

bighorn sheep anatomy

bighorn sheep anatomy is a fascinating subject that delves into the intricacies of one of North America's most iconic wild animals. Bighorn sheep, known for their impressive curled horns and agile bodies, are specially adapted to thrive in rugged terrains. This article will explore the anatomy of bighorn sheep in detail, covering their skeletal structure, muscular system, circulatory system, and sensory organs. Each of these components plays a crucial role in the bighorn sheep's ability to survive and thrive in harsh environments. Additionally, we will discuss the unique adaptations that allow bighorn sheep to navigate steep mountain ranges and evade predators effectively.

In this comprehensive guide, you will gain insights into the remarkable physical features of bighorn sheep, how their anatomy supports their lifestyle, and the ecological significance of these animals.

- Introduction to Bighorn Sheep Anatomy
- Skeletal Structure of Bighorn Sheep
- Muscular System and Movement
- Circulatory System of Bighorn Sheep
- Respiratory and Digestive Systems
- Sensory Organs and Adaptations
- Conclusion
- Frequently Asked Questions

Introduction to Bighorn Sheep Anatomy

The bighorn sheep's anatomy is specifically designed for life in mountainous habitats. Their physical structure enables them to traverse rocky terrains with ease, evade predators, and compete for resources. The bighorn sheep has a robust skeletal framework that supports their muscular build. This section will introduce the key components of their anatomy, highlighting the features that make them uniquely adapted to their environment.

Skeletal Structure of Bighorn Sheep

The skeletal structure of bighorn sheep is a critical aspect of their anatomy that supports their lifestyle. Bighorn sheep have a lightweight yet strong skeleton that is adapted for agility and balance on steep slopes. The following are key features of their skeletal structure:

Skull and Horns

The skull of a bighorn sheep is characterized by its robust shape, which houses a strong jaw and large teeth adapted for grazing on tough vegetation. One of the most distinctive features is the horns. Male bighorn sheep, or rams, possess large, curled horns that can weigh up to 30 pounds and can grow as long as 3 feet. These horns are not only a display of dominance but also serve as a protective mechanism during fights with rivals.

Vertebral Column

The vertebral column of bighorn sheep consists of 7 cervical, 13 thoracic, and 5 lumbar vertebrae, providing flexibility and strength. This structure permits the bighorn sheep to maneuver quickly and maintain balance while navigating rocky landscapes. The strong spine supports their heavy body and helps with agility.

Limbs and Hooves

Bighorn sheep have long, sturdy limbs that are well-adapted for climbing. Their hooves are cloven, with a hard outer shell and a softer inner pad, allowing for better grip on rocky surfaces. The unique structure of their limbs and hooves enables them to leap across gaps and ascend steep inclines effortlessly.

Muscular System and Movement

The muscular system of bighorn sheep is intricately linked to their skeletal framework, allowing for powerful and agile movements. Their muscles are well-developed, supporting both endurance and strength, which are essential for their survival in challenging environments.

Types of Muscles

Bighorn sheep possess three types of muscles: skeletal, smooth, and cardiac. Skeletal muscles are responsible for voluntary movements, allowing them to navigate their rugged habitat. Smooth muscles control involuntary movements in their internal organs, while cardiac muscles ensure the heart functions efficiently.

Movement and Agility

The combination of a strong muscular system and a lightweight frame allows bighorn sheep to perform impressive feats of agility. They can run at speeds of up to 30 miles per hour and jump distances of over 15 feet. This

remarkable ability to maneuver swiftly helps them escape from predators and navigate steep terrain with ease.

Circulatory System of Bighorn Sheep

The circulatory system of bighorn sheep is vital for sustaining their high-energy lifestyle. It ensures the efficient transport of oxygen and nutrients throughout their bodies, which is essential for their endurance and agility.

Heart Structure

The heart of a bighorn sheep is large and muscular, with four chambers that allow for efficient separation of oxygenated and deoxygenated blood. This structure supports their high metabolic rate, especially during strenuous activities like climbing or running.

Blood Vessels

Bighorn sheep have a network of arteries and veins that facilitate blood flow. Their arteries are thick and elastic, allowing them to withstand the high pressures generated during intense physical exertion. The circulatory system is adapted to maintain blood flow even at high altitudes, where oxygen levels are lower.

Respiratory and Digestive Systems

The respiratory and digestive systems of bighorn sheep are equally important for their survival. These systems are adapted to meet the demands of their lifestyle in mountainous regions.

Respiratory System

Bighorn sheep have a highly efficient respiratory system that allows for optimal oxygen intake. Their lungs are large, and their respiratory rate can increase significantly during exertion. This adaptation is crucial for sustaining energy levels during high-altitude activities.

Digestive System

The digestive system of bighorn sheep is specialized for breaking down tough, fibrous plant material. As ruminants, they have a four-chambered stomach that allows them to ferment food efficiently. This adaptation is essential for extracting maximum nutrients from their diet, which mainly consists of

grasses, shrubs, and other vegetation.

Sensory Organs and Adaptations

Bighorn sheep possess acute sensory organs that play a significant role in their survival. Their senses of sight, hearing, and smell are highly developed, allowing them to detect predators and navigate their environment effectively.

Vision

Bighorn sheep have excellent vision, with large eyes positioned on the sides of their heads. This positioning provides a wide field of view, making it easier to spot potential threats. Their eyesight is adapted for both day and night, giving them an advantage in various lighting conditions.

Hearing and Smell

The hearing of bighorn sheep is also acute, enabling them to detect sounds made by predators or other bighorn sheep. Their sense of smell is highly developed, allowing them to identify food sources and recognize other individuals within their social groups.

Conclusion

The anatomy of bighorn sheep is a remarkable example of evolution and adaptation to harsh environments. Their skeletal and muscular systems, along with efficient circulatory and respiratory systems, equip them for survival in rugged terrains. The unique features of their anatomy not only support their physical capabilities but also play crucial roles in their social behaviors and ecological interactions. Understanding bighorn sheep anatomy provides insights into their remarkable adaptations and highlights the importance of conserving their natural habitats.

Q: What are the main features of bighorn sheep anatomy?

A: The main features of bighorn sheep anatomy include their robust skeletal structure, large curled horns, strong limbs, agile muscular system, and acute sensory organs. These adaptations enable them to thrive in mountainous habitats.

Q: How do bighorn sheep's horns develop?

A: Bighorn sheep's horns are made of keratin and grow continuously throughout

their lives. The size and shape of the horns can indicate the age and health of the individual, with rams developing larger, more curled horns than ewes.

Q: What adaptations do bighorn sheep have for climbing?

A: Bighorn sheep have long, sturdy limbs and cloven hooves that provide excellent traction on rocky surfaces. Their lightweight skeleton and strong muscles allow them to leap and maneuver over steep terrain effectively.

Q: How does the circulatory system support a bighorn sheep's lifestyle?

A: The circulatory system of bighorn sheep includes a large, muscular heart and elastic arteries, which facilitate efficient blood flow and oxygen transport. This is crucial for sustaining their energy levels during physical activities like climbing and running.

Q: What role do sensory organs play in bighorn sheep survival?

A: Sensory organs in bighorn sheep, particularly their acute vision, hearing, and smell, are essential for detecting predators, navigating their environment, and finding food. These adaptations enhance their ability to survive in the wild.

Q: Are there any unique adaptations related to their diet?

A: Yes, bighorn sheep are ruminants with a four-chambered stomach that allows them to efficiently digest tough, fibrous plant material. This adaptation is vital for extracting nutrients from their primarily herbivorous diet.

Q: How does bighorn sheep anatomy support their social behaviors?

A: Bighorn sheep anatomy, particularly their horns and body size, plays a role in social interactions and dominance displays among males. Their sensory adaptations also facilitate communication and interaction within social groups.

Q: What is the significance of bighorn sheep anatomy in their ecological role?

A: Bighorn sheep anatomy supports their role as herbivores in mountainous ecosystems, impacting vegetation patterns and serving as prey for larger predators. Their adaptations contribute to the overall balance of their

ecological communities.

Bighorn Sheep Anatomy

Find other PDF articles:

<http://www.speargroupllc.com/workbooks-suggest-003/Book?dataid=OWJ27-4264&title=workbooks-ordered-in-june.pdf>

bighorn sheep anatomy: Bighorn Sheep Meryl Magby, 2012-01-15 Its name is a not-so-subtle clue to the bighorn sheep's best-known feature. While female bighorn sheep also have horns, it is the males whose huge, curving horns won these mammals their name. In the fall, males use their horns to fight over the right to mate with females. Readers of this fun, informative book will learn how these battles take place along with other interesting facts about this classic North American animal.

bighorn sheep anatomy: Archaeology and Bioarchaeology of Anatomical Dissection at a Nineteenth-Century Army Hospital in San Francisco P. Willey, Peter Gavette, Eric J. Bartelink, Colleen F. Milligan, 2023-12-13 This volume uses historical, archaeological, and bioarchaeological analysis to study and understand a nineteenth-century medical waste pit discovered at the former Army hospital at Point San Jose in San Francisco.

bighorn sheep anatomy: Art Anatomy of Animals Ernest Thompson Seton, 2012-08-21 A definitive artist's-eye view of the exterior anatomy of domesticated and wild animals — from dogs, cats, and horses to grizzlies, camels, and an Indian elephant. 100 illustrations on 49 plates.

bighorn sheep anatomy: Studies in the Art Anatomy of Animals Ernest Thompson Seton, 1896

bighorn sheep anatomy: Current Federal Aid Research Report ,

bighorn sheep anatomy: Art of Painting and Drawing Animals Fredric Sweney, 2020-11-18 Practical guide makes it easier for beginners as well as advanced artists to paint everything from dogs, cats, and deer to birds, sheep, and goats. 236 black-and-white illustrations, 26 in color.

bighorn sheep anatomy: *The Semiotics of X* Jamin Pelkey, 2017-02-23 The X figure is ubiquitous in contemporary culture, but attempts to explain our fixation with X are rare. This book argues that the origins and meanings of X go far beyond alphabets and archetypes to remembered feelings of body movements - movements best typified in the performance of "spread-eagle" as a posture or gesture. These body memories are then projected onto other patterns and dynamics to help us make sense of the world. The argument is accomplished using a blend of insights from linguistic anthropology, cognitive linguistics, rhetoric culture and process semiotics to bring together revealing clues from languages, cultures and thinkers around the world. Chief among the uses and experiences of X are its tendencies to involve us in surprising reversals and blends. In ancient times the X-pattern was discussed as "chiasmus", a figure which, according to Maurice Merleau-Ponty, informs the most basic elements of our bodily experience, calling into question polarized dichotomies such as subject versus object. Pushed to extremes, presumed opposites like these tend to reverse suddenly. Likewise, blended experiences of our bodily extremities - arms and legs, toes and fingers, hands and feet - provide a plausible source of grounding for unique human abilities like analogy and double-scope conceptual integration. The book illustrates these dynamics by drawing attention to uses of X in history, prehistory and daily life, from sports and advertising to world mythology and languages around the world. The Semiotics of X is the first step towards developing a larger argument on the important but neglected role that chiasmus plays in cognition. It aims to inspire continued exploration on the figure, with the full expectation that chiasmus will

become for the 21st century what metaphor became for the 20th century: a revolution in thinking about the way we think.

bighorn sheep anatomy: Wildlife Management and Conservation Paul R. Krausman, James W. Cain, 2022-09-20 Published in Association with The Wildlife Society.

bighorn sheep anatomy: A Beast the Color of Winter , 2002-02-01 In North America there is one large animal that belongs almost entirely to the realm of towering rock and unmelting snow. Pressing hard against the upper limit of life's possibilities, it exists higher and steeper throughout the year than any other big beast on the continent. It is possibly the best and most complete mountaineer that ever existed on any continent. *Oreamnos americanus* is its scientific name. Its common name is mountain goat. Resourceful, belligerent, and unbelievably sure-footed, the mountain goat is a white-coated survivor from the Ice Age. *Oreamnos americanus* shares its dizzying alpine world with elk, eagles, bighorn sheep, and grizzlies. This first full-length book on the mountain goat offers a superbly written portrait of its life, habits, and environment. Douglas H. Chadwick tracked mountain goat herds for seven years, and his observations are richly textured and replete with fascinating and dramatic details. We learn of the mountain goats' lives from birth to adulthood, their feeding habits, unique social behavior and courtship rituals, and their long history. Chadwick also makes clear the troubling and escalating impact of the modern world on the mountain goat's wilderness home. This Bison Books edition features a new introduction by the author.

bighorn sheep anatomy: *Big Sagebrush* Bruce Leigh Welch, 2005 Pioneers traveling along the Oregon Trail from western Nebraska, through Wyoming and southern Idaho and into eastern Oregon, referred to their travel as an 800 mile journey through a sea of sagebrush, mainly big sagebrush (*Artemisia tridentata*). Today approximately 50 percent of the sagebrush sea has given way to agriculture, cities and towns, and other human developments. What remains is further fragmented by range management practices, creeping expansion of woodlands, alien weed species, and the historic view that big sagebrush is a worthless plant. Two ideas are promoted in this report: (1) big sagebrush is a nursing mother to a host of organisms that range from microscopic fungi to large mammals, and (2) many range management practices applied to big sagebrush ecosystems are not science based.

bighorn sheep anatomy: Primate Sexuality Alan F. Dixson, 1998 Primate Sexuality is a uniquely comprehensive synthesis of our knowledge about the sexual behaviour of primates. In it, Alan Dixson reviews and integrates both the evolutionary biology and the physiological basis of sexual behaviour across the whole spectrum of primates, from prosimians to humans. Covering almost every aspect of primate sexuality, the book begins with an analysis of the history of research into primate sexual behaviour. Several chapters discuss the complex array of mating systems exhibited by primates, and the bewildering range of tactics which influence sexual interactions within mating systems, and, ultimately, reproductive success. Sex selection, sperm competition, and the evolution of sexual dimorphism are explored. The book also reviews our current knowledge of the physiological aspects of sexuality, such as the sexual differentiation of the brain, hormonal mechanisms, the ovarian cycle, and the neuroendocrine regulation of sexual behaviour. No other book written on the subject of primate sexuality exhibits such comparative breadth or technical depth. Dixson has been working on primates for almost 30 years, and has put together an outstanding volume, drawing on and collating work spread across more than 2000 references. The work is illustrated throughout with hundreds of original drawings and figures. It will be welcomed by zoologists, anthropologists, and psychologists researching the sexual behaviour of primates, as well as by psychiatrists and clinicians with an interest in human sexuality.

bighorn sheep anatomy: General Technical Report RMRS , 1998

bighorn sheep anatomy: *Library of Congress Subject Headings* Library of Congress, 2012

bighorn sheep anatomy: Subject Heading List, Preliminary Edition National Agricultural Library (U.S.), 1963

bighorn sheep anatomy: *The Sign of the Flying Goose* George Laycock, 1973

bighorn sheep anatomy: *Zoo Animal and Wildlife Immobilization and Anesthesia* Gary

West, Darryl Heard, Nigel Caulkett, 2025-01-10 A new and updated edition of the classic reference to animal and wildlife anesthesia Zoo Animal and Wildlife Immobilization and Anesthesia, Third Edition offers a thoroughly updated edition of this comprehensive reference to anesthetic techniques in captive and free-ranging wild species. Featuring 57 species-specific chapters covering animals both common and uncommon, the book includes both the basic principles of capturing, anesthetizing, and monitoring these animals and species-specific considerations. All chapters have been thoroughly updated to reflect new information and references. The definitive reference for delivering anesthesia to zoo and wild animals, the book presents the gold standard for all aspects of anesthesia in a variety of settings. This Third Edition: Offers a fully updated new edition of the gold-standard reference to immobilization and anesthesia in captive and free-ranging wildlife Presents 57 species-specific chapters covering all aspects of anesthetizing zoo and wild animals, ranging from commonly treated animals to rare species Focuses on providing exceptional health care to wild and zoo animals Fully updated throughout to present new information, advances, and references Features full color photographs to demonstrate the concepts discussed Zoo Animal and Wildlife Immobilization and Anesthesia is an essential guide for zoo and wildlife practitioners, veterinary professionals, and veterinary students, as well as wildlife or conservation biologists.

bighorn sheep anatomy: *Bibliography of Agriculture with Subject Index* , 1993-03

bighorn sheep anatomy: **Dictionary Catalog of the Department Library** United States. Department of the Interior. Library, 1967

bighorn sheep anatomy: *Inventory and Monitoring of Wildlife Habitat* Allen Cooperrider, Raymond J. Boyd, Hanson R. Stuart, 1986

bighorn sheep anatomy: **Proceedings of The Academy of Natural Sciences (Vol. 147. 1997)** ,

Related to bighorn sheep anatomy

Bighorn sheep - Wikipedia Bighorn sheep were among the most admired animals of the Apsaalooka (Crow) people, and what is today called the Bighorn Mountain Range was central to the Apsaalooka tribal lands

Bighorn Hospitality Nav Bajwa is the founder of Bighorn Hospitality, bringing more than 30 years of business and hospitality experience to his role. After purchasing his first hotel in Reno in 1994, Nav has

Bighorn Powersports - Ride with Bighorn Welcome to Bighorn, where for over 26 years, we've been committed to delivering reliable, high-performance off-road vehicles that enhance both work and play for families of all kinds

About Bighorns and Other North American Wild Sheep The Rocky Mountain Bighorn Sheep is the largest wild sheep inhabiting North America. A large ram (a male sheep) may weigh over 300 pounds and stand over 42 inches tall at the shoulder

Bighorn Sheep - National Wildlife Federation The bighorn sheep is one of two species of wild sheep in North America with large horns, the other being the Dall sheep (*Ovis dalli*)

Bighorn sheep | Habitat, Behavior & Adaptations | Britannica bighorn sheep, (*Ovis canadensis*), stocky, climbing hoofed mammal of western North America known for its massive curling horns. Bighorns are brown with a white rump patch. Horns are

101 Facts about Bighorn Sheep - North American Nature Bighorn sheep can be found on South facing slopes in the winter. There are three subspecies of bighorn sheep. The Rocky Mountain Bighorn, The Sierra Nevada Bighorn, and the Desert

Home | Bighorn National Forest | Forest Service Located in north-central Wyoming, the Bighorn Mountains are a sister range of the Rocky Mountains. Conveniently located halfway between Mt. Rushmore and Yellowstone

Big Horn Apartments - 1600 I St Sparks NV | Zillow Bighorn Apartments is located in Sparks, NV and is served by the highly regarded Washoe County School District. Use our interactive map to explore the neighborhood and see how it

Bighorn Sheep Facts - bighorninstitute An entire subspecies of bighorn sheep, the Audubon bighorn, which inhabited parts of Montana, North Dakota, South Dakota, Wyoming and Nebraska was extirpated by 1925

Bighorn sheep - Wikipedia Bighorn sheep were among the most admired animals of the Apsaalooka (Crow) people, and what is today called the Bighorn Mountain Range was central to the Apsaalooka tribal lands

Bighorn Hospitality Nav Bajwa is the founder of Bighorn Hospitality, bringing more than 30 years of business and hospitality experience to his role. After purchasing his first hotel in Reno in 1994, Nav has

Bighorn Powersports - Ride with Bighorn Welcome to Bighorn, where for over 26 years, we've been committed to delivering reliable, high-performance off-road vehicles that enhance both work and play for families of all kinds

About Bighorns and Other North American Wild Sheep The Rocky Mountain Bighorn Sheep is the largest wild sheep inhabiting North America. A large ram (a male sheep) may weigh over 300 pounds and stand over 42 inches tall at the shoulder

Bighorn Sheep - National Wildlife Federation The bighorn sheep is one of two species of wild sheep in North America with large horns, the other being the Dall sheep (*Ovis dalli*)

Bighorn sheep | Habitat, Behavior & Adaptations | Britannica bighorn sheep, (*Ovis canadensis*), stocky, climbing hoofed mammal of western North America known for its massive curling horns. Bighorns are brown with a white rump patch. Horns are

101 Facts about Bighorn Sheep - North American Nature Bighorn sheep can be found on South facing slopes in the winter. There are three subspecies of bighorn sheep. The Rocky Mountain Bighorn, The Sierra Nevada Bighorn, and the Desert

Home | Bighorn National Forest | Forest Service Located in north-central Wyoming, the Bighorn Mountains are a sister range of the Rocky Mountains. Conveniently located halfway between Mt. Rushmore and Yellowstone

Big Horn Apartments - 1600 I St Sparks NV | Zillow Bighorn Apartments is located in Sparks, NV and is served by the highly regarded Washoe County School District. Use our interactive map to explore the neighborhood and see how it

Bighorn Sheep Facts - bighorninstitute An entire subspecies of bighorn sheep, the Audubon bighorn, which inhabited parts of Montana, North Dakota, South Dakota, Wyoming and Nebraska was extirpated by 1925

Bighorn sheep - Wikipedia Bighorn sheep were among the most admired animals of the Apsaalooka (Crow) people, and what is today called the Bighorn Mountain Range was central to the Apsaalooka tribal lands

Bighorn Hospitality Nav Bajwa is the founder of Bighorn Hospitality, bringing more than 30 years of business and hospitality experience to his role. After purchasing his first hotel in Reno in 1994, Nav has

Bighorn Powersports - Ride with Bighorn Welcome to Bighorn, where for over 26 years, we've been committed to delivering reliable, high-performance off-road vehicles that enhance both work and play for families of all kinds

About Bighorns and Other North American Wild Sheep The Rocky Mountain Bighorn Sheep is the largest wild sheep inhabiting North America. A large ram (a male sheep) may weigh over 300 pounds and stand over 42 inches tall at the shoulder

Bighorn Sheep - National Wildlife Federation The bighorn sheep is one of two species of wild sheep in North America with large horns, the other being the Dall sheep (*Ovis dalli*)

Bighorn sheep | Habitat, Behavior & Adaptations | Britannica bighorn sheep, (*Ovis canadensis*), stocky, climbing hoofed mammal of western North America known for its massive curling horns. Bighorns are brown with a white rump patch. Horns are

101 Facts about Bighorn Sheep - North American Nature Bighorn sheep can be found on South facing slopes in the winter. There are three subspecies of bighorn sheep. The Rocky Mountain

Bighorn, The Sierra Nevada Bighorn, and the Desert

Home | Bighorn National Forest | Forest Service Located in north-central Wyoming, the Bighorn Mountains are a sister range of the Rocky Mountains. Conveniently located halfway between Mt. Rushmore and Yellowstone

Big Horn Apartments - 1600 I St Sparks NV | Zillow Bighorn Apartments is located in Sparks, NV and is served by the highly regarded Washoe County School District. Use our interactive map to explore the neighborhood and see how it

Bighorn Sheep Facts - bighorninstitute An entire subspecies of bighorn sheep, the Audubon bighorn, which inhabited parts of Montana, North Dakota, South Dakota, Wyoming and Nebraska was extirpated by 1925

Bighorn sheep - Wikipedia Bighorn sheep were among the most admired animals of the Apsaalooka (Crow) people, and what is today called the Bighorn Mountain Range was central to the Apsaalooka tribal lands

Bighorn Hospitality Nav Bajwa is the founder of Bighorn Hospitality, bringing more than 30 years of business and hospitality experience to his role. After purchasing his first hotel in Reno in 1994, Nav has

Bighorn Powersports - Ride with Bighorn Welcome to Bighorn, where for over 26 years, we've been committed to delivering reliable, high-performance off-road vehicles that enhance both work and play for families of all kinds

About Bighorns and Other North American Wild Sheep The Rocky Mountain Bighorn Sheep is the largest wild sheep inhabiting North America. A large ram (a male sheep) may weigh over 300 pounds and stand over 42 inches tall at the shoulder

Bighorn Sheep - National Wildlife Federation The bighorn sheep is one of two species of wild sheep in North America with large horns, the other being the Dall sheep (*Ovis dalli*)

Bighorn sheep | Habitat, Behavior & Adaptations | Britannica bighorn sheep, (*Ovis canadensis*), stocky, climbing hoofed mammal of western North America known for its massive curling horns. Bighorns are brown with a white rump patch. Horns are

101 Facts about Bighorn Sheep - North American Nature Bighorn sheep can be found on South facing slopes in the winter. There are three subspecies of bighorn sheep. The Rocky Mountain Bighorn, The Sierra Nevada Bighorn, and the Desert

Home | Bighorn National Forest | Forest Service Located in north-central Wyoming, the Bighorn Mountains are a sister range of the Rocky Mountains. Conveniently located halfway between Mt. Rushmore and Yellowstone

Big Horn Apartments - 1600 I St Sparks NV | Zillow Bighorn Apartments is located in Sparks, NV and is served by the highly regarded Washoe County School District. Use our interactive map to explore the neighborhood and see how it

Bighorn Sheep Facts - bighorninstitute An entire subspecies of bighorn sheep, the Audubon bighorn, which inhabited parts of Montana, North Dakota, South Dakota, Wyoming and Nebraska was extirpated by 1925

Back to Home: <http://www.speargroupllc.com>