
WAFWA			1.50
PMU			1.00

# 10,000 Acre Mine Project Calculations

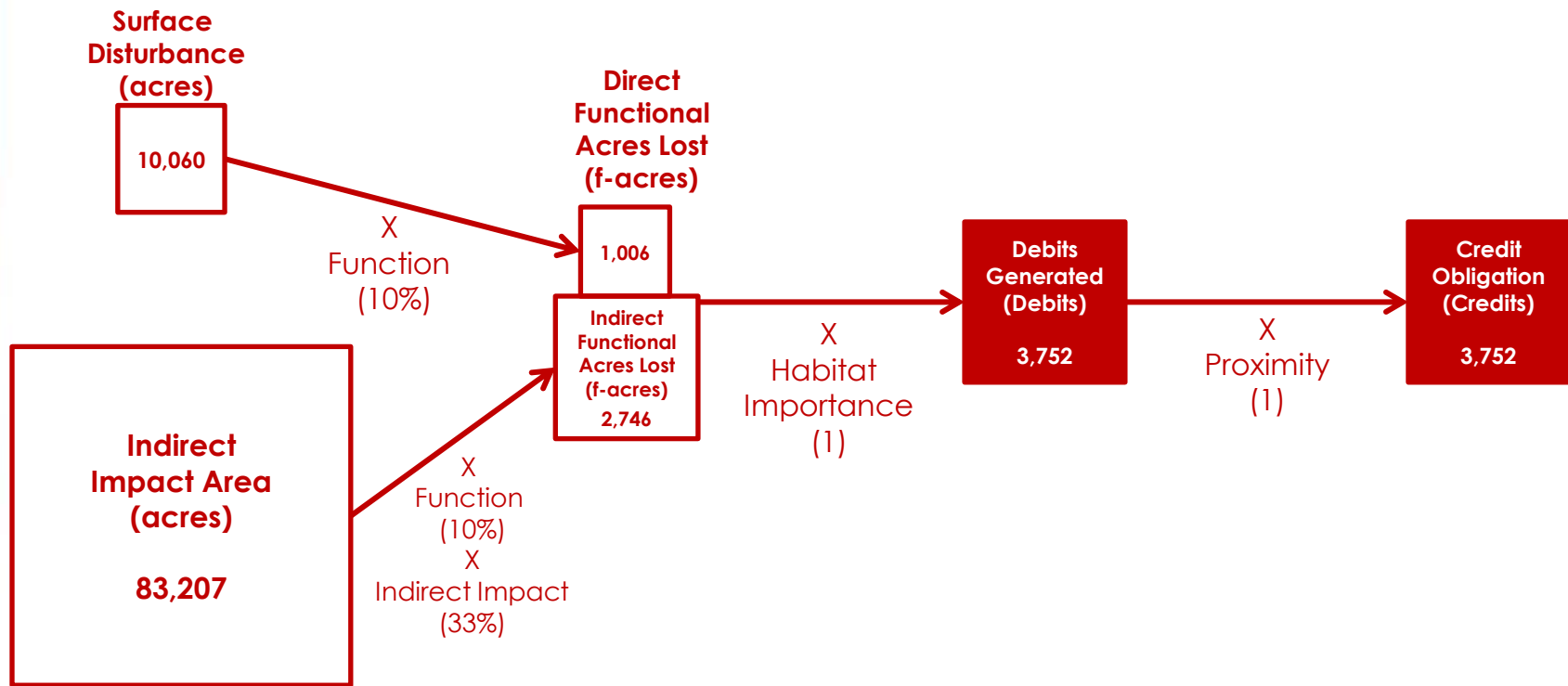
## Worst Case





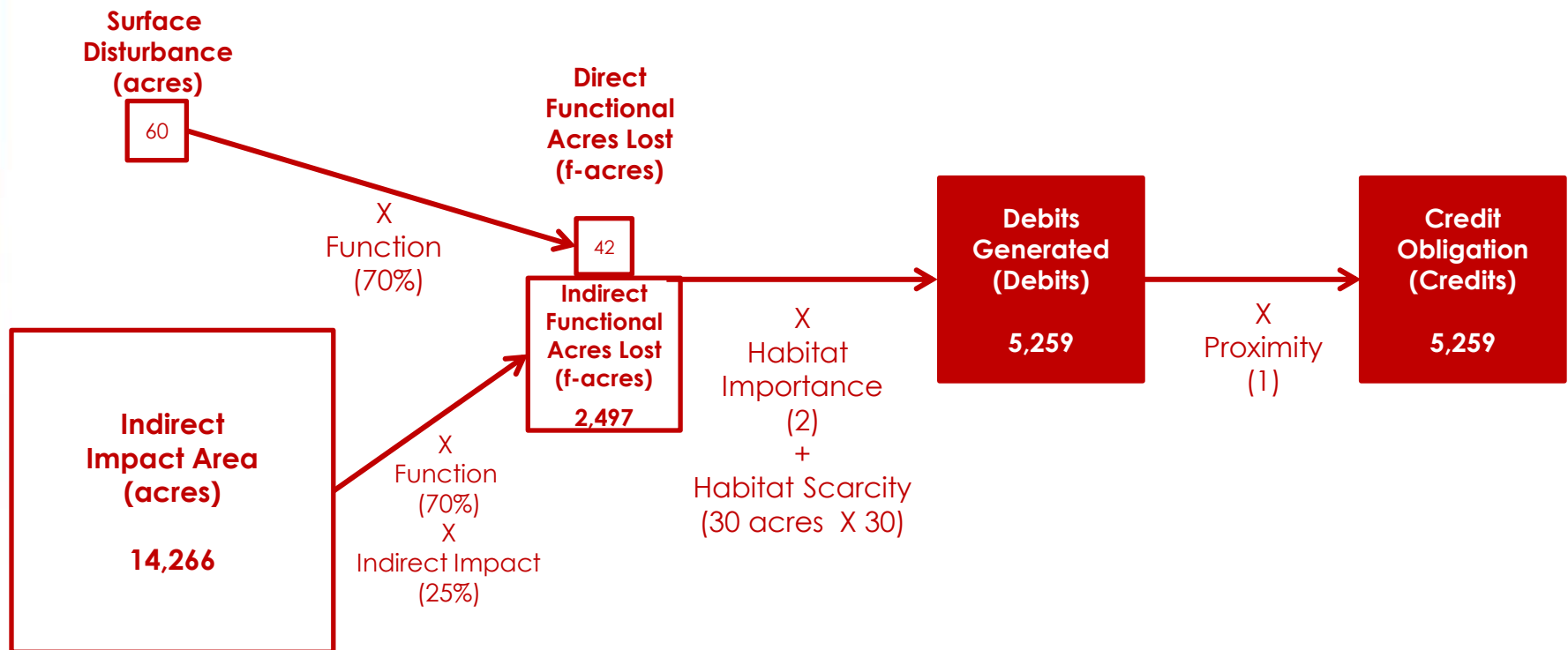
# 10,000 Acre Mine Project Calculations

## Best Case



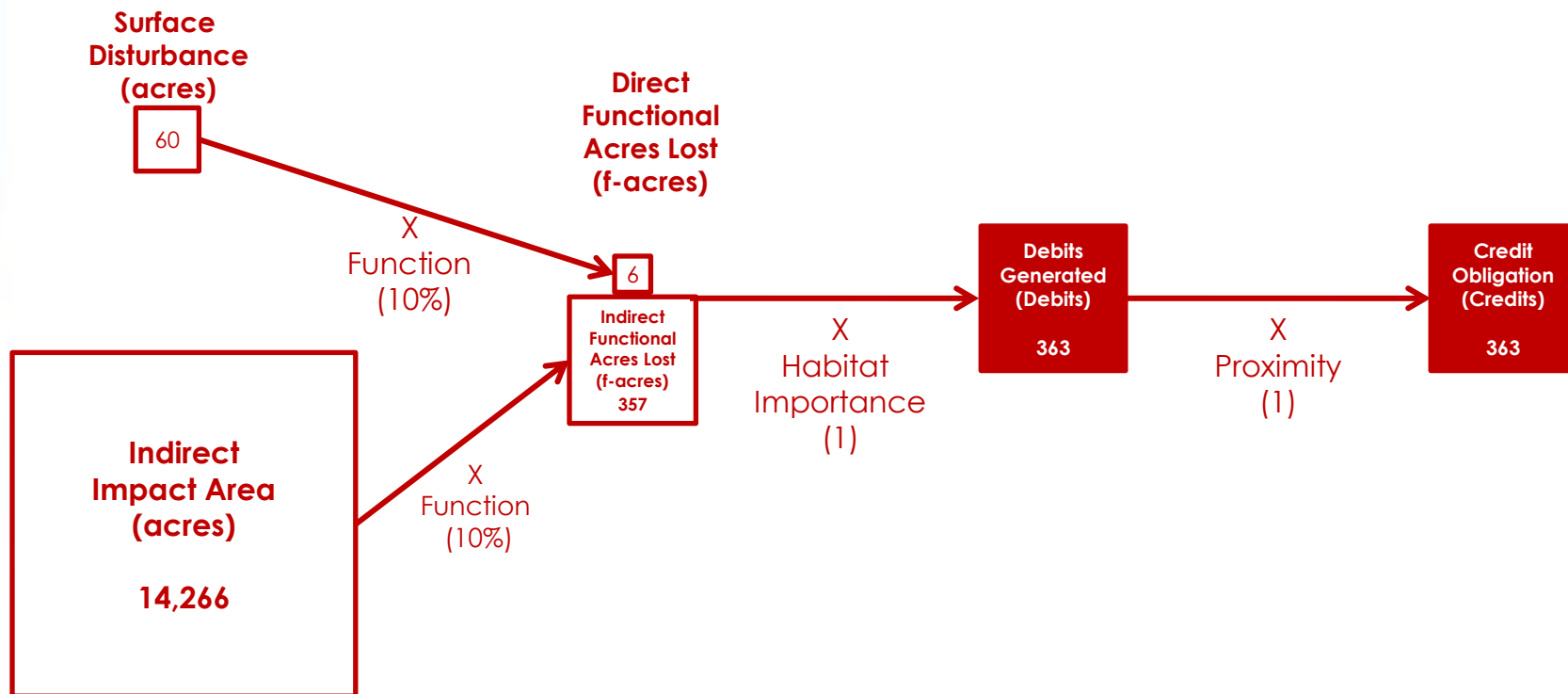
# 6 Mile Road Project Calculations

## Worst Case

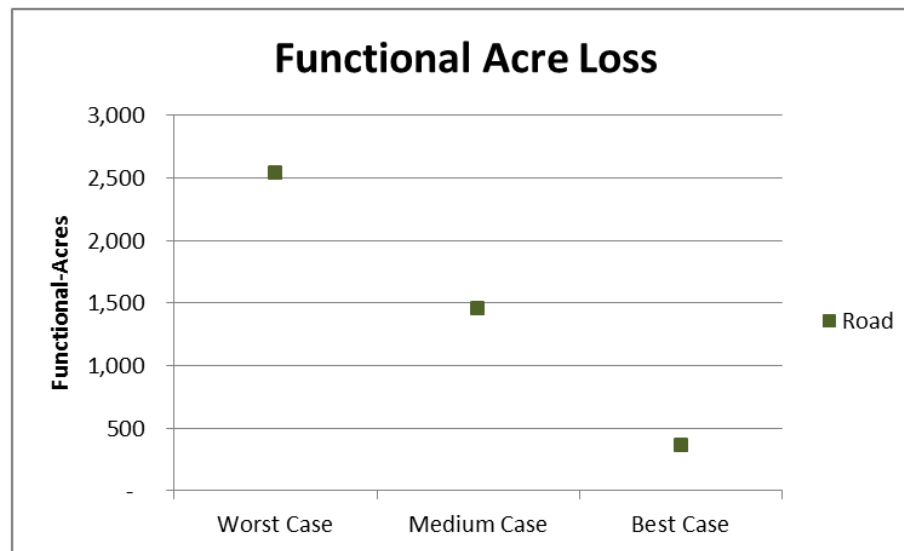
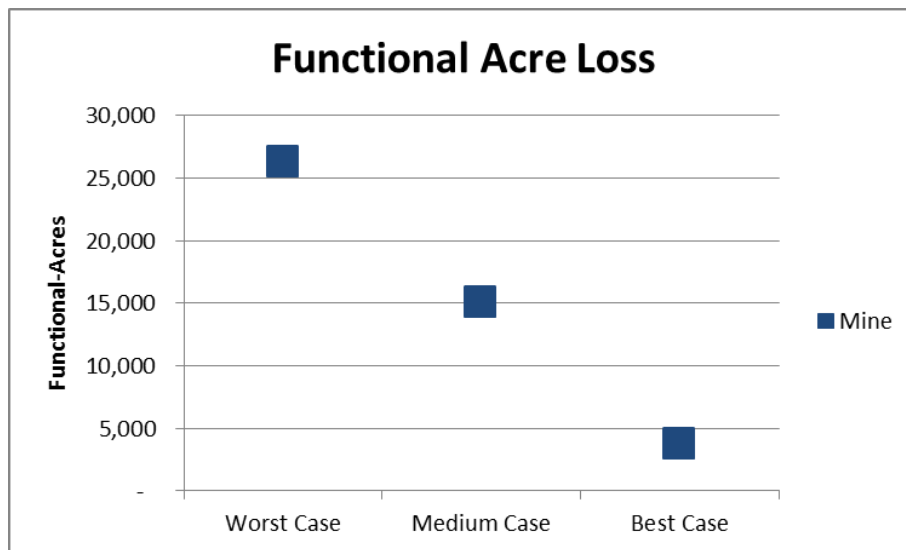


# 6 Mile Road Project Calculations

## Best Case

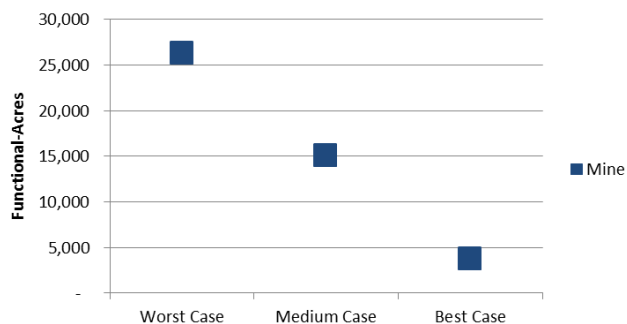


# Debit Project Scenario Change in Functional-Acres Lost

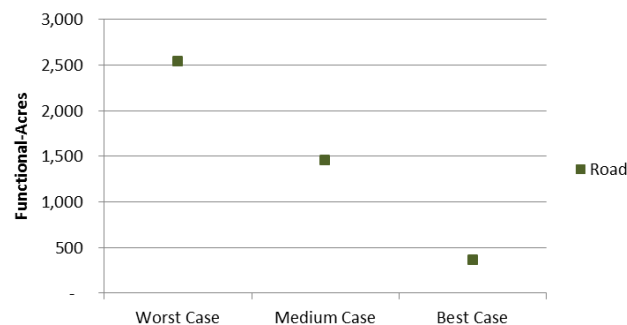


# Debit Project Scenario Change in Debits Generated

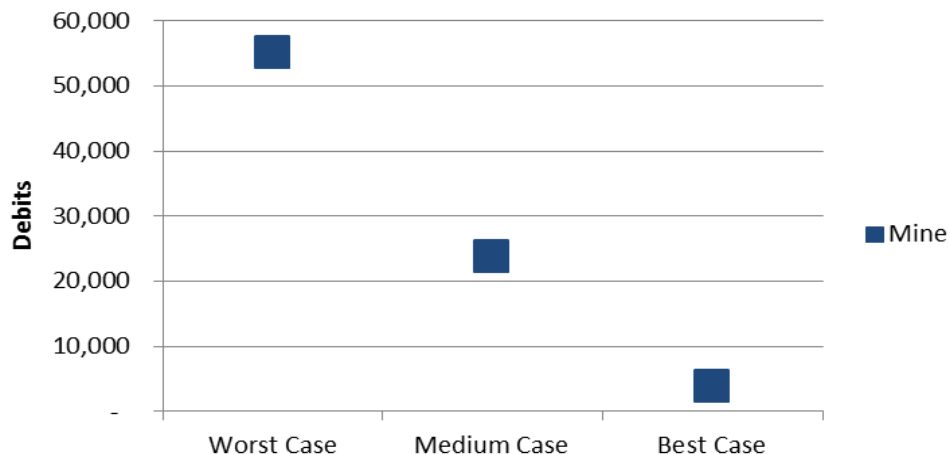
## Functional Acre Loss



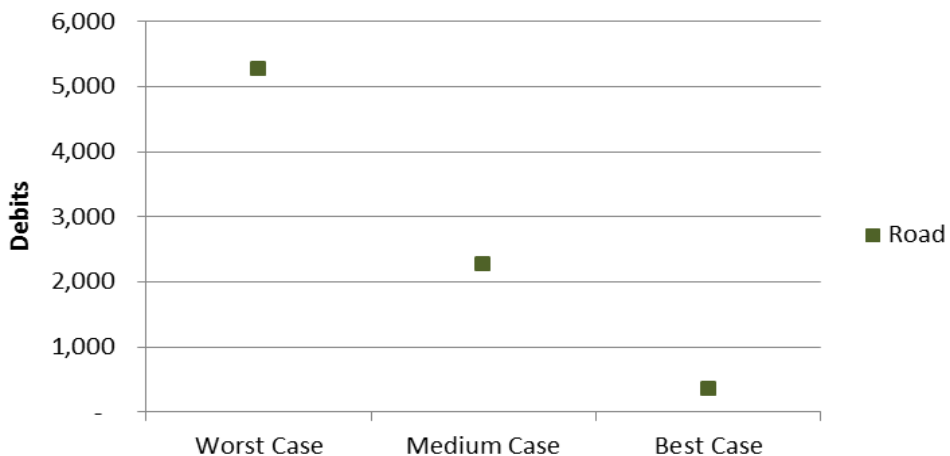
## Functional Acre Loss



## Debits Generated



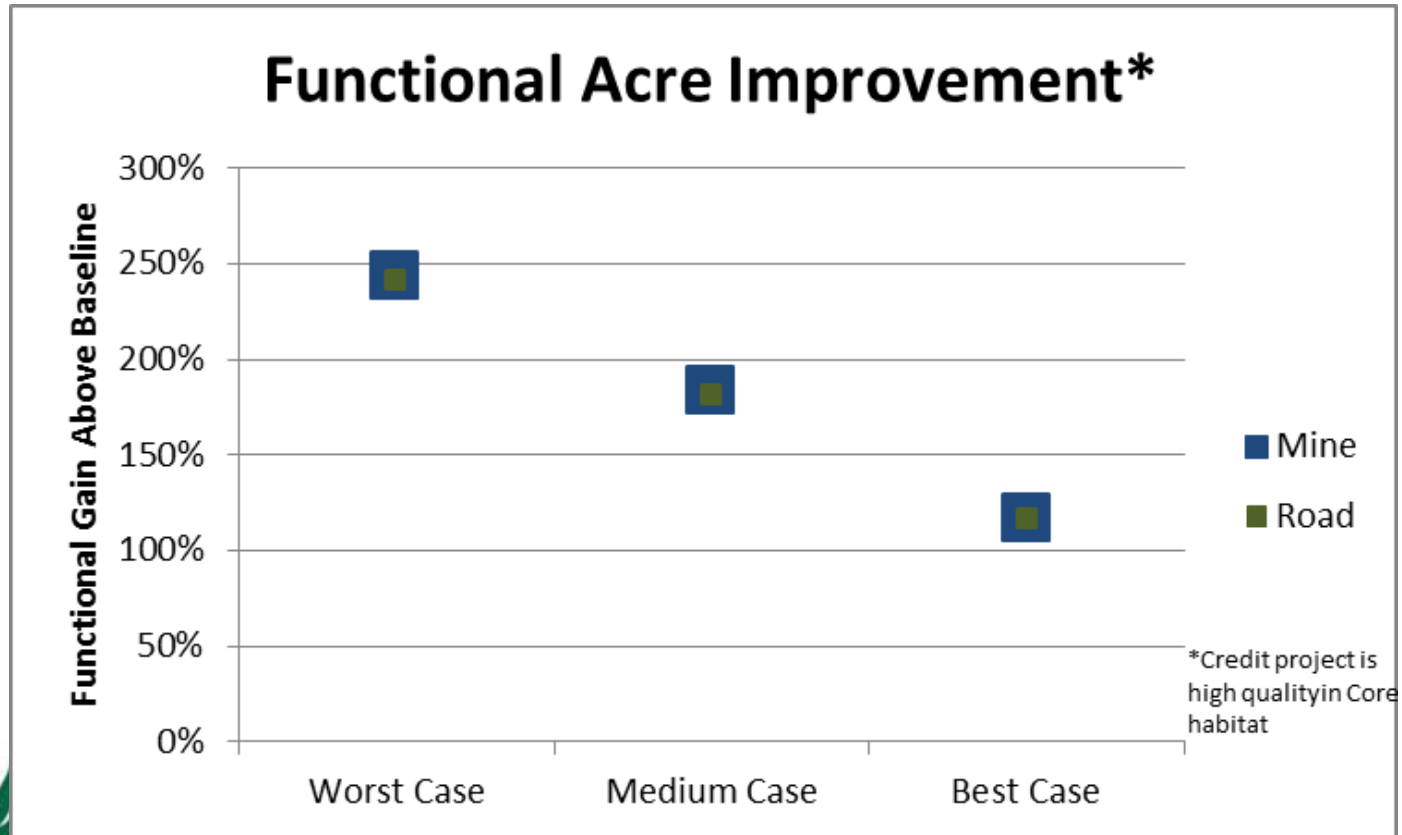
## Debits Generated



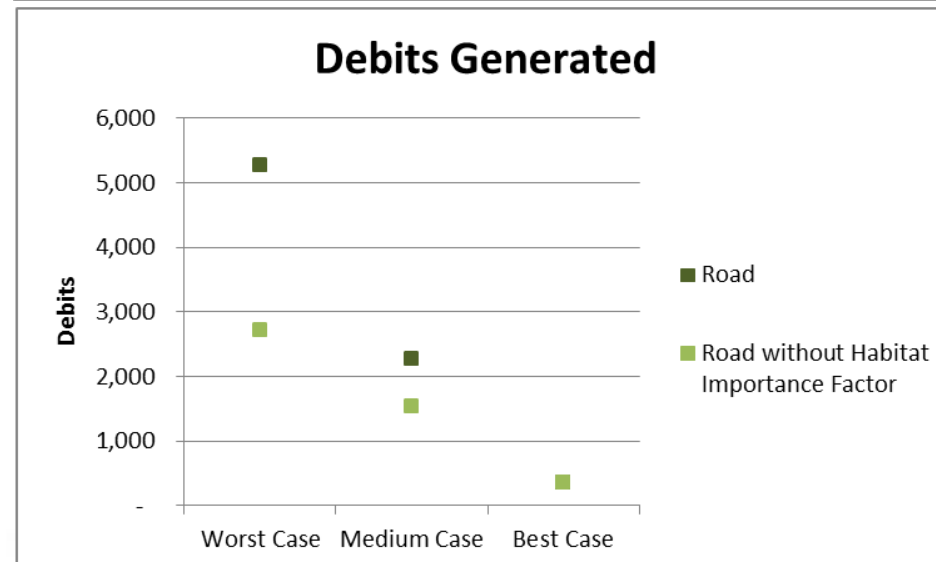
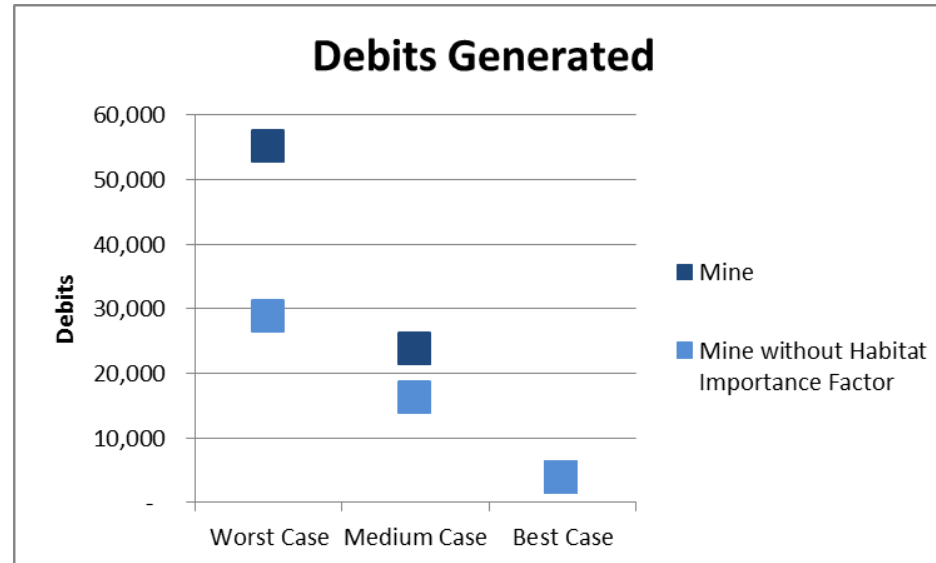
# Functional Acre Improvement

Functional  
Acres  
Above  
Baseline

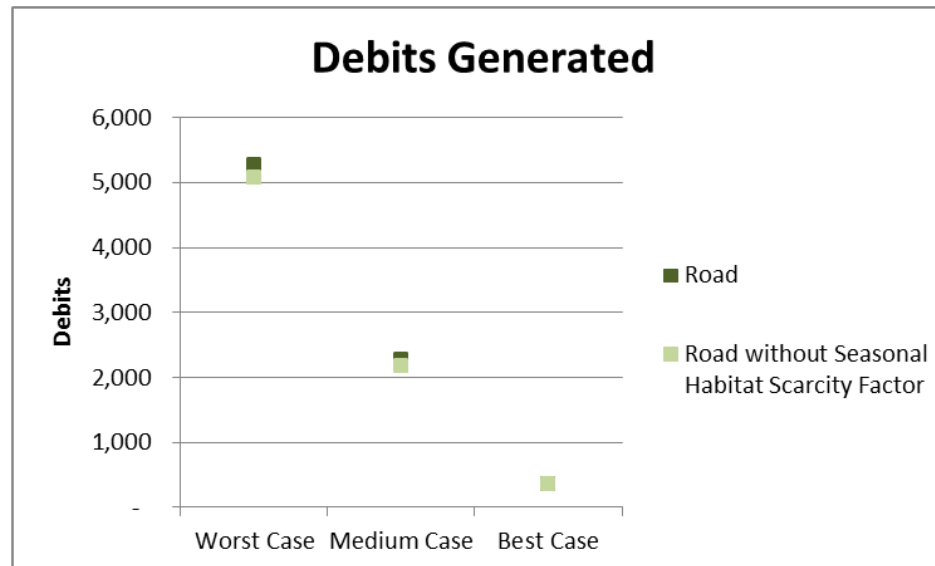
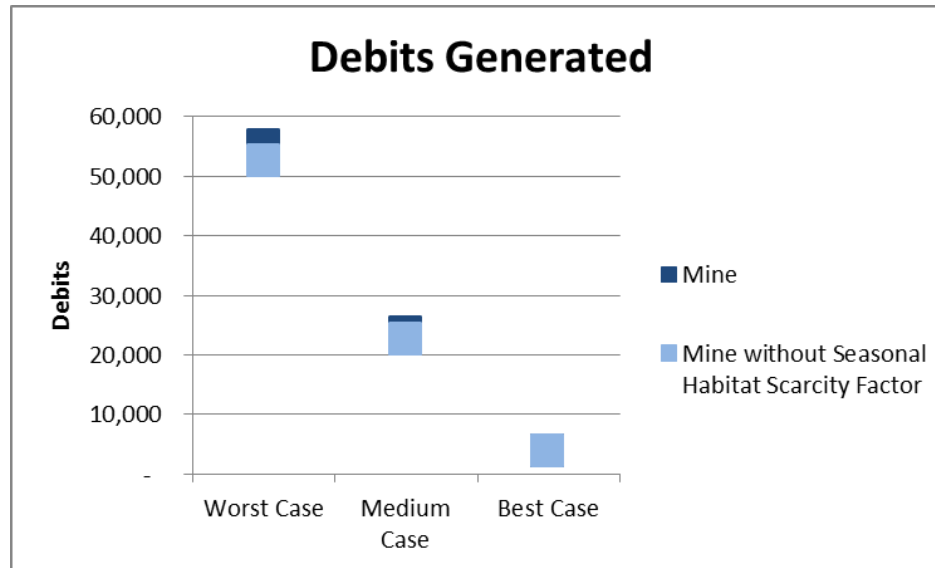
F-Acres  
Lost



# Habitat Importance Factor Influence on Debits Generated



# Seasonal Habitat Scarcity Factor Influence on Debits Generated





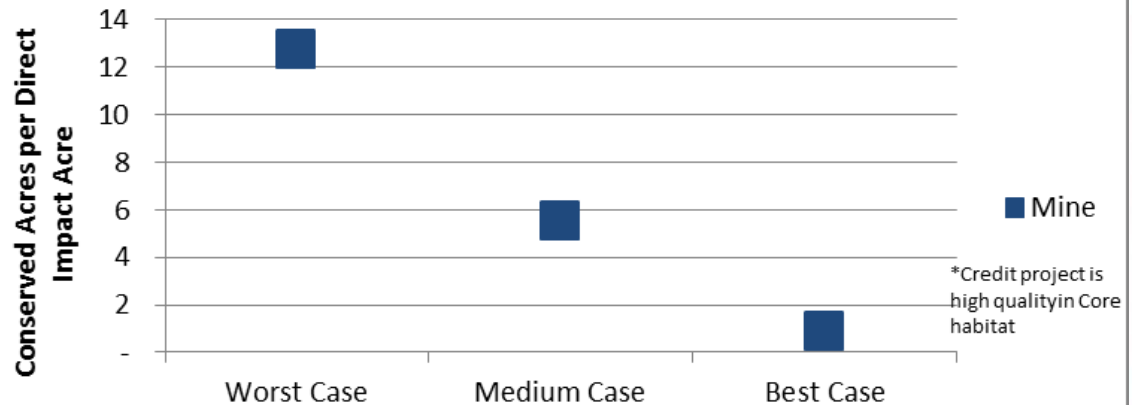
# Conservation Area to Direct Impact Area

Acres  
Conserved

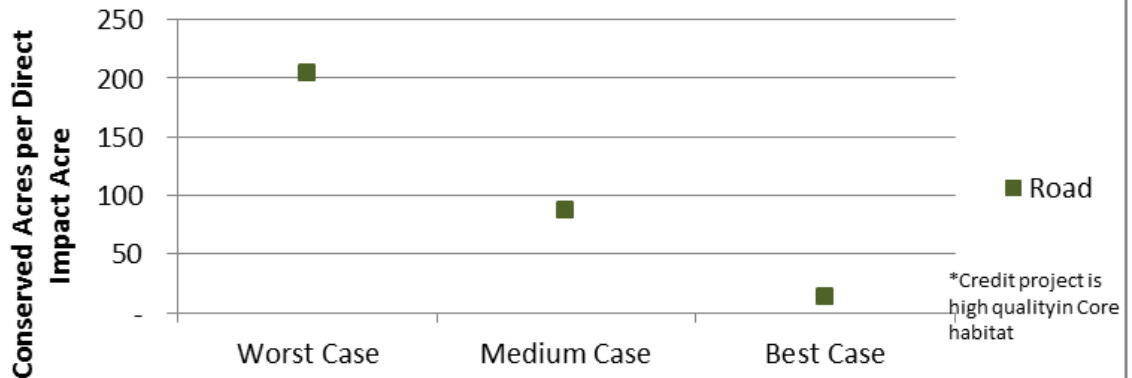
Surface  
Disturbance  
(acres)



## Conserved Area to Direct Impact Area\*



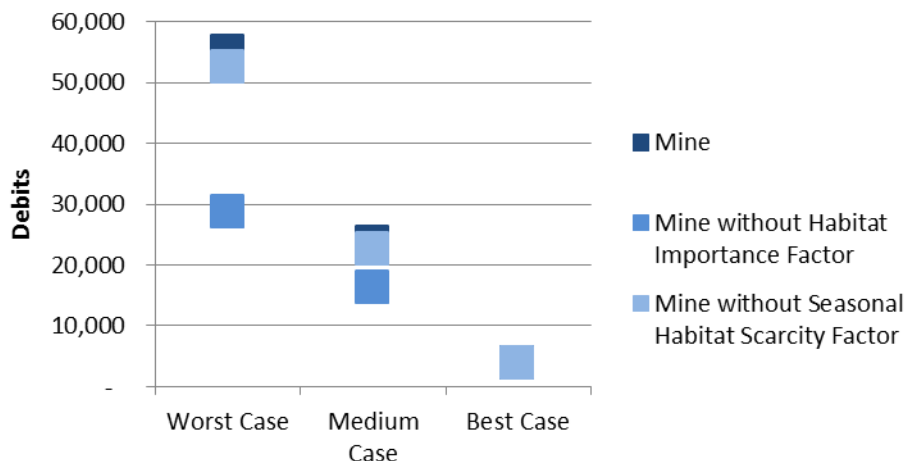
## Conserved Area to Direct Impact Area\*



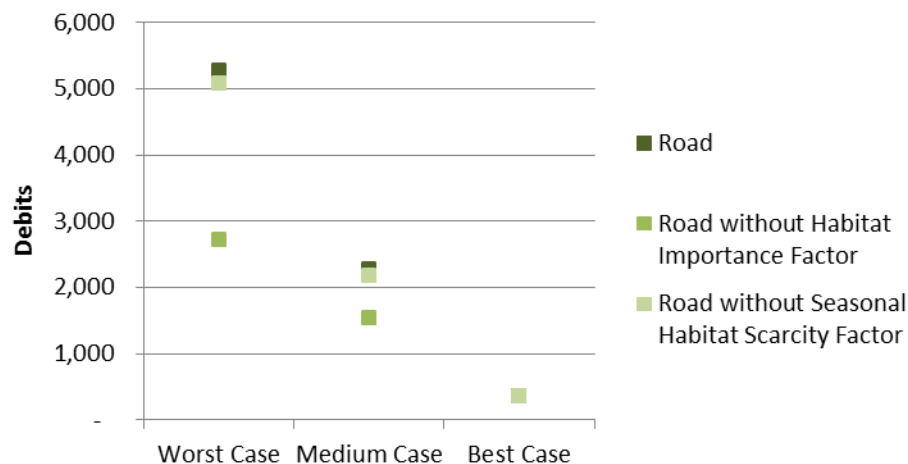
# Mitigation Ratio Influence on Debits Generated

Debit Mitigation Ratio			
Habitat Importance Factor			
Debit Site Factor			
General			1.0
Priority	General+Connected		1.5
Core			2.0
Seasonal Habitat Scarcity Factor			
Debit Site Factor			
Abundant			0.0
Moderately Limiting			20.0
Limiting			30.0
Credit/Debit Proximity Factor			
State			1.75
WAFWA			1.50
PMU			1.00

## Debits Generated



## Debits Generated



# Proximity Factor Influence on Credit Obligation

Debit Mitigation Ratio			
Habitat Importance Factor			
Debit Site Factor			
General			1.0
Priority	General+Connected		1.5
Core			2.0
Seasonal Habitat Scarcity Factor			
Debit Site Factor			
Abundant			0.0
Moderately Limiting			20.0
Limiting			30.0
Credit/Debit Proximity Factor			
State			1.75
WAFWA			1.50
PMU			1.00

