

# VANISHING TREASURES

## PROTECTING ENDANGERED MOUNTAIN SPECIES

#VANISHINGTREASURES  
vanishingtreasures.org

ROYAL BENGAL  
TIGER

MOUNTAIN  
GORILLA

Mountains have always been a refuge for remarkable animals and plants. Until recently, the rugged landscapes and inaccessibility of these regions have provided shelter from significant human influence, but this situation is changing fast. About 16% of the world's human population now lives in mountain regions. Mountains are also home to rich natural resources that are increasingly being exploited, most notably water.

While global temperatures have risen by an average of 0.7°C since 1980, many mountain regions have experienced much higher temperature increases. The melting and retreat of mountain glaciers is the most visible change in these regions, but far from the only one.

### OUR ACTIVITIES

Within each region, the Vanishing Treasures programme works hand in hand with local communities, national governments, and regional bodies where relevant, as well as with authorities who oversee protected areas. The programme aims to:

1. Generate new knowledge of the impacts of climate change on these iconic mountain species and their habitats; human communities' responses to climate change; and possible knock-on effects including changing human-wildlife conflict.
2. Integrate climate-smart measures into conservation planning and land management, including ecological connectivity measures to take into account shifting habitats and other changes resulting from climate change.
3. Pilot ecosystem-based adaptation and other measures to increase communities' resilience to climate change, including promotion of alternative livelihood options that reduce or diversify dependence on natural resources and reduce human-wildlife conflict.

### OUR WORK

The Vanishing Treasures programme is tackling the climate and biodiversity crises by focusing on three iconic and endangered species in different mountain regions: the snow leopard in Central Asia (Tajikistan and Kyrgyz Republic), the Bengal tiger in Bhutan, and the mountain gorilla in the Virungas (Rwanda and Uganda).

In seeking to conserve these iconic species, the programme also works to conserve the wider mountain habitats and landscapes and to strengthen the resilience of the human communities living there.

SNOW  
LEOPARD

### OUR PARTNERS

The Vanishing Treasures programme, which is funded by the Government of the Grand Duchy of Luxembourg, is led by the UN Environment Programme (UNEP) in collaboration with a number of national, regional and international partners, who each bring their long-standing expertise to support the conservation of these mountain species and strengthen the resilience of local communities in a changing climate.



THE GOVERNMENT  
OF THE GRAND DUCHY OF LUXEMBOURG





# MOUNTAIN GORILLA

## THE VANISHING TREASURE OF THE VIRUNGAS



The mountain gorilla *Gorilla beringei beringei* is one of two sub-species of the eastern gorilla. Adult males are known as “silverbacks” due to the characteristic silver hair that develops on their backs from maturity. Gorillas are almost completely vegetarian and live in social groups of between 7 and 16 individuals.

The mountain gorilla exists in two isolated subpopulations straddling the borders between Rwanda, Uganda, and the Democratic Republic of Congo (DRC). One is in the Virunga Volcanoes region, which encompasses Rwanda's Volcanoes National Park, Uganda's Mgahinga Gorilla National Park, and the DRC's Virunga National Park. The other is in Uganda's Bwindi Impenetrable National Park and the DRC's Sarambwe Nature Reserve.



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Mountain gorillas and humans share a common ancestry, and apart from chimpanzees and bonobos, are more alike to us than any other species on Earth. Increasingly, mountain gorillas are a prized ecotourism destination, generating income for all three governments and contributing significantly to local development

### HOW THE MOUNTAIN GORILLA IS THREATENED

Mountain gorillas are the only great ape in the world thought to be increasing in population size. An estimated 1004 individuals now live within the Virungas and Bwindi Impenetrable National Park. But despite an increasing population, mountain gorillas are exposed a number of threats. They can get caught in illegal wire or rope snares that are intended to catch other animals. New threats include infrastructure development, disease, and climate change. Ongoing conflict and civil unrest in the region also present an ongoing risk, affecting people as well as wildlife.



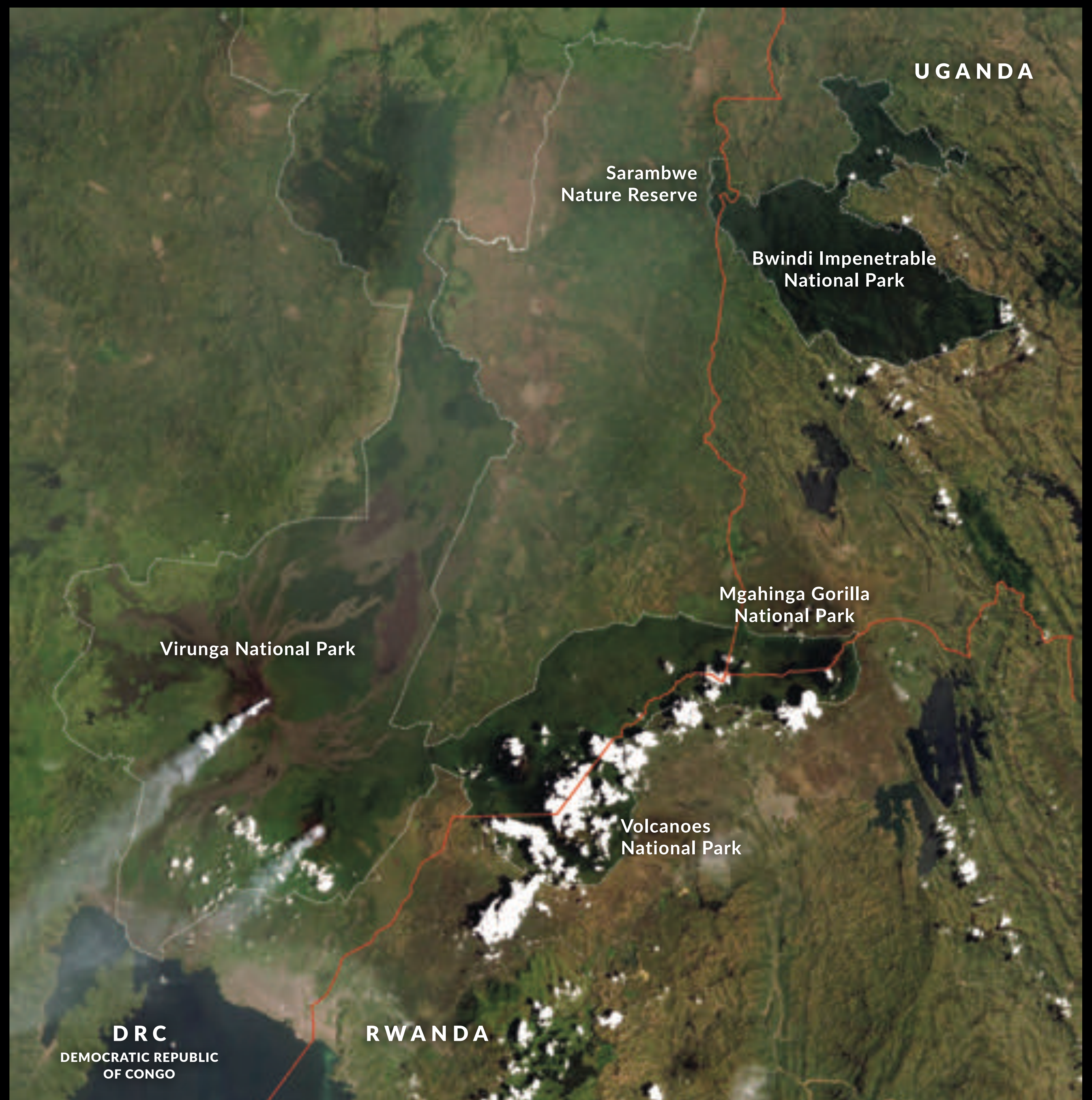
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The landscape surrounding the national parks in the Virungas is highly fertile, resulting in very high human population densities. In some places, densities exceed 600 people / km<sup>2</sup>.



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The Virunga mountain range taken from further north in Nkuringo, Uganda



The satellite image shows the border region between the DRC, Rwanda and Uganda including the various parks in the region. Human pressures on the landscape are high and in most cases agriculture and other human land uses extend directly to the park borders, creating clear boundaries that can be seen from space.

Disclaimer: This map was produced by GRID-Arendal for the Vanishing Treasures programme. The spatial data is derived from external sources. Consequently GRID-Arendal is not liable for positioning inaccuracies, subsequent updates, errors or omissions of data.



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Agriculture is practiced right up to the park boundaries. Very often, simple walls are constructed to prevent wildlife from crossing over into the fields.

### HOW VANISHING TREASURES IS ADDRESSING THE PROBLEM

The Vanishing Treasures programme focusses its efforts on mountain gorillas within Rwanda and Uganda and is working with authorities in protected areas and with communities adjacent to Volcanoes National Park, Mgahinga Gorilla National Park, and Bwindi Impenetrable National Park. While the programme will not be implemented in the DRC, it is anticipated to involve colleagues from the country in technical meetings.

Vanishing Treasures will work to better understand the diverse impacts of climate change on gorillas and their habitats and on human communities, as well as current and possible future vulnerabilities and responses. Programme activities will include development of measures to reduce human-wildlife conflict as well as sustainable buffer zone and land management.



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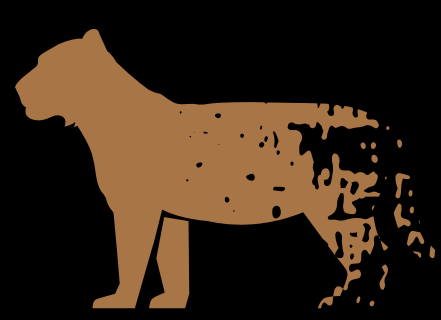


Water scarcity is common during the dry season and villagers often harvest water from within the park boundaries, placing additional pressures on the gorillas and their habitats. The project will work to reduce human-wildlife conflict and increase the resilience of human communities to climate change.



# ROYAL BENGAL TIGER

## THE VANISHING TREASURE OF THE HINDU-KUSH HIMALAYAS



The tiger is one of the world's largest carnivores. Once ranging widely across Asia, the majestic tiger is now an endangered species, with fewer than 4000 individuals currently in the wild. There are five sub-species of tigers living in the wild today. The Royal Bengal tiger (*Panthera tigris tigris*) is the most numerous and is found in Bangladesh, Bhutan, India, and Nepal.

As a top predator, tigers play an important role in maintaining a diverse and healthy forest ecosystem. In many countries, including Bhutan, tigers hold a strong cultural significance. Tiger reserves also act as a storehouse for carbon as large tracts of forest are protected.



Bhutan's eastern mountains near Trashigang.



The protected area network of Bhutan covers over 50% of the country and includes national parks, wildlife sanctuaries, a nature reserve and a number of corridors linking these all together. There are two pilot areas (dotted yellow line) for the Vanishing Treasures programme. The first is in central Bhutan, in the district of Trongsa where human-wildlife conflict is high. The second pilot area is to the east, in Trashigang district, where the impacts of climate change are severe and include more frequent forest fires and the drying up of water sources. Remote camera trap sightings of tigers in Bhutan are indicated by the yellow dots.

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Camera traps are used to record and monitor tiger movements within the country. These three images were captured in Trongsa, in central Bhutan, which is one of the pilot areas in the country.

### HOW THE TIGER IS THREATENED

Habitat loss, prey depletion, poaching and human-wildlife conflicts are the major causes of the decline of tigers. Pressures from commercial logging, the expansion of agriculture and human settlements into forest landscapes, and barriers such as fences, roads and dams all contribute to the fragmentation and loss of tiger habitats and to human-wildlife conflict.

Climate change is an emerging threat that is driving changes in habitat. Climate-related hazards including heatwaves, wildfires, droughts, cyclones and floods are also adversely affecting tigers and their habitats. Human responses to climate change may contribute to human-wildlife conflicts as well.



A traditional painting of a tiger on the walls of Paro's Rinpung Dzong, a Buddhist monastery and fortress. Tigers continue to have a very strong cultural significance in Bhutan.

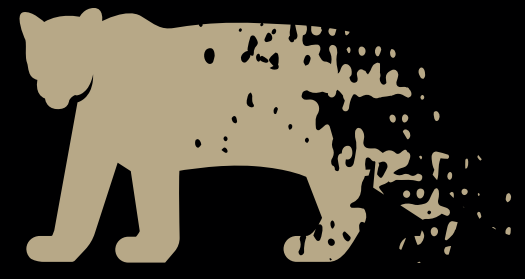
### HOW VANISHING TREASURES IS ADDRESSING THE PROBLEM

In Bhutan, Vanishing Treasures is working to enhance the understanding of climate change impacts on the Royal Bengal tiger and its habitats, and to address knowledge gaps. The programme aims to integrate climate change knowledge into tiger habitat management and promote climate-smart conservation practices. The programme will further support communities living in close proximity to tiger habitats by promoting ecosystem-based adaptation on the ground to reduce impact and further pressure on the tiger and its habitats.



# SNOW LEOPARD

## THE VANISHING TREASURE OF CENTRAL ASIA



The snow leopard *Panthera uncia* inhabits remote, arid and rugged mountainous areas of Central and South Asia at altitudes ranging from 2700 metres to 5000 metres above sea level. It naturally preys on large ungulates including the Asiatic ibex and the argali sheep. Protecting the snow leopard and its habitats can have positive effects for the conservation of other species including the grey wolf and Eurasian lynx. Snow leopards are estimated to number between 2500 and 10000 mature individuals.

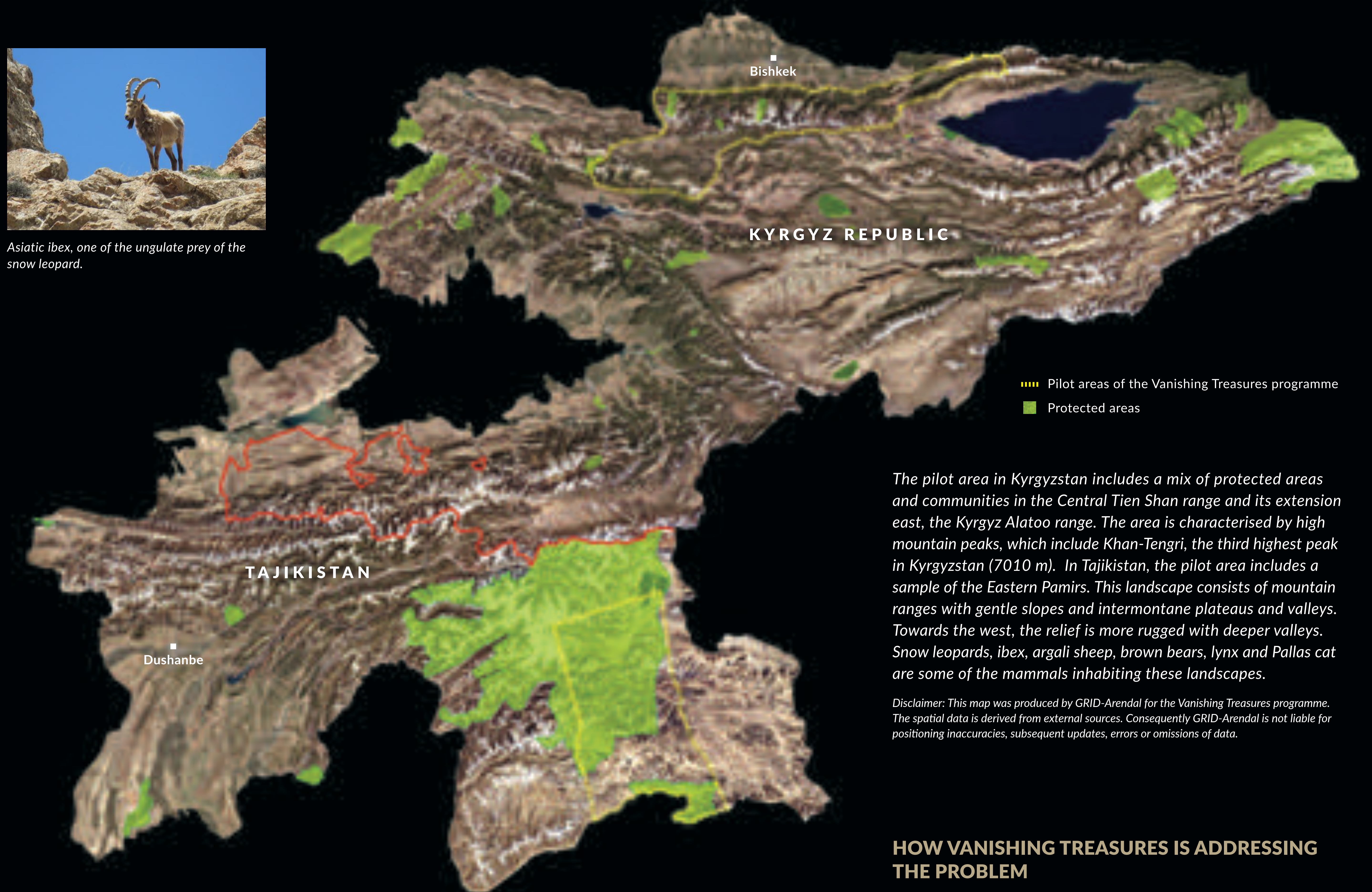


Asiatic ibex, one of the ungulate prey of the snow leopard.



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A snow leopard caught on camera within the Alichur conservancy at around 4000 metres above sea level. The Alichur conservancy is part of the proposed pilot site in Tajikistan.



The pilot area in Kyrgyzstan includes a mix of protected areas and communities in the Central Tien Shan range and its extension east, the Kyrgyz Alatau range. The area is characterised by high mountain peaks, which include Khan-Tengri, the third highest peak in Kyrgyzstan (7010 m). In Tajikistan, the pilot area includes a sample of the Eastern Pamirs. This landscape consists of mountain ranges with gentle slopes and intermontane plateaus and valleys. Towards the west, the relief is more rugged with deeper valleys. Snow leopards, ibex, argali sheep, brown bears, lynx and Pallas cat are some of the mammals inhabiting these landscapes.

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### HOW VANISHING TREASURES IS ADDRESSING THE PROBLEM

The Vanishing Treasures programme focusses on the Central Asian countries of Tajikistan and the Kyrgyz Republic, working to better understand the direct impacts of climate change on snow leopards and their prey species, as well as current and possible future vulnerabilities and responses of pastoral communities to climate change.

This new knowledge will be used to implement pilot solutions on the ground with the aim to lessen or avoid human-wildlife conflict, sustainably manage pasture resources, promote alternative livelihood activities and reduce communities' vulnerability to climate change



©UNEP/GoPro

A variety of remote camera traps are being used to monitor the presence and abundance of snow leopards and their prey. UNEP's Vanishing Treasures project is collaborating with GoPro to capture first-of-its-kind Virtual Reality 360 degree footage of snow leopards in the wild. The project is supported by the Snow Leopard Trust and NABU Rehabilitation Center in Kyrgyzstan.

### HOW THE SNOW LEOPARD IS THREATENED

Much of the snow leopard's range overlaps with areas where people practice traditional pastoralism. Expanding human populations and growing livestock herds in some areas have led to the degradation of pastureland and wildlife habitats, resulting in increased competition for food and decline of the ungulates on which the snow leopard preys. Poaching further contributes to a decline in wild ungulate populations.

In some places, people illegally kill snow leopards to sell their pelts, or kill them in retaliation for livestock depredation. Other threats include mining, which fragments habitat. Climate change is also affecting the distribution and abundance of prey species, and is contributing to the degradation of pastures, leading to increased human-wildlife conflict.



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A combination of field surveys (as pictured) and remote sensing will be used to better understand the current distribution and abundance of snow leopards, prey species as well as habitat productivity and human land use patterns. This information will be combined with climate models to understand current and potential future habitat suitability.