



Bison bison
American Bison

G4
Apparently
Secure





Distribution (Where available)


 16,807 mi² / 43,530 km² Hexagon

 Data Not Available


State/Provincial Conservation Status


 Presumed Extirpated (SX)

 Possibly Extirpated (SH)

 Critically Imperiled (S1)

 Imperiled (S2)

 Vulnerable (S3)

 Apparently Secure (S4)

 Secure (S5)

2000 km
1000 mi

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Classification

Scientific Name: *Bison bison* (Linnaeus, 1758)

Other Common Names: Bison (EN), Bison (FR)

Kingdom: Animalia

Phylum: Craniata

Class: Mammalia

Order: Artiodactyla

Family: Bovidae

Genus: *Bison*

Scientific Name Reference: Wilson, D. E., and D. M. Reeder (editors). 2005. Mammal species of the world: a taxonomic and geographic reference. Third edition. The Johns Hopkins University Press, Baltimore. Two volumes. 2,142 pp. Available online at: <https://www.departments.bucknell.edu/biology/resources/msw3/>

Concept Reference: Wilson, D. E., and D. M. Reeder (editors). 2005. Mammal species of the world: a taxonomic and geographic reference. Third edition. The Johns Hopkins University Press, Baltimore. Two volumes. 2,142 pp. Available online at: <https://www.departments.bucknell.edu/biology/resources/msw3/>

Name Used in Concept Reference: *Bison bison*

Synonyms: *Bos bison*

NatureServe Unique Identifier: ELEMENT_GLOBAL.2.101908

NatureServe Element Code: AMALE01010

Related ITIS Names: *Bison bison* (Linnaeus, 1758) (TSN 180706)

Taxonomic Comments:

Some authors regard New World *B. bison* and Old World *B. bonasus* as conspecific; they were regarded as separate species by Meagher (1986) and Grubb (in Wilson and Reeder 1993, 2005).

There has been some difference of opinion as to whether the two subspecies, *B. b. bison* and *B. b. athabasca*, are worthy of recognition; different types of data suggest different conclusions (see Bork et al. 1991). van Zyll de Jong (1986) found that cranial and post-cranial skeletal data indicate a phenotypic discontinuity between grassland and woodland populations and concluded that recognition of the subspecies *bison* and *athabasca* is fully justified. External phenotypic data support this distinction as well (van Zyll de Jong et al. 1995). See Geist (1990, 1991) for a summary of evidence that there are no taxonomically valid differences between wood and plains bison. MtDNA data (Polziehn et al. 1996) indicate that both the plains bison (subspecies *bison*) and the wood bison (subspecies *athabasca*) form polyphyletic groups; neither is a well-defined taxon. Gates et al. (2001), however, argued that mtDNA data are not appropriate for determining the relationship between the two groups. Wilson and Strobeck (1999) investigated variability in 11 microsatellite loci of bison genomic DNA and concluded that the genetic clustering of wood bison indicates that they are functioning as a genetic entity separate from plains bison.

The generic allocation of this species is debatable. Mitochondrial and ribosomal DNA analyses, together with reproductive, cranial, and other molecular data, strongly indicate that the genus *Bison* should be treated as a synonym of *Bos* rather than as a distinct genus in the tribe Bovini (Miyamoto et al. 1989, Wall et al. 1992). Baker et al. (2003) listed the bison as *Bos bison*. Without explanation, Grubb (in Wilson and Reeder 2005) recognized *Bison* and *Bos* as distinct genera.

See Georgiadis et al. (1991) for a phylogeny of the Bovidae based on allozyme divergence among 27 species. See Kraus and Miyamoto (1991) for a phylogenetic analysis of pecoran ruminants (Cervidae, Bovidae, Moschidae, Antilocapridae, and Giraffidae) based on mitochondrial DNA data.

Infraspecies:

Bison bison athabasca

Bison bison bison

Conservation Status

NatureServe Status

Global Status: G4

Global Status Last Reviewed: 4/4/2016

Rank Method Used: Ranked by inspection

Reasons:

Occurs as wild, free-ranging populations in only small fragments of the once vast range in North America, but the species is secure globally due to the many managed populations on public and private lands.

National & State/Provincial Statuses

Canada: N3

S1S2: Northwest Territories

S2: Alberta

S2S3: Saskatchewan

S3: British Columbia, Yukon Territory

SNA: Island of Newfoundland

SX: Manitoba

United States: N4

S1: Wyoming

S2: Montana, Utah

S3: South Dakota

SH: Texas

SNA: Arizona, Idaho

SNR: California

SX: Alabama, Arkansas, Colorado, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Virginia, Washington, West Virginia, Wisconsin

Other Statuses

U.S. Endangered Species Act: None

Implied Status under the U.S. Endangered Species Act: PS

Comments on Endangered Species Act Statuses:

Subspecies *athabasca* in Canada is listed by USFWS as Threatened (Federal Register, 3 May 2012). In a 90-day petition finding, USFWS (2019) found that listing the Yellowstone National Park bison (population of *Bison bison*) is not warranted.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC): None

Implied Status of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC): T,SC

Comments on COSEWIC:

The Plains Bison is designated Threatened and the Wood Bison is designated Special Concern.

NatureServe Global Conservation Status Factors

Range Extent: 20,000-2,500,000 square km (about 8000-1,000,000 square miles)

Range Extent Comments:

Formerly widespread in North America from Alaska and western Canada across U.S. into northern Mexico. Currently found in isolated units throughout and external to historical range.

Estimated Number of Element Occurrences: 21 - 80

Estimated Number of Element Occurrences Comments:

A few wild remnant populations occur in U.S. and Canadian national parks. Now occurs mainly as reintroduced, confined populations in many public and private parks and preserves in the U.S. and Canada.

Global Protection: Many to very many (13 to >40) occurrences appropriately protected and managed

Global Protection Comments:

Occurs in several parks and preserves in Canada and the U.S.

Threat Comments:

Susceptible to livestock diseases, though these do not pose a major threat to bison populations. "Control" by agencies may be detrimental to relatively free-ranging herds, such as in Yellowstone National Park.

Short-term Trend: Relatively Stable (<=10% change)

Global Abundance: 10,000 to >1,000,000 individuals

Global Abundance Comments:

North American population may have been about 30-60 million about the time modern man arrived. Reduced to about 1650 by 1903. Population in 1983 was estimated at 75,000 (Meagher 1986). In Yellowstone NP, the herd was estimated at 3000-3500 in 1996 (Keiter 1997); however, over 1000 were killed during the winter of 1996-97 by agency personnel.

Other NatureServe Conservation Status Information

Inventory Needs:

Monitor populations, especially those that are harvested; determine demographics, production, and mortality.

Protection Needs:

Maintain existing EOs.

Other Considerations:

There are many privately owned non-free-ranging bison herds. Bovine (BOS TAURUS) genes have apparently entered the Custer State Park herd, probably in the last century; however, that herd also possesses a unique bison haplotype not found elsewhere (Polziehn et al. 1995).

Distribution

National and State/Provincial Distribution:

Canada: AB , BC , MB , NF, NT , SK , YT

United States: AL , AR , AZ, CA, CO , DC , DE , FL , GA , IA , ID, IL , IN , KS , KY , LA , MA , MD , MI , MN , MO , MS , MT , NC , ND , NE , NM , NV , NY , OH , OK , OR , SC , SD , TN , TX , UT , VA , WA , WI , WV , WY

Ecology and Life History

Length: 3.8 meters

Weight: 907 kilograms

Reproduction Comments:

Most cows breed at 2-4 years; males usually mature at 3 years, but most breeding done by older (6+ years) males. Most mating July-August. Gestation lasts about 9.5 months. Normally 1 calf, is born mainly mid-April to early June (as early as March in Oklahoma, sometimes as late as summer or early fall in South Dakota). Most calves are weaned by late fall or end of first year, remain with mother until spring or later if she does not conceive. Life span 18-22 years.

Ecology Comments:

Gregarious. Often forms herds of 11 - 12 animals. Cows and young remain in herds throughout the year. Bulls solitary or in small groups until summer when they begin to mix with cow-calf herds. Home range in Northwest Territories averaged several hundred sq km (Larter and Gates 1990). May live up to about 20 years.

Mobility and Migration

Colonial Breeder: No

Non-Migrant: No

Locally Migrant: No

Long Distance Migrant: Yes

Mobility and Migration Comments:

Previously made mass migrations across prairie in spring and fall. Probably moved southward a few hundred miles to winter pastures. Mountain populations moved to lower elevations in valleys. Movements of U.S. populations now are restricted to parks and vicinity.

Habitat

Habitat Type: Terrestrial

Palustrine Habitats: HERBACEOUS WETLAND

Terrestrial Habitats: Woodland - Hardwood, Savanna, Woodland - Mixed, Grassland/herbaceous, Woodland - Conifer

Habitat Comments:

Open plains and grasslands in south; woodland and openings in boreal forest, meadows, and river valleys in north. Like other large grazers, attracted to burned areas the next growing season (Shaw and Carter 1990). During the growing season at the Konza Prairie in northeastern Kansas, preferred areas that had been burned in spring; summer grazing was concentrated in large watershed area (79-119 ha) dominated by warm-season, perennial C4 grasses; in fall and winter, grazed both burned and unburned watersheds more uniformly but grazed most intensively in areas with large stands of cool-season, C3 grasses (Vinton et al. 1993). Cows usually give birth in isolation where vegetation provides cover; isolation during birth is infrequent where cover is lacking (Meagher 1986).

Phenology

Immature Phenologies: Diurnal

Adult Phenologies: Diurnal

Phenology Comments:

Primarily diurnal (especially early morning and late afternoon), with several grazing periods interspersed with loafing and ruminating (Meagher 1986).

Food

Immature Food Habits: Herbivore

Adult Food Habits: Herbivore

Food Comments:

Primarily a grazer. Feeds on grasses, forbs, and sedges. See GHABCOM.

Management Summary

Management Requirements:

See Meagher (1989) for information on management of Yellowstone bison that leave the park (public hunting outside the park regarded as most feasible management option); management there remains controversial; ranchers fear spread of brucellosis from bison to cattle. (Brucellosis is a coccobacillus that causes a high rate of abortion during the first pregnancy following infection.) See Peterson et al. (1991) for a simulation of alternative bison-brucellosis management strategies for Grand Teton National Park; simulations predict that, after 20 years under any of the proposed management schemes, the proportion of the herd seropositive for BRUCELLA could be reduced from 69% (current level) to, at best, 20%.

See Geist (1990) for vigorous criticism of plan by Agriculture Canada to kill some 3200 so-called "hybrid" bison in Wood Buffalo National Park and replace them with "wood bison," the latter regarded as genetically impoverished and taxonomically insignificant.

Biological Research Needs:

Genetics of populations, taxonomic studies of 2 subspecies, comparisons between populations.

Population / Occurrence Delineation

Group Name: Bison

Minimum Criteria for an Occurrence:

Evidence of historical presence, or current and likely recurring presence, at a given location. Such evidence minimally includes reliable observations and documentation of one or more individuals in appropriate habitat where the species is presumed to be established and breeding

Mapping Guidance:

Mapping Bison populations should take into account the concept of "wild by nature", meaning only those populations that could contribute to biodiversity conservation should be mapped. This excludes the mapping of farmed/private herds not held for recovery reasons.

Separation Barriers:

Fences and lethal separation control zones.

Alternate Separation Procedure:

Occurrence separations should be based on populations (herds) that exhibit specific movement patterns, or on appropriate resource agency management units, rather than on specific prescribed distances. Overlapping EOs may occur where there is spatial overlap, but not a temporal overlap (i.e. separate populations (herds) may be using the same space at different times).

Separation Justification:

Some populations are completely or partially enclosed by fences or are separated by lethal control zones to prevent disease spread between populations

Inferred Minimum Extent Justification:

None.

Date: 2020-10-30

Author: Canadian EO Specifications Working Group with expertise provided from Damien Joly

Version Notes: Previous version by Hammerson, G., and S. Cannings (2004).

Population / Occurrence Viability

[See the Generic Guidelines for the Application of Occurrence Ranks \(2008\).](#)

Authors and Contributors

NatureServe Conservation Status Factors Edition Date: 5/26/1995

NatureServe Conservation Status Factors Edition Authors: Meager, M., C. Sahley, and G. Hammerson. Minor revisions J. D. Reichel.

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