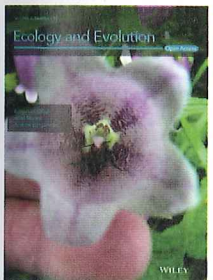


Credit: The Royal Society

Anthrax Grass Attracts Zebras

Carcasses of animals felled by anthrax not only fertilize the surrounding vegetation that other animals graze on, they also contaminate that vegetation with *Bacillus anthracis*—the bacteria responsible for the deadly anthrax toxin, according to new research published in the *Proceedings of the Royal Society B, Biological Sciences* (v281/i1795). Although scientists deciphered the soil microbe's complex life cycle, ques-

tions remain about how the pathogen is transmitted and why some species are more affected than others. Wendy Turner of the Centre for Ecological and Environmental Synthesis at the University of Oslo and formerly of the University of California, Berkeley, and her colleagues observed 26 grazing sites around Namibia's Etosha National Park—13 sites contained zebras (*Equus spp.*) killed by anthrax and 13 others served as controls. Sites were tested annually for the presence of anthrax spores on vegetation and in the soil, and the team mounted motion-sensing camera traps at each site to capture animal grazing—collecting 1.2 million photos over the three-year study. Turner found that vegetation at anthrax sites flourished and that herbivores, especially zebras, were four times more likely to eat grasses at those sites compared to control sites in the first two years after death. She concludes that understanding factors that alter host-pathogen contact rates over time could help wildlife managers predict where and when outbreaks are likely to occur.



Credit: Blackwell Publishing Ltd.

Refuges Don't Genetically Buffer Bighorn Rams

Wildlife refuges may not always counteract the evolutionary consequences of hunting as previously thought, according to a study in *Ecology and Evolution* (v4/i17). Game hunters often target individual animals with specific phenotypic traits such as deer with large antlers or ibex with long horns, creating artificial selective

pressure. Previous theoretical studies suggest protected areas adjacent to hunting grounds may act as a buffer by reducing the impact of selective harvesting. Fanie Pelletier from the University of Sherbrooke in Quebec, Canada, and colleagues examined records of more than 7,000 trophy bighorn rams (*Ovis canadensis*) hunted in Alberta from 1974 to 2011. They compared age at death, horn length, and horn base circumference of 5,033 rams shot near refuges and 2,054 rams shot away from refuges. Researchers found rams taken near refuges were slightly older and had horns approximately three percent longer than those taken further away. The data indicate that rams do migrate out of protected areas but not enough to counteract the impact of selective harvesting. Pelletier suggests decreasing the hunting rate might allow large males to survive and reproduce more, thereby reducing the impact of selective harvesting.

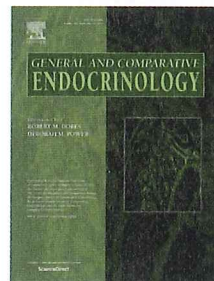


Credit: Cambridge University Press

Hunting Impacts Tapirs

New hunting regulations may be inadequate to sustain French Guiana's lowland tapir population, according to a study published in *Oryx* (v48/i3). South American tapirs (*Tapirus terrestris*) are locally threatened by overharvesting. However, there are very few hunting rules, and data on tapir density in Amazonia are scarce. Mathias Tobler of the San Diego

Zoo Global Institute for Conservation Research and his colleagues estimated tapir densities and determined sustainable harvest levels in French Guiana. The team set up four camera-trap surveys in the Nouragues Nature Reserve between 2006 and 2009, collecting 160 tapir photos. Using a capture-recapture model, the researchers calculated a density of 0.1235 tapir per square-mile and estimated the sustainable harvest level to be 0.0034 tapir per square-mile. Compared to hunting surveys collected from 11 sites between 1999 and 2006, they found tapirs were hunted at unsustainable levels in at least seven of the sites and harvest rates could be as much as seven times higher than the calculated sustainable level. The researchers conclude that if harvest levels set by the new hunting law remain unsustainable, it will not prevent overhunting, and that stronger regulations are needed.



Credit: Elsevier

Rhino Hormones Better Indicator of Mating Status

Hormone levels may be a better indicator than behavior when determining captive rhinos' readiness to mate, according to an online study in *General and Comparative Endocrinology*. Hunted to near extinction in East Africa, eastern black rhinoceros (*Diceros bicornis michaeli*) populations have rebounded

to an estimated 4,880 individuals—about 10 percent of which live in European zoos. Captive breeding programs produce variable results and previous studies show some captive individuals reproduce more often and others not at all. Over the course of six years, Katie Edwards of the University of Liverpool and colleagues collected nearly 10,000 fecal samples and analyzed the ovarian cycles, adrenal activity, body condition, and behavior of 39 captive females from 11 zoological institutions—17 rhinos previously gave birth, 15 had not, and seven were not yet of breeding age. Rhinos who had not given birth had irregular and sometimes longer estrous cycles, showed estrous behavior less regularly, were more temperamental, and weighed more than their peers. The researchers conclude behavior is not always a reliable indicator of estrus and suggest zookeepers use other methods such as hormone tests to determine mating status.