

FOR DISCUSSION

NAMP Technical Committee Annual Meeting 2020

Agenda Item 1.2

Last updated: 17 August 2020

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NORTHERN AUSTRALIA QUARANTINE STRATEGY (NAQS) UPDATE**RECOMMENDATION**

1. That the NAMP Technical Committee
 - a. NOTE the overview of arbovirus surveillance in northern Australia managed by NAQS for the reporting period 2019-20 (Attachment A).
 - b. PROVIDE DIRECTION on the strategic value of maintaining a sentinel herd at Seisia, Northern Peninsula Area, Queensland.
 - c. DISCUSS the value of BEF and AKA testing at NAQS-managed sentinel herd sites.
 - d. DISCUSS the budget for Kalumburu serosurveillance herd

BACKGROUND

2. The Northern Australia Quarantine Strategy (NAQS) is a program within the Australian Government Department of Agriculture, Water and the Environment (DAWE), tasked with managing an early detection strategy for surveillance of exotic pests and diseases of importance to agriculture, the environment and human health. Five sentinel cattle herds, one serosurveillance cattle herd and nine *Culicoides* trap sites across northern Australia are managed by NAQS and contribute to NAMP.

DISCUSSION

3. The draft NAQS Annual NAMP Report Jul 2019 – Jun 2020 (Attachment A) outlines the performance of monitoring of NAMP budgeted and non-budgeted herds and vector surveillance during 2019-20.
4. **Strategic value of Seisia sentinel herd?**
 - a. This herd is was established in 2010 and has been a relatively successful site in terms of getting samples consistently.
 - b. There are no cattle stations this far north; instead a new herd is recruited each year from Wolverton Station (further south in Cape York Peninsula) and moved to Seisia, Northern Peninsula Area.
 - c. The herd at Seisia has been attacked by dogs during the past 2 seasons; this current season half the herd was lost in a single night due to dog attacks. NAQS will not recruit another herd to be moved to this site unless the risk of dog attacks is adequately mitigated. The erecting of dog-proof fencing at the site has been determined to be the only feasible option, but will require significant investment (estimated \$30-40,000).
 - d. Blood collection costs have also increased over the last 12 months due to internal staffing restructures that have led to a lack of available local staff and the need to involve third-party contractors. There are no skilled contractors in the area to collect blood samples, so NAQS will also need to invest additional funding in training local people if this herd is to continue to operate.
 - e. **NAQS is seeking input from NAMP TC on the strategic value of having a herd located at Seisia / Northern Peninsula Area before deciding whether to commit to this investment.**
 - i. *Is this site considered worth keeping at all costs or could funding (NAMP and NAQS) be better spent at a different site?*

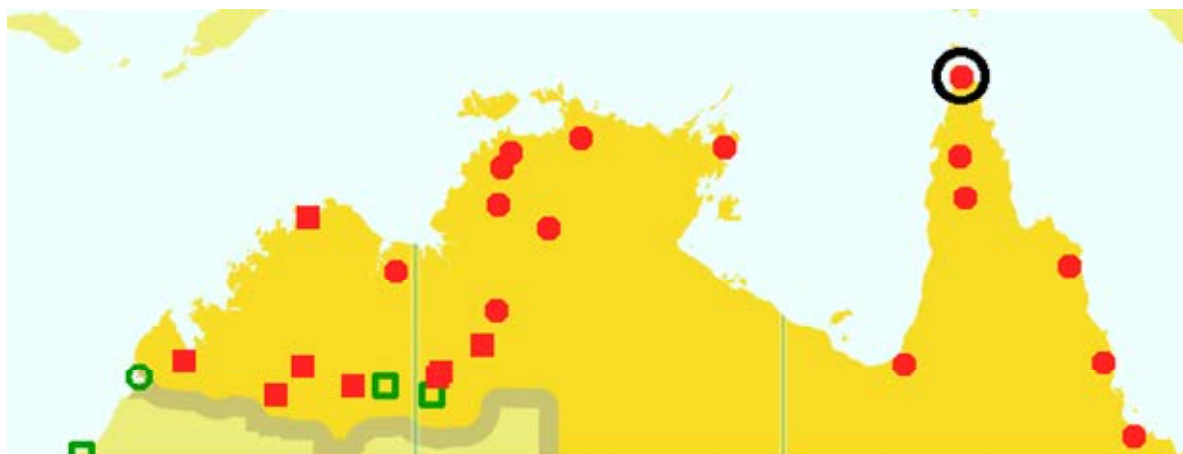


Figure 1 NAMP sentinel (red circle) and serosurveillance (red square) herds in northern Australia. Seisia site (Q335) is circled in black.

5. Value of BEF and AKA testing at NAQS-managed sites?

- a. BEF and AKA are of no strategic interest to NAQS (as NAQS is focused on exotic pests and diseases).
- b. NAQS is happy to have samples collected from NAQS-managed herds tested for BEF and/or AKA if it is of strategic interest to NAMP; however, this testing should be funded by NAMP.
- c. **NAQS is seeking clarity on which of the NAQS-managed sites are of strategic interest for BEF and AKA testing, and reflection of this in the 2020-21 operational plan and budget.**

6. Budget for Kalumburu serosurveillance herd

- a. This herd is managed by NAQS, with WA DPRID responsible for entering results into the NAMP database. This site is super-remote, however this is not reflected in the current NAMP budget for collection costs.
- b. In addition to collecting blood samples from this site, NAQS also funded and maintain the cattle yards. There is currently no farmer allowance budgeted by NAMP for this site.
- c. **NAQS is seeking agreement for the budget for this site to be updated to reflect that it is super-remote, and for a farmer allowance to be added to the budget, payable to NAQS.**

FINANCIAL IMPLICATIONS

7. Current NAMP funding partially covers the costs of NAQS managing 4/6 herds and 4/9 trap sites.

CONSULTATION/COMMUNICATION

8. NAQS surveillance strategy and operational plan is dependent on outcomes of the discussion points highlighted in this paper. Any changes to NAQS surveillance plans will be shared with relevant stakeholders.

NEXT STEPS/ACTIONS

9. As per previous point.

Attachment A: NAQS Annual NAMP report Jul 2019 – Jun 2020 – DRAFT

ATTACHMENT A – NAQS ANNUAL NAMP REPORT JUL 2019 – JUN 2020 – DRAFT**Virology*****Queensland***

Herds at the 3 sites managed by NAQS all recruit in September and then complete monthly bleeds through to the following August. Two sites (Seisia and York Downs) are partially NAMP-funded, and the other site (Merepah) is fully funded by NAQS.

The 2018-19 herds at these sites all concluded with monthly bleeds in August. All cattle at York Downs and Merepah had seroconverted to BTV; less than half of the herd (5/14) at Seisia had seroconverted (1 additional seroconversion since Jun 2019). BTV-1 was detected in all 3 herds. Both York Downs (1/7) and Seisia (3/13) herds had BEF seroconversions late in the season (i.e. post-Jun 2019); no cattle seroconverted to BEF at Merepah.

A new herd was not recruited at Merepah for the 2019-20 season as the property changed management and NAQS were advised that the property would be destocked. NAQS has since been advised that the property is no longer de-stocking, so a new herd is planned to be recruited in Sep/Oct 2020.

New herds were recruited at Wolverton (for Seisia) and York Downs in September 2019. The Seisia herd missed a bleed in October as the cattle had not yet been relocated due to lack of feed at Seisia; and again in December due to lack of available staff. Both herds missed a bleed in March due to COVID-19 impacts on staff availability.

The Seisia herd was impacted by dog attacks, with 8 cattle lost in one night in January. To date, only 2 of the remaining 9 cattle have seroconverted on ELISA; no testing has been completed to identify serotypes. This herd will continue monthly bleeds until Aug/Sep 2020. Recruitment of a new herd for this site is dependent on the risk of dog attacks being adequately mitigated.

To date, 6/17 cattle from the York Downs herd have seroconverted. Serotype 1 was not detected from these cattle on VNT; no further testing to identify serotypes has been completed. Recruitment of a new herd for this site is planned in Sep/Oct 2020.

Northern Territory

Herds at the 2 sites managed by NAQS all recruit in July and then complete monthly bleeds through to the following June. One site (Garrithiya) is partially NAMP-funded, and the other site (Gunbalanya) is fully funded by NAQS.

New herds were recruited at both sites in July 2019. The Gunbalanya herd completed 11/12 planned monthly bleeds, missing bleeds in September and December 2019 due to logistics / weather, and completing an extra bleed in February 2020. Most animals were seropositive for BTV from recruitment, with a single animal seroconverting in April 2020. No further diagnostic work has been completed to identify serotypes in this animal. Two animals remain seronegative for BTV, with results from May and June 2020 pending. BEF testing was also completed monthly for this site. Several animals seroconverted to BEF in the first half of the season; there have been no further seroconversions since January 2020 (results for May and June 2020 pending).

The Garrithiya herd completed 12/12 planned monthly bleeds. There were issues with labelling of samples which meant that some samples couldn't be accurately attributed to a specific animal. A total of 9 animals were followed through for the entire 12 months; 7/9 were seropositive from recruitment (BTV-1 and BTV-7 detected at recruitment). The remaining 2 animals remained seronegative for the whole season. BEF testing was also completed monthly for this site. All animals remained seronegative for the entire season (results for June 2020 pending).

Western Australia

NAQS manages the collection of blood samples from Kalumburu for NAMP serosurveillance. Visits are conducted up to twice a year, depending on logistical and budget constraints.

In April 2019, 28/33 cattle sampled were positive on ELISA. No BTV was detected via TaqMan PCR; 1 weak positive was detected at EMAI using the pan-BTV PCR, however the serotype could not be determined by the BTV-specific RT-PCR assays. The VNT results from this bleed suggest the predominant serotypes the cattle had been exposed to were BTV 4, 16 and 21.

In June 2020, 24/31 cattle sampled were positive on ELISA, with 2 of these same cattle also positive on TaqMan PCR. Further results (RT-PCR, VNT +/- VI) are pending.

Table 1 Summary results to date from NAQS-managed sentinel and serosurveillance herd sites for the 2019-20 season.

SITE	Number of bleeds budgeted (NAMP)	Number of bleeds completed (planned)	Total number of individuals seroconverted to BTV	BTV serotypes identified
Q145 (York Downs)	6	9 (10 [#])	6	None identified
Q335 (Seisia)	6	7 (10 [#])	2	None tested
T080 (Garrihiya)	6	12 (12)	0	BTV-1 BTV-7
T121 (Gunbalanya)	0	11 (12)	1*	None tested
W012 (Kalumburu)	4	2 (2)	52/64 ^{##}	BTV-4 BTV-16 BTV-21**

[#] Queensland herds run for 12 months from Sep-Aug; Jul-Aug results for these herds not yet available.

* results for May and June 2020 pending.

^{##} refers to number seropositive rather than number seroconverted – serosurveillance herd

**results from June 2020 pending

Entomology

Queensland

NAQS manages *Culicoides* trap collections from the same 3 sites as the NAQS-managed sentinel herds in Queensland. In 2019-20, only the Seisia (Q335) and York Downs (Q145) sites completed trapping as the Merepah herd (Q295) was destocked.

- Traps were set 10/12 times at York Downs and 8/12 times at Seisia.
- No exotic species were detected.
- *C. brevitarsis* was the only vector species collected at Seisia.
- *C. actoni* and *C. wadai* were collected along with *C. brevitarsis* at York Downs.

Northern Territory

NAQS manages the collection of blood samples from Kalumburu for NAMP serosurveillance. Visits are conducted up to twice

Light traps set at 5 locations in the Northern Territory were managed by NAQS. One of these, Howard Island, was set opportunistically on only 1 occasion; one Garrithiya, is a formal NAMP site, while the others – Cobourg Peninsula, Gunbalanya and Melville Island – were established by NAQS and are regularly maintained by local co-operators. These 3 sites managed by NAQS were established to address the extreme risk of the arrival of aerial plankton identified by wind simulation models furnished by Debbie Eagles at CSIRO.

- Traps were set 12 times (100%) at Cobourg Peninsula and Garrithiya, and 11 times (92%) at Melville Island and Gunbalanya.
- The most significant result from these collections was the detection of 4 and 2 specimens of *C. nudipalpis* respectively at Cobourg Peninsula on 29 Nov 2019 and at Gunbalanya on 10 Feb 2020. This species is a target of both the NAMP and NAQS programs.
- Additionally, detections of multiple species of endemic vector species were made at all sites excepting Howard Island.

The detection of multiple species of endemic vectors at the four monitoring sites and the target species at two of these indicates that the placement of these traps is appropriate and, in the case of *C. nudipalpis*, provided early warning of this species at two separate sites prior its detection at any of the official NAMP sites.

Table 2 Summary results to date from NAQS-managed *Culicoides* trapping sites for the 2019-20 season.

SITE	Number of trap collections budgeted (NAMP)	Number of trap collections completed (planned)	Significant findings	BTV vectors identified
Q145 (York Downs)	12	10 (12)	N/A	<i>C. brevitarsis</i>
Q335 (Seisia)	12	8 (12)	N/A	<i>C. brevitarsis</i> <i>C. wadai</i> <i>C. actoni</i>
T080 (Garrithiya)	12	12 (12)	N/A	<i>C. brevitarsis</i> <i>C. actoni</i> <i>C. wadai</i>
T121 (Gunbalanya)	0	11 (12)	<i>C. nudipalpis</i>	<i>C. brevitarsis</i> <i>C. actoni</i> <i>C. fulvus</i>
T123 (Cobourg Peninsula)	0	12 (12)	<i>C. nudipalpis</i>	<i>C. brevitarsis</i> <i>C. wadai</i>
T130/T135 (Melville Island – Taracumbi and Tuyu Track)	0	11 (12)	N/A	<i>C. brevitarsis</i> <i>C. wadai</i>
T142 (Howard Island)	0	1 (0)	N/A	N/A

