Buffalo movements within, out of and into the Western Cape Province

Introduction
Buffalo movements within and between the provinces of South Africa are controlled by State Veterinary Authorities and permission must be granted for every movement by the relevant Provincial Veterinary Services directors involved. From the beginning of 2011 the Western Cape Veterinary Services (WCVS) began capturing the data relating to these movements (where the Western Cape Province (WCP) was involved in the movement) electronically and the data of the past 18 months is shown here. A network analysis is also referred to in the text although this data is not shown.

Descriptive Movement Statistics
Figure 1 above shows the total number of movement requests (red line) managed by WCVS over the period under review and the number of buffalo moved during these events (blue bars). Between 2011 and 2012’s second quarter (Q2) there was a significant increase in movements of buffalo - from 0 in 2011 to 8 in 2012. A general trend of increasing movement requests towards the end of the year is also evident, however having more data available would be necessary to show whether this trend is consistent year to year. There is evidence however of an increase in the total number of movement requests between 2011 and 2012, with the total number of requests in 2011 (n=16) being far exceeded in 2012 already (n=29) with still 4 months of the year not yet included in the analysis.

A breakdown of the movement origin and destination was also analysed and the movements into and out of the WCP followed similar trends to the general trend in Fig 1 but the movements of buffalo within the borders of the WCP have been maintained at very low numbers in terms of requests with evidence of a decrease in the total number of buffalo moved between 2011 and 2012 to date (see Fig 2).

Figure 3 shows the gender trend of buffalo entering the WCP where the majority of incoming buffalo where female (note the NS category - the outgoing data in terms of gender had too many animals in the NS category to be worthwhile analysing).

The provincial source of buffalo (see Fig 4 on page 2) clearly shows the majority of buffalo entering the WCP come from the Limpopo Province with 11 movements (58% of incoming movements) totalling 62 buffalo (73% of incoming buffalo). In terms of high risk FMD Provinces (those that have bordered on Continued on page 2→
WCP Buffalo movement continued

the FMD control zones) it is interesting to see that no buffalo originate from Mpumalanga and only 1 movement consisting of 1 buffalo has occurred between KZN and the WCP.

Outgoing movements (see Fig 5) of buffalo from the Western Cape to other provinces has a more even distribution between 3 major provinces namely the Limpopo Province, the Northern Cape and the Eastern Cape. 33% of movements (n=6) and 31% of buffalo (n=25) have moved from the WCP to the Northern Cape. The movements to the Limpopo Province are in the region of half the incoming totals from that province (5 movements consisting of 35 buffalo) while the Eastern Cape received 9 buffalo in 4 movements from the WCP.

Network of buffalo farms associated with WCP buffalo movement

The data available to the WCP only has those movements that have the WCP associated with them. A full network analysis of buffalo movement is thus not possible by this office and analysing the network of movements within, into and out of the WCP has limited value as a result of this. The analysis was however completed and some of the more interesting observations are listed below. (bear in mind this is only valid for the past 18 months)

- The network is very fragmented with 7 smaller networks existing between farms. Also the largest network of 25 (of a total of 46) farms is only this big as a result of 1 auction which supplied 2 individual farms on the same day in two otherwise well segregated networks.
- There are 17 Western Cape farms that had movements associated with them. 5 of these do not have external sources of buffalo but will be translocating buffalo off their farms. 8 farms have a single source of buffalo. This means that 76% of Western Cape buffalo farms actively moving buffalo have none or one source of external buffalo.
- 9 Western Cape farms do not move buffalo off their farms while 4 have moved buffalo to only one other destination. This means that 76% of active Western Cape buffalo farms either do not move buffalo off their farms or only move buffalo to one source.
- The above 3 points really show that the situation as it stands defers a low risk of disease transmission between buffalo farms involved in the WCP movement system.
- There is one buffalo farm which has had 7 different sources of buffalo over the past 18 months. This is the exception in the WCP network.
- Only 3 of the 17 WCP farms moved buffalo to the same destination on more than one occasion and only one WCP farm received buffalo more than once from the same source. This shows that repeat movements within the WCP system are limited. The reason for this is not know but it can be speculated that the major purpose of keeping buffalo in the WCP is for breeding purposes and receiving genetics from varying sources would strengthen the gene pool in the WCP.

Figure 6 on page 3 is a randomised dot plot where registered buffalo holdings (data sourced from DAFF website) have been randomly allocated a location within the magisterial district they exist in - NB the dot location is NOT the actual location of each farm and also the activity status of the farm is not known as this information is not available. It can however be immediately seen that the majority of holdings occur in the Limpopo province, and in particular its more western districts. KZN, Eastern Cape and Northern Cape have clustering of farms in their north easterly, southerly and easterly regions respectively while distribution in the rest of the country is relatively even. Based on this data the movement between the Limpopo and WCP makes sense just in terms of farm numbers in Limpopo although one might have expected more movements between

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Movement of buffalo is very strictly regulated as a result of the risk of spreading disease by buffalo to domestic cattle. Prior to any movement all buffalo (uniquely identified) are subject to testing for foot and mouth disease (serology), corridor disease (serology and PCR), tuberculosis (Skin test) and brucellosis (serology). More information on the requirements of buffalo movement can be found on the DAFF website or by clicking on the link below: http://www.nda.agric.za/vetweb/Disease%20Control/Buffalo/20th%20draft%20protocol%20%20buffalo%20policy.pdf

Outbreak Events

- **Sheep scab** has been identified in the Leipoldtville region of the Vredendal SV office. Trace back show sheep originating in the Piketberg region and this farm was also diagnosed positive so treatment was also instituted there.
- 2 reoccurrences of Brucella ovis in rams occurred in the Vannyhnsdorp region where farmers had discontinued the advised 2-3 months testing protocol and on recent tests again found positive animals.
- Rabies in a bat-eared fox was diagnosed in Piketberg after the animal was destroyed by a farmer after it did not show fear when being chased away. The dogs and cats on the farm had recently been vaccinated against rabies but were revaccinated.
- A highly suspect cases of rabies was reported in the Swartland. In this case the farmer was treated with immunoglobulin after he was bitten on the leg by an aberrant bat-eared fox.
- Another rabies case was confirmed in a pole-cat in Beaufort West after the animal chased a farmers dogs (no contact was made) before being destroyed by the farmer. Domestic dogs and cats within 10 km buffer were vaccinated in response.
Figure 3. Disease outbreaks in the Western Cape Province identified during September 2012. Included are all the routine vaccination events (disease not specified) performed by State officials that were logged during September.
Outbreak Events cont...

- **Salmonella enteritidis** has been identified on 4 broiler and layer units in the Boland region. The poultry affected are managed by a commercial company and all birds are vaccinated twice against salmonella with a killed vaccine. (the current outbreak has prompted a 3rd vaccination for all farms involved). A full investigation is being done by consulting vets on the farms, including expansion of testing to include all other properties in the area as well as the abattoir to try to determine the source of the infection.

Control measures put in place are listed below:
- All affected poultry will be treated with antibiotics;
- Age of layer flocks will be checked to determine feasibility of depopulating layer flocks;
- Affected broiler flocks will only be slaughtered at the end of the shift;
- Chlorine content of water at the abattoir will be increased to 150 ppm;
- Testing of final products will be done prior to release onto market;
- Meat from affected flocks will be marked and only sold on the local market. Sequence numbers of affected batches will be provided to the relevant state vet and will not be eligible for export;
- A Departmental official working at the abattoir full time has been informed of the outbreak and will monitor the slaughter and marking of batches and cleaning and disinfection of crates/vehicles;
- The Department of Health will be informed of the outbreak.

- **Brucella canis** has been preliminarily identified in a dog in the Hermanus region on bacterial culture from a nasal swab. The dog is an old female border collie with chronic upper respiratory tract blockage and discharge as well as stiffness and lameness. A more complete description of this case will be in next month’s epidemiology report.

- Virulent Newcastle disease was diagnosed in backyard poultry in Saron with 65 of 80 susceptible animals dying. Birds showed clinical symptoms associated with the nervous system associated disease and these included paralysis and torticollis.

- Three further cases of **B. ovis** occurred in Beaufort West SV area

- 2 further cases of **low pathogenic avian influenza** have been identified, one in Leeu Gamka (an H7 positive farm) and one in the Southern Cape (a H5N2 confirmed LPAI) farm.

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Disclaimer: This newsletter is published on a monthly basis for the purpose of providing up-to-date information regarding the epidemiology of animal diseases in the Western Cape Province. Much of the information is therefore preliminary and should not be cited/utilised for publication.