

Natural Heritage Ranking Form - Oregon State Rank

Oregon Ranking Form Washington ground squirrel (*Urocitellus washingtoni*) Oregon Biodiversity Information Center

SPECIES ASSESSED

Scientific Name *Urocitellus washingtoni*

ELCODE AMAFB05020

Common Name Washington ground squirrel

Element ID 7014

Species Concept Reference Citation

Wilson, D. E., and D. M. Reeder (editors). 1993. Mammal species of the world: a taxonomic and geographic reference. Second edition. Smithsonian Institution Press, Washington, DC. xviii + 1206 pp. Available online at: <http://www.nmnh.si.edu/msw/>.

CONSERVATION STATUS RANK

Assigned Rank S2?

Rank Assignment Author E. Gaines

Rank Review Date 10/19/2022

Rank Factors Author E. Gaines

Rank Factors Date 10/19/2022

Calculated Rank S2?

Rank Change Date 05/10/2019

Rank Methodology Used Rank calculation - Biotics v2

Assigned Rank Reasons

Uncertainty over short term trends. Significant historic decline. Threats are numerous (chiefly habitat loss), but there is uncertainty over how isolated populations are, and effects of climate change. Also difficult to delineate populations. In Oregon, large portions of remaining habitat are protected.

RANGE/DISTRIBUTION

Range Extent

Rating 5000-20,000 square km (about 2000-8000 square miles)

Estimate 9000

Unit Used for Estimate

Comments

About 9000 sq km. Historically the species occupied native shrub-steppe and grasslands throughout north-central Oregon and eastern Washington, USA (Torrubia et al. 2014), but its range has decreased. The current range includes northern Oregon between the John Day River and the Blue Mountains (Betts 1990, Verts and Carraway 1998). Populations are disjunct, often separated by more than 30 kilometers of unoccupied land (Betts 1990, Finger et al. 2007). The species occurs in Umatilla, Morrow, and Gilliam Counties in Oregon. Precise estimates of the range extent are difficult because new sites continue to be found and previously occupied sites are extirpated (Betts 1999, Finger et al. 2007, U. S. Fish and Wildlife Service 2012).

Area of Occupancy

Grid Cell Size 4 km² Grid Cells

Rating (as Number of 4 km² Grid Cells) F = 126-500

Comments Current Eos (post-2000) intersect 302 4 km sq grid cells. Estimation of area of occupancy is difficult because new sites continue to be found while previously occupied sites become extirpated (Betts 1999, Finger et al. 2007, U. S. Fish and Wildlife Service 2012). Additionally, surveys are uncommon on private land, so populations on private land are generally not accounted for (U.S. Fish and Wildlife Service 2012). However, this range (125-500 4km² grid cells) is broad enough to accurately reflect the area of occupancy.

ABUNDANCE AND CONDITION

Number of Occurrences

Rating 21 - 80

Comments

24 Extant Eos. More historic records that are no longer extant. There are several hundred colonies, but many of these should likely be combined into single element occurrences (Finger et al. 2007, Rosier 2017, Watson and Olson 2018, ORBIC 2022). The variable occupancy of sites over time, coupled with a declining trend, makes it difficult to precisely estimate the number of distinct occurrences in Oregon (Finger et al. 2007, U.S. Fish and Wildlife Service 2012, Watson and Olson 2018).

Population Size

Rating 2500 - 100,000 individuals

Comments

Total adult population size is unknown and difficult to estimate because population dynamics are not well understood (Finger et al. 2007, U. S. Fish and Wildlife Service 2012). New populations continue to be found, but existing colonies are extirpated, and overall populations appear to be declining (Finger et al. 2007, Watson and Olson 2018). However, based on the number of colonies, which range in size, total population is likely several thousand individuals and may exceed 10,000.

Good Viability/Ecological Integrity

Number of Occurrences with Good Viability/Ecological Integrity

Rating Few to some (4-40)

Comments

The 22,642 acre Boardman Conservation Area, together with the adjacent 47,432 acre Boardman Naval Weapons Systems Training Facility, represents the largest remaining intact parcel of native Columbia Plateau habitat in Oregon (Cahill 2016). The Boardman Conservation Area is managed for native shrub-steppe and grassland habitat under a Multi-Species Candidate Conservation Agreement with Assurances to protect habitat for the Washington ground squirrel, among other species (Cahill 2016, U.S. Fish and Wildlife Service 2012). These lands protect approximately two thirds of the remaining colonies in Oregon, and one third of the remaining sites range wide (U.S. Fish and Wildlife Service 2012).

THREATS

<u>Threat Category</u>		<u>Calculated</u>				
<u>Code</u>	<u>Threat Category</u>	<u>Impact</u>	<u>Scope</u>	<u>Severity</u>	<u>Timing</u>	<u>Comments</u>
1	Residential & commercial development	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	High: Continuing	
2	Agriculture & aquaculture					
2.1	Annual & perennial non-timber crops	Not in timeframe	Large: Affects most (31-70%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	Insignificant/Negligible: Only in past and unlikely to return, or no direct affect but limiting	
2.3	Livestock farming & ranching	B = High	Large: Affects most (31-70%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	High: Continuing	
3	Energy production & mining	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Moderate - slight	Moderate: In the short-term future, or now suspended but could return in short term	
5	Biological resource use	Not in timeframe	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	Low - insignificant/negligible	
5.1	Hunting & collecting terrestrial animals	Not in timeframe	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	Low - insignificant/negligible	
5.1.3	Persecution/control	Not in timeframe	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	Low - insignificant/negligible	
7	Natural system modifications	C = Medium	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30%	High - moderate	

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7.1	Fire & fire suppression	C = Medium	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30% Serious - slight	High - moderate
11	Climate change & severe weather	BD = High - low	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent		High: Continuing
8	Invasive & other problematic species, genes & diseases	B = High	Large: Affects most (31-70%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	High: Continuing
8.1	Invasive non-native/alien species/diseases	B = High	Large: Affects most (31-70%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	High: Continuing

Calculated Overall Threat Impact AB = Very high - high

Assigned Overall Threat Impact AB = Very high - high

Overall Threat Impact Comments

The primary threat to this species is historical and ongoing habitat loss due to agricultural development, intensive grazing, and residential development. Roughly two thirds of the Washington ground squirrel's historic range has been converted to agriculture, disturbing soils and rendering the habitat unsuitable (Betts 1999, Quade 1994, U.S. Fish and Wildlife Service 2012). Small populations are disconnected and isolated by roads, agriculture, and residential development, limiting gene flow and making them vulnerable to extirpation from events like wildfire, disease, land use changes, and drought (Finger et al. 2007, U.S. Fish and Wildlife Service 2012, Torrubia et al. 2014). Intensive grazing practices in the Columbia River Basin degrade habitat, remove vegetation, and fragment the native landscape (Quade 1994, U.S. Fish and Wildlife Service 2012). Grazing also spreads seeds of non-native invasive plants which can out compete the native grasses and forbs this species feeds on (Quade 1994, Cahill 2016). Tilling or intensive grazing can also damage soil structure, an important feature of Washington ground squirrel habitat, and can present barriers to dispersal, resulting in fragmented populations (U.S. Fish and Wildlife 2012). Reduced vegetative cover, whether from intensive grazing or fallow fields, negatively affects Washington ground squirrels (Greene 1999). Invasive vegetation, including cheatgrass, out competes native bunchgrasses and forbs that comprise the Washington ground squirrel's diet (Quade 1994, U.S. Fish and Wildlife Service 2012). They create fuels that favor more frequent, intense wildfire, and recover from fire more quickly, setting up a cycle of more frequent burning that further degrades habitat for native species (Cahill 2016). Residential development has displaced colonies and is an ongoing threat in remaining habitat (Betts 1999, U.S. Fish and Wildlife Service 2012). Washington ground squirrels are often viewed as agricultural pests and are often shot or poisoned, despite their status as protected species in Oregon (U.S. Fish and Wildlife Service 2012). These threats are mitigated to some degree on the Boardman Conservation Area and adjacent Boardman Naval Weapons Systems Training Facility which provide secure, quality shrub steppe and grassland habitat for about a third of the remaining colonies in Oregon (U.S. Fish and Wildlife Service 2012, Cahill 2016). Washington ground squirrel colonies that are not on conservation lands remain vulnerable to continued habitat loss (U.S. Fish and Wildlife Service 2012).

The effects of climate change are uncertain but predicted increased summer drought could negatively impact this species by limiting food availability (Quade 1994). Alternatively, increased precipitation over winter or spring could improve food availability (Green 2009, U.S. Fish and Wildlife Service 2012). Fire frequency is increasing in the Columbia Basin, favoring conversion to non-native grasses which out-compete the native grasses and forbs Washington ground squirrels feed on (U.S. Fish and Wildlife Service 2012).

Energy development within the range of the Washington ground squirrel is increasing (U. S. Fish and Wildlife Service 2007). Short term construction disturbances and permanent habitat loss are a threat, but a conservation agreement is in place in Oregon to mitigate at least some of these threats (U.S. Fish and Wildlife Service 2012, Cahill 2016).

Sylvatic plague is a potentially serious threat to individual populations (U.S. Fish and Wildlife Service 2012). Native badgers may also limit populations (U. S. Fish and Wildlife Service 2012, Watson and Olson 2018).

TRENDS

Short-Term Trend

Rating FG = Decline of <30% to relatively stable

Comments

Difficult to assess current rate of decline because new sites have been located as old ones are lost. On the Boardman Conservation Area in Oregon, occupancy was similar between 2016 and 1991/2001 (Rosier 2017). However, rate of loss exceeds new sites.

Long-Term Trend

Rating C = Decline of 70-80%

Comments

Population dynamics are not well understood, and populations fluctuate at local scales. Approximately two-thirds of the Washington ground squirrel's total historical range has been converted to agriculture and the remaining one-third is degraded due to fragmentation of formerly contiguous blocks of habitat (U. S. Fish and Wildlife Service 2010). Betts (1990, 1999) found that the species had disappeared from 76.9 percent of the sites in Oregon.

OTHER FACTORS

Intrinsic Vulnerability Rating Moderately vulnerable

Comments

Environmental Specificity Rating Very narrow. Specialist or community with key requirements scarce.

Comments

This species requires sagebrush-steppe and grasslands with undisturbed, deep soils. Since the advent of intensive agriculture and grazing, high quality habitat is scarce outside of conservation areas (U.S. Fish and Wildlife Service 2012).

ADDITIONAL SPECIES INFORMATION

Oregon Habitat Comments

Found in grassy prairies, steep hillsides, gulch banks, and sandy bottoms (Bailey, 1936). Habitat now much fragmented by wheat fields, which are apparently a barrier. Still abundant locally, but isolated populations are in jeopardy.

RANKING REFERENCES

<u>Short Citation</u>	<u>Author</u>	<u>Year</u>	<u>Full Citation</u>
Betts		1999	Betts, B.J. 1999. Current status of Washington ground squirrels in Oregon and Washington. <i>Northwestern Naturalist</i> 80:35-38.
David Evans and Associates		2004	David Evans and Associates. 2004. Multi-Species Candidate Conservation Agreement with Assurances: Washington ground squirrel, Ferruginous Hawk, Loggerhead Shrike, Sage Sparrow. Portland, Oregon.
ORBIC		2019	Oregon Biodiversity Information Center. 2019. Oregon Biotics Rare Species Database. Maintained by ORBIC at Portland State University, Portland, OR.
US Federal Register		2016	US Federal Register. 2016. Endangered and Threatened Wildlife and Plants; 12-Month Findings on Petitions To List Nine Species as Endangered or Threatened Species. 81 FR 64843 64857. https://www.govinfo.gov/content/pkg/FR-2016-09-21/pdf/2016-22453.pdf

RESOURCES

Oregon Biodiversity Information Center, Institute for Natural Resources
Portland State University, Mail Stop: INR, PO Box 751, Portland, OR 97207-0751 Phone: 503-725-9950

Additional ORBIC species ranking forms posted at
<https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation>

Information on Natural Heritage ranking methodology is available at
<http://www.natureserve.org/biodiversity-science/publications/natureserve-conservation-status-assessments-methodology-assign>

The Conservation Rank Calculator is developed and maintained by NatureServe and is available from
<http://www.natureserve.org/conservation-tools/conservation-rank-calculator>

ASSESSMENT CITATION

Oregon Biodiversity Information Center. 2022. Oregon state rank assessment for Washington ground squirrel (*Urocitellus washingtoni*). Institute for Natural Resources, Portland State University, Portland, OR.