

**An overview of HPAI
Surveillance in wild birds in
Kenya: *“Potential risks & role
of Wild birds in HPAI
introduction in Kenya”***

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Goal of AI Surveillance in Wild Birds www.kws.go.ke

- To have an early detection and warning system to introduction of HPAI viruses in an ecosystem
 - This significantly improves the biosecurity of a nation
 - Also provides early warning for potentially catastrophic mortality events in wild birds and poultry and minimize potential for human exposure



Current knowledge of AI and Wild Birds www.kws.go.ke

- Wild birds in particular certain species of waterfowl and shorebirds are considered to be natural reservoirs of all 144 subtypes of AI virus
- The subtypes are adapted to survive in the wild birds usually causing little or no disease
- Genetic shift or drift can occur altering the infectivity of the virus for particular species (wild or domestic)



HPAI- H5N1

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- During 1995-96 it is thought that antigenic drift occurred in AI virus of wild birds allowing the virus to infect chickens in China
- This was followed by re-assortment into HPAI subtype (H5N1)
- Since that time, this virus has been circulating in Asian poultry and domestic fowl causing significant mortalities



H5N1 in wild birds

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- It is likely that H5N1 underwent further antigenic drift and shift allowing infection in additional species of birds, mammals and humans
- More recently this virus moved back into wild birds resulting in significant mortality of various species of wild birds in China during April 2005.



Wild bird deaths due to H5N1

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- The death of bar-headed geese and whooper swans in August 2005 from H5N1 on Erkhel Lake in Mongolia an area not known to have domestic poultry nearby raised the possibility that species of wild birds may spread the virus
- Even more recently between June and July 2008 deaths of several wild bird species from H5N1 were reported in Germany, France and Czech Republic in Europe



- Given the adaptation of highly pathogenic H5N1 in wild birds, increasing concern has developed over the potential for migrating birds to introduce the virus into new areas such as Eastern Africa



Strategies for wild bird surveillance in Kenya www.kws.go.ke

- Active surveillance
 - Investigations in apparently healthy birds in selected areas
- Passive surveillance
 - Investigation of morbidity and mortality events



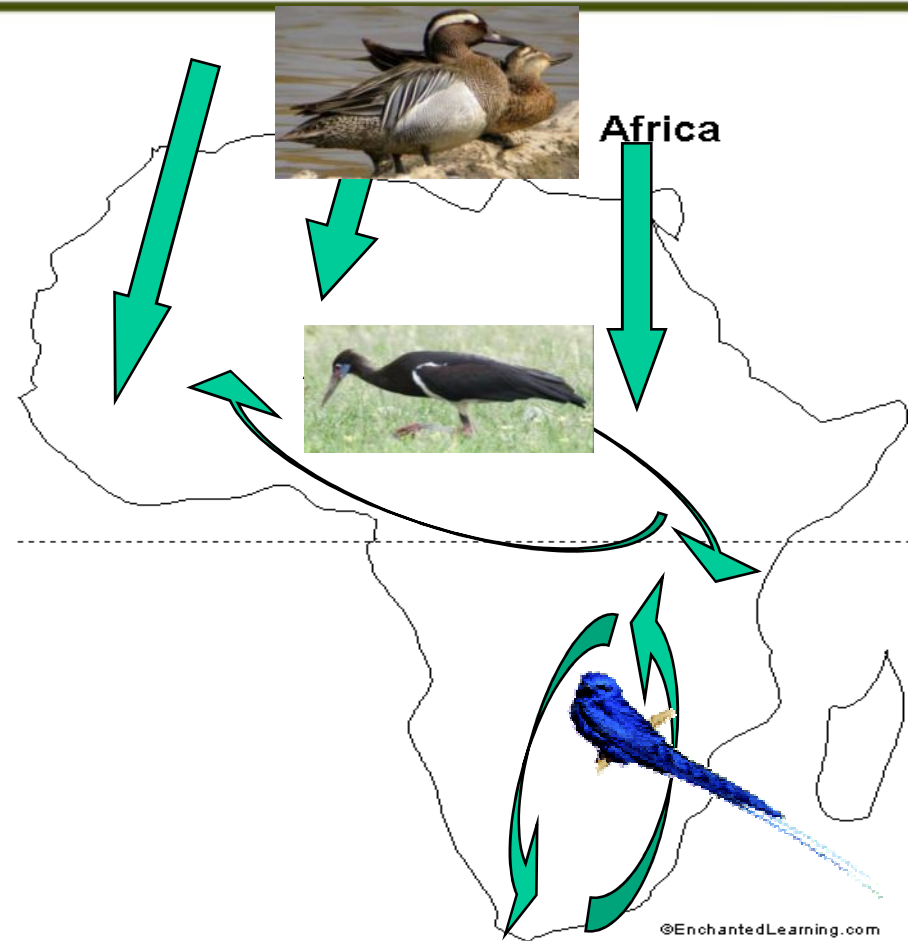
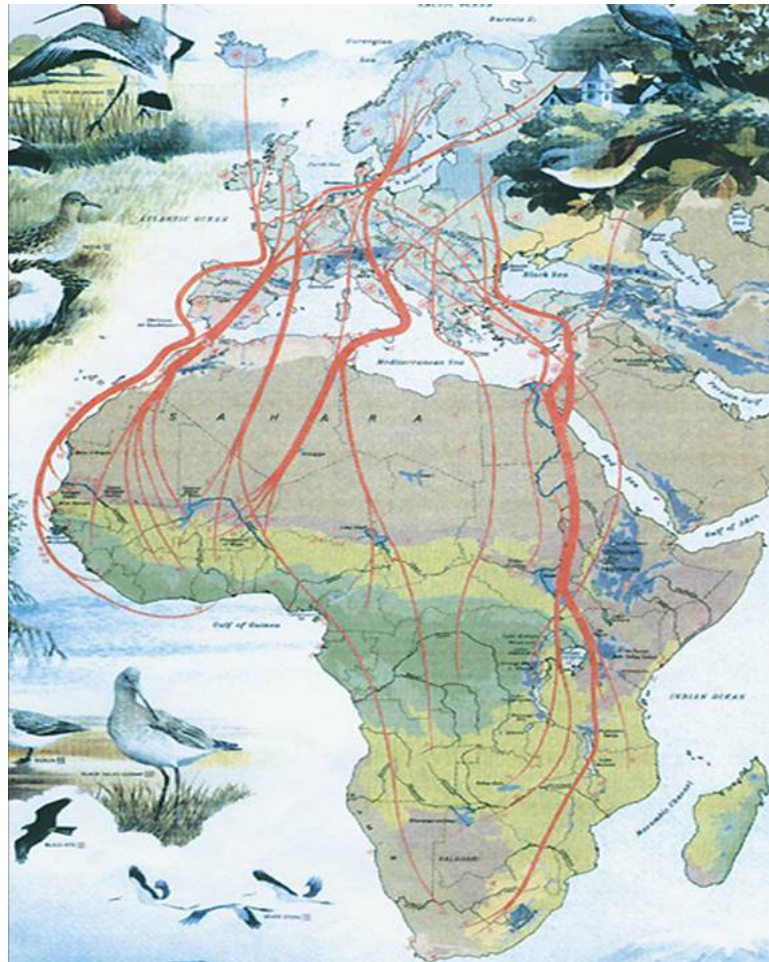
Active surveillance

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- Based on:
 1. Migration pathways and season
 2. Priority species – waterfowls
 3. High wild bird/poultry interactions
 4. Population density of wild birds



Migration into (a) and within (b) Africa



Surveillance areas in Kenya www.kws.go.ke

1. Central Rift – six lakes
2. Lake Turkana
3. Nyanza wetlands and Lake victoria
4. Tsavo ecosystem wetlands and lakes
5. Coastal ecosystem and river estuaries
6. Central highland wetlands
7. Amboseli and Nairobi ecosystems



Area	No. of samples collected	Dates	Source of funding	Not included in the NAP(X)
L. Turkana	99	November 2006	Word Bank	
L. Naivasha	47	May – June 2006	PACE(K)	
L. Nakuru	87	June 2006	PACE(K)	
L. Turkana	49	June – July 2006	PACE (K)	
L. Bogoria	37	July 2006	KWS	
Dandora sewerage	86	Feb 2006	FAO – CIRAD (Wetlands international)	
Mwea Irrigation Scheme	41	July 2006	KWS	X
Elementaita	122	Jan 2007	FAO – CIRAD (Wetlands international)	
Ngulia	176	Dec 2006	“	
Ol’ Bolossat	152	Jan 2007	“	X
Sereolivi, Sera and Chyulu	23	March – May 2007	KWS	X – Passive surveillance, done when doves were dying



Shore bird surveillance

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Inland bird surveillance

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Field surveillance

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Passive surveillance

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- **Investigation of morbidity and mortality events**

- This is an important strategy to investigate disease not only for AI but other diseases
- Mass deaths of wild doves in Kenya (Tsavo, Turkana, Samburu, Garissa, Kajiado) in particular, Laughing doves were found to be due to New castle virus



•Surveillance in killed birds (hunting, knock downs etc.)

- Important in that it provides an opportunity to collect additional samples in a cost-effective way
- Supplements live bird surveillance by increasing number of selected species, geographical locations and time periods represented in surveillance efforts
- Sampling of confiscated wild birds from (airports) or from farmers
[raring wild fowls](#)



Surveillance results & status www.kws.go.ke

- Wild bird samples in Kenya, so far are negative for HPAI.
- Migratory – bridge species – resident species of wild birds were sampled
- In Africa, countries reporting wild birds with H5N1 include: burkina faso, Cote d’voire, Egypt & Nigeria
- Globally >80 species, 14 orders of wild birds positive for H5N1- in sick or dead wild birds



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- Some surveillance areas in Kenya provide close interface with domestic poultry and poultry **wastes**
- Biosecurity guidelines for people using wetland resources in poultry keeping areas is needed



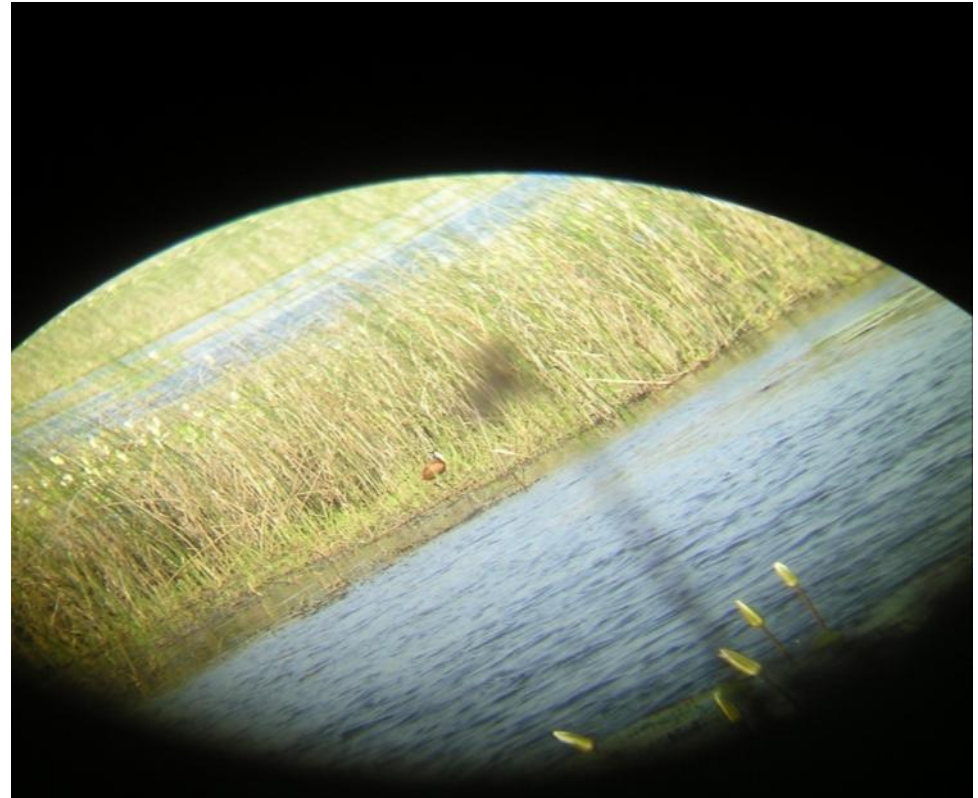
Risk behaviors?

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Way forward

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- High alert on moribund, sick and dead wild bird sampling and disposal
- Define risks associated with human activities in wetlands and their potential role in HPAI spread in poultry.
- Increased surveillance of wild bird surveillance in areas of high poultry/wildbird interaction



Acknowledgement

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- ﷥ Bird life International Africa Division





Ah'sante

Thank you



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