Guidelines for Classifying and Managing Key Biodiversity Areas in Bhutan

Department of Forests & Park Services
Ministry of Agriculture and Forests
Royal Government of Bhutan

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Ngawang Gyeltshen, Nature Conservation Division

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Royal Government of Bhutan
Ministry of Agriculture and Forests
Department of Forests and Park Services
Thimphu

FOREWORD

Bhutan is a biologically diverse country with incredible diversity of wildlife species and ecosystems, maintaining a level of ecological integrity unparalleled for a biodiversity hotspot. Environmental conservation is one of the four pillars of Gross National Happiness, a holistic and sustainable approach to development, which balances material and non-material values with the conviction that humans want to search for happiness.

More than 50% of Bhutan's land area is formally protected and the constitution of Bhutan commits to maintaining at least 60% of the country under forest cover in perpetuity. The existing protected areas hold globally significant populations of many plant and animal species, including endangered and charismatic species like tigers, elephants and snow leopards. However, there are a number of other sites of global biodiversity significance that are beyond protected area network that are under increasing threat from various anthropogenic activities and have greater risk of losing the species. Therefore, there is an urgent need to ensure that all sites of importance for biodiversity are identified, mapped and documented. The conservation approach such as Key Biodiversity Areas (KBAs) are critical and timely to strengthen conservation of these areas outside PAs.

The guideline on KBA has been developed by Nature Conservation Division (NCD) of the Department of Forests & Park Services to identify these sites across taxonomic groups and ecosystems in a standardized, transparent and rigorous way, ensuring that areas of important species that may have been recognized are considered in future conservation efforts. The KBA sites classified will serve as in-situ conservation of biodiversity beyond protected areas.

I am very pleased and encouraged by the fact that NCD have come up with such important guideline on KBA to pursue a common agenda to identify, map, and secure KBA sites in Bhutan. I sincerely hope that this initiative of classifying KBAs is a successful one and achieve another milestone in conservation.

Tashi Delek

Lobzang Dorji

ACRONYMS

BC	Biological Corridor
CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CF	Community Forest
DoFPS	Department of Forests and Park Services
FD	Forest Division
FNCA	Forest and Nature Conservation Act
FNCRR	Forest and Nature Conservation Rules and Regulations
FMU	Forest Management Unit
GNH	Gross National Happiness
IUCN	International Union for Conservation of Nature
KBAs	Key Biodiversity Areas
LFMA	Local Forest Management Areas
NBSAP	National Biodiversity Strategies and Action Plan
NCD	Nature Conservation Division
NWFMA	Non-wood Forest Management Areas
OECMs	Other Effective Area-based Conservation Measures
PA	Protected area/Protected area networks
RSPN	Royal Society for Protection of Nature
TAC	Technical Advisory Committee

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1. INTRODUCTION

1.1. Rationale

Environmental conservation is one of the four pillars of Gross National Happiness (GNH), a holistic and sustainable approach to development in Bhutan. The principles of GNH balances material and non-material values with the conviction that humans want to search for happiness**.**

The Constitution of the Kingdom of Bhutan decrees that a minimum of sixty percent of Bhutan's total land shall be maintained under forest cover for all time in order to conserve the country's natural resources and to prevent degradation of ecosystems. It further mandates the Royal Government of Bhutan (RGoB) to "protect, conserve and improve the pristine environment and safeguard the biodiversity of the country". Drawing inspiration from this constitutional mandate, the National Forest Policy 2011 specifies a policy objective to "maintain species persistence and ensure long term sustainability of Bhutan's biodiversity, ecosystem services and natural habitats through a network of protected areas (PA) (including national parks, wildlife sanctuaries, **conservation areas**, botanical parks, nature reserves and biological corridors (BC)) with other parts of the forest landscape also managed to deliver positive environmental outcomes".

Today, PA networks in the form of national parks, wildlife sanctuaries, strict nature reserve, and BCs provide the foundation of ecosystem and biodiversity conservation in Bhutan, thereby progressing towards fulfilment of constitutional mandates and policy objectives. These PA cover more than 50% of the total land area, yet, it may be insufficient to ensure full ecological representations and conservation of all prime wildlife habitats. There are many other sites of global biodiversity significance that are not yet protected or managed to maintain the species or ecosystems persistence. As specified in the National Biodiversity Strategies and Action Plan (NBSAP) 2014, "there is an urgent need to address threats and emerging challenges to biodiversity to prevent loss of biodiversity and ecosystem services" especially to those areas outside the PA, therefore, classifying other conservation areas such as Key Biodiversity Areas (KBAs) and its management is necessary.

At the global scenario, Aichi Biodiversity Targets of the Strategic Plan for Biodiversity 2011-2020 agreed by the parties to the Convention on Biological Diversity (CBD) provides an overarching framework for biodiversity conservation and management. Target 11, under Strategic Goal C, aims to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity. It states;

By 2020 at least 17% of terrestrial and inland water and 10% of coastal and marine areas, especially **areas of particular importance for biodiversity and ecosystem services**, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and **other effective area-based conservation measures**, and integrated into the wider landscape and seascape.

Conservation in areas outside the recognised PA are achieved through the identification and management of other effective area-based conservation measures (OECMs) to result in the effective in-situ conservation of biodiversity. The concept of KBAs form an important component of the OECMs at the global scale. By delivering effective, in-situ conservation of biodiversity, KBAs will contribute to sustaining existing biodiversity values and improving biodiversity conservation outcomes, e.g., by conserving important ecosystems, safeguarding habitats of endemic species, supporting the recovery of threatened species, protecting breeding area of threatened species, and enhancing resilience against threats.

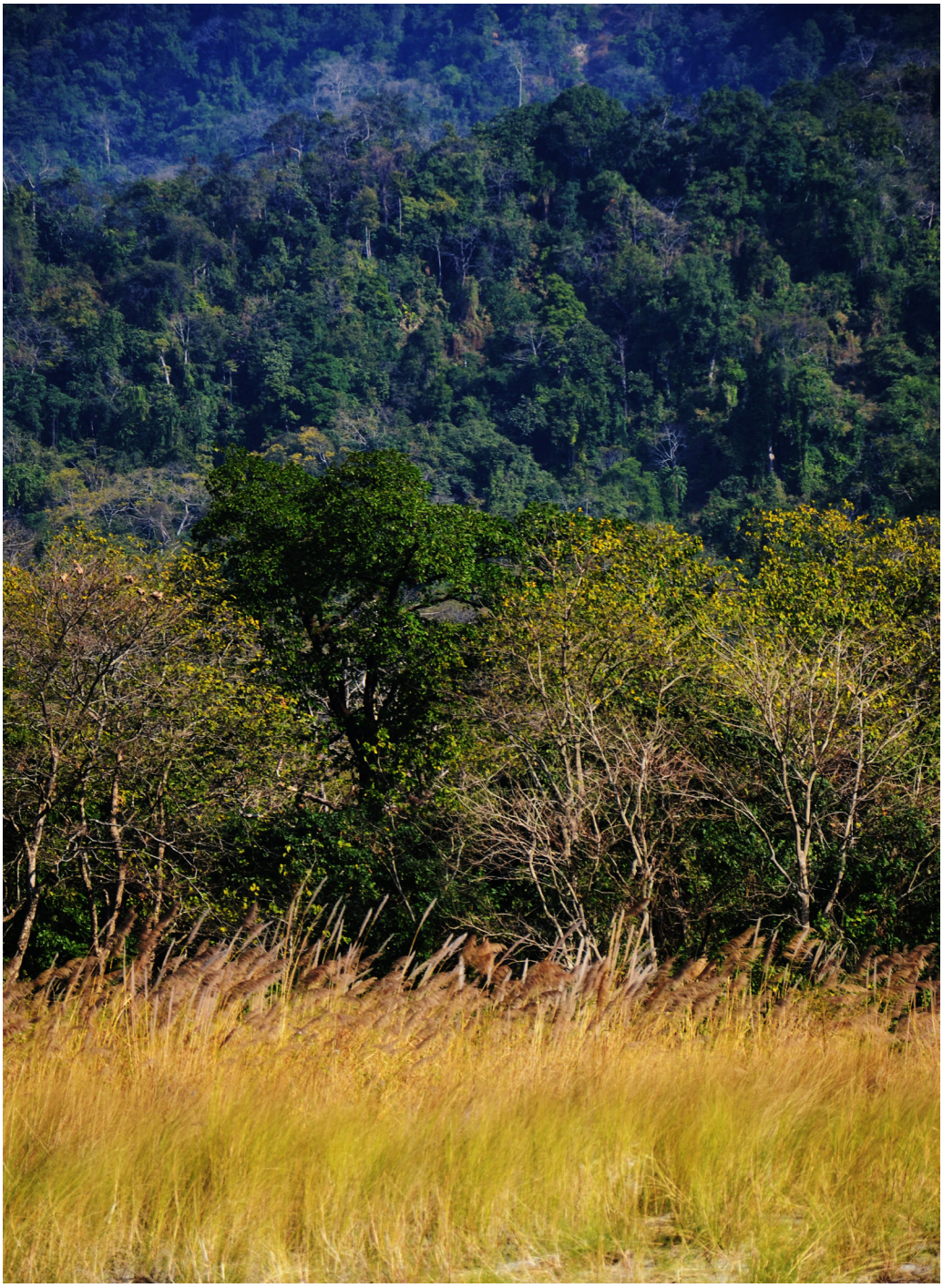
1.2. Concept of Key Biodiversity Area in Bhutan

The concept of "key biodiversity area" was first introduced in Bhutan in 2005, as part of the Critical Ecosystem Partnership Fund's (CEPF) ecosystem profile for the Eastern Himalayas region (Nepal, Bhutan, North-east India) project, where 25 KBAs were identified for globally threatened species of birds, mammals and plants in the region. Of these, 16 were outside of the PA.

Towards fulfilment of national conservation goals and commitments towards international commitments, and in pursuant to the provisions of Forests and Nature Conservation Act (FNCA) of Bhutan 1995, classifying conservation areas beyond the PA is felt imperative in the face of increasing threats towards biodiversity conservation. Chapter 6, section 21(A) of the FNCA states "The Royal Government may declare any land in the country to be a National Park, Wildlife Sanctuary, Wildlife Reserve, Nature Reserve, Strict Nature Reserve, Protected Forest, Research Forest, **Conservation Area**, Cultural or Natural Heritage Sites, Biosphere, or other category of Protected Area for the preservation of areas of natural beauty of national importance, protection of biological diversity, management of wildlife, conservation of soil and water and related purposes". Therefore, the concept of KBA, as defined by International Union for Conservation of Nature (IUCN) was re-introduced in Bhutan in March 2019 through a delivery of "National Technical Workshop on Key Biodiversity Area", coordinated by Nature Conservation Division (NCD) of the Department of Forests and Park Services (DoFPS). The IUCN defines KBA as sites that contribute significantly to the global persistence of biodiversity in terrestrial, freshwater and marine environments. The 2016 IUCN World Conservation Congress saw the launch of a global KBA Standard, the product of a four-year consultation process led by IUCN to consolidate the scientific criteria for identifying sites as KBAs.

For Bhutan, identifying and classifying KBAs will be prioritized for landscapes outside the PA. This is because the PA have a primary conservation objective with their core function promoting the in-situ conservation of biodiversity, amongst others, with strong legal support. On the other hand, state reserved forests outside PA, though expected to have biodiversity and ecosystems of great conservation significance, faces higher degree of anthropogenic threats and have greater risk of losing the species. Moreover,

identification of KBAs and other OECMS and institution of their governance and management structure will also provide an opportunity to engage and support a range of new partners in conservation efforts outside the PA, which at the present stage is minimal.



2. DEFINITION AND CHARACTERISTICS

2.1. Definitions

The KBA as defined by the IUCN are "sites contributing significantly to the global persistence of biodiversity". In the context of Bhutan, the word 'global' in this definition may be replaced with 'national' when deemed necessary, and "sites" will refer "areas outside protected areas". As such, KBA are "sites outside protected area networks, contributing significantly to the global and/or national persistence of biodiversity".

The definition of key terms used in defining the KBAs, as reflected in the KBA Global Standard (IUCN 2016) are as follows;

Biodiversity: Biodiversity is 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems', according to the Convention on Biological Diversity (CBD).

Contributing/Contribution: The contribution of a site to the global persistence of biodiversity depends on the global distribution and the abundance of the biodiversity elements for which the site is important. Sites holding biodiversity elements that are globally restricted, or at risk of disappearing, make high contributions to the persistence of those elements. The global persistence of a biodiversity element occurring at any given KBA, unless it is entirely confined to the site, depends not only on the fate of the site itself but also on that of other sites and of the land-/seascapes where it occurs.

Global: Global implies that the contributions of a site to the persistence of a given biodiversity element are measured in relation to its worldwide population size or extent.

Persistence: Persistence of a biodiversity element means that its loss (e.g. species extinction, ecosystem collapse) or decline (e.g. of numbers of mature individuals of a species, ecosystem extent and condition) is avoided, both now and into the foreseeable future.

Significantly/Significant: Significant means that an outstanding proportion of a biodiversity element (e.g. species population size or ecosystem extent) occurs at the site, as defined by a quantitative threshold.

Site: A geographical area on land and/or in water with defined ecological, physical, administrative or management boundaries that is actually or potentially manageable as a single unit (e.g. a protected area or other managed conservation unit). For this reason, large-scale biogeographic regions such as ecoregions, Endemic Bird Areas and Biodiversity Hotspots, and land-/seascapes containing multiple management units, are not considered to be sites. In the context of KBAs, "site" and "area" are used interchangeably.

KBA constitutes the "conservation area" or "any other area" in the context of national legislations such as FNCA 1995, National Forests Policy 2011, and Forests and Nature Conservation Rules and Regulations 2017.

Protected Area or Protected Area Network (PA), in this document refers to National Parks, Wildlife Sanctuaries, Strict Nature Reserves and BC.

2.2. Characteristics of KBAs

The characteristics of KBA extends beyond its definition and encompasses the following;

a. Sites contributing significantly to the global persistence of biodiversity
b. Geographically bound with delineated boundaries
c. Area outside the protected area
d. Provide decision-makers with improved understanding of why particular sites are important for biodiversity
e. Endorsed by the Ministry of Agriculture and Forests
f. Guided by conservation action plan
g. Results in in-situ conservation area but do not add to the current PA management systems

A. Sites contributing significantly to the global and/or national persistence of biodiversity.

This characteristic form the guiding principle for identification and classifying the site as KBA. The site, should, therefore contain a threatened biodiversity, which can be either a threatened species, a threatened ecosystem type or both. While the site should contribute significantly towards global persistence of biodiversity, in exceptional cases it can be related to national persistence of biodiversity, such as endemic species or other nationally threatened species deduced based on scientific information.

B. Geographically bound with delineated boundaries.

This characteristic implies that KBAs are spatially defined area with agreed and delineated boundaries, which can include land, inland waters, or any combination of these. The boundaries may be defined by physical features that move over time, such as river banks, the high-water mark or extent of ridges, or demarcated boundary of other land use types. The KBA boundaries should be ecologically relevant practical for management. The minimum acreage of KBA can be maintained at 0.01 km^2.

C. Area outside the PA

This characteristic also forms a criterion for classifying KBAs in Bhutan. KBAs can contribute in their own right to area-based targets for terrestrial and freshwater conservation. This means that areas that are already designated as Protected Area in

the form of National Parks, Wildlife Sanctuary, Strict Nature Reserve, and Biological Corridors should not also be recognised or reported as KBAs. The identification of KBA for in-situ conservation should, therefore, be set on an area outside the current PA system in the country.

However, potential KBA sites can be classified inside the Forests Management Units, Local Forest Management Areas, Community Forests and Non-wood forest management areas outside the PAs, Sacred grooves, watersheds, wetlands, etc.., and such KBA can be integral part of the respective management regimes.

D. *Provide decision-makers with improved understanding of why particular sites are important for biodiversity.*

Classifying sites as KBA should be based on valid scientific data and information and that reasons for its identification should provide decision-makers with improved understanding of why particular sites are important for biodiversity.

E. *Endorsed by Ministry of Agriculture and Forests*

At the national level, the candidate for classifying as KBA can be proposed by any conservation body, while endorsement for registering the site as KBA is vested with the MoAF. The National Coordination Unit formed within the DoFPS, MoAF shall lead in classifying the KBAs using standardized criteria which are developed by IUCN and defined in Scientific criterion of this framework and propose for international recognition.

F. *Guided by conservation action plan*

As the classified KBA should contribute significantly to the persistence of biodiversity, conservation action plan with monitoring and evaluation framework should be developed for each KBA based on the purpose of its classification. The respective Forest Division (FD) under whose jurisdiction the KBA fall, should develop and implement the conservation plan after endorsement from the DoFPS.

However, for KBAs falling in other management regimes such as FMUs, FMA, CF, NWFMA, wetlands and watershed management, etc…, which are bound to have an individual management plan, no separate conservation action plan will be required. Rather, the conservation actions for the KBA in such regimes can be outlined in a separate chapter of the respective management plan.

G. *Results in in-situ conservation*

KBA should be effective at delivering the in-situ conservation of biodiversity in the long-term.

2.3. Legal status of the KBAs

In addition to the provisions under the Forest and Nature Conservation Rules and Regulations (FNCRR) 2017, the following regulations shall be applied in KBA:

All anthropogenic activities that results in adverse impact to the KBA shall be restricted within KBA except for the following;

- Scientific monitoring
- Conservation activities in line with the conservation action plan of KBA

2.4. Objectives of KBA

By classifying the sites as KBAs, it should achieve the following objectives

A. Protection of threatened and/or endemic species facing the risk of local extinction for its persistence.

B. Protection of critical habitat and ecosystem to ensure enabling conditions for species persistence and flow of ecosystem services.

C. In-situ conservation of biodiversity beyond the PAs

2.5. Criteria for Classifying KBA

Two criteria are assigned for identifying KBA sites in Bhutan.

I. Scientific Criterion set in KBA Standards of the IUCN

II. Administrative Criterion for KBA Management

For the site to qualify as KBA, it should meet one or more of the 11 scientific criteria specified below and meet all the administrative criteria.

I. Scientific Criterion

A. Threatened Biodiversity

Biodiversity around the world are under serious threat due to anthropogenic pressure and the drivers of biodiversity loss are: population growth, economic growth, socio-political, resource depletion, climate change, land use change and habitat degradation.

A1. Threatened species

The species threatened by extinction due to loss of habitat and loss of genetic variation. Habitat loss may occur naturally or driven by the drivers of biodiversity loss as mentioned above.

A2. Threatened ecosystem types

The sites that hold unique ecosystems and facing considerable anthropogenic threats. Forest, Agriculture and Aquatic ecosystems (rivers, lakes, marshlands and hot springs) are the three major ecosystem types in Bhutan.

B. Geographically Restricted biodiversity

The limited geographic area with few spatial options of species distribution.

B1. Individual geographically restricted species

Endemic species being unique is defined by the zone of an island, nation, country, habitat type of a species not found elsewhere.

B2. Co-occurring geographically restricted species

The sites holding multiple restricted-range species within a taxonomic group, often characterizing centres of endemism.

B3. Geographically restricted assemblages

The sites that hold an assemblage of species within a taxonomic group that is restricted to a bioregion.

B4. Geographically restricted ecosystem types

The ecosystems that are geographically restricted, usually through isolation through geographical circumstances.

C. Ecological Integrity

The sites not significantly altered by humans that have fully functioning ecosystems and maintain the full complement of species in their natural abundances and/or biomass.

D. Biological Processes

The site maintained for a significant proportion of a species' population through the production of juveniles or propagules.

D1. Demographic aggregations

The significant development of amenities in the vicinity of the geographically restricted species without any disturbance to the species with the intention of increasing the tourist.

D2. Environmental refugia

The sites that hold a significant proportion of the global population of a species during periods of environmental stress.

D3. Recruitment sources

The places that are critical for reproduction and recruitment of a species.

E. Irreplaceability Through Quantitative Analysis

A. Threatened biodiversity		
A1 Threatened species		Assessment parameters
A1a	≥0.5% of global population size and ≥5 reproductive units (RU) of a CR/EN species	(i) # mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) # localities (vi) distinct genetic diversity
A1b	≥1.0% of global population size and ≥10 RU of a VU species	
A1c	≥0.1% of global population size and ≥5 RU of a species listed as CR/EN due only to past/current decline [= Red List A1, A2, A4 only]	
A1d	≥0.2% of global population size and ≥10 RU of a species listed as VU due only to past/current decline [= Red List A1, A2, A4 only]	
A1e	Effectively the entire population size of a CR/EN species	
A2 Threatened ecosystem types		
A2a	≥5% of global extent of a CR or EN ecosystem type	
A2b	≥10% of global extent of a VU ecosystem type	
B. Geographically restricted biodiversity		
B1. Individual geographically restricted species	≥10% of global population size and ≥10 RU of any species	(i) # mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) # localities (vi) distinct genetic diversity
B2. Co-occurring geographically restricted species	≥1% of global population size of each of a number of restricted range species in a taxonomic group: ≥2 species or 0.02% of the total number of species in the taxonomic group, whichever is larger	
B3. Geographically restricted assemblages		
B3a	≥0.5% of global population size of each of a number of ecoregion-restricted species in a taxonomic group: ≥5 species or 10% of the species restricted to ecoregion, whichever is larger	(i) # mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) # localities
B3b	≥5 RU of ≥5 bioregion-restricted species or ≥5 RU of 30% of the bioregion-restricted species known from the country, whichever is larger	
B3c	Site is part of the globally most important 5% of occupied habitat for ≥5 species in the taxonomic group	(i) relative density of mature individuals (ii) relative abundance of mature individuals
B4. Geographically restricted ecosystem types		
	≥20% of the global extent of an ecosystem type	
C. Ecological integrity		
	Site is one of ≤2 per ecoregion with wholly intact ecological communities	composition and abundance of species and interactions

D. Biological processes		
D1. Demographic aggregations		
D1a	≥1% of global population size of a species, over a season, and during ≥1 key stage in life cycle	# mature individuals
D1b	Site is among largest 10 aggregations of the species	# mature individuals
D2. Ecological refugia	≥10% of global population during periods of environmental stress	# mature individuals
D3. Recruitment sources	Produces propagules, larvae or juveniles maintaining ≥10% of global population size	# mature individuals
E. Irreplaceability through quantitative analysis		

Fig. Summary of the KBA criteria and thresholds adapted from IUCN (2016) A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0. First edition. Gland, Switzerland: IUCN.

II. Administrative Criterion

A. Sites Outside Protected Area Network

The proposed areas should be outside the current protected area network, which includes National Park, Wildlife Sanctuary, Strict Nature Reserve, and Biological Corridors. However, it can fall in other management regimes such as FMU, LFMA, CF, NWFMA, Watersheds, etc.., which are outside the PA network.

B. Site Under Single Management Unit

The management of proposed area should be under a single administrative jurisdiction and for those areas where its transcends across more than one jurisdiction, it should be proposed and considered as two units/sites.

C. Minimum area of 0.01km2

The minimum area for the proposed KBA site should be 0.01km^2.

D. Guided by Conservation Action Plan

The KBA site should be managed as per the approved conservation action plan.

Having met one of scientific criteria, KBA should effectively protect one or more of the following elements of native biodiversity:

- Rare, threatened or endangered species and habitats, and the ecosystems that support them, including species and sites identified on the IUCN Red List of Threatened Species, Red List of Ecosystems, or national equivalents.
- Representative natural ecosystems.
- High level of ecological integrity or ecological intactness, which is characterised by the occurrence of the full range of native species and supporting ecological

processes. These areas will be intact or be capable of being restored under the proposed management regime.

- Range-restricted species and ecosystems in natural settings.
- Important species aggregations, including during migration or spawning.
- Ecosystems especially important for species life stages, feeding, resting, moulting and breeding.
- Areas of importance for ecological connectivity or that are important to complete a conservation network within a landscape.
- Areas that provide critical ecosystem services, such as clean water and carbon storage, in addition to in-situ biodiversity conservation.
- Species and habitats that are important for traditional human uses, such as native medicinal plants, in addition to in-situ biodiversity conservation

2.6. Opportunities of KBA

- Contribute towards meeting national objectives of conservation
- Recognition of sites in the international conservation arena.
- Allocation of conservation funding
- Private and public sector environmental safeguards.
- Targets and indicators for global biodiversity targets and SDGS

3. IDENTIFYING AND CLASSIFYING KBA – THE PROCESS

3.1. Preliminary Process

The preliminary process for identifying and classifying KBA is the grassroot process, which happens at the FD level. During the preliminary process, the FD recognizes if any site in their jurisdiction can be proposed for classifying as KBA, build based on the scientific criteria. Therefore, the FD should review the information on biodiversity and habitats for the recognized site to build strong justification for proposing the site for classifying as KBA site. Therefore, key activities during this process includes verification of the existing data, the stakeholder consultations for proposing the site as KBA to National Coordination Unit, and delineation of the identified KBA boundary.

3.2. Standard Process

The standard process involves classifying the KBA, which is the process through which KBA sites are identified using the KBA criteria and processed for final approval by the Ministry for classifying it as national KBA site or for onward nomination for registration as global KBA sites.

During this process, the FDs will submit the proposal for classifying the identified site as KBA to the National Coordination Unit for further action. The NCD of the DoFPS will be the KBA National Coordination Unit for coordinating the KBA classifying process. NCD will oversee the KBA identification process, delineation, and coordinate the endorsement by the National Committee. In the case of KBA, the Technical Advisory Committee (TAC) will act as a national committee for KBA. The field identification works will be done in collaboration with FDs. Once endorsed, NCD will lead in registering as global KBA for the country. NCD will also conduct monitoring and facilitate conservation works. At the regional level, the regional focal for KBA will do the review and screening of proposal. Once everything is correct and criteria fulfilled, the KBA secretariat will confirm the proposed site as KBA.

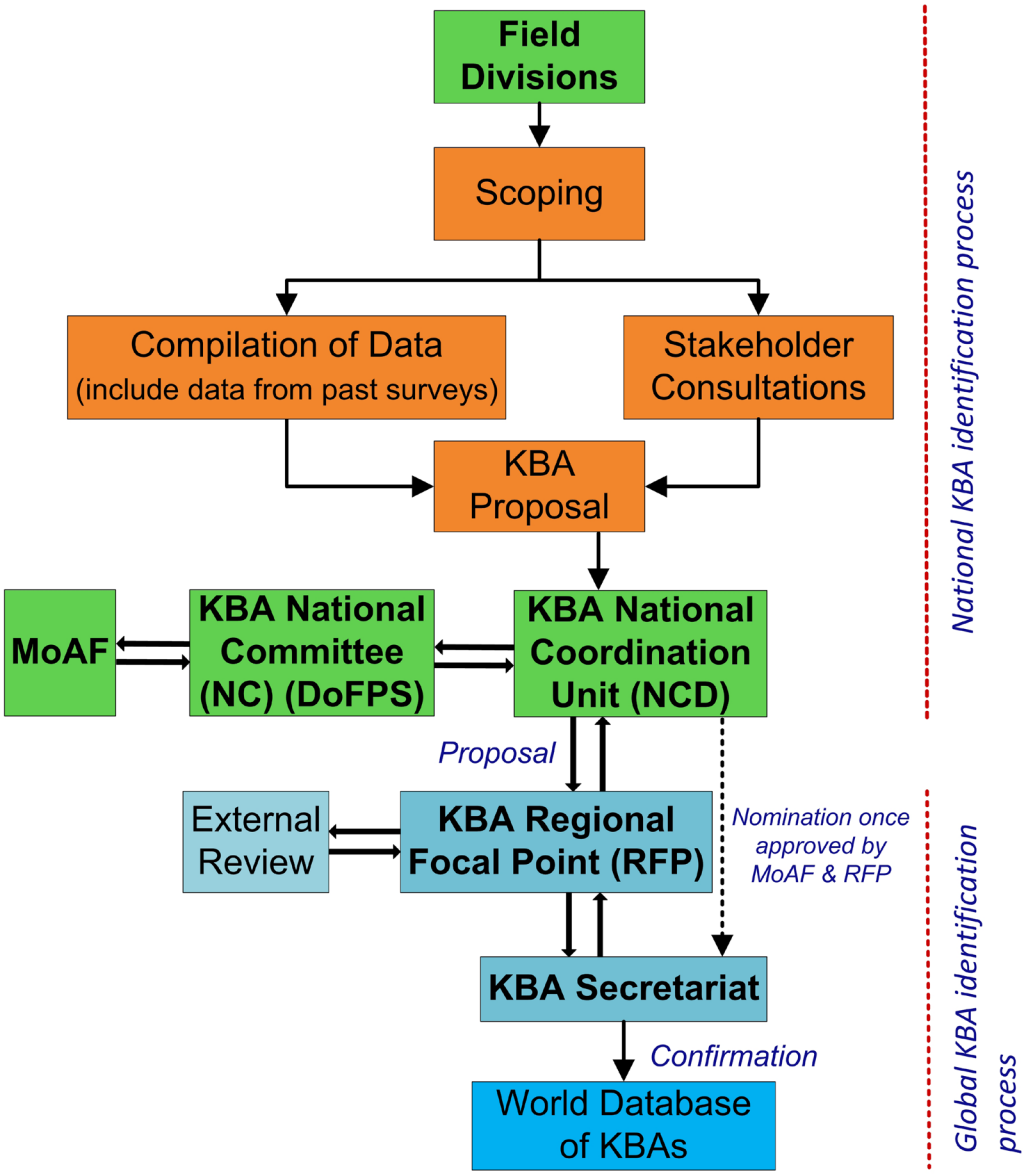


Fig. Schematic representation of KBA identification process.

4. CONSERVATION ACTION PLAN FOR KBA

4.1. General process

The conservation of the species and/or ecosystem of the recognized KBA should be guided by a time bound conservation action plan, developed by the FD under whose jurisdiction the KBA falls. The conservation action plan should be developed based on scientific data that were used for qualifying the site as KBA, and should have a clear goal with desired future state, translating into hierarchy of conservation objectives. The plan's scope should be beyond the delineated KBA boundary and should consider the socio-cultural interaction of communities around the KBA site. The prescribed actions should ensure in-situ conservation by mitigating the conservation threats, resulting in species/ecosystem persistence in the long run. The conservation action plan should also prescribe do's and don'ts based on the purpose of KBA and its location. Monitoring and Evaluation will form an integral part of the plan and results from conservation should be reported to the DoFPS for policy directives. The development of conservation action plan, therefore, should involve following processes;

A. Analysis of species and/ecosystem information used for qualifying the site as KBA

B. Socio-economic survey of communities nearby the KBA

C. Threat analysis and ranking

D. Setting conservation goals and objectives

E. Prescribing conservation actions

F. Identifying site management actions (Do's and Don'ts)

G. Monitoring and Evaluation framework.

4.2. Conservation action plan template

The following template should be used for developing the conservation action plan. This plan should be concise.

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Nature Conservation Division
Department of Forests and Park Services
Ministry of Agriculture and Forests
Thimphu Bhutan
Tel: +975-2-325042/ 324131
Fax: +975-2-335806
Post Box # 130
http://www.dofps.gov.bt/?page_id=148