



## Collaborative Partnership on Sustainable Wildlife Management

The Collaborative Partnership on Sustainable Wildlife Management (CPW) is a voluntary partnership of international organizations with substantive mandates and programmes for the sustainable use and conservation of wildlife resources. The mission of the CPW is to increase cooperation and coordination among its members and other interested parties on sustainable wildlife management to promote the sustainable use and conservation of terrestrial vertebrate wildlife in all biomes and geographic areas.

## Sustainable wildlife management

Sustainable wildlife management (SWM) is the sound management of wildlife species to sustain their populations and habitat over time, taking into account the socioeconomic needs of human populations. This requires that all land-users within the wildlife habitat are aware of and consider the effects of their activities on the wildlife resources and habitat, and on other user groups. In this factsheet, the term “wildlife” refers to “terrestrial or semi-terrestrial vertebrates”.

In view of its ecological, social and economic value, wildlife is an important renewable natural resource, with significance for areas such as rural development, land-use planning, food supply, tourism, scientific research and cultural heritage. If sustainably managed, wildlife can provide continuous nutrition and income and contribute considerably to the alleviation of poverty as well as to safeguarding human and environmental health.

The objective of the fact sheets produced by the CPW is to inform decision-makers, stakeholders and the general public about issues and opportunities relating to the sustainable use and conservation of terrestrial and semi-terrestrial vertebrate wildlife.

## What is at stake?

Wildlife and livestock interactions can lead to bi-directional disease transmission, competition for resources and direct predation. An integrated management approach is essential, particularly given current human population growth and intensification of agriculture. This fact sheet focuses on the relevance of SWM to maintaining livestock health.

### Animal diseases

Diseases affect both livestock and wildlife populations. They are a severe threat to endangered wildlife species and indigenous livestock breeds and can affect the ecological integrity of protected areas. Mortality in some wildlife species can also affect local food chains, by reducing available prey. For example, in Western Europe, a major decline in

wild rabbit populations was caused by infection from rabbit haemorrhagic disease in domestic rabbits and led to a decline in raptors that depended on them for food.<sup>1</sup> In North America, respiratory diseases of domestic sheep are linked to population declines of wild bighorn sheep<sup>2</sup> and the control of brucellosis has been complicated by the susceptibility of both domestic cattle and wild ungulates such as elk and bison.<sup>3</sup> In East Africa's Serengeti ecosystem, several diseases have had an impact at the population level including rinderpest in buffalo and cattle and canine distemper, which brought the African wild dog to near extinction.<sup>4</sup>

### Human health

Zoonoses are diseases that can be transmitted from animals to humans. They represent more than

60 percent of all pathogens infecting humans worldwide and over 70 percent of these originate from wildlife populations.<sup>5</sup> Increasing interaction among humans, livestock and wildlife also favours disease emergence, in particular when humans come into close contact with infected animals. For example, Nipah virus is a disease fatal to livestock and humans that originated from fruit bats.<sup>6</sup> Sustainable wildlife management must address these issues within a One Health<sup>7</sup> framework and across species boundaries.

### **Food security and local livelihoods**

Transmission of diseases from wildlife to livestock can have important implications for the raising of livestock, local and regional food supplies, and the livelihoods of people. Herds of animals require careful management and time to build a sustainable breeding population. Loss of animals to diseases, such as tuberculosis, can cause considerable human hardship and the long-term consequences may force people to seek other sources of protein, for example through the hunting of bushmeat or importing of meat at a high economic cost.

### **International trade**

TRAFFIC, an international NGO that monitors legal and illegal trade or transport of wildlife products, estimated in 2009 that the value of legal wildlife products imported globally was over USD323 billion per year.<sup>8</sup> Governments have had to establish laws to insist on non-disease transmission through the trade of animals or meat products, but this has not eliminated the problem, in part owing to a large illegal trade in animals.

## **Key issues**

### **Agricultural intensification**

Human population growth has increased the demand for livestock and triggered the rapid intensification of agriculture, which, when poorly regulated, can increase the risk of disease transmission between wildlife, livestock and humans.<sup>6</sup>

### **Wildlife farming and ranching**

It is not uncommon for wildlife to be kept within ranges that facilitate the capture of exotic species, trophy hunting, and other commercial enterprises. These practices have been associated with a number of disease outbreaks resulting from interactions between livestock and wildlife (e.g. tuberculosis and malignant catarrhal fever).

### **Global animal movements and species introduction**

Global animal movements of both livestock and wildlife and their by-products are occurring at a staggering pace, enabling pathogens to move into new geographic areas. The regulation and control of international and national movements of wildlife and wildlife by-products must consider the risk and implications of introducing exotic pathogens to new areas.

## **Experience and knowledge**

Methods for managing outbreaks vary according to disease type, causes of transmission, and potential socioeconomic impacts.

### **Vaccination**

Vaccination to prevent disease is used in cases of highly pathogenic or devastating diseases, when there is a threat of transmission to livestock or pets, and to protect threatened or endangered species. This method of disease prevention/control was used during the 2003–2004 outbreak of rabies in endangered Ethiopian Wolf populations in Ethiopia, and prevented further mortality in their populations.<sup>9</sup> In North America, oral vaccination of skunks, raccoons, coyotes, foxes, and wolves has been used to control rabies in wild populations near urban centres. Vaccination against foot and mouth disease (FMD), as a policy option, is considered for valuable and/or endangered species in the European Union, despite a region-wide ban on FMD vaccination in susceptible domestic animals due to international trade regulations.<sup>10</sup>

### **Physical separation**

Physical separation, usually by fencing, has been successful in limiting and controlling transmission of some diseases between wildlife and livestock, but it must be carefully planned to avoid effects on wildlife populations through blocked migration routes or access to feeding areas or water. In southern Africa, physical separation has been successfully implemented to prevent the spread of FMD from African Buffalo to livestock by careful separation of infected buffalo through natural and artificial barriers such as rivers, mountain ranges, and fences, combined with vaccination of susceptible livestock living within buffer zones.<sup>11</sup>

### **Direct culling of wildlife populations**

The culling of wild species to control disease is rarely used in SWM. Alternatives should be sought, because removal is rarely effective, can disrupt habitats and cause dispersal of infected animals to new areas. This method is currently used in the UK to address the increasing prevalence of bovine tuberculosis on cattle farms, but some analysts suggest that the limited culling of abundant badgers has exacerbated the disease by increasing badger movement and disease transmission.<sup>12</sup>

### **Changing behavioural patterns of farmers or hunters**

Livestock and wildlife owners, farmers and hunters have a key role in wildlife disease transmission and prevention. Improving livestock health by reducing disease prevalence and insects or parasites that spread diseases will also reduce the risk of transmission to wildlife and livestock. Examples of wildlife–livestock transmission include the introduction of HPAI H5N1 to poultry by waterfowl hunters (e.g. in Turkey, Ukraine and Federation of Russia), and FMD from wild boar

to livestock in Bulgaria as a result of hunting the boar and frequenting their feeding locations.<sup>13 14</sup> Raising awareness among hunters about animal health issues could help prevent pathogen transmission. Hunters can also contribute to surveillance programs for wildlife diseases by reporting unusual events or collecting samples to be used by veterinary authorities as part of monitoring and surveillance.<sup>15</sup>

## Challenges

### Declining habitat

As human populations continue to expand, wildlife habitats continue to shrink. As a result of deforestation and urbanization, animals are often relegated to remnant and protected areas. Increased interactions between wildlife, livestock and human populations contribute to the spread of disease.<sup>16</sup> One example is the emergence of Ebola in human populations in Central and East Africa, which has been linked to increased contact between humans and non-human primates, with bats most likely serving as natural reservoirs for the virus.

### Feasibility of preventative measures

Limiting disease transmission between wildlife and livestock species is challenging. Some methods for controlling or preventing disease exacerbate pressure on wildlife populations and may unintentionally spread the disease further.<sup>1</sup> Direct culling of wildlife is seldom effective for disease control and raises ethical questions. In most cases, preventive measures should focus first on raising awareness, and then on preventing transmission.



### Infrastructure at national level

Ministries and agencies that manage and control wildlife populations in developing countries often lack personnel, diagnostic capacity and infrastructure for health and disease management. In addition, livestock and wildlife management issues such as the regulation of wildlife farms, captive breeding or wildlife ranching lack clearly defined policies or lines of authority in some countries. When addressing zoonoses, ministries of agriculture, environment and health need to work closely together, which is currently often not the case.

### Strict global regulations

International reporting requirements for disease outbreaks can have consequences on a country's status and ability to access international export markets. The fear of economic losses creates an incentive for countries not to report potential illnesses or outbreaks, although countries are increasingly recognising the adverse trade consequences of delayed or non-reporting.

Entities such as the World Organisation for Animal Health (OIE) encourage transparency in this area. The OIE requires for example that its member countries submit information on animal diseases present on their territory. It has also developed *Terrestrial and Aquatic Animal Health Codes* that set standards for improved animal health and welfare and veterinary public health worldwide, including through safe international trade.

### Pressure from livestock keepers

One of the largest barriers to the adoption of SWM practices in the area of animal health is direct pressure from livestock keepers to focus on animal health as a purely livestock-related or domestic species issue, as opposed to adopting a more integrated approach.

### Landscape management

A key requirement for reducing disease transmission between wildlife and livestock and the protection of ecological integrity, is planning landscape management in a holistic manner that considers disease as an integral issue. As more demands are placed on the landscape by an increasing human population, wisely planning landscapes for sustainable development can help to reduce the economic and livelihood costs of disease transmission in the wildlife–livestock–human interface.

## Opportunities

### Community incentives for SWM in the area of animal health

Where relevant, local communities should be supported through incentive programmes to ensure the health of both livestock and wildlife through SWM and habitat management. Careful habitat management can allow limited resources to benefit both communities and wildlife populations.

### SWM-focused policy creation for animal and public health



In countries where transboundary animal diseases or other diseases are causing significant losses in the wildlife or livestock sectors, SWM-focused policy-making should bring together ministries of environment, agriculture and health to provide guidance on managing the livestock–wildlife–public health interface.

### Collaboration between SWM and One Health efforts

Global One Health efforts should be closely linked to SWM to ensure adequate, informed and appropriate responses from the wildlife sector.

## What is still to be learned?

- The role of wildlife in disease ecology for specific diseases and how these spread to livestock and humans and vice versa, including key disease reservoirs and transmission vectors.
- The identification of novel and non-invasive measures to prevent and control disease transmission, with minimal negative economic and environmental impacts.
- Incentives for communities and livestock owners to take ownership of disease prevention.
- An understanding of the role that environmental change, such as deforestation, plays in the emergence and spread of disease.

## Endnotes

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## KEY MESSAGES

- As human populations continue to grow, intensification of agriculture, decline in wildlife habitat and urban growth are bringing wildlife and livestock populations into closer contact and creating conditions for an increasing exchange of pathogens.
- These diseases can have significant wildlife conservation and socioeconomic costs.
- Successful SWM has the potential to minimize the negative effects of disease on livestock and transmission to humans and contribute to the protection of wildlife.
- Clear policy guidance needs to be created at the national level to encourage SWM when addressing animal and human health issues.
- Management of animal health issues, both zoonotic and non-zoonotic, requires collaboration from multiple sectors and levels and should be closely linked to One Health efforts.