

# **Asian Big Cat's Conservation Through Technology Sharing and The Use of Unified DNA Typing Methodology**

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# Asian Big Cats

1. Tiger (*Panthera tigris*) – Endangered
2. Leopard (*Panthera pardus*) – Vulnerable (*P. p. orientalis* – Critically endangered)
3. Lion (*Panthera leo*) – Endangered (only 1 population in wild)
4. Snow leopard (*Panthera uncia*) – Vulnerable
5. Clouded leopard (*Neofelis nebulosa*) – Vulnerable

# Asian Big Cats: Conservation challenges

1. Poaching
2. Human Wildlife Conflict
3. Habitat Loss/ Fragmentation
4. Repopulation of historic ranges (after habitat restoration)  
through reintroduction/ translocation/ facilitated migration

# **Microsatellite markers: Ultimate solution to Wildlife Managers**

1. Genetic diversity Assessment
2. Examination of extent of geneflow between two populations
3. Selection of potential candidates for re-establishing wild  
populations in lost ranges
4. Inferring source of origin of wildlife seizures to strengthen law  
enforcement

# **Challenges in Adopting Microsatellites based techniques for the management of Asian Big Cats**

1. Lack of sufficient genetic labs and expertise at regional institution in Asian Big Cat's range countries
2. Lack of consensus on the adoption of uniform genetic methodology to study Asian Big Cats' population resulting unavailability of consensus data to be used for identifying geographic origin of confiscated articles and selection of candidate individuals/ populations for re-establishing populations in lost ranges.

# Proposed work

1. Capacity building at regional wildlife institutes in Asian Big Cats' range countries to expedite genetic characterization of their wild and captive population
2. Compilation of genetic data and development of web portal for free and easy access genetic information for the population management use
3. Development of allelic ladder and optimization of select microsatellites to form DNA finger printing kit for Asian Big Cats

# **Aichi Biodiversity Target(s) are relevant to the request for assistance**

TARGET 1: Increased awareness of biodiversity values

TARGET 2: Biodiversity values are well integrated into strategies, planning and accounting

TARGET 3: Incentives harmful to biodiversity are reformed

TARGET 4: Sustainable production and consumption increased

TARGET 5: Habitat loss, fragmentation and degradation reduced

TARGET 6: Sustainable exploitation of aquatic resources

TARGET 7: Sustainable agriculture, forestry and aquaculture

TARGET 8: Pollution is reduced

TARGET 9: Invasive alien species are identified, prioritized and controlled

TARGET 10: Pressures on coral reefs and other vulnerable ecosystems are minimized

TARGET 11: Protected areas are increased

TARGET 12: Threatened species status improved

TARGET 13: Genetic diversity of crops, animals and wild relatives is maintained

TARGET 14: Ecosystems that provide essential services are restored and safeguarded

# **Aichi Biodiversity Target(s) are relevant to the request for assistance**

TARGET 15: Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced

TARGET 16: Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational

TARGET 17: Each Party has developed and implemented a national biodiversity strategy and action plan

TARGET 18: Traditional knowledge, innovations and practices of indigenous and local communities relevant for biodiversity, and their customary use of biological resources, are respected

TARGET 19: Knowledge, the science base and technologies relating to biodiversity are improved, widely shared and transferred, and applied

TARGET 20: Mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources is increased



# Proposed work plan\*

Period	Activity
March – April	Planning and contracts with expertise providers. Selection of regional institutions/participants. Preparation of workshop program and resource materials. Purchase of lab reagents, equipments, and resource materials required for workshops, training, and technology exercises. Travel and logistic arrangements.
May – June	Training and workshops at selected regional wildlife institutions. Proposed number of workshops/ trainings – 3 Expected number of participants – 45 to 45 scientist Number of instructors – 6
July – September	Implementation of ABC species unified STR profiling at beneficiary institutions
October – November	Synthesis meeting to resolve technical issues related to genetic analysis, interpretation of genetic data. Genetic data compilation and development of web portal dedicated to Asian Big Cats STR datasets.
December	Report writing

\*As proposed in submitted BBI proposal

# Expected outcome of proposed work

1. Capacity building at regional wildlife institutions to undertake genetic research on Asian Big Cats
2. Development of consensus genetic data base of Asian Big Cats' populations for the use in identifying source of origin of confiscated articles and candidates for reintroduction.

# **Project Facilitators and Providers of Technical Support**

1. Seoul National University, South Korea
2. UNIST, South Korea
3. Amity Institute of Wildlife Sciences, India
4. Wildlife Institute of India, India

# Proposed Beneficiary Institutes

1. Department of Animal Science and Wildlife, Central University Jammu, India
2. Centre for studies on wildlife health and management, Udaipur, India
3. Wildlife Genetic division, Aranyak, Assam, India
4. Zoological Survey of India, Kolkata, India
5. State Forest Research Institute, Jabalpur, Madhya Pradesh, India
6. Centre for Wildlife Forensics and Health, Jabal pur, Madhya Pradesh, India
7. Wildlife Crime Control Unit, Bangladesh Forest Department, Bangladesh