

Supplementary Table S2. Southern hemisphere surveillance summary of avian influenza subtype richness studies from published literature

Location (author, year)	Richness/ sample size (per 1000)	Analysis method	Sampling periods	Bird families (positive/total, % positive)
Argentina (Pereda et al. 2008)	1/2895 (0.35)	Cloacal swabs & fecal + RRT-PCR + isolation + sequence	1 (2006–2007)	Anseriformes (- /1860) Charadriiformes (-/485) Ciconiiformes (-/8) Columbiformes (-/14) Gruiformes (-/17) Passeriformes (-/45) Pelecaniformes (-/97) Procellariiformes (-/18) Sphenisciformes (-/249) Tinamiformes (-/2) Total (12/2895, 0.41%)
Argentina (Escudero et al. 2008)	0/165 (0)	Cloacal swab + RT-PCR	1 (2004-2005)	Shorebirds (0/165, 0%)
Australia (Hurt et al. 2006)	2/173 (12)	Cloacal + RT-PCR + isolation + HI & NI test	1 (Nov 2004)	<i>Calidris acuminata</i> (5/97, 5.2%) <i>Calidris ferruginea</i> (0/14, 0%) <i>Calidris ruficollis</i> (5/14, 36%) <i>Calidris canutus</i> (0/6, 0%) <i>Limosa lapponica</i> (0/29, 0%) <i>Limosa limosa</i> (0/13, 0%) Total (10/173, 5.8%)
Australia (Haynes et al. 2009)	12/16303 (0.73)	Cloacal/oropharyngeal/fecal + isolation + RT-PCR + HI & NI test	2 (2005–2006, 2006–2007)	Anseriformes (6849) Charadriiformes (3748) Mixed Anser+Charadriiformes (5413) Other birds (410) Total (48/16303, 0.29%)
Australia , Victoria (Peroulis and O’Riley 2004)	1/605 (1.7)	Cloacal/tracheal + isolation + HI & NI test + RT-PCR	1 (2001-2002)	Anatidae (5/284, 1.8%) Galliformes (0/150, 0%) Columbiformes (0/133, 0%) Other (0/38, 0%)
Australia , Western (Mackenzie et al. 1984)	6/3654 (1.6)	Cloacal + isolation + HI & NI test	1 (1977-1979)	<i>Anas superciliosa</i> (12/233, 3.6%) <i>Tadorna tadornoides</i> (3/74, 4.1%) <i>Anas gibberifrons</i> (3/125, 2.4%) <i>Puffinus pacificus</i> (3/531, 0.56%)

				<i>Fulica atra</i> (1/14, 7.1%) <i>Sterna fuscata</i> (1/294, 0.34%) <i>Anous tenuirostris</i> (1/254, 0.39%) Total (24/3654, 0.67%)
South Africa (Cumming et al. 2011)	2/4977 (0.40)	Cloacal and fecal + isolation + RT-PCR	1 (2007-2009)	Alaudidae (3/24, 13%) Alcedinidae (1/13, 7.7%) Anatidae (52/2170, 2.4%) Cerylidae (1/40, 2.5%) Charadriidae (12/461, 2.6%) Dendrocygnidae (12/234, 5.1%) Hirundinidae (1/13, 7.7%) Jacanidae (15/493, 3.0%) Motacillidae (2/43, 4.7%) Numididae (1/23, 4.3%) Passeridae (1/8, 12.5%) Ploceidae (5/165, 3%) Pycnonotidae (1/8, 12.5%) Rallidae (7/514, 1.4%) Scolopacidae (7/181, 3.9%) Sylviidae (2/13, 15.4%) Threskiornithidae (1/20, 5.0%) Upupidae (1/3, 33%)
Africa-Europe (Gaidet et al. 2007)	5/5256 (0.95)	Cloacal swabs & fecal + RT-PCR + RT-qPCR	1 (2006)	African ducks (41/1455, 2.8%) Eurasian ducks (93/1409, 6.6%) Eurasian waders (6/688, 0.9%) Rails (3/416, 0.70%) Gulls (14/366, 3.8%) Terns (2/151, 1.3%)
Zambia (Simulundu et al. 2011)	5/3094 (1.6)	Fecal + isolation + HI & NI test + sequencing	1 (2008-2009)	Total (12/3094, 0.39%) Anatidae + pelicans

References

- Cumming, Graeme S, Alexandre Caron, Celia Abolnik, Giovanni Cattoli, Leo W Bruinzeel, Christina E Burger, Krizia Cecchetti, et al. 2011. "The Ecology of Influenza A Viruses in Wild Birds in Southern Africa." *EcoHealth* (April 23). doi:10.1007/s10393-011-0684-z. <http://www.ncbi.nlm.nih.gov/pubmed/21516374>.
- Escudero, G, Vincent J Munster, M Bertellotti, and P Edelaar. 2008. "Perpetuation of Avian Influenza in the Americas: Examining the Role of Shorebirds in Patagonia." *The Auk* 125 (2): 494–495. doi:10.1525/auk.2008.2408.2.
- Gaidet, N, T Dodman, A Caron, G Balanca, S Desvaux, F Goutard, G Cattoli, et al. 2007. "Influenza Surveillance in Wild Birds in Eastern Europe, the Middle East, and Africa: Preliminary Results from an Ongoing FAO-led Survey." *Journal of Wildlife Diseases* 43 (3): S22–S28.
- Haynes, L, E Arzey, C Bell, N Buchanan, G Burgess, V Cronan, C Dickason, et al. 2009. "Australian Surveillance for Avian Influenza Viruses in Wild Birds Between July 2005 and June 2007." *Australian Veterinary Journal* 87 (7) (July): 266–72. doi:10.1111/j.1751-0813.2009.00446.x. <http://www.ncbi.nlm.nih.gov/pubmed/19573149>.
- Hurt, A.C., Hansbro, P.M., Selleck, P., Olsen, B., Minton, C., Hampson, A.W., Barr, I.G., 2006. Isolation of avian influenza viruses from two different transhemispheric migratory shorebird species in Australia. *Arch. Virol.* 151, 2301–2309.
- Mackenzie, J S, E C Edwards, R M Holmes, and Hinshaw V S. 1984. "Isolation of Ortho- and Paramyxoviruses from Wild Birds in Western Australia, and the Characterization of Novel Influenza A Viruses." *Australian Journal of Exp. Biol. Med. Sci.* 62 (February): 89–99.
- Pereda, Ariel J, Ma Uhart, Rcela, Alberto a Perez, María E Zaccagnini, Luciano La Sala, Julieta Decarre, et al. 2008. "Avian Influenza Virus Isolated in Wild Waterfowl in Argentina: Evidence of a Potentially Unique Phylogenetic Lineage in South America." *Virology* 378 (2) (September 1): 363–70. doi:10.1016/j.virol.2008.06.010.
- Peroulis, I, and K O'Riley. 2004. "Detection of Avian Paramyxoviruses and Influenza Viruses Amongst Wild Bird Populations in Victoria." *Australian Veterinary Journal* 82 (February): 79–82.
- Simulundu, Edgar, Akihiro Ishii, Manabu Igarashi, Aaron S Mweene, Yuka Suzuki, Bernard M Hang'ombe, Boniface Namangala, et al. 2011. "Characterization of Influenza A Viruses Isolated from Wild Waterfowl in Zambia." *The Journal of General Virology* 92 (Pt 6) (June): 1416–27. doi:10.1099/vir.0.030403-0. <http://www.ncbi.nlm.nih.gov/pubmed/21367986>.