Managing Land Use Conflict in the American West

By Shelley Brooks, Ph.D.

What do wolves, grizzly bears, and mountain lions all have in common? They are all native to the American West, where they have had a long and difficult relationship with people; and, their activities have been in the news lately. Like all wild animals, these large **predators** do not know property lines. They roam across public lands and private property in search of food, sometimes settling on **domesticated** animals like cows or sheep. Recently, for the first time in more than one hundred years, a wolf killed a rancher's cow in California. This long gap can be attributed to the fact that Californians killed or drove out all wolves in the state by the 1920s. But, due to later laws meant to protect **endangered** animals, wolf numbers started to grow in other parts of the West, and some have recently settled in California. The first California wolf pack in the twenty first century was spotted near Shasta in 2015, a second near Lassen in 2017. These wolves live in the vicinity of cattle ranches, which can ultimately be dangerous for the **prey** and predator alike. This year, two wolves were found dead in the northeastern part of California, both killed by humans. Frustration among ranchers stems from the fact that they don't want to lose their animals, or the income that they bring. Recently, Wally Roney, a rancher with land near these wolves, lost five cows. He believes wolves were responsible for all five of these deaths; state wildlife officials examined the carcasses and ruled out wolves in the case of three of the deaths. The challenge over which animals to protect, and how, can be boiled down to the fact that the West encompasses multiple land uses, some of which serve conflicting purposes.

Why are predators so important?

Top predators, like wolves and mountain lions, help keep ecosystems in balance by acting as a check on animals lower in the food chain, who in turn eat smaller animals and vegetation. When a predator is eliminated (through intentional killing or habitat loss), the whole ecosystem begins to change. Yellowstone National Park is a key example.

Wolves, which are native to Yellowstone, were eliminated in the early twentieth century. As many predicted, the elk population increased substantially. In 1995, the Park Service decided to reintroduce wolves to help manage the number of elk. Within several years, scientists noted dramatic changes in the region's ecosystem. For one, wolves ate some of the elk, which gave vegetation a chance to recover. In turn, riverbanks were less prone to erosion because the roots of the new and more abundant vegetation held the soil in place. This vegetation also helped shade the water, cooling its temperature and encouraging more aquatic life, including the return of beavers. Beavers, in turn, built dams that created ponds and pools that encouraged even more aquatic life and songbirds to return to their native habitat.

Scientists have termed these large scale changes as "trophic cascades," and have studied them across the globe, on land and in the oceans, where predators like mountain lions and sharks are threatened.

This engaging video explains this dynamic in Yellowstone National Park: (if the link doesn't work on your internet browser, please search "bbc how wolves saved a famous park").

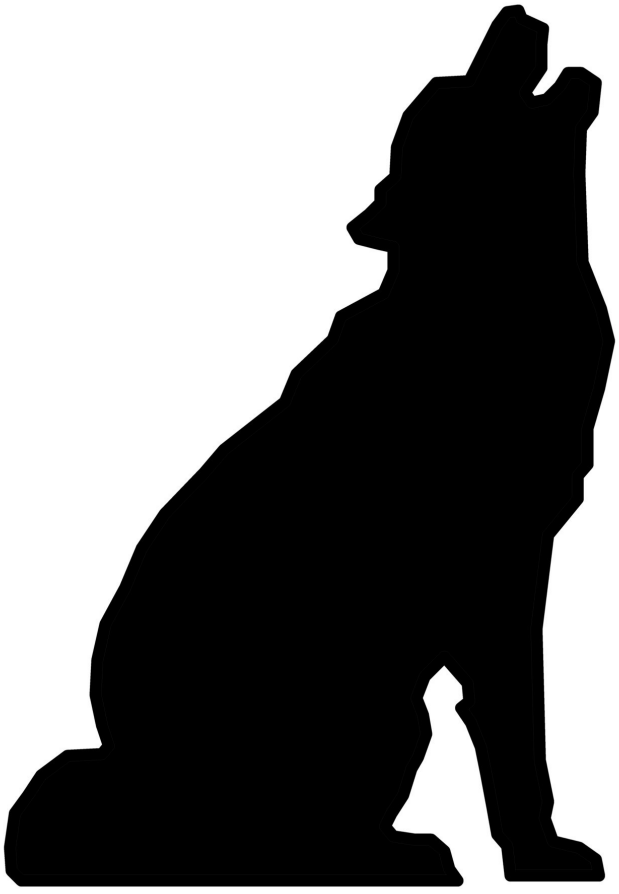
http://www.bbc.com/future/story/20140128-how-wolves-saved-a-famous-park

The challenge of multiple-use lands, now and into the future

Today, the West includes numerous big cities, as well as extensive agricultural areas, ranches, industrial landscapes, and 76 million people and their homes. On top of all of this, nearly half of the land in the West is owned by the federal government, operated for grazing, timber, and mining operations; watershed protection; recreation; and as nature and wildlife preserves. So, how did these multiple types of land use come about? What have they meant for native animals? And, what are some of the future implications for people and animals alike in the era of climate change?

The development of the West

It wasn't that long ago that humans began to dramatically alter the western landscape. Aside from small-scale irrigation projects to support agriculture in the southeastern part of California, California Indians did not practice agriculture as we know it today. In the late eighteenth century, the Spanish colonists planted vineyards and row crops, and introduced domesticated animals on their ranches. These colonial activities changed the landscape and **ecosystems**, and also posed challenges for California Indians. New species of plants crowded out some native vegetation and some domesticated animals – like the pig – competed with California Indians for **edible** native plants. Beginning in the mid nineteenth century, after California became a state in the Union, gold and silver rushes drew many more people to the American West. Industrial mining landscapes evolved, as did the establishment of new towns, farms, orchards and ranches. Large-scale ranching and farming meant an abundant supply of easy-to-target food for native predators. Predator control programs, like those run by the federal Wildlife Services agency established in the late nineteenth century, work to eliminate, or kill, the animals that threaten livestock.



The uneasy relationship between people and predators became more intense as more people settled in the West, especially during the post-World War II economic boom. Many new roads, cities, suburbs, and industries grew in the second half of the twentieth century, and are still growing today. Meanwhile, tourist-based cities like Las Vegas or the south shore of Lake Tahoe significantly altered the surrounding land with its hotels, shops, casinos and more. The amount of land still in its undeveloped

out homes, buildings, or roads – becomes ever smaller. Out of California's one hundred million acres of land, only fifteen million of these acres are still considered wilderness. In Wyoming, where numerous grizzly bears and wolves roam the land, only four million of the state's total sixty-two million acres are wilderness. This decreased amount of open space negatively impacts the large **carnivores** that require large expanses of undeveloped land to safely find food and shelter.

Protecting the animals

The speed of economic growth and **development** in the post-World War II era led some Americans to argue that if we didn't slow down and preserve some lands they would be forever lost to pavement and construction, and many of the native animals would soon disappear. In 1964 President Lyndon Johnson signed the Wilderness Act to protect large expanses of land in a "primeval" or undeveloped state. Environmental momentum continued, and in 1970 President Richard Nixon established the Environmental Protection Agency (EPA). The EPA exists to protect the health of people and the environment, out of an understanding that polluted waterways and air, and degraded landscapes, threaten all living creatures. During this era of bi-partisan support for the environment (Johnson was a Democrat, Nixon a Republican), legislators advanced another landmark piece of legislation. With near unanimous support in Congress, the Endangered Species Act (ESA) was signed into law in 1973. The ESA is designed to protect species with dangerously low population numbers, in part by protecting their **habitats** from development.

Many threatened and endangered species have continued to suffer and some have gone extinct as a result of habitat decline; others, however, have stayed steady in number or even increased because of protective programs. The grizzly bear is a noteworthy example. Americans nearly drove grizzly bears to extinction during westward expansion in the nineteenth century. These powerful bears threatened the safety and economic endeavors of the settlers in the west.

Though the bear's range had once reached from Alaska to Mexico, and from California to Ohio, there were only 130 grizzly bears remaining in the United States by the 1970s. The rest had been intentionally killed or had died as a result of habitat loss. In 1975, under the Endangered Species Act, the grizzly bear was listed as endangered. Federal protection for these animals, and Americans' compliance with the protective measures, led to a population rebound. There are roughly 1,800 grizzly bears in the country today – in Alaska as well as Montana, Wyoming, and Idaho. Given the large number of grizzly bears, and their proximity to towns and ranches, a debate is unfolding on whether to allow the hunting of these animals. Already, the federal government has removed the endangered listing for the grizzly bears in the region of Yellowstone National Park.

Not all Americans believe the federal government should focus time and resources on the protection of animals and their habitat. Many argue that these measures come at the expense of jobs (in the timber or fishing industries, for example), and that a person's or a company's right to conduct business should take priority over protection of a species of animal. Disagreement over how best to interact with wild lands and animals has slowed the progress intended by the Endangered Species Act, as groups debate the relative value of the economy and the environment.

New challenges in the era of climate change

Climate change poses new challenges for all living things on Earth. Scientists anticipate that as changing temperatures contribute to a decline in healthy **vegetation** in certain regions, animals will be forced to adapt or to decrease in number. Take for instance the grizzly bear's natural diet of pine seeds in Yellowstone National Park. These pine trees are suffering from diseases and pests like blister rust and beetle infections that scientists say are made worse by climate change. As the grizzly bears lose this important food source, they are likely to search farther afield for food, including ranches, orchards, and garbage bins, all of which will increase the complexity of the relationship between people and these powerful bears. Meanwhile, extended drought in the southwest, which is another event made worse by climate change, reduces the amount of vegetation available for grazing animals. As the deer population declines, so does the mountain lion population. Scientists predict that increasing drought in this region will drive more deer closer to urban and agricultural areas in search of well-watered plants. Mountain lions are sure to follow their food supply, bringing these lions into increased contact with people. Today's challenge, as well as tomorrow's, is how to best balance diverse land uses in a way that supports humans and the other species that inhabit this Earth, all the while making room for our growing human population and economy.

Terms:

Carnivore — an animal that feeds on the flesh of other animals.

Climate Change – changes in the Earth's weather patterns, including long-term temperature changes.

Development – in this case, construction for housing, industry, or agriculture.

Domesticated animal – an animal that has been bred and raised by humans for work or as a pet.

Ecosystem – a specific area, such as a forest, that contains a set of interdependent species that interact with one another.

Edible – can be eaten.

Endangered animal – one whose species is in danger of becoming extinct/disappearing from Earth.

Habitat – the natural home or environment of an animal, plant, or other organism.

Predator/Prey – a predator animal that eats another animal. The animal that is eaten is the prey.

Vegetation – plant life.

Key Dates in Animal and Habitat Conservation

1871

Congress creates U.S. Commission on Fish and Fisheries to study and recommend solutions for the declining number of fish so as to boost fishing industry.

1900

U.S. Congress passes the Lacey Act to protect game animals, and to prohibit the shipment between states of illegally killed wildlife.

1930s

During the Great Depression, the Civilian Conservation Corps and Works Progress Administration work to improve animal habitat through work in numerous wildlife refuges around the country.

1964

Wilderness Act – Congress and President Johnson pass an act to preserve large expanses of land in their "natural condition," separate from areas defined by human settlement.

1973

Endangered Species Act – Congress and President Nixon pass an act to protect animals with dangerously low population numbers, in part by protecting the animals' habitats.

Wild Animals in CALIFORNIA'S Backyard

Although California is the most populous state in the nation with many large urban areas, it is also home to numerous wild animals, living in rural areas and even alongside population centers. In order to better understand animals' habitats:

1. Download these two National Geographic maps of California (produced for the Education and the Environment Initiative (EEI):
    a. People and the Environment: http://www.calrecycle.ca.gov/eei/unitdocs/maps/environment.pdf
    b. Human Imprint: http://www.calrecycle.ca.gov/eei/unitdocs/maps/humanimprint.pdf
2. Find where you live on these maps and with a neighbor, discuss the following:
    a. What are the geographic features of your area (mountains, coast, valley, etc.)?
    b. What type of land use is identified where you live?
    c. What type of activities happen in your area (farming, tourism, industry/business, etc.)?
    d. What do you know about the history of your community, and how the land was used 300 years ago, 200 years ago, 100 years ago?
    e. What sort of animals do you see in the region around your home?
3. Looking at these two maps, and knowing that mountain lions and wolves need a range of up to 100 square miles to search for food, name some of the challenges or obstacles they face in California. (Note - wolves live in the northeastern part of the state, and mountain lions live throughout most all of the state except for the Central Valley and the desert region of the southeastern part of the state.)

This National Geographic article on mountain lions in California provides helpful background information: https://news.nationalgeographic.com/news/2014/12/141217-video-tracking-bay-area-california-puma/

Education and the Environment Initiative (EEI) Connections http://www.californiaeei.org/

A program of CalRecycle's Office of Education and the Environment, EEI lessons are designed to foster environmental literacy among California students. The EEI collection includes a variety of lessons that support learning on the topic of land use and its impact on animals.

1.2.4. *People and Places*, Lesson 4, "Change Related to Human Activities"

3.1.1.,3.1.2. *The Geography of Where We Live*, Lesson 3, "Using our Local Region" and Lesson 4, "Changes in Our Local Region"

4.1.3.,4.1.5. *Reflections of Where We Live,* Lesson 3 "Land Use and Natural Resources"

4.2.6. *Cultivating California*, Lesson 6, "The End of Hunting and Gathering"

10.3.3. *Growth of Population, Cities, and Demands*, Lesson 3 "How Modern Cities Influence Natural Systems" and Lesson 4 "Laws and Policies to Manage Natural Resources"

10.4.3. *New Imperialism: The Control of India's and South Africa's Resources*, Lesson 1 "Decisions about Natural Resources"

11.11.5. *Many Voices, Many Visions: Analyzing Contemporary Environmental Issues*, Lesson 4, "Roots of Controversy" and Lesson 5, "Regulations and Rights" and Lesson 6 "The Role of Advocacy in a Democracy"

11.8.6. *Postwar Industries and the Emerging Environmental Movement*, Lesson 5, "Developing Environmental Concerns"

12.3.1. *Government and the Economy: An Environmental Perspective*, (Econ) Lesson 2, "Economic Benefits and Costs of Environmental Regulations"

12.2.2,12.2.7. *Sustaining Economies and the Earth's Resources*, (Econ) Lesson 3, "The Effects of Market Forces on Natural Systems" and Lesson 4 "One Ocean, Many Mouths" and Lesson 5 "Regulating the Market"

12.1.4. *Private Property and Resource Conservation*, (Econ) Lesson 4 "Private Property and Conservation"

12.2.2.,12.2.5 *This Land is Our Land*, (Gov) Lesson 5 "Reconciling when Common Goods Collide"

Suggested reading: Peter Alagona, After the Grizzly: Endangered Species and the Politics of Place in California (University of California Press, 2013)

Images (in order of appearance): https://www.flickr.com/photos/yellowstonenps/32523447260; https://pixnio.com/fauna-animals/lion/mountain-lion-cougar-animal-in-urban-area-puma-concolor; http://www.freestockphotos.biz/stockphoto/16660; https://commons.wikimedia.org/wiki/File:Civilian_Conservation_Corps_fence_crew_at_Glass_Buttes_from_Gap_Ranch_CCC_Camp_(9824909823).jpg; https://www.flickr.com/photos/usfwsmidwest/4514382365/in/photostream/ https://commons.wikimedia.org/wiki/File:Civilian_Conservation_Corps_fence_crew_at_Glass_Buttes_from_Gap_Ranch_CCC_Camp_(9824909823).jpg; https://commons.wikimedia.org/wiki/File:Venice_Fla_Beach_2013_-_panoramio.jpg; https://www.nps.gov/articles/nps-designations.htm; https://commons.wikimedia.org/wiki/File:Sawtooth_wolf_pup_walking_fence_line_in_Nez_Perce_Pen_(16238721901).jpg; https://www.nps.gov/features/yell/slidefile/mammals/wolf/Images/15607.jpg; https://www.nps.gov/features/yell/slidefile/mammals/elk/Images/14850.jpg; https://www.nps.gov/features/yell/slidefile/plants/grasssedges/Images/17504.jpg

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