Supplemental Information "Multiple Mortality Events in Bats: A Global Review", *Mammal Review* 2016, O'Shea, Cryan, Hayman, Plowright, Streicker.

We provide summaries of pertinent details regarding multiple mortality events of bats in a series of nine appendices. Appendix S10 lists all references cited in Appendices S1-S9. Events are given by region alphabetically, then chronologically within regions. The number of events entered into tallies are given in parentheses under the "Description" column. We attempted to be conservative in designating numbers of events. Unfortunately not all sources provide enough information to allow accurate judgments in each case. Generally we considered events extending over multiple years as one event per year, and events observed at more than one dispersed location as separate events. We considered events impacting more than one species of bat as separate events for each species, unless there was insufficient information on numbers per species. Events with insufficient information for each species were treated as single events. Scientific names follow Simmons (2005) in Wilson and Reeder's (2005) Mammal Species of the World, 3rd edition (http://www.vertebrates.si.edu/msw/mswcfapp/msw/index.cfm), with the exceptions of *Myotis escalerai (*Ibáñez *et al*. 2006), *Perimyotis subflavus*, and *Parastrellus hesperus* (Hoofer *et al*. 2006).

Appendix S7. Reports of multiple bat deaths due to or suggestive of infectious viral or bacterial disease. (See Table S8 for reports of the fungal disease white-nose syndrome).

Region and Species	**Date**	**Description**	**Location**	**Source**	**Case**
Africa					
Epomophorus wahlbergi	1980	Lagos bat virus suspected as cause of a "significant mortality" event involving sick and dying bats. 10-15% of several hundred bats examined confirmed as infected with this virus. (1 event)	Near Durban, Natal, South Africa	King *et al*. 1994	S7-1
Asia					
Chaerephon plicatus	Nov 2000	12 dead bats found in cave, infected with Kaeng Khoi virus, a bunyavirus. (1 event)	Near Kampot, Cambodia	Osborne *et al*. 2003	S7-2

Australia					
Pteropus poliocephalus	1978	Mass abortion of near-term fetuses, several thousand out of 12,000 adults. Disease suspected but no confirmatory evidence. (1 event)	Beenleigh, Queensland, Australia	Hall & Richards 2000	S7-3
Pteropus poliocephalus	1983	Mass abortions similar to Beenleigh event above. (1 event)	Indoorophily Island, near Brisbane, Queensland, Australia	Hall & Richards 2000	S7-4
Europe					
Miniopterus schreibersii	Summer 2002	Pathological and virological analysis showed that carcasses of 6 bats sampled at Cueva del Lloviu in northern Spain lacked gross pathology but had histopathological lesions consistent with viral pneumonia. A new filovirus was reported from 20 bats (primarily from lungs) based on PCR, but no other of multiple viruses screened were reported. 5 dead bats from Cantabria in northern Spain also had the filovirus, but 45 healthy *M. schreibersii* sampled at Cantabria after the die-off had no filovirus. Nine dead *Myotis myotis* found at Cantabria lacked	Cueva del Lloviu, Asturias, and unspecified caves near Cantabria, northern Spain	Negredo et al. 2011	S7-5

		filovirus, as did 1,295 bats of 29 species sampled throughout Spain. (2 events)			
Islands					
Pteropus samoensis or *P. tonganus*	1839	"...after a serious outbreak of an epidemic had successively attacked both Europeans and natives, as well as animals also, it seized upon the bats, or flying foxes, and devastated them in great numbers" (Stair 1897, p 188-189). (1 event)	Samoa	Stair 1887	S7-6
Pteropus samoensis or *P. tonganus*	1890s	Avian cholera (Pasteurellosis) intentionally introduced to kill fruit bats by German farmers, "was apparently successful in killing many", but unintentionally killed domestic fowl as well. (1 event)	'Upolo, Samoa	Spennemann & Wiles 2002	S7-7
Pteropus mariannus	1926 or 1927	"They are scarce indeed. Since 1927 after an epidemic of measles and dysentery among the native population. The flying foxes of the island died in thousands so that now it is very doubtful whether there are a dozen specimens to be found." (Coultas 1931, p. 65); "an epidemic broke out among these mammals which practically	Kosrae, Federated States of Micronesia	Coultas 1931	S7-8

		wiped out the race...The island is overrun with rats, but at the time I was there an epidemic seemed to have broken out among them also as numbers of dead individuals could be found lying on the ground." (Coultas 1931, p. 246) (1 event)			
Pteropus tonganus	Unspecified, prior to 1949	"Mr. Dods had told me how numerous they were about Savu Savu until some epidemic decimated them and hundreds of bleaching skeletons lay beneath each bat-roost in the forest." (Degener 1949, p.79) (1 event)	Vanu Levu, Fiji	Degener 1949	S7-9
Pteropus neohibernicus	1985	Many found dead or dying from disease beneath large and well-known roosts over several weeks throughout the island. Bats changed from common to rare in abundance. (1 event)	Manus Island, Admiralty Islands, Papua, New Guinea	Flannery 1989	S7-10
Pteropus rayneri	1987	Reports of mass die-off thought to be similar to deaths of *P. neohibernicus* on Manus (above) in 1985. However, in a subsequent die-off in 1994 (see Table S3) Bowen-Jones *et al*. (1997) suggest an influence of invasive red ants. (1 event)	Bougainville and Buka, Solomon Islands	Flannery 1989, but see Bowen-Jones *et al*. 1997	S7-11

North America					
Tadarida brasiliensis	Aug 1955	11 of 20 dead were "infected with rabies". Several thousand bats died. Ruled out DDT based on residue analysis (but not based on diagnostic residues in brains; subsequent analyses suggest DDT played a role). (1 event)	Carlsbad Caverns, New Mexico, USA	Constantine 1967, Constantine *et al* 1968, Clark 2001	S7-12
Tadarida brasiliensis	Aug 1956	Collected 2,228 dead bats, 88 confirmed rabid. The 1956 epizootic was associated with migration during inclement weather and unfavourably cool temperatures in the caves due to the presence of relatively few bats producing body heat; subsequent analyses suggest DDT played a role (1 event)	Carlsbad Caverns, New Mexico, USA	Constantine 1967, Constantine *et al* 1968, Clark 2001	S7-13
Tadarida brasiliensis	Summer and autumn 1957	29 of 48 sick and dying bats confirmed rabid during a year with normal weather. (1 event)	Carlsbad Caverns, New Mexico, USA	Constantine 1967	S7-14
Tadarida brasiliensis	Jun-Oct 1993	17 of 23 dead or dying bats from 4 roosts in adjacent buildings diagnosed as rabid. Colony size not estimated. (1 event)	Mineral Wells, Palo Pinto County, Texas, USA	Clark *et al*. 1996	S7-15
Parastrellus hesperus	Jul-Aug 2001	38 dead bats, rabies. (1 event)	Death Valley National Park, California, USA	U.S. Geological Survey 2015c	S7-16

Tadarida brasiliensis	Summer 2004	70 of 81 bats found on the ground below a colony of 750,000 at a bridge diagnosed as rabid. (1 event)	Travis County, TX	Davis *et al*. 2012	S7-17
Tadarida brasiliensis	Summer 2005	226 of 240 bats found on the ground below a colony of 750,000 at a bridge diagnosed as rabid. (1 event)	Travis County, TX	Davis *et al*. 2012	S7-18
Myotis volans	Sep 2007	24 dead bats, rabies. (1 event)	Lane County, Oregon, USA	U.S. Geological Survey 2015c	S7-19
Eptesicus fuscus	Summer 2008	About 100 bats found dead during a four-week period. Bacterial isolation and associated pathology implicated pasteurellosis as the cause. (1 event)	Winnebago County, Wisconsin, USA	Blehert *et al*. 2014	S7-20
Corynorhinus townsendii	Jul 2009	11 dead bats, rabies and emaciation. (1 event)	Silver Falls State Park, Oregon, USA	U.S. Geological Survey 2015c	S7-21
Tadarida brasiliensis	Aug 2010	2,000 dead bats, rabies. (1 event)	McNeil Bridge, Williamson County, Texas, USA	U.S. Geological Survey 2015c	S7-22
Eptesicus fuscus	Jun-Jul 2012	15 dead bats, rabies. (1 event)	Moore County, North Carolina, USA	U.S. Geological Survey 2015c	S7-23
Myotis lucifugus	Feb 2015	Ca. 2,000 bats dead, bronchopneumonia, pulmonary congestion, etiology not yet specified. (1 event)	Pierce County, Wisconsin USA	U.S. Geological Survey 2015b	S7-24