

TAXONOMY OF THE ORDER *BUNYAVIRALES*: UPDATE 2019

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ABSTRACT

In February 2019, following the annual taxon ratification vote, the order *Bunyavirales* was amended by creation of two new families, four new subfamilies, 11 new genera and 77 new species, merging of two species, and deletion of one species. This article presents the updated taxonomy of the order *Bunyavirales* now accepted by the International Committee on Taxonomy of Viruses (ICTV).

INTRODUCTION

The virus order *Bunyavirales* was established in 2017 to accommodate related viruses with segmented, linear, single-stranded, negative-sense or ambisense RNA genomes classified into 9 families [19]. An amended/emended order description was published in early 2019 [20]. Here we present the changes that were proposed via official ICTV taxonomic proposals that were accepted by the ICTV Executive Committee (EC) in February 2019. Therefore, these changes are now part of the official ICTV taxonomy.

TAXONOMIC CHANGES AT THE ORDER RANK

The order was expanded by addition of two new families. Family *Leishbuviridae* was created to accommodate one new genus, *Shilevirus*, including one new species, *Leptomonas shilevirus*, for *Leptomonas moramango* leishbunyavirus (LEPMV) discovered in a trypanosomatid protist (*Leptomonas moramango*) [2]. Family *Tospoviridae* was recreated for the already established genus *Tospovirus* (now renamed *Orthospovirus*; TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen) and expanded by seven new species (TaxoProp 2018.025P.A.v1.Orthospovirus_7sp):

- *Bean necrotic mosaic orthospovirus* for bean necrotic mosaic virus (BeNMV) discovered in common beans (*Phaseolus vulgaris*) [8];
- *Calla lily chlorotic spot orthospovirus* for calla lily chlorotic spot virus (CCSV) found in calla lilies (*Zantedeschia* sp.) [5, 18];
- *Capsicum chlorosis orthospovirus* for Capsicum chlorosis virus (CaCV) found in capsicums, chillies, and tomatoes [16, 23];
- *Chrysanthemum stem necrosis orthospovirus* for Chrysanthemum stem necrosis virus (CSNV) infecting chrysanthemums [3, 10];
- *Melon severe mosaic orthospovirus* for melon severe mosaic virus (MSMV) infecting cucurbit crops [6, 7];
- *Melon yellow spot orthospovirus* for melon yellow spot virus (MYSV) found in netted melon (*Cucumis melo*) [15]; and
- *Soybean vein necrosis orthospovirus* for soybean vein necrosis virus (SVNV) discovered in soybeans (*Glycine max*) [36].

A genus unassigned to any family, *Coguvirus*, was established to include species *Citrus coguvirus* for Citrus concave gum-associated virus (CCGaV) found in citrus trees [26] (TaxoProp 2018.020P.A.v1.Coguvirus).

TAXONOMIC CHANGES AT THE FAMILY RANK

Arenaviridae

The family *Arenaviridae* was expanded by one genus, *Antennavirus*, to include two new species, *Hairy antennavirus* and *Striated antennavirus*, for Wēnlǐngfrogfish arenavirus 2 (WIFV-2) and

Wēnlǐng frogfish arenavirus 1 (WIFV-1) both found in striated frogfish (*Antennarius striatus*) [33] (TaxoProp 2018.005M.A.v1.Antennavirus).

Cruliviridae

No changes were made at the family rank.

Fimoviridae

No changes were made at the family rank.

Hantaviridae

The family (TaxoProp 2018.010M.A.v2.Hantaviridae_4subfam) was reorganized into four subfamilies:

- subfamily *Actantavirinae* was created for new genus *Actinavirus* to accommodate 3 novel species: *Batfish actinivirus* for Wēnlǐng minipizza batfish virus (WEMV) discovered in minipizza batfish (*Halieutaea stellata*); *Goosefish actinivirus* for Wēnlǐng yellow goosefish virus (WEYGV) found in yellow goosefish (*Lophius litulon*); and *Spikefish actinivirus* for Wēnlǐng red spikefish virus (WERSV) of red spikefish (*Triacanthodes anomalus*) [33];
- subfamily *Agantavirinae* was created for new genus *Agnathovirus* to accommodate one new species, *Hagfish agnathovirus*, for Wēnlǐng hagfish virus (WEHV) of inshore hagfish (*Eptatretus burgeri*) [33];
- subfamily *Mammantavirinae* was created to accommodate the established genera *Loanvirus*, *Mobatvirus*, and *Orthohantavirus*. Two new orthohantavirus species, *Seewis orthohantavirus* and *Tigray orthohantavirus*, were created for Seewis virus (SWSV) of Eurasian common

shrews (*Sorex araneus*) [34] and Tigray virus (TIGV) of Ethiopian white-footed mice (*Stenocephalemys albipes*) [12, 25], respectively; and

- subfamily *Repantavirinae* was created for new genus *Reptillovirus* to accommodate one new species, *Gecko reptillovirus*, for Hainan oriental lead-toed gecko virus (HOLGV) discovered in oriental leaf-toed geckos (*Hemidactylus bowringii*) [33].

Myoviridae

No changes were made at the family rank.

Nairoviridae

The species *Estero Real orthonairovirus* was created for Estero Real virus (ERV) (moved from genus *Orthobunyavirus*, family *Peribunyaviridae*) [1] (TaxoProp 2018.012M.A.v1.Bunyavirales_spmov).

Peribunyaviridae

The family was expanded by one new genus, *Pacuvirus*, to accommodate three new species: *Pacui pacuvirus* for Pacui virus (PACV) discovered in a rice rat (*Oryzomys* sp.); *Rio Preto da Eva pacuvirus* for Rio Preto da Eva virus discovered in a sewer gnat (Psychodidae sp.); and *Tapirape pacuvirus* for Tapirapé virus found in a holicudo (*Oxymycterus* sp.) [27] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Genus *Tospovirus* was removed from the family and placed into the new family *Tospoviridae* as genus *Orthotospovirus* (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). The genus *Orthobunyavirus* was reorganized by moving previously classified viruses into a total of 38 new species (one resulting from a merger of two previously established species) (TaxoProp 2018.008M.A.v1.Orthobunyavirus_38sp). Five

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additional novel species were added: *Bellavista orthobunyavirus* for Bellavista virus isolated from mosquitoes (*Culex portesi*) [14]; *Enseada orthobunyavirus* for Enseada virus isolated from *Culex* mosquitoes [4, 9]; *Maguari orthobunyavirus* for Maguari virus (MAGV) isolated from mosquitoes [13]; *Tataguine orthobunyavirus* for Tataguine virus (TATV) found in a human sample, and *Witwatersrand orthobunyavirus* for Witwatersrand virus (WITV) from mosquitoes [29] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Species *Estero Real orthobunyavirus* was abolished, and its member, Estero Real virus (ERV), was moved into family *Nairoviridae* [1] (TaxoProp 2018.012M.A.v1.Bunyavirales_spmov).

Phasmaviridae

The family was expanded by addition of one new genus, *Sawastrivirus*, to include one new species, *Sanxia sawastrivirus*, for Sānxiá water strider virus 2 (SxWSV-2) (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen) detected in gerrid water striders [31]. The genus *Orthophasmavirus* was expanded by the addition of five new species: *Culex orthophasmavirus* for *Culex* phasma-like virus (CPLV) detected in *Culex* mosquitoes [32]; *Ganda orthophasmavirus* for Ganda bee virus (GBEEV) of European orchard bees (*Osmia cornuta*) [28]; *Odonate orthophasmavirus* for Húběi odonate virus 8 (HbOV-8) [31]; *Qingling orthophasmavirus* for Húběi odonate virus 9 (HbOV-9) of odonates [31]; and *Seattle orthophasmavirus* for Seattle Prectang virus (SEPV) found in a moth (*Pasiphila rectangulata*) [21] (TaxoProp 2018.009M.A.v1.Phasmavirus_5sp).

Phenuiviridae

The family *Phenuiviridae* was expanded by addition of three new genera. Genus *Kabutovirus*

was created to include two new species, *Huangpi kabutovirus* and *Kabuto mountain kabutovirus*, for Huángpí tick virus 1 (HpTV-1) of ticks (*Haemaphysalis doenitzi*) [17] and Kabuto mountain virus (KAMV) of ticks (*Haemaphysalis flava*) [11], respectively. Genus *Laulavirus* was created to include one species, *Laurel Lake laulavirus*, for Laurel Lake virus (LLV) of ticks (*Ixodes scapularis*) [35]. Genus *Wenrivirus* was created to include one species, *Shrimp wenrivirus*, for Wēnzhōu shrimp virus 1 (WzSV-1) [17] found in giant tiger prawns (*Penaeus monodon*) [17] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). The established genus *Banyangvirus* was expanded by two species, *Guertu banyangvirus* and *Heartland banyangvirus*, for Guertu virus (GTV) found in *Dermacentor nuttalli* ticks [30] and Heartland virus (HRTV), a tick-borne virus originally discovered in human samples [24], respectively (TaxoProp 2018.013M.A.v1.Banyangvirus_sp; TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Genus *Phlebovirus* was expanded by one species, *Mukawa phlebovirus*, for Mukawa virus (MKWV) of ticks (*Ixodes persulcatus*) [22] (TaxoProp 2018.014M.A.v1.Phlebovirus_sp). In genus *Phasivirus*, species *Wuhan fly phasivirus* was abolished (TaxoProp 2018.019M.A.v1.Phenuiviridae_Remsp).

Wupedeviridae

No changes were made at the family rank.

SUMMARY

A summary of the current, ICTV-accepted taxonomy of the order *Bunyavirales* is presented in Table 1.

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Table 1. ICTV-accepted taxonomy of the order *Bunyvirales* as of February 2019. Listed are all bunyaviruses that are classified into species.

Genus	Species[¶]	Virus (Abbreviation)[¶]
Family <i>Arenaviridae</i>		
<i>Antennavirus</i>	<i>Hairy antennavirus</i>	Wēnlíng frogfish arenavirus 2 (WIFAV-2)
	<i>Striated antennavirus</i> *	Wēnlíng frogfish arenavirus 1 (WIFAV-1)
<i>Hartmanivirus</i>	<i>Haartman hartmanivirus</i> *	Haartman Institute snake virus 1 (HISV-1)
<i>Mammarenavirus</i>	<i>Allpahuayo mammarenavirus</i>	Allpahuayo virus (ALLV)
	<i>Argentinian mammarenavirus</i>	Junín virus (JUNV)
	<i>Bear Canyon mammarenavirus</i>	Bear Canyon virus (BCNV)
	<i>Brazilian mammarenavirus</i>	Sabiá virus (SBAV)
	<i>Cali mammarenavirus</i>	Pichindé virus (PICHV)
	<i>Chapare mammarenavirus</i>	Chapare virus (CHAPV)
	<i>Cupixi mammarenavirus</i>	Cupixi virus (CUPXV)
	<i>Flexal mammarenavirus</i>	Flexal virus (FLEV)
	<i>Gairo mammarenavirus</i>	Gairo virus (GAIV)

	<i>Guanarito mammarenavirus</i>	Guanarito virus (GTOV)
	<i>Ippy mammarenavirus</i>	Ippy virus (IPPYV)
	<i>Lassa mammarenavirus</i>	Lassa virus (LASV)
	<i>Latino mammarenavirus</i>	Latino virus (LATV)
	<i>Loei River mammarenavirus</i>	Loei River virus (LORV)
	<i>Lujo mammarenavirus</i>	Lujo virus (LUJV)
	<i>Luna mammarenavirus</i>	Luli virus (LULV)
		Luna virus (LUAV)
	<i>Lunk mammarenavirus</i>	Lunk virus (LNKV)
	<i>Lymphocytic choriomeningitis mammarenavirus*</i>	Dandenong virus (DANV)
		lymphocytic choriomeningitis virus (LCMV)
	<i>Machupo mammarenavirus</i>	Machupo virus (MACV)
	<i>Mariental mammarenavirus</i>	Mariental virus (MRLV)

	<i>Merino Walk mammarenavirus</i>	Merino Walk virus (MRWV)
	<i>Mobala mammarenavirus</i>	mobala virus (MOBV)
	<i>Mopeia mammarenavirus</i>	Mopeia virus (MPOV)
		Morogoro virus (MORV)
	<i>Okahandja mammarenavirus</i>	Okahandja virus (OKAV)
	<i>Oliveros mammarenavirus</i>	Oliveros virus (OLVV)
	<i>Paraguayan mammarenavirus</i>	Paraná virus (PRAV)
	<i>Pirital mammarenavirus</i>	Pirital virus (PIRV)
	<i>Ryukyu mammarenavirus</i>	Ryukyu virus (RYKV)
	<i>Serra do Navio mammarenavirus</i>	Amaparí virus (AMAV)
	<i>Solwezi mammarenavirus</i>	Solwezi virus (SOLV)
	<i>Souris mammarenavirus</i>	souris virus (SOUV)
	<i>Tacaribe mammarenavirus</i>	Tacaribe virus (TCRV)
	<i>Tamiami mammarenavirus</i>	Tamiami virus (TMMV)
	<i>Wenzhou mammarenavirus</i>	Wēnzhōu virus (WENV)

	<i>Whitewater Arroyo mammarenavirus</i>	Big Brushy Tank virus (BBRTV)
		Catarina virus (CTNV)
		Skinner Tank virus (SKTV)
		Tonto Creek virus (TTCV)
		Whitewater Arroyo virus (WWAV)
<i>Reptarenavirus</i>	<i>California reptarenavirus</i>	CAS virus (CASV)
	<i>Giessen reptarenavirus</i>	University of Giessen virus 1 (UGV-1)
		University of Giessen virus 2 (UGV-2)
		University of Giessen virus 3 (UGV-3)
	<i>Golden reptarenavirus*</i>	Golden Gate virus (GOGV)
	<i>Ordinary reptarenavirus</i>	tavallinen suomalainen mies virus 2 (TSMV-2)
	<i>Rotterdam reptarenavirus</i>	ROUT virus (ROUTV)
		University of Helsinki virus 1 (UHV-1)
Family <i>Cruliviridae</i>		

<i>Lincrovirus</i>	<i>Crustacean lincrovirus*</i>	Wēnlíng crustacean virus 9 (WICV-9)
Family <i>Fimoviridae</i>		
<i>Emaravirus</i>	<i>Actinidia chlorotic ringspot-associated emaravirus</i>	Actinidia chlorotic ringspot-associated virus (AcCRaV)
	<i>European mountain ash ringspot-associated emaravirus*</i>	European mountain ash ringspot-associated virus (EMARaV)
	<i>Fig mosaic emaravirus</i>	fig mosaic virus (FMV)
	<i>High Plains wheat mosaic emaravirus</i>	High Plains wheat mosaic virus (HPWMoV)
	<i>Pigeonpea sterility mosaic emaravirus 1</i>	pigeonpea sterility mosaic virus (PPSMV)
	<i>Pigeonpea sterility mosaic emaravirus 2</i>	pigeonpea sterility mosaic virus 2 (PPSMV-2)
	<i>Raspberry leaf blotch emaravirus</i>	raspberry leaf blotch virus (RLBV)
	<i>Redbud yellow ringspot-associated emaravirus</i>	redbud yellow ringspot-associated virus (RYRaV)
	<i>Rose rosette emaravirus</i>	rose rosette virus (RRV)

Family <i>Hantaviridae</i>		
Subfamily <i>Actantavirinae</i>		
<i>Actinivirus</i>	<i>Batfish actinivirus</i> *	Wēnlíng minipizza batfish virus (WEMBV)
	<i>Goosefish actinivirus</i>	Wēnlíng yellow goosefish virus (WEYGV)
	<i>Spikefish actinivirus</i>	Wēnlíng red spikefish virus (WERSV)
Subfamily <i>Agantavirinae</i>		
<i>Agnathovirus</i>	<i>Hagfish agnathovirus</i> *	Wēnlíng hagfish virus (WEHV)
Subfamily <i>Mammantavirinae</i>		
<i>Loanvirus</i>	<i>Longquan loanvirus</i> *	Lóngquán virus (LQUV)
<i>Mobatvirus</i>	<i>Laibin mobatvirus</i>	Láibīn virus (LAIV)
	<i>Nova mobatvirus</i> *	Nova virus (NVAV)
	<i>Quezon mobatvirus</i>	Quezon virus (QZNV)
<i>Orthohantavirus</i>	<i>Andes orthohantavirus</i>	Andes virus (ANDV)
		Castelo dos Sonhos virus (CASV)

		Lechiguanas virus (LECV = LECHV)
		Orán virus (ORNV)
	<i>Asama orthohantavirus</i>	Asama virus (ASAV)
	<i>Asikkala orthohantavirus</i>	Asikkala virus (ASIV)
	<i>Bayou orthohantavirus</i>	bayou virus (BAYV)
		Catacamas virus (CATV)
	<i>Black Creek Canal orthohantavirus</i>	Black Creek Canal virus (BCCV)
	<i>Bowe orthohantavirus</i>	Bowé virus (BOWV)
	<i>Bruges orthohantavirus</i>	Bruges virus (BRGV)
	<i>Cano Delgadito orthohantavirus</i>	Caño Delgadito virus (CADV)
	<i>Cao Bang orthohantavirus</i>	Cao Bằng virus (CBNV)
		Liánghé virus (LHEV)
	<i>Choclo orthohantavirus</i>	Choclo virus (CHOV)
	<i>Dabieshan orthohantavirus</i>	Dàbiéshān virus (DBSV)
	<i>Dobrava-Belgrade orthohantavirus</i>	Dobrava virus (DOBV)

		Kurkino virus (KURV)
		Saaremaa virus (SAAV)
		Sochi virus (SOCV)
	<i>El Moro Canyon orthohantavirus</i>	Carrizal virus (CARV)
		El Moro Canyon virus (ELMCV)
		Huitzilac virus (HUIV)
	<i>Fugong orthohantavirus</i>	Fúgòng virus (FUGV)
	<i>Fusong orthohantavirus</i>	Fūsōng virus (FUSV)
	<i>Hantaan orthohantavirus*</i>	Amur virus (AMRV)
		Hantaan virus (HTNV)
		Soochong virus (SOOV)
	<i>Jeju orthohantavirus</i>	Jeju virus (JJUV)
	<i>Kenkeme orthohantavirus</i>	Kenkeme virus (KKMV)
	<i>Khabarovsk orthohantavirus</i>	Khabarovsk virus (KHAV)
		Topografov virus (TOPV)

	<i>Laguna Negra orthohantavirus</i>	Laguna Negra virus (LANV)
		Maripa virus (MARV)
		Río Mamoré virus (RIOMV)
	<i>Luxi orthohantavirus</i>	Lúxī virus (LUXV)
	<i>Maporal orthohantavirus</i>	Maporal virus (MAPV)
	<i>Montano orthohantavirus</i>	Montaño virus (MTNV)
	<i>Necocli orthohantavirus</i>	Necoclí virus (NECV)
	<i>Oxbow orthohantavirus</i>	Oxbow virus (OXBV)
	<i>Prospect Hill orthohantavirus</i>	Prospect Hill virus (PHV)
	<i>Puumala orthohantavirus</i>	Hokkaido virus (HOKV)
		Muju virus (MUJV)
		Puumala virus (PUUV)
	<i>Rockport orthohantavirus</i>	Rockport virus (RKPV)
	<i>Sangassou orthohantavirus</i>	Sangassou virus (SANGV)
	<i>Seewis orthohantavirus</i>	Seewis virus (SWSV)

	<i>Seoul orthohantavirus</i>	gōu virus (GOUV)
		Seoul virus (SEOV)
	<i>Sin Nombre orthohantavirus</i>	New York virus (NYV)
		Sin Nombre virus (SNV)
	<i>Thailand orthohantavirus</i>	Anjzorobe virus (ANJZV)
		Serang virus (SERV)
		Thailand virus (THAIV)
	<i>Tigray orthohantavirus</i>	Tigray virus (TIGV)
	<i>Tula orthohantavirus</i>	Adler virus (ADLV)
		Tula virus (TULV)
	<i>Yakeshi orthohantavirus</i>	Yákèshí virus (YKSV)
<i>Thottimvirus</i>	<i>Imjin thottimvirus</i>	Imjin virus (MJNV)
	<i>Thottapalayam thottimvirus*</i>	Thottapalayam virus (TPMV)
Subfamily <i>Repantavirinae</i>		
<i>Reptillovirus</i>	<i>Gecko reptillovirus*</i>	Hǎinán oriental leaf-toed gecko virus

		(HOLGV)
Family <i>Leishbuviridae</i>		
<i>Shilevirus</i>	<i>Leptomonas shilevirus</i> *	Leptomonas moramango virus (LEPMV)
Family <i>Mypoviridae</i>		
<i>Hubavirus</i>	<i>Myriapod hubavirus</i> *	Húběi myriapoda virus 5 (HbMV-5)
Family <i>Nairoviridae</i>		
<i>Orthonairovirus</i>	<i>Artashat orthonairovirus</i>	Artashat virus (ARTSV)
	<i>Chim orthonairovirus</i>	Chim virus (CHIMV)
	<i>Crimean-Congo hemorrhagic fever orthonairovirus</i>	Crimean-Congo hemorrhagic fever virus (CCHFV)
	<i>Dera Ghazi Khan orthonairovirus</i>	Abu Hammad virus (AHV)
		Abu Mina virus (AMV)
		Dera Ghazi Khan virus (DGKV)
		Sapphire II virus (SAPV)

	<i>Dugbe orthonairovirus</i> *	Dugbe virus (DUGV)
		kupe virus (KUPEV)
	<i>Estero Real orthonairovirus</i>	Estero Real virus (ERV)
	<i>Hazara orthonairovirus</i>	Hazara virus (HAZV)
		Tofla virus (TFLV)
	<i>Hughes orthonairovirus</i>	Caspiy virus (CASV)
		Farallon virus (FARV)
		Great Saltee virus (GRSV)
		Hughes virus (HUGV)
		Punta Salinas virus (PSV)
		Raza virus (RAZAV)
		Soldado virus (SOLV)
		Zirqa virus (ZIRV)
	<i>Kasokero orthonairovirus</i>	Kasokero virus (KASV = KASOV)
		Leopards Hill virus (LPHV)

		Yogue virus (YOGV)
	<i>Keterah orthonairovirus</i>	Gossas virus (GOSV)
		Issyk-kul virus (ISKV)
		Keterah virus (KTRV)
		Uzun-Agach virus (UZAV)
	<i>Nairobi sheep disease orthonairovirus</i>	Nairobi sheep disease virus (NSDV)
	<i>Qalyub orthonairovirus</i>	Bandia virus (BDAV)
		Geran virus (GERV)
		Qalyub virus (QYBV)
	<i>Sakhalin orthonairovirus</i>	Avalon virus (AVAV)
		Clo Mor virus (CMV = CLMV)
		Sakhalin virus (SAKV)
		Taggert virus (TAGV)
		Tillamook virus (TILLV)
	<i>Tamdy orthonairovirus</i>	Burana virus (BURV)

		Huángpí tick virus 1 (HpTV-1)
		Tǎchéng tick virus 1 (TcTV-1)
		Tamdy virus (TAMV)
		Wēnzhōu tick virus (WzTV)
	<i>Thiafora orthonairovirus</i>	Erve virus (ERVEV)
		Thiafora virus (TFAV)
<i>Shaspivirus</i>	<i>Spider shaspivirus</i> *	Shāyáng spider virus 1 (SySV-1)
<i>Striwavirus</i>	<i>Strider striwavirus</i> *	Sānxiá water strider virus 1 (SxWSV-1)
Family <i>Peribunyaviridae</i>		
<i>Herbevirus</i>	<i>Herbert herbevirus</i> *	Herbert virus (HEBV)
	<i>Kibale herbevirus</i>	Kibale virus (KIBV)
	<i>Tai herbevirus</i>	Tāi virus (TAIV)
<i>Orthobunyavirus</i>	<i>Acara orthobunyavirus</i>	Acará virus (ACAV)
		Moriche virus (MORV)
	<i>Aino orthobunyavirus</i>	Aino virus (AINOV)

	<i>Akabane orthobunyavirus</i>	Akabane virus (AKAV)
		Tinaroo virus (TINV)
		Yaba-7 virus (Y7V)
	<i>Alajuela orthobunyavirus</i>	Alajuela virus (ALJV)
		San Juan virus (SJV)
	<i>Anadyr orthobunyavirus</i>	Anadyr virus (ANADV)
	<i>Anhembí orthobunyavirus</i>	Anhembí virus (AMBV)
	<i>Anopheles A orthobunyavirus</i>	Anopheles A virus (ANAV)
		Arumateua virus (ARTV = ARMTV)
		Caraipé virus (CPEV = CRPV)
		Las Maloyas virus (LMV)
		Lukuni virus (LUKV)
		Trombetas virus (TRMV)
		Tucuruí virus (TUCV = TUCRV)
	<i>Anopheles B orthobunyavirus</i>	Anopheles B virus (ANBV)

		Boracéia virus (BORV)
	<i>Bakau orthobunyavirus</i>	Bakau virus (BAKV)
		Ketapang virus (KETV)
		Nola virus (NOLAV)
		Tanjong Rabok virus (TRV)
		Telok Forest virus (TFV)
	<i>Batai orthobunyavirus</i>	Batai virus (BATV)
	<i>Batama orthobunyavirus</i>	Batama virus (BMAV)
	<i>Bellavista orthobunyavirus</i>	Bellavista virus (BELLV)
	<i>Benevides orthobunyavirus</i>	Benevides virus (BVSV = BENV)
	<i>Bertioga orthobunyavirus</i>	Bertioga virus (BERV)
		Cananéia virus (CNAV)
		Guaratuba virus (GTBV)
		Itimirim virus (ITIV)
		Mirim virus (MIRV)

	<i>Bimiti orthobunyavirus</i>	bimiti virus (BIMV)
	<i>Birao orthobunyavirus</i>	Birao virus (BIRV)
	<i>Botambi orthobunyavirus</i>	Botambi virus (BOTV)
	<i>Bozo orthobunyavirus</i>	Bozo virus (BOZOV)
	<i>Bunyamwera orthobunyavirus*</i>	Bunyamwera virus (BUNV)
		Germiston virus (GERV)
		Lokern virus (LOKV)
		Mboké virus (MBOV)
		Ngari virus (NRIV)
		Northway virus (NORV)
		Santa Rosa virus (SARV)
		Shokwe virus (SHOV)
		Stanfield virus (STAV)
		Xingu virus (XINV)
	<i>Bushbush orthobunyavirus</i>	Benfica virus (BENV = BNFV)

		Bushbush virus (BSBV)
		Juan Díaz virus (JDV)
	<i>Buttonwillow orthobunyavirus</i>	Buttonwillow virus (BUTV)
	<i>Bwamba orthobunyavirus</i>	Bwamba virus (BWAV)
		Pongola virus (PGAV)
	<i>Cache Valley orthobunyavirus</i>	Cache Valley virus (CVV)
		Cholul virus (CHLV)
		Tlacotalpan virus (TLAV)
	<i>Cachoeira Porteira orthobunyavirus</i>	Cachoeira Porteira virus (CPOV)
	<i>California encephalitis orthobunyavirus</i>	California encephalitis virus (CEV)
		Morro Bay virus (MBV)
	<i>Capim orthobunyavirus</i>	Capim virus (CAPV)
	<i>Caraparu orthobunyavirus</i>	Apeú virus (APEUV)
		Bruconha virus (BRUV)
		Caraparú virus (CARV)

		El Huayo virus (EHUV)
		Itaya virus (ITYV)
		Ossa virus (OSSAV)
		Vinces virus (VINV)
	<i>Cat Que orthobunyavirus</i>	Cát Qué virus (CQV)
		Oya virus (OYAV)
	<i>Catu orthobunyavirus</i>	Catú virus (CATUV)
	<i>Enseada orthobunyavirus</i>	Enseada virus (ENSV)
	<i>Faceys paddock orthobunyavirus</i>	Facey's paddock virus (FPV)
	<i>Fort Sherman orthobunyavirus</i>	Fort Sherman virus (FSV)
	<i>Gamboa orthobunyavirus</i>	Brus Laguna virus (BLAV)
		Calchaquí virus (CQIV)
		Gamboa virus (GAMV)
		Pueblo Viejo virus (PVV)
		Soberanía virus (SOBV)

	<i>Guajara orthobunyavirus</i>	Guajará virus (GJAV)
	<i>Guama orthobunyavirus</i>	Ananindeua virus (ANUV)
		Guamá virus (GMAV)
		Mahogany Hammock virus (MHV)
		Moju virus (MOJUV)
	<i>Guaroa orthobunyavirus</i>	Guaroa virus (GROV)
	<i>Iaco orthobunyavirus</i>	Iaco virus (IACOV)
	<i>Ilesha orthobunyavirus</i>	Ilesha virus (ILEV)
	<i>Ingwavuma orthobunyavirus</i>	Ingwavuma virus (INGV)
	<i>Jamestown Canyon orthobunyavirus</i>	Inkoo virus (INKV)
		Jamestown Canyon virus (JCV)
		Jerry Slough virus (JSV)
		South River virus (SORV)
	<i>Jatobal orthobunyavirus</i>	Jatobal virus (JATV)
	<i>Kaeng Khoi orthobunyavirus</i>	Kaeng Khoi virus (KKV)

	<i>Kairi orthobunyavirus</i>	Kairi virus (KRIV)
	<i>Keystone orthobunyavirus</i>	Keystone virus (KEYV)
	<i>Koongol orthobunyavirus</i>	koongol virus (KOOV)
		wongal virus (WONV)
	<i>La Crosse orthobunyavirus</i>	La Crosse virus (LACV)
	<i>Leanyer orthobunyavirus</i>	Leanyer virus (LEAV)
	<i>Lumbo orthobunyavirus</i>	Lumbo virus (LUMV)
	<i>Macaua orthobunyavirus</i>	Macauã virus (MCAV)
	<i>Madrid orthobunyavirus</i>	Madrid virus (MADV)
	<i>Maguari orthobunyavirus</i>	Maguari virus (MAGV)
		Playas virus (PLAV)
	<i>Main Drain orthobunyavirus</i>	Main Drain virus (MDV)
	<i>Manzanilla orthobunyavirus</i>	Manzanilla virus (MANV)
		Inini virus (INIV)
	<i>Marituba orthobunyavirus</i>	Gumbo Limbo virus (GLV)

		Marituba virus (MTBV)
		Murutucú virus (MURV)
		Nepuyo virus (NEPV)
		Restan virus (RESV)
		Zungarococha virus (ZUNV)
	<i>Melao orthobunyavirus</i>	Melao virus (MELV)
	<i>Mermet orthobunyavirus</i>	Mermet virus (MERV)
	<i>Minatitlan orthobunyavirus</i>	Minatitlán virus (MNTV)
		Palestina virus (PLSV)
	<i>MPoko orthobunyavirus</i>	M'Poko virus (MPOV)
		Yaba-1 virus (Y1V)
	<i>Nyando orthobunyavirus</i>	Eretmapodites virus (ERETV)
		Mojuí dos Campos virus (MDCV)
		Nyando virus (NDV)
	<i>Olifantsvlei orthobunyavirus</i>	Bobia virus (BIAV)

		Dabakala virus (DABV)
		Olifantsvlei virus (OLIV)
		Oubi virus (OUBIV)
	<i>Oriboca orthobunyavirus</i>	Itaquí virus (ITQV)
		Oriboca virus (ORIV)
	<i>Oropouche orthobunyavirus</i>	Iquitos virus (IQTV) ^d
		Madre de Dios virus (MDDV)
		Oropouche virus (OROV)
		Perdões virus (PDEV)
		Pintupo virus (PINTV)
	<i>Patois orthobunyavirus</i>	Abras virus (ABRV)
		Babahoya virus (BABV)
		Pahayokee virus (PAHV)
		Patois virus (PATV)
		Shark River virus (SRV)

	<i>Peaton orthobunyavirus</i>	Peaton virus (PEAV)
	<i>Potosi orthobunyavirus</i>	Potosi virus (POTV)
	<i>Sabo orthobunyavirus</i>	Sabo virus (SABOV)
	<i>San Angelo orthobunyavirus</i>	San Angelo virus (SAV)
	<i>Sango orthobunyavirus</i>	Sango virus (SANV)
	<i>Schmallenberg orthobunyavirus</i>	Douglas virus (DOUV)
		Sathuperi virus (SATV)
		Schmallenberg virus (SBV)
		Shamonda virus (SHAV)
	<i>Serra do Navio orthobunyavirus</i>	Serra do Navio virus (SDNV)
	<i>Shuni orthobunyavirus</i>	Kaikalur virus (KAIV)
		Shuni virus (SHUV)
	<i>Simbu orthobunyavirus</i>	Para virus (PARAV)
		Simbu virus (SIMV)
	<i>Snowshoe hare orthobunyavirus</i>	Khatanga virus (KHATV) ⁹

		snowshoe hare virus (SSHV)
	<i>Sororoca orthobunyavirus</i>	Sororoca virus (SORV)
	<i>Tacaiuma orthobunyavirus</i>	CoAr 1071 virus (CA1071V)
		CoAr 3627 virus (CA3626V)
		Tacaiuma virus (TCMV)
		Virgin River virus (VRV)
	<i>Tahyna orthobunyavirus</i>	Ťahyňa virus (TAHV)
	<i>Tataguine orthobunyavirus</i>	Tataguine virus (TATV)
	<i>Tensaw orthobunyavirus</i>	Tensaw virus (TENV)
	<i>Tete orthobunyavirus</i>	Bahig virus (BAHV)
		Matruh virus (MTRV)
		Tete virus (TETEV)
		Tsuruse virus (TSUV)
		Weldona virus (WELV)
	<i>Thimiri orthobunyavirus</i>	Thimiri virus (THIV)

	<i>Timboteua orthobunyavirus</i>	Timboteua virus (TBTV)
	<i>Trivittatus orthobunyavirus</i>	Achiote virus (ACHOV)
		Trivittatus virus (TVTIV)
	<i>Turlock orthobunyavirus</i>	Lednice virus (LEDV)
		Turlock virus (TURV)
		Umbre virus (UMBV)
	<i>Utinga orthobunyavirus</i>	Utinga virus (UTIV)
	<i>Witwatersrand orthobunyavirus</i>	Witwatersrand virus (WITV)
	<i>Wolkberg orthobunyavirus</i>	Wolkberg virus (WBV)
	<i>Wyeomyia orthobunyavirus</i>	Rio Pracupi virus
		Taiassui virus (TAIAV)
		Tucunduba virus (TUCV)
		Wyeomyia virus (WYOV)
	<i>Zegla orthobunyavirus</i>	Zegla virus (ZEGV)
<i>Pacuvirus</i>	<i>Pacui pacuvirus*</i>	Pacui virus (PACV)

	<i>Rio Preto da Eva pacuvirus</i>	Rio Preto da Eva virus (RPEV)
	<i>Tapirape pacuvirus</i>	Tapirapé virus (TAPV)
<i>Shangavirus</i>	<i>Insect shangavirus*</i>	Shuāngào insect virus 1 (SgIV-1)
Family Phasmaviridae		
<i>Feravirus</i>	<i>Ferak feravirus*</i>	Ferak virus (FRKV)
<i>Inshuvirus</i>	<i>Insect inshuvirus*</i>	Shuāngào insect virus 2 (SgIV-2)
<i>Jonvirus</i>	<i>Jonchet jonvirus*</i>	jonchet virus (JONV)
<i>Orthophasmavirus</i>	<i>Culex orthophasmavirus</i>	Culex orthophasmavirus (CPLV)
	<i>Ganda orthophasmavirus</i>	Ganda orthophasmavirus (GBEEV)
	<i>Kigluaik phantom orthophasmavirus*</i>	Kigluaik phantom virus (KIGV)
	<i>Nome phantom orthophasmavirus</i>	Nome phantom virus (NOMV)
	<i>Odonate orthophasmavirus</i>	Odonate orthophasmavirus (HbOV-8)
	<i>Qingling orthophasmavirus</i>	Qingling orthophasmavirus (HbOV-9)
	<i>Seattle orthophasmavirus</i>	Seattle orthophasmavirus (SEPV)
	<i>Wuchang cockroach orthophasmavirus 1</i>	Wūchāng cockroach virus 1 (WcCV-1)

	<i>Wuhan mosquito orthophasmavirus 1</i>	Wǔhàn mosquito virus 1 (WhMV-1)
	<i>Wuhan mosquito orthophasmavirus 2</i>	Wǔhàn mosquito virus 2 (WhMV-2)
<i>Sawastrivirus</i>	<i>Sanxia sawastrivirus*</i>	Sānxiá water strider virus 2 (SxWSV-2)
<i>Wuhivirus</i>	<i>Insect wuhivirus*</i>	Wǔhàn insect virus 2 (WhIV-2)
Family Phenuiviridae		
<i>Banyangvirus</i>	<i>Guertu banyangvirus</i>	Guertu virus (GTV)
	<i>Heartland banyangvirus</i>	Heartland virus (HRTV)
	<i>Huaiyangshan banyangvirus*</i>	severe fever with thrombocytopenia syndrome virus (SFTSV)
<i>Beidivirus</i>	<i>Dipteran beidivirus*</i>	Húběi diptera virus 3 (HbDV-3)
<i>Goukovirus</i>	<i>Cumuto goukovirus</i>	Cumuto virus (CUMV)
	<i>Gouleako goukovirus*</i>	Gouléako virus (GOLV)
	<i>Yichang insect goukovirus</i>	Yíchāng insect virus (YcIV)
<i>Horwuvirus</i>	<i>Horsefly horwuvirus*</i>	Wǔhàn horsefly virus (WhHV)
<i>Hudivirus</i>	<i>Dipteran hudivirus*</i>	Húběi diptera virus 4 (HbDV-4)

<i>Hudovirus</i>	<i>Lepidopteran hudovirus*</i>	Húběi lepidoptera virus 1 (HbLV-1)
<i>Kabutovirus</i>	<i>Huangpi kabutovirus*</i>	Huángpí tick virus 2 (HpTV-2)
	<i>Kabuto mountain kabutovirus</i>	Kabuto mountain virus (KAMV)
<i>Laulavirus</i>	<i>Laurel Lake laulavirus*</i>	Laurel Lake virus (LLV)
<i>Mobuvirus</i>	<i>Mothra mobuvirus*</i>	Mothra virus (MTHV)
<i>Phasivirus</i>	<i>Badu phasivirus*</i>	Badu virus (BADUV)
	<i>Phasi Charoen-like phasivirus</i>	Phasi Chaeron-like virus (PCLV)
	<i>Wutai mosquito phasivirus</i>	Wūtái mosquito virus (WtMV)
<i>Phlebovirus</i>	<i>Bujaru phlebovirus</i>	Bujaru virus (BUJV)
		Munguba virus (MUNV)
	<i>Candiru phlebovirus</i>	Alenquer virus (ALEV)
		Ariquemes virus (ARQV)
		Candirú virus (CDUV)
		Itaituba virus (ITAV)
		Jacundá virus (JCNV)

		Maldonado virus (MLOV)
		Morumbi virus (MR(M)BV)
		Mucura virus (MCRV/MRAV)
		Nique virus (NIQV)
		Oriximiná virus (ORXV)
		Serra Norte virus (SRNV)
		Turuna virus (TUAV)
	<i>Chilibre phlebovirus</i>	Cacao virus (CACV)
		Chilibre virus (CHIV)
	<i>Frijoles phlebovirus</i>	Frijoles virus (FRIV)
		Joá virus (JOAV)
	<i>Mukawa phlebovirus</i>	Mukawa virus (MKWV)
	<i>Punta Toro phlebovirus</i>	Buenaventura virus (BUEV)
		Campana virus (CMAV)
		Capira virus (CAPIV)

		Coclé virus (CCLV)
		Leticia virus (LTCV)
		Punta Toro virus (PTV)
	<i>Rift Valley fever phlebovirus*</i>	Rift Valley fever virus (RVFV)
	<i>Salehabad phlebovirus</i>	Adana virus (ADAV)
		Adria virus (ADRV)
		Alcube virus
		Arbia virus (ARBV)
		Arumowot virus (AMTV)
		Bregalaka virus (BREV)
		Medjerda Valley virus (MVV)
		Odrénisrou virus (ODRV)
		Olbia virus (OLBV)
		Salehabad virus (SALV)
		Zaba virus (ZABAV)

	<i>Sandfly fever Naples phlebovirus</i>	Arrábida virus (ARRV)
		Balkan virus (BALKV)
		Fermo virus (FERV)
		Gordil virus (GORV)
		Granada virus (GRV = GRAV)
		Massilia virus (MASV)
		Punique virus (PUNV)
		Saddaguia virus (SADV)
		Saint-Floris virus (SAFV)
		sandfly fever Naples virus (SFNV)
		Tehran virus (THEV)
		Toscana virus (TOSV)
		Zerdali virus (ZERV)
	<i>Uukuniemi phlebovirus</i>	Chizé virus (CHZV)
		EgAN 1825-61 virus (EGAV)

		Fin V 707 virus (FINV)
		Oceanside virus (OCV = OCEV)
		Pontevès virus (PTVV)
		St. Abbs Head virus (SAHV)
		Uukuniemi virus (UUKV)
		Zaliv Terpenyia virus (ZTV)
<i>Pidchovirus</i>	<i>Pidgey pidchovirus*</i>	Pidgey virus (PGYV)
<i>Tenuivirus</i>	<i>Echinochloa hoja blanca tenuivirus</i>	Echinochloa hoja blanca virus (EHBV)
	<i>Iranian wheat stripe tenuivirus</i>	Iranian wheat stripe virus (IWSV)
	<i>Maize stripe tenuivirus</i>	maize stripe virus (MStV = MSpV)
	<i>Rice grassy stunt tenuivirus</i>	rice grassy stunt virus (RGSV)
	<i>Rice hoja blanca tenuivirus</i>	rice hoja blanca virus (RHBV)
	<i>Rice stripe tenuivirus*</i>	rice stripe virus (RSV = RStV)
	<i>Urochloa hoja blanca tenuivirus</i>	Urochloa hoja blanca virus (UHBV)
<i>Wenrivirus</i>	<i>Shrimp wenrivirus*</i>	Wēnzhōu shrimp virus 1 WzSV-1

<i>Wubeivirus</i>	<i>Dipteran wubeivirus*</i>	Húběi diptera virus 5 (HbDV-5)
	<i>Fly wubeivirus</i>	Wūhàn fly virus 1 (WhFV-1)
Family <i>Tospoviridae</i>		
<i>Orthospovirus</i>	<i>Bean necrotic mosaic orthospovirus</i>	bean necrotic mosaic virus (BeNMV)
	<i>Calla lily chlorotic spot orthospovirus</i>	calla lily chlorotic spot virus (CCSV)
	<i>Capsicum chlorosis orthospovirus</i>	Capsicum chlorosis virus (CaCV)
	<i>Chrysanthemum stem necrosis orthospovirus</i>	Chrysanthemum stem necrosis virus (CSNV)
	<i>Groundnut bud necrosis tospovirus</i> ¹	groundnut bud necrosis virus (GBNV)
	<i>Groundnut ringspot tospovirus</i> ¹	groundnut ringspot virus (GRSV)
	<i>Groundnut yellow spot tospovirus</i> ¹	groundnut yellow spot virus (GYSV)
	<i>Impatiens necrotic spot tospovirus</i> ¹	impatiens necrotic spot virus (INSV)
	<i>Iris yellow spot tospovirus</i> ¹	iris yellow spot virus (IYSV)
	<i>Melon severe mosaic orthospovirus</i>	melon severe mosaic virus (MSMV)
	<i>Melon yellow spot orthospovirus</i>	melon yellow spot virus (MYSV)

	<i>Polygonum ringspot tospovirus</i> ¹	Polygonum ringspot virus (PolRSV)
	<i>Soybean vein necrosis orthotospovirus</i>	soybean vein necrosis virus (SVNV)
	<i>Tomato chlorotic spot tospovirus</i> ¹	tomato chlorotic spot virus (TCSV)
	<i>Tomato spotted wilt tospovirus</i> * ¹	tomato spotted wilt virus (TSWV)
	<i>Watermelon bud necrosis tospovirus</i> ¹	watermelon bud necrosis virus (WBNV)
	<i>Watermelon silver mottle tospovirus</i> ¹	watermelon silver mottle virus (WSMoV)
	<i>Zucchini lethal chlorosis tospovirus</i> ¹	zucchini lethal chlorosis virus (ZLCV)
Family Wupedeviridae		
<i>Wumivirus</i>	<i>Millipede wumivirus</i> *	Wūhàn millipede virus 2 (WhMV-2)
Unassigned		
<i>Coguvirus</i>	<i>Citrus coguvirus</i> *	citrus concave gum-associated virus (CCGaV)

*type species

¹Due to a formal classification mistake, this species was not correctly renamed to include the genus epithet “*orthotospovirus*”. A proposal to ensure that all species included in the genus *Orthotospovirus* are named uniformly ending in “*orthotospovirus*” will be submitted prior to the next taxonomic proposal submission deadline.

[¶]Please note that viruses are real objects that are assigned to concepts that are called taxa. Species, genera, families, and orders are taxa. Taxon names are always italicized and always begin with a capital letter. Virus names, on the other hand, are not italicized and are not capitalized, except if the name or a name component is a proper noun. This column lists the virus names with their correct (lack of) capitalization. Lists of viruses within a given species are provisional at this point and will likely be amended in the near future.

COMPLIANCE WITH ETHICAL STANDARDS

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the US Department of the Army, the US Department of Defense, the US Department of Health and Human Services, or of the institutions and companies affiliated with the authors. In no event shall any of these entities have any responsibility or liability for any use, misuse, inability to use, or reliance upon the information contained herein. The US departments do not endorse any products or commercial services mentioned in this publication.

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Conflict of Interest

The authors declare no conflicts of interest.

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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