

# Monitoring Grizzly Populations in Western Montana



## Like Yellowstone, A Population Monitoring Program Will Be Required Post-Delisting...



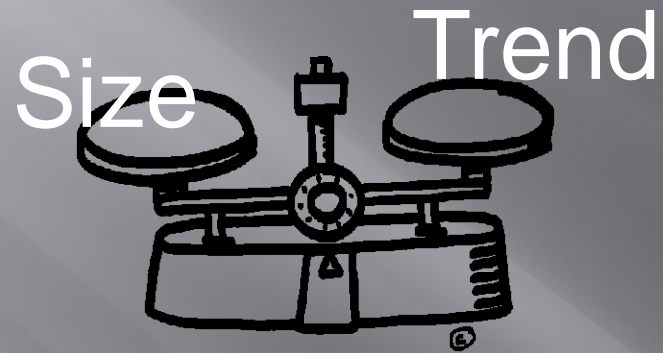
# What Constitutes Population Monitoring for Grizzlies?

1. *Population Size*
2. *Population Trend*
3. *Geographic Distribution of Bears*
4. *Genetic Health*
5. *Mortality*

- *Must Be Accurate...*
- *Affordable.....*
- *Feasible at Large Scale....*
- *Provide Multiple benefits...*



# Credible Population Monitoring Techniques For Bears:



*Females with Young*



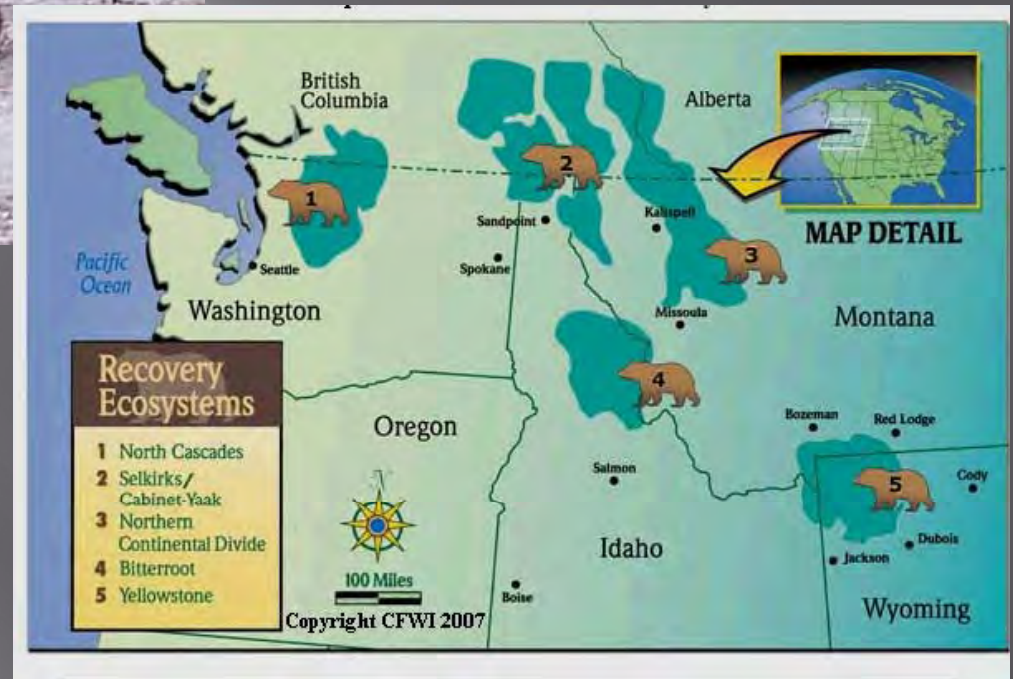
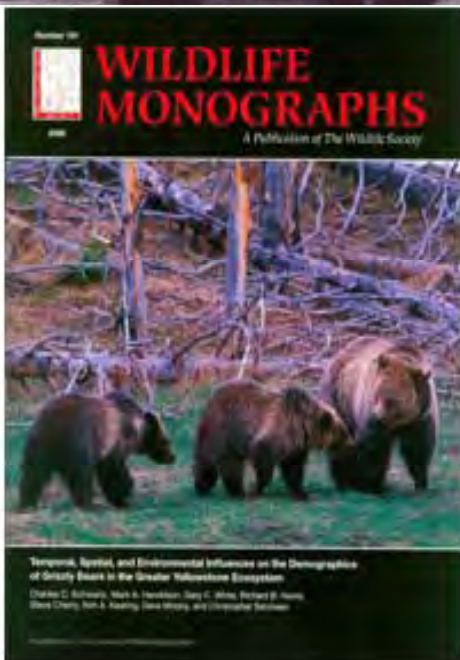
*DNA from Hair*



*Radioed Bears*



# Counting Females and Young for Population Size



# Monitoring Female Bear SURVIVAL is the KEY



*Yellowstone Monitoring Requirement:  
\* Survival by age-class of bear based  
on radioed bears*

*Cubs, yearlings, subadults and adults*



# DNA Hair Sampling

*Hair-traps*



*Rub-Trees*



- Population Size (2004)
- Genetic Health
- Distribution
- Accurate
- 3-5 Million \$\$ each time

- Population Trend (?)
- Genetic Health
- Distribution
- Apparent Survival  
not Real Survival

*Can not get bear AGE from DNA*

# Apparent vs. Real Survival:



Apparent



*DNA not detected:  
assumed DEAD*

Real



*DEAD is DEAD*



# Radioed Females (what you get):



*Real Survival*



*Reproduction*



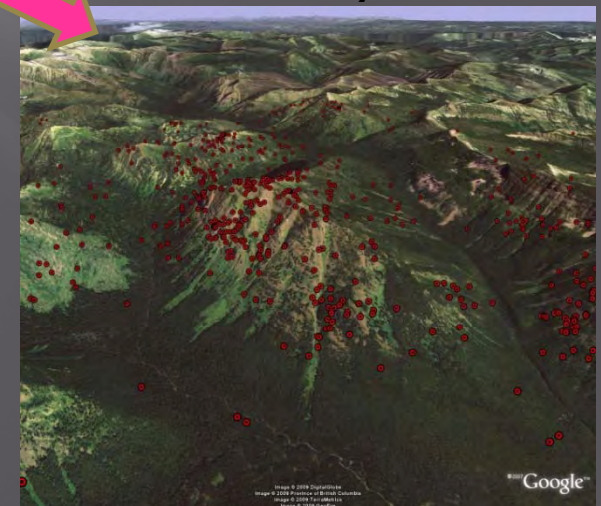
*Denning*



*Cause-specific Mortality*

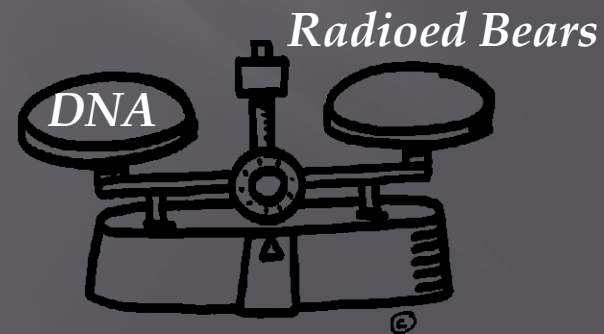
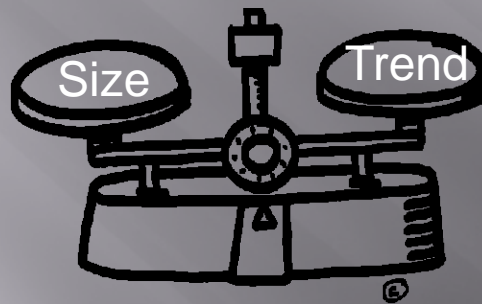


*Movements/Habitat*



## Summary of Population Monitoring Methods:

1. *Different for estimating size or trend*
2. *Depends on scale of application*
3. *Combination of DNA and radioed bears*
4. *Depends on \$\$\$*



Experts on Bears.....

Not just Hairs.....

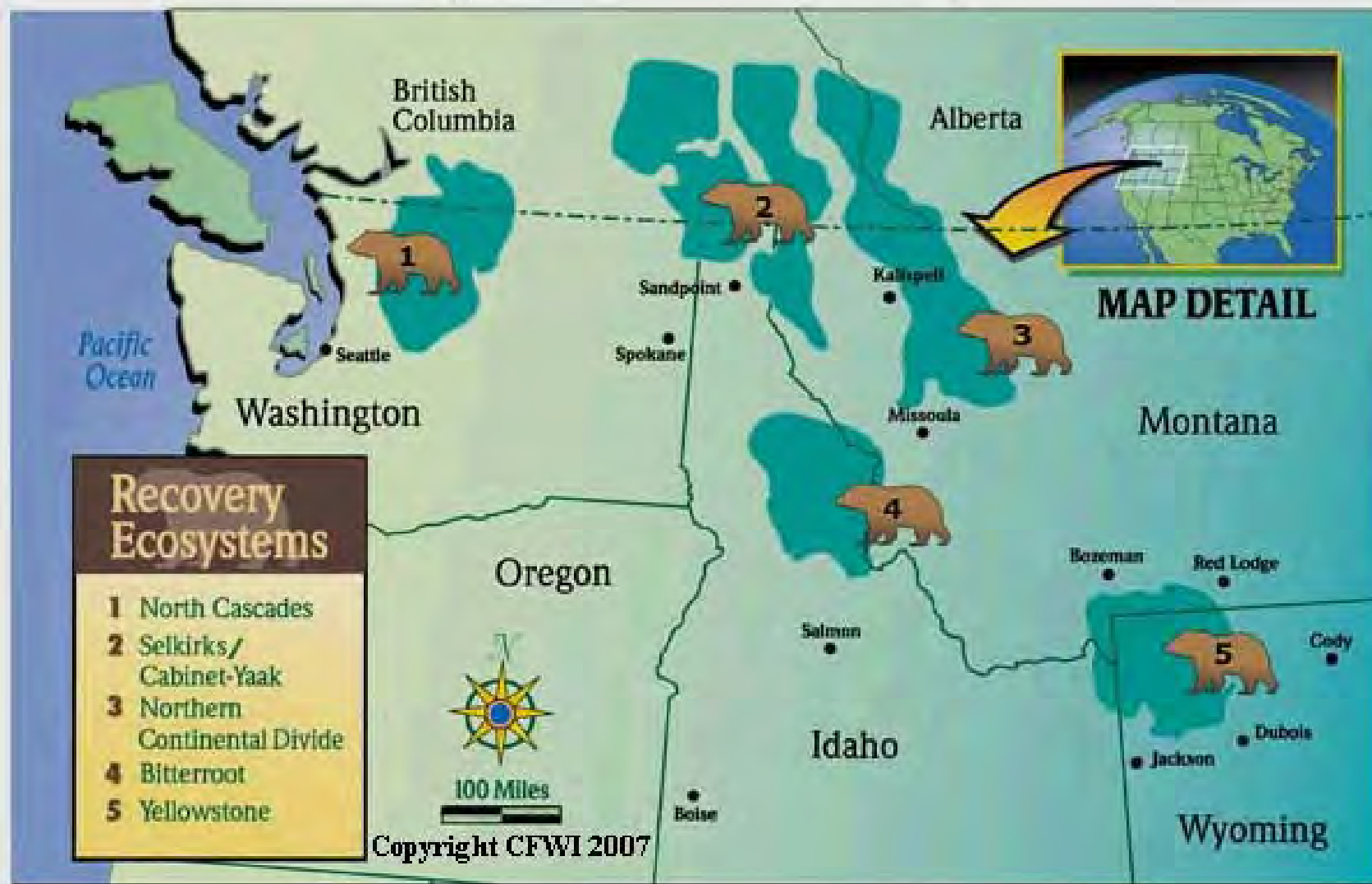


Maintaining Institutional knowledge of bears









## Scat-sniffing Dogs



Kathryn Purcell / USFS

- *Experimental technique...*
- *Never used in mgmt programs.....*
- *Each dog requires a handler...*
- *Challenging at Large-scales...*
- *Difficult in rugged/dense terrain...*
- *May be useful for simple small surveys....*



*50% Failure  
rate in getting  
DNA from Scat!*

