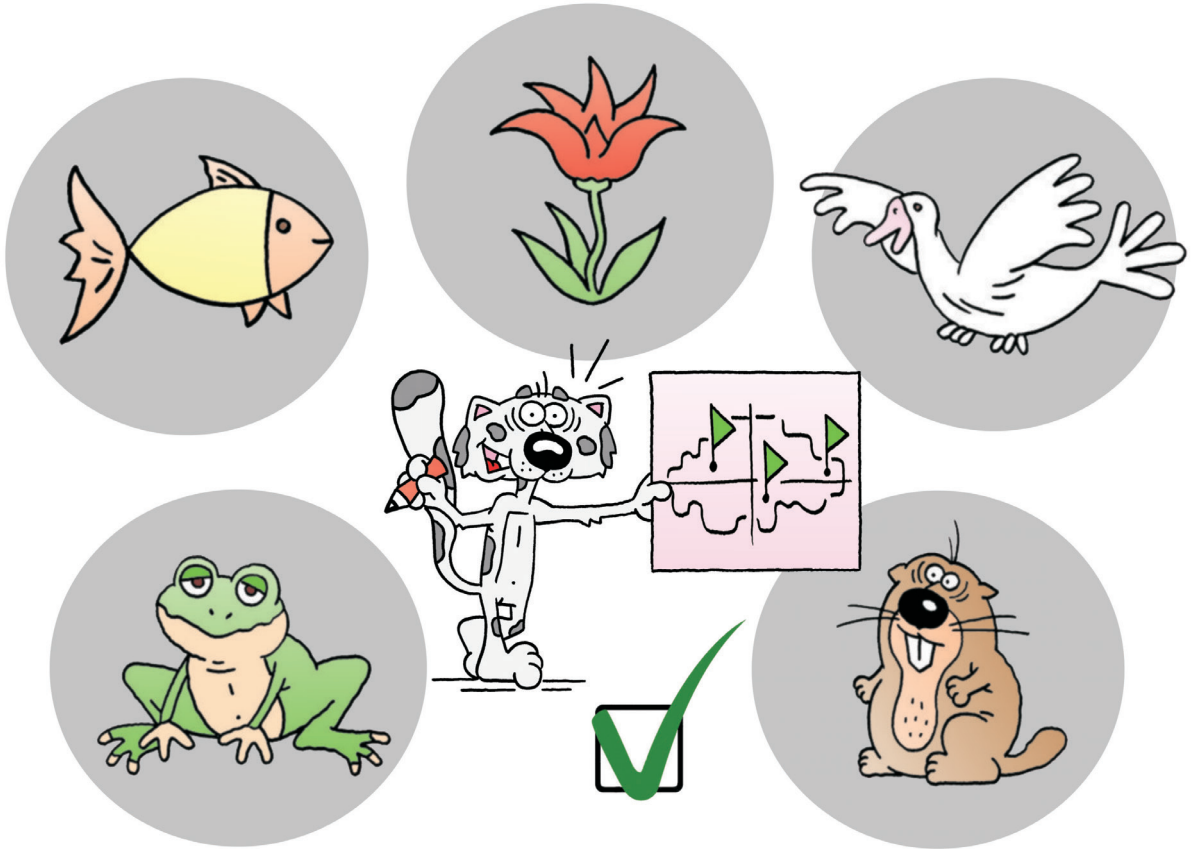


Ecosystem Profile

# The Mountains of Central Asia and Key Biodiversity Areas

A Summary in Cartoons



---

This publication has been produced by Zoï Environment Network in collaboration with the Critical Ecosystem Partnership Fund.

Note to readers: Information from other CEPF Ecosystem Profiles, the IUCN 2016 KBA Standard, and Zoï's own experience in the pioneering work on identification of KBAs in the Mountains of Central Asia hotspot has informed this brochure. This brochure is intended for both lay readers and participants in the conservation activities and CEPF grants, and does not reflect in scientific depth all the particulars of the activities or the intricacies of the definitions. Ideas, views and proposals on the further refining of the cartoons and other visualizations are welcome.

**Concept:** Viktor Novikov

**Cartoons:** Ruslan Valitov

**Text:** Geoff Hughes and Viktor Novikov

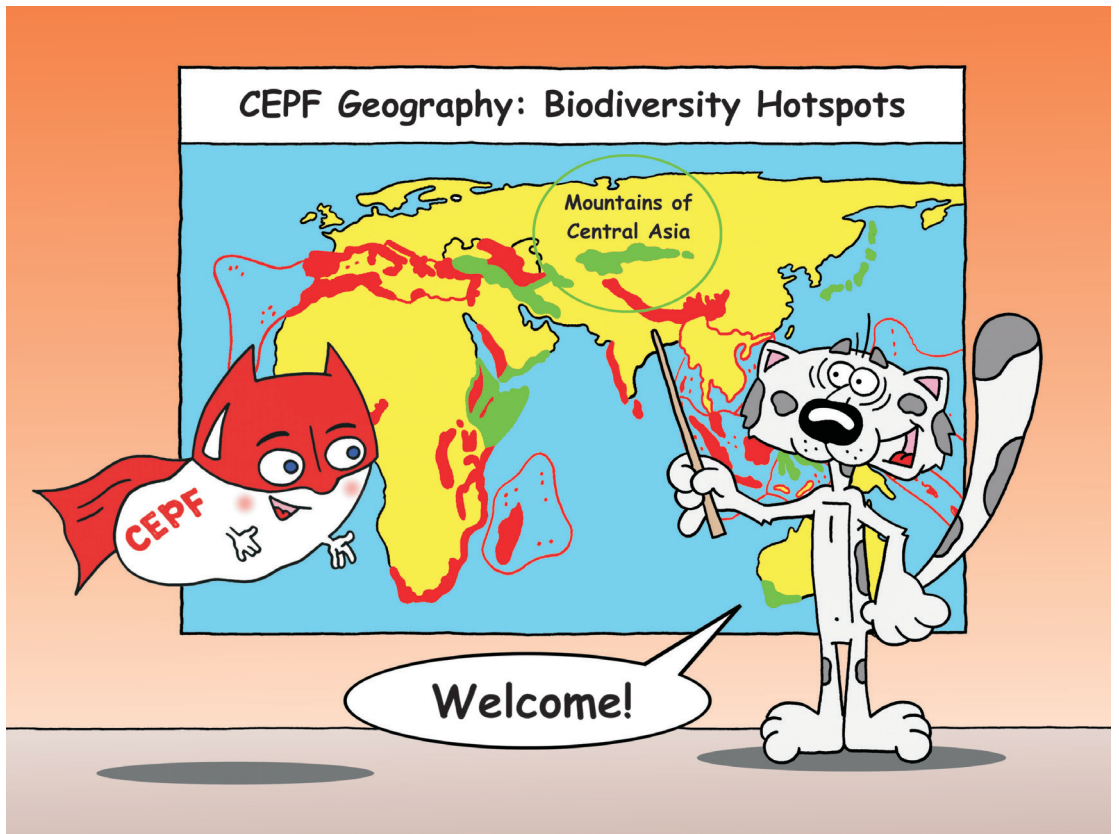
**Layout:** Maria Libert

**Contributors:** Firuza Illarionova, Otto Simonett, Aigerim Abdyzhaparova, Penny Langhammer, Jack Tordoff

Ecosystem Profile

# **The Mountains of Central Asia and Key Biodiversity Areas**

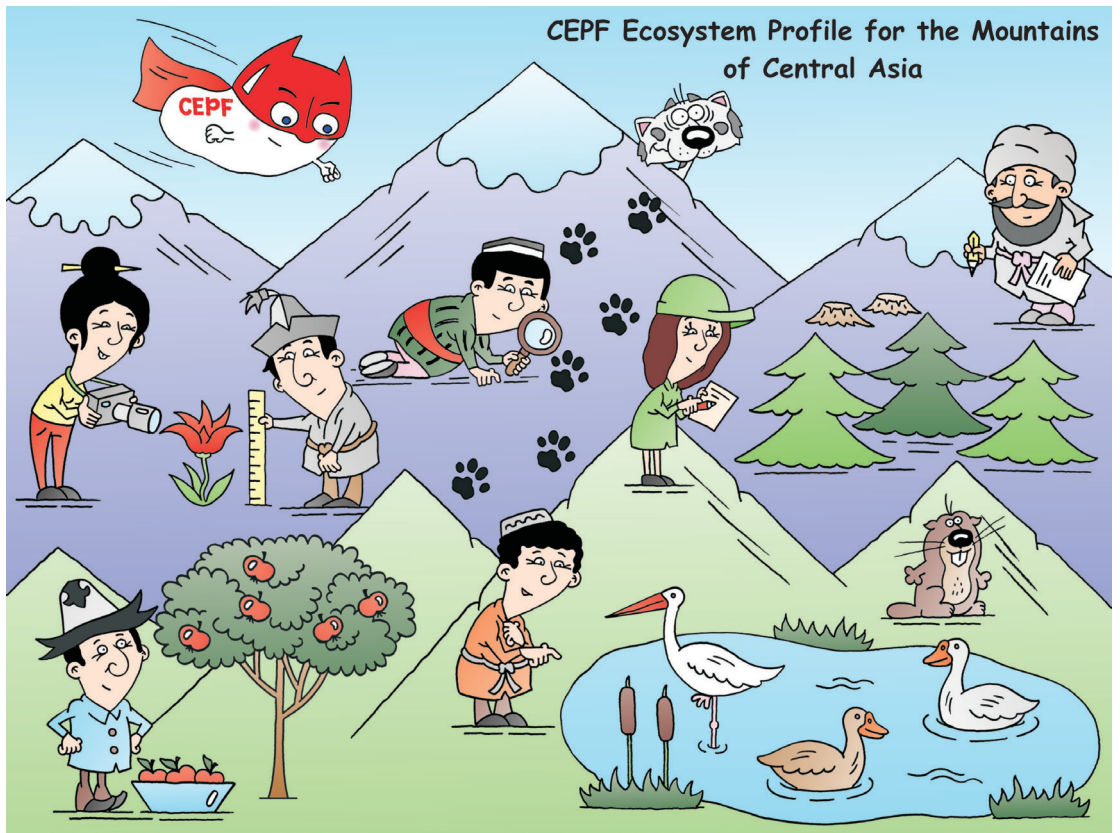
A Summary in Cartoons



---

The Critical Ecosystem Partnership Fund (CEPF) safeguards the world's biologically richest and most threatened regions, known as biodiversity hotspots. Thirty-six biodiversity hotspots, defined as regions that have at least 1,500 endemic plant species and have lost more than 70 percent of their original natural vegetation, have been identified globally. One of these hotspots is the Mountains of Central Asia, a global priority for conservation and the important center of origin of domestic fruits and nuts – apricots, cherries, apples, pears, pistachios, almonds, walnuts – and wild relatives of crops, such as wheat, barley, onions, and tulips, to name a few. CEPF started its work in the Mountains of Central Asia in 2016 with the preparation of an ecosystem profile.

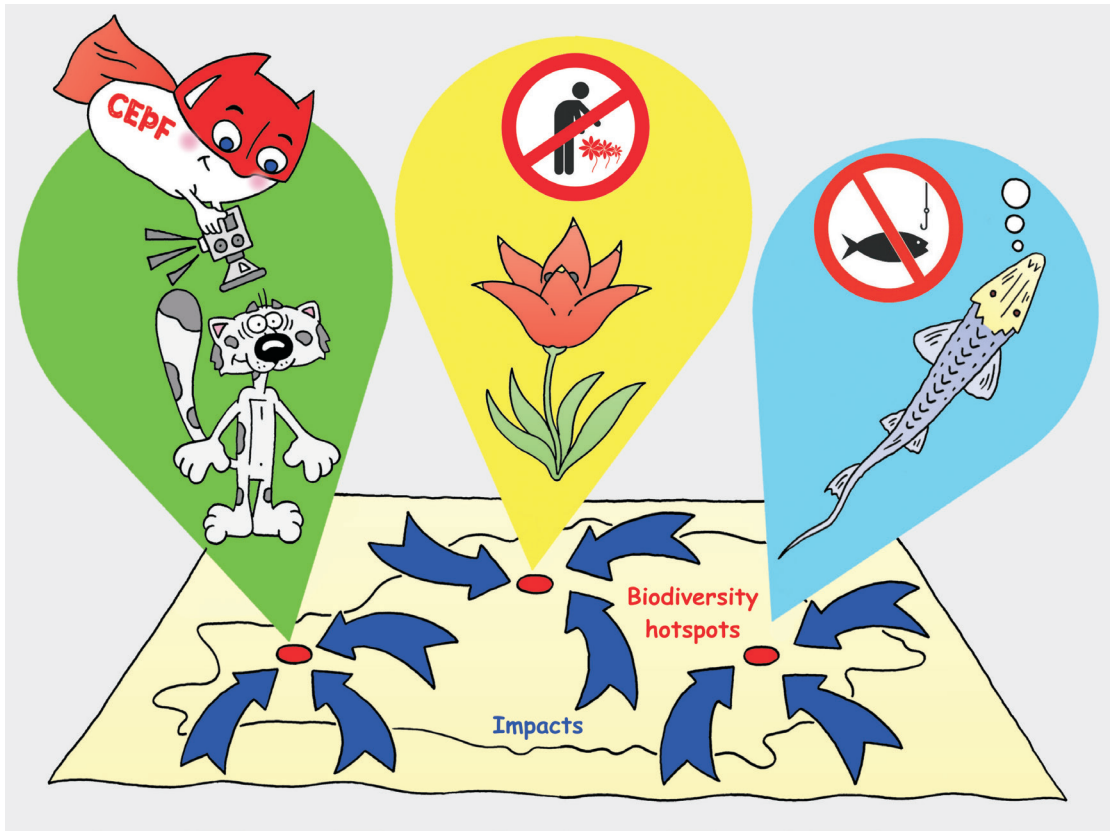
---



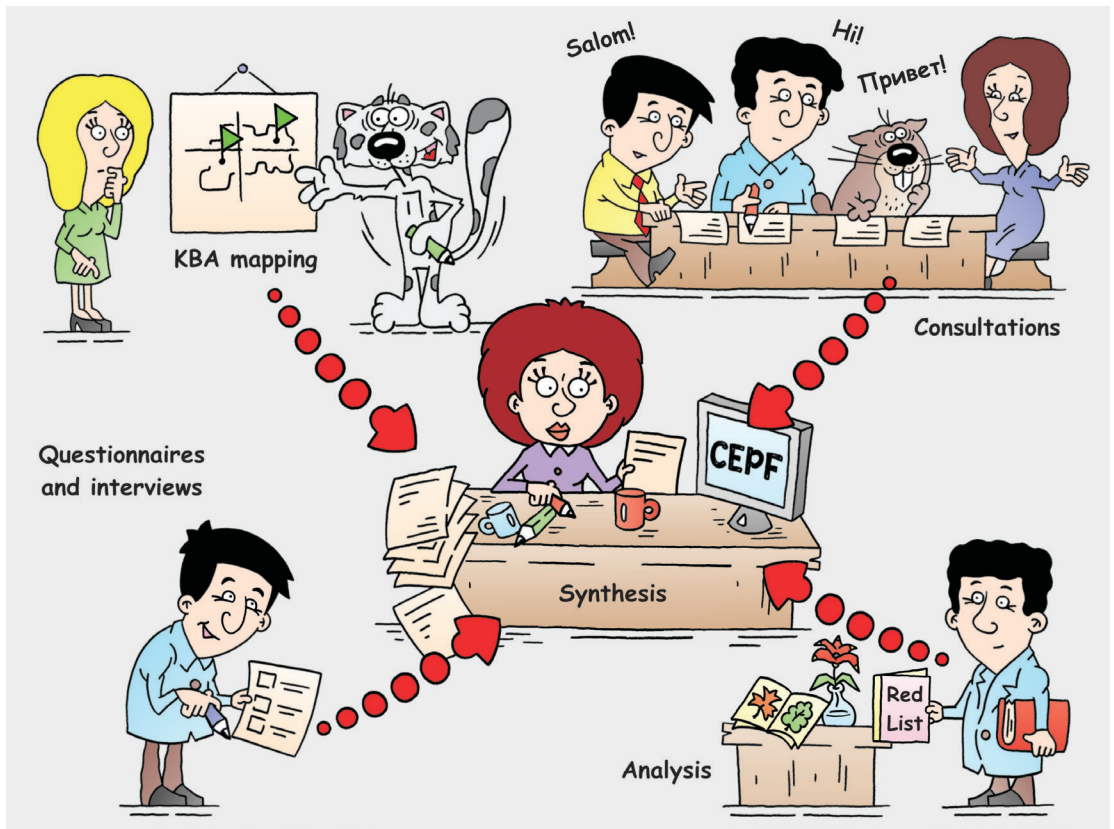
---

The Mountains of Central Asia hotspot consists of two of Asia's major mountain ranges – the Pamir and the Tien Shan. The hotspot's 860,000 square kilometers include parts of seven countries: southeastern Kazakhstan, all of Kyrgyzstan and Tajikistan, eastern Uzbekistan, western China, northeastern Afghanistan, and a small mountain part of southeastern Turkmenistan. The most diverse ecosystems are mixed forests and grasslands at between 1,000 and 3,000 meters above sea level. Some mountains reach 7,000 meters and have extensive glaciers. About half of the global population of snow leopards lives in the hotspot along with almost 500 bird species and 5,000 plant species, as well as unique wild fruit-and-nut and tugai riverbank forests. CEPF investments will foster regional collaboration on species and sites and will further contribute to the global recognition of the value of the region's biodiversity and to conservation efforts in the hotspot.

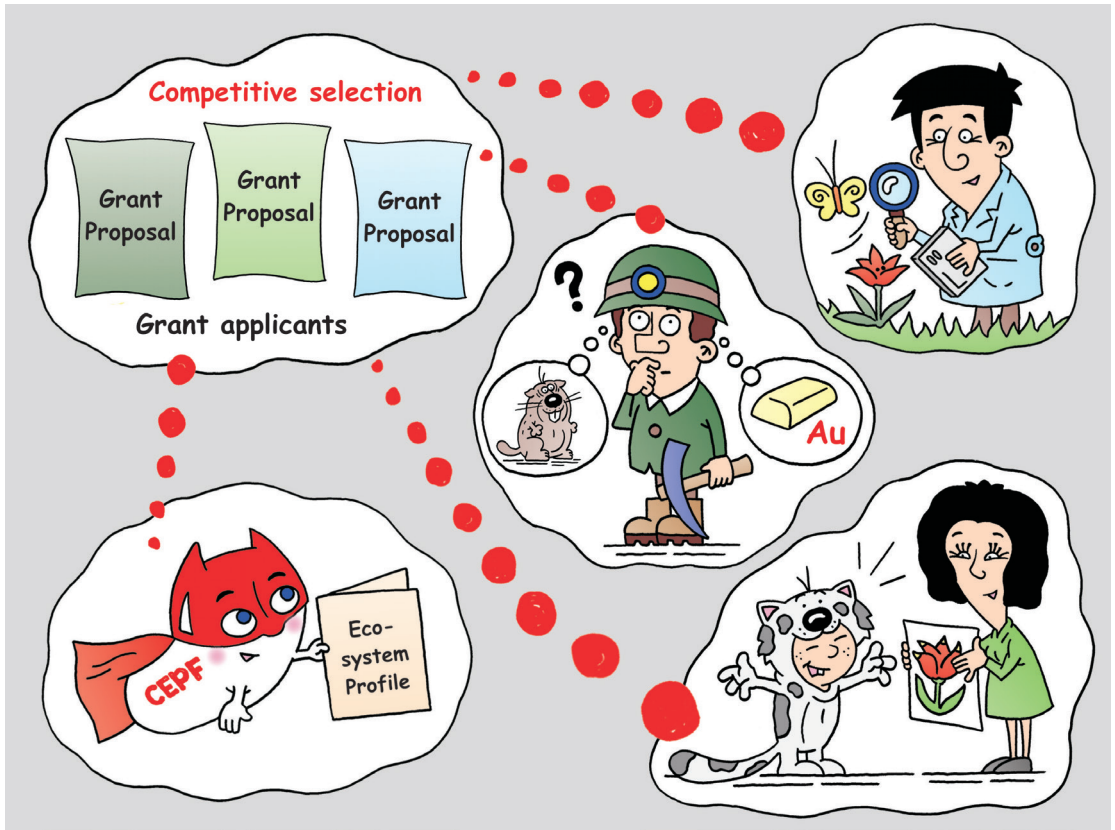
---



A number of threats are affecting the biodiversity hotspot. Political and economic transitions in the five post-Soviet countries of Central Asia have led to intensified use of natural resources. Afghanistan has experienced a decades-long civil war that has been devastating for the people and the environment. In China, skyrocketing development has led to the conversion of ecosystems, the overuse of resources, and increased pollution. Poaching, especially of larger mammals and birds, is an issue in the region. Unregulated collection of plants poses a direct threat to globally threatened and restricted-range species. Energy shortages in the mountain areas have led to the cutting of trees and shrubs for fuel. This, together with overgrazing inside the mountain forests, has disrupted the natural processes in high-value coniferous and fruit-and-nut forests. CEPF cannot respond to all these impacts and threats, but its interventions will cover concrete actions for priority species and sites, and will address the most urgent threats.



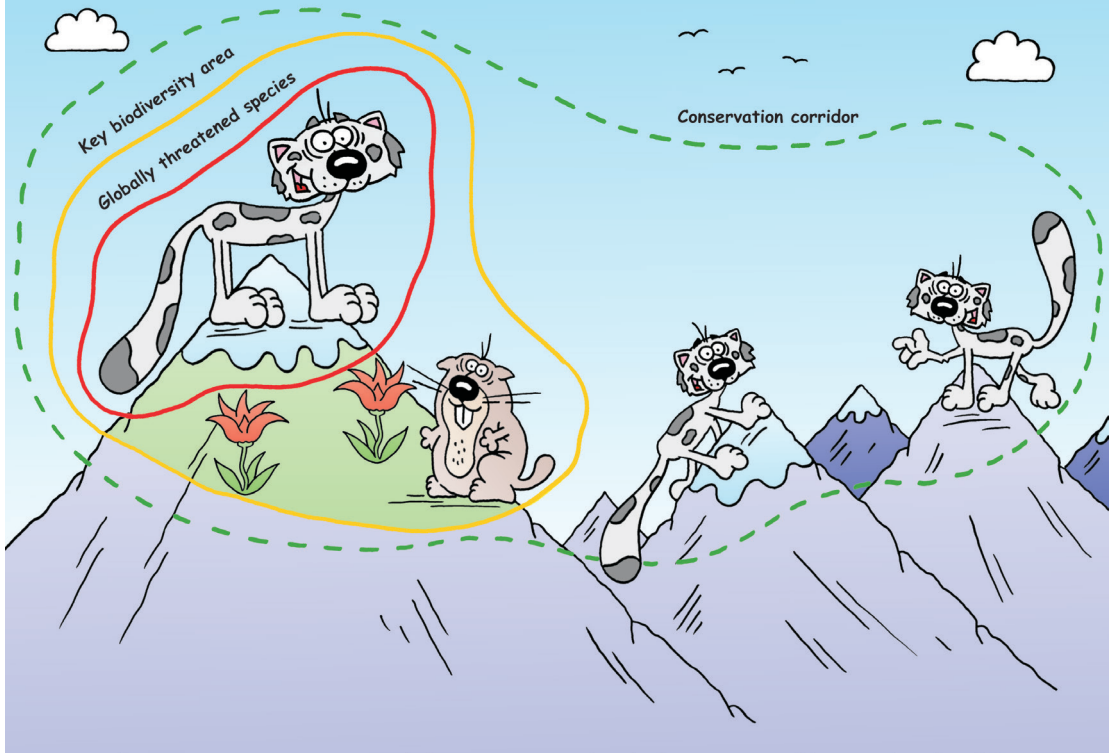
The preparation of an ecosystem profile for CEPF is an open, inclusive, complex, and intense process. Views and proposals from diverse stakeholders are received through questionnaires and interviews. National and regional consultations involving the public and private sectors, scientists and local communities – often operating in several local languages – allow open discussion and prioritization of sites. The analysis applies rigorous international scientific standards to the selection of sites, and calls on a range of expertise and diverse sources of data to define the socioeconomic conditions and to map out the strategy for conservation investments. The mapping of Key Biodiversity Areas (KBAs) involves the search for the best and most up-to-date information to define species distribution and ecological site boundaries. The final KBA maps define the best management units for the focus species and the ecological processes, and account for administrative, economic and land-use considerations. The ecosystem profiling team, in consultation with the CEPF Secretariat, simultaneously manages all of these processes.



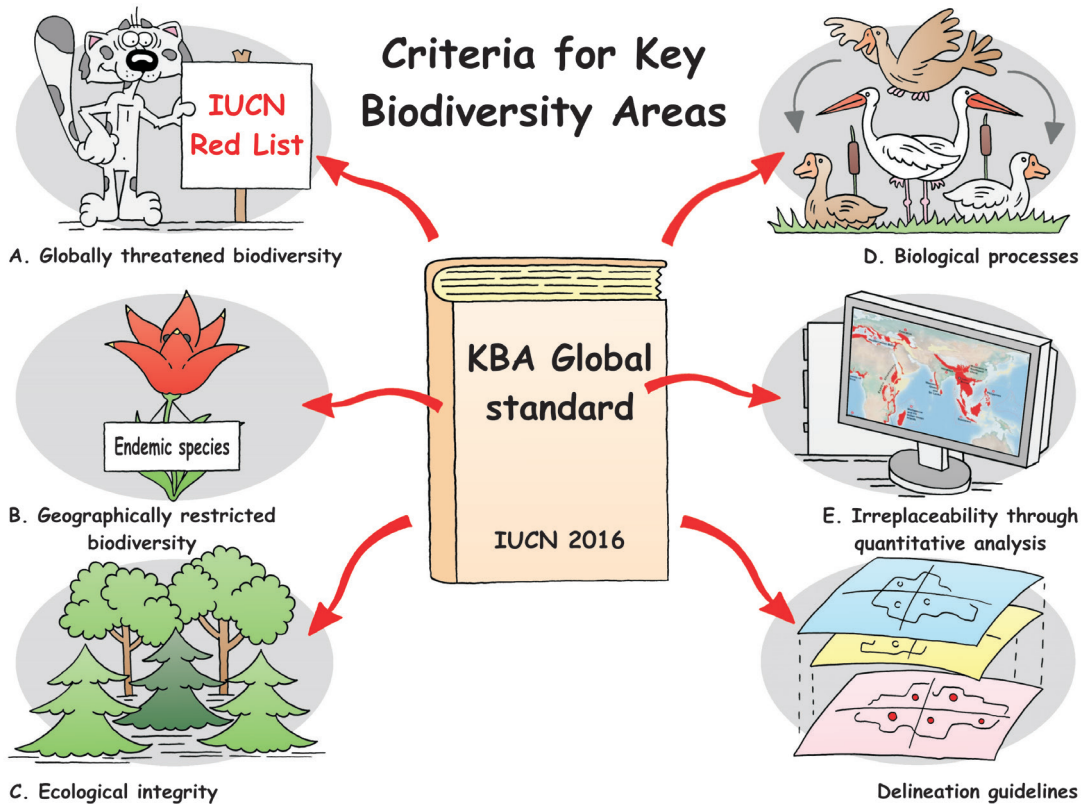
CEPF makes grants to civil society organizations, which are defined as organizations outside of government – conservation NGOs, community groups, academic institutions, business associations, and trade and socio-political organizations, among others. The ecosystem profile guides CEPF investments by location and species. Understanding the interests, capacity and needs of civil society in the hotspot is as important as understanding its biodiversity. CEPF grants come in two sizes: small grants, administered and supervised locally by the Regional Implementation Team (RIT), and larger grants, administered by the CEPF Secretariat. Applicants submit proposals in line with the specified strategic directions and the priority geographic areas to CEPF for competitive selection. CEPF often encourages applicants to form alliances for more effective and coordinated actions. Although CEPF makes grants to civil society, governmental institutions play a critical role in conservation and are often partners in CEPF efforts.



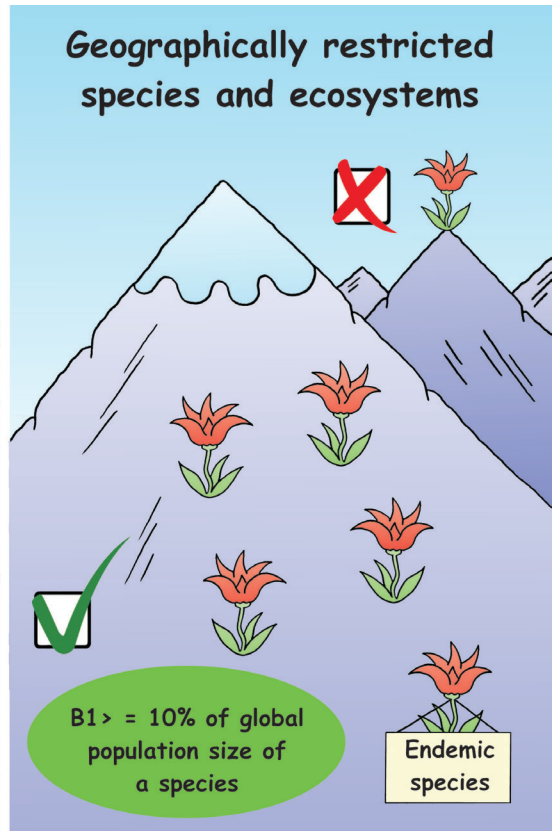
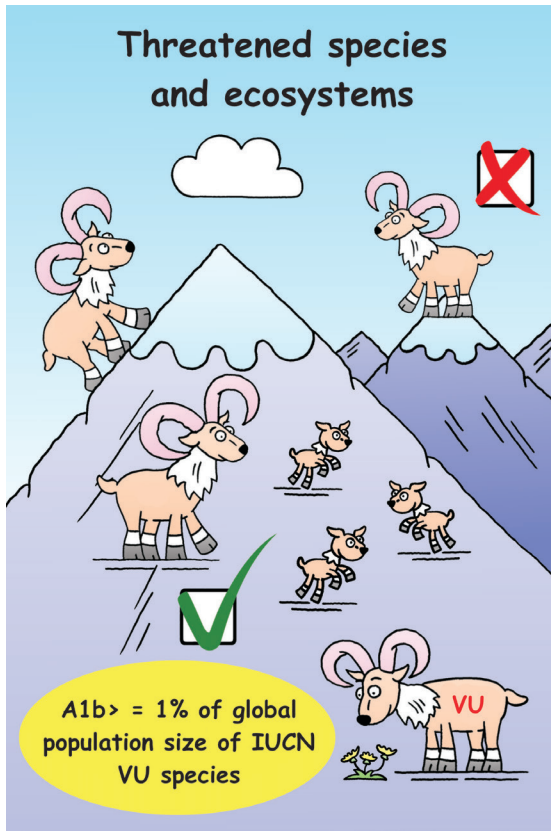
## CEPF conservation outcomes



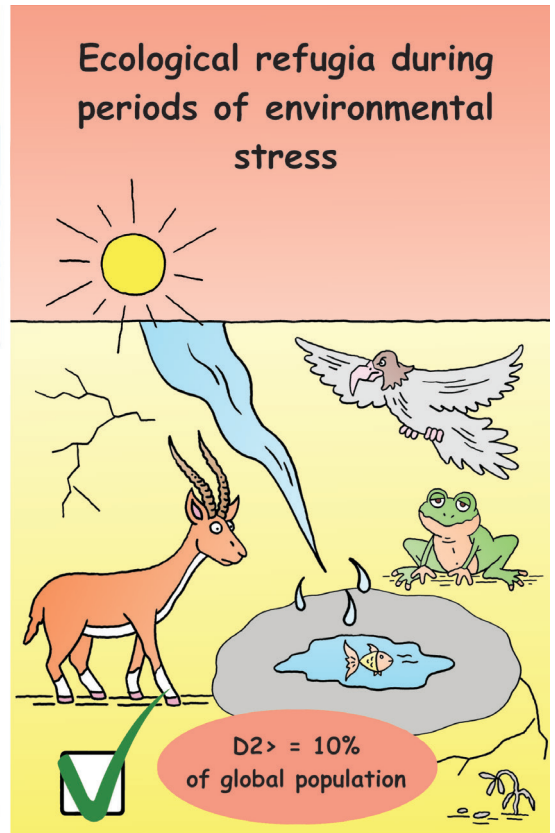
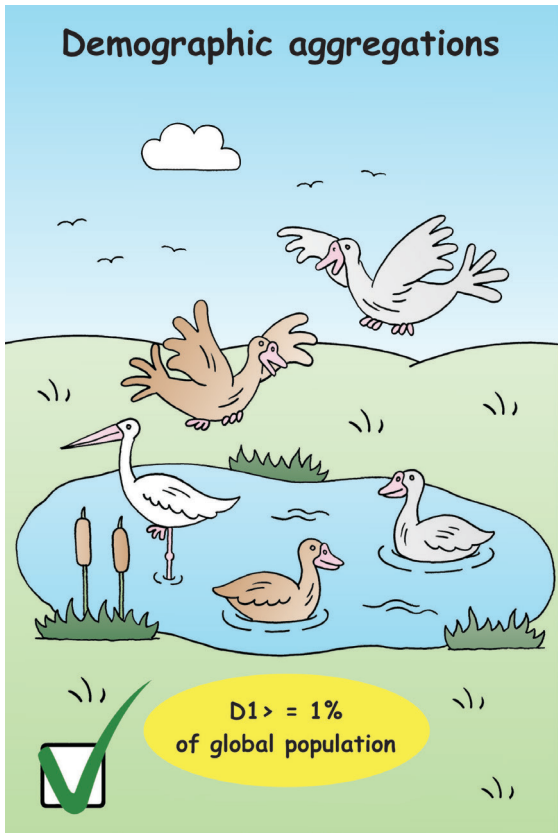
CEPF identifies conservation outcomes at three scales – the globally threatened species on the IUCN Red List; the sites that sustain these and other species and have global importance (Key Biodiversity Areas); and the conservation corridors necessary to maintain the ecological and evolutionary processes upon which those sites and species depend. The outcomes are measures as “species extinctions avoided”, “KBAs protected” and “ecological corridors created”. CEPF bases its definition of KBAs – the key pillar and geographic unit at which CEPF typically works and provide grants – on *A Global Standard for the Identification of Key Biodiversity Areas* (IUCN 2016).



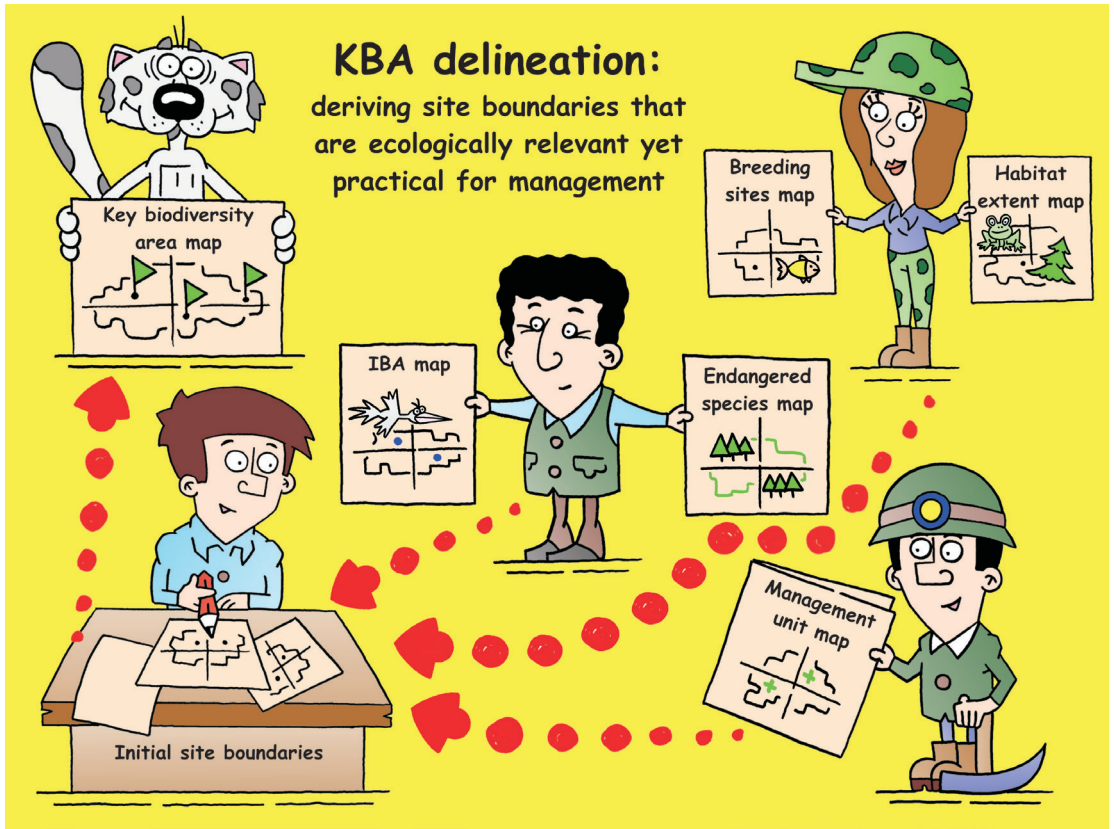
Key Biodiversity Areas are sites contributing significantly to the global persistence of biodiversity. They are significant because they support species and ecosystems that are threatened globally, geographically restricted, or are irreplaceable because they hold a significant proportion of the global population of a species. The identification of KBAs uses multiple criteria, with associated thresholds as defined by the IUCN 2016 Standard. The criteria and delineation guidelines make the identification process objective, transparent and rigorous through the application of quantitative thresholds and can be universally used to identify sites in terrestrial, inland water and marine environments. In the Mountains of Central Asia Hotspot, the ecosystem profiling team primarily used the A1 (Globally threatened species), B1 (Individual geographically restricted species) and D1 (Demographic aggregations) criteria. While the Mountains of Central Asia feature globally unique and threatened ecosystems, a lack of global assessments and current local information and resources prevents application of the A2 (Threatened ecosystems under the IUCN Red List of Ecosystems), C (Ecological integrity) and E (Irreplaceability) criteria.



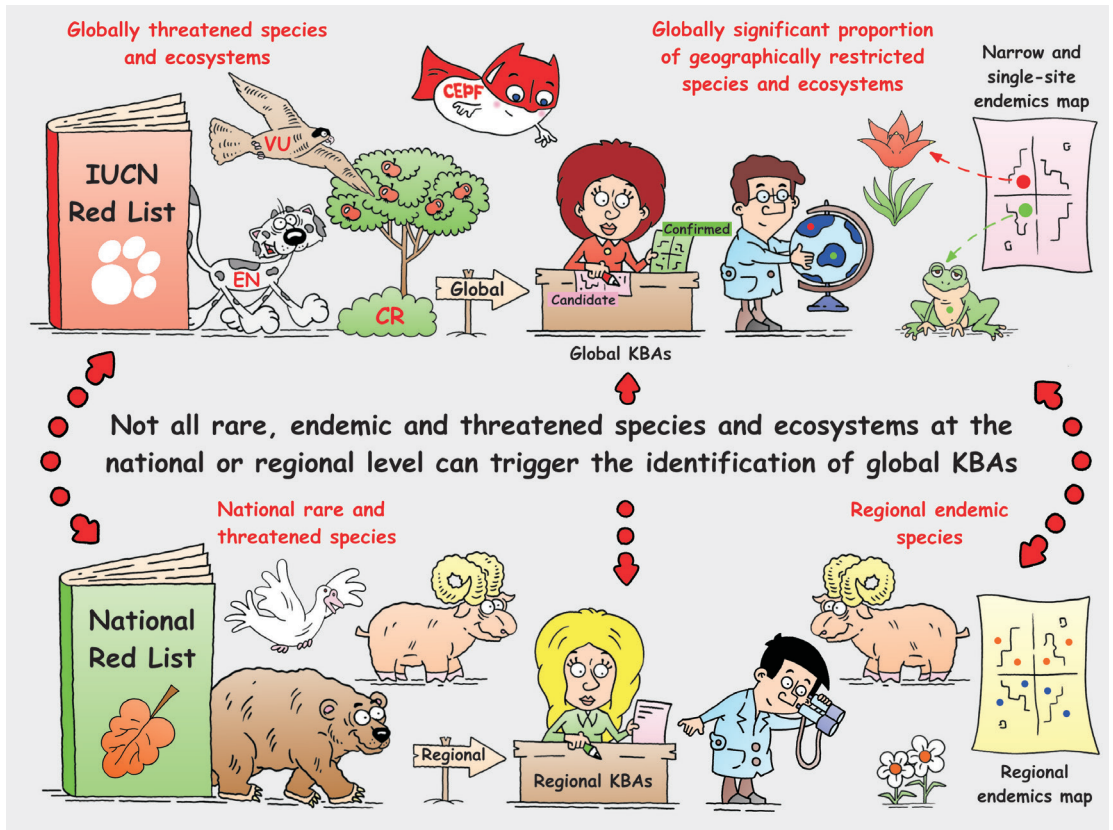
Information on all criteria, related thresholds and definitions is available in the IUCN 2016 Standard. The left image shows a situation, when A1 criteria are applied to identify KBAs based on the presence of a significant proportion of the population of a globally threatened species of mountain ungulate (VU – vulnerable). The mountain in the foreground could be designated a KBA if the number of individuals is 1 percent or more of the global population of the species. In contrast, a neighboring mountain, which is also habitat for the species, is not identified as a KBA due to low numbers of individuals. The right image shows a similar situation, but the species in focus is not globally threatened. In the case of individual species with very narrow distribution, sometimes present at a single site, the B1 criteria apply. Many KBAs in the Mountains of Central Asia were defined on the B criterion, which signifies the presence and richness of geographically restricted biodiversity (not necessarily threatened), including individual species and assemblages of species.



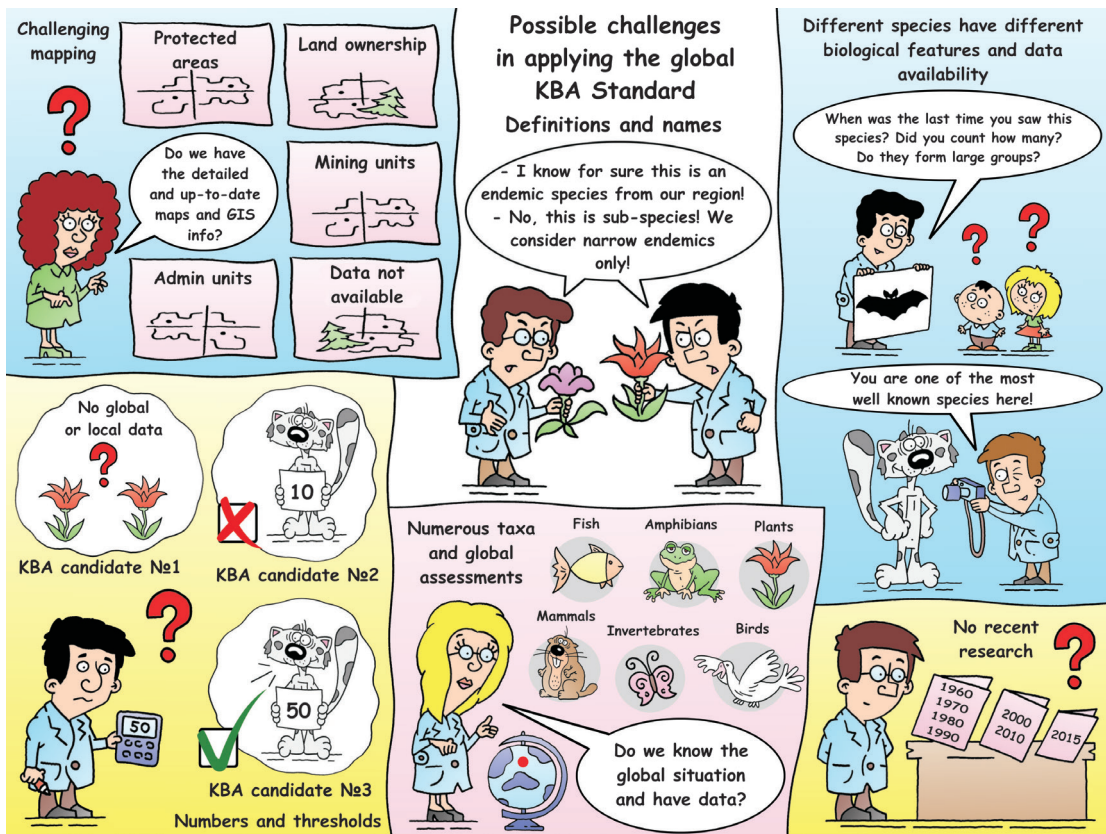
Exceptional biological processes, including aggregations of a large proportion of a species' population ( $D1$  on the left side) and ecological refuges ( $D2$  on the right side) essential for the survival of the species may define a KBA. Many Important Bird and Biodiversity Areas (IBAs), which are also considered KBAs, are defined using the  $D1$  criterion. Bats or other taxa may form large aggregations, but birds are the more common and well-researched subjects. The  $D2$  criterion was not used in the Mountains of Central Asia ecosystem profile. This criterion applies in the designation of areas crucial to species survival in times of stress, such as during droughts or low water levels in the rivers.



Delineation is an iterative process for mapping the boundaries of a KBA. It typically employs spatial and ecological datasets to derive initial site boundaries, and considers the manageability of sites in order to enhance the prospects for biodiversity persistence. The ecological data cover habitat extent, species occurrence, feeding or breeding sites, boundaries of previously identified important biodiversity sites, topography, and land use and management units (such as protected areas, private lands, or concessions). Ecological boundaries are refined to produce boundaries of a site that is actually or potentially manageable as a single unit. Ideally, the process engages site managers in collaboration with stakeholders having relevant expertise. Many KBAs overlap wholly or partly with existing protected area boundaries, including Ramsar or UNESCO World Heritage sites and areas protected at the national or local level, but not all KBAs are or should become protected areas. Other management approaches may also be appropriate.

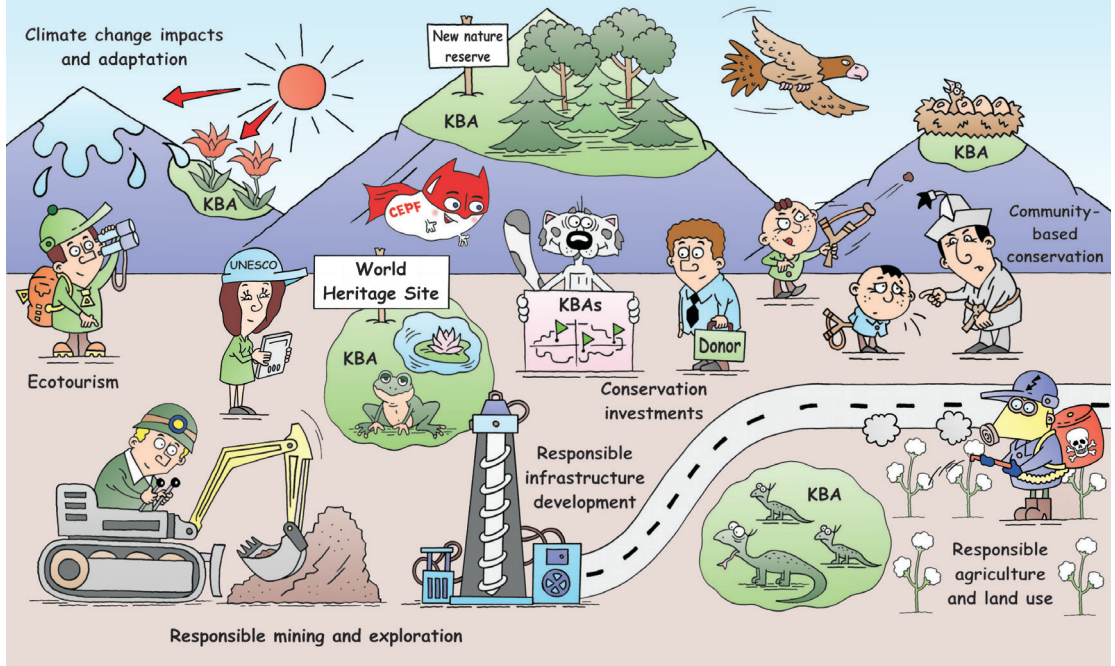


The criteria and thresholds in the KBA Standard are designed to identify sites of global significance for biodiversity. As such, many species that are nationally Red Listed or endemic at the national or regional level have not been identified as species outcomes. A regionally endemic species may have a range too wide to meet the global criteria. While the CEPF approach focuses on globally threatened species and KBAs that meet the global criteria, governments and civil society organizations in the region may also desire to apply the KBA criteria with less stringent thresholds to identify biodiversity sites of national or regional significance.



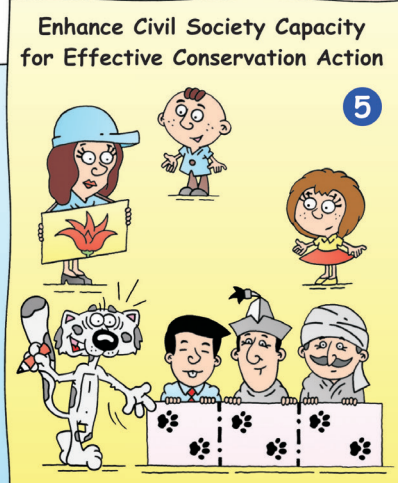
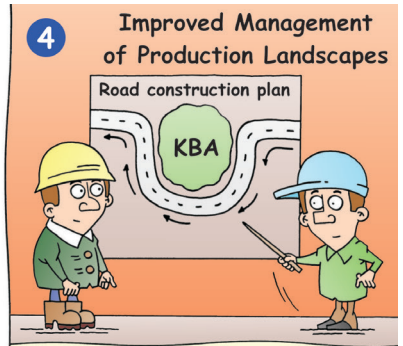
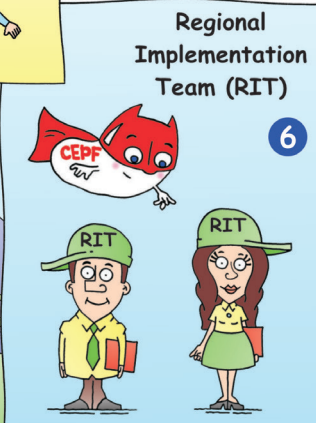
The global KBA Standard differs from the national designations and traditional usage that have guided the protection of biodiversity in the hotspot to date. A species of interest in the region may in fact be a sub-species or may have a local name (synonym) for a widespread species, and so not be considered in the scope of the current assessment. The Standard requires both site-specific information and global data, for example on population size and species distribution, which are unavailable for some species. In some cases, expertise – especially on invertebrates – may be unavailable, or timeframe of the ecosystem profile preparation process may be too short to make the proper assessment. Determining the appropriate management units is challenging when land use and ownership fall outside existing protected areas, and where mapping information is insufficient. All these challenges should not prevent all the interested groups to identify, propose and analyze the potential candidate KBAs.

# Applications of Key Biodiversity Areas



Beyond CEPF, KBAs can support the expansion of protected area networks by governments and civil society, and can help with minimizing the environmental footprint of extractive industries. They can also inform nomination of sites under international conventions – Ramsar wetland sites, UNESCO World Heritage sites, or Ecologically and Biologically Significant Areas under the Convention on Biological Diversity. They can inform private sector safeguards, educate infrastructure developers and land users, and contribute to the revision of environmental standards and permissions. They can support conservation planning and priority setting at national and regional levels, and provide local communities with opportunities for local site conservation, recognition and sustainable economic investment and development.





The CEPF investment strategy for the Mountains of Central Asia Hotspot starts with species and site conservation, and focus on responding to the threats to priority species and ecosystems, and on improving the management of KBAs with and without official protection status. Engagement with the private sector contemplates the participation of hunting associations, tourism operators, mining companies, the agriculture sector, and infrastructure developers. Capacity development extends to professional development for civil society organizations.

