OIE Collaborating Centres Reports Activities

Activities in 2018

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Title of collaborating centre:	Bee Health in Africa
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Name of Director of Institute (Responsible Official):	Segenet Kelemu, DG and CEO of International Centre of Insect Physiology and Ecology (icipe)
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Sunday Ekesi, Director of Research and Partnerships
Name of writer:	Michael Lattorff

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Epidemiology, surveillance, risk assessment, modelling	
Title of activity	**Scope**
surveillance of 30 honeybee apiaries in Kenya	follow up on earlier surveillance
surveillance of bee diseases and pests in Ethiopia	establishment of baseline
Training, capacity building	
Title of activity	**Scope**
training of 7 PhD and 5 MSc students	building capacity in research and scientific investigation of bee diseases, surveillance, and modelling
Diagnosis, biotechnology and laboratory	
Title of activity	**Scope**
high resolution melting (HRM) based multi-locus sequence typing (MLST) for Deformed Wing Virus (DWV)	development of an HRM based multi-locus genotyping method for diagnosis and differentiation of DWV types A and B
Veterinary medicinal products	
Title of activity	**Scope**
plant-based biopesticide against Varroa destructor and Aethina tumida	field tests for plant based product for control of Varroa destructor

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area

NA	NA	☐Surveillance and control of animal diseases ☐Food safety ☐Animal welfare

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Infestation with Aethina tumida (Small hive beetle)	Riems, Germany	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East	knowledge transfer, collaborative projects
Infection of honey bees with Paenibacillus larvae (American foulbrood)	Riems, Germany	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East	knowledge transfer, collaborative projects
Infestation of honey bees with Varroa spp. (Varroosis)	Riems, Germany	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East	knowledge transfer, collaborative projects

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

No

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

Yes

Name of expert	Kind of consultancy	Subject
Dr. Michael Lattorff	Regional training workshop for National Focal Points for Wildlife (Cycle V) organised by OIE	Honeybee biosecurity and epidemio-surveillance of honeybee diseases

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes
a) Technical visits: 0
b) Seminars: 1
c) Hands-on training courses: 24
d) Internships (>1 month): 3

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
b	Honeybee Biosecurity and Epidemio-surveillance of honeybee diseases	Afghanistan, Angola, Botswana, Eswatini, Libya, Lebanon, Jordan, Iran, Egypt, Lesotho, Malawi, Zambia, Zimbabwe, Somalia, Sierra Leone, South Africa, Namibia, Mauritius, The Sudan, South Sudan, Eritrea	22
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Tanzania	10
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Tanzania	10
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Tanzania	10

c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	10
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	9
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	12
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	11
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	10
c	Apiculture (beekeeping & Climate Change Mitigation / Modern apiculture / Pests & Diseases / Hive Products & Value Addition / Organic Beekeeping)	Kenya	10
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Ethiopia	3
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Kenya	3
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	DR Congo	1
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Kenya	3
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Kenya	2
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	DR Congo	6
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Kenya	4
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	DR Congo	12
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Belgium	1

c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Gabon	1
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Burundi	1
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	DR Congo	8
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Tanzania	4
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Belgium	2
c	Meliponiculture (African stingless bee diversity / pests and diseases / Hiving natural colonies / Harvest and value addition)	Burkina Faso	1
c	Pollination	DR Congo, Kenya	2
d	therapeutic and prophylactic effects of honey on bee health	Kenya	1
d	analysis of endosymbionts and gut microbiome of honeybees	Kenya	1
d	GIS mapping of pollination services and bee health	Kenya	1
d	Biodiversity assessment	Kenya	1

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	Regional Workshop Training of OIE National Focal Points for Wildlife (5th cycle)	OIE Regional Representative	11/18	Kasane, Botswana	22

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 13

Bobadoye BO, Fombong AT, Kiatoko N, Raina S, Teal PEA, Salifu D, Torto B 2018. Behavioral responses of the small hive beetle, Aethina tumida, to odors of three meliponine bee species and honey bees, Apis mellifera scutellata. Entomologia Experimentalis et Applicata 166:528–534.

Boff SV, Friedel A, Miertsch A, Quezada-Euán JJG, Paxton RJ, Lattorff HMG 2018. A scientific note of housekeeping genes for the primitively eusocial bee Euglossa viridissima Friese (Apidae: Euglossini). Sociobiology 65: 766-769.

Cham DT, Fombong AT, Ndegwa PN, Irungu L, Nguku E, Raina SK 2018. Megaselia scalaris (Diptera: Phoridae), an opportunist parasitoid of honey bees in Cameroon. African Entomology 26: 254– 258.

Cheruiyot SK, Lattorff HMG, Kahuthia-Gathu R, Mbugi JP, Muli E 2018. Varroa-specific hygienic behavior in Apis mellifera scutellata colonies in Kenya. Apidologie 49: 439-449.

Fouks B, Robb E, Lattorff HMG 2018. Role of conspecifics on behavioural avoidance of contaminated flowers by bumblebees. Current Zoology doi:10.1093/cz/zoy099.

Galbraith DA, Fuller ZL, Ray AM, Brockmann A, Frazier M, Gikungu MW, Iturralde Martinez JF, Kapheim KM, Kerby JT, Kocher SD, Losyev O, Muli E, Patch HM, Rosa C, Sakamoto JM, Stanley S, Vaudo AD, Grozinger CM 2018. Investigating the viral ecology of global bee communities with high-throughput metagenomics. Scientific Reports 8: 8879.

Muli E, Kilonzo J, Sookar P 2018. Small Hive Beetle Infestations in Apis mellifera unicolor Colonies in Mauritius Island, Mauritius. Bee World 95, 44-45.

Muli E, Okwaro LA, Kilonzo J, Nobataine A, Monthy GT 2018. Varroa destructor – Free Islands in the South West Indian Ocean. Bee World 95, 122-123.

Ndungu NN, Nkoba K, Sole CL, Pirk CWW, Yusuf AA, Raina SK, Masiga DK 2018. Resolving taxonomic ambiguity and cryptic speciation of Hypotrigona species through morphometrics and DNA barcoding, Journal of Apicultural Research 57, 354-363.

Ndungu NN, Nkoba K, Masiga DK, Raina SK, Pirk CWW, Yusuf AA 2018. Compounds extracted from heads of African stingless bees. Chemoecology 28, 51-60.

Ndungu NN, Yusuf AA, Raina SK, Masiga DK, Pirk CWW, Nkoba K 2018. Nest architecture as a tool for species discrimination in three Hypotrigona species (Hymenoptera: Apidae: Meliponini). African Entomology (in press).

Nganso BT, Fombong AT, Yusuf AA, Pirk CWW, Stuhl C, Torto B 2018. Low fertility, fecundity and numbers of mated female offspring explain the lower reproductive success of the parasitic mite Varroa destructor in African honeybees. Parasitology 145: 1633-1639.

Parsche S, Lattorff HMG 2018. The relative contributions of host density and genetic diversity on prevalence of a multi-host parasite in bumblebees. Biological Journal of the Linnean Society 125: 900-910.

b) International conferences: 7

Nkoba K: Stingless bees: Native bees for Crop Pollination in Africa. Bayer Bee Care Science conference, November 2018, Germany

Nkoba K: Promoting meliponiculture in Africa for food security. 2nd edition de la journee apicole Nord-Sud, December 2018, Belgium

Lattorff HMG: Bees for development and food security. Co-Willing, January 2018, Kenya

Lattorff HMG: Which comes first: platform or Partnership? May 2018, JRS Biodiversity Foundation, Rwanda

Lattorff HMG: Experimental evolution of parasite virulence in a eusocial insect. EurBee 8, Belgium

El-Niweiri MAA, Lattorff HMG: Potential role of wetlands for honey bees diversity, population density and conservation in Sudan. EurBee 8, Belgium

Lattorff HMG: Standard Operating Procedures for the African Reference Laboratory for Bee Health (@ icipe). ApiExpo 2018, Nigeria

c) National conferences: 0

d) Other
(Provide website address or link to appropriate information): 2
Michael Lattorff & K. Nkoba have been interviewed for Radio France International (broadcasted 06.04.2018), http://www.rfi.fr/emission/20180406-afrique-insectes-abeilles-13

Michael Lattorff contributed to the production of the TV documentary Giving Nature a Voice: The Sustaining Buzz (broadcasted 09.09.2018, NTV Kenya)