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Source: Systematic and Applied Acarology, 23(12) : 2432-2446

Published By: Systematic and Applied Acarology Society

URL: <https://doi.org/10.11158/saa.23.12.12>

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Repositories for mite and tick specimens: acronyms and their nomenclature

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As biologists, we deposit the specimens we collected and studied in repositories so that they can be preserved for future generations. Most repositories, (e.g. museums, collections or institutions) have acronyms for easier referencing in documents, research papers or on specimen labels. An acronym is a name formed from an abbreviation of the initial components of the name. For example, **BMNH** stands for the **British Museum (Natural History)** in London—one of world's oldest and largest repositories. In an ideal world, there should be one unique acronym for each repository; this will facilitate the accurate citation and reference of specimens from these repositories. In the real world, however, institutions change names from time to time and some institutions disappeared for various reasons or merged with others. Sometimes, people created new acronyms for the same institutions when their names changed and this resulted in synonyms of acronyms. For example, **British Museum (Natural History)** in London is now known as **The Natural History Museum, London** and some authors used **NHM**, although most researchers continue to use the widely recognized **BMNH** even though the name of the museum was changed; likewise mite specimens from the collection of A.C. Oudemans are referred to **RMNH**—(**Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands**), which is now part of the **Naturalis Biodiversity Center**. Synonyms of acronyms were also created when authors were unaware of existing ones, or they had no rules of nomenclature for acronyms to guide them. In addition to the problems with synonyms, acronyms may also have homonyms: e.g. **BM** was used by some authors for **Bishop Museum (Honolulu, Hawaii, USA)** whereas **BM** is also used by botanists (not zoologists) for **British Museum (Natural History)** in London. The former is **B.P. Bishop Museum (BPBM)** in full, which should be used for this museum in Honolulu.

I noted a relatively high incidence of synonyms of acronyms for acarological repositories during recent surveys of taxonomic papers on mites (Liu *et al.* 2013; Liu & Zhang 2016; Li & Zhang 2016; Lam & Zhang 2016; Liu *et al.* 2017). Many authors did not use acronyms for acarological repositories. Some authors also inconsistently used acronyms. For example, Silva *et al.* (2016) did not use acronyms for most repositories, but for the few that they did provide, they sometimes gave different ones for the same collection: e.g. **USNM** and **NMNH** for **US national mite collection at US National Museum of Natural History (NMNH)**, Washington, D.C., USA. The main purpose of this paper is to provide a sample list of acronyms for acarological repositories and their synonyms encountered during my survey. I also consulted a few books such as Schicha (1987), Mesa *et al.* (2009), Hernandez *et al.* (2011), and Guglielmone *et al.* (2014). This paper is not intended to provide a complete list of acronyms and their synonyms of repositories for mite and tick specimens. Rather, I aim to highlight recommended rules for formulating acronyms so that unique and correctively formed acronyms are used and possible synonyms can be avoided in the future. I also propose simple rules for choosing among synonyms of acronyms when they are detected in published literature. In addition, I provide examples to make it easy to understand these recommended rules.

Rules and recommendations

1 *Systematic & Applied Acarology* will require authors to use correctly formed and widely accepted acronyms for repositories, effectively from the first issue of 2019. When papers include primary type specimens, the location of the repository must be mentioned at least once in the paper as required by Art. 16.4.2 of ICZN (1999): “a statement of intent that they will be (or are) deposited in a collection and a statement indicating the name and location of that collection”.

2. If an institution has no previously used acronyms, please formulate one using the initial components of the institution name (omitting definite article “the”, preposition “of”, conjunctions “and” *etc*), and ensure that the new acronym is unique (in the days of the internet, it is easy to search for previously used acronyms; e.g. <http://hbs.bishopmuseum.org/codens/>). (A) When the institution has subunits, please use the main institution names rather than its subunits unless the subunit is institutionalized as a repository; e.g. **AMU** is the correct and preferred acronym for the Adam Mickiewicz University, Poznań, Poland. Some papers used **DATE**, which is for Department of Animal Taxonomy and Ecology (Adam Mickiewicz University); however, **MCZ** (Museum of Comparative Zoology) is an institutionalized unit in Harvard University (Cambridge, Massachusetts, USA) and is widely recognized. (B) When the acronym is short with 3 or fewer letters, you can add the initial of the city or country name, or sometimes both or that of its subunits, which can reduce the chance of homonyms: e.g. **SAMA** for South Australian Museum, Adelaide, South Australia, Australia (SAM has also been used); **GUGC** for Guizhou University, Guiyang, China; **FACU** for Faculty of Agriculture, Cairo University, Giza, Egypt. Although 4-letter acronyms are widely used and recommended by some (e.g. Watt 1979), it is not a rule that needs to be followed.

3. When there are synonyms of acronyms, (A) use one that is correctively formed and also widely accepted (especially by current researchers of that institution or country): e.g. **TSUMZ** (Tyumen State University Museum of Zoology, Tyumen, Russia) is preferred over **TUMZ** (Tyumen State University Museum of Zoology); both were used in papers but the former was in wider uses in recent years by authors from this institution; (B) use one for the institution rather than its subunits; e.g. **AMU** (not **DATE**) for the Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań, Poland.

List of acronyms and their synonyms

This list is not complete and may contain errors. It will be revised in the future based on additional research and comments from colleagues. Please send me your comments or corrections. I especially welcome historical accounts of acarological repositories.

ACIAU see **SRIAUF**

ACISTE—Acarological Collection, Institute of Science and High Technology and Environmental Sciences, Graduate University of Advanced Technology, Kerman, Iran

ALCU¹—Acarology Laboratory, Department of Plant Protection, Çukurova University, Adana, Turkey

AFUMI see **UMI**

AHC see **UNAM**

AI see **VNUA**

AINB—Acari collections of INBio, Insitituto Nacional de Biodiversidad, Santo Domingo, Costa

1. Mis-printed as **AFCU** in Liu *et al.* (2017).

Rica
 =**INBCR**—Instituto Nacional Biologica of Costa Rica, Santo Domingo de Heredia, Costa Rica.

AINP—The collection of All India Network Project of Agricultural Acarology, Bangalore, India

AM see **AMS**

AMMS—Academy of Military Medical Sciences, Beijing, China

AMNH—American Museum of Natural History, New York City, New York, USA

AMNZ—Auckland Institute and Museum, Auckland, New Zealand

AMSA see **AMS**

AMS—Australian Museum, Sydney, Australia.
 =**AMSA**—Australian Museum, Sydney, N.S.W., Australia
 =**AM**—Australian Museum, Sydney, Australia

AMU—Department of Animal Morphology, Adam Mickiewicz University, Poznań, Poland.
 = **DATE**—Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań, Poland.

ANIC—Australian National Insect Collection, CSIRO Entomology, Canberra, Australia

APAS—Acarological Laboratory, Department of Plant Protection, Agricultural College, Shahrekord University, Chaharmahal and Bakhtiari Province, Iran

ARC-PPRI—Plant Protection Research Institute-Agricultural Research Center - Fruit Acarology Department, Dokki, Cairo, Egypt

ASCR see **IPCAS**

ASCU—Agricultural Scientific Collection Unit, Orange Agricultural Institute, Orange, New South Wales, Australia
 =**BCRI**²—Biological and Chemical Research Institute, Rydalmere, New South Wales, Australia

AUET see **ZMAU**

BASU—Collection of Acarology Laboratory, Bu-Ali Sina University, Hamadan, Iran.

BBM see **BPBM**

BCRI see **ASCU**

BEO—Natural History Museum Belgrade (Narodni muzej u Beogradu), Serbia

BITU—Biological Institute, Faculty of Education, Tottori University, Tottori, Japan

BM see **BPBM**

BMNH—Natural History Museum [former known as British Museum (Natural History)], London, England, UK=**NHM**—Natural History Museum, London, UK

BMSA see **NMBS**

BPBM—B.P. Bishop Museum, Honolulu, Hawaii, USA
 =**BM**—B.P. Bishop Museum, Honolulu, Hawaii, USA
 =**BBM**— B.P. Bishop Museum, Honolulu, Hawaii, USA

BUZM—Acarological collection of the Zoology Museum, Bozok University, Yozgat, Turkey

CALBS—Collection of the Acarology Laboratory, University of Bu Ali Sina, Hamedan, Iran

CAS see **CASC**

CASC—California Academy of Sciences, San Francisco, California, USA
 =**CAS**—California Academy of Sciences, San Francisco, California, USA
 =**SM**—Science Museum, Golden Gate Park, San Francisco, USA

CBGP—Collection of the Centre de Biologie et de Gestion des Populations, Montferrier-sur-Lez, France

CM—Chilean Museum (Museo de Historia Natural, section of entomology), Santiago, Chile

CBZM—Celal Bayar University, Zoological Museum, Manisa, Turkey

CDPV—Colección Departamento de Parasitología Veterinaria, Salto, Uruguay

2. This institute started in 1970 and ended in 1992.

=**DPVURU**—Departamento de Parasitología Veterinaria, Uruguay
CEA-MHNS—Colección de la Estación Experimental Agronómica, Universidad de Chile; Museo de Historia Natural Santiago, Chile
CEUFLA—Coleção Entomológica da Universidade Federal de Lavras, Lavras - MG, Brazil
CFCV—Colección Facultad de Ciencias Veterinarias, Esperanza, Argentina
 =**FAVE**—Facultad de Veterinaria, Esperanza, Argentina
CFMVZ—Coleção da Faculdade de Medicina Veterinária e Zootecnia (also known as “Coleção Nacional de Carapatos”), São Paulo, Brazil
CGEN—mite collection at Embrapa Genetic Resources and Biotechnology (former also known as “Cenargen”), Brasília, Federal District, Brazil
 =**DFIB**—Collection of Laboratório de Quarentena Vegetal, Embrapa Recursos Genéticos e Biotecnologia, Brasília, Distrito Federal and of Instituto Biológico, Campinas, São Paulo, Brazil.
CI—Cawthorn Institute, Nelson, New Zealand
CMC see **CMNZ**
CMNH—Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A.
CMNZ—Canterbury Museum, Rolleston Ave, Christchurch, New Zealand
 = **CMC**—Canterbury Museum, Christchurch, New Zealand
CMNS—Museum of Natural History, Shanghai, China (Mesa et al. 2009)
CNAC see **UNAM**
CNC see **CNCI**
CNCI—Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
 = **CNC**—Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
CNCP³—Canadian National Collection of Phytoseiidae, University of Toronto, Canada
CNHM see **FMNH**
CORBIDI—Centro de Ornitología y Biodiversidad in Lima, Peru
CUBS—Department of Zoology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia.
CUE—Collection of Faculty of Agriculture, Cairo University, Egypt (Mesa et al 2009).
CUI—The Division of Acarology of the Department of Zoology, Calicut University, India.
CUIC—Cornell University Insect Collection, Ithaca, New York, U.S.A.
 =**DECU**—Department of Entomology, Cornell University, Ithaca, NY, USA.
CUMN—Acari collection of the Chulalongkorn University Museum of Natural History, Bangkok, Thailand.
CZIICT—Centro de Zoologia do Instituto de Investigação Científica Tropical, Lisbon, Portugal
DA see **DZUC**
DATE see **AMU**
DB see **KAU**
DEES see **USPB**
DEKU see **KUB**
DEP see **EMEC**
DEUP see **UPLB**
DFIB see **CGEN**
DiBCA-EZUB see **UBI**
DPFV—Departamento de Parasitología, Facultad de Veterinaria, Zaragoza, Spain
DPZ see **SIUG**

3. This collection is now part of **CNCI**—Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada.

DSIR see **NZAC**
DZPU see **PAU**
DZSJR see **UEP**
DVCS—Department of Veterinary and Capture Services, Kenya Wildlife Service, Nairobi, Kenya
DZUC—Department of Zoology, University of Calicut, Kerala, India
 = **DA**—Division of Acarology, Department of Zoology, University of Calicut, Kerala, India
EAVRO—East African Veterinary Research Organization, Kikuyu, Kenya
EDPCQ—Institute for Endemic Disease Prevention and Control of Qinghai province, China.
EMBT—Department of Agriculture, Entomology & Zoology Division, Chatuchak, Bangkok, Thailand.
EMEC—Essig Museum of Entomology, University of California, Berkeley, California, USA.
 = **DEP**—Division of Entomology and Parasitology, University of California, Berkeley, USA⁴
EMV—Escuela de Medicina Veterinaria, Santiago, Chile
ENV—École Nationale Vétérinaire, Toulouse, France
EPCL see **SUC**
ERGB—Collection of Laboratório de Quarentena Vegetal, Embrapa Recursos Genéticos e Biotecnologia, Brasília, DF, Brazil.
ESALQ/USP see **USPB**
EUE—Acarology Laboratory of Erzincan University, Erzincan, Turkey
EUKT—Acarological Collection of the Zoological Museum, Erciyes University, Kayseri, Turkey.
FAAS—Institute of Plant Protection Collection, Fujian Academy of Agricultural Sciences, Fuzhou, P. R. China.
FACU—Faculty of Agriculture, Cairo University, Giza, Egypt
FCM see **FMNH**
FCPT—Fundación Conjunto Paleontológico de Teruel-Dinópolis, Spain.
FEFU—Far Eastern Federal University. Zoological Museum, Vladivostok, Russia
 = **FESU**—Far East State University, Vladivostok, Russia
FF see **UCM**
FFSDU—Fundamental Science Laboratory collection, Faculty of Fisheries, Süleyman Demirel University, Egirdir/Isparta, Turkey
FESU see **FEFU**
FM see **FMNH**
FMNH—Field Museum of Natural History, Chicago, Illinois, USA.
 = **FM**—The Field Museum, Chicago, Illinois, USA.
 = **CNHM**—Chicago Natural History Museum, Chicago, USA
 = **FCM**—Field Columbia Museum, Chicago, USA
GML—Gorgas Memorial Laboratory (=Instituto Conmemorativo Gorgas), Panama City, Panama
FMS—Fukui Medical School, Laboratory of Ohara General Hospital, Omachi, Fukushima, Japan
FRNZ—Scion, officially registered as New Zealand Forest Research Institute (formerly Forest Research Institute), Rotorua, New Zealand
FSCA—Florida State Collection of Arthropods, Gainesville, Florida, USA
FUE see **FUET**
FUET—Research collection of the Biology Department, Firat University, Elazığ, Turkey
 FUE—Research collection of the Biology Department, Firat University, Elazığ, Turkey
GM see **MSNG**
GMNH—Georgia Museum of Natural History, Natural History Building, University of Georgia, Athens, Georgia, USA
GNHM—Collection of the Goulandris Natural History Museum, Kiphissia, Athens, Greece

4. Used by Guglielmone *et al.* (2014).

GUGC—Institute of Entomology, Guizhou University, Guiyang, China
GUGX—Guangxi University, Nanning, Guangxi Zhuang Autonomic Region, China
HCOE see **OUNH**
HH—Harry Hoogstraal Collection, United States Naval Medical Research Unit N° 3, Cairo, Egypt
HNHM—Soil Zoology Collection of Hungarian Natural History Museum, Budapest, Hungary
HUB see **ZMB**
HUHC—Museum of Hebei University, Baoding, Hebei Province, China
IAHVS—Institute of Animal Husbandry and Veterinary Science, Yang-xi County, Hubei Province, China
IARI—National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, India
 = **INPC**—Indian Agricultural Research Institute, National Pusa Collection (NPC), New Delhi, India
IBAC—Instituto de Biología, Academia de Ciencias de Cuba, Havana, Cuba
IBIW—Research collection of the Institute for Biology of Inland Waters, Borok, Russia.
IBSP—Instituto Butantã, São Paulo, Brazil
IBSS—Research collection of the Institute of Biology and Soil Science, Vladivostok, Russia
IBU—Instituto Butantan, São Paulo, Brazil
ICA—Institute of Comparative Anatomy, University of Pavia, Pavia, Italy
ICIPE—The International Centre for Insect Physiology and Ecology, Nairobi, Kenya.
IEBR VAST—Department of Zoology Museum of the Institute for Ecology and Biological Resources, Vietnamese Academy of Science and Technology, Hanoi, Vietnam
IEMVPT—Institut d'Élevage et de Médecine Vétérinaire des Pays Tropicaux, Tananarive, Madagascar
IGHTC—Ivan G. Horak Tick Collection, Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria, Onderstepoort, South Africa
IM see **ZSI**
IMR—Institute for Medical Research, Kuala Lumpur, Malaysia
 = **IMRKL**—Institute for Medical Research, Kuala Lumpur, Malaysia
INBCR see **AINB**
INPA—Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil
INPC see **IARI**
INTA—Instituto Nacional de Tecnología Agropecuaria, Rafaela, Argentina
IOC—Instituto Oswaldo Cruz, Rio de Janeiro, Brazil
IOZ see **IZAS**
IPASCR see **IPCAS**
IPCAS—Institute of Parasitology, Czech (formerly Czechoslovak) Academy of Sciences, České Budějovice, Czech Republic
 = **IPASCR**—Institute of Parasitology, Academy of Sciences of the Czech Republic, České Budějovice, Czech Republic
 = **ASCR**—Institute of Parasitology, Academy of Sciences of the Czech Republic, České Budějovice, Czech Republic
 = **IPCR**—Institute of Parasitology, Academy of Sciences of the Czech Republic, České Budějovice, Czech Republic
IPCR see **IPCAS**
IPG—Institut Pasteur, Guyane et du Territoire de l'Inini, Cayenne, French Guiana
IPHCMC—Institut Pasteur, Ho Chi Minh City, Vietnam
IPP—Institut Pasteur, Paris, France
IPT—Institut Pasteur, Tananarive, Madagascar
IRSNB—Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium
 = **RBNS**—Collection of the Royal Belgian Institute of Natural Sciences, Brussels, Belgium.

ISEA—Zoological Museum of Institute of Systematics and Ecology of Animals, Novosibirsk, Russia

ISET—Instituto de Salubridad y Enfermedades Tropicales, México D.F., Mexico

ISM—Institut Scientifique de Madagascar, Tananarive, Madagascar

ISZA—Istituto Sperimentale per la Zoologia Agraria di Firenze, Italy

ITS—Institut Tropical Suisse, Bâle, Switzerland

IZAS—Institute of Zoology, Academia Sinica, Beijing, China

 = **NZMC**—National Zoological Museum of China, Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

 = **IOZ**—Institute of Zoology, Chinese Academy of Sciences, Beijing, China

IZG—Institute of Zoology of Georgia, Tbilisi, Georgia

IZNASU—Institute of Zoology, National Academy of Sciences of Ukraine, Ukraine

IZSAS—Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovak.

IZUW—Institut für Zoologie der Universität Wien, Wien, Austria

JAZM—Jalal Afshar Zoological Museum, College of Agriculture, University of Tehran, Tehran, Iran

 = **UTKI**—Acarological Collection, Zoological Museum, College of Agriculture, University of Tehran, Karaj, Iran

KAU—King Abdulaziz University, Jeddah, Saudi Arabia

 = **DB**⁵—Department of Biology, Faculty of Science, King Abdel Aziz University, Jeddah, Saudi Arabia

KSMA see **KSU**

KSU—King Saud University, Saudi Arabia

 = **KSMA**—King Saud Museum of Arthropods, King Saud University, Riyadh, Saudi Arabia

KUB—Insect museum of Department of Entomology, Faculty of Agriculture, Kasetsart University, Bangkok, Thailand

 = **DEKU**—Department of Entomology, Kasetsart University, Bangkok, Thailand

KUZ—Collection of the Kyoto University Museum, Kyoto, Japan

LA-CEIB—Laboratório de Acarologia, Centro Experimental do Instituto Biológico, Campinas-SP, Brazil.

LACM—Natural History Museum of Los Angeles County (formerly “Los Angeles County Museum”), Los Angeles, California, USA

LAZUA—The Acari collection of Laboratory of Agricultural Zoology and Entomology, Agricultural University of Athens, Greece.

LCCV—Laboratorio Central de Cuarentena Vegetal de Cuba, Ciudad de La Habana, Cuba.

LEMQ—McGill University, Lyman Entomological Museum, Quebec, Canada

LFE—Laboratoire Federal de l’Élevage, Dakar, Senegal

LMNH see **RMNH**

LP—Laboratorio de Parasitología, Facultad de Medicina Veterinaria, Maracay, Venezuela

LPFMR—Laboratoire de Parasitologie, Faculté de Médecine de Rennes, Rennes, France

LSHTM—London School of Hygiene and Tropical Medicine, London, England

LSUMZ—Louisiana State University Museum of Zoology, Louisiana, USA.

LUNZ—Lincoln University, Lincoln, Canterbury, New Zealand

 = **LCNZ**—Lincoln College, Lincoln, Canterbury, New Zealand

MAEU—Faculty of Science and Arts, Mehmet Akif Ersoy University, Burdur, Turkey

MCN see **ZAUMCN** or **MCNBR**

MCNB—Museo de Ciencias Naturales, Barcelona, Spain

MCNBR—Museo de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina

 = **MCN**—Museo de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina

5. Used by Guglielmone *et al.* (2014)

MCSN see **MSNG**

MCZ—Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA
 =**MCZC**—Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA

MGAB—Acarological Collection of the “Grigore Antipa” National Museum of Natural History (Muzeul Național de Istorie Naturală “Grigore Antipa”), Bucharest, Romania

MGS see **MHNG**

MHN—“Museo de Historia Natural”, Lima, Peru.

MHNCI—Museu de Historia Natural Capão da Imbuia, Curitiba, Brazil

MHNG—Muséum d'histoire naturelle, Genève, Switzerland
 =**NHMG**—Natural History Museum of Geneva, Switzerland
 = **MGS**—Muséum d'histoire naturelle, Genève, Switzerland

NHMG see **MHNG**

MHNLS—Museo de Historia Natural La Salle, Caracas, Venezuela

MHNM—Museu de Historia Natural, Maputo, Mozambique

MHO see **OUMNH**

MMP—Museum of Montenegro, Podgorica, Montenegro.

MNCN—Museo Nacional de Ciencias Naturales, Madrid, Spain.

MNHN—Muséum National d'Histoire naturelle, Paris, France.

MNHP—Museum of the Natural History of Podgorica, Montenegro.

MNHWU—Museum of Natural History, Wrocław University, Wrocław, Poland.

MNRJ—Arachnological Collection of the National Museum of Rio de Janeiro (Museu Nacional Rio de Janeiro), Brazil

NMNZ—National Museum of New Zealand, Wellington, New Zealand
 =**MNZT**—Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand
 =**MNZ**—Museum of New Zealand, Wellington, New Zealand

MNZ see **NMNZ**

MNZT see **NMNZ**

MPAS see **PEM**

MRAC—Musée Royal de l’Afrique Centrale, Tervuren, Belgium
 =**MRCB**—Musée Royal du Congo Belge, Tervuren, Belgium

MRCB see **MRAC**

MRSN—Musei Regionale di Scienze Naturali, Turin, Italy

MSNG—Museo Civico di Storia Naturale “Giacomo Doria”, Genova, Italy
 = **GM**—Museo Civico di Storia Naturale di Genova Giacomo Doria, Genova, Italy
 =**MCSN**—Museo Civico di Storia Naturale, Genova, Italy

MSNM—Milan Natural History Museum (Museo di Storia Naturale di Milano), Milan, Italy

MUSM—collection of the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru

MVMA see **NMVA**

MZB see **MZBB**

MZBB—Museum Zoologicum Bogoriense, Bogor, Indonesia.
 =**MZB**—Museum Zoologicum Bogoriense, Bogor, Indonesia

MZD see **NUSM**

MZLQ see **USPB**

MZNH—Museum of Zoology and Natural History La Specola, Florence, Italy

MZSP see **USPB**

MZUC—Museo de Zoología Universidad de Concepción, Concepción, Bío Bío Region, Chile

MZUNAV—Museo de Zoología, Facultad de Ciencias, Universidad de Navarra, Spain.

NBG—Collection of the Nikita Botanical Gardens—National Scientific Center, Yalta, Crimea, Ukraine.

NCA see **NCA-PPRI**

NCA-PPRI—National Collection of Arachnida, Plant Protection Research Institute, Pretoria, South Africa.

=**NCA**—National Collection of Arachnida, Pretoria, South Africa

NFCSO—Department of Pest Management Development and Coordination, Directorate of Plant Protection, Soil Conservation and Agri-environment, National Food Chain Safety Office, Budapest, Hungary

NHMB—Naturhistorisches Museum Basel, Sweden

NHMG—Natural History Museum of Geneva, Switzerland

NHM see **BMNH**

NHMW—Naturhistorisches Museum Wien, Austria

= **NMW**—Naturhistorisches Museum, Wien, Austria

NHRS—Naturhistoriska Riksmuseet Stockholm, Sweden.

=**NRS**—Naturhistoriska Riksmuseet, Stockholm, Sweden

=**NRS**—Naturhistoriska Riksmuseet, Stockholm, Sweden

NIH—National Institute of Animal Health, Kodaira, Tokyo, Japan

NIBR—National Institute of Biological Resources, South Korea

NIGA—Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China

NIOGI—Museum of Biological Oceanography Division, National Institute of Oceanography, Goa, India.

NJAU—Arthropod/Mite Collection of the Department of Entomology, Nanjing Agricultural University, Jiangsu Province, P. R. China.

NM see **NMVA**

NMB see **NMBS**

NMBS—Acarology collection of the National Museum, Bloemfontein, South Africa.

=**NMB**—Acarology collection of the National Museum, Bloemfontein, South Africa

=**BMSA**—National Museum in Bloemfontein, South Africa

NMNS—National Museum of Natural Science, Taichung, Taiwan, Republic of China.

NMPC—National Museum of Prague, Czech Republic

=**NMP**—Arachnological collection of National Museum of Prague, Czech Republic

NMP see **NMPC**

NMS—National Museums of Scotland, Edinburgh, Scotland

= **EC**—Evans Collection in Edinburgh Museum, Scotland

NMV see **NMVA**

NMVA—Museum Victoria (formerly National Museum of Victoria), Melbourne, Victoria, Australia

= **NMV**—Museum Victoria, Melbourne, Australia

=**NM**—National Museum, Melbourne, Australia

=**MVMA**—Department of Entomology, Museum Victoria, Melbourne, Australia.

NMW see **NHMW**

NMPC—Arachnological collection of National Museum, Prague, Czech Republic

NRS see **NHRS**

NRSS see **NHRS**

NSCY—National Scientific Center, Yalta, Ukraine.

NSM see **NSMT**

NSMT—Collection of the National Museum of Nature and Science (former National Science Museum), Tokyo, Japan.

=**NSM**—National Science Museum, Natural History Institute, Shinjuku, Tokyo, Japan

NTMD—Northern Territory Museum (now Museum and Art Gallery of the Northern Territory), Darwin, Australia

= **MAGNT**—**M**useum and **A**rt **G**allery of the Northern Territory, Darwin, Australia
 = **NTM**—Northern Territory **M**useum (now **M**useum and **A**rt **G**allery of the Northern Territory), Darwin, Australia
NU see **UNSM**
NUSM—**M**edical **Z**oology **D**epartment, Niigata **U**niversity, School of **M**edicine, Niigata, Japan
 =**MZD**—**M**edical **Z**oology **D**epartment, Niigata University School of Medicine, Niigata, Japan
NUMU—Department of Zoology, National **U**niversity of **M**ongolia, **U**laanbaatar, Mongolia
NZAC—**N**ew **Z**ealand **A**rthropod **C**ollection, Landcare Research, Auckland, New Zealand
 =**DSIR**—**D**epartment of **S**cientific and **I**ndustrial **R**esearch, Auckland, New Zealand
NZMC see **IZAS**
ORSTOM—**O**ffice de la **R**echerche **S**cientifique et **T**echnique **O**utre-**M**er, Paris, France
OMB—Übersee-**M**useum **B**remen, Bremen, Germany
OMNZ—Otago **M**useum, Dunedin, New Zealand
OSAL—**O**hio **S**tate **U**niversity **A**carology **C**ollection, Columbus, Ohio, USA.
 =**OSU**⁶—**M**useum of **B**iological **D**iversity, the **O**hio **S**tate **U**niversity, Columbus, Ohio, USA
OSU—**O**regon **S**tate **U**niversity, Corvallis, Oregon, USA
OVI—**O**nderstepoort **V**eterinary **I**nstitute, Onderstepoort, South Africa
OUMNH—**O**xford **U**niversity **M**useum of **N**atural **H**istory, Oxford, UK
 =**MHO**—**H**ope **M**useum, **O**xford, England
 = **HCOE**—**H**ope **E**ntomological **C**ollections, University **M**useum, **O**xford, England
PAU—The **A**carology **L**aboratory of **P**amukkale **U**niversity, Denizli, Turkey
 = **DZPU**—**D**epartment of **Z**oology of **P**amukkale **U**niversity, Denizli, Turkey
PAUP—**C**ollection of the **D**epartment of **Z**oology, **P**unjab **A**gricultural **U**niversity, Ludhiana, **P**unjab, India
PEM—**P**eabody **E**ssex **M**useum⁷, Salem, Massachusetts, USA
 =**MPAS**—**M**useum of the **P**eabody **A**cademy of **S**cience, Salem, Massachusetts, USA
PEU see **UEP**
PFC—**P**acific **F**orestry **C**entre (formerly known as **F**orest **R**esearch **L**aboratory), Victoria, British Columbia, Canada
PHEL—**P**lant **H**ealth and **E**nvironment **L**aboratory, Ministry for **P**rimary **I**ndustries, Auckland, New Zealand
PNM—The **N**ational **M**useum of the **P**hilippines (**P**hilippine **N**ational **M**useum), Manila, The Philippines
PPRP—**A**RC-**P**lant **P**rotection **R**esearch **I**nstitute, Pretoria, South Africa.
 =**SANC**—**N**ational **C**ollection of **A**cari, **P**lant **P**rotection **R**esearch **I**nstitute, Department of **A**gricultural **T**echnical **S**ervices, Pretoria, South Africa (Mesa et al. 2009)
PRUL—**P**est **R**esearch **U**nit **L**aboratory, National **C**ouncil for **S**cientific **R**esearch, Chilanga, Lusaka, Zambia
QDPI—**Q**ueensland **D**epartment of **P**rimary **I**ndustries **I**nsect **C**ollection, Indooroopilly, Queensland, Australia
QIMR—**Q**ueensland **I**nstitute of **M**edical **R**esearch (now known as **QIMR** Berghofer Medical Research Institute or in short form **QIMR** Berghofer), Brisbane, Queensland, Australia
QM—**Q**ueensland **M**useum, Brisbane, Queensland, Australia
 =**QMBA**—**Q**ueensland **M**useum, Brisbane, Queensland, Australia.
QMBA see **QM**
RBNS see **IRSNB**
PMAE—**R**oyal **A**lberta **M**useum (formerly **P**rovincial **M**useum of **A**lberta), Invertebrate Zoology,

6. Homonym of **OSU**—**O**regon **S**tate **U**niversity, Corvallis, Oregon, USA

7. Known as The Peabody Museum of Salem (1915–1992) and Peabody Academy of Science (1865–1915), which was a successor to the East India Marine Society (founded in 1799).

Edmonton, Alberta, Canada

RMNH—Naturalis Biodiversity Center (formerly “National Museum of Natural History=Rijksmuseum van Natuurlijke Historie”), Leiden, The Netherlands.

=**LMNH**—Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands

RIH—The collection of the Department of Vegetable and Ornamental Plant Protection at the Research Institute of Horticulture, Skierniewice, Poland.

SAIMR—South African Institute for Medical Research (now as National Institute for Communicable Diseases), Johannesburg, Republic of South Africa

SAM see **SAMA**

SAMA—South Australian Museum, Adelaide, South Australia, Australia.

=**SAM**—South Australian Museum, Adelaide, South Australia, Australia

SANC see **PPRP**

SBUC see **SBUK**

SBUK—the Collection of the Acarology Laboratory, Shahid Bahonar University of Kerman, Kerman, Iran

=**SBUC**—Collection of the Acarology Laboratory, Shahid Bahonar University of Kerman, Kerman, Iran

SEATO—SEATO⁸ Medical Research Laboratory, Bangkok, Thailand

SEMC—Division of Entomology, University of Kansas Natural History Museum, Lawrence, Kansas, USA (former Snow Entomological Museum)

SFCST—Service de Faunistique du Centre Scientifique et Technique, Bondy, France

SGGW see **WULS**

SHZU—Department of Plant Protection, College of Agriculture, Shihezi University, Shihezi, Xinjiang, China

SIU—Southern Illinois University, Carbondale, Illinois, U.S.A.

SIUG—Department of Parasitology and Zoology, Szent István University, Gödöllő, Hungary

=**DPZ**—Department of Parasitology and Zoology, Szent István University, Gödöllő, Hungary

SIZK—the collection of the Schmalhausen Institute of Zoology NAS, Kiev, Ukraine

SMF—Senckenberg-Museum Frankfurt (=Senckenberg Research Institute and Natural History Museum, Frankfurt, = Senckenberg Institution Frankfurt), Germany

SMNG—Acarological Collection of Staatliches Museum für Naturkunde Görlitz, Germany.

SNMB—Slovak National Museum, Bratislava, Slovakia

SPSU—Collection of the Laboratory of Phytoacarology, Department of Invertebrate Zoology, Biological and Soil Sciences Faculty, Saint Petersburg State University, Russia)

SRIAUF—Acarological Collection, Science and Research Branch, Islamic Azad University, Fars, Iran

=**ACIAU**—Acarology Collection, Islamic Azad University, Fars Science and Research Branch, Marvdasht, Iran.

SUC—Institute of Entomology, Southwest University, Chongqing, China

= **EPCL**—Chongqing Key Laboratory of Entomology and Pest Control Engineering, Southwest University, Chongqing, China.

SUI—Department of Plant Protection, Shiraz University, Iran

TIUC see **TNU**

TM see **TMAG**

TMAG—Tasmanian Museum and Art Gallery, Hobart, Australia

=**TM**—Tasmania Museum, Hobart, Australia

TMU—Acarological Collection, Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.

TNAU—Department of Agricultural Entomology Collection, Tamil Nadu Agricultural University,

Coimbatore, India

TNU—Taiwan National University, Taipei, Taiwan.

=**TIUC**—Taihoku Imperial University Collections, Taipei, Taiwan

TTU—Texas Tech University, Lubbock, Texas, USA

TSUMZ—Tyumen State University Museum of Zoology, Tyumen, Russia

= **TUMZ**—Tyumen State University Museum of Zoology, Tyumen, Russia

TUPH⁹—Acarology Research Section of Plant Pests & Diseases Research Institute, Iran

UASM—University of Alberta Strickland Museum, Edmonton, Canada.

UAC—The collection of the University of Ankara, Plant protection Department, Ankara, Turkey

UADBA—Université d' Antananarivo, Département de Biologie Animale, Antananarivo, Madagascar

UAT—Department of Plant Protection, Agricultural Faculty, University of Ankara, Turkey

UBI—Dipartimento di Biologia e Chimica Agro-forestale e Ambientale (DiBCA), Entomological and Zoological Section, University of Bari, Italy

=**DiBCA-EZUB**—Dipartimento di Biologia e Chimica Agro-forestale e Ambientale (DiBCA), Entomological and Zoological Section, University of Bari, Italy

UBS—Acarology collection, Department of Entomology and Agricultural Zoology, Faculty of Agriculture, University of Belgrade, Serbia.

UCL—Université Catholique de Louvain, Louvain, Belgium

UCM—Universidad Complutense de Madrid, Madrid, Spain

=**FF**—Facultad de Farmacia, Universidad de Madrid, Madrid, Spain

UEP—Zoologia e Botânica, Universidade Estadual Paulista (UNESP), São José do Rio Preto, State of São Paulo, Brazil.

=**UNESP**—Departamento de Zoologia e Botânica, Universidade Estadual Paulista, São José do Rio Preto, State of São Paulo, Brazil

=**PEU**—Acari Collection of Departamento de Zoologia e Botânica, Universidade Estadual Paulista (UNESP), campus de São José do Rio Preto, São Paulo, Brazil

=**DZSJRP**—Acari Collection of Departamento de Zoologia e Botânica, Universidade Estadual Paulista (UNESP), campus de São José do Rio Preto, São Paulo, Brazil

UESC—the Acarological collection of Universidade Estadual de Santa Cruz, Ilhéus, Bahia, Brazil

UFAL— Universidade Federal de Alagoas, Campus Arapiraca, Arapiraca, Alagoas, Brazil

UFMG—Universidade Federal de Minas Gerais, Pampulha, Belo Horizonte, MG, Brasil

=**UFMG-AC**—Acarological collection of the Federal University of Minas Gerais, Pampulha, Belo Horizonte - MG, Brazil

UFMG-AC see **UFMG**

UFRP—Collection of the Laboratório de Acarologia, Departamento de Agronomia, Universidade Federal Rural de Pernambuco, Recife, PE, Brazil.

UGA—University of Georgia, Athens, Georgia, U.S.A.

UGDIZP—University of Gdańsk, Department of Invertebrate Zoology and Parasitology, Gdańsk, Poland

UGMC—University of Guilan Mite Collection, Rasht, Gilan Province, Iran

UKK—Biosystematics Research Unit, Department of Zoology, University of Kalyani, Kalyani 741235, West Bengal, India.

UM—University of Maryland, College Park, Maryland, USA

UMAC see **UMI**

UMI—Collection of the Acarology Laboratory, University of Maragheh, Maragheh, Iran.

=**AFUMI**—Acarological Collection, Department of Plant Protection, Faculty of Agriculture, University of Maragheh, Maragheh, East Azerbaijan Province, Iran.

9. Used by Mesa *et al.* (2009). It is not clear to me how this acronym was formed. It is possibly based on a previous name of the same organization.

- =**UMAC**—Acarological Collection, Department of Plant Protection, Faculty of Agriculture, University of Maragheh, Maragheh, East Azerbaijan Province, Iran.
- UMMZ**—University of Michigan, Museum of Zoology, Ann Arbor, Michigan, USA.
- UMSP**—University of Minnesota, St. Paul, Minnesota, USA.
- =**DEEZ**—Division of Entomology and Economic Zoology, University of Minnesota, St. Paul, USA
- UMR CBGP**—the mite collection of Montpellier SupAgro—INRA Acarology collection, Montpellier, France
- UNESP** see **UEP**
- UNSM**—University of Nebraska State Museum, Lincoln, Nebraska, U.S.A.
- =**NU**—University of Nebraska State Museum, Lincoln, Nebraska, U.S.A.
- UNAM**—Acarology Collection of the Universidad Autónoma de México, Mexico City, Mexico
- =**CNAC**—Colección Nacional de Ácaros del Instituto de Biología, Mexico City, Mexico
- =**AHC**—Anita Hoffmann Collection, Instituto de Biología, Universidad Autónoma de México, Mexico City, Mexico
- UNIPA**—Acari collection of the Laboratory of Applied Acarology "Eliahu Swirski, Department of Agricultural and Forest Sciences, University of Palermo, Italy
- UPLB**—Entomological Museum, Museum of Natural History, University of the Philippines Los Baños, the Philippines
- =**DEUP**—Department of Entomology, University of Philippines, Los Baños, the Philippines
- UQRoo**—Universidad de Quintana Roo, Chetumal, Quintana Roo, Mexico
- USNM**—United States National Museum of Natural History, Smithsonian Institution, Washington, D.C, USA.
- =**NMNH**—National Museum of Natural History at the Smithsonian Institution, Washington, D.C, USA.
- =**SNMNH**—Smithsonian National Museum of Natural History, Washington, D.C., USA.
- USNTC**¹⁰—U.S. National Tick Collection, Georgia Southern University, Statesboro, Georgia, USA.
- USNPC**—United States National Parasite Collection, Beltsville, Maryland, USA
- USPB**—“Museu de Zoologia Luiz de Queiroz” at the Escola Superior de Agricultura “Luiz de Queiroz”, Universidade de São Paulo, Piracicaba, São Paulo, Brazil.
- =**MZLQ**—“Museu de Zoologia Luiz de Queiroz”, Mite Reference Collection, Department of Entomology and Acarology, Escola Superior de Agricultura "Luiz de Queiroz", Brazil.
- =**ESALQ/USP**—Collection of Departamento de Entomologia e Acarologia, **ESALQ** – Universidade de São Paulo, Piracicaba, São Paulo, Brazil
- =**DEES**¹¹—Reference Collection of Departamento de Entomologia, Fitopatologia e Zoologia Agrícola, Escola Superior de Agricultura “Luiz de Queiroz”, Universidade de São Paulo, Piracicaba, SP, Brazil
- UTI**—Acarological Collection, Department of Plant Protection, Faculty of Agriculture, University of Tabriz, Tabriz, Iran.
- UTKI** see **JAZM**
- UUZM**—Uppsala University, Museum of Evolution, Zoology section (known as “Uppsala University Zoological Museum” before 1999), Uppsala, Sweden
- =**ZMU**—Museum of Evolution, Uppsala, Sweden
- =**LC**—Linnaeus Collection, Uppsala, Sweden
- UWMO**—Collection of the Department of Ecology and Environmental Protection, the University of Warmia and Mazury in Olsztyn, Poland
- VLM**—Veterinary Laboratory (Faculdade de Veterinária, Universidade Eduardo Mondlane), Maputo, Mozambique.

10. Incorrectly as **USNMENT** in Liu *et al.* (2017).

11. Used by Mesa *et al.* (2009)

VMDFA—Veterinary Medicine Department, Faculty of Agriculture, University of Tokyo, Tokyo, Japan

VNUA—Vietnam National University of Agriculture, Hanoi, Vietnam
= **AI**—Agriculture Institute N 1, Hanoi, Vietnam

VRC—Virus Research Centre, Poona, India

VRLH—Veterinary Research Laboratory, Harare, Zimbabwe

VRLKK—Veterinary Laboratory Research, Kabete, Kenya

WAM—Western Australian Museum, Perth, Australia.

WINC—Waite Insect and Nematode Collection¹², Entomology Unit, South Australian Research and Development Institute, Adelaide (EUSARDI), South Australia, Australia (Mesa et al 2009).

WULS—the collection of the Department of Applied Entomology, Warsaw University of Life Sciences, Warsaw, Poland
= **SGGW**—Szkoła Główna Gospodarstwa Wiejskiego w Warszawie, Poland

YIAZ—Yazd Branch, Islamic Azad University, Yazd, Iran

YSU—Youngstown State University, Youngstown, Ohio, U.S.A.

WUM—Wrocław University Museum of Natural History, Wrocław, Poland

ZAUMCN—Museu de Ciências Naturais, UNIVATES—Centro Universitário, Lajeado, Rio Grande do Sul State, Brazil
= **MCN**—the mite reference collection (CAS) of the Museu de Ciências Naturais, UNIVATES Centro Universitário, Lajeado, the state of Rio Grande do Sul, Brazil

ZIAC see **ZISP**

ZIRAS see **ZISP**

ZISP—Zoological Institute, Russian Academy of Sciences, Saint-Petersburg, Russia.
= **ZIRAS**—Collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.
= **ZIAC**—Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia

ZIZMUH—Biozentrum Grindel und Zoologisches Museum (formerly: Zoologisches Institut und Zoologisches Museum der Universität Hamburg), Hamburg, Germany.

ZMA see **ZMAN**

ZMAN—Zoological Museum in Amsterdam, The Netherlands.
= **ZMA**—Zoological Museum, Amsterdam, The Netherlands

ZMAU—Zoological Museum of Atatürk University, Erzurum, Turkey
= **AUET**—Zoological Museum of Atatürk University, Erzurum, Turkey

ZMB—Zoologischen Museen Berlin (now known as “Museum für Naturkunde der Humboldt-Universität zu Berlin”), Berlin, Germany
= **HUB**—Museum of Natural History, Department of Arachnids, Myriapods and Stemgroup Arthropoda, Humboldt University Berlin, Germany
= **ZMHU**—Zoologische Museum, Humboldt Universität, Berlin, Germany

ZMBN—the University Museum of Bergen, Norway

ZMM—Zoologischen Museum München, München, Germany

ZMUM—Zoological Museum, University of Moscow, Moscow, Russia
= **ZMMO**—Zoological Museum of Moscow University, Moscow, Russia

ZMH—Zoological Museum in Hamburg (now Zoological Museum, Center of Natural History, University of Hamburg), Germany.

ZSH—Zoologischen Staatsmuseum Hamburg, Hamburg, Germany

ZMJU—Zoological Museum of the Jagiellonian University, Cracow, Poland

12. The merger of Adelaide University's Duncan Swan Insect Collection (WARI), the Waite Institute Nematode Collection (WINC), and the South Australian Research and Development Institute (SARDI) insect collection.

ZMMO see **ZMUM**

ZMT—Zoological Museum of Turku University, Turku, Finland

ZMUC—the Zoological Museum, University of Copenhagen, Natural History Museum of Denmark, Copenhagen, Denmark

ZMUO—The collections of the Museum of Zoology, I. I. Mechnikov Odessa National University, Odessa, Ukraine

ZSI—Zoological Survey of India, Calcutta, India

=**IM**—Indian Museum, Calcutta, India

ZSH see **ZMH**

ZSM—Zoologische Staatssammlung Munich, Germany.

Acknowledgements

I thank Dr A.A. Guglielmone for sending me a chapter on tick collections in his book “The Hard Ticks of the World (Acari: Ixodida: Ixodidae)”.

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Submitted: 24 Dec. 2018; accepted by Xiao-Yue Hong: 25 Dec. 2018; published: 31 Dec. 2018