

Healthy Rangelands Through One Health

Integrating wildlife, livestock, people, and ecosystems for
resilient landscapes.

Healthy rangelands depend on healthy wildlife, healthy livestock, and the people who steward them

Rangelands comprise a continuum of grasslands, savannas, shrublands, alpine meadows, and deserts that support extensive grazing by wild and domestic herbivores. Across this continuum—from relatively predictable equilibrium systems to highly variable non-equilibrium landscapes where climate variability and mobility shape ecosystem dynamics—maintaining resilience requires integrated approaches that recognize the interconnected health of people, animals, and ecosystems.

WHERE THE WORK HAPPENS

Sudano-Sahel	Integrated animal health programs along transhumance corridors and around protected areas
Wakhan Corridor, Afghanistan	Community-based animal health systems, sustained for more than two decades
Mongolian steppe	Wildlife-inclusive response to Peste des Petits Ruminants (PPR) after catastrophic saiga mortality
Central Andes	Sarcoptic mange surveillance in wild vicuña populations across four countries

370k

PEOPLE IN LANDSCAPES SERVED

2 decades

WAKHAN PARAVETERINARY SERVICES

10,000s

LIVESTOCK VACCINATED

How we work. Health as a gateway for dialogue and trust-building.

WCS works at these interfaces to reduce disease risks that threaten biodiversity, pastoral livelihoods, and ecosystem function by combining ecological monitoring, wildlife health surveillance, veterinary science, and long-term partnerships with governments, Indigenous Peoples, pastoralist communities, and international organizations. In many transhumant pastoral systems, particularly across the Sudano-Sahel, animal health services are among the few trusted and sustained interfaces between mobile pastoralists and formal governance structures.

01 Livestock health. Strengthening livestock health to sustain ecosystems.

Healthy livestock reduce pressure on wildlife, improve pastoral livelihoods, and strengthen the resilience of entire rangeland systems. Across the Sudano-Sahel, WCS works with veterinary services, conservation authorities, and pastoral communities to deliver integrated animal health programs along transhumance corridors and around protected areas. These efforts include vaccination campaigns that have protected tens of thousands of heads of livestock against priority livestock diseases.

Recognizing that livestock health cannot be separated from human well-being, WCS integrates animal health with water, sanitation and hygiene (WASH) interventions, improved water infrastructure, and community-based health education. Mobile and hybrid service delivery models bring together veterinary care, public health, and conservation outreach in some of the world's most remote pastoral landscapes.



02 Frontline systems. Building trusted frontline animal health systems.

For decades, WCS has invested in community-based animal health systems that extend veterinary care far beyond the reach of conventional services. In Afghanistan's Wakhan Corridor, locally trained paraveterinarians have provided essential herd health services for pastoral communities for more than two decades, supporting routine vaccination against priority diseases such as Peste des Petits Ruminants (PPR) and Foot and Mouth disease, improving sheep and goat productivity while reducing risks to wild mountain ungulates. Sustained investment in basic animal health services builds resilient communities while reinforcing conservation partnerships in some of the world's most challenging mountain rangelands.

03 Outbreak response. Responding to disease threats across shared landscapes.

WCS has developed integrated wildlife-livestock health surveillance and rapid response systems that enable frontline staff, community members, and veterinary authorities to detect, investigate, and respond to unusual mortality events. Rangers, community conservation personnel, and veterinary partners receive training in biosafety, field investigation, sample collection, and outbreak response, with support from national laboratory partnerships and interoperable digital reporting systems.

Disease outbreaks are a recurring feature of many rangelands. Anthrax, hemorrhagic diseases, and unexplained wildlife mortality events frequently occur in and around protected areas where wildlife, livestock, and people share water sources and grazing lands. These systems strengthen preparedness for both endemic diseases and emerging threats while generating the ecological intelligence needed to understand changing disease patterns.

Healthy rangelands are more than productive landscapes—they are resilient socio-ecological systems. Investing in wildlife, livestock, and community health, and in early warning, simultaneously strengthens biodiversity conservation, reduces land degradation, supports climate adaptation, and enhances the long-term resilience of pastoral livelihoods.

04 Wildlife outcomes. Conserving wildlife through integrated disease management.

Mongolian steppe

In the highly variable, non-equilibrium rangelands of the Mongolian steppe, WCS has been at the forefront of understanding and responding to Peste des Petits Ruminants following the outbreak that caused catastrophic mortality in the endangered Mongolian saiga. Our work has demonstrated that wildlife conservation and livestock disease eradication are complementary rather than competing objectives. Through research, surveillance, policy engagement, and collaboration with FAO, WOA, government partners, and pastoral communities, WCS has helped ensure that wildlife is explicitly incorporated into global PPR eradication strategies.

Central Andes

Across the high-altitude rangelands of the Central Andes, WCS is addressing the growing threat of sarcoptic mange in wild vicuña populations. Working with governments, researchers, and Indigenous communities across Peru, Bolivia, Chile, and Argentina, WCS is strengthening wildlife health surveillance, understanding disease transmission, and developing science-based management strategies that protect both biodiversity and the cultural and economic values associated with sustainable vicuña management.

Resilient socio-ecological systems. Rangelands as living observatories.

WCS envisions healthy rangelands as living observatories where ecological change, wildlife and livestock health, environmental conditions, and community knowledge are integrated to provide early warning of emerging threats and guide adaptive management. By combining long-term ecological monitoring, integrated disease surveillance, participatory governance, and advances in digital health information systems, healthy rangelands become more resilient to climate change and disease emergence and better able to sustain biodiversity, pastoral livelihoods, and the ecosystem services upon which millions depend.

FOR MORE INFORMATION

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