

# Nepal Tiger Genome Project



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CENTER FOR MOLECULAR DYNAMICS - NEPAL



Nepal Tiger Genome Project (NTGP) is an initiative by the Center for Molecular Dynamics Nepal, with the generous support from the American people through USAID for making funding available and in collaboration with the Government of Nepal's Ministry of Forest and Soil Conservation (MoFSC), Department of National Park and Wildlife Conservation (DNPWC), Virginia Tech and University of Idaho to develop comprehensive non-invasive genetic technology for broader conservation efforts of Bengal tigers (*Panthera tigris tigris*) in Nepal.

## DISCLAIMER:

This project is made possible by the generous support of the American people through United States Agency for International Development (USAID). The information and views contained in the paper are the product of Nepal Tiger Genome Project and do not necessarily reflect the official information and views of USAID or the United States Government.



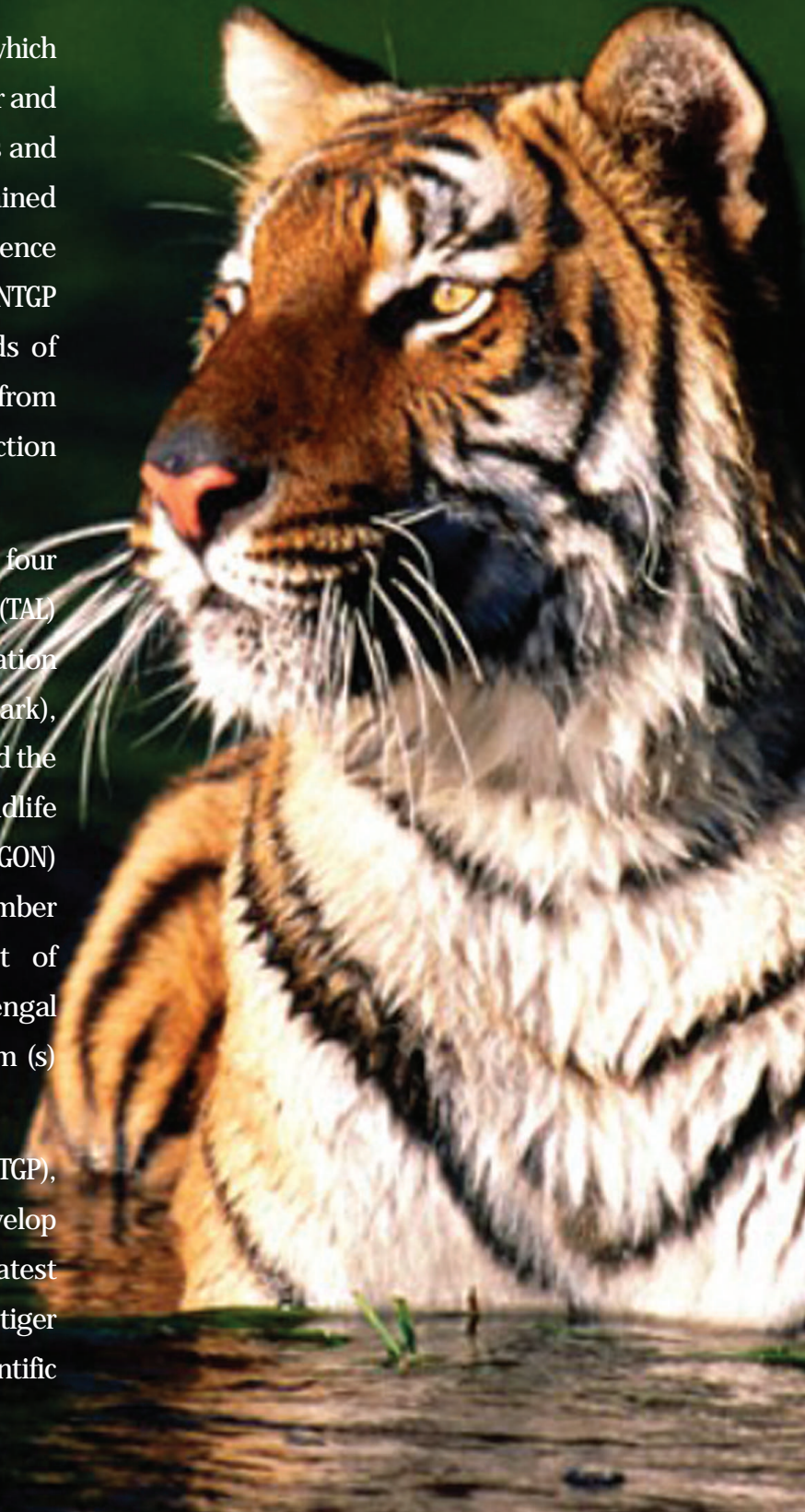
Conservation of the Bengal tigers in Nepal is a top priority due to dwindling number of this apex predator in the region. In order to develop effective policies and strategies for conservation of Bengal tigers, effective census tools need to be developed and deployed. Tiger conservation challenges are exacerbated by poaching activities in the region; available tools for conservation are inadequate and ineffective to address the challenges of tiger conservation.

NTGP will utilize emerging genetic based tools which have shown great promise in such areas as inter and intra species identification, population census and anti-poaching activities. The information obtained through genetics is much more detailed and hence can compliment conventionally gathered data. NTGP will develop efficient non-invasive methods of gathering information by extracting tiger DNA from scat (feces); which will minimize direct interaction with animal.

Tigers have been known to inhabit four protected areas of the Terai Arc Landscape(TAL) in three sub-populations - the Chitwan population (Parsa Wildlife Reserve & Chitwan National Park), the Bardia population (Bardia National Park) and the Suklaphanta population (Suklaphanta Wildlife Reserve) in Nepal. The Government of Nepal (GON) has an ambitious goal of doubling this number by 2022. USAID/Nepal has joined the quest of the Government of Nepal to conserve the Bengal Tigers by launching new conservation program (s) in Nepal.

The “Nepal Tiger Genome Project” (NTGP), a two year research project, aims to develop genomics based tools to introduce the latest technology in addressing many challenges of tiger conservation in Nepal. It is employing a scientific

and conservation friendly method of extracting DNA of tigers from non-invasively collected scat samples. The information obtained through a genetics approach is much more detailed and compliments well to conventionally gathered data. Findings of this research work are expected to facilitate a better understanding of landscape level genetics of tiger species and aid in designing effective conservation policies and strategies at local, national, and international level.





The Center for Molecular Dynamics Nepal (CMDN) is implementing this NTGP in the Terai Arc Landscape- one of the few tiger habitats remaining on the earth. This project will help to build laboratory and bioinformatics capability to adapt to this new technology, train local experts in the technology and techniques, and educate policy makers, academicians, government officials, and wildlife and conservation biologists on the ways to utilize and implement the genomic based tools in Nepal.

**Goal:**

Building wildlife genetics capacity for wild Bengal Tiger conservation in Nepal

**Objectives:**

- To enhance capacity to apply molecular tools and provide DNA forensic evidence for policy processes.
- To customize spatial genetic data-based

“wildlife tracker” to tigers.

- To transfer DNA Genomic based technology to Nepal.

**Life of Project:**

June, 2011 - June, 2013

**Geographic Focus:** Terai Arc Landscape in Nepal

**Budget:** US \$270,000

**Planned Activities:**

- **Infrastructure Development and Upgrade**
- **Organizing Seminar and Workshop for Information Gathering**
- **Conducting genetic study**

NTGP will conduct Nepal's first genetic study on Bengal Tigers by using newest scientific techniques in non- invasive molecular scatology to compliment a remote camera trapping study.

The study involves collection and preservation of scat, genetic and statistical analysis and building geo-spatial database.

- **Creating a genetic database**

NTGP will create a Baseline Genetic Database for Bengal Tigers in Nepal.

NTGP Team

Dibesh Karmacharya

PI-NTGP

CMDN

- **Building Protocol**

NTGP will develop a Standard Operating Protocol (SOP) for collection, utilization and application of Molecular Forensics in Nepal in coordination with the Government of Nepal's Department of National Parks, and international and local experts.

Kanchan Thapa

Co-PI-NTGP

Virginia Tech

- **Information Dissemination**

NTGP will organize seminar and workshops in Nepal to inform and train wildlife biologists, and policy makers on the research findings and provide them with recommendations.

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Project Co-ordinator

NTGP/CMDN

At International level, the study information will be shared with experts worldwide through scientific publications and presentations assessing the feasibility of application of molecular scatology in wildlife conservation.

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**NTGP/CMDN**

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