From:	Doherty, Kevin
To:	Norman, Kate
Subject:	Re: Good morning!
Date:	Friday, May 16, 2014 8:18:45 AM
Attachments:	20140522_Tools (KED).pptx

Here you go, its now slide 15! Mike wanted it simplified

On Fri, May 16, 2014 at 8:07 AM, Norman, Kate <kate_norman@fws.gov> wrote:

> Could I trouble you for the most recent edits to slide 24?
>
> Thanks!
> K
>
> --
> Kate Norman
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--

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Greater Sage-Grouse

2015 Status Review
Structured Decision Making & Modeling
Regional Director Briefing
Part Deux

May 22, 2014

Goals for Today

- Decision Premise
- Lessons from the Past
  - 2005 Status Review
  - 2010 Status Review
  - Bi-State Proposal
- Current Work
  - 2015 Status Review

Decision Premise

Use framework from 2010 listing decision as the foundation for 2015 status assessment.

- **Logical** rigor was solid in 2010, however we would like to increase our **Analytical** rigor.

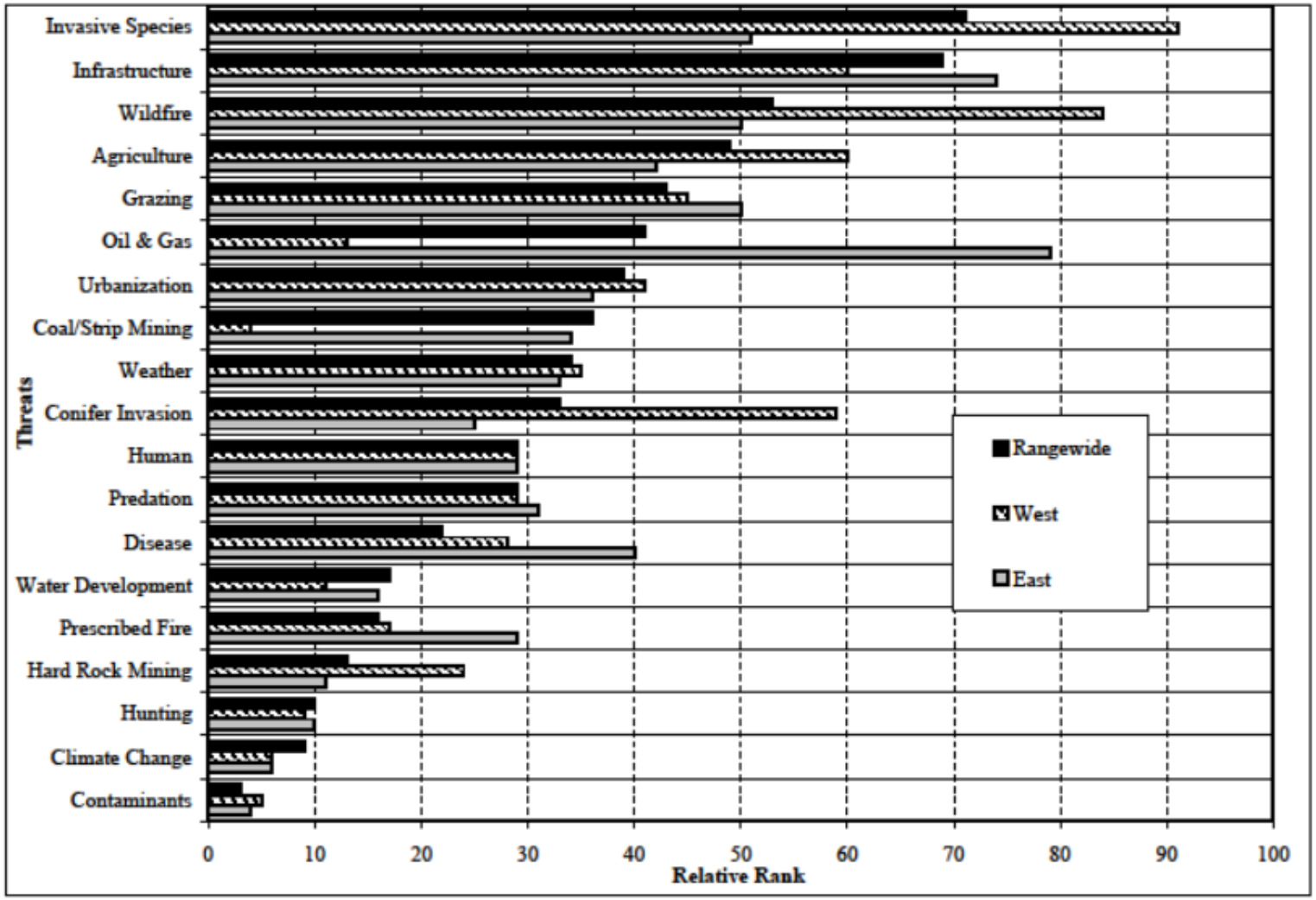
- Analytical rigor increases:
  - Transparency
  - Defensibility
  - Confidence in interpretation of data (especially for those who do not agree with our decision)

2005 Status Review

- Expert panel to help
  - Identify threats
  - Rank threats

- No statistical analysis
- No GIS analyses
- Projection of threats on sage-grouse abundance and distribution relied on *best available information* and *professional judgment*

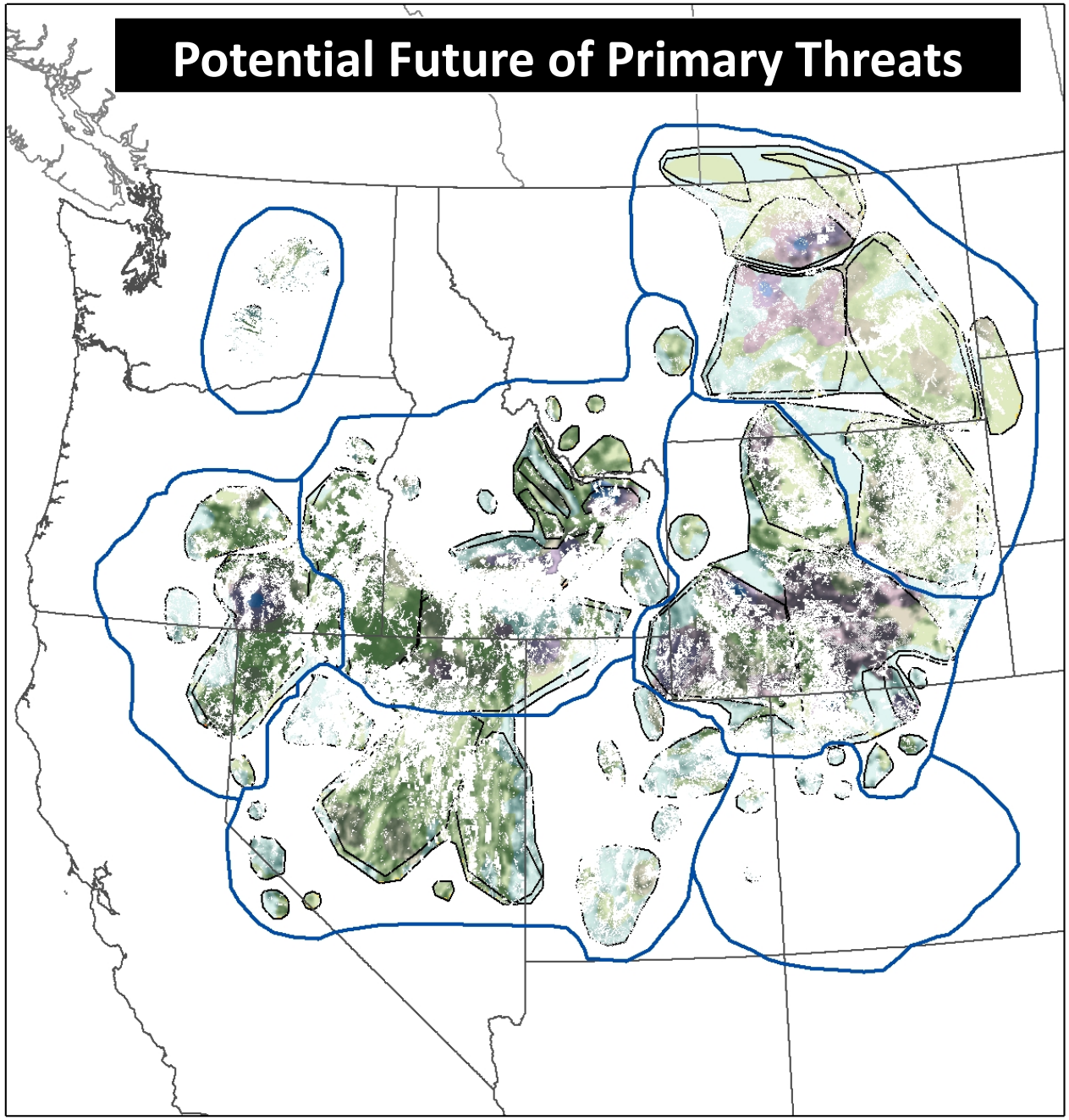
2005 Status Review



2010 Status Review

- Basis of 2010 = 2005 information, updated, and clarified
- Additional research defining relationship Threats → Effects to Sage-Grouse
- Projected threats and our understanding of impacts on the sagebrush landscape and sage-grouse abundance and distribution

Potential Future of Primary Threats



Sage Grouse Mgt. Zones

Percent Sage Brush

By Sage Grouse Population

% High

% Low

Males at Leks

High

Low

- Introduced Annual Grass
- Oil and Gas Non-Producing Leases and
  - Fires 1980 to 2008
  - Oil and Gas Fields
  - Oil and Gas Producing Leases
  - Agricultural Land

N 0 75 150 225 300 Miles

Map Date: 10/14/2009

Created by: U.S. Fish and Wildlife Service, WY ES Field Office
Date: 10/14/2009
Source: U.S Fish and Wildlife Service | Western Association of Fish and Wildlife Agencies' Sage Grouse Conservation Planning Framework Team | U.S. Forest Service | Geospatial Multi-Agency Cooperation | Sam Limerick (Energy Information Administration) | Steve Hanser (USGS-FRESC, Snake River Field Station) | WA Dept. of Fish and Wildlife, ID Dept. of Fish and Game, Nationl Sage Grouse Conservation Framework Planning Team, USGS Forest and Rangeland Ecosystem Science Center | Bureau of Land Management | U.S. Bureau of the Census | Government of Canada Map
Projection: North American Datum 1927 Albers

Bi-State Proposed Rule

- Followed “new” 4-phase process
- SSA was conducted similarly to the 2010 range-wide finding, using:
  - new information on threats,
  - information from the data call, and
  - foreseeable future based on threat persistence
- No formal modeling, although:
  - Projection of key threats
  - Projections of associated conservation actions

  were important in assessing impacts to abundance and distribution of sage-grouse in the DPS

Decision Framework

What to Model	How to Model	Model Outputs
Threats (-) **Conservation Actions (+)** **Conservation Policy (- & +)**	1) Methods defined by experts 2) Models quantify impacts of threats	Need to be relevant to assessing **Long-Term Persistence**

Decision Framework

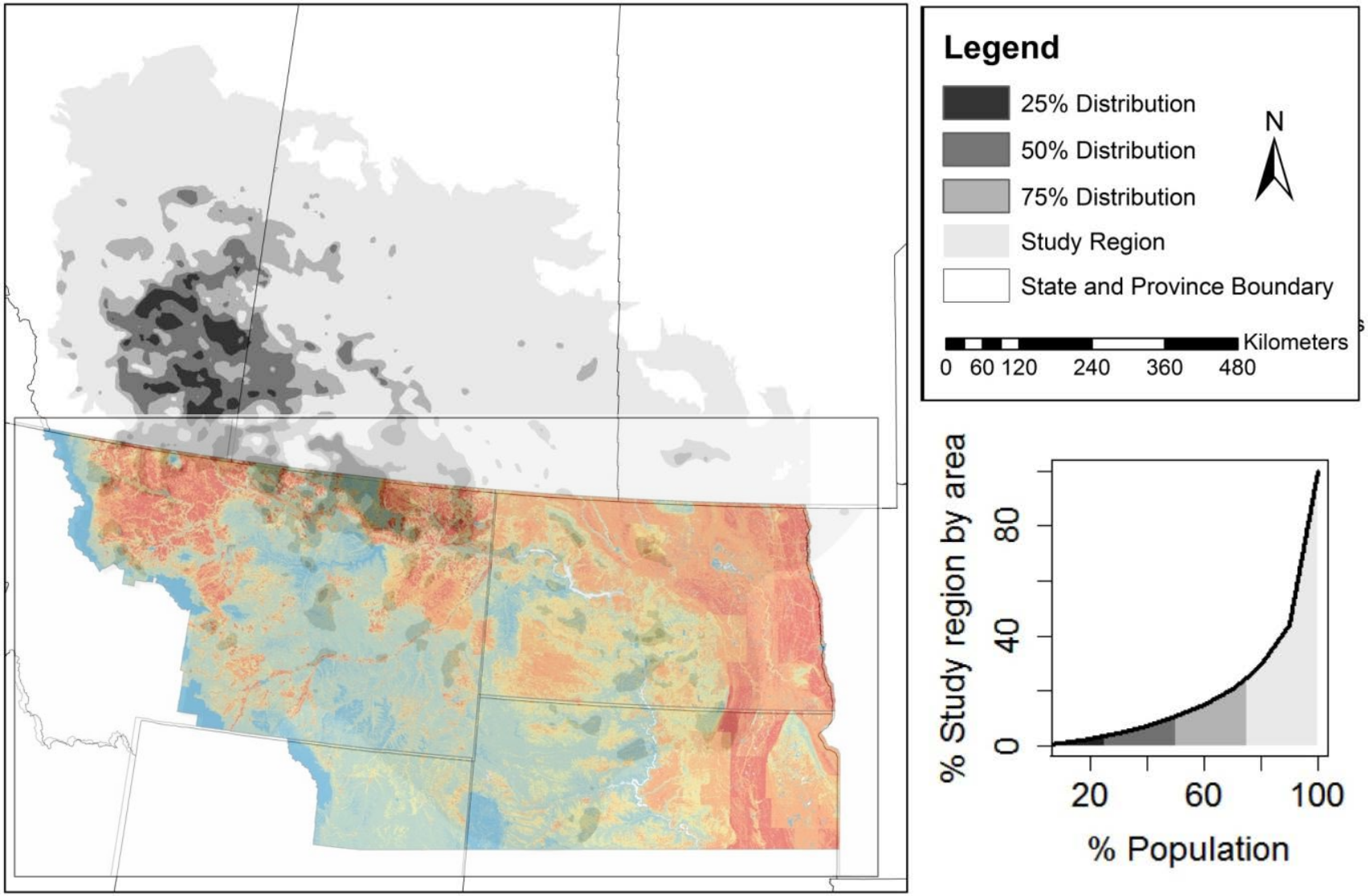
What to Model	How to Model	Model Outputs
Threats (-) **Conservation Actions (+)** **Conservation Policy (- & +)**	Methods may vary by threat & techniques of upon ongoing research efforts	**Abundance** (e.g. % of pop at risk) **Distribution** (e.g. Prob of occupancy OR % of area exposed to risk)

An Example

Risk Modeling Framework:
Agriculture Conversion

Sprague's Pipit

Combining population models with threat models to quantify risk



Integration of *ALL* Analyses

Integrating

– Threats

+ Conservation Actions

- / + Conservation Policy

analyses will require expert input.

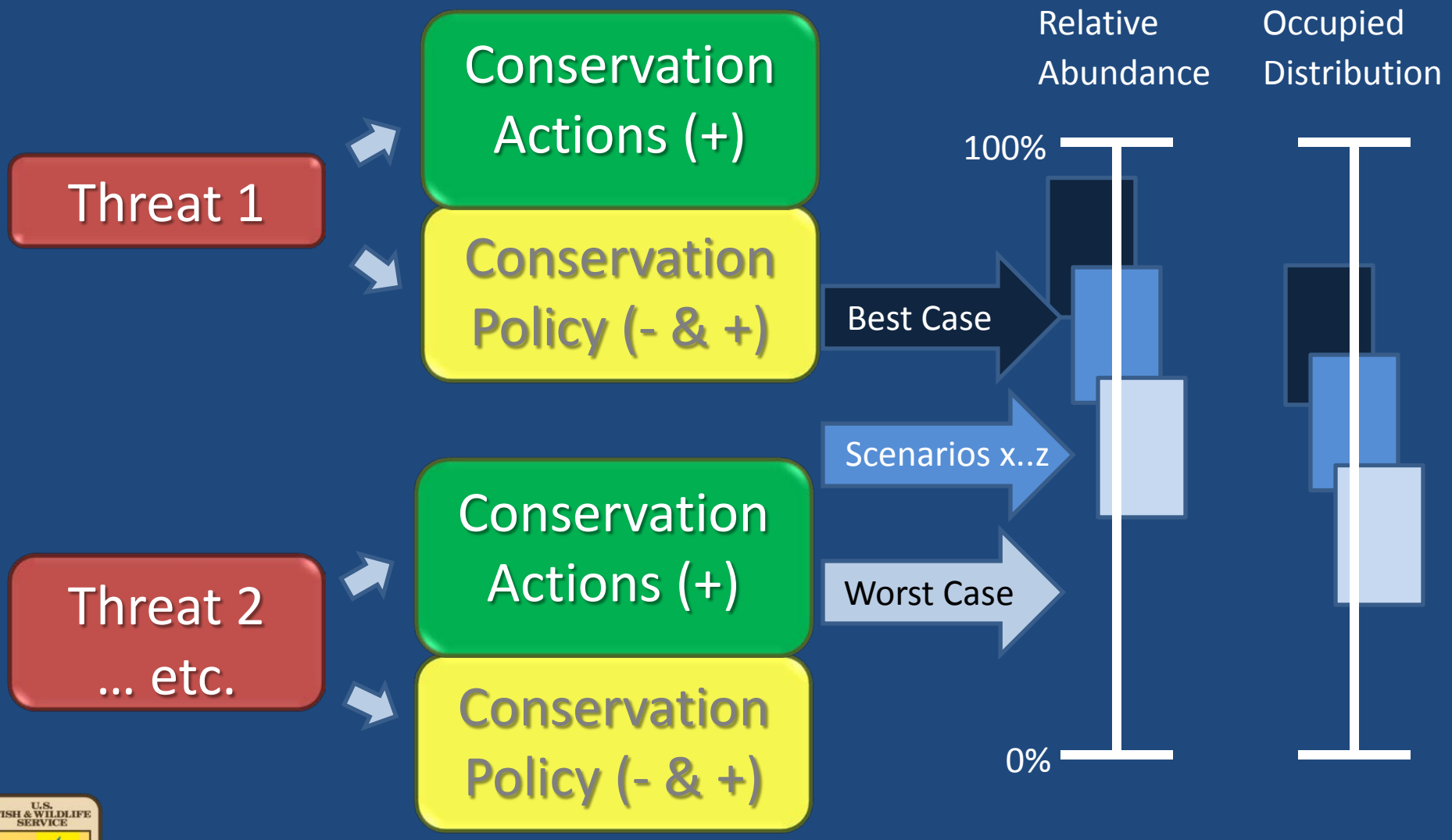
Primary purpose of the experts meeting is to develop the <u>ANALYTICAL FRAMEWORK</u> to integrate threats analyses.

Integration of Threat Outputs

Range of possible futures

- defined by scenarios ***AND/OR***
- observed variation in sage-grouse responses to multiple threats

Integration of Threat Outputs



Questions ?

Objectives

- **FUNDAMENTAL:**
  - Long-term persistence of greater sage-grouse consistent with the ESA
- **PROCESS:**
  - Maximize scientific soundness
  - Efficient and transparent process
  - A clear rationale for decision making that maximizes legal defensibility
- **STRATEGIC:**
  - Maintain relationships with partners

Decision Framework

What to Model

Threats (basis 2010)

- Threat Impacts
- Threat Alleviation

How to Model

1) Methods defined by experts

2) Models quantify impacts of threats

Model Outputs

Need to be relevant to assessing **long term persistence**

Threats

Threats (-)

Conservation Actions (+)

Conservation Policy (- & +)

Fire & Invasives

Conifer

Energy Development & Associated Infrastructure

Agricultural Conversion

Others?

Threat Amelioration

Threats (-)

Conservation Actions (+)

Conservation Policy (- & +)

Fire & Invasives

Conifer

Energy Development & Associated Infrastructure

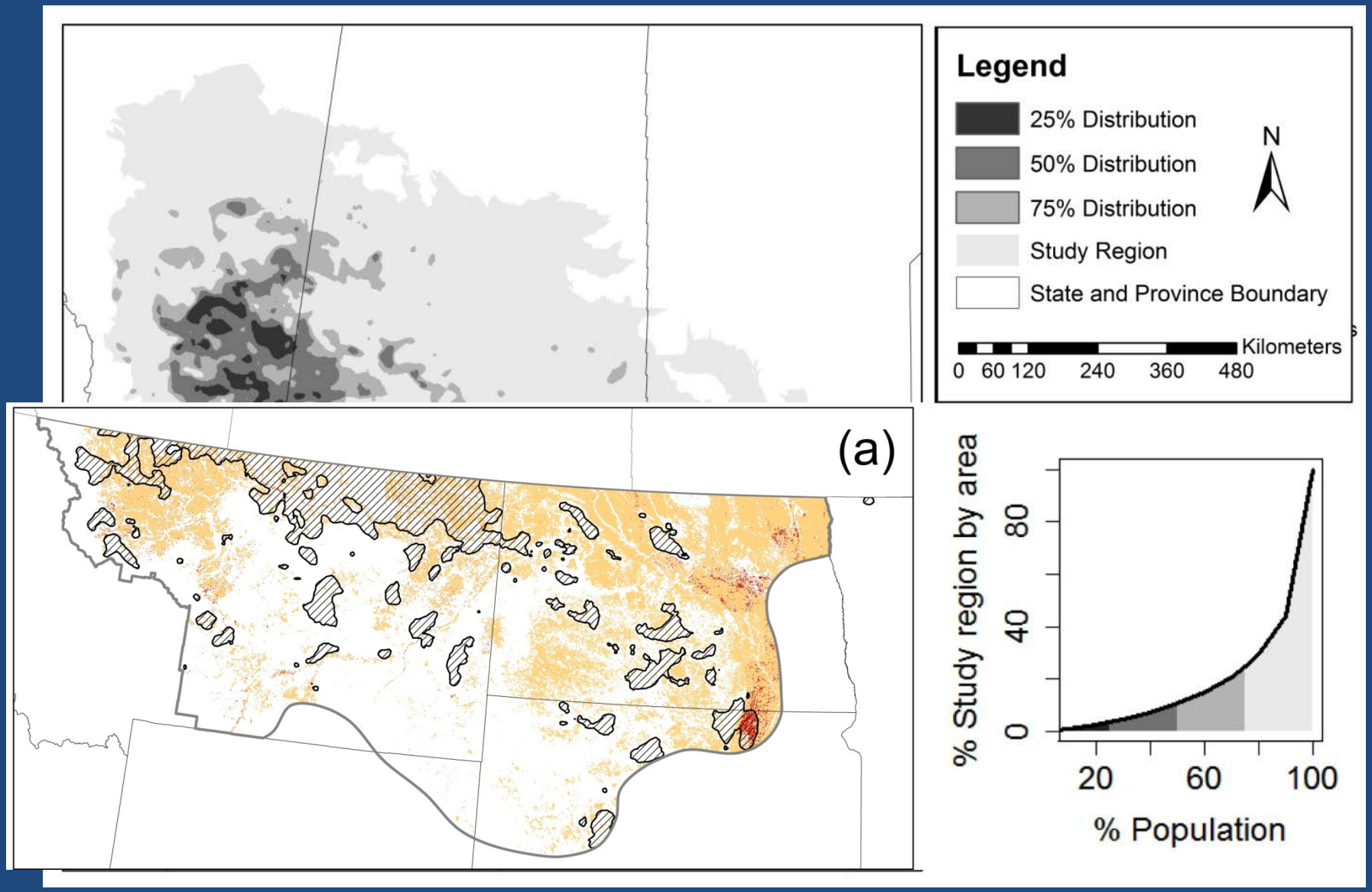
Agricultural Conversion

Others?

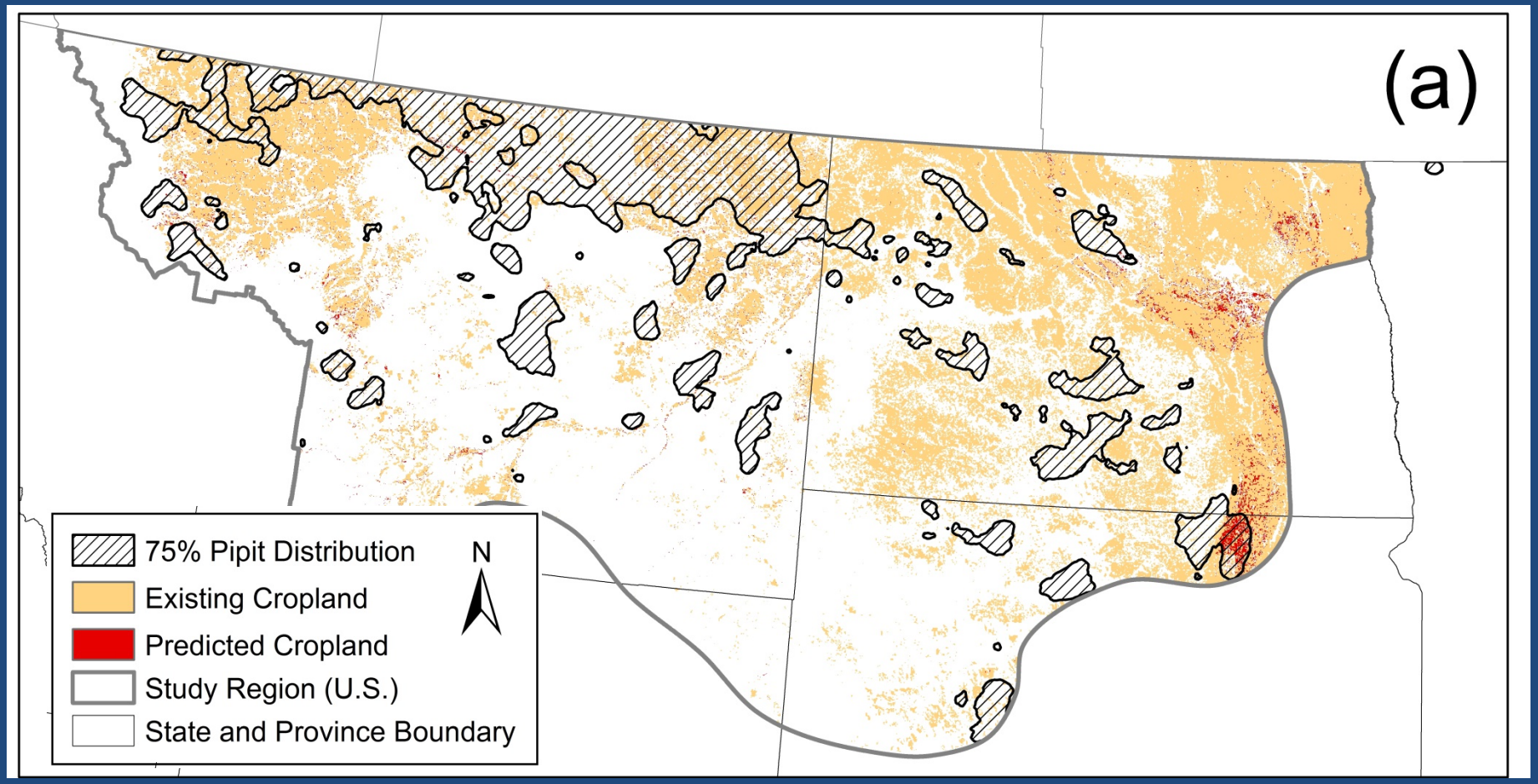
Threats Analyses

What to Model	How to Model	Model Outputs
Threats (-)	**Modeling** methods may vary by threat based upon ongoing research efforts	**Abundance** (e.g. % of pop at risk)
Conservation Actions (+)		**Distribution** (e.g. Prob of occupancy OR % of area exposed to risk)
Conservation Policy (- & +)		

Combining population models with threat models to quantify risk

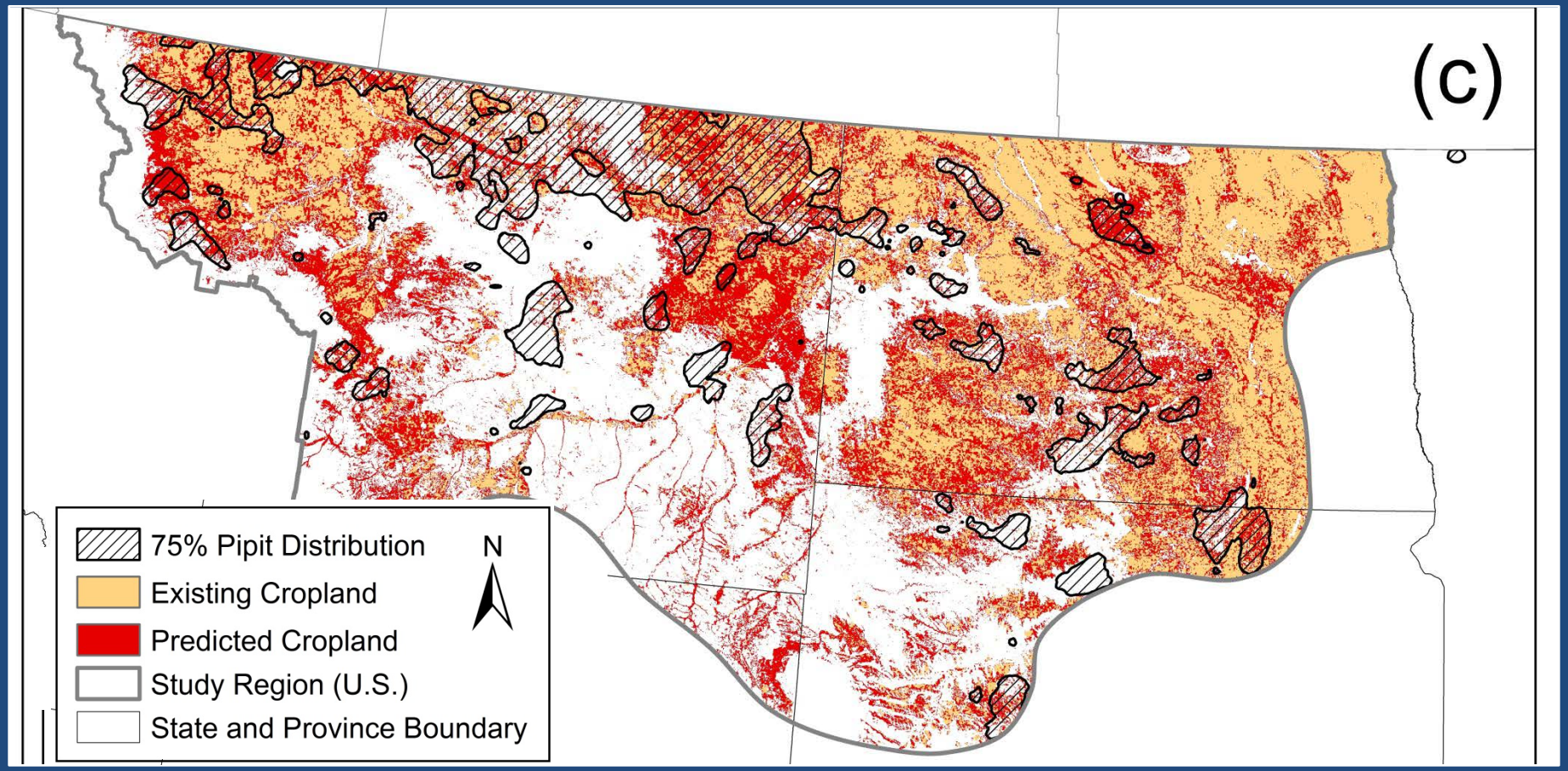


Scenario (a): 2% population loss



Scenario	Tillage Risk Cutoff	New Crop Acres
a	0.98	1.2 million

Scenario (c): 30% population loss



Scenario	Tillage Risk Cutoff	New Crop Acres
c	0.3	30.9 million

Threats Analyses

What to Model	How to Model	Model Outputs
Threats (-)	**Modeling** methods may vary by threat based upon ongoing research efforts	**Abundance** (e.g. % of pop at risk)
Conservation Actions (+)		**Distribution** (e.g. Prob of occupancy OR % of area exposed to risk)
Conservation Policy (- & +)		

Agriculture Conversion Example

What to Model	How to Model	Model Outputs
Conservation actions (+) *Assembled in Conservation Effects Database*	**GIS Query** *Query of sagebrush conservation easements)*	**Abundance** *E.g. % of pop protected from Ag. Conversion via easements*

Threats Analyses

What to Model	How to Model	Model Outputs
Threats (-)	**Modeling** methods may vary by threat based upon ongoing research efforts	**Abundance** (e.g. % of pop at risk)
Conservation Actions (+)		**Distribution** (e.g. Prob of occupancy OR % of area exposed to risk)
Conservation Policy (- & +)		

Regulatory Certainty

What to Model	How to Model	Model Outputs
Conservation Policy (- & +)	**?** *Will need to draw upon FMT & NPT expertise*	**Threats Reduced** *% of threats to population reduced by conservation plans*

Item	2005	2010	Bi-State	2015
Expert	X	X	X	X
GIS		X	X	X
Simple Analysis		X		X
Model				X

For Briefing Paper (document – not presentation)