

Big Cats Background Information

Read the text below.

Big Cats Initiative

Lions and other big cat populations are in decline, mostly due to human threats. As human populations increase and encroach on big cat habitats, humans and cats are forced to compete for food and space. Illegal poaching of big cats thrives in parts of the world where poaching laws are not enforced. Conflicts between farmers and big cats occur when big cats prey upon livestock and farmers retaliate. Due to a loss of habitat and their natural prey, some big cats attack and kill humans. These challenges in big cat conservation are not unique to Africa. Ecosystems all over the world are increasingly threatened by habitat destruction, pollution, and human population growth and development. By monitoring and tracking lions, scientists can learn about their home ranges, social structure, and population trends. This information can help researchers, park managers, and local communities apply effective conservation strategies. The Mara and Laikipia Predator Projects, Lion Guardians, and Big Cats Initiative are just a few of the projects working to find solutions to human-big cat conflicts. National Geographic's Big Cats Initiative website includes videos, images, and articles with more information about the project and ways in which the general public and students can become involved in halting the decline of big cat species throughout the world.

Big Cat Species Ecology and Distribution

Students can learn to distinguish the big cats from one another by observing and describing the specific physical characteristics of each cat, including its size, and the color and pattern of its coat. For example, lions are slightly smaller than tigers and have a mostly solid, light brown coat. Male lions have manes that can be light to dark brown in color, almost black. Tigers are the largest of the big cats, and Siberian tigers are the biggest of all. Siberian tigers are reddish tan with dark stripes, have white undersides, and have white spots above each eye. Leopards are smaller than lions and tigers and are light brown with distinct dark spots. Ocelots are smaller than the other big cats and look like they have both spots and small stripes. Mountain lions appear to be the same solid brown color, but they have smaller bodies and heads than African lions. Like the leopard, jaguars are spotted and climb trees, but they are smaller and have darker faces and noses.

The species range of an animal is the native, geographic area in which it can be found. The species ranges for the world's big cats cover multiple continents and regions. Most big cats live throughout parts of Africa, Asia, Central America, and South America. Some species have distinct ranges and others include ranges that overlap with other big cat species. The ranges of the African lion and leopard overlap, as do the ranges of the ocelot, mountain lion, and jaguar. Some big cats' ranges overlap because they live in similar habitats. A habitat is the environment in which an organism lives throughout the year or for shorter periods of time. Big cat species live in a variety of habitats ranging from savannas and tropical rain forests to mangrove swamps



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Big Cats Background Information, continued

and boreal forests. Since their habitats are different, big cats have different physical features and use different strategies to survive. Big cat species that have a wide range and live in a variety of habitats include leopards, mountain lions, ocelots, and jaguars. Other big cats, including the Siberian tiger, Bengal tiger, and African lion, have more limited ranges and are adapted to fewer habitat types. Mapping tools and satellite imagery (photographs of a planet taken by or from a satellite) can help scientists study the ranges and habitat types of big cat populations throughout the world.

African Lion Ecology, Research, and Conservation

Scientific research is a lot like detective work. The tools and technology might be more advanced, but finding the right answers still begins with simple questions such as who, what, where, how, and why. The scientific process involves questioning, researching, using technology, overcoming challenges, collecting different types of information, using trial and error, analyzing results, and drawing conclusions. These are some of the tools and technologies used to research lion populations and their behavior:

- *Radio collars* are devices that transmit radio signals. They help identify the location and track the movement of animals they are attached to.
- *VHF radios* are devices that receive radio signals emitted from radio collars, so that the radio-collared animal can be located and tracked.
- *Crittercams* are research tools designed specially for wild animals. Crittercams are attached to wildlife to collect video and audio recordings of animals in their natural environment. Crittercams can also collect environmental data, including the depth, temperature, and acceleration of the animal relative to its environment.

Scientists use the information they collect from lions in physical exams, by observing Crittercam footage, and by tracking the movements of lions to learn about the health, behavior, and conservation of big cat populations. Research provides scientists with answers to questions about how lions find food and hunt, how lions protect themselves, what their family structure is like, and what factors threaten the survival of lions. Ongoing scientific research and the development of new technologies like Crittercam are essential to addressing the problem of declining wild populations of big cats. Scientific inquiry, research, and technology help scientists better understand the health and behavior of big cat populations. This information is then used in addressing big cat conservation, particularly that of Africa's lions.



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