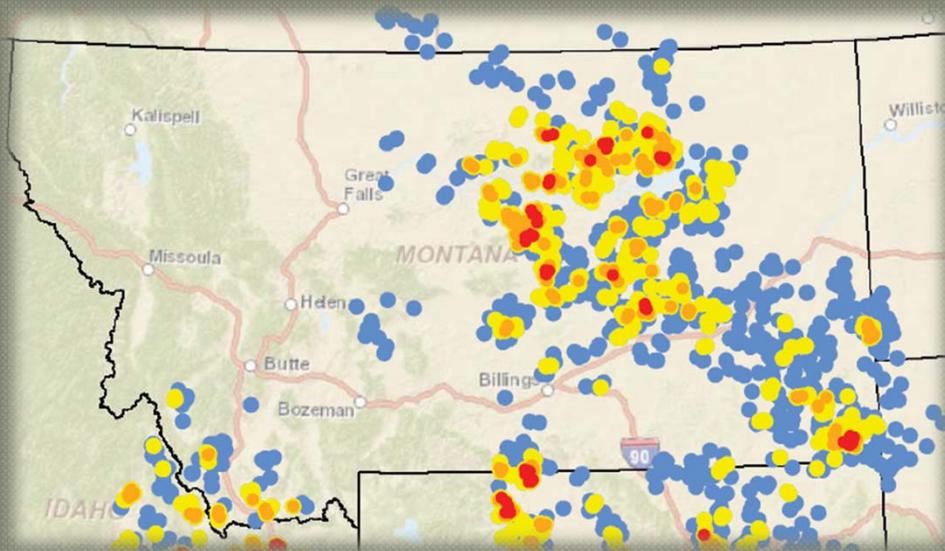


Sage Grouse Conservation

APPLICATION OF MITIGATION BANKING PRINCIPALS



Sage Grouse Conservation Banking

- **Concept of “Mitigation Banking”**
 - Regulatory action (permit or authorization) for an impact requiring compensatory mitigation
 - Bank is where appropriate compensatory mitigation has been completed in advance or is underway in the same geographic context
 - The impact metric (“debit”) and the mitigation metric (“credit”) are compatible
 - Mitigation includes demonstrable improvement (“ecological lift”), not just preservation of existing high quality habitat

Sage Grouse Conservation Banking

- **Concept of “Mitigation Banking” (cont.)**
 - The compensatory mitigation conforms to a set of programmatic guidelines and standards, including:
 - Participation by, and authority of, an Interagency Review Team (IRT)
 - Permanent protection for the mitigation area
 - On-going measurements via monitoring
 - Fully defined and measurable “success” via performance standards
 - Financial accountability including contingency fund and long-term management endowment

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● Bank Locations

- Private Lands, with management changes on associated leases and allotments (creditable?)
- Likely within designated “Core Area”, at least in part, but with consideration for “corridors”

● Bank Scale

- Minimum 10,000-acre contiguous unit; typically 20,000 – 100,000+ acres
- Smaller units more viable if within larger context of leases, allotments, other public lands (parks, wildlife management units, etc.)

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● Bank Operation

- Monitoring and Maintenance
 - Annual quantitative measurements of habitat indicators
 - Annual and on-going maintenance of bank lands
- Reporting and IRT Coordination
 - Annual monitoring reports submitted to IRT
 - Periodic (quarterly?) IRT meetings to discuss various aspects of operation, including adaptive management
- Adaptive Management
 - Modification of restoration prescriptions
 - Modification of performance standards (if justified)

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● Performance Standards

- A permanent Protection Instrument for the real estate
- Financial Assurances (Contingency and Long-term Management Funds)
- Improved habitat suitability (progressive)
- Reversal of declining population trends (progressive)
- Articulated long-term management plan, implemented by an acceptable long-term manager

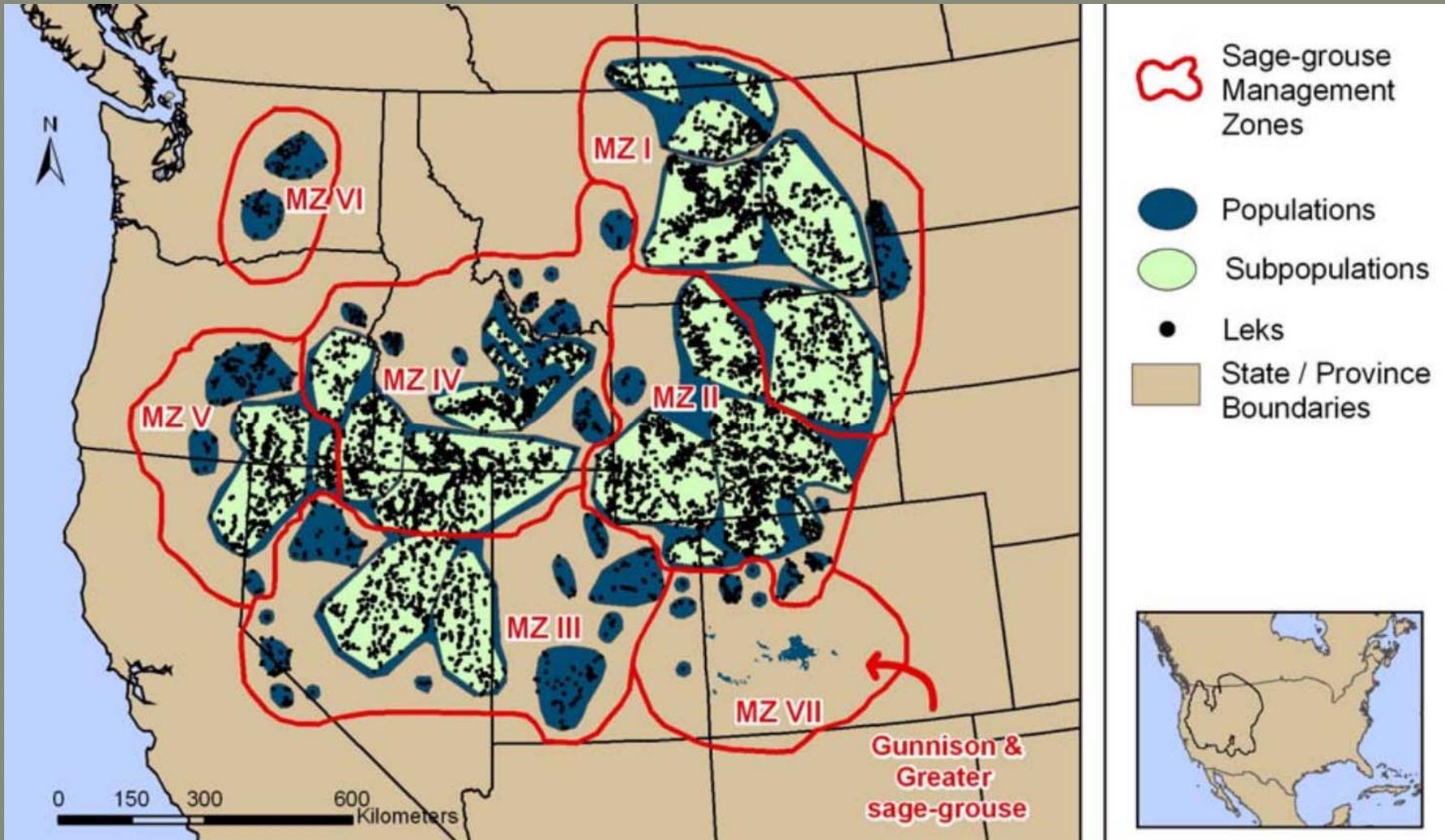
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● Geographic Service Area

- Likely limited to Management Zone boundaries within states, but multiple “Core Areas”
- Appropriately located and sized to ensure the mitigation resources adequately compensate for impacts across the entire service area
- Includes impacts in both Core and Non-Core areas
- Consideration of impact frequency, type, relative value of mitigation site resource vs. impact site losses

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Basis for Geographic Service Area



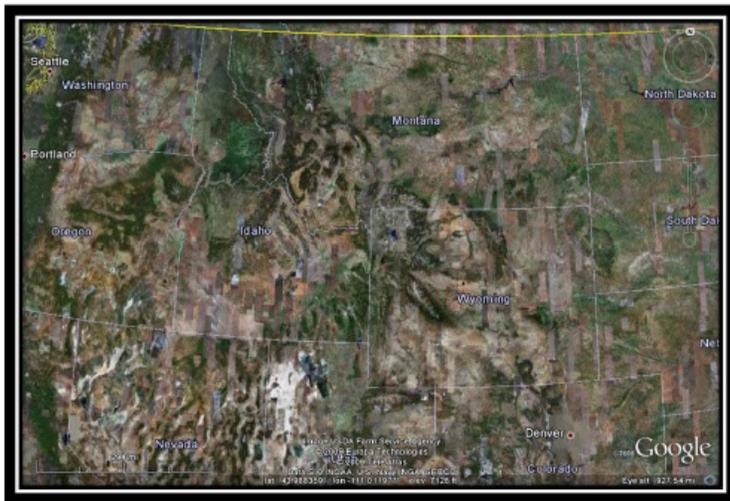
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- **Crediting Metrics and Methodology**
 - Leave debiting metrics for further discussion
 - Use standard assessment methodology for a reference area to establish baseline of “suitable” habitat
 - Baseline inventory (using same methodology) of bank site habitat
 - Credits (in part) for preservation of suitable habitat
 - Credits (majority) for ecological lift of habitat

Sage Grouse Conservation Banking

Sage-Grouse Habitat Assessment Framework

Multi-scale Habitat Assessment Tool



August 2010

Habitat Assessment Framework

Habitat Indicator	\bar{x}	Habitat Indicator Suitability Range					
		Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)		15 to 25%		5 to < 15% or > 25%		< 5%	
Sagebrush Height Mesic Site (mean)		40 to 80 cm		20 to < 40 cm or > 80		< 20 cm	
Arid Site (mean)		30 to 80 cm		20 to < 30 cm or > 80		< 20 cm	
Predominant Sagebrush Shape (mode)							
Spreading (n)		Spreading		Mix of spreading and columnar		Columnar	
Mixed (n)							
Columnar (n)							
Perennial Grass and Forb Height (mean)		≥ 18 cm		10 to < 18 cm		< 10 cm	
Perennial Grass Canopy Cover Mesic Site (mean)		≥ 15%		5 to < 15%		< 5%	
Arid Site (mean)		≥ 10%		5 to < 10%		< 5%	
Perennial Forb Canopy Cover Mesic Site (mean)		≥ 10%		5 to < 10%		< 5%	
Arid Site (mean)		≥ 5%		3 to < 5%		< 5%	

Habitat Indicator	\bar{x}	Habitat Indicator Suitability Range					
		Suitable	✓	Marginal	✓	Unsuitable	✓
Riparian and Wet Meadow Stability (mode)							
PFC (n)		Majority of areas are in PFC		Majority of areas are FAR		Majority of areas are NF	
FAR (n)							
NF (n)							
Preferred Forb Availability (relative to site potential)							
Number of Preferred Forb Species (n)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Proximity of Sagebrush Cover (mean)		Sagebrush cover is adjacent to brood-rearing areas (< 90m)		Sagebrush cover is in close proximity to brood-rearing areas (90 to 275 m)		Sagebrush cover is unavailable (> 275 m)	

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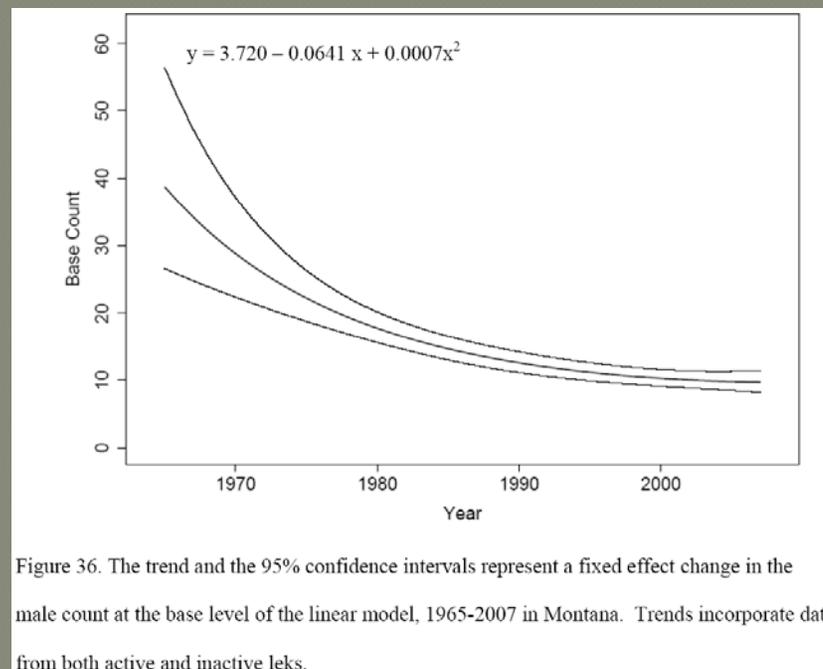
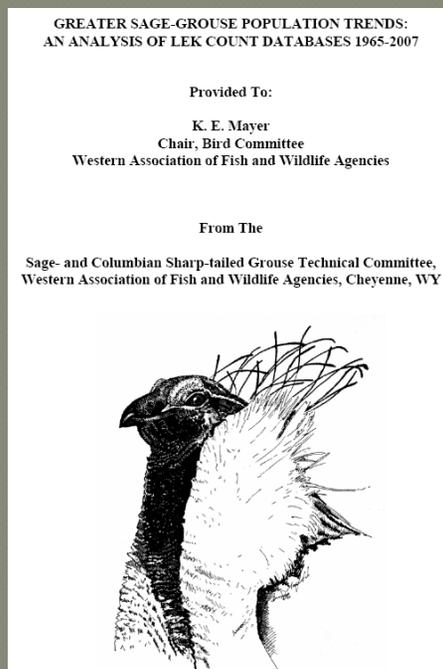
● Crediting Metrics and Methodology (cont.)

- Fewer credits for preservation
- Limited percent of bank credits from preservation (e.g. capped at 30%)
- Crediting Example:
 - Preservation
 - Suitable, no threat 1 cr : 4ac
 - Suitable, demonstrable threat 1 cr : 3ac
 - Unsuitable improved to Marginal 1 cr : 2ac
 - Marginal improved to Suitable 1 cr : 2ac
 - Unsuitable improved to Suitable 1 cr : 1ac

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● Crediting Metrics and Methodology (cont.)

- Credit metric is acres, but successful release of all credits requires changes in population trends



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● Credit Release and Utilization

- 100% of preservation credits released upon execution of Agreement, and establishment of Protection Instrument and Financial Assurance
- 20% of credits released upon execution of Agreement, and establishment of Protection Instrument and Financial Assurance
- 25% of credits released upon meeting vegetation performance standards
- Remaining credits released upon meeting all performance standards, and establishment of Long-term Management Fund

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● Financial Assurances

- Contingency Fund
 - Performance bond or other surety-backed instrument
 - Irrevocable letter of credit
 - Cash-in-escrow
 - Casualty Insurance Policy with \$0 deductible to IRT
 - General consideration: sufficient to cover risk associated with replacement mitigation for credits sold but not fully meeting all performance standards
- Long-term Management Fund
 - Non-wasting cash-in-escrow endowment

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Management Endowment

Need to earn annually

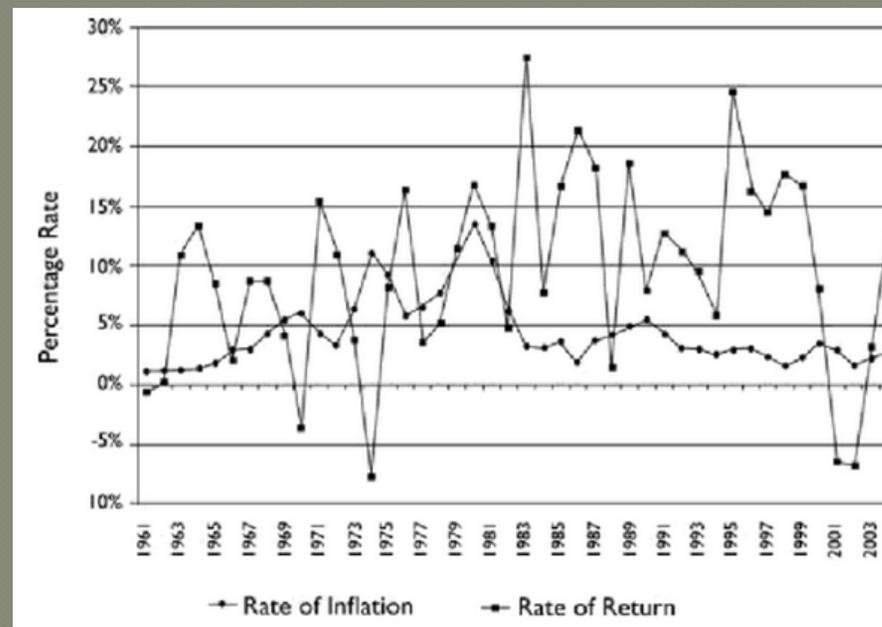
\$10,000

Capitalization rate

4.5% (Cap rate is a divisor)

Solve: $\$10,000 / .045 = \$222,222$

Amount to invest = \$222,222



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● Benefits

- 100% successful within the IRT's predetermined expectations and state of knowledge (credits can't be released/sold until performance standards met, and are protected by financial assurances)
- Transfer of all liability for industry/permittees
- Regulatory certainty for industry/permittees
- Predictable costs for industry/permittees
- Single point of contact for agencies (the Banker) vs. multiple mitigation projects/entities

Sage Grouse Conservation Banking

QUESTIONS

