Annual Report of NAMP Monitoring

Western Australia, July-June, 2019-2020

1. Epidemiological features and significance on key findings (E.g. rainfall, temperature)

The whole of WA had a drier and warmer than average winter. The Southwest experienced low winter rainfall in 2019 followed by high early summer temperatures and late winter rains in 2020 preceded by some extreme wind events and dust storms. The Pilbara in particular had daily average minimum temperatures highest on record during winter 2019 with a second year of poor summer rainfall particularly in the west and extending down into the Gascoyne. Pilbara properties are progressively reducing stock numbers, some sentinel sites were not able to present cattle for follow up collections in 2020. Warmer nights in the Pilbara may enable greater survival of *Culicoides* through winter.

Four cyclones crossed the WA coast during summer autumn bringing rainfall and weather patterns from the Kimberley into the Pilbara. Cyclone Blake brought rain to the Kimberley in early January, then moved across the coast at Port Hedland dropping rain into the east Pilbara and inland. Cyclone Claudia developed into a severe tropical cyclone off the northwest coast and delivered some rainfall to the east Pilbara. Cyclone Damien formed northwest of Broome and brought flooding rain to Karratha, East Pilbara and inland Gascoyne. And cyclone Ester formed in late March bringing up to 200 mm into the inland Kimberley flooding the Fitzroy River. The resultant rain provided a reasonable wet season for the Kimberley and East Pilbara but did not lesson the dry season experienced in the West Pilbara and Gascoyne.

COVID 19 declaration created tight movement restrictions in the state. Particularly limiting access to indigenous owned properties in the north. Private veterinarians who were able to continue to visit properties as an essential service throughout the state were approached to collect some NAMP samples from sentinel and serosurvey sites when visiting properties for their other veterinary business. This has enabled a good coverage of WA with some changes to collection sites.

2. Key findings and relevance to NAMP objectives and planned actions

a. Bluetongue

During this year BTV seroconversions were detected in the Kimberley, within the BTV zone. The VNT result was strongest for BTV 16 with some indication of BTV 4 and 21 at the Kalumburu site. The monitoring during 2020 indicated a retraction in transmission in most sites along the southern border of the Kimberley compared with last year. This is likely to reflect the drier conditions in the Kimberley in 2018 and 2019. Seroconversions at the western site which defines the BTV zone border again detected one positive animal from the 30 cattle sampled.

b. Akabane

Akabane antibodies were also detected in the Kimberley this year. This distribution of Akabane seroconversions was consistent with the presence of vectors in the traps at these sites. Monitoring for Simbu viruses was carried out at six sites from the Pilbara to the southwest. All observations were negative.

c. Bovine Ephemeral Fever

Only one detection of BEF seroconversion was recorded this year at a site in the upper Gascoyne. No observations of clinical cattle were recorded.

d. Summary of virus isolation, neutralisation and PCR tests performed

PCR and virus isolation was attempted from five sites in the Kimberley. A sample from Carlton Hill sentinel site was sequenced as BTV 16 Australia A. Neutralisation tests on four sites indicated presence of BTV 16 at all sites, BTV4 at two sites and BTV 21 at Kalumburu.

e. Entomology

Culicoides brevitarsis was detected in NAMP vector traps in the Kimberley BTV zone during 2019 2020. A small number of *C.actoni* were recorded in Kununurra in January and a single *actoni* identified at Kulumburu in May. Two sites south of the Kimberley recorded catches of *C.brevitarsis*, one just south of Broome regularly collected *C.brevitarsis* and a single *C.brevitarsis* was collected in the Pilbara in May. A sentinel site near these collections, in Broome has not detected any seroconversions to BTV. The site in the Pilbara with the observed *brevitarsis* is a regular sentinel site with no seroconversions at the preseason bleed. Unfortunately this is one of the stations that destocked and a follow up seasonal bleed was not possible in 2020. Serosurvey cattle in the vicinity of the Pilbara collection have all been negative for BTV and AKA.

3. Activities completed and significance to NAMP objectives

a. Under-activity

Three sentinel sites withdraw from the NAMP program due to destocking, one in the Murchison and two in the Pilbara. Replacements herds were not found as many properties in the area were reducing stock numbers and not able to carry cattle through for follow up samples next year.

Two sites in the Kimberley have withdrawn, one due to restricting access to government organisations after an infringement notice for illegal clearing and one due to inability to muster suitable cattle.

A couple of collections have been delayed due to COVID restrictions.

b. Over-activity

A couple of replacement sites are recorded as over activity but reflect opportune sampling to complete adequate surveillance for WA.

4. Recommendations to Management Committee

Note the prolonged dry period in the West Pilbara and inland Murchison has reduced cattle availability for sampling.

Note the collection of a vector species on a property to south the BTV zone along the coast in the southern Kimberley.

Note travel restrictions associated with COVID 19 has limited access to same regular NAMP sites. Surveillance coverage was maintained through a combination of converting some sites to serosurvey sites and employing private vets to collect samples from NAMP properties or properties in the same geographic area to the NAMP property while visiting that property for veterinary services.