ALAT Chapter 5 – Draft Outline

5.0 THREAT REDUCTION - OREGON'S STRATEGIC APPROACH

While a broad suite of threats have been identified in Oregon, three stressors are widely recognized as the key challenges to conserving sage-grouse: conifer encroachment, annual grass invasion, and large-scale wildfire.

5.1 AN ECOLOGICAL FRAMEWORK FOR MANAGING THREATS

At present, the greatest threats to sage-grouse populations in Oregon are based in ecosystem dysfunction, as opposed to sage-grouse specific threats such as development or predation risk from vertical structures (Hagen 2011). Given that conservation capitol (time, money, and people) is a limited resource, and given the critical status of sage-grouse, the conservation effort in Oregon must be a strategic approach that effectively allocates effort to repair ecosystem problems while simultaneously considering the critical needs of sage-grouse. To facilitate this process the ALAT Plan utilizes a spatially explicit hierarchical framework that overlays relevant ecological properties with sage-grouse habitat use patterns. This ecological framework is broken into three parts which address large scale planning, spatial prioritization, and vegetation management, respectively.

5.1.1 Level I (Large Scale Planning)

Plant community resilience is a measure of the likelihood that a plant community will return to pre-disturbance conditions following disturbance (Redford et al. 2011). Degree of "resistance" refers to the magnitude of disturbance necessary to cause a specific change in a plant community (Folke et al. 2004). The ALAT Plan uses resistance as a relative term to characterize the likelihood of persistent annual grass invasion; a plant community with low resistance would be very susceptible to invasion. Both resistance and resilience (hereafter referred to jointly as "R&R") of a plant community change in predictable ways in relation to environmental gradients (Table 1).

Table 1. Generalized categories of resilience and resistance used in association with soil temperature and moisture regimes.

Resilience and Resistance	Soil Temperature & Moisture Regime
HIGH	Cold & Moist (Cryic) Cool & Moist (Frigid/Xeric)
MODERATE	Warm & Moist (Mesic/Xeric) Cool & Dry (Frigid/Aridic)
LOW	Warm & Dry (Mesic/Aridic)

5.1.2 Level II (Prioritization)

Within the low, moderate, and high categories depicted in Figure 1, management priority for a given area will be dependent on local vegetation conditions.

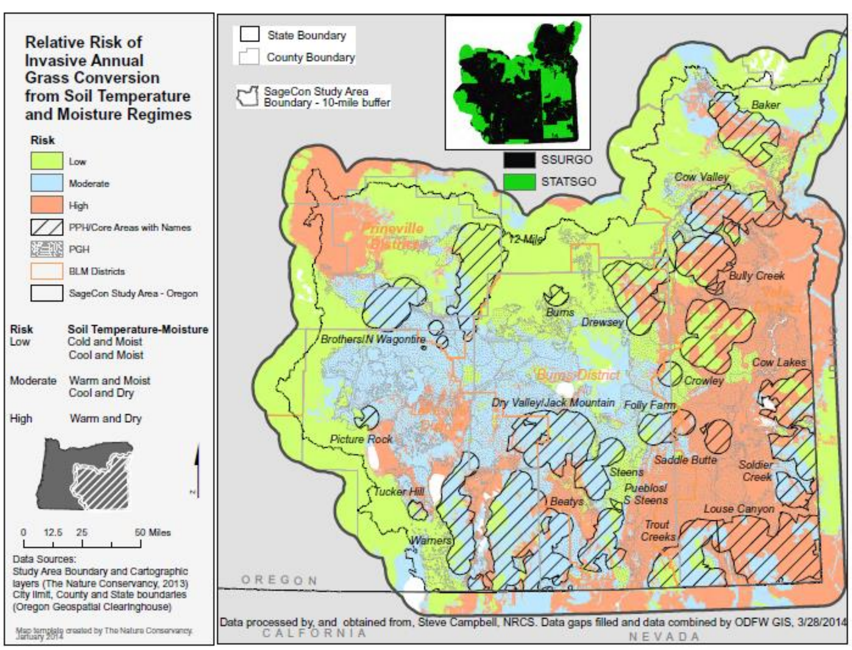

Figure 1. Generalized categories of resilience and resistance in relation to core areas within the SageCon planning unit.

5.1.3 Level III (Vegetation Management)

Within a priority area, potential management actions will be a function of current plant community conditions and desired plant composition; the latter being a function of ecological properties in conjunction with habitat needs of sage-grouse. To guide this process a series of state and transition models (STMs) have been developed that generally represent low, mid to high, and high elevation plant communities (e.g., Figure 2). These models capture our current understanding of drivers and associated indicators of ecosystem change in response to natural and anthropogenic factors.

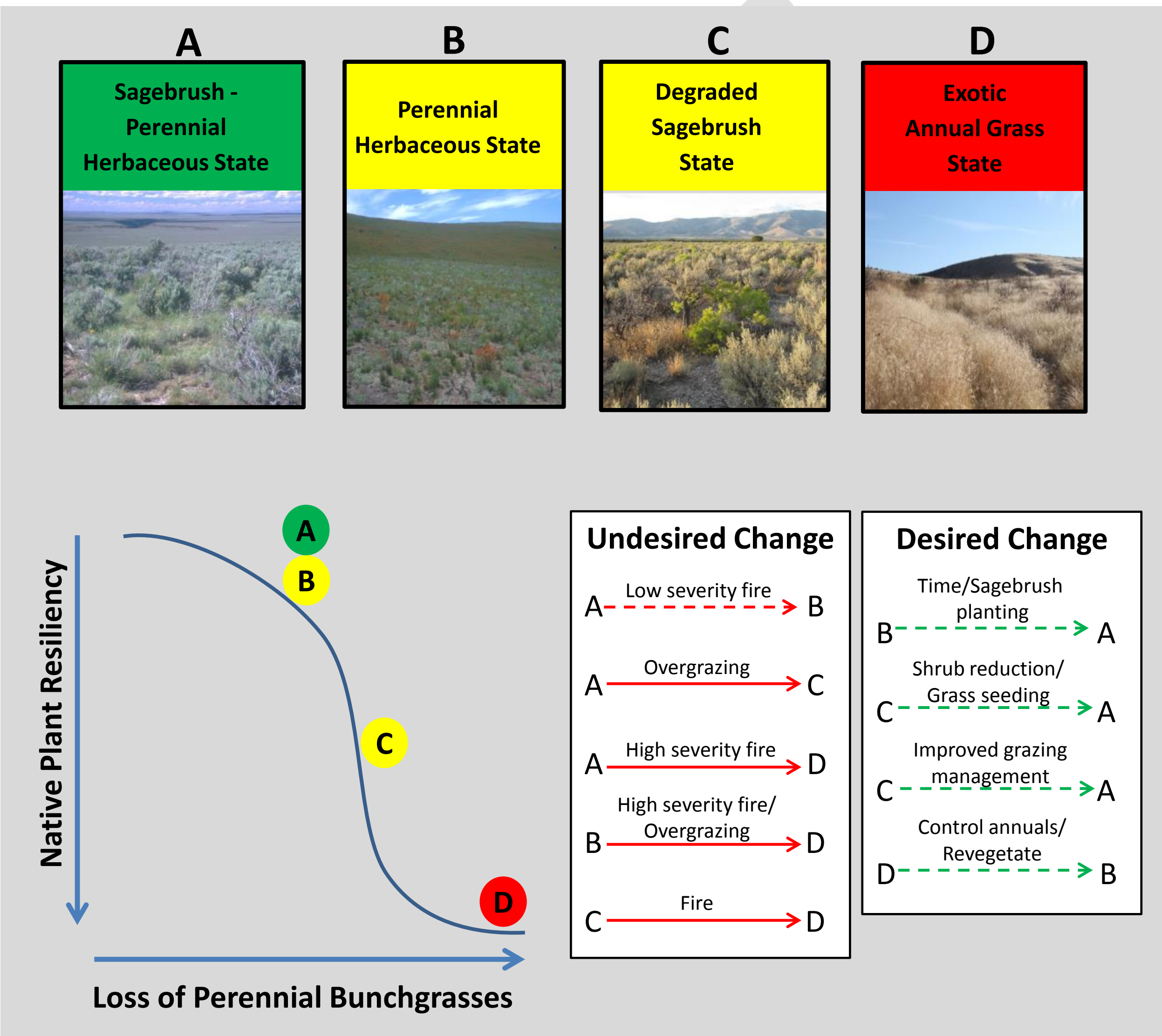

Figure 2. Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **low elevation sagebrush plant communities in Oregon with warm and dry or cool and dry soil temperature/moisture regimes** (Miller et al. 2013). Resiliency will be lower for communities on warm and dry sites. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States shaded in yellow

and red indicate potential seasonal habitat and non-habitat, respectively. “Native plant resiliency” (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses. Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines.

5.2 ADDRESSING KEY THREATS – CONIFERS, ANNUAL GRASSES, AND FIRE

The following section will give priority to ameliorating the most significant threats facing sage-sage grouse in Oregon (e.g., juniper encroachment, annual grass invasion, and fire), and which represent the greatest risk to sagebrush-steppe habitats.

- ***Scope of the Problem***
- ***Conservation Objective***
- ***Conservation Actions***
- ***Responsible Parties***
- ***Conservation Measures & Decision Support Tools***
- ***Implementation and Actions Completed to Address Conifers Since 2010***
- ***Estimated Cost***

5.3 ADDRESSING SECONDARY THREATS

- Isolated/Small Size (TNC)
- Sagebrush Elimination **(**Author?**)**
- Agricultural Conversion **(**ODA analysis, Theresa Burcsu, OR Water Resources Department (Brenda Bateman, Tom Paul)**)**
- Energy **(**ODOE (Todd Cornett, Phil Carver), ODFW**)**
- Mining **(**DOGAMI (Gary Lynch, Isaac Sanders), ODFW (Bob Hooton, Joy Vaughn), ODOT (Christian Jilek)**)**
- Infrastructure **(**TNC, Jon Jinings**)**
- Grazing **(**ARS (Tony Svejcar, Chad Boyd)**)**
- Free-Roaming Equids **(**BLM (Glenn Frederick), ODFW (Ron Anglin)**)**
- Recreation **(**Theresa Burcsu, Lynn Sharp, ONDA**)**
- Urbanization **(**Jon Jinings**)**

5.4 OTHER UNFORESEEN CIRCUMSTANCES NOT PROVIDED FOR IN THE COT REPORT

- Drought **(**TNC, ARS (Chad Boyd), Megan Creutzburg, BLM (Louisa Evers)**)**
- West Nile Virus **(**ODA, ODFW (Dave Budeau)**)**
- Catastrophic Flooding **(**ARS (Chad Boyd), Jon Jinings, Steve Grasty**)**
- Predation **(**ODFW (Dave Budeau)**)**
- Insecticides **(**ODA, APHIS**)**
- Fences **(**TNC (Jay Kerby)**)**
- Climate Change **(**TNC, ARS (Chad Boyd), Megan Creutzburg, BLM (Louisa Evers); combine Climate Change with Drought?**)**
- Aroga Moth (Author?)
- Noxious Weeds (Author?)