



**CONVENTION ON
MIGRATORY
SPECIES**

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PASTORALISM AND MIGRATORY SPECIES

(Prepared by the Secretariat)

Summary:

This document introduces the impact of pastoralism on migratory species and proposes the adoption of Decisions on this topic.

PASTORALISM AND MIGRATORY SPECIES

Background

1. Pastoralism is a practice of raising animals for livestock that dates back centuries. It involves the movement of livestock herds in search of fresh grazing lands and water sources. It is commonly practised in arid or semi-arid regions with extensive grasslands and rangelands where agriculture may be challenging. One of the key characteristics of pastoralism is its reliance on natural forage, as livestock primarily feed on grasses, shrubs and other vegetation found in the wild. Pastoralists often manage large herds of animals. Pastoralism can take various forms such as nomadic pastoralism, transhumant pastoralism, sedentary pastoralism, agro-pastoralism and ranching.
2. Pastoralism is a significant contributor to meat production in various parts of the world, particularly in arid and semi-arid regions where other forms of agriculture may be limited, such as in the Sahel, East Africa, the Horn of Africa, Central Asia, the Middle East, South America and Oceania. For example, nearly 75 per cent of cattle arriving at the abattoir in Yaoundé, Cameroon, are from the Guinea High Savanna, most of which (more than 75 per cent) are reared through transhumant pastoralism ([Nfor et al.,2014](#)).
3. Global meat consumption has been rising with increases in wealth and the human population. Between 2000 and 2019, world meat consumption per capita increased from 29.5 to 34 kg/person/year ([Garrido 2021](#)). This trend is continuing, and overall meat consumption is projected to increase by 14 per cent by 2030 compared to the 2018-2020 average. The consumption of cattle and sheep meat, some of which is reared on rangelands, is projected to increase by 5.9 per cent and 15.7 per cent respectively ([FAO 2021](#)). It is estimated that pastoralism contributes about 10 per cent of the world's meat production, with 1 billion managed animals ([Jenet et. al 2017](#)); the increased demand for meat may lead to an increase in the number of pastoral livestock.
4. The increased demand for meat puts pressure on natural pastoral rangelands as well as other ecosystems. The conversion of these areas into man-made rangelands or the expansion of cropland to produce animal feed for industrial meat production, undeniably has negative impacts on biodiversity ([Semenchuk et. al 2022](#)). However, even pastoralism that does not rely on land conversion has been identified as having adverse effects on the conservation status of migratory species of wild animals when practised at levels that exceed the carrying capacity of ecosystems.
5. Often, rangelands used by pastoralists are important habitats for migratory species. Pastoralism can have both positive and negative impacts on migratory species. A number of case studies are summarized below. Additionally, both pastoralists and migratory species are impacted by pressures on rangelands such as climate change.
6. Rangelands that both pastoralists and migratory species rely on are under threat from climate change, degradation and land-use change. This leaves pastoralists and migratory species facing similar threats and increasingly reliant on the same limited resources. Under the threat of climate change, approximately half of global rangeland areas are projected to experience a simultaneous decrease in mean biomass and an increase in inter-annual variability ([Godde et al.,2020](#)), both potentially harmful for livestock production and for the conservation of migratory species.

Positive impacts of pastoralism on migratory species

7. Equitable community-based rangeland management can be effective for the restoration of lands and ecosystems vital for migratory species (e.g., in Tunisia, see [Fetoui et al. \(2018\)](#)). While increasing grazing pressure in warmer and species-poor drylands reduces ecosystem service delivery, in colder and species-rich areas, grazing can have positive effects on ecosystem service delivery ([Maestre et al., 2022](#)). Furthermore, traditional mobile pastoralism conducted at levels sustainable for ecosystems might be an important contributor to the maintenance of ecosystem connectivity ([Yilmaz et al., 2019](#)).
8. A study on Snow Leopards (*Uncia uncia*) and their prey in the Tibetan Plateau showed that the coexistence of pastoralists and migratory species is possible ([Xiao et al., 2022](#)). An increase in nomadic livestock grazing activities has occurred without significant detriment to the Blue Sheep (*Pseudois nayaur*) and Snow Leopard populations, possibly due to spatiotemporal segregation of habitat-use by traditional pastoralists and wildlife as well as a low level of retaliatory killings due to the religious beliefs of the pastoralists ([Xiao et al., 2022](#)).
9. In the case of avian species, many studies highlight the positive impacts of agro-environmental schemes when applied in grasslands in Europe (see, for example, [Tariuelo et al. \(2021\)](#)). Similarly, moderate levels of cattle grazing have had positive impacts on the bird communities of the Qinghai-Tibetan plateau ([Li Li et al., 2022](#)).
10. The richness and abundance of scavengers such as Griffon Vultures (*Gyps fulvus*), Wild Boar (*Sus scrofa*) and Red Fox (*Vulpes vulpes*) increased in sites with domestic ungulate carcasses compared with those with wild ungulate carcasses ([Arrondo et al., 2019](#)). Transhumant livestock herds may also be positively correlated with the occurrence of Griffon Vultures ([Aguilera-Alcala et al., 2021](#)).

Negative impacts of pastoralism practices on migratory species

11. Pastoralists and migratory species often compete for the same grazing resources. The migratory behaviour of wild herbivores can result in an increased risk of competition with livestock at specific stages of migration where access to resources is required to build up energy reserves ([Pozo et al., 2021](#)). Such competition can lead to overgrazing as well as reduced access to necessary resources. A better understanding of the interactions of migratory herbivores with the spatiotemporal patterns of resource use by domestic herbivores is needed ([Pozo et al., 2021](#)).
12. Excessive grazing can have detrimental effects on the ecosystem's balance. Overgrazing can lead to the degradation of vegetation, and fragmentation and loss of habitats for migratory species, which are detrimental to their survival.
 - a. Overgrazing in the Sahelo-Saharan region is one of the main pressures threatening the biodiversity of the region ([Brito et al., 2016](#)); however, quantifying the actual impact of pastoralism on biodiversity is complicated by a lack of data on the practice ([Brito et al., 2016](#)). Overgrazing was identified as one of the threats to Sahelo-Saharan antelopes – namely the Addax (*Addax nasomaculatus*), Dama Gazelle (*Gazella dama*), Slender-horned Gazelle (*Gazella leptoceros*), Cuvier's Gazelle (*Gazella cuvieri*), Dorcas Gazelle (*Gazella dorcas*) and Scimitar-horned Oryx (*Oryx dammah*) (Beudels-Jamar et al., 2006, see [CMS Technical Series Publication No 11](#)). Overgrazing by livestock degrades the quality of pasture that antelopes rely on for their survival. The increase in prevalence of livestock in the arid Sahelo-Saharan

- region is mostly due to increased deep-well drilling that opened once waterless areas to pastoralists' use.
- b. In Mongolia, well drilling was also identified as a threat to wildlife as it can open pasture areas for pastoralists that had previously been used only by wildlife, thereby leading to habitat loss ([Kaczensky et al., 2021](#)).
 - c. The Central Asian Bukhara Deer (*Cervus elaphus yarkandensis*) occurs almost exclusively in protected areas, where livestock grazing is not permitted. However, illegal grazing and practices such as burning of reeds by local people (which is believed to improve pasture quality) cause habitat degradation and have been identified as serious threats to the species ([Overview Report for the Bukhara Deer, 2021](#)).
13. Pastoralism practised at levels unsustainable for rangelands may result in declines in local migratory species populations and extinctions due to the direct and indirect effects of livestock on migratory species. Furthermore, changes in plant composition and structure caused by overgrazing may impact the diversity and abundance of herbivores, carnivores and birds. A recent review of the existing research on the biodiversity-pastoralism nexus in West Africa confirms that pastoralism has a negative impact on the entire food chain; however, it also identifies the need for further research in this area ([Bilali et al., 2022](#)).
- a. In the particular case of birds, the grasslands of south-eastern South America, one of the most extensive grassland ecosystems in the neo-tropics, have suffered from the negative impacts of the development of the livestock industry, arable agriculture and forestry. The grasslands have a rich avifauna that includes 22 globally threatened and near-threatened species, and many other species have suffered local population extinctions and range reductions. In addition to habitat loss and fragmentation, grassland birds in these ecosystems are threatened by improper use of agrochemicals, unfavourable fire management regimes, pollution, and illegal capture and hunting. Similarly, European grassland birds, such as the Little Bustard (*Tetrax tetrax*) or the Great Bustard (*Otis tarda*) have suffered severe population declines in areas with high densities of cattle (see for example [Marques et al. \(2020\)](#)).
 - b. When pastoralism promotes the use of certain plant species – for example, to combat desertification – indirect impacts to avian species can occur. In Ethiopia, the introduction of an invasive species, *Prosopis juliflora*, to extend pasture land, led to an increase in cattle predation and the use of poison baits, resulting in the accidental poisoning of many vulture and stork species ([Oppel et al., 2021](#)).
 - c. In West and Central Africa, the presence of pastoralists and the associated density of cattle around protected areas might contribute to the extinction of large predators – namely, the Lion (*Panthera leo*), Cheetah (*Acinonyx jubatus*) and African Wild Dog (*Lycaon pictus*) ([Brugière et al., 2015](#)). For large carnivores, low prey density (often ungulates reliant on pasture), disease, and persecution by people are cited as the main causes of extinction. Persecution by people through direct killing and the use of poison is often in response to the loss of livestock to large carnivores – both as a retaliatory and preventative measure. However, [Brugière et al.](#) recognize that due to the temporal and spatial mobility of pastoralism, the pressure of pastoralism on wildlife is difficult to quantify – and calls for the development of indicators to better understand the decline of large carnivores in West and Central African protected areas.

- d. In Pakistan, the Ladakh Urial (*Ovis vignei vignei*), which use a low productivity ecosystem, are threatened by growing livestock numbers that outcompete them for limited forage, leading to the decline of the Ladakh Urial population ([Siraj-ud-Din et al., 2016](#)).
14. In densely grazed areas, close co-occurrence of wildlife and livestock can increase disease transmission risk in both directions. Some wildlife species can act as reservoirs for diseases that can affect livestock health. Disease transmission from livestock to wildlife has also been recorded in both prey and predator species such as the reported cases of bovine tuberculosis in African buffalo (*Syncerus caffer*) and African Wild Dog in Kruger National Park, South Africa ([Higgitt et al., 2019](#)).
15. Furthermore, anecdotal evidence from the field suggests that the increase in demand for meat and the projected decrease in rangeland vegetation that could result in a reduction in pastoral meat production might pose a potential risk of increased unsustainable wild meat harvest in impacted communities. Research on this potential risk is needed.

Considerations for pastoralism in CMS work

16. The information above shows that the relationships between pastoralist communities and migratory species are complex and require a nuanced approach. The topic of pastoralism has emerged in many CMS discussions and is addressed in various CMS instruments, regional and species-specific action plans and programmes of work, including: the Sahelo-Saharan Megafauna (SSMF) Action Plan contained in [UNEP/CMS/COP14/Inf.29.2.1](#), the [Programme of Work of the Joint CITES-CMS African Carnivores Initiative](#) (ACI), the [Roadmap for the Conservation of African Wild Ass \(*Equus africanus*\)](#) (AWA), the [Programme of Work for the Central Asian Mammals Initiative \(CAMI\)](#), the [Medium-Term International Work Programme for the Saiga Antelope](#), the [MOU on the Conservation of Southern South American Migratory Grassland Bird Species and their Habitats](#), the [MOU concerning Conservation Measures for the Siberian Crane](#), the MOU on the Conservation and Management of the Middle-European Population of the Great Bustard (*Otis tarda*) and the CMS [Central Asian Flyway](#) Initiative. The issue of grassland management is also of paramount importance for other CMS groups such as the African-Eurasian Migratory Landbirds Working Group, as well as the [African-European Migratory Landbirds Action Plan \(AEMLAP\)](#).

Sahelo-Saharan Megafauna

17. In the SSMF Action Plan ([UNEP/CMS/COP14/Inf.29.2.1](#)), the extension of pastoralism and overgrazing are identified as key threats for nearly all of the SSMF species. Therefore, in the regional level actions on ecosystem management the Parties agreed to include Activity 2.4 on developing integrated grazing management schemes with local communities at key sites; and in the regional level actions on community engagement, an activity to work with local community leaders on co-management grazing agreements in key sites.

Joint CITES-CMS African Carnivores Initiative

18. In the [Programme of Work of the Joint CITES-CMS African Carnivores Initiative \(ACI\)](#), Objective 3 on prey base conservation and restoration involves the conservation of prey that largely rely on rangelands often used by pastoralists. Furthermore, Objective 7 on illegal trade and illegal or incidental killing includes an activity to develop and implement evidence-based best practice recommendations to reduce livestock depredation and loss of human lives or injuries by ACI species.

African Wild Ass

19. The [Road Map for the Conservation of the African Wild Ass \(*Equus africanus*\)](#) includes Action 1.1.1 to conduct research on the range and ecological requirements of the African Wild Ass and livestock in Eritrea. In Ethiopia, the Road Map includes actions to conduct research and monitoring on dietary overlap and resource competition between African Wild Ass and livestock (3.1) and to develop rangeland and water management schemes (3.4).

Central Asian Mammals Initiative

20. The [CAMI Programme of Work 2021-2026](#) includes 15 activities on overgrazing and livestock competition (Cross-cutting Measure 4). Furthermore, on community engagement and sustainable use, there are a further two activities (5.3 & 5.4) touching on livestock. The species-specific measures for the Persian Leopard, Snow Leopard and Urial also directly address livestock and grazing.

Saiga Memorandum of Understanding

21. The [Medium-Term International Work Programme for the Saiga Antelope \(2021 - 2025\)](#) includes measure 4.4 on working with local people to promote sustainable rangeland use to enable the cohabitation of people, livestock and Saiga Antelopes. Furthermore, on health and disease, the Work Programme includes Activity 10.2 to promote interventions to reduce risk of exposure and encourage elimination of Peste des Petits Ruminants (PPR) virus from livestock populations sharing Saiga habitat and in Saiga regions through comprehensive/systematic livestock vaccination (through the global PPR eradication programme coordinated by FAO/World Organization for Animal Health and national veterinary authorities). Finally, in relation to the Mongolian population, the Work Programme includes Activity 15.4 on research on distribution to inform conservation planning with consideration for grazing overlap, among others and Activity 15.7 on livestock vaccination to control the risk of disease transmission from livestock to wildlife.

Avian CMS instruments dealing with grassland management

22. As mentioned in paragraph 17, several CMS Instruments currently address the impact of grassland management and migratory birds. As an example, the [MOU on the Conservation of Southern South American Migratory Grassland Bird Species and Their Habitats](#), identifies specific targets for sustainable grassland management (Objective 1). The [MOUs addressing the Conservation Measures for the Siberian Crane](#) and the Conservation and Management of the Middle-European Population of the Great Bustard (*Otis tarda*) identify grassland management as a priority, similar to the AEMLAP where grasslands are identified as priority habitats.

Discussion and analysis

23. Considering the nuances and complexities around wildlife and pastoralism, additional analysis with the participation of experts and relevant stakeholders involved in pastoralism, rangelands ecologies and migratory species conservation is needed to identify priority areas of work under the auspices of CMS. Therefore, a multi-stakeholder approach would be useful in identifying challenges and opportunities to better address the impact of pastoralism on migratory species.

Recommended actions

24. The Conference of the Parties is recommended to:
 - a). Adopt the draft Decisions as contained in the Annex of this document.

DRAFT DECISIONS

PASTORALISM AND MIGRATORY SPECIES***Directed to Parties***

- 14.AA Parties are requested to submit to the Secretariat information on national measures for rangeland management and pastoralism and share information on challenges, lessons learned and needs for further capacity development.

Directed to the Scientific Council

- 14.BB The Scientific Council is requested, subject to the availability of external resources, to establish a multi-stakeholder Working Group on pastoralism and CMS-listed species, composed of stakeholders with experience and knowledge on managing rangelands, pastoralism and wildlife. The Working Group is asked to:
- a) Analyse available information relevant to pastoralism and potential impacts on CMS-listed species, including existing models and best practice case studies and the compilation of responses received by the Secretariat under Decision 14.AA;
 - b) Provide recommendations to support Parties in addressing the impact of pastoralism on CMS-listed species.

Directed to the Secretariat

- 14.CC The Secretariat shall, subject to the availability of external resources:
- a) Request Parties to submit information on national measures for rangeland management and pastoralism and share information on challenges, lessons learned and needs for further capacity development;
 - b) Support the Scientific Council in implementing Decision 14.BB (a);
 - c) Convene at least one meeting of the Working Group established by the Scientific Council under Decision 14.BB;
 - d) Participate in and provide inputs to the 2026 International Year of Rangelands and Pastoralists Working Group on Rangelands and Biodiversity;
 - e) Liaise with the United Nations Environment Programme, the United Nations Convention to Combat Desertification, the Food and Agriculture Organization, the United Nations Development Programme, the United Nations Educational, Scientific and Cultural Organization and its relevant Conventions, the International Union for the Conservation of Nature and other relevant international and regional organizations, multilateral environmental agreements, development agencies, donors, non-governmental organizations and academic institutions, as appropriate, to support the operation of the Working Group and to assist Parties in addressing the impacts of pastoralism on CMS-listed species such as through joint capacity-development activities; and
 - f) Report to the Conference of the Parties at its 15th meeting on the progress in implementing this decision.