



Application Reference No: **NEMA/AGR/135/2019**

Registration No.....**0080**

Form of Access Permit

This permit is hereby granted to **Dr. Kaye Holekamp, USA Passport No. 642959422 Department of Integrative Biology, Michagan State University, 288 Farm Lane, East Lansing, Michigan, USA** in accordance with regulation 11 of the Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 for the collection of the following genetic resources:

Samples from spotted hyenas, from potential prey species of hyenas (domestic and wild animals) under the study: "Analysis of anthropogenic effects on patterns of diet, gene expression, microbial communities and stress physiology in the hyena of the Maasai Mara National Reserve, Kenya"

Location at: Maasai Mara National Reserve.

This permit is issued subject to the Regulations and all agreements concluded pursuant to its grant, and may be suspended, cancelled or revoked should the holder breach any of those agreements and the conditions of issue and those contained in the Regulations.

Dr. Kaye Holekamp, USA Passport No. 642959422 being the holders of this permit, including their agents and assignees, undertake to abide by the conditions of this permit and to promptly report to the National Environment Management Authority (NEMA) any matter that may prejudice the interests of Kenya and other parties concluded pursuant to the grant of this permit.

Signed:

Date: **6.03.2019**

**Director General,
National**

Environment

Management

Authority

PERMIT CONDITIONS:-NEMA/AGR/134/2019

1. This approval shall be **valid for 12 months** from the date of issuance and shall not be transferable.
2. This approval is for accessing **Not more than From spotted hyenas we will collect the following:**
275-2 ml vials raw feces, 140-4 ml vials feces in RNAlater solution, 200-1.2ml vials raw saliva, 200-1.2ml vials RNAlater solution, 120-2ml vials serum, 120-2ml vials plasma, 120-2ml vials whole blood, 40-2ml vials red blood cells, 40-2ml vials buffy coat blood, 80-10ml vials PaxDNA blood, 80-10ml PaxRNA blood, 240-2ml vials bacterial swabs, 40-2ml vials hair, and 40-1.5ml vials paste(scent gland secretion), from potential prey species of hyenas the following will be collected from domestic animals: 132-2ml vials tissue from cattle meat(*Bos Taurus*), 266-2ml vials bacterial swabs from cattle meat(*Bos Taurus*), 30-4ml vials tissue/bone from cattle(*Bos Taurus*), 15-50ml vials tissue/bone from cattle(*Bos Taurus*), 30-4ml vials tissue/bone from goats(*Capra aegarus*), 15-50ml vials tissue/bone from goats(*Capra aegarus*) from wild animals 25-4ml vials tissue/bone from buffalo carrion(*Syncerus caffer*), 15-50ml vials tissue/bone from buffalo carrion(*Syncerus caffer*), 10-4ml vials tissue/bone from giraffe carrion(*Giraffa camelopardalis*), 5-50ml vials tissue/bone from giraffe carrion(*Giraffa camelopardalis*), 10-4ml vials tissue/bone from hare carrion(*Lepus microtic*), 5-50ml vials tissue/bone from hare carrion(*Lepus microtic*), 10-4ml vials tissue/bone from hippo carrion(*Hippopotamus amphibious*), 5-50ml vials tissue/bone from hippo carrion(*Hippopotamus amphibious*), 10-4ml vials tissue/bone from impala carrion(*Aepyceras melampus*), 5-50ml vials tissue/bone from impala carrion(*Aepyceras melampus*), 10-4ml vials tissue/bone from porcupine carrion(*Hystrix cristata*), 5-50ml vials tissue/bone from porcupine carrion(*Hystrix cristata*), 10-4ml vials tissue/bone from thompsons gazelle carrion(*Eudorcas thomsonii*), 5-50ml vials tissue/bone from thompsons gazelle carrion(*Eudorcas thomsonii*), 10-4ml vials tissue/bone from dik dik carrion(*Madoqua kirkii*), 5-50ml vials tissue/bone from dik dik carrion(*Madoqua kirkii*), 10-4ml vials tissue/bone from topi carrion(*Damaliscus lunatus*), 5-50ml vials tissue/bone from topi carrion(*Damaliscus lunatus*), 10-4ml vials tissue/bone from warthog carrion(*Phacochoerus africanus*), 5-50ml vials tissue/bone from warthog carrion(*Phacochoerus africanus*), 100-4ml vials tissue/bone from wildebeest carrion(*Connochaetes taurinus*), 50-50ml vials tissue/bone from wildebeest carrion(*Connochaetes taurinus*), 30-4ml vials tissue/bone from zebra carrion(*Equus quagga*), and 15-50ml vials tissue/bone from zebra carrion(*Equus quagga*) under the study: "Analysis of anthropogenic effects on patterns of diet, gene expression, microbial communities and stress physiology in the hyena of the Maasai Mara National Reserve, Kenya" to be exported to The Michigan State University, USA for advanced genetic analysis.
3. The samples shall retain their original KWS references. The accessed genetic resources and its derivatives shall be strictly held in KWS, The Michigan State University, USA
4. You shall ensure that the samples are well treated and preserved using the provided standards and procedures before storage and export to The Michigan State University.
5. You shall ensure that the basic analysis of the genetic resource such as identification, cataloging, analyzing and preservation of the samples to good laboratory standards are done locally at the KWS. You shall ensure that the local partner: KWS is involved in the collection, identification and preparations of the samples for export.
6. The genetic resource and the derivative shall not be transferred to a third party without the consent of the genetic resource providers KWS and NEMA. The genetic resource and the derivative shall not be used for commercial or profit purpose without understanding from genetic resource providers KWS and NEMA.

7. You shall deposit and keep records of all duplicates of the genetic resources with the relevant lead agency, KWS and provide evidence of deposition to NEMA.
8. You shall ensure that there is reasonable access by all Kenyan citizens to all genetic resources and information collected whether such genetic resources and intangible components including digital sequencing are held locally or abroad.
9. Ensure that all agreements entered into with respect to access of genetic resources shall be strictly for the purposes for which they were entered into. You shall abide by the provision of the Material Transfer Agreements entered with the providers of genetic resources.
10. You shall ensure that the local community/s Traditional knowledge on the genetic **resources including Digital Sequence Information (DSI)/ Synthetic Biology** and their uses are well safeguarded.
11. You shall furnish quarterly reports to NEMA on the status of research, including all discoveries from research involving genetic resources and/or intangible components. You shall comply with the improvement orders issued by NEMA's environmental inspectors throughout the project cycle.
12. NEMA reserves the right to suspend, cancel, revoke or vary this permit in the event of a breach of the conditions stated herein or any contravention to the Environmental Management and Coordination Act, CAP 387 and regulations thereunder.
13. Upon the completion of the intended studies, you shall return the remaining genetic resource to Kenya and deposit with the relevant lead agency KWS and notify NEMA of the return.

