

# Risk of Contact Tool

A quantitative means of assessing the probability of contact between bighorn sheep and grazing allotments



# Foraging Behavior of Bighorn Sheep

- Both sexes foray (leave and return) from their core herd home ranges
- Rams (males) exhibit foray rates 9.4 times greater than ewes (females)
- Rams increase foraging behavior during the breeding season (rut)
- Forays can occur at any time of year
- Forays can occur through atypical habitat, but most occur through “connectivity” habitat
- Foraging bighorn sheep return to their core herd home range and interact with other members of the herd

# What the ROC Tool Is/Does

- A **quantitative** means of assessing the probability of a foraging bighorn ram or ewe contacting an active domestic sheep grazing allotment
- **One tool** to inform management decisions
- Is based on peer reviewed literature and has withstood legal challenges in Federal Court
- Utilizes **local** habitat data and local bighorn sheep population data
- Can serve as a **starting point** for discussing management options where contact between domestic sheep and bighorn sheep is a concern
- Can inform **range suitability** for Forest Planning

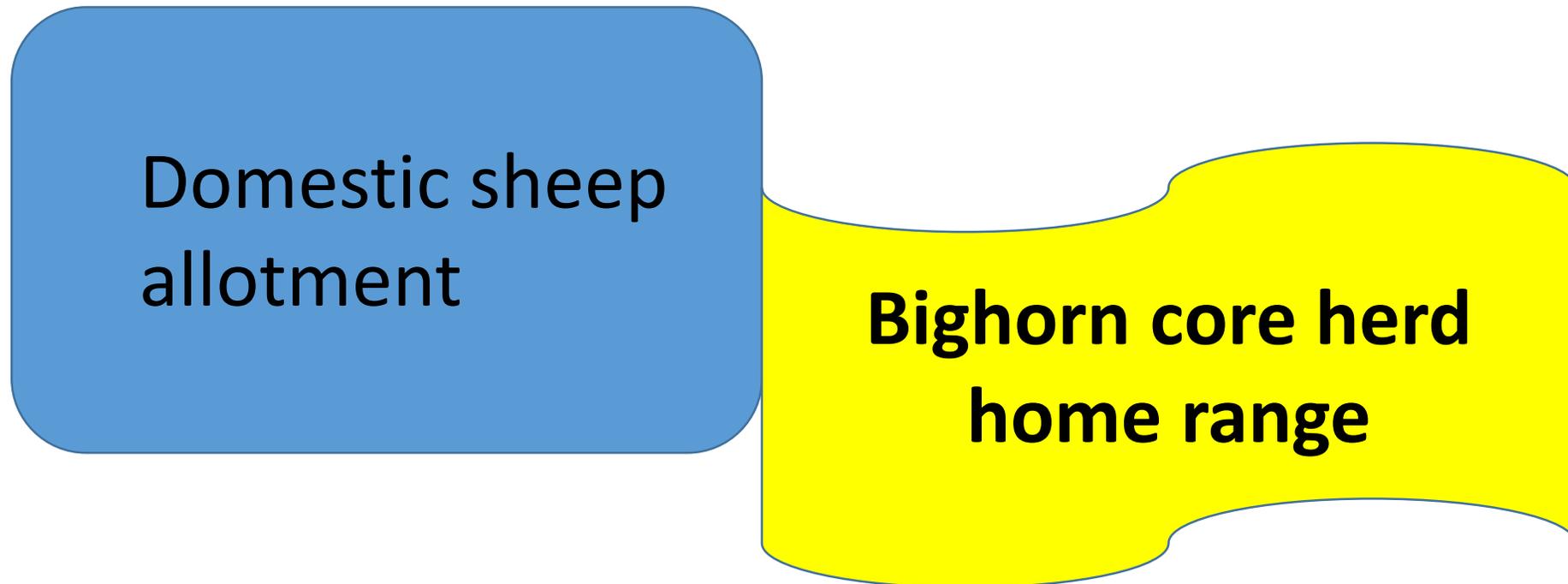
# What the ROC Tool is Not

- Not a **decision**
- Not a model of **interactions** between domestic sheep and wild sheep
- Not a model of **disease transmission, disease rate of spread, or species persistence**
- Does not address **domestic sheep that stray** from allotments (during or outside of the authorized grazing period)
- Does not calculate potential risks from **small private flocks/hobby farms/4-H** sheep or goats
- Not a **one-size-fits-all** tool (specific foray probabilities can be used, site specific source habitat parameters can be used)

# Four Primary Components of the ROC Tool

- Source Habitat (Suitable, Connectivity, Non-habitat)
- Core herd home range
- Bighorn sheep population parameters (population size, gender ratio)
- Livestock allotments

When CHHR and allotment touch or overlap, the probability of contact is 100%, and results are displayed as “intersects”.





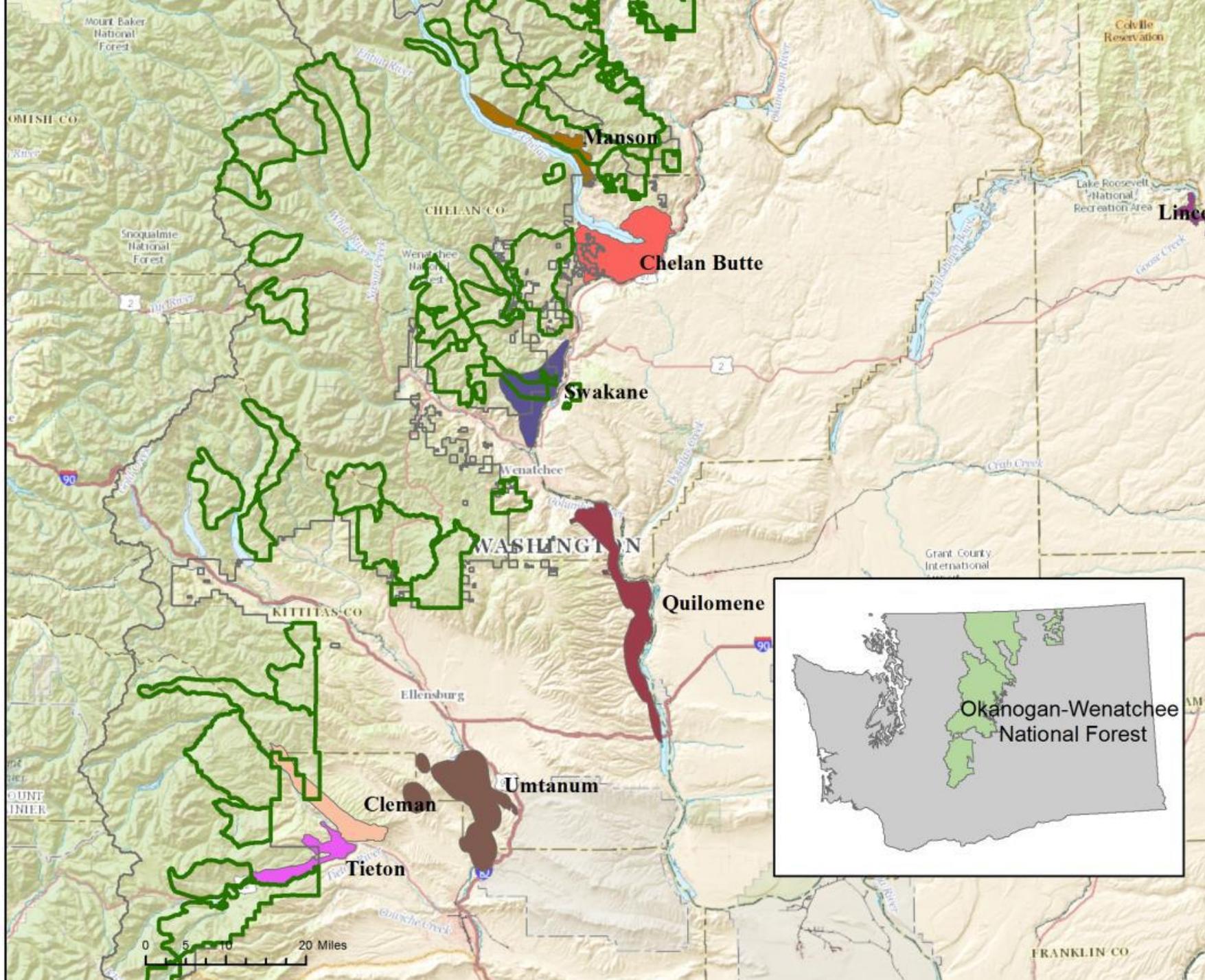
Grazing  
Allotment

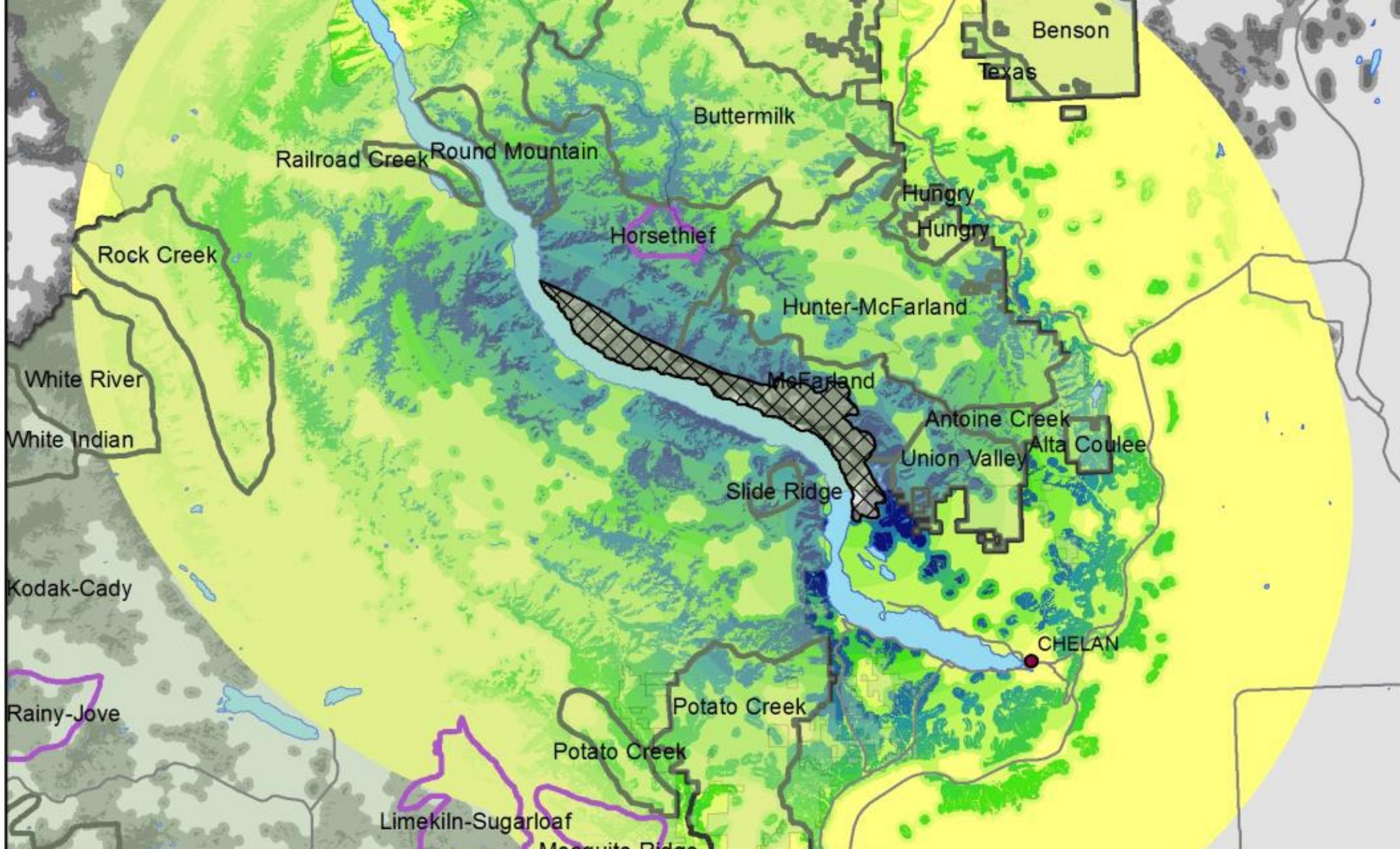
← Leave

→ Return

Bighorn Core  
Herd Home  
Range

**Distance and permeability of this space largely determines the probability of contact**





# Example of results

## Manson Bighorn Sheep Herd

Allotment Name	Allotment Type	Status	Single Ewe	All Ewes	Single Ram	All Rams	All Herd
Hunter-McFarland	Cattle	Active	< 0.01	0.03	0.01	0.31	0.34
Mosquito Ridge	Sheep	Active	< 0.01	< 0.01	< 0.01	0.01	0.01
Horse Thief	Sheep	Vacant	< 0.01	0.01	0.01	0.16	0.17
McFarland	Cattle	Vacant	N/A	N/A	N/A	N/A	Intersects

# Okanogan Wenatchee National Forest

## Domestic Grazing Allotment

### Risk of Contact Results

#### 53 allotments

Risk of  
Contact  
< .08

2 - active sheep allotments

8 - vacant allotments with wolf, grizzly bear, and other  
management constraints

43 - active cattle allotments

#### 31 allotments

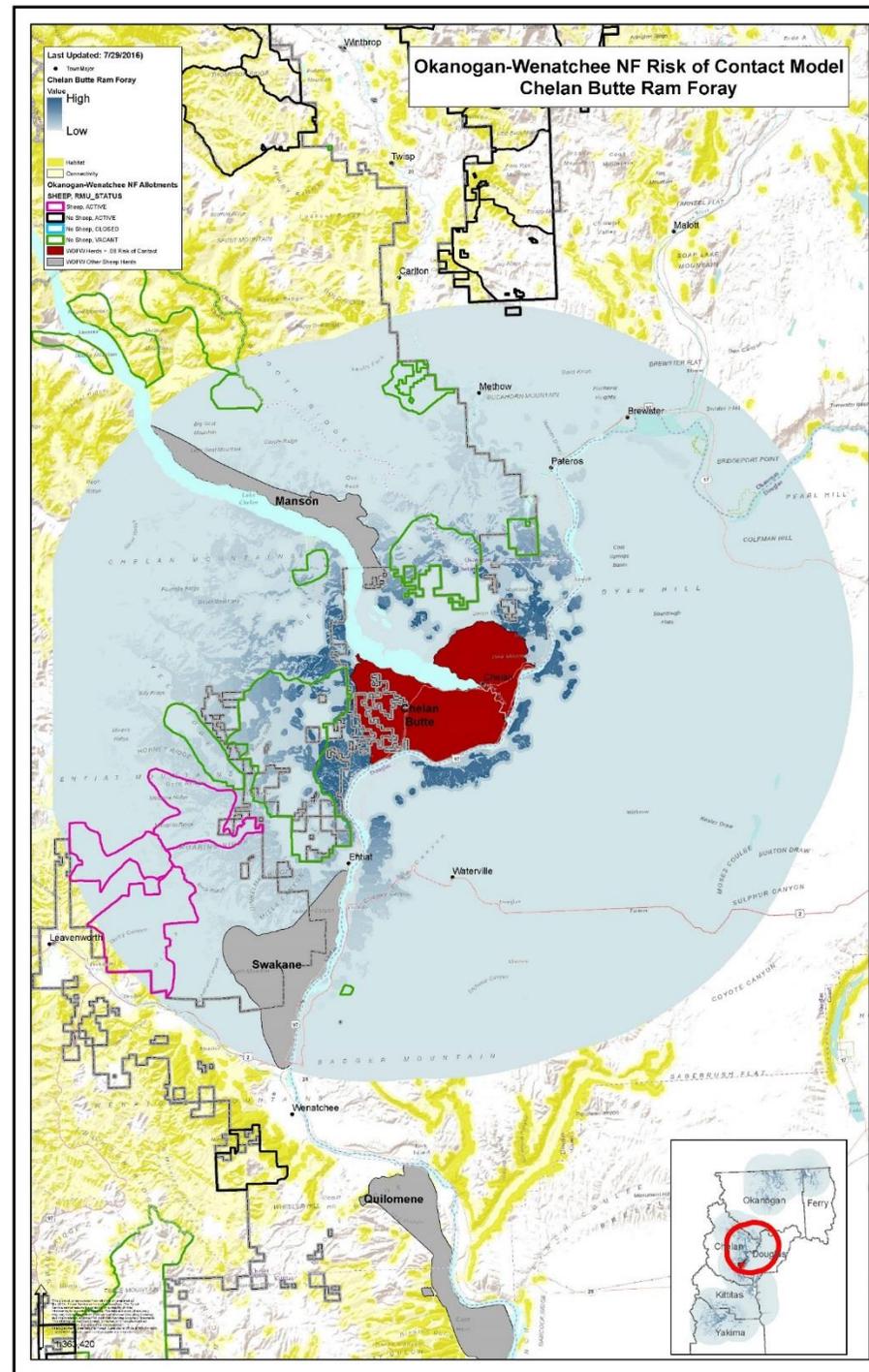
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8 - vacant allotments

7 - active sheep allotments

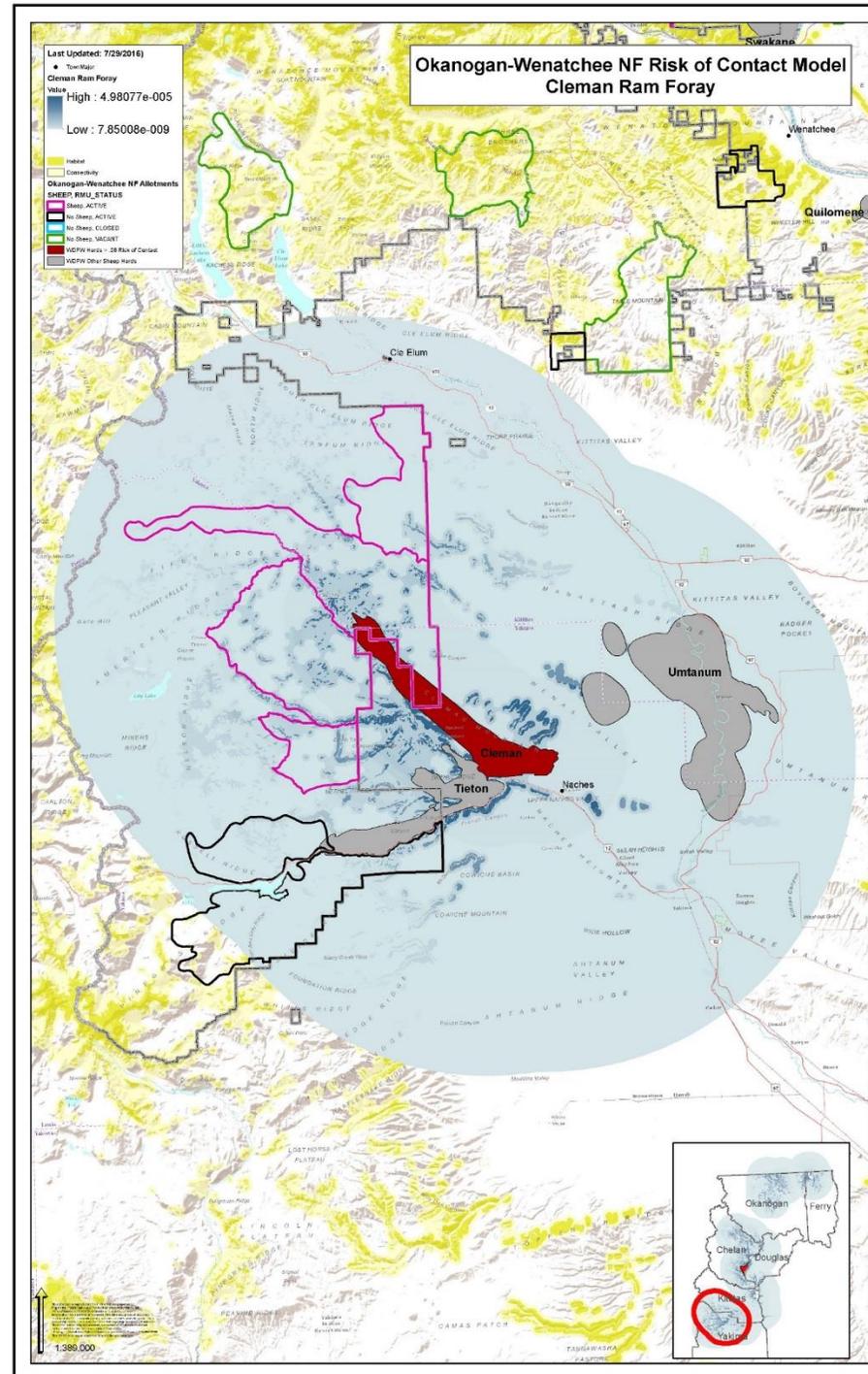
16 - active cattle allotments

# Chelan Butte Ram Foray Analysis

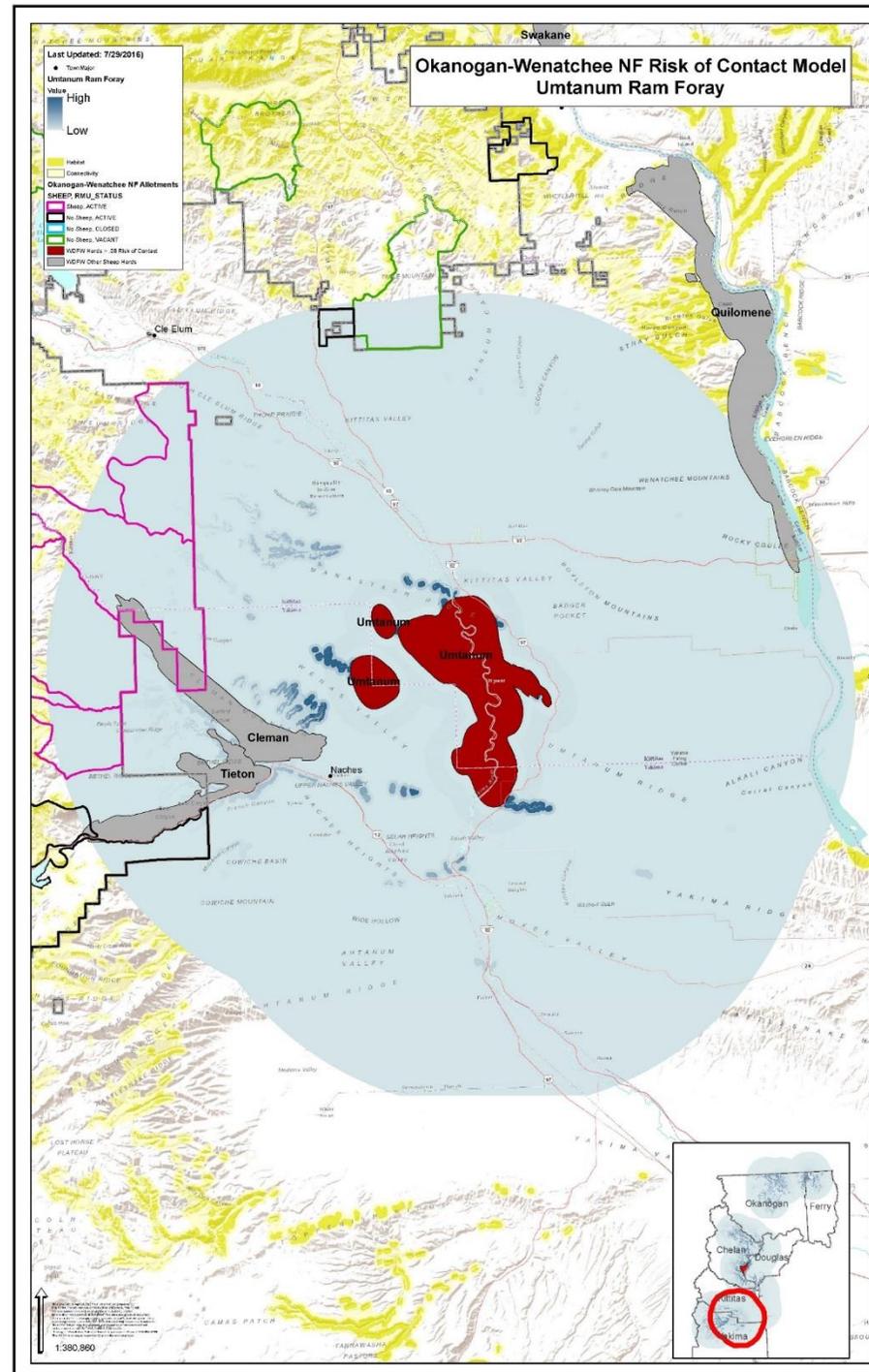




# Cleman Ram Foray Analysis



# Umtanum Ram Foray Analysis



# Tieten Ram Foray Analysis

