SUMMARY RESULTS FOR BLM FIELD OFFICES IN NEVADA FROM A REGIONAL ASSESSMENT OF HABITATS FOR SPECIES OF CONSERVATION CONCERN

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PREFACE

Wisdom et al. (2003) recently completed a prototype assessment of habitats for sagebrush (*Artemisia* spp.)-associated species of conservation concern in the Great Basin. The assessment was completed at 2 spatial extents – the Great Basin Ecoregion (Great Basin) and the state of Nevada – to address both ecological and administrative needs. Although the report presents data summarized comparably at these 2 extents, land management decisions within the Bureau of Land Management (BLM) are often based on data collected and organized at smaller scales, such as within Field Office boundaries. Thus, we report additional summaries here for Nevada, focusing on the 8 BLM Field Offices in the state. The following report replaces an earlier, draft version of summaries for Field Offices in Nevada (Rowland 2003).

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Figure 5. Risk of displacement of habitat for greater sage-grouse by cheatgrass within Bureau of Land Management Field Offices in Nevada. (Note that wet meadow habitats, which are at no risk of displacement, composed <1% of sage-grouse habitat in Nevada and are thus not mapped.)

INTRODUCTION

Threats to habitats and populations of sagebrush-associated species are widespread and diverse (Knick 1999; USDI BLM 1999, 2002; Miller and Eddleman 2000; Nachlinger et al. 2001; Bunting et al. 2002; Wisdom et al. 2003). Among the threats commonly listed, those of displacement of native habitats by cheatgrass (*Bromus tectorum*) and other exotic vegetation, such as medusahead (*Taeniatherum caput-medusae*), are paramount (USDI BLM 2002). In addition, displacement of native sagebrush by the expansion of pinyon (*Pinus* spp.) and juniper (*Juniper* spp.) woodlands is accelerating across the Intermountain West, including the Great Basin (Tausch and West 1988, Miller et al. 1999; also see Chapter 4 in Wisdom et al. 2003). (Note that any following references to "chapters" in this report refer to the appropriate chapter in Wisdom et al. 2003.)

Concern about sagebrush-associated species and their habitats led to the completion of a prototype assessment of species of conservation concern for the Great Basin Ecoregion and the state of Nevada (Wisdom et al. 2003). For this assessment, 40 species of concern were identified as being appropriate for broadscale assessment of habitats. Although none of the 40 currently is listed as an endangered, threatened, or candidate species under the Endangered Species Act, several are on other lists of special status species in Nevada (Table 1). For example, 11 of the 40 are included in the recently released list of species considered "sensitive" by the Nevada State Office of the BLM (Table 1). These species "occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management" (Nevada BLM 2003:1). Moreover, 4 of the 17 bird species on our list are also on the national Partners in Flight Watch List: greater sage-grouse (see Table 1 for scientific names of the 40 species of concern), Swainson's hawk, short-eared owl, and Brewer's sparrow (Rich et al. 2003). An additional 8 avian species are on the Nevada Partners in Flight Priority Species list (Neel 1999; Table 1). And last, a group of conservation organizations petitioned the U.S. Fish and Wildlife Service (FWS) in 2003 to list pygmy rabbit, which occurs in Nevada, as a threatened or endangered species across its range (http://www.westernwatersheds.org/legal/legal.html). The petition applies to all populations of the species outside the Columbia Basin in Washington; that population was previously designated as endangered by FWS.

Of particular concern in Nevada is what has been referred to as the Mono Basin population of sage-grouse. Results from a recently published genetic analysis of sage-grouse across the range of the species revealed that the population in the "Lyon/Mono" area (Lyon County, NV and Mono County, CA) is genetically distinct – that is, the birds have a "unique allelic composition" - from other populations of sage-grouse (Benedict et al. 2003:309). This population was petitioned for emergency listing as endangered in December 2001 (Webb 2001, Kritz 2003). The FWS determined in December 2002 that evidence was lacking to support emergency listing, or to support the designation of these birds as a distinct population segment (U.S. Government 2002). Publication of the Benedict et al. (2003) paper, however, will provide previously unavailable genetic evidence for future determinations by the FWS. In addition, a petition has been filed to list greater sage-grouse as endangered throughout its range (Kritz 2003). Because of widespread concern about sage-grouse and the importance of public lands, especially those managed by BLM, for this species, the BLM recently issued a draft national conservation strategy for sage-grouse (USDI BLM 2003).

Our objective in the following report was to provide more spatially explicit data for each Field Office in Nevada about vegetation at risk and habitats for the 40 species of conservation concern in the Great Basin prototype assessment. These data may be useful in developing and refining resource management plans and providing guidance for other management activities. Given the widespread concern over sagebrush-associated species in Nevada, exemplified by the genesis of the Great Basin Restoration Initiative (USDI BLM 1999), such data may help reveal regional-scale patterns of habitat conditions that also influence more localized habitats. In particular, our analyses provide information about sagebrush and other arid shrubland habitats that have been, or are predicted to be, compromised by widespread threats, such as displacement by cheatgrass.

The following report contains a variety of summaries, including:

- Area of cover type (amount and percentage) by Field Office;
- Risk of displacement of sagebrush cover types by pinyon-juniper woodlands within Field Offices;
- Risk of displacement of native vegetation by cheatgrass within Field Offices;
- Risk of displacement of native vegetation by cheatgrass, categorized by primary landowner or land manager in Nevada;
- Risk of cheatgrass displacement of habitat for greater sage-grouse by Field Office;
- Risk of displacement of sagebrush habitats for greater sage-grouse by pinyon-juniper woodlands in a portion of Nevada; and
- Habitat area (amount and percent) at risk of displacement by cheatgrass, summarized for each of 40 species of conservation concern by Field Office.

Other data summarized for the state of Nevada and reported in the complete Great Basin-Nevada prototype document (Wisdom et al. 2003) include:

- Area (amount and percent) of cover types in Nevada (Table 3.3);
- Area (amount and percent), by land cover type, burned in Nevada from 1994-2001 (Table 3.4);
- Estimated risk of cheatgrass displacement, by land cover type, in Nevada (Table 4.8);
- Area (amount and percent) of habitat for 40 species of concern within each species' range in Nevada, summarized for sagebrush and non-sagebrush habitats by risk of displacement by cheatgrass (Table 6.4);
- Summaries of watersheds (number and percent) in Nevada according to habitat abundance and habitat at risk of displacement by cheatgrass for each of 5 groups of species of conservation concern (Table 7.3); and
- Amount of habitat for each of 40 species of concern within their respective ranges in Nevada, summarized for sagebrush and non-sagebrush habitats by risk of displacement by cheatgrass (Appendix 4, Tables A4.41-A4.80).

Maps and other figures depicting data compiled specifically for the state of Nevada and presented in Wisdom et al. (2003) include:

- Number of wildland fires and area burned by decade (Fig. 3.1);
- Distribution of major land cover types (Fig. 3.2);
- Amount of habitat for species of concern (Fig. 6.2);
- Percentage of habitat composed of sagebrush for each species of concern (Fig. 6.4);
- Percentage of habitat at risk of displacement by cheatgrass for each species (Fig. 6.6);

- Watersheds in Nevada, for which habitat proportion and cheatgrass risk were summarized (Fig. 7.4);
- Maps of habitat abundance, habitat risk, and composite conditions for each of 5 groups of species of concern (Figs. 7.6, 7.8, 7.10, 7.12, and 7.14); and
- Maps of habitat for each species within its range in the Great Basin and Nevada, displaying risk of displacement by cheatgrass (Appendix 4, Figs. A4.1-A4.5)

METHODS

Methods used to quantify cover types and habitats at risk for species of concern are described in detail within the appropriate chapters of the Great Basin prototype assessment. A brief description of our methods is included below; the reader is referred to Wisdom et al. (2003) for more detail.

Vegetation

For our analyses of the amount of habitat, including sagebrush and other land cover types in the study area, we used the recently completed map referred to as "sagestitch" (Comer et al. 2002; map available at http://sagemap.wr.usgs.gov/). This map was produced with a 90-m grid and was based on existing vegetation, elevation, and soils data available throughout the range of sagebrush (eastern Washington, Oregon, Nevada, and California, eastward through central Colorado and eastern Wyoming and Montana). Sources for the map included the most recent GAP analysis land cover data for several states (e.g., Colorado, California) and regional land cover characterizations developed by the USDA Forest Service (Comer et al. 2002). The sagestitch map was developed explicitly for regional habitat assessment in the sagebrush biome of the Intermountain West. Although sagebrush cover types were the focus of the mapping effort, other cover types, or land cover themes, also were mapped.

Prior to quantifying the amount of habitat by cover type, we reclassified areas in Nevada that have experienced large-scale fires since 1994 as "recently burned" to replace the original cover types present before the fires. This update of recent fires was made with a GIS layer from Region 4 of the U.S. Forest Service, was compiled from several sources (e.g., existing historical data, digitized hard copy maps, and aerial photographs), and includes fires from 1981-2001. For our analyses, however, we used only the fire polygon data from 1994-2001, because the sagestitch map accounted for fires prior to 1994. Moreover, the amount of habitat burned in this region, especially sagebrush, increased dramatically beginning in 1994. Any area in a fire polygon from 1994-2001, regardless of previously existing land cover type, was recoded as "recently burned" and reported as such in our summaries.

Vegetation at Risk

Area at Risk of Displacement by Pinyon-Juniper—A model for mapping estimated risk of displacement of sagebrush cover types by pinyon and juniper woodlands was developed for our prototype assessment (Chapter 4). This model applies to any pinyon or juniper land cover type delineated in the sagestitch map, specifically: pinyon-juniper, pinyon pine (primarily single leaf pinyon, *Pinus monophylla*), Utah juniper (*Juniperus osteosperma*), and western juniper (*J. occidentalis*). The model was applied to 3 ecological provinces in the Great Basin: Bonneville,

Central High, and High Calcareous; however, only a small portion of the Bonneville Ecological Province lies within Nevada (Figures 1, 2). The decision to apply the model to only 3 of the 14 ecological provinces that occur in Great Basin ecoregion was related to the apparently less accurate classification of pinyon-juniper woodland types in some regions of the Basin, based on the sagestitch map. As more accurate land cover maps become available (e.g., the mid-scale map under development; see Comer et al. 2000), the pinyon-juniper model may be applied to other portions of the Great Basin.

Risk was assigned to 3 categories: low, moderate, or high. All sagebrush cover types were assumed to be at some risk of displacement by pinyon-juniper; thus, the only areas classified as "no risk" were those occupied by other (i.e., non-sagebrush) cover types. Data on habitat at risk of displacement by pinyon-juniper in this report includes only the Nevada portion of the 3 provinces. Results are reported by risk category for individual cover types (e.g., black sagebrush, *A. nova*), summarized by Field Office. Total risk also is presented for sagebrush on BLM-managed lands versus other lands within Field Offices.

Area at Risk of Displacement by Cheatgrass—A model estimating risk of displacement of sagebrush and other native vegetation cover types by cheatgrass was developed for our prototype assessment (see Chapter 4). This model was applied to the 14 ecological provinces that intersect the Great Basin (Figure 1). In addition to the 8 sagebrush cover types that occur in the Great Basin, other vegetation types also were considered susceptible to invasion by cheatgrass, including bitterbrush (*Purshia tridentata*), juniper, mixed desert scrub, salt desert scrub, and spiny hopsage (*Grayia spinosa*).

The rule set developed for the cheatgrass model was topographically driven and based on cover type, ecological province, elevation, aspect, slope, and occurrence of vegetation on valley floors. Risk was assigned to 1 of 3 categories, as in the pinyon-juniper model: low, moderate, or high. All susceptible vegetation types were assumed to be at some risk of displacement by cheatgrass; thus, the only areas with no risk were those occupied by other (i.e., non-susceptible) vegetation cover types. Field sampling to evaluate both the cheatgrass and pinyon-juniper models was initiated in summer 2003, with extensive sampling throughout 3 ecological provinces and more intensive sampling at selected sites.

Results for habitats at risk from cheatgrass are reported by risk category for sagebrush versus other susceptible native vegetation on BLM lands, summarized by Field Office (hereafter, "BLM lands" refers to lands managed by the BLM). Risk also is presented for sagebrush on non-BLM lands, and for all vegetation, within each Field Office. And finally, summaries are presented for all primary landowners in Nevada by risk category (none, low, moderate, or high).

Habitats for Species of Concern

For the prototype assessment, data were compiled on habitats for each of the 40 species of concern (Table 1) within each species' range at both spatial extents (i.e., Great Basin and Nevada; see Chapter 6). For this report, these data also were compiled and presented by Field Office. For greater sage-grouse, further discrimination was made between sagebrush habitats on BLM lands versus other lands, and between sagebrush and all habitats on BLM lands, by Field Office.

In brief, our methods for quantifying habitats for species at any spatial extent were as follows. Species range maps were obtained from a variety of sources (see Chapter 5); the range map for greater sage-grouse used in this report was produced by M. Schroeder (Schroeder 2000).

The amount of habitat reported for any species may vary according to the extent of the species' range in the assessment area, the number of cover types identified as habitat, and the extent of those cover types in the analysis area.

To quantify habitat, we first identified the habitats described in the sagestitch map that were associated with each species, based on literature review and consultation with species experts (see Chapter 6 for details on developing habitat associations). Habitats associated with each species were considered to be "source habitats;" that is, habitats believed to contribute to increasing or stationary population growth rates, and not simply habitats associated with species occurrence (Wisdom et al. 2000). Using these species-source habitat associations, each pixel of habitat within each species' range at the appropriate spatial extent (e.g., Field Office) was summed to determine total habitat present.

For risk calculations, we used results from the cheatgrass model (Chapter 4) to estimate the amount of habitat at risk from this threat for each species. Using the methods for quantifying total habitat as described above, we calculated the amount of habitat within each of the risk categories (i.e., none, low, moderate, or high) for cheatgrass, summarized by Field Office. For greater sage-grouse, we also report habitat at risk by cheatgrass for sagebrush on BLM-managed versus other lands. For habitats at risk from pinyon-juniper, we did not calculate summaries for Nevada alone, nor by Field Office, with the exception of sage-grouse. Rather, the pinyon-juniper model results were summarized for each of the 40 species across the 3 ecological provinces in eastern Nevada and western Utah in which the model was run (see Table 6.5, Wisdom et al. 2003).

RESULTS

Vegetation

In Nevada, 8 sagebrush cover types combined extend across 36%, or >10.1 million ha (24.9 million acres), of the state (Table 2b). More than 7.2 million ha (17.8 million acres), or 71%, of sagebrush in the state, occurs on BLM lands. The 2nd most abundant type was salt desert scrub, covering 22%, or 6.2 million ha (15.2 million acres) of Nevada (Table 2b). Pinyon-juniper cover types also were common, totaling 10% of Nevada. More than 4% of Nevada--1.2 million ha (3.1 million acres)--has burned since 1994. Most of the fires have occurred in the Winnemucca and Elko Field Offices, where 476,000 ha (1,176,000 acres) and 413,000 ha (1,020,523 acres) have burned, respectively (Tables 2a, 2b). The recent burns extend over a larger percentage of these Field Offices than the state as a whole: 11% of the Winnemucca Field Office, and 8% of the Elko Field Office, was coded as "recently burned" in our analyses.

The 3 largest Field Offices in Nevada—Battle Mountain, Ely, and Elko—also contained the most sagebrush. The Elko Field Office, though the smallest of the 3, had the most sagebrush (3.0 million ha [7.5 million acres]), followed by Ely and Battle Mountain (Table 2b). This pattern was reflected in the percentage of the Field Office occupied by sagebrush, which was 61% for Elko, followed by 40% for Ely and 35% for Battle Mountain. The 2 smallest Field Offices, Surprise and Eagle Lake, had the largest percentage of total area in sagebrush, 88% and 63%, respectively (Table 2a).

Statewide, Wyoming-basin big sagebrush (*A. tridentata wyomingensis-A. t. tridentata*) was the most abundant sagebrush type (nearly 60% of all sagebrush in the state), followed by black sagebrush and mountain big sagebrush (*A. t. vaseyana*; Table 2b). This pattern was

repeated in most BLM Field Offices, with Wyoming-basin big sagebrush the dominant sagebrush type in every Field Office, and mountain big sagebrush or black sagebrush the 2nd or 3rd most abundant types in 4 Field Offices: Battle Mountain, Elko, Ely, and Las Vegas (Tables 2a, 2b). In the 4 remaining Field Offices, low sagebrush replaced black sagebrush as the 2nd (Carson City, Eagle Lake, and Surprise) or 3rd (Winnemucca) most abundant type.

Vegetation at Risk

Area at Risk of Displacement by Pinyon-Juniper—Portions of 4 of the 8 BLM Field Offices in Nevada occur within the 3 ecological provinces for which the pinyon-juniper model was run. Varying percentages of the sagebrush in these Field Offices fell within the boundaries of the 3 provinces: Ely (85%), Battle Mountain (67%), Elko (15%), and Carson City (2%) (Figure 2). Because of the very small percentage of the Carson City Field Office for which we have results from the pinyon-juniper model, we excluded this Field Office from the following analyses and discussion.

Percentages of sagebrush in each of the categories of risk were similar among the 3 Field Offices, and ranged as follows: low risk, 58.1-63.6%; moderate risk, 3.6-5.5%; and high risk, 32.3-36.4% (Table 3, Figure 2). The relatively small percentage at moderate risk of displacement was a reflection of the threshold effect incorporated in the pinyon-juniper model, by which transitioning from moderate to high risk was very likely for sagebrush in locations with suitable conditions (e.g., proximity to existing pinyon-juniper, precipitation from 25 to 40 cm; Chapter 4).

The degree of risk across sagebrush cover types varied, a reflection of the rule sets as they applied to different cover types and locations. In general, low sagebrush, whether alone or in combination with mountain big sagebrush, was at highest risk among the sagebrush types (Table 3). More than 80% of the low sagebrush was at moderate or high risk of displacement by pinyon-juniper, and 65% of the low sagebrush-mountain big sagebrush was at moderate or greater risk (Table 3). This pattern, however, was not universal across Field Offices. For example, only 58% of the low sagebrush in the Elko Field Office was at moderate or high risk. Note that these types (low sagebrush and low sagebrush-mountain big sagebrush) composed only a small fraction (<2%) of the total sagebrush modeled. Thus, despite having a relatively large proportion of their total extent in moderate or high risk, the absolute amount of sagebrush at moderate or high risk for these types was low (34,700 ha, or 85,700 acres). This combination of high risk and relatively small area may jeopardize the continued existence of these types in certain locales. Taking into account the total area at moderate or high risk, the Wyoming-basin big sagebrush type was most at risk, with nearly 600,000 ha (1.48 million acres) at moderate or greater risk (Table 3).

Overall, black sagebrush and Wyoming-basin big sagebrush were the types with the least risk, based on proportion of the type at risk, with 64 and 68%, respectively, in the low risk category (Table 3). Again, this pattern varied across Field Offices. In Elko Field Office, for example, low sagebrush-Wyoming big sagebrush and mountain big sagebrush had the least risk (79 and 75% in low risk, respectively). Patterns of risk in the Ely Field Office resembled those in Battle Mountain, with black and Wyoming-basin big sagebrush at least risk (Table 3).

Across the 3 Field Offices analyzed for pinyon-juniper risk, Ely had the largest amount of sagebrush at high risk of displacement from pinyon-juniper, with >570,000 ha (>1.41 million acres; Table 3, Figure 2). Although the majority (57%) of sagebrush at high risk in this Field

Office was Wyoming-basin big sagebrush, nearly 26% was black sagebrush. Assuming that the 15% of the Field Office upon which the model was not run had the same patterns of risk, the total amount of sagebrush at high risk of displacement from pinyon-juniper woodlands in the Ely Field Office was approximately 670,000 ha (1.66 million acres). Battle Mountain Field Office also had a large absolute amount of sagebrush at high risk, with nearly 470,000 ha (1.16 million acres) in this category. Again, Wyoming-basin big sagebrush composed most (41%) of the sagebrush at high risk; however, mountain big sagebrush contributed nearly as much, with 39% of the high-risk sagebrush in this Field Office (Table 3). Once again assuming that the sagebrush in this Field Office that was not modeled had risk patterns similar to that in the remainder of the Field Office, altogether about 697,000 ha (1.72 million acres) of sagebrush was potentially at high risk, slightly exceeding the amount in the Ely Field Office.

The Elko Field Office had comparatively less sagebrush at high risk, with 163,000 ha (402,000 acres). However, only 15% of the sagebrush in this Field Office fell within the area in which the pinyon-juniper model was run. The percentage of sagebrush at high risk, 36.3%, was comparable to that for the other 2 Field Offices. Unlike those Field Offices, black sagebrush composed most (56%) of the sagebrush at high risk (Table 3).

Of the sagebrush in the 4 Field Offices in Nevada for which we have results from the pinyon-juniper model, 2.8 million ha (6.9 million acres), or 80%, were on public lands managed by the BLM (Table 3). Because sagebrush occurs primarily on public lands, patterns of risk of displacement by pinyon-juniper on BLM lands resembled those for all lands, with about 32% in the high risk category, 3% in moderate risk, and 65% in low risk (Table 3). By contrast, sagebrush on non-BLM lands had relatively higher risk of displacement, with 45% at high risk and only 44% at low risk. One exception to this pattern was seen in the Elko Field Office, where sagebrush on BLM lands was at higher risk than that on other lands (Table 3). Only a small proportion (15%) of the sagebrush in this Field Office, however, was within the boundaries of the ecological provinces on which the model was run.

Area at Risk of Displacement by Cheatgrass—The cheatgrass model (estimating risk of displacement of sagebrush and other susceptible native vegetation types by cheatgrass) developed for our prototype was applied in 14 ecological provinces that encompass the entire state of Nevada (Figure 1). Statewide, risk of displacement of all native vegetation from cheatgrass was as follows: no risk (i.e., land cover type not susceptible to cheatgrass) – 21%; low risk – 34%; moderate risk – 19%; and high risk – 27% (Table 4.8 in Wisdom et al. 2003; Figure 3). Risk for the 8 sagebrush cover types alone (i.e., excluding other native, susceptible types) was somewhat less, although no sagebrush was considered to be at no risk (i.e., all sagebrush was modeled as low, moderate, or high risk): low – 57%; moderate – 29%; and high – 14%. For the non-sagebrush susceptible vegetation, risk was considerably higher: low - 31%; moderate – 19%; and high – 50% (Table 4.8). This disparity was related primarily to the cheatgrass rule set, in which vegetation at lower elevations was at higher risk (see Chapter 4); much of the expansive salt desert scrub and shadscale in Nevada occurs at these lower elevations.

Risk varied among vegetation cover types, both within the sagebrush types and the other native, susceptible types (Table 4.8). Among the 8 sagebrush types, Wyoming-basin big sagebrush was most at risk, with 22% at high risk. This cover type was also at highest risk in terms of absolute area, with >1.26 million ha (3.11 million acres) in Nevada in this category. The second largest amount of sagebrush at high risk was in black sagebrush, but with considerably less area (104,000 ha [257,000 acres]) compared to Wyoming-basin big sagebrush.

Mountain big sagebrush had the lowest percentage area in high risk (1%) among the sagebrush types in Nevada, with the exception of threetip sagebrush (*A. tripartita*), which occurs in only trace amounts in the state.

As mentioned previously, a larger percentage of susceptible, non-sagebrush vegetation was found to be at high risk compared to sagebrush. Salt desert scrub was most at risk in Nevada (79% at high risk); this type also composed the largest absolute amount of vegetation at high risk of displacement from cheatgrass, with >4.8 million ha (12.02 million acres; Table 4.8). Spiny hopsage had the second highest degree of risk (68% at high risk), but composed only 7% of the non-sagebrush at high risk (94,000 ha [232,000 acres]; Table 4.8). Shadscale was also at high risk of displacement, with 48% of this type at high risk, covering >420,000 ha (1.05 million acres).

Among the 8 Field Offices in Nevada, Winnemucca had the highest degree of risk of displacement of native vegetation from cheatgrass, with 41% at high risk, followed by Carson City (31%) and Las Vegas (29%; Table 4). In terms of absolute amount of vegetation at high risk, Winnemucca also had the greatest amount, with 1.83 million ha (4.52 million acres), followed by Battle Mountain (1.46 million ha [3.61 million acres]) and Ely (1.24 million ha [3.06 million acres]).

Considering only sagebrush at risk from cheatgrass on BLM lands, Ely had the greatest degree of risk (24% at high risk), followed by Winnemucca (19%) and Elko (14%). In terms of amount of sagebrush, Ely also had the greatest area in the high-risk category (450,000 ha [1.11 million acres]), followed by Elko and Winnemucca (Table 4).

For all sagebrush on BLM lands in Nevada (7.2 million ha [17.8 million acres]), the majority (53%) was at low risk, 15% at high risk, and 32% at moderate risk (Table 4). By contrast, for the non-sagebrush cover types considered susceptible to risk of displacement, the majority (51%) was at high risk, and only 27% was at low risk (Table 4). This contrasting pattern of risk (i.e., sagebrush versus other susceptible vegetation) on BLM lands resembled that for vegetation on all lands, as discussed previously (also see Chapter 4). Compared to other land ownerships, sagebrush on BLM lands was at slightly higher risk of displacement by cheatgrass, with 47% at moderate or greater risk, versus 34% on non-BLM lands (Table 4). This trend was also seen for other susceptible, non-sagebrush vegetation: 73% was at moderate or greater risk on BLM lands, versus 61% on non-BLM lands.

Comparison Among Landowners and Land Managers of Vegetation at Risk from Cheatgrass—Among the primary landowners in Nevada, vegetation on lands managed by the Departments of Energy and Defense were most at risk of displacement by cheatgrass (42 and 41% at high risk, respectively; Table 5, Figure 4). Other lands at comparatively high risk were those managed by the USDI Fish and Wildlife Service (34%), BLM (29%), private landowners (29%), and USDA Forest Service (28%). Although 29% of state lands were at high risk from cheatgrass, state lands compose <1% of Nevada, and are thus a minor component of habitat at risk from cheatgrass within the state.

Considering both the percentage and absolute amount of land at high risk, the BLM clearly manages the majority of high-risk habitat in Nevada; >70%, or 5.6 million ha (13.8 million acres), of the vegetation at high risk of cheatgrass displacement in Nevada is on BLM lands (Table 5). Private lands compose the second largest amount of high-risk habitat, with >1 million ha (2.5 million acres). The Department of Defense also manages a substantial amount of habitat at high risk from cheatgrass, with >500,000 ha (1.2 million acres; Table 5).

Vegetation with least risk from cheatgrass was on lands managed by the Fish and Wildlife Service (54% at no risk), Forest Service (40%), and private landowners (31%; Table 5, Figure 4). In terms of absolute amount, BLM manages the majority of no-risk habitat (>3.3 million ha [8.1 million acres]); private lands were also important, with >1.1 million ha (2.7 million acres) in Nevada at no risk from cheatgrass.

Habitats for Species of Concern

Amount of Habitat—Habitat summaries for each of the 40 species of concern (e.g., total habitat, and amount and percentage of habitat by risk category) were reported for the entire state of Nevada in Chapter 6 and in Tables A4.41-A4.80 of Wisdom et al. (2003). Species with the most abundant habitat included those with large geographic ranges, such as striped whipsnake, Swainson's hawk, and western burrowing owl (Fig. 6.2). Mean amount of habitat for species (n = 40) in Nevada was 15.1 million ha (37.3 million acres). Statewide, the dominant category for risk of habitat displacement by cheatgrass was low risk ($\bar{x}$ = 35%), followed by high risk ($\bar{x}$ = 28%). However, more than half (n = 21) of the species of concern in Nevada had >50% of their habitat at moderate or greater risk (Fig. 6.6; Table 6.4).

As expected, larger Field Offices (e.g., Battle Mountain) contained more habitat for species of concern than smaller ones (e.g., Eagle Lake; Tables 8-16). Exceptions occurred, however, depending on the habitats associated with each species (e.g., salt desert scrub versus sagebrush cover types), the relative abundance of those cover types among Field Offices, and the overlap of species' ranges with Field Office boundaries. For example, 16 species (40%) had more habitat in Battle Mountain, the largest Field Office, than in any other (Table 16). Elko, although the 3rd largest Field Office, had the most habitat for 11 species, whereas Ely, ranked 2nd in area, had the most habitat for only 5 species (Table 16).

Field Offices with both large areas and high percentages of sagebrush habitats, such as Battle Mountain, Elko, and Ely, tended to provide the greatest amount of habitat for species in the sagebrush group (see Chapter 7 for descriptions of groups of species used in our assessment), such as Brewer's sparrow, sage thrasher, greater sage-grouse, and vesper sparrow (Tables 8, 11, 12, 16). Habitat for 7 of the 8 species in the salt desert scrub group was most abundant in the Las Vegas Field Office, where not only salt desert scrub was relatively abundant, but also creosote-bursage (Tables 2a, 16). This latter cover type was identified as source habitat for many species in the salt desert scrub group (Table 6.1).

Species in the sagebrush-woodland group were associated with a variety of shrublands in addition to pinyon and juniper cover types. Pinyon-juniper woodlands are most abundant in Nevada in the Battle Mountain and Ely Field Offices (Tables 2a, b). Consequently, habitat for species in the sagebrush-woodland group (e.g., gray flycatcher, Merriam's shrew, and sagebrush vole) also tended to be most abundant in these Field Offices (Table 16).

Among species of conservation concern in Nevada, habitat for greater sage-grouse encompassed about 8.7 million ha (21.5 million acres) within the species' current range in Nevada (Table A4.41; Figure 5). More than 95% of this habitat was sagebrush, primarily Wyoming-basin big sagebrush; however, substantial habitat occurred in mountain big sagebrush and black sagebrush communities (Table A4.41). Only a small percentage of sage-grouse habitat was composed of vegetation other than sagebrush (bunchgrass and wet meadows; Table A4.41, Figure 5). Most (71%) habitat for sage-grouse in Nevada was on public lands managed by the BLM (Table 7).

For the 7 Field Offices within the current range of sage-grouse in Nevada (all but Las Vegas), Elko had by far the most habitat for the species, with >3.1 million ha (7.7 million acres; Table 7). Battle Mountain, Ely, and Winnemucca also had substantial amounts of sage-grouse habitat, with each Field Office supporting >1.3 million ha (3.2 million acres). The percentage of sage-grouse habitat on BLM lands in each Field Office mirrored that state-wide, and ranged from 59% in Carson City to 96% in Eagle Lake (Table 7). The Carson City Field Office contains >290,000 ha (716,000 acres) of habitat for sage-grouse; this Field Office includes birds in the Mono Basin population (Table 7).

As for sage-grouse, habitat for pygmy rabbit was most abundant in the Elko Field Office (3.4 million ha [8.4 million acres]); however, Winnemucca also contained large amounts of habitat for this species (2.0 million ha [4.9 million acres]; Tables 11, 15, 16). The pygmy rabbit, like sage-grouse, is highly dependent on sagebrush habitats; >80% of its habitat in Nevada was composed of sagebrush, primarily Wyoming-basin big sagebrush and mountain big sagebrush (Table A4.47). Habitat for western burrowing owl, which is considered a "sensitive species" by several agencies and organizations (Table 1), was most abundant in the Battle Mountain Field Office, closely followed by Elko (Table 16).

Habitat at Risk of Displacement by Pinyon-Juniper—Greater sage-grouse habitat at risk of displacement by pinyon-juniper woodlands was evaluated within the current range of sage-grouse in the 3 ecological provinces on which the model was run: Bonneville, Central High, and High Calcareous (Figure 2). Of the 3.3 million ha (8.1 million acres) of sagebrush habitat for sage-grouse in this area, 34% was at high risk, 5 % at moderate risk, and 61% at low risk (Table 6). Among the various sagebrush land cover types used as habitat, Wyoming-basin big sagebrush encompassed the largest amount of habitat at high risk (523,000 ha [1,292,000 acres]; Table 6). Although separate summaries for sage-grouse habitat at risk of displacement by pinyon-juniper for each Field Office were not completed, these patterns should resemble those seen in the Field Office results for all sagebrush at risk (Table 3), owing to the nearly complete reliance of sage-grouse on sagebrush for habitat.

Habitat at Risk of Displacement by Cheatgrass—Among Field Offices, patterns of habitat at risk of displacement by cheatgrass for the 40 species in our assessment followed those for vegetation at risk described above. For example, the Winnemucca Field Office had the greatest amount of habitat at high risk from cheatgrass displacement for 18 species (45%), the most of any Field Office, including western burrowing owl, black-throated sparrow, pronghorn, and sagebrush lizard (Tables 8-15). These species tended to be those in the shrubland or generalist group of species (Chapter 7). Ely and Battle Mountain also had substantial amounts of high-risk habitat, ranking 1st for 8 and 7 species, respectively. These species tended to be in the sagebrush (Ely) and salt desert scrub (Battle Mountain) species groups (Tables 8-15).

Across the range of greater sage-grouse in Nevada, the majority of habitat (60%) was at low risk of displacement by cheatgrass, 25% was at moderate risk, 14% was at high risk, and only a trace (in wet meadow) was at no risk (Table 7). Because most habitat for sage-grouse is sagebrush, these percentages resembled those for sagebrush vegetation at risk of displacement by cheatgrass across Nevada (Table 4.8). Field offices with the greatest amounts of sage-grouse habitat at high risk were Elko (514,000 ha [1,270,000 acres]), Winnemucca (334,000 ha [825,000 acres]), and Ely (212,000 ha [24,000 acres]); this pattern was not surprising, given the relative abundance of sage-grouse habitat in these areas (Table 7). In terms of degree of risk, Winnemucca had the highest percentage of sage-grouse habitat at high risk (24%), followed by Elko (16%) and Ely (14%). Carson City, where birds of the Mono Basin population occur, had a

moderate degree of risk, with nearly half (48%) of habitat for sage-grouse in this Field Office at low risk and 13% at high risk (Table 9).

The risk of displacement of sage-grouse habitat by cheatgrass on BLM lands versus other lands varied across Field Offices (Table 7). In Battle Mountain and Ely, risk was substantially lower on other lands versus BLM lands, with about half the percentage of habitat at low risk on BLM lands. In the Carson City Field Office, risk was somewhat lower on other lands, and in the remaining Field Offices, percentage of sage-grouse habitat at low risk was similar between BLM lands and other lands (Table 7).

About 35% (519,000 ha [1,282 acres]) of the high-risk habitat for pygmy rabbit was in the Elko Field Office; substantial amounts also occurred in Winnemucca and Ely (Tables 11, 12, 15). Habitat for pygmy rabbit at moderate risk was most abundant in the Ely Field Office (Table 12). Western burrowing owl had the largest amount of its high-risk habitat in Winnemucca, followed closely by Battle Mountain (Tables 8, 15).

MANAGEMENT IMPLICATIONS

Sagebrush habitats are of special concern in current land management in Nevada, due to their high vulnerability to displacement by cheatgrass and pinyon-juniper woodlands. Nevada supports >10.1 million ha (24.9 million acres) of sagebrush, more than any other state. Of this vast amount, 72% is on lands managed by the BLM. Thus, effective and prudent management of sagebrush on BLM lands in Nevada is critical to maintenance of the sagebrush ecosystem as a whole in the Intermountain West. Very little sagebrush in Nevada occurs on lands protected outright from degradation by disturbances such as energy development or inappropriate livestock grazing (Table 5).

Mapping of threats in the sagebrush ecosystem, as accomplished for our prototype assessment, allows managers to identify areas of sagebrush at high risk of displacement, where active restoration may be required, versus areas at low risk, where conservation of existing habitats may be preferable. Although a clear majority of the native vegetation at high risk to displacement by cheatgrass occurs on lands managed by BLM, a substantial amount of high-risk habitat also occurs on private lands. Private lands in Nevada often adjoin lands managed by federal agencies, including the U.S. Forest Service, BLM, and Department of Defense. Effective management of habitats at high risk to cheatgrass will require extensive cooperation and collaboration between federal agencies and private landowners. Such collaboration is already underway, under the auspices of GBRI (USDI BLM 1999) and working groups such as the Eastern Nevada Landscape Coalition (http://www.envlc.org/home.htm).

Perhaps more important than managing high-risk habitats, which may already have transitioned to cheatgrass-dominated understories, is managing moderate-risk habitats. These habitats have likely not yet passed the threshold beyond which restoration to native conditions is very costly and difficult to achieve (Chapter 4). In Nevada, >4 million ha (9.9 million acres) of vegetation at moderate risk is on BLM-managed lands, and >500,000 ha (>1.2 million acres) is on private lands. Again, intensive collaboration between federal land management agencies and private landowners will improve efficiency in restoration of degraded native shrublands and may increase the probability of success in preventing native habitats from transitioning into the cheatgrass-wildfire cycle.

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Table 1. Forty species of conservation concern identified for regional assessment in the Great Basin and Nevada and their current status under selected conservation criteria.[a]

Common name	Scientific name	NV sensitive animal list[b]	USFWS[c]	NV BLM sensitive species[d]	NV PIF priority species[e]
Amphibians:					
Great Basin spadefoot	*Scaphiopus intermontanus*				
Reptiles:					
Great Basin collared lizard	*Crotaphytus insularis*				
Long-nosed leopard lizard	*Gambelia wislizenii*				
Desert horned lizard	*Phrynosoma platyrhinos*				
Common sagebrush lizard	*Sceloporus graciosus*				
Desert spiny lizard	*Sceloporus magister*				
Nightsnake	*Hypsiglena torquata*				
Striped whipsnake	*Masticophis taeniatus*				
Long-nosed snake	*Rhinocheilus lecontei*				
Groundsnake	*Sonora semiannulata*				
Birds:					
Ferruginous hawk	*Buteo regalis*	X	xC2	X	X
Swainson's hawk	*Buteo swainsoni*	X		X	X
Northern harrier	*Circus cyaneus*				
Prairie falcon	*Falco mexicanus*			X	X
Greater sage-grouse	*Centrocercus urophasianus*	X		X	X
Short-eared owl	*Asio flammeus*			X	X
Western burrowing owl	*Speotyto cunicularia hypugaea*	X	xC2	X	X
Gray flycatcher	*Empidonax wrightii*				X
Sage thrasher	*Oreoscoptes montanus*				X
Loggerhead shrike	*Lanius ludovicianus*			X	X
Sage sparrow	*Amphispiza belli*				X
Black-throated sparrow	*Amphispiza bilineata*				
Lark sparrow	*Chondestes grammacus*				
Green-tailed towhee	*Pipilo chlorurus*				

Table 1. Forty species of conservation concern identified for regional assessment in the Great Basin and Nevada and their current status under selected conservation criteria.[a]

Common name	Scientific name	NV sensitive animal list[b]	USFWS[c]	NV BLM sensitive species[d]	NV PIF priority species[e]
Vesper sparrow	*Pooecetes gramineus*			X	X
Brewer's sparrow	*Spizella breweri*				X
Brewer's blackbird	*Euphagus cyanocephalus*				
Mammals:					
Merriam's shrew	*Sorex merriami*	X[f]			
Kit fox	*Vulpes macrotis*				
Pronghorn	*Antilocapra americana*				
Wyoming ground squirrel	*Spermophilus elegans nevadensis*				
Merriam's kangaroo rat	*Dipodomys merriami*				
Chisel-toothed kangaroo rat	*Dipodomys microps*				
Ord's kangaroo rat	*Dipodomys ordii*				
Dark kangaroo mouse	*Microdipodops megacephalus*	X[g]	xC2	X[g]	
Little pocket mouse	*Perognathus longimembris*				
Northern grasshopper mouse	*Onychomys leucogaster*				
Sagebrush vole	*Lemmiscus curtatus*				
White-tailed jackrabbit	*Lepus townsendii*				
Pygmy rabbit	*Brachylagus idahoensis*	X[f]	xC2	X	

[a] See Table 5.1 in Wisdom et al. (2003) for Nevada state rankings assigned by NatureServe Explorer to each species.
[b] List produced by the Nevada Natural Heritage Program (NVNHP) (available online at http://heritage.nv.gov/sensanim.htm). Species on this list are those "whose long-term viability has been identified as a concern."
[c] xC2 = former Category-2 candidate, now "species of concern."
[d] Species in this list are those not already included as BLM Special Status Species (federally listed, proposed, or candidate species under the Endangered Species Act) or listed by the state of Nevada (Nevada BLM 2003). List also available online at http://www.nv.blm.gov/wildlife/wildlife.htm.
[e] Species found on the Nevada Partners in Flight Priority Species list ; note that only birds are included in this list. See Neel (1999) for specific habitats associated with each species.
[f] Species is on the NVNHP "watch list," which includes taxa that may qualify as sensitive animals in the future (list available online at http://heritage.nv.gov/watch.htm)
[g] Two subspecies of the dark kangaroo mouse, Desert valley (*M. m. albiventer*) and Fletcher (*M. m. nasutus*), are considered "sensitive species." These taxa are endemic to Nevada.

Table 2a. Cover types within the Carson City, Eagle Lake, Las Vegas, and Surprise Field Offices in Nevada.

	Field Office							
	Carson City		Eagle Lake		Las Vegas		Surprise	
Cover type	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Sagebrush:								
Black sagebrush	96,496	3	0	0	708	0	0	0
Low sagebrush	160,310	5	16,475	13	0	0	89,004	12
Low sagebrush - mountain big sagebrush	27,427	1	2,907	2	0	0	5,512	1
Low sagebrush - Wyoming big sagebrush	12,118	0	1,329	1	0	0	2,241	0
Mountain big sagebrush	98,820	3	8,405	7	1,819	0	38,542	5
Silver sagebrush	180	0	448	0	0	0	0	0
Threetip sagebrush	0	0	0	0	0	0	0	0
Wyoming – basin big sagebrush	228,692	6	51,477	40	409,533	10	521,490	70
Total sagebrush	624,043	18	81,041	63	412,060	10	656,790	88
Other vegetation:								
Agriculture	112,205	3	992	1	13,584	0	3,020	0
Ash	0	0	0	0	4,319	0	0	0
Aspen	816	0	0	0	36	0	0	0
Barren/Rock/Lava	220,569	6	919	1	26,657	1	6,476	1
Bitterbrush	125,709	4	5,361	4		0	9,125	1
Black greasewood	242,704	7	9,577	7	14,487	0	13,906	2
Blackbrush	0	0	0	0	649,506	16	0	0
Bunchgrass	41,473	1	943	1	37,155	1	13,375	2
Chaparral	2,438	0	0	0	0	0	0	0
Creosote-Bursage	0	0	0	0	1,241,191	31	0	0
Desert grassland	3,275	0	0	0	0	0	866	0
Dunes	8,573	0	0	0	411	0	0	0
Exotic	484	0	0	0	0	0	0	0
Forbland	467	0	0	0	338	0	0	0
Forest	57,162	2	0	0	27,773	1	0	0

Table 2a. Cover types within the Carson City, Eagle Lake, Las Vegas, and Surprise Field Offices in Nevada.

	Field Office							
	Carson City		Eagle Lake		Las Vegas		Surprise	
Cover type	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Marsh/Wetland	56,487	2	0	0	0	0	279	0
Mesic shrubs	0	0	0	0	0	0	0	0
Mesquite	0	0	0	0	7,313	0	0	0
Mountain mahogany	659	0	0	0	0	0	0	0
Mountain shrub	15,087	0	0	0	61,014	2	9,731	1
Pinyon juniper	58,373	2	0	0	89,461	2	0	0
Pinyon pine	243,335	7	0	0	41,811	1	0	0
Rabbitbrush	18,701	1	0	0		0	0	0
Recently burned	137,671	4	0	0	6,334	0	14,932	2
Riparian	14,894	0	21	0	6,208	0	240	0
Salt desert scrub	1,168,402	33	30,388	24	1,141,002	29	11,680	2
Saltbush	4,167	0	0	0	0	0	0	0
Shadscale	169,123	5	1	0	1,854	0	717	0
Snow/Ice	0	0	0	0	0	0	0	0
Spiny hopsage	39,403	1	0	0	16,952	0	0	0
Urban	75,242	2	0	0	94,869	2	0	0
Utah juniper	11,485	0	0	0	19,920	1	11	0
Water	80,487	2	2	0	32,461	1	1,972	0
Western juniper	0	0	0	0	0	0	0	0
Wet meadow	1,365	0	15	0	0	0	132	0
Winterfat	12,293	0	28	0	0	0	0	0
Total other vegetation	2,927,740	82	48,247	37	3,534,656	89	86,461	12
TOTAL AREA	3,551,783	100	129,288	100	3,946,716	100	743,252	100

Table 2b. Cover types within the Battle Mountain, Elko, Ely, and Winnemucca Field Offices, and statewide, in Nevada.

	Field Office								Nevada	
	Battle Mountain		Elko		Ely		Winnemucca			
Cover type	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Sagebrush:										
Black sagebrush	545,162	10	488,183	10	449,806	9	43,601	1	1,623,957	6
Low sagebrush	18,649	0	382,372	8	1,924	0	149,959	3	818,693	3
Low sagebrush - mountain big sagebrush	34,010	1	87,069	2	9,556	0	37,343	1	203,824	1
Low sagebrush - Wyoming big sagebrush	10,965	0	62,328	1	360	0	44,160	1	133,503	0
Mountain big sagebrush	384,502	7	518,669	10	264,523	5	256,746	6	1,572,027	6
Silver sagebrush	0	0	1,288	0	0	0	236	0	2,151	0
Threetip sagebrush	0	0	0	0	0	0	467	0	467	0
Wyoming - basin big sagebrush	918,616	17	1,481,876	30	1,360,397	26	830,837	19	5,802,919	20
Total sagebrush	1,911,905	35	3,021,784	61	2,086,566	40	1,363,349	30	10,157,539	36
Other vegetation:										
Agriculture	63,530	1	147,017	3	57,559	1	120,095	3	518,003	2
Ash	0	0	0	0	0	0	0	0	4,319	0
Aspen	10,879	0	74,030	1	7,133	0	9,999	0	102,893	0
Barren/Rock/Lava	92,300	2	27,916	1	31,242	1	346,614	8	752,693	3
Bitterbrush	1,882	0	40,711	1	761	0	10,637	0	194,185	1
Black greasewood	235,476	4	159,034	3	125,578	2	427,264	10	1,228,026	4
Blackbrush	26,371	0	0	0	271,572	5	0	0	947,449	3
Bunchgrass	56,532	1	133,586	3	78,159	1	167,766	4	528,987	2
Chaparral	0	0	0	0	0	0	0	0	2,438	0
Creosote-Bursage	11,321	0	0	0	193,577	4	0	0	1,446,090	5
Desert grassland	228	0	7,595	0	0	0	696	0	12,660	0
Dunes	754	0	0	0	0	0	9,427	0	19,165	0
Exotic	134	0	43	0	0	0	0	0	661	0
Forbland	2,000	0	1,800	0	3,221	0	0	0	7,826	0

Table 2b. Cover types within the Battle Mountain, Elko, Ely, and Winnemucca Field Offices, and statewide, in Nevada.

Cover type	Field Office								Nevada	
	Battle Mountain		Elko		Ely		Winnemucca			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Forest	24,465	0	29,292	1	102,719	2	62	0	241,472	1
Marsh/Wetland	1,408	0	22,736	0	17,221	0	16,455	0	114,586	0
Mesic shrubs	2,142	0	58	0	0	0	10	0	2,210	0
Mesquite	0	0	0	0	0	0	0	0	7,313	0
Mountain mahogany	1,831	0	0	0	0	0	0	0	2,490	0
Mountain shrub	38,347	1	126,888	3	121,892	2	29,656	1	402,615	1
Pinyon juniper	355,372	7	158,590	3	721,415	14	329	0	1,383,540	5
Pinyon pine	456,781	8	58,619	1	361,202	7	46	0	1,161,795	4
Rabbitbrush	5,510	0	7,683	0	5,305	0	1,209	0	38,408	0
Recently burned	146,773	3	412,891	8	53,981	1	476,190	11	1,248,772	4
Riparian	7,348	0	27,962	1	7,265	0	14,253	0	78,190	0
Salt desert scrub	1,543,073	28	321,579	6	708,047	13	1,236,147	28	6,160,318	22
Saltbush	18,611	0	7,593	0	11,058	0	833	0	42,262	0
Shadscale	360,589	7	92,596	2	60,286	1	194,006	4	879,172	3
Snow/Ice		0	2,304	0	565	0	7	0	2,877	0
Spiny hopsage	21,919	0	636	0	55,537	1	3,258	0	137,705	0
Urban	14,635	0	23,701	0	8,719	0	15,908	0	233,074	1
Utah juniper	16,006	0	29,350	1	128,657	2	31,631	1	237,060	1
Water	825	0	2,219	0	85	0	3,889	0	121,941	0
Western juniper	0	0	608	0	0	0	0	0	608	0
Wet meadow	523	0	8,925	0	786	0	1,548	0	13,294	0
Winterfat	20,092	0	17,415	0	33,323	1	2,790	0	85,941	0
Total other vegetation	3,537,661	65	1,943,376	39	3,166,864	60	3,120,724	70	18,361,037	64
TOTAL AREA	5,449,565	100	4,965,161	100	5,253,430	100	4,484,073	100	28,523,268	100

Table 3. Risk of displacement of sagebrush cover types by pinyon-juniper woodlands within Bureau of Land Management Field Offices in the state of Nevada, encompassing the High Calcareous, Central High, and Bonneville Ecological Provinces.

Sagebrush cover type	Risk category						Total[a]	
	Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Battle Mountain								
Black sagebrush	205,761.9	71.7	3,466.0	1.2	77,755.1	27.1	286,983.0	100.0
Low sagebrush	902.3	10.3	3,485.4	39.9	4,357.8	49.8	8,745.6	100.0
Low sagebrush - mountain big sagebrush	4,091.3	27.1	2,339.3	15.5	8,679.2	57.4	15,109.7	100.0
Low sagebrush - Wyoming big sagebrush	1,686.4	36.1	575.9	12.3	2,415.4	51.6	4,677.8	100.0
Mountain big sagebrush	103,919.0	30.6	51,756.6	15.3	183,701.5	54.1	339,377.0	100.0
Wyoming - basin big sagebrush	430,197.5	68.3	8,994.2	1.4	190,469.1	30.2	629,660.8	100.0
Total sagebrush – BLM lands	574,251.1	68.2	32,659.2	3.9	235,397.3	27.9	842,307.7	100.0
Total sagebrush – other lands	172,307.3	39.0	37,958.2	8.6	231,908.8	52.5	442,246.2	100.0
Total sagebrush – entire Field Office area	746,558.4	58.1	70,617.4	5.5	467,378.1	36.4	1,284,553.9	100.0
Elko								
Black sagebrush	91,586.7	49.0	2,937.1	1.6	92,423.4	49.4	186,947.2	100.0
Low sagebrush	1,871.9	42.6	1,749.6	39.8	776.8	17.7	4,398.3	100.0
Low sagebrush - mountain big sagebrush	3,389.0	37.1	89.1	1.0	5,658.7	61.9	9,136.8	100.0
Low sagebrush - Wyoming big sagebrush	5,536.4	79.2	156.3	2.2	1,301.7	18.6	6,994.4	100.0
Mountain big sagebrush	35,422.9	75.3	6,225.7	13.2	5,416.5	11.5	47,065.1	100.0
Wyoming - basin big sagebrush	132,700.7	67.7	5,150.0	2.6	58,171.0	29.7	196,021.6	100.0

Table 3. Risk of displacement of sagebrush cover types by pinyon-juniper woodlands within Bureau of Land Management Field Offices in the state of Nevada, encompassing the High Calcareous, Central High, and Bonneville Ecological Provinces.

	Risk category						Total[a]	
	Low		Moderate		High			
Sagebrush cover type	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Total sagebrush – BLM lands	209,103.9	57.6	9,468.1	2.6	144,438.4	39.8	363,010.4	100.0
Total sagebrush – other lands	61,403.7	70.1	6,839.6	7.8	19,309.6	22.1	87,552.9	100.0
Total sagebrush – entire Field Office area	270,507.6	60.0	16,307.7	3.6	163,748.0	36.3	450,563.3	100.0
Ely								
Black sagebrush	289,377.4	66.2	1,935.9	0.4	145,520.6	33.3	436,833.8	100.0
Low sagebrush	219.5	11.4	1,068.4	55.5	635.9	33.1	1,923.8	100.0
Low sagebrush - mountain big sagebrush	4,522.2	47.4	77.0	0.8	4,934.5	51.8	9,533.7	100.0
Low sagebrush - Wyoming big sagebrush	92.3	25.6		0.0	268.1	74.4	360.5	100.0
Mountain big sagebrush	106,668.9	40.9	61,792.5	23.7	92,034.6	35.3	260,496.0	100.0
Wyoming - basin big sagebrush	721,989.5	68.4	5,963.2	0.6	327,256.2	31.0	1,055,208.9	100.0
Total sagebrush – BLM lands	1,045,589.3	65.7	41,766.8	2.6	503,240.0	31.6	1,590,596.2	100.0
Total sagebrush – other lands	77,280.5	44.5	29,070.1	16.7	67,409.8	38.8	173,760.4	100.0
Total sagebrush – entire Field Office area	1,122,869.8	63.6	70,836.9	4.0	570,649.9	32.3	1,764,356.6	100.0
All Field Offices[b]								
Black sagebrush	587,556.2	64.4	8,350.3	0.9	316,978.9	34.7	912,885.4	100.0
Low sagebrush	2,993.8	19.9	6,303.4	41.8	5,770.4	38.3	15,067.6	100.0
Low sagebrush - mountain big sagebrush	12,172.7	34.9	2,505.3	7.2	20,160.9	57.9	34,838.9	100.0
Low sagebrush - Wyoming big sagebrush	7,315.1	60.7	732.2	6.1	3,996.5	33.2	12,043.9	100.0

Table 3. Risk of displacement of sagebrush cover types by pinyon-juniper woodlands within Bureau of Land Management Field Offices in the state of Nevada, encompassing the High Calcareous, Central High, and Bonneville Ecological Provinces.

Sagebrush cover type	Risk category						Total[a]	
	Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Mountain big sagebrush	246,318.6	37.8	120,724.8	18.5	284,316.5	43.6	651,359.9	100.0
Wyoming - basin big sagebrush	1,291,159.4	68.4	20,107.4	1.1	576,869.9	30.6	1,888,136.7	100.0
Total sagebrush – BLM lands	1,836,508.1	65.3	84,855.6	3.0	889,278.8	31.6	2,810,642.5	100.0
Total sagebrush – other lands	311,007.6	44.2	73,868.0	10.5	318,814.4	45.3	703,689.9	100.0
Total sagebrush – all Field Offices	2,147,515.7	61.1	158,723.6	4.5	1,208,093.1	34.4	3,514,332.4	100.0

[a] Totals in this column are reported only for the portion of each Field Office that lies within one or more of the 3 ecological provinces for which the pinyon-juniper model was applied, and not for the entire Field Office.
[b] Includes sagebrush in the Carson City Field Office which fell within the boundaries of the pinyon-juniper model, but was only 2% of the sagebrush in this Field Office overall.

Table 4. Risk of displacement of sagebrush and other susceptible native vegetation by cheatgrass within Bureau of Land Management Field Offices in Nevada.

Field Office	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Battle Mountain										
Sagebrush - BLM lands	0	0.0	644,492.7	47.1	596,939.2	43.6	127,655.2	9.3	1,369,087.1	100.0
Other susceptible vegetation - BLM lands	0	0.0	602,141.0	24.3	619,402.1	25.0	1,255,752.7	50.7	2,477,295.9	100.0
Total vegetation - BLM lands	383,409.5	9.1	1,246,633.7	29.5	1,216,341.4	28.8	1,383,407.9	32.7	4,229,792.5	100.0
Sagebrush - other lands	0	0.0	453,832.5	83.6	76,571.7	14.1	12,413.3	2.3	542,817.5	100.0
Total vegetation in Field Office	517,927.8	9.5	2,136,886.9	39.2	1,330,429.9	24.4	1,464,320.4	26.9	5,449,565.0	100.0
Carson City										
Sagebrush - BLM lands	0	0.0	205,484.0	54.9	129,287.3	34.5	39,660.0	10.6	374,431.4	100.0
Other susceptible vegetation - BLM lands	0	0.0	274,194.7	20.1	417,117.6	30.5	674,050.4	49.4	1,365,362.7	100.0
Total vegetation - BLM lands	312,021.7	15.2	479,678.8	23.4	546,404.9	26.6	713,710.4	34.8	2,051,815.9	100.0
Sagebrush - other lands	0	0.0	108,418.5	43.8	92,896.5	37.6	45,982.1	18.6	247,297.1	100.0
Total vegetation in Field Office	840,209.8	24.2	783,686.3	22.6	765,804.8	22.1	1,076,836.7	31.1	3,466,537.6	100.0
Eagle Lake										
Sagebrush - BLM lands	0	0.0	54,419	69.0	19,710	25.0	4,702	6.0	78,831	100.0

Table 4. Risk of displacement of sagebrush and other susceptible native vegetation by cheatgrass within Bureau of Land Management Field Offices in Nevada.

Field Office	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Other susceptible vegetation - BLM lands	0	0.0	54,419	69.0	19,710	25.0	4,702	6.0	78,831	100.0
Total vegetation - BLM lands	9,028	4.5	112,273	56.0	51,058	25.5	28,052	14.0	200,412	100.0
Sagebrush - other lands	0	0.0	1,529	69.2	668	30.2	12	0.5	2,210	100.0
Total vegetation in Field Office	11,555	5.6	113,994	54.8	53,155	25.5	29,415	14.1	208,118	100.0
Elko										
Sagebrush - BLM lands	0	0.0	1358378	69.6	323,213	16.6	271,258	13.9	1,952,849	100.0
Other susceptible vegetation - BLM lands	0	0.0	427761	48.4	160,722	18.2	295,929	33.5	884,412	100.0
Total vegetation - BLM lands	160,847	5.4	1786139	59.6	483,935	16.1	567,187	18.9	2,998,109	100.0
Sagebrush - other lands	0	0.0	740341	69.3	152,237	14.2	176,357	16.5	1,068,935	100.0
Total vegetation in Field Office	555,764	11.2	2820853	56.8	697,259	14.0	891,285	18.0	4,965,161	100.0
Ely										
Sagebrush - BLM lands	0	0.0	638,487	33.5	818,144	42.9	450,352	23.6	1,906,983	100.0
Other susceptible vegetation - BLM lands	0	0.0	885,486	43.2	422,409	20.6	740,091	36.1	2,047,987	100.0
Total vegetation - BLM lands	685,473	14.8	1,523,974	32.8	1,240,553	26.7	1,190,443	25.7	4,640,443	100.0

Table 4. Risk of displacement of sagebrush and other susceptible native vegetation by cheatgrass within Bureau of Land Management Field Offices in Nevada.

Field Office	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sagebrush - other lands	0	0.0	138,508	77.1	22,217	12.4	18,858	10.5	179,583	100.0
Total vegetation in Field Office	868,934	16.5	1,871,605	35.6	1,277,197	24.3	1,235,693	23.5	5,253,430	100.0
Las Vegas										
Sagebrush - BLM lands	0	0.0	3,263	18.6	12,318	70.2	1,964	11.2	17,545	100.0
Other susceptible vegetation - BLM lands	0	0.0	16,252	4.5	16,174	4.5	329,221	91.0	361,647	100.0
Total vegetation - BLM lands	1,087,679	74.1	19,515	1.3	28,492	1.9	331,186	22.6	1,466,872	100.0
Sagebrush - other lands	0	0.0	129,977	32.9	196,682	49.9	67,855	17.2	394,515	100.0
Total vegetation in Field Office	2,117,295	53.7	337,451	8.6	364,319	9.2	1,121,190	28.5	3,940,256	100.0
Surprise										
Sagebrush - BLM lands	0	0.0	421,922	97.0	13,267	3.0	0	0.0	435,189	100.0
Other susceptible vegetation - BLM lands	0	0.0	25,445	75.1	8,457	24.9	0	0.0	33,903	100.0
Total vegetation - BLM lands	11,015	2.3	447,367	93.2	21,724	4.5	0	0.0	480,106	100.0
Sagebrush - other lands	0	0.0	214,581	96.8	5,188	2.3	1,832	0.8	221,601	100.0

Table 4. Risk of displacement of sagebrush and other susceptible native vegetation by cheatgrass within Bureau of Land Management Field Offices in Nevada.

Field Office	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Total vegetation in Field Office	26,146	3.5	683,156	91.9	32,117	4.3	1,832	0.2	743,252	100.0
Winnemucca										
Sagebrush - BLM lands	0	0.0	524,160	48.1	361,028	33.1	204,058	18.7	1,089,246	100.0
Other susceptible vegetation - BLM lands	0	0.0	137,662	8.8	277,030	17.8	1,143,354	73.4	1,558,046	100.0
Total vegetation - BLM lands	660,668	20.0	661,822	20.0	638,058	19.3	1,347,412	40.7	3,307,959	100.0
Sagebrush - other lands	0	0.0	148,923	54.3	70,559	25.7	54,622	19.9	274,103	100.0
Total vegetation in Field Office	988,979	22.1	867,389	19.3	792,922	17.7	1,834,783	40.9	4,484,073	100.0
All Field Offices										
Sagebrush - BLM lands	0	0.0	3,850,606	53.3	2,273,907	31.5	1,099,649	15.2	7,224,162	100.0
Other susceptible vegetation - BLM lands	0	0.0	2,372,377	27.1	1,932,951	22.1	4,457,047	50.9	8,762,375	100.0
Total vegetation - BLM lands	3,310,142	17.2	6,222,984	32.2	4,206,857	21.8	5,556,696	28.8	19,296,679	100.0
Sagebrush - other lands	0	0.0	1,936,110	66.1	617,020	21.1	377,932	12.9	2,931,062	100.0
All vegetation in Nevada	5,926,811	20.8	9,560,603	33.6	5,293,495	18.6	7,650,653	26.9	28,431,561	100.0

Table 5. Vegetation at risk of displacement by cheatgrass in Nevada, summarized by primary landowner or land manager. (See text for definitions of risk categories of displacement by cheatgrass.)

Landowner/ Land manager	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total[a]	Ha	% total	Ha	% total	Ha	% total	Ha	% total[b]
Native American lands	284,181	12.3	1,819,435	78.9	172,589	7.5	31,034	1.3	2,307,239	8.1
BLM	3,325,975	17.2	6,240,581	32.2	4,224,020	21.8	5,580,085	28.8	19,370,661	68.3
Department of Defense	365,118	29.4	138,452	11.1	230,862	18.6	509,130	40.9	1,243,562	4.4
Department of Energy	118,261	28.1	78,579	18.7	47,735	11.4	175,544	41.8	420,119	1.5
USDI Fish and Wildlife Service	147,191	54.3	22,824	8.4	10,372	3.8	90,898	33.5	271,285	<1.0
USDA Forest Service	147,249	40.2	59,974	16.4	56,692	15.5	101,971	27.9	365,886	1.3
National Park Service	174,864	30.6	250,104	43.8	39,167	6.9	106,785	18.7	570,919	2.0
Other federal	71,384	75.8	9,838	10.4	3,261	3.5	9,751	10.3	94,234	<1.0
Private	1,167,874	31.3	965,553	25.9	531,028	14.2	1,064,621	28.5	3,729,076	13.1
State	334	65.2	4	1.0	28	5.4	147	28.6	512	<1.0
Total	5,808,148	20.5	9,585,345	33.8	5,315,758	18.7	7,676,356	27.0	28,373,493	100.0

[a] Percentages for risk category totals are based on the amount of vegetation in each risk category relative to the total amount of vegetation for each landowner (i.e., within each row of the table).
[b] Percentages are based on the total amount of vegetation for the landowner in relation to the sum of all vegetation in the state.

Table 6. Risk of displacement of sagebrush habitat for greater sage-grouse by pinyon-juniper woodlands in Nevada, encompassing the High Calcareous, Central High, and Bonneville Ecological Provinces.[a]

Sagebrush cover type	Risk category						Total[a]	
	Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Black sagebrush	546,492	64.1	8,350	1.0	297340	34.9	852183	100.0
Low sagebrush	3,914	21.1	8,635	46.5	6005	32.4	18553	100.0
Low sagebrush - mountain big sagebrush	11,632	34.3	2,505	7.4	19762	58.3	33899	100.0
Low sagebrush - Wyoming big sagebrush	7,309	60.8	732	6.1	3986	33.1	12027	100.0
Mountain big sagebrush	256,562	38.3	122,883	18.3	290913	43.4	670358	100.0
Wyoming - basin big sagebrush	1,186,938	68.2	30,277	1.7	523207	30.1	1740423	100.0
All sagebrush	2,012,847	60.5	173,383	5.2	1,141,214	34.3	3,327,444	100.0

[a] Includes a small portion of sage-grouse habitat in the Bonneville and High Calcareous Ecological Provinces in Utah.

Table 7. Risk of displacement of greater sage-grouse habitat by cheatgrass within Bureau of Land Management Field Offices in Nevada.[a]

Field Office/habitat	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Battle Mountain										
Sagebrush – BLM lands	0	0	443,550	41.7	501,098	47.1	120,223	11.3	1,064,870	100.0
Total habitat – BLM lands	96	0	4554,718	41.4	512,983	46.7	130,494	11.9	1,098,291	100.0
Sagebrush – other lands	0	0	445,514	83.7	74,603	14.0	12,118	2.3	532,235	100.0
Total habitat	518	0	905,154	55.1	589,257	35.9	146,645	8.9	1,641,563	100.0
Carson City										
Sagebrush – BLM lands	0	0.0	71,221	43.4	71,078	43.4	21,622	13.2	163,921	100.0
Total habitat – BLM lands	30	0.0	74,372	42.8	75,427	43.4	23,916	13.8	173,745	100.0
Sagebrush – other lands	0.0	0.0	65,270	56.2	35,643	30.7	15,166	13.1	116,080	100.0
Total habitat	193	0.1	140,893	48.0	112,251	38.3	39,921	13.6	293,258	100.0
Eagle Lake										
Sagebrush – BLM lands	0	0.0	54,184	70.4	18,999	24.7	3,755	4.9	76,939	100.0
Total habitat – BLM lands	3	0.0	54,472	70.0	19,385	24.9	3,914	5.0	77,774	100.0
Sagebrush – other lands	0	0.0	1,529	69.3	666	30.2	12	0.6	2,207	100.0
Total habitat	15	0.0	56,019	70.0	20,076	25.1	3,932	4.9	80,041	100.0
Elko										
Sagebrush – BLM lands	0	0.0	1,356,039	69.7	318,843	16.4	269,971	13.9	1,944,852	100.0
Total habitat – BLM lands	1,639	0.1	1,379,832	68.6	332,827	16.5	297,002	14.8	2,011,301	100.0
Sagebrush – other lands	0	0.0	739,263	69.2	152,062	14.2	176,237	16.5	1,067,562	100.0
Total habitat	8,925	0.3	2,137,314	67.7	495,828	15.7	512,838	16.3	3,154,905	100.0
Ely										
Sagebrush – BLM lands	0	0.0	527,521	42.3	530,822	42.6	188,365	15.1	1,246,708	100.0
Total habitat – BLM lands	330	0.0	541,053	41.7	559,588	43.1	197,960	15.2	1,298,930	100.0
Sagebrush – other lands	0	0.0	137,055	81.2	19,659	11.6	12,106	7.2	168,820	100.0
Total habitat	786	0.1	680,202	46.2	580,106	39.4	212,030	14.4	1,473,124	100.0
Surprise										
Sagebrush – BLM lands	0	0.0	421,922	97.0	12,938	3.0	0	0.0	434,860	100.0

Table 7. Risk of displacement of greater sage-grouse habitat by cheatgrass within Bureau of Land Management Field Offices in Nevada.[a]

Field Office/habitat	Risk category								Total	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Total habitat – BLM lands	41	0.0	428,159	97.0	13,237	3.0	0	0.0	441,437	100.0
Sagebrush – other lands	0	0.0	214,581	96.8	5,161	2.3	1,832	0.8	221,575	100.0
Total habitat	132	0.0	648,068	96.7	19,900	3.0	1,832	0.3	669,932	100.0
Winnemucca										
Sagebrush – BLM lands	0	0.0	496,359	51.4	286,470	29.7	183,003	18.9	965,832	100.0
Total habitat – BLM lands	309	0.0	518,520	48.0	310,972	28.8	250,766	23.2	1,080,567	100.0
Sagebrush – other lands	0.0	0.0	145,688	57.1	57,683	22.6	51,552	20.2	254,924	100.0
Total habitat	1,548	0.1	668,315	48.5	374,739	27.2	332,227	24.1	1,376,829	100.0
All Field Offices										
Sagebrush – BLM lands	0	0.0	3,370,796	57.2	1,740,247	29.5	786,939	13.3	5,897,981	100.0
Total habitat – BLM lands	2,449	0.0	3,451,124	55.8	1,824,419	29.5	904,052	14.6	6,182,044	100.0
Sagebrush – other lands	0	0.0	1,748,900	74.0	345,477	14.6	269,025	11.4	2,363,403	100.0
Total habitat – all Field Offices	12,116	0.1	5,235,966	60.3	2,192,146	25.2	1,249,424	14.4	8,689,652	100.0

[a] Habitat includes only those cover types designated as source habitat for greater sage-grouse within the current range of the species in Nevada. See text for further explanation.

Table 8. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Battle Mountain Field Office in Nevada.

	Risk category									
	None		Low		Moderate		High		Total habitat	
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Amphibians										
Great Basin spadefoot	366,344	7.1	2,087,296	40.1	1,306,693	25.1	1,443,160	27.7	5,203,493	100.0
Reptiles										
Great Basin collared lizard	185,232	9.0	328,289	16.0	536,632	26.2	1,000,949	48.8	2,051,102	100.0
Long-nosed leopard lizard	304,368	10.7	482,768	16.9	769,605	27.0	1,295,404	45.4	2,852,145	100.0
Desert horned lizard	304,368	10.7	482,768	16.9	769,605	27.0	1,295,404	45.4	2,852,145	100.0
Common sagebrush lizard	290,543	5.7	2,069,807	40.8	1,287,631	25.4	1,424,956	28.1	5,072,937	100.0
Desert spiny lizard	231,850	10.8	343,761	16.0	536,401	25.0	1,033,855	48.2	2,145,867	100.0
Nightsnake	396,516	7.6	2,088,895	39.9	1,306,693	24.9	1,443,160	27.6	5,235,264	100.0
Striped whipsnake	404,290	7.7	2,088,895	39.9	1,306,693	24.9	1,443,160	27.5	5,243,038	100.0
Long-nosed snake	311,387	10.7	501,857	17.2	788,667	27.0	1,313,608	45.1	2,915,519	100.0
Groundsnake	79,730	7.5	140,253	13.2	281,741	26.6	559,541	52.7	1,061,265	100.0
Birds										
Ferruginous hawk	327,536	8.1	1,412,774	35.1	1,030,763	25.6	1,259,175	31.2	4,030,248	100.0
Swainson's hawk	400,741	7.7	2,078,113	39.8	1,301,590	25.0	1,436,556	27.5	5,217,000	100.0
Northern harrier	380,590	8.6	1,300,751	29.7	1,262,194	28.8	1,441,323	32.9	4,384,857	100.0
Prairie falcon	376,521	8.6	1,300,751	29.7	1,262,194	28.8	1,441,323	32.9	4,380,789	100.0
Greater sage-grouse	518	0.0	906,108	55.2	590,837	36.0	145,166	8.8	1,642,628	100.0

Table 8. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Battle Mountain Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Short-eared owl	380,590	8.6	1,300,751	29.7	1,262,194	28.8	1,441,323	32.9	4,384,857	100.0
Western burrowing owl	377,044	8.6	1,300,751	29.7	1,262,194	28.8	1,441,323	32.9	4,381,312	100.0
Gray flycatcher	32,958	1.5	1,591,401	69.3	525,769	22.9	145,407	6.3	2,295,535	100.0
Sage thrasher	254,487	15.5	763,496	46.5	480,771	29.3	143,529	8.7	1,642,284	100.0
Loggerhead shrike	368,025	8.2	1,671,466	36.9	1,073,021	23.7	1,412,604	31.2	4,525,116	100.0
Sage sparrow	290,543	17.3	763,496	45.5	480,771	28.6	143,529	8.6	1,678,339	100.0
Black-throated sparrow	303,614	8.0	858,551	22.6	1,224,137	32.1	1,422,158	37.3	3,808,460	100.0
Lark sparrow	312,453	8.2	1,572,687	41.4	894,817	23.5	1,023,804	26.9	3,803,761	100.0
Green-tailed towhee	47,963	1.9	1,650,613	67.5	557,960	22.8	190,014	7.8	2,446,549	100.0
Vesper sparrow	83,414	4.7	915,226	51.4	632,425	35.5	150,323	8.4	1,781,388	100.0
Brewer's sparrow	292,678	8.4	1,987,441	57.3	876,934	25.3	310,789	9.0	3,467,842	100.0
Brewer's blackbird	110,494	6.8	1,424,543	88.3	74,598	4.6	3,361	0.002	1,612,996	100.0
Mammals										
Merriam's shrew	20,907	0.7	1,916,829	67.4	744,504	26.2	160,263	5.7	2,842,504	100.0
Kit fox	236,427	6.7	824,155	23.3	1,185,230	33.4	1,296,852	36.6	3,542,664	100.0
Pronghorn	8,729	1.4	299,591	47.0	239,583	37.6	89,264	14.0	637,167	100.0
Wyoming ground squirrel	7,040	4.3	58,993	36.0	47,910	29.3	49,821	30.4	163,763	100.0
Merriam's kangaroo rat	88,291	7.7	78,637	6.8	291,167	25.3	692,650	60.2	1,150,746	100.0
Chisel-toothed kangaroo rat	303,614	10.7	463,626	16.4	765,338	27.1	1,294,671	45.8	2,827,249	100.0
Ord's kangaroo rat	280,641	6.1	1,601,736	35.1	1,286,937	28.2	1,396,224	30.6	4,565,537	100.0

Table 8. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Battle Mountain Field Office in Nevada.

	Risk category									
	None		Low		Moderate		High		Total habitat	
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Dark kangaroo mouse	221,865	7.6	673,950	23.0	952,455	32.5	1,080,629	36.9	2,928,899	100.0
Little pocket mouse	293,499	8.1	788,175	21.8	1,146,621	31.8	1,383,580	38.3	3,611,874	100.0
Northern grasshopper mouse	242,010	7.2	1,111,239	33.3	1,042,987	31.2	944,881	28.3	3,341,117	100.0
Sagebrush vole	290,543	9.3	1,918,217	61.6	744,745	23.9	160,264	5.2	3,113,769	100.0
White-tailed jackrabbit	158,214	11.4	731,321	52.5	372,225	26.7	130,041	9.4	1,391,800	100.0
Pygmy rabbit	169,377	11.3	669,017	44.7	514,142	34.3	144,323	9.7	1,496,859	100.0

Table 9. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Carson City Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Amphibians										
Great Basin spadefoot	502,902	16.5	754,553	24.8	729,062	23.9	1,057,824	34.8	3,044,342	100.0
Reptiles										
Great Basin collared lizard	470,814	21.9	216,532	10.1	495,203	23.1	962,953	44.9	2,145,502	100.0
Long-nosed leopard lizard	261,295	13.8	213,522	11.2	479,260	25.3	943,379	49.7	1,897,457	100.0
Desert horned lizard	261,611	13.6	216,090	11.3	487,917	25.5	951,749	49.6	1,917,368	100.0
Common sagebrush lizard	254,597	9.2	746,015	27.1	718,008	26.1	1,037,073	37.6	2,755,693	100.0
Desert spiny lizard	401,039	20.9	210,645	11.0	459,217	23.9	847,044	44.2	1,917,946	100.0
Nightsnake	469,993	15.9	744,642	25.1	710,782	24.0	1,038,985	35.0	2,964,402	100.0
Striped whipsnake	494,083	16.3	755,518	24.9	729,109	24.0	1,057,824	34.8	3,036,534	100.0
Long-nosed snake	270,898	14.2	217,218	11.4	471,534	24.7	947,434	49.7	1,907,083	100.0
Groundsnake	234,920	13.1	209,694	11.7	455,735	25.5	887,506	49.7	1,787,856	100.0
Birds										
Ferruginous hawk	82,827	6.5	531,155	41.8	345,872	27.2	310,523	24.5	1,270,378	100.0
Swainson's hawk	330,105	14.2	471,338	20.3	561,707	24.2	960,845	41.3	2,323,995	100.0
Northern harrier	436,013	16.4	473,050	17.8	694,509	26.1	1,056,255	39.7	2,659,827	100.0
Prairie falcon	379,449	14.6	473,050	18.2	694,509	26.7	1,056,255	40.5	2,603,263	100.0
Greater sage-grouse	193	0.1	144,829	48.1	116,014	38.5	40,075	13.3	301,110	100.0
Short-eared owl	436,013	16.4	473,050	17.8	694,509	26.1	1,056,255	39.7	2,659,827	100.0

Table 9. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Carson City Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Western burrowing owl	380,608	14.6	473,050	18.2	694,509	26.7	1,056,255	40.5	2,604,422	100.0
Gray flycatcher	34,448	3.8	542,020	59.0	249,249	27.1	93,042	10.1	918,760	100.0
Sage thrasher	254,597	31.3	254,104	31.3	213,398	26.2	91,349	11.2	813,447	100.0
Loggerhead shrike	365,860	14.1	607,570	23.5	617,517	23.9	995,940	38.5	2,586,888	100.0
Sage sparrow	254,597	31.3	254,114	31.3	213,401	26.2	91,515	11.2	813,627	100.0
Black-throated sparrow	243,573	12.3	300,882	15.2	519,081	26.2	916,429	46.3	1,979,965	100.0
Lark sparrow	310,283	16.2	279,995	14.6	447,919	23.4	876,838	45.8	1,915,035	100.0
Green-tailed towhee	49,543	4.8	583,172	56.5	288,041	27.9	111,168	10.8	1,031,924	100.0
Vesper sparrow	81,880	16.7	203,269	41.5	150,791	30.8	53,978	11.0	489,919	100.0
Brewer's sparrow	254,597	16.4	670,047	43.0	434,376	27.9	197,043	12.7	1,556,063	100.0
Brewer's blackbird	316,102	37.9	459,906	55.1	54,438	6.5	4,518	0.005	834,964	100.0
Mammals										
Merriam's shrew	12,026	3.4	238,838	66.3	84,725	23.5	24,542	6.8	360,132	100.0
Kit fox	221,575	14.0	182,261	11.5	386,015	24.3	797,143	50.2	1,586,993	100.0
Pronghorn	6,810	1.6	111,394	26.0	115,354	26.9	194,855	45.5	428,413	100.0
Merriam's kangaroo rat	204,570	14.0	110,499	7.6	378,452	25.9	764,923	52.5	1,458,444	100.0
Chisel-toothed kangaroo rat	249,493	14.7	167,399	9.9	398,744	23.5	880,562	51.9	1,696,198	100.0
Ord's kangaroo rat	254,597	10.0	530,051	20.8	701,584	27.6	1,056,550	41.6	2,542,782	100.0
Dark kangaroo mouse	41,945	8.6	54,790	11.2	150,125	30.8	240,398	49.4	487,258	100.0
Little pocket mouse	260,843	11.7	351,672	15.7	627,630	28.1	995,164	44.5	2,235,309	100.0

Table 9. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Carson City Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Northern grasshopper mouse	262,455	10.6	474,922	19.2	690,391	27.9	1,047,261	42.3	2,475,030	100.0
Sagebrush vole	254,258	18.3	657,965	47.3	335,458	24.1	143,611	10.3	1,391,292	100.0
White-tailed jackrabbit	143,625	15.4	446,820	47.9	233,476	25.0	108,550	11.7	932,471	100.0
Pygmy rabbit	184,315	25.4	234,634	32.3	216,819	29.8	90,572	12.5	726,339	100.0

[a] Habitat data for Wyoming ground squirrel were not reported because this species' range does not overlap the Field Office.

Table 10. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Eagle Lake Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Amphibians										
Great Basin spadefoot	15,194	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,995	100.0
Reptiles										
Great Basin collared lizard	16,394	23.8	16,473	23.9	13,748	20.0	22,253	32.3	68,868	100.0
Long-nosed leopard lizard	13,829	20.7	16,921	25.4	13,748	20.6	22,253	33.3	66,751	100.0
Desert horned lizard	13,829	20.7	16,921	25.4	13,748	20.6	22,253	33.3	66,751	100.0
Common sagebrush lizard	13,829	10.2	59,379	43.8	34,301	25.3	28,085	20.7	135,594	100.0
Desert spiny lizard	0	0.0	0	0.0	0	0.0	28	100.0	28	100.0
Nightsnake	16,394	11.8	59,684	42.9	34,717	24.9	28,400	20.4	139,194	100.0
Striped whipsnake	16,468	11.8	59,684	42.9	34,717	24.9	28,400	20.4	139,269	100.0
Long-nosed snake	13,904	20.5	17,226	25.4	14,164	20.9	22,568	33.2	67,862	100.0
Groundsnake	2,079	30.2	3	0.0	347	5.1	4,457	64.7	6,887	100.0
Birds										
Swainson's hawk	15,192	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,992	100.0
Northern harrier	15,192	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,992	100.0
Prairie falcon	15,177	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,978	100.0
Greater sage-grouse	15	0.0	56,128	69.4	20,738	25.7	3,980	4.9	80,860	100.0
Short-eared owl	15,192	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,992	100.0
Western burrowing owl	15,192	11.0	59,684	43.2	34,717	25.2	28,400	20.6	137,992	100.0

Table 10. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Eagle Lake Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Gray flycatcher	75	0.1	42,458	61.6	20,553	29.8	5,832	8.5	68,917	100.0
Sage thrasher	13,829	16.7	42,458	51.3	20,553	24.9	5,832	7.1	82,672	100.0
Loggerhead shrike	15,117	12.7	43,179	36.3	32,620	27.4	28,085	23.6	119,000	100.0
Sage sparrow	13,829	16.7	42,906	51.6	20,553	24.7	5,832	7.0	83,120	100.0
Black-throated sparrow	12,830	13.0	34,410	34.9	25,504	25.8	26,000	26.3	98,743	100.0
Lark sparrow	15,177	12.7	43,036	36.0	33,035	27.6	28,400	23.7	119,648	100.0
Green-tailed towhee	75	0.1	42,458	61.6	20,553	29.8	5,832	8.5	68,917	100.0
Vesper sparrow	1,302	1.6	57,031	68.5	19,103	22.9	5,860	7.0	83,296	100.0
Brewer's sparrow	13,829	13.7	59,106	58.5	22,235	22.0	5,855	5.8	101,025	100.0
Brewer's blackbird	1,682	12.0	9,713	69.6	2,537	18.2	28	0.0	13,960	100.0
Mammals										
Kit fox	13,801	11.8	45,893	39.1	30,762	26.2	26,949	22.9	117,405	100.0
Pronghorn	28	0.0	59,684	48.6	34,716	28.3	28,378	23.1	122,806	100.0
Merriam's kangaroo rat	13,829	20.3	17,842	26.3	13,986	20.6	22,253	32.8	67,910	100.0
Chisel-toothed kangaroo rat	13,829	28.5	273	0.6	12,067	24.9	22,253	46.0	48,422	100.0
Ord's kangaroo rat	13,829	10.1	59,684	43.7	34,717	25.4	28,400	20.8	136,630	100.0
Dark kangaroo mouse	13,829	11.8	45,893	39.1	30,762	26.2	26,949	22.9	117,433	100.0
Little pocket mouse	13,829	11.5	46,455	38.6	31,961	26.6	28,062	23.3	120,308	100.0
Northern grasshopper mouse	13,829	10.1	59,684	43.7	34,717	25.4	28,400	20.8	136,630	100.0

Table 10. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Eagle Lake Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sagebrush vole	13,829	13.6	59,411	58.2	22,650	22.2	6,147	6.0	102,037	100.0
White-tailed jackrabbit	14,408	14.6	56,183	56.8	22,188	22.4	6,147	6.2	98,927	100.0
Pygmy rabbit	13,829	13.6	59,411	58.2	22,650	22.2	6,147	6.0	102,037	100.0

[a] Habitat data for ferruginous hawk, Merriam's shrew, and Wyoming ground squirrel were not reported because these species' ranges do not overlap the Field Office.

Table 11. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Elko Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Amphibians										
Great Basin spadefoot	387,232	8.7	2,584,354	58.5	626,817	14.2	822,351	18.6	4,420,754	100.0
Reptiles										
Great Basin collared lizard	44,669	15.9	49,539	17.7	76,086	27.2	109,880	39.2	280,173	100.0
Long-nosed leopard lizard	177,928	11.9	719,436	47.9	248,618	16.6	354,777	23.6	1,500,759	100.0
Desert horned lizard	177,928	11.9	719,436	47.9	248,618	16.6	354,777	23.6	1,500,759	100.0
Common sagebrush lizard	177,928	4.4	2,542,115	62.3	601,841	14.8	755,724	18.5	4,077,606	100.0
Nightsnake	208,462	4.9	2,584,354	60.9	626,817	14.8	822,351	19.4	4,241,984	100.0
Striped whipsnake	236,552	5.5	2,584,354	60.5	626,817	14.7	822,351	19.3	4,270,074	100.0
Long-nosed snake	199,680	15.4	451,526	35.0	242,633	18.8	397,689	30.8	1,291,528	100.0
Birds										
Ferruginous hawk	312,448	7.2	2,584,354	59.5	626,817	14.4	822,351	18.9	4,345,970	100.0
Swainson's hawk	467,068	10.4	2,584,354	57.4	626,817	13.9	822,351	18.3	4,500,590	100.0
Northern harrier	386,813	9.3	2,357,256	56.5	608,180	14.6	817,024	19.6	4,169,272	100.0
Prairie falcon	354,501	8.6	2,357,256	57.0	608,180	14.7	817,024	19.7	4,136,959	100.0
Greater sage-grouse	8,934	0.3	2,145,756	67.8	497,122	15.7	513,954	16.2	3,165,766	100.0
Short-eared owl	386,813	9.3	2,357,256	56.5	608,180	14.6	817,024	19.6	4,169,272	100.0
Western burrowing owl	363,435	8.8	2,357,256	56.8	608,180	14.7	817,024	19.7	4,145,893	100.0
Gray flycatcher	57,691	2.2	1,826,455	69.1	355,118	13.4	403,600	15.3	2,642,864	100.0

Table 11. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Elko Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sage thrasher	177,928	7.5	1,474,477	61.8	334,353	14.0	398,019	16.7	2,384,776	100.0
Loggerhead shrike	333,545	10.5	1,723,917	54.0	441,251	13.8	691,840	21.7	3,190,553	100.0
Sage sparrow	177,928	7.5	1,475,762	61.8	334,353	14.0	398,019	16.7	2,386,061	100.0
Black-throated sparrow	177,928	6.4	1,372,877	49.1	515,625	18.5	727,632	26.0	2,794,062	100.0
Lark sparrow	352,808	10.0	1,908,130	54.4	479,071	13.7	768,300	21.9	3,508,309	100.0
Green-tailed towhee	142,974	4.6	2,075,049	66.4	429,665	13.8	475,108	15.2	3,122,795	100.0
Vesper sparrow	164,199	4.6	2,333,724	65.8	519,864	14.7	528,530	14.9	3,546,318	100.0
Brewer's sparrow	177,993	4.8	2,496,920	67.4	523,902	14.2	503,526	13.6	3,702,340	100.0
Brewer's blackbird	285,405	23.0	901,498	72.7	42,246	3.4	10,052	0.8	1,239,202	100.0
Mammals										
Merriam's shrew	17,451	0.5	2,380,460	69.1	524,209	15.2	523,759	15.2	3,445,879	100.0
Kit fox	160,476	5.3	1,590,665	52.6	541,950	17.9	732,401	24.2	3,025,493	100.0
Pronghorn	7,963	0.6	1,074,835	76.5	139,439	9.9	182,889	13.0	1,405,126	100.0
Wyoming ground squirrel	158,648	8.1	1,113,607	56.5	282,978	14.3	416,926	21.1	1,972,159	100.0
Chisel-toothed kangaroo rat	66,588	12.3	233,612	43.1	95,507	17.6	145,960	27.0	541,667	100.0
Ord's kangaroo rat	177,928	4.4	2,401,168	59.7	623,736	15.5	822,097	20.4	4,024,929	100.0
Dark kangaroo mouse	148,146	7.7	805,448	41.6	389,558	20.1	592,281	30.6	1,935,433	100.0
Little pocket mouse	88,319	6.4	486,910	35.0	341,403	24.6	472,919	34.0	1,389,550	100.0
Northern grasshopper mouse	177,928	4.6	2,248,345	58.2	616,266	15.9	821,587	21.3	3,864,126	100.0

Table 11. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Elko Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sagebrush vole	177,928	4.9	2,419,456	66.3	525,659	14.4	524,025	14.4	3,647,068	100.0
White-tailed jackrabbit	437,243	10.8	2,546,744	63.0	528,289	13.1	529,040	13.1	4,041,317	100.0
Pygmy rabbit	177,928	5.2	2,192,941	64.6	507,075	14.9	518,697	15.3	3,396,641	100.0

[a] Habitat data for desert spiny lizard, groundsnake, and Merriam's kangaroo rat were not reported because these species' ranges do not overlap the Field Office.

Table 12. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Ely Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Amphibians										
Great Basin spadefoot	513,008	10.6	1,828,039	37.6	1,271,889	26.2	1,243,910	25.6	4,856,845	100.0
Reptiles										
Great Basin collared lizard	452,660	59.6	6,542	0.9	26,646	3.5	273,603	36.0	759,450	100.0
Long-nosed leopard lizard	633,128	32.9	195,640	10.2	370,519	19.2	725,923	37.7	1,925,210	100.0
Desert horned lizard	633,128	32.9	195,640	10.2	370,519	19.2	725,923	37.7	1,925,210	100.0
Common sagebrush lizard	429,873	9.1	1,810,980	38.6	1,239,301	26.4	1,215,160	25.9	4,695,313	100.0
Desert spiny lizard	493,640	47.2	13,480	1.3	74,873	7.2	463,152	44.3	1,045,145	100.0
Nightsnake	664,127	13.3	1,828,039	36.5	1,271,889	25.4	1,243,910	24.8	5,007,964	100.0
Striped whipsnake	671,520	13.4	1,828,039	36.4	1,271,889	25.4	1,243,910	24.8	5,015,357	100.0
Long-nosed snake	640,521	31.9	212,699	10.6	403,107	20.0	754,673	37.5	2,011,000	100.0
Groundsnake	93,457	66.5	510	0.4	2,633	1.9	43,823	31.2	140,422	100.0
Birds										
Ferruginous hawk	681,592	13.5	1,828,039	36.4	1,271,889	25.3	1,243,910	24.8	5,025,430	100.0
Swainson's hawk	807,747	15.7	1,828,039	35.5	1,271,889	24.7	1,243,905	24.1	5,151,580	100.0
Northern harrier	719,400	18.7	879,018	22.8	1,054,768	27.4	1,195,656	31.1	3,848,842	100.0
Prairie falcon	701,742	18.3	879,018	23.0	1,054,768	27.5	1,195,656	31.2	3,831,184	100.0
Greater sage-grouse	777	0.1	673,679	46.1	573,690	39.3	211,706	14.5	1,459,852	100.0
Short-eared owl	719,400	18.7	879,018	22.8	1,054,768	27.4	1,195,656	31.1	3,848,842	100.0

Table 12. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Ely Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Western burrowing owl	702,519	18.3	879,018	22.9	1,054,768	27.5	1,195,660	31.2	3,831,966	100.0
Gray flycatcher	110,421	3.5	1,617,394	51.4	874,363	27.8	542,426	17.2	3,144,605	100.0
Sage thrasher	156,942	8.6	585,535	32.1	612,273	33.6	468,005	25.7	1,822,755	100.0
Loggerhead shrike	691,904	16.2	1,518,935	35.7	937,914	22.0	1,110,414	26.1	4,259,168	100.0
Sage sparrow	429,873	20.2	590,124	27.8	631,034	29.7	475,180	22.3	2,126,210	100.0
Black-throated sparrow	633,128	19.2	541,942	16.5	976,305	29.6	1,145,172	34.7	3,296,548	100.0
Lark sparrow	413,054	9.7	1,641,178	38.6	1,053,666	24.8	1,143,751	26.9	4,251,649	100.0
Green-tailed towhee	125,642	3.9	1,651,019	51.6	878,235	27.5	545,149	17.0	3,200,045	100.0
Vesper sparrow	84,447	4.2	810,505	40.1	731,694	36.2	395,800	19.5	2,022,446	100.0
Brewer's sparrow	429,873	11.2	1,774,882	46.3	1,052,989	27.4	578,842	15.1	3,836,585	100.0
Brewer's blackbird	113,295	5.9	1,468,000	75.8	292,131	15.1	62,898	3.2	1,936,324	100.0
Mammals										
Merriam's shrew	32,497	1.0	1,738,642	51.0	1,087,760	31.9	550,483	16.1	3,409,383	100.0
Kit fox	327,701	11.2	534,722	18.3	967,835	33.1	1,091,647	37.4	2,921,905	100.0
Pronghorn	9,398	1.0	326,355	34.1	329,566	34.4	292,044	30.5	957,362	100.0
Wyoming ground squirrel	34	0.3	4,185	31.7	2,190	16.6	6,777	51.4	13,187	100.0
Merriam's kangaroo rat	476,222	70.1	1,410	0.2	10,843	1.6	191,097	28.1	679,572	100.0
Chisel-toothed kangaroo rat	616,931	32.9	192,056	10.2	363,334	19.4	702,042	37.5	1,874,363	100.0
Ord's kangaroo rat	288,111	7.2	1,375,334	34.2	1,204,534	29.9	1,156,324	28.7	4,024,303	100.0
Dark kangaroo mouse	130,391	6.8	370,444	19.2	722,209	37.5	703,887	36.5	1,926,931	100.0

Table 12. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Ely Field Office in Nevada.

	Risk category									
	None		Low		Moderate		High		Total habitat	
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Little pocket mouse	545,858	27.8	268,649	13.7	420,586	21.4	729,748	37.1	1,964,841	100.0
Northern grasshopper mouse	164,660	6.0	801,638	29.3	918,018	33.5	855,986	31.2	2,740,301	100.0
Sagebrush vole	276,137	7.7	1,729,217	48.1	1,062,642	29.5	528,636	14.7	3,596,632	100.0
White-tailed jackrabbit	267,311	9.7	1,451,045	52.7	738,490	26.9	294,667	10.7	2,751,513	100.0
Pygmy rabbit	153,341	7.9	737,084	38.1	692,223	35.8	351,795	18.2	1,934,443	100.0

Table 13. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Las Vegas Field Office in Nevada.

	Risk category									
	None		Low		Moderate		High		Total habitat	
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Amphibians										
Great Basin spadefoot	551,402	26.8	301,712	14.6	331,151	16.1	876,584	42.5	2,060,850	100.0
Reptiles										
Great Basin collared lizard	1,931,868	63.0	9,698	0.3	106,293	3.5	1,016,111	33.2	3,063,970	100.0
Long-nosed leopard lizard	1,906,444	62.7	9,698	0.3	106,293	3.5	1,016,111	33.5	3,038,547	100.0
Desert horned lizard	1,906,444	62.7	9,698	0.3	106,293	3.5	1,016,111	33.5	3,038,547	100.0
Common sagebrush lizard	502,906	25.7	300,704	15.4	329,318	16.8	823,049	42.1	1,955,977	100.0
Desert spiny lizard	1,931,868	63.0	9,698	0.3	106,293	3.5	1,016,111	33.2	3,063,970	100.0
Nightsnake	1,931,868	52.0	325,513	8.7	354,920	9.6	1,104,085	29.7	3,716,386	100.0
Striped whipsnake	1,938,351	52.1	325,513	8.7	354,920	9.5	1,104,085	29.7	3,722,869	100.0
Long-nosed snake	1,912,516	62.0	23,980	0.8	117,005	3.8	1,028,475	33.4	3,081,975	100.0
Groundsnake	1,879,996	64.8	6,575	0.2	90,239	3.1	926,297	31.9	2,903,106	100.0
Birds										
Ferruginous hawk	1,938,314	52.1	325,513	8.7	354,920	9.5	1,104,085	29.7	3,722,832	100.0
Swainson's hawk	1,045,840	42.8	289,942	11.9	323,725	13.3	781,896	32.0	2,441,404	100.0
Northern harrier	1,926,074	54.1	203,116	5.7	333,405	9.3	1,100,110	30.9	3,562,704	100.0
Prairie falcon	1,926,074	54.1	203,116	5.7	333,405	9.3	1,100,110	30.9	3,562,704	100.0
Short-eared owl	1,926,074	54.1	203,116	5.7	333,405	9.3	1,100,110	30.9	3,562,704	100.0
Western burrowing owl	1,926,558	54.1	203,125	5.7	333,421	9.3	1,100,387	30.9	3,563,491	100.0

Table 13. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Las Vegas Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Gray flycatcher	41,133	6.1	301,536	44.8	238,705	35.5	91,424	13.6	672,797	100.0
Sage thrasher	21,270	4.9	128,771	29.4	204,259	46.6	83,769	19.1	438,069	100.0
Loggerhead shrike	1,919,664	53.6	255,638	7.1	323,768	9.0	1,085,530	30.3	3,584,601	100.0
Sage sparrow	663,725	61.1	129,129	11.9	207,625	19.1	85,095	7.9	1,085,573	100.0
Black-throated sparrow	1,906,033	55.4	137,134	4.0	313,113	9.1	1,085,392	31.5	3,441,671	100.0
Lark sparrow	38,137	8.1	102,966	21.9	105,500	22.4	224,062	47.6	470,666	100.0
Green-tailed towhee	42,795	6.3	304,425	44.8	240,301	35.4	91,647	13.5	679,168	100.0
Vesper sparrow	299	1.3	4,504	18.9	8,217	34.5	10,787	45.3	23,808	100.0
Brewer's sparrow	656,412	51.7	296,289	23.4	228,615	18.0	87,717	6.9	1,269,033	100.0
Brewer's blackbird	141,741	43.4	153,194	46.9	26,582	8.1	4,908	1.5	326,425	100.0
Mammals										
Merriam's shrew	0	0.0	242,696	45.8	215,164	40.6	72,419	13.6	530,279	100.0
Kit fox	1,210,368	45.1	135,950	5.0	302,482	11.3	1,035,961	38.6	2,684,761	100.0
Pronghorn	0	0.0	61,923	22.6	94,318	34.4	117,899	43.0	274,140	100.0
Merriam's kangaroo rat	1,883,834	66.1	5,081	0.2	63,749	2.2	896,489	31.5	2,849,154	100.0
Chisel-toothed kangaroo rat	1,434,482	60.5	9,693	0.4	105,822	4.4	822,263	34.7	2,372,260	100.0
Ord's kangaroo rat	284,661	25.1	159,994	14.1	245,240	21.6	445,566	39.2	1,135,460	100.0
Dark kangaroo mouse	14,331	3.1	64,836	13.8	127,556	27.2	262,293	55.9	469,014	100.0
Little pocket mouse	1,890,068	55.4	137,134	4.0	313,110	9.2	1,073,139	31.4	3,413,451	100.0
Northern grasshopper	22,034	5.7	76,176	19.7	95,166	24.7	192,657	49.9	386,034	100.0

Table 13. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Las Vegas Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
mouse										
Sagebrush vole	445,927	45.8	241,380	24.8	214,094	22.0	71,965	7.4	973,366	100.0

[a] Habitat data for greater sage-grouse, Wyoming ground squirrel, white-tailed jackrabbit, and pygmy rabbit were not reported because these species' ranges do not overlap the Field Office.

Table 14. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Surprise Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Amphibians										
Great Basin spadefoot	19,975	2.7	678,083	92.3	34,136	4.7	2,259	0.3	734,452	100.0
Reptiles										
Great Basin collared lizard	10,242	43.5	3,778	16.0	9,466	40.2	59	0.3	23,546	100.0
Long-nosed leopard lizard	14,297	12.1	90,180	76.6	13,128	11.2	59	0.1	117,664	100.0
Desert horned lizard	11,226	30.1	16,211	43.4	9,811	26.3	59	0.2	37,306	100.0
Common sagebrush lizard	14,297	2.0	666,353	93.2	32,267	4.5	2,255	0.3	715,172	100.0
Nightsnake	20,784	2.8	678,083	92.2	34,136	4.7	2,259	0.3	735,261	100.0
Striped whipsnake	21,024	2.9	678,083	92.2	34,136	4.6	2,259	0.3	735,501	100.0
Long-nosed snake	11,211	34.1	9,228	28.0	12,451	37.9	0	0.0	32,890	100.0
Birds										
Ferruginous hawk	9,433	2.3	389,860	95.7	6,030	1.5	2,259	0.5	407,583	100.0
Swainson's hawk	17,701	2.4	678,083	92.6	34,136	4.7	2,259	0.3	732,178	100.0
Northern harrier	18,002	2.4	678,071	92.6	34,136	4.7	2,259	0.3	732,468	100.0
Prairie falcon	17,569	2.4	678,071	92.6	34,136	4.7	2,259	0.3	732,035	100.0
Greater sage-grouse	132	0.0	657,273	96.6	21,354	3.1	2,200	0.3	680,959	100.0
Short-eared owl	18,002	2.5	678,071	92.5	34,136	4.7	2,259	0.3	732,468	100.0
Western burrowing owl	17,701	2.4	678,071	92.6	34,136	4.7	2,259	0.3	732,167	100.0
Gray flycatcher	240	0.0	576,173	96.4	19,139	3.2	2,196	0.4	597,748	100.0

Table 14. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Surprise Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sage thrasher	14,297	2.3	566,312	94.1	19,139	3.2	2,196	0.4	601,943	100.0
Loggerhead shrike	17,461	2.8	566,855	91.7	31,556	5.1	2,255	0.4	618,127	100.0
Sage sparrow	14,297	2.3	566,312	94.1	19,139	3.2	2,196	0.4	601,943	100.0
Black-throated sparrow	14,297	2.5	528,375	91.7	31,379	5.4	2,255	0.4	576,305	100.0
Lark sparrow	17,569	2.7	589,312	91.7	33,425	5.2	2,259	0.4	642,565	100.0
Green-tailed towhee	360	0.0	590,985	96.5	19,139	3.1	2,196	0.4	612,680	100.0
Vesper sparrow	3,033	0.4	677,539	96.2	21,719	3.1	2,200	0.3	704,490	100.0
Brewer's sparrow	14,297	2.1	665,003	94.7	20,496	2.9	2,196	0.3	701,991	100.0
Brewer's blackbird	4,575	8.6	48,589	91.0	219	0.4	0	0.0	53,383	100.0
Mammals										
Merriam's shrew	0	0.0	636,288	96.5	21,272	3.2	2,200	0.3	659,760	100.0
Kit fox	14,297	2.2	602,045	92.5	32,077	4.9	2,255	0.4	650,673	100.0
Pronghorn	0	0.0	297,200	96.2	9,635	3.1	2,259	0.7	309,094	100.0
Merriam's kangaroo rat	411	6.8	5,318	87.5	346	5.7	0	0.0	6,074	100.0
Chisel-toothed kangaroo rat	14,297	50.7	1,409	5.0	12,417	44.1	59	0.2	28,182	100.0
Ord's kangaroo rat	14,297	2.0	668,232	92.9	34,136	4.8	2,259	0.3	718,924	100.0
Dark kangaroo mouse	13,875	2.4	537,329	92.0	30,513	5.2	2,255	0.4	583,972	100.0
Little pocket mouse	14,297	2.2	611,582	92.6	32,077	4.9	2,255	0.3	660,211	100.0
Northern grasshopper mouse	14,297	2.0	668,232	92.9	34,136	4.8	2,259	0.3	718,924	100.0

Table 14. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Surprise Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Sagebrush vole	14,297	2.0	666,823	94.6	21,719	3.1	2,200	0.3	705,038	100.0
White-tailed jackrabbit	15,938	3.5	415,873	91.9	18,627	4.1	2,200	0.5	452,638	100.0
Pygmy rabbit	14,297	2.0	666,811	94.6	21,719	3.1	2,200	0.3	705,026	100.0

[a] Habitat data for desert spiny lizard, groundsnake, and Wyoming ground squirrel were not reported because these species' ranges do not overlap the Field Office.

Table 15. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Winnemucca Field Office in Nevada.

Species	Risk category								Total habitat	
	None		Low		Moderate		High			
	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Amphibians										
Great Basin spadefoot	586,344	16.2	772,442	21.4	665,230	18.4	1,590,878	44.0	3,614,895	100.0
Reptiles										
Great Basin collared lizard	777,633	33.2	91,343	3.9	240,615	10.3	1,233,974	52.6	2,343,566	100.0
Long-nosed leopard lizard	438,544	21.2	143,743	7.0	244,349	11.8	1,237,379	60.0	2,064,015	100.0
Desert horned lizard	438,544	21.2	143,743	7.0	244,349	11.8	1,237,379	60.0	2,064,015	100.0
Common sagebrush lizard	429,117	13.0	744,520	22.6	630,606	19.2	1,485,621	45.2	3,289,864	100.0
Desert spiny lizard	131,633	20.7	6,174	1.0	80,528	12.6	418,506	65.7	636,841	100.0
Nightsnake	778,114	20.4	772,442	20.3	665,230	17.5	1,590,878	41.8	3,806,664	100.0
Striped whipsnake	801,920	20.9	772,442	20.2	665,230	17.4	1,590,878	41.5	3,830,471	100.0
Long-nosed snake	342,055	19.1	74,763	4.2	239,179	13.3	1,134,411	63.4	1,790,409	100.0
Groundsnake	89,941	12.6	8,059	1.1	106,705	14.9	512,020	71.4	716,724	100.0
Birds										
Ferruginous hawk	502,793	19.0	613,134	23.1	475,681	17.9	1,059,857	40.0	2,651,465	100.0
Swainson's hawk	575,354	16.0	772,442	21.4	665,230	18.5	1,590,878	44.1	3,603,905	100.0
Northern harrier	582,456	16.3	745,323	20.8	659,457	18.4	1,590,877	44.5	3,578,113	100.0
Prairie falcon	563,746	15.8	745,323	21.0	659,457	18.5	1,590,877	44.7	3,559,403	100.0
Greater sage-grouse	1,548	0.1	659,657	48.1	375,484	27.4	333,684	24.4	1,370,373	100.0

Table 15. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Winnemucca Field Office in Nevada.

	Risk category								Total habitat	
	None		Low		Moderate		High			
Species	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**	**Ha**	**% total**
Short-eared owl	582,456	16.3	745,323	20.8	659,457	18.4	1,590,877	44.5	3,578,113	100.0
Western burrowing owl	565,294	15.9	745,323	20.9	659,457	18.5	1,590,877	44.7	3,560,951	100.0
Gray flycatcher	14,451	1.2	601,363	47.9	389,331	31.0	249,050	19.9	1,254,195	100.0
Sage thrasher	429,117	26.7	544,527	33.9	383,223	23.9	249,029	15.5	1,605,895	100.0
Loggerhead shrike	550,914	17.5	558,740	17.7	572,826	18.1	1,474,282	46.7	3,156,761	100.0
Sage sparrow	429,117	26.7	545,113	33.9	383,371	23.9	249,029	15.5	1,606,630	100.0
Black-throated sparrow	429,117	15.2	372,639	13.2	548,196	19.4	1,471,660	52.2	2,821,612	100.0
Lark sparrow	563,756	16.6	642,447	18.9	613,692	18.0	1,579,770	46.5	3,399,666	100.0
Green-tailed towhee	44,667	2.6	686,941	39.5	516,443	29.7	491,487	28.2	1,739,537	100.0
Vesper sparrow	123,052	7.2	757,915	44.1	473,365	27.5	364,942	21.2	1,719,274	100.0
Brewer's sparrow	429,127	21.2	710,699	35.1	491,440	24.2	394,745	19.5	2,026,010	100.0
Brewer's blackbird	208,947	36.9	277,055	48.9	70,730	12.5	10,242	1.8	566,974	100.0
Mammals										
Merriam's shrew	2,793	0.2	686,795	46.4	438,056	29.6	351,959	23.8	1,479,603	100.0
Kit fox	426,324	14.6	450,761	15.5	562,267	19.3	1,476,288	50.6	2,915,640	100.0
Pronghorn	40	0.0	472,093	37.2	269,623	21.3	526,551	41.5	1,268,307	100.0
Wyoming ground squirrel	72,323	12.3	208,396	35.4	117,423	19.9	190,585	32.4	588,727	100.0
Merriam's kangaroo rat	204,574	19.0	58,014	5.4	131,009	12.2	682,493	63.4	1,076,090	100.0
Chisel-toothed kangaroo rat	429,117	22.5	25,486	1.3	218,753	11.5	1,231,609	64.7	1,904,965	100.0
Ord's kangaroo rat	429,117	12.5	742,739	21.7	665,045	19.4	1,590,858	46.4	3,427,759	100.0

Table 15. Risk of displacement of habitat for species of conservation concern by cheatgrass within the Winnemucca Field Office in Nevada.

	Risk category									
	None		Low		Moderate		High		Total habitat	
Species	Ha	% total	Ha	% total	Ha	% total	Ha	% total	Ha	% total
Dark kangaroo mouse	362,161	17.3	289,507	13.8	388,461	18.5	1,058,399	50.4	2,098,527	100.0
Little pocket mouse	438,544	14.9	461,788	15.7	565,637	19.2	1,477,097	50.2	2,943,066	100.0
Northern grasshopper mouse	438,544	12.8	742,123	21.6	664,876	19.3	1,590,858	46.3	3,436,401	100.0
Sagebrush vole	429,117	21.5	729,599	36.5	473,044	23.7	364,712	18.3	1,996,472	100.0
White-tailed jackrabbit	109,643	13.6	325,564	40.5	181,300	22.6	186,893	23.3	803,400	100.0
Pygmy rabbit	429,117	21.8	702,793	35.7	469,534	23.9	365,394	18.6	1,966,838	100.0

Table 16. Comparison of amount of habitat among BLM Field Offices in Nevada for 40 species of conservation concern.

Species	Field Office							
	Battle Mt.	Carson City	Eagle Lake	Elko	Ely	Las Vegas	Surprise	Winne-mucca
Amphibians								
Great Basin spadefoot	5,203,493	3,044,342	137,995	4,420,754	4,856,845	2,060,850	734,452	3,614,895
Reptiles								
Great Basin collared lizard	2,051,102	2,145,502	68,868	280,173	759,450	3,063,970	23,546	2,343,566
Long-nosed leopard lizard	2,852,145	1,897,457	66,751	1,500,759	1,925,210	3,038,547	117,664	2,064,015
Desert horned lizard	2,852,145	1,917,368	66,751	1,500,759	1,925,210	3,038,547	37,306	2,064,015
Common sagebrush lizard	5,072,937	2,755,693	135,594	4,077,606	4,695,313	1,955,977	715,172	3,289,864
Desert spiny lizard	2,145,867	1,917,946	28	0	1,045,145	3,063,970	0	636,841
Nightsnake	5,235,264	2,964,402	139,194	4,241,984	5,007,964	3,716,386	735,261	3,806,664
Striped whipsnake	5,243,038	3,036,534	139,269	4,270,074	5,015,357	3,722,869	735,501	3,830,471
Long-nosed snake	2,915,519	1,907,083	67,862	1,291,528	2,011,000	3,081,975	32,890	1,790,409
Groundsnake	1,061,265	1,787,856	6,887	0	140,422	2,903,106	0	716,724
Birds								
Ferruginous hawk	4,030,248	1,270,378	0	4,345,970	5,025,430	3,722,832	407,583	2,651,465
Swainson's hawk	5,217,000	2,323,995	137,992	4,500,590	5,151,580	2,441,404	732,178	3,603,905
Northern harrier	4,384,857	2,659,827	137,992	4,169,272	3,848,842	3,562,704	732,468	3,578,113
Prairie falcon	4,380,789	2,603,263	137,978	4,136,959	3,831,184	3,562,704	732,035	3,559,403
Greater sage-grouse	1,642,628	301,110	80,860	3,165,766	1,459,852	0	680,959	1,370,373
Short-eared owl	4,384,857	2,659,827	137,992	4,169,272	3,848,842	3,562,704	732,468	3,578,113
Western burrowing owl	4,381,312	2,604,422	137,992	4,145,893	3,831,966	3,563,491	732,167	3,560,951
Gray flycatcher	2,295,535	918,760	68,917	2,642,864	3,144,605	672,797	597,748	1,254,195
Sage thrasher	1,642,284	813,447	82,672	2,384,776	1,822,755	438,069	601,943	1,605,895
Loggerhead shrike	4,525,116	2,586,888	119,000	3,190,553	4,259,168	3,584,601	618,127	3,156,761
Sage sparrow	1,678,339	813,627	83,120	2,386,061	2,126,210	1,085,573	601,943	1,606,630
Black-throated sparrow	3,808,460	1,979,965	98,743	2,794,062	3,296,548	3,441,671	576,305	2,821,612

Table 16. Comparison of amount of habitat among BLM Field Offices in Nevada for 40 species of conservation concern.

	Field Office							
Species	Battle Mt.	Carson City	Eagle Lake	Elko	Ely	Las Vegas	Surprise	Winne-mucca
Lark sparrow	3,803,761	1,915,035	119,648	3,508,309	4,251,649	470,666	642,565	3,399,666
Green-tailed towhee	2,446,549	1,031,924	68,917	3,122,795	3,200,045	679,168	612,680	1,739,537
Vesper sparrow	1,781,388	489,919	83,296	3,546,318	2,022,446	23,808	704,490	1,719,274
Brewer's sparrow	3,467,842	1,556,063	101,025	3,702,340	3,836,585	1,269,033	701,991	2,026,010
Brewer's blackbird	1,612,996	834,964	13,960	1,239,202	1,936,324	326,425	53,383	566,974
Mammals								
Merriam's shrew	2,842,504	360,132	0	3,445,879	3,409,383	530,279	659,760	1,479,603
Kit fox	3,542,664	1,586,993	117,405	3,025,493	2,921,905	2,684,761	650,673	2,915,640
Pronghorn	637,167	428,413	122,806	1,405,126	957,362	274,140	309,094	1,268,307
Wyoming ground squirrel	163,763	0	0	1,972,159	13,187	0	0	588,727
Merriam's kangaroo rat	1,150,746	1,458,444	67,910	0	679,572	2,849,154	6,074	1,076,090
Chisel-toothed kangaroo rat	2,827,249	1,696,198	48,422	541,667	1,874,363	2,372,260	28,182	1,904,965
Ord's kangaroo rat	4,565,537	2,542,782	136,630	4,024,929	4,024,303	1,135,460	718,924	3,427,759
Dark kangaroo mouse	2,928,899	487,258	117,433	1,935,433	1,926,931	469,014	583,972	2,098,527
Little pocket mouse	3,611,874	2,235,309	120,308	1,389,550	1,964,841	3,413,451	660,211	2,943,066
Northern grasshopper mouse	3,341,117	2,475,030	136,630	3,864,126	2,740,301	386,034	718,924	3,436,401
Sagebrush vole	3,113,769	1,391,292	102,037	3,647,068	3,596,632	973,366	705,038	1,996,472
White-tailed jackrabbit	1,391,800	932,471	98,927	4,041,317	2,751,513	0	452,638	803,400
Pygmy rabbit	1,496,859	726,339	102,037	3,396,641	1,934,443	0	705,026	1,966,838

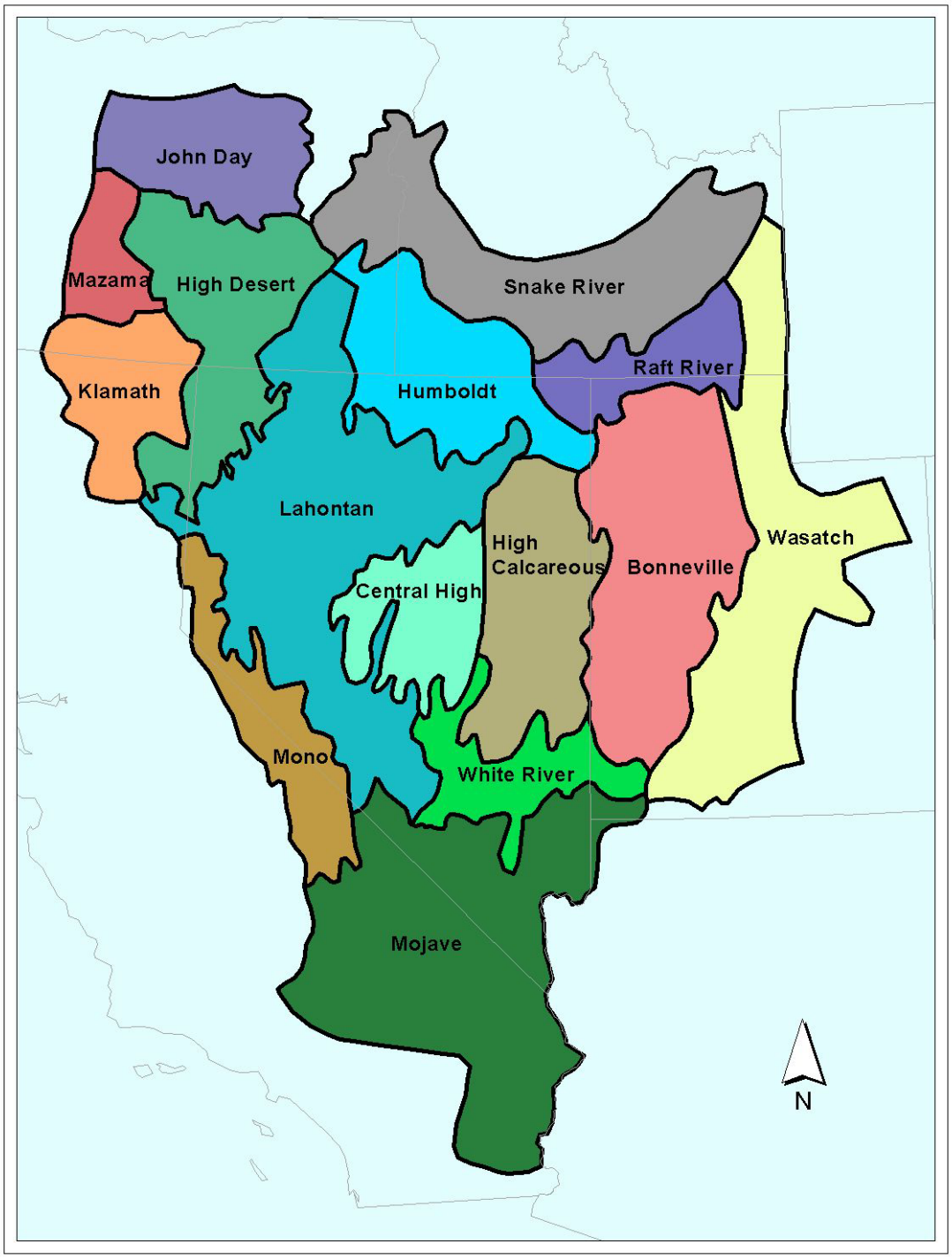

Figure 1. Fourteen ecological provinces used in modeling risk of displacement of native vegetation by cheatgrass and pinyon-juniper woodlands. These provinces are a modification of those described in Miller et al. (1999) and West et al. (1998).

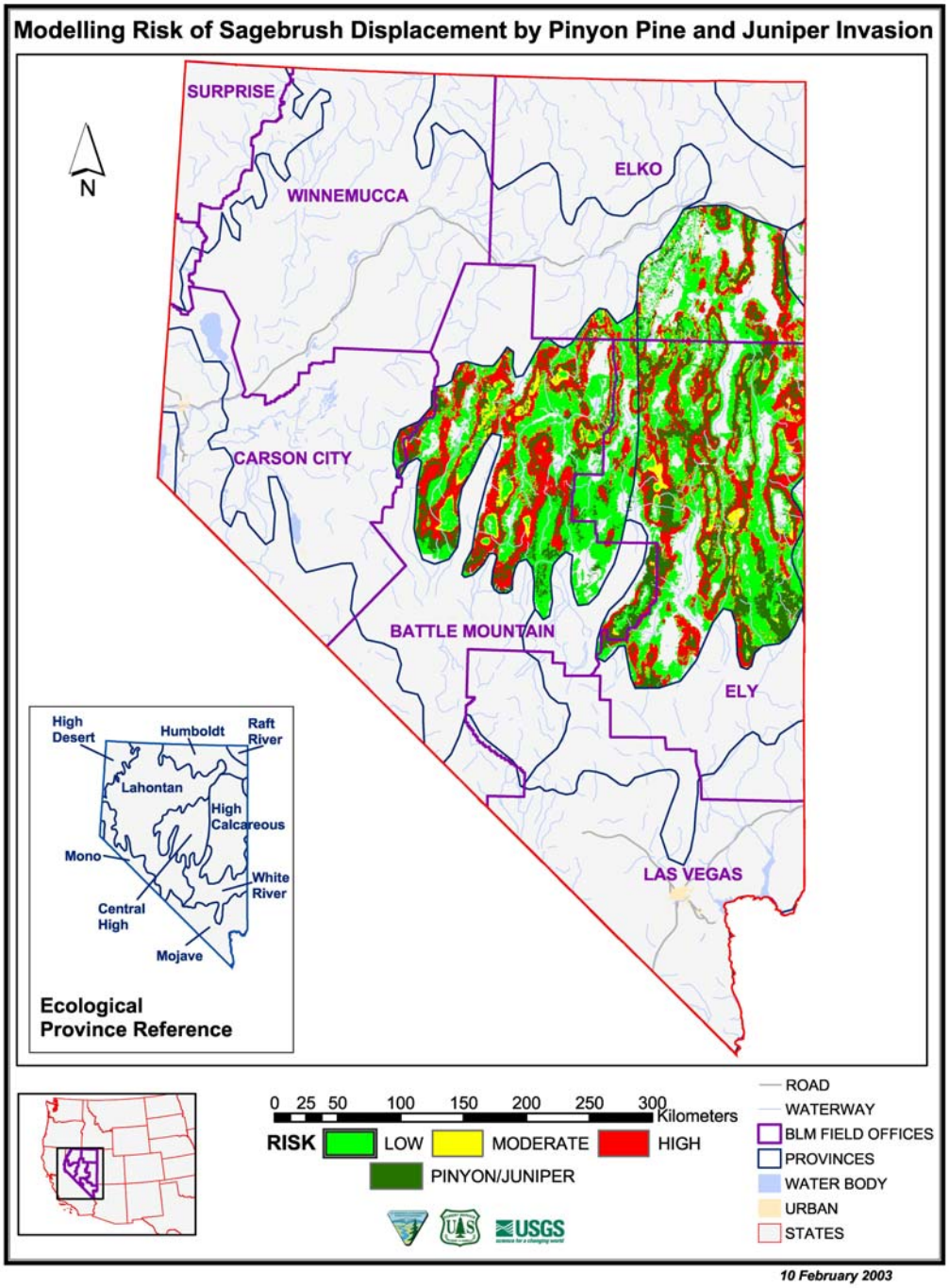

Figure 2. Risk of displacement of sagebrush cover types by pinyon-juniper woodlands within Bureau of Land Management Field Offices in the state of Nevada, encompassing the High Calcareous, Central High, and Bonneville Ecological Provinces. Note that only a small fraction of the Bonneville Ecological Province lies within Nevada (see Figure 1 for location of the Bonneville Ecological Province in Utah and Nevada).

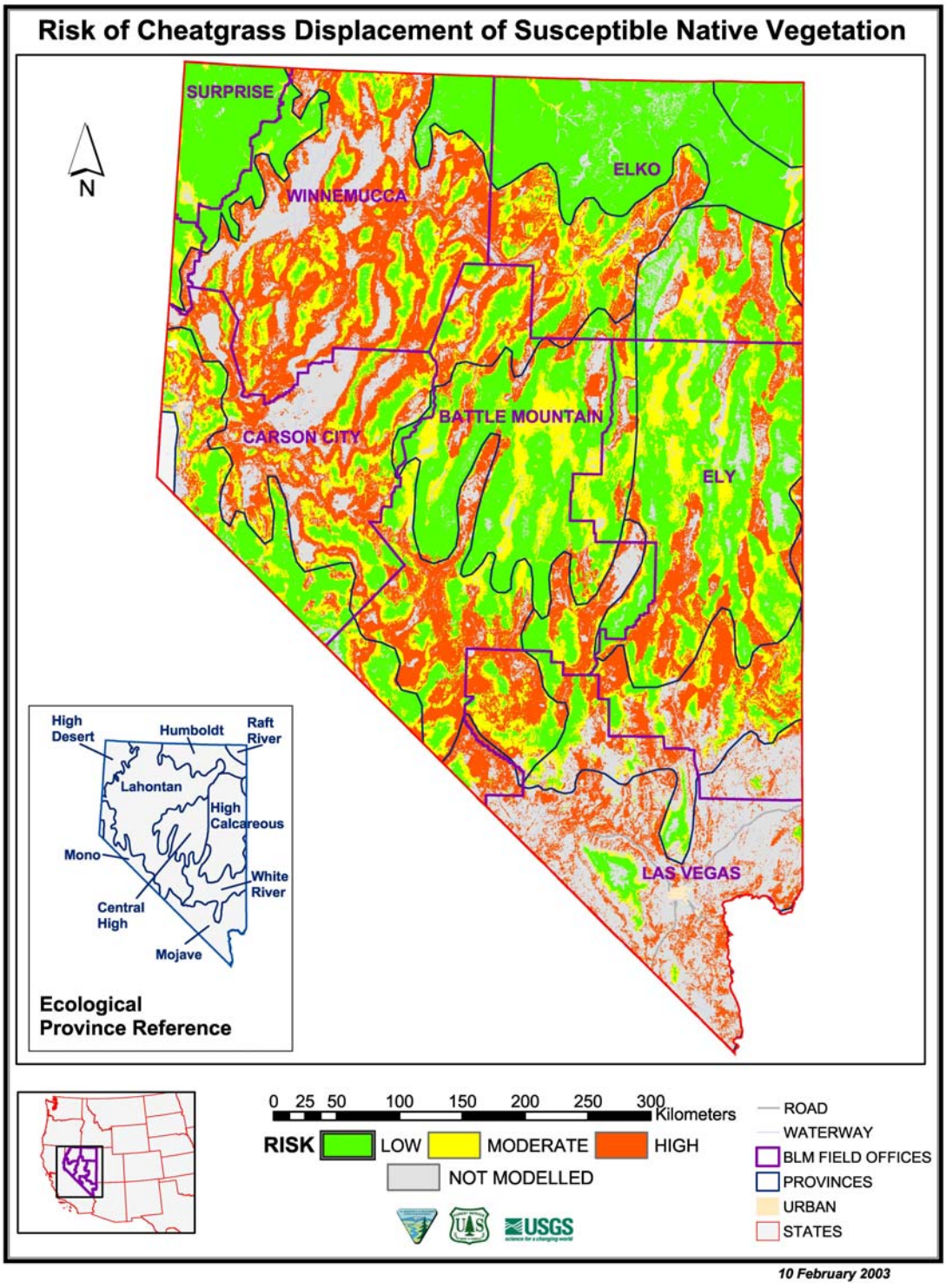

Figure 3. Risk of displacement of sagebrush and other native vegetation by cheatgrass within Bureau of Land Management Field Offices in Nevada. Areas not modeled were land cover types considered not susceptible to displacement by cheatgrass.

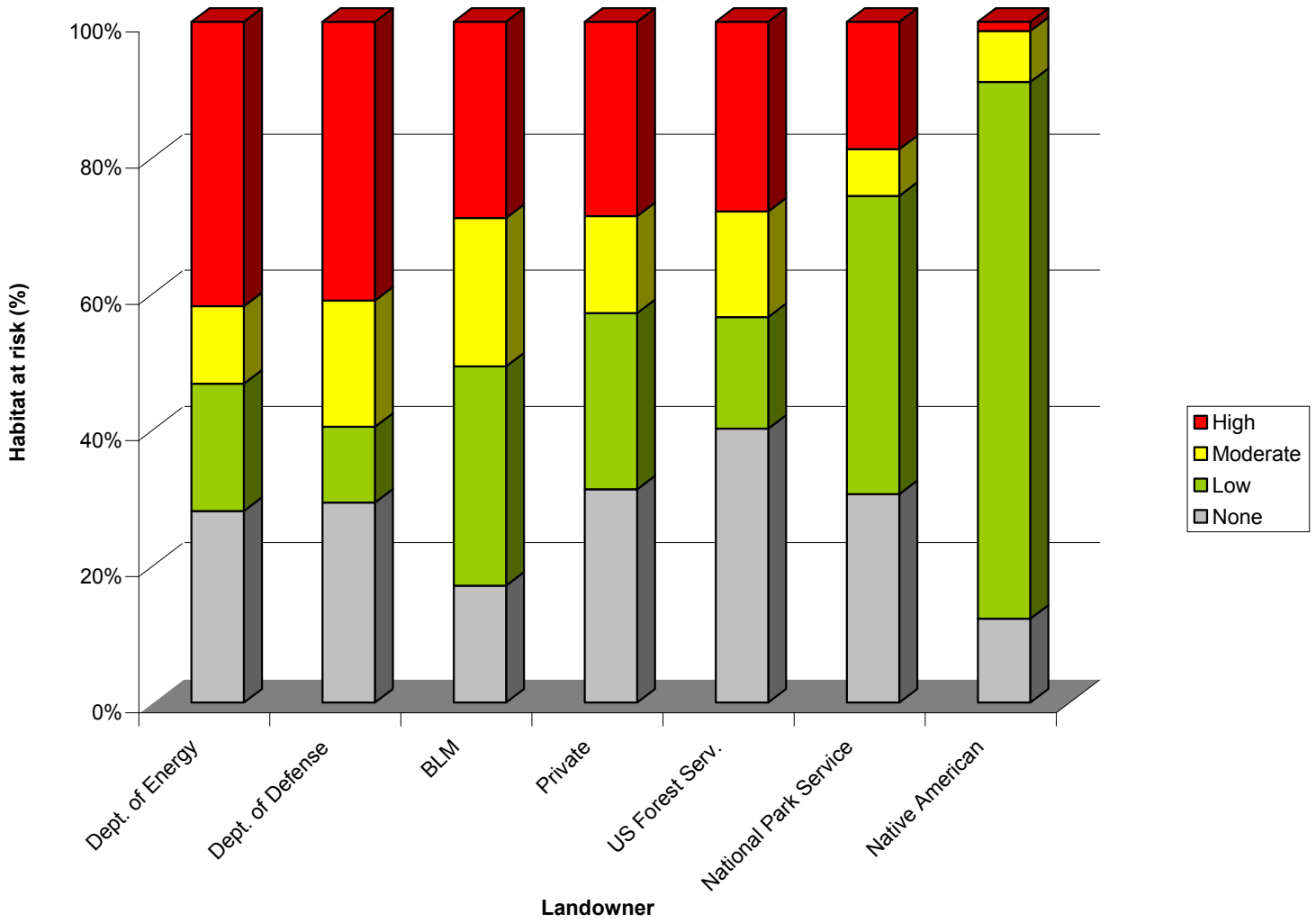

Figure 4. Percentage of vegetation at risk of displacement by cheatgrass in Nevada, by primary landowner and risk category. Data for state-owned lands and other landowners managing <1% of Nevada were not graphed; these data are included in Table 5.

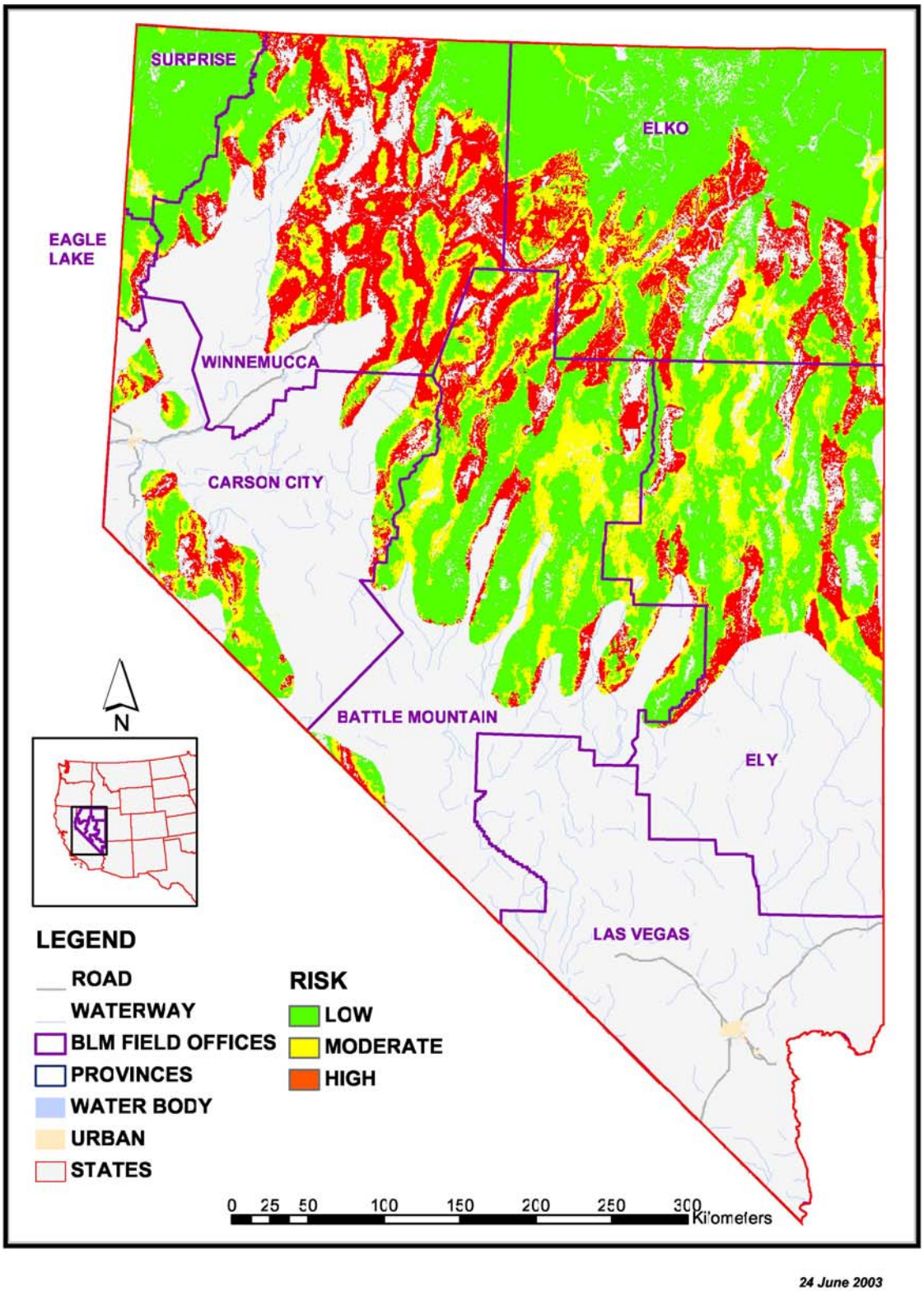

Figure 5. Risk of displacement of habitat for greater sage-grouse by cheatgrass within Bureau of Land Management Field Offices in Nevada. (Note that wet meadow habitats, which are at no risk of displacement, composed <1% of sage-grouse habitat in Nevada and are thus not mapped.)