Woodchuck

Marmota monax

Class: Mammalia
Order: Rodentia

Review Status: Peer-reviewed **Version Date:** 17 December 2018

Conservation Status

NatureServe:	*Agency:*		
G Rank: G5	ADF&G:	IUCN: Least Concern	Audubon AK:
S Rank: S5	USFWS:	BLM:	

Final Rank

Conservation category: **VII. Yellow**

low status and either high biological vulnerability or high action need

Category	Range	Score
Status	-20 to 20	-5
Biological	-50 to 50	-17
Action	-40 to 40	12

Higher numerical scores denote greater concern

Status - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing). **Score**

Population Trend in Alaska (-10 to 10) 0

Unknown.

Distribution Trend in Alaska (-10 to 10) -5

Unknown, but suspected to be increasing. The woodchuck has been increasingly seen further north along the Elliott Highway and south along the Parks Highway than previous records would suggest (L. E. Olson, pers. comm.).

Status Total: -5

Biological - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable). **Score**

Population Size in Alaska (-10 to 10) 0

Unknown.

Range Size in Alaska (-10 to 10) -5

Distribution in Alaska is restricted to the eastern interior, from the Canadian border north of the Wrangells to the Yukon River, and west to Fairbanks (MacDonald and Cook 2009; ACCS 2017a). Estimated range is >10,000 sq. km., but <400,000 sq. km.

Population Concentration in Alaska (-10 to 10) 0

Does not concentrate.

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) -3

Unknown for Alaska, but 2 years elsewhere (Barash 1974b; Kwiecinski 1998).

Number of Young (-5 to 5) 1

Unknown for Alaska, but studies elsewhere in North America have found that females have one litter per year with an average litter size between 3 and 4 (de Vos and Gillespie 1960; Snyder and Christian 1960; Armitage 1981; Kwiecinski 1998).

Ecological Specialization in Alaska

Dietary (-5 to 5) -5

Little is known about the diet of woodchucks in Alaska. Across its range, the woodchuck is a generalist and opportunistic herbivore (Swihart 1990; Kwiecinski 1998). It consumes a variety of plant groups including forbs, grasses, mosses, lichens, and parts including berries, leaves, and roots (Fall 1971; Swihart 1990; Kwiecinski 1998). Occasionally eats invertebrates such as snails and grasshoppers (Kwiecinski 1998).

Habitat (-5 to 5) -5

Little is known about habitat preferences in Alaska. It is found in open, deciduous forests and well-drained meadows with suitable soils for digging burrows (Kwiecinski 1998; MacDonald and Cook 2009). Elsewhere in North America, woodchucks have been reported from a variety of habitats including near roadways, agricultural fields and orchards, clearcuts, edge habitat, and open woodlands (Woodward 1990; Meier 1992; Swihart 1992; Samson and Crête 1997; Hellgren and Polnaszek 2011).

Biological Total: -17

Action - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs). **Score**

Management Plans and Regulations in Alaska (-10 to 10) -10

Marmots are classified as furbearers and can be trapped with no closed season or bag limit (ADFG 2018d). However, the meat or hide must be salvaged for human use (ADFG 2018d).

Knowledge of Distribution and Habitat in Alaska (-10 to 10) 10

Very little is known about the distribution and habitat associations of woodchucks in Alaska. Of the 107 records listed in ARCTOS, most are from Fairbanks and surrounding areas (ARCTOS 2016). Recent evidence of expansion to the north and south of its range (L. E. Olson, pers. comm.) warrants further investigation.

Knowledge of Population Trends in Alaska (-10 to 10) 10

Not currently monitored.

Knowledge of Factors Limiting Populations in Alaska (-10 to 10) 2

Little is known about the ecology and population dynamics of the woodchuck in Alaska. Elsewhere in North America, several authors have considered sociality, space use (e.g. Ferron and Ouellet 1989; Swihart 1992; Allainé 2000; Maher 2009), and hibernation (Davis 1967; Ferron 1996; Zervanos et al. 2010; Zervanos et al. 2014). Population densities are likely influenced by the availability and spatial distribution of food and burrows (Ferron and Ouellet 1989; Swihart 1992; Maher 2009; Lehrer and Schooley 2010) and by agonistic behaviors between individuals. At lower densities, males defend territories and access to females, whereas territoriality is relaxed at high population

densities or when resources cannot be defended (Ferron and Ouellet 1989; Maher 2009; but see Maher 2004). Several authors have proposed that agonistic behaviors suppress reproduction and limit mate availability in yearlings and subordinate individuals (Snyder 1962; Wasser and Barash 1983; Allainé 2000; Maher 2009), but this topic has not been well-researched in the woodchuck. Sociality does not seem to be related to the length of the growing season, as was previously proposed (reviewed in Maher 2006).There is also a need to understand the factors that promote early versus delayed dispersal. Sexual competition, population density, burrow availability, and high costs of dispersal (i.e. mortality, decreased vigilance) have all been proposed (Snyder 1962; Meier 1992; Maher 2006 and references therein; Maher 2009).

Food availability likely limits population growth and especially the survival of yearlings, which tend to weigh less than adults (Davis 1981). Overwinter survival, mediated by body weight and food availability, appears to be an important component of population dynamics in woodchucks (Davis 1981; Lehrer et al. 2012). Individuals that are heavier prior to hibernation likely have higher rates of survival and potentially higher rates of reproductive success (Davis 1981; Zervanos et al. 2014). Predation from coyotes and foxes may also be an important source of mortality for woodchucks, especially for juveniles, but few data are available (de Vos and Gillespie 1960; Samson and Crête 1997; Hellgren and Polnaszek 2011; Lehrer et al. 2012). Woodchucks may be able to respond to population declines by compensatory increases in juvenile survival, immigration, and birth rates (Davis et al. 1964).

Woodchucks have now been collected or observed within a few miles of hoary marmot colonies in the White Mountains of interior Alaska. The two species are otherwise not known to occur in sympatry. Given the presumed recent and ongoing expansion of the woodchuck's range in Alaska, there is the potential for novel interactions and parasite and disease transmission between the two species.

Action Total: 12

Supplemental Information - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

Harvest:	Not substantial
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	<10%
% Global Population in Alaska:	<25%
Peripheral:	Yes

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