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NAMP TECHNICAL ANNUAL MEETING 2025 MEETING RECORD

WEDNESDAY 21-THURSDAY 22 AUGUST 2025

In attendance:

Bronwyn Hendry (AHA - Chair)	Anna Genge (NAQS – virtual)
Sheaaz Sakur (AHA – Minutes)	Deborah Finlaison (NSW)
Mikhaila Nye (AHA)	David Britton (NSW)
Emily Sears (AHA)	Peter Kirkland (NSW)
Mark Cozens (AHA – Day 2 in part)	John Bingham (NT)
Corrie Croton (DAFF – proxy)	Lawrence Gavey (Qld)
Helen Walker (DAFF – Day 2)	Neelima Nair (Qld)
Vidya Bhardwaj (CSIRO ACDP)	Natalie Leo (Qld – ento proxy)
Tristan Reid (CSIRO ACDP – virtual)	Lynley Johnson (SA – proxy)
Ellen de Vries (CSIRO ACDP – virtual)	Debra Grull (Tas. – virtual for Item 3.8)
Megan Poon (CSIRO ACDP – virtual)	Berwyn Squire (Vic.)
Glenn Bellis (Ref. Ento.)	Zoe Chatfield (WA)
Cassandra Wittwer (NAQS)	Catherine Hallatt (LiveCorp)
Luke Watson (NAQS)	Charlotte Burgoyne (NAQS)

Apologies: Adam Robinson (DAFF), Debbie Eagles (ACDP), Celia Dickason (SA), Leanne Nelson (Qld).

Objectives of meeting:

1. Review monitoring results 2024–25 and finalise a monitoring plan for 2025–26
2. Develop a technical strategy and monitoring plan for 2026–27

DAY 1 WEDNESDAY 21 AUGUST

Welcome and introductions (B. Hendry):

- The Chair welcomed participants to the 2024 National Arbovirus Monitoring Program (NAMP) Technical Committee (TC) meeting, including those joining virtually.
- Noted highlights from the 2024-25 including:
    - **China delegation visit:** In February, a Chinese delegation visited Australia to discuss the resumption of genetic material imports after a five-year pause. During the visit, AHA and NAMP representatives presented details of the National Arbovirus Monitoring Program and Australia's expertise in relation to bluetongue virus. The visit highlighted the soundness of the NAMP zone. As a result, China now recognises the former temporary bluetongue zone in Northern Victoria and Southern NSW as part of the Bluetongue Virus Transmission-Free Zone, effective from 6 May 2025.
    - **Zone changes:** There were two expansions of the BTV transmission zone this year. One near Windorah in western Queensland in December 2024 and the second in mid-eastern border region of the NT in January 2025. The TC was acknowledged for working together for prompt endorsement of these zone changes.
    - **NAMP review:** The 5-yearly NAMP review was completed in May. Technical review was conducted by Ausvet while the cost-benefit analysis by funding party was led by economist Dr Ben White. The NAMP Steering Committee (SC) is reviewing

recommendations and will share details once approved. TC members were thanked for their insights during the review process.

The year in review

1.1 Progress on 2024 meeting action item list (S Sakur)

- Spoke to the action register and noted the status of all action items from the August 2024 meeting.
- Actions 1, 3-8, 10-13, 15-21, 23 and 24 are complete.
- Action item 2 is currently in progress and will be carried over with dubious records being identified and work still to be done to locate the samples for re-identification.
- Action item 9 is complete but pending upload due to system issues which AHA is addressing with Ausvet.
- Action 14 is complete, with Attachment A provided, though no information on Palyam virus was able to be sourced.
- For Action 15, NT has reinstated monthly BEF testing due to difficulties interpreting quarterly results for trend analysis. Qld considered reducing BEF/Akabane testing in recruitment bleeds but chose not to implement due to lab advice on timing of recruitment bleeds and data inaccuracies in follow up testing. NAQS continues BEF testing opportunistically and questioned its ongoing relevance. LiveCorp will confirm BEF testing requirements in northern NAQS sites with Cattle Australia. The committee discussed the value of BEF testing, with Qld noting its importance for industry risk communication. NSW suggested that clinical investigations are proving more valuable than general surveillance using serology of healthy animals for detecting BEF. Operational challenges were noted due to BEF's short detection window, and further discussion regarding BEF testing will continue under agenda item 5.6.
- Action 22 is complete with the addition to the wiki reports actioned post-meeting.

Conclusion

The Committee acknowledged the update on the 2024 action items, noting that items 2 and 9 remain in progress. The importance and future direction of BEF testing were actively discussed, with further consideration to be addressed under the monitoring strategy (agenda item 5.6).

Action items:

1. *Identify dubious records in NAMP data and jurisdictions to confirm whether corresponding samples can be re-identified.*

Australian Government and Industry Reports

2.1 DAFF NAMP and Australian livestock market access (C. Croton)

- Spoke to the paper.
- The Committee discussed BTV-8 testing in relation to Indonesia's requirement for a declaration of freedom from the virus serotype. NT confirmed annual targeted testing using a separate BTV-8 assay. P. Kirkland noted that BTV-8 must be tested on a separate assay and can't be incorporated into a multiplex. ACDP also noted that they undertake whole genome sequencing of between 50 and 60 samples per year, which would be expected to detect a new incursion of BTV-8, if present. (Note that historical capillary sequencing methods only excluded BTV-8 in samples that tested negative to other serotypes).

- DAFF clarified that Indonesia does not request detailed testing data, with LiveCorp noting compliance is achieved by stating that we have the NAMP in place as such we are free of BTV-8.

2.2 LiveCorp Update (C. Hallatt)

- Spoke to the presentation.
- Indonesia accounts for 56% of cattle exports, expected to rise to 550,000 head this year. This is followed by Vietnam (slaughter cattle) and China (breeder cattle).
- China's oversupply of heifers is impacting southern producer prices, compounded by a 4-year drought.
- Israel's imports dropped 79% due to war-related shipping constraints – alternative route around Cape of Africa is costly.
- Saudi Arabia is a potential new market but requires BTV freedom; NAMP will be used to support market access.
- Live sheep exports declined due to 2020 regulations, resulting in reduced stocking density, and loss of double-decker ships (not approved by the Australian Certificate for the Carriage of Livestock (ACCL). Kuwait sources 90% of sheep meat from Australia the policy changes may affect supply.
- LiveCorp has implemented FMD/LSD programs in Indonesia, focusing on biosecurity training and smallholder vaccinations. Market trend shifting from maintenance to growth; with countries prioritising self-sufficiency (e.g. Middle East).
- Brazil's herd rebuild is limiting its supply.
- Mexico re-entering market since 2017; LiveCorp negotiating feeder cattle protocol (target: 100,000/year).
- Rising cattle prices may pressure price-sensitive markets like Indonesia. Indonesia showing interest in dairy cattle for school milk program.
- Committee advised to keep Indonesia protocol negotiations confidential.
- NAMP feedback is critical to trade; enabled over $5 billion in exports (2020–2025), covering 60–70% of total exports across 9 of 30 markets.
- Presentation will be circulated to the Committee

Conclusion

The Committee noted the updates provided by the Commonwealth and Industry and the importance of the NAMP in relation to trade negotiations and trade protocols.

Coordinator reports (findings and recommendations resulting from the 2024-25 season)

3.1 WA virology and entomology (Z Chatfield and L Watson)

- Spoke to the report.
- Noted that the planned retraction of the BTV zone around W151 did not go ahead due to positive results in October 2024. Also expecting late season BTV detection at site W130.
- No vector species found outside the BTV zone in WA, except one *C. brevitarsis* specimen at Winning Station, likely wind-dispersed and contributing to intermittent, low-level Akabane detections in the region. . Noted to the Committee this has occurred previously.

3.2 NT virology and entomology (J Bingham and L Watson)

- Spoke to the report.
- Minor southward zone changes reported in January 2025 following seropositive detection on a pastoral property northeast of Alice Springs.

- NT has expanded PCR testing to all post-seroconversion samples across herds, replacing routine VNTs on final samples. Berrimah Vet Lab now performs PCR testing.
- NT recommended supporting whole genome sequencing (deep sequencing) and analysis of NAMP samples to enhance surveillance planning. Additional funding is also being sought to expand qPCR capacity for increased post-seroconversion testing.
- The NT recommends NAMP consider funding agistment fees as a separate budget item to support its sentinel cattle program. The request for additional funding is focused on animal care and providing supplementary feeding. The Committee raised concerns about this and how to avoid setting a precedent for other jurisdictions facing drought or hardship where supplementary feeding would be required. AHA, NAQS and NT to have offline conversation regarding increased financial support for the NT research station herds.
- *C. nudipalpis* continues to be detected in high numbers on Crocker Island, prompting ongoing trapping efforts. The species has also been found at Beatrice Hill Farm and Murgunella Swamp, with numbers consistent with 2020. Further assessment is needed to determine whether this indicates local establishment or wind dispersal. As a sister species to *C. imicola*, *C. nudipalpis* is noted be a potential BTV vector.
- The Committee discussed the potential inclusion of *C. nudipalpis* in the colour wheel. Currently, 9 vector species have been implicated in Australia, but only 4 are represented on the wheel. AHA to explore adding a new category for "minor vectors," expanding the wheel to five segments. Suggestion of possibly using less vibrant colours to visually distinguish minor vectors from primary ones.

Action items:

2. *AHA to investigate expanding the vector colour wheel displayed on the interactive NAMP map to include minor vectors.*
3. *AHA, NAQS and NT to hold offline scoping discussions regarding increased financial support for the Northern Territory research station herds.*

3.3 Qld virology and entomology (L. Gavey and N. Leo)

- Spoke to the report.
- First detections of *C. wadai* at Allora and Gatton indicate inland expansion in southern Queensland. The 2024/25 season showed increased vector abundance and diversity compared to the previous year.
- A very wet season, including a tropical cyclone, impacted southeast Queensland, leading to widespread infestations and virus infections. Weather conditions hindered site access but supported pasture growth and cattle restocking in the southwest. Tick outbreaks in southwestern Queensland over recent years have also affected farm access and farmer willingness to muster cattle for testing.
- Site Q413, historically negative, returned positive results this year, suggesting southwest movement of vectors. Positive sero-survey at Q375 (border zone) led to a zone boundary change in southwest Queensland. Due to increased risk to South Australia, a new herd was recruited for sero-surveillance near the SA border.
- A single sample from Hervey Range tested positive for BTV-5 and BTV-9 antibodies, likely due to cross-reaction. All related samples have tested negative so far; further testing is ongoing.
- Decline noted in sample submissions from practitioners investigating BEF-like syndromes.
- Previous challenges due to staff turnover have largely been resolved.

3.4 NAQS virology and entomology (C Wittner and L Watson)

- Spoke to the report.
- York Downs continues to provide consistent and reliable monthly sampling (10–15 samples/month). However, these samples are believed to be currently underutilised. The Committee was asked to consider alternative uses or molecular analysis for these samples.
- Gunbalanya, Garrithiya, and Kalumburu present significant challenges for sample collection:
    - Garrithiya has shown improved reliability but obtaining seronegative animals remains difficult.
    - Gunbalanya faces logistical issues, particularly during the wet season, and frequent dog attacks complicate sampling.
    - Kalumburu is costly to access, with unpredictable sampling outcomes. Feed costs are nearly double due to shipping expenses. Water shortages and lack of staff to manage troughs are ongoing concerns. Responsibility for cattle care remains unclear.
- Despite these challenges, the NAQS site locations are well-positioned, consistently yield interesting results, and have strong local stakeholder interest. There are no viable alternative sites currently to consider but are looking to utilise serosurveys when monthly sampling us not reliable.
- A local Kalumburu community member has expressed interest in supporting light trapping and cattle work. There is potential to engage Indigenous rangers for assistance with yard maintenance, fencing, and water management. Recent changes in the Kalumburu Aboriginal Corporation include a new ranger group and staffing updates at the mission.
- Additional surveillance activities were noted around Crocker Island to monitor the movement of *C. nudipalpis*. Ad hoc trapping was conducted on South Goulburn Island, but no specimens were found.
- Anna Genge (NAQS Entomology) will attend the Australian Entomological Society Conference in December 2025. She has submitted an abstract detailing the detection of *C. nudipalpis* on Crocker Island, which will be presented as a poster. The abstract is included in the NAQS coordinator report. Endorsement by the TC of the poster is being sought. DAFF is to confirm whether *C. nudipalpis* is a notifiable species.

Action items:

4. *NAQS to share the abstract and poster on C. nudipalpis with the TC for review and endorsement prior to publication.*
5. *DAFF to determine if detection of C. nudipalpis is notifiable to the World Organisation for Animal Health and whether this has occurred.*

3.5 NSW virology and entomology (D Finlaison and D Britton)

- Spoke to the report and presentation.
- Detection of *C. brevitarsis* was significantly lower compared to the previous season. This decline is likely due to extreme weather events, including flooding and cyclonic activity, which can disrupt trapping efforts.
- *C. warangi* was detected in Victoria, marking a notable observation.
- *C. smeei*, a species originating from eastern Papua New Guinea (PNG), was detected. Although previously recorded in NSW, its identification has been cautious due to the geographical distance from PNG. Despite being thought to be a different species, it is currently listed as *C. smeei* in the database.
- No clinical disease was observed in sheep this year.

- Three BTV serotypes were detected this season (BTV-1, BTV-16, and BTV-21). The increase from 2 to 3 endemic serotypes in NSW suggests the need for herd immunity against 3 serotypes may increase the frequency of BTV transmission across larger areas in NSW. Notably, the increase of BTV-21 transmission this season suggests existing immunity against BTV-1 and BTV-16 has allowed BTV-21 to dominate in regions where this serotype has not been detected in recent years.
- Noted challenges with resourcing for entomology identification due to the size of the EMAI team (2-3 staff).

3.6 Vic virology and entomology (B. Squire)

- Spoke to the report.
- Rainfall across most of the state was below average, prompting the allocation of drought relief funding across the state.
- Challenges were noted in production management practices, particularly regarding the recruitment of one herd, as due to de-stocking, the herd was unavailable for its follow-up bleed. It was suggested that animals from the same farm, though not part of the original recruitment herd, could be included as a serosurvey. A request was made to AHA to clarify this approach into the NAMP Operations Plan which has been done.
- An amendment was proposed for the Victoria Coordinator Report to include the detection of *C. warangi*, as reported by NSW's D. Britton.

Action items:

6. Vic to amend coordinator report to include the C. warangi detected in Victoria.

3.7 SA virology and entomology (L Johnson)

- Spoke to the report.
  Extreme drought conditions have significantly impacted operations, resulting in two sites de-stocking cattle and being unable to participate. Lack of communication from property owners, and challenges with mustering crews has also impacted sampling. Additionally, flooding from Queensland has introduced further complications. This has also impacted entomology operations. While drought conditions are showing slight improvement, recovery is expected to be slow. Many producers have already de-stocked, which will continue to affect participation and herd availability.

3.8 Tas virology and entomology (D Grull)

- Spoke to the report.
- Tasmania has been experiencing drought conditions for the past two years.
- No seroconversions were detected in Tasmania's single sentinel herd for BTV, AKA and BEF, aside from one inconclusive BEF result.
- While a NAMP trap is currently located on Flinders Island, Tasmania has submitted a request to the NAMP TC to consider placing an additional trap on King Island. King Island is predominantly home to beef cattle, and the proposed trap would help identify local vector species and serve as an early warning system for competent vectors.

3.9 ACDP virology (T Reid)

- Spoke to the report.
- Traditionally, serotyping by sequencing has relied on capillary sequencing of specific genome segments, which allows for serotype identification but limits phylodynamic analysis. ACDP is

now transitioning to Whole Genome Sequencing (WGS) with serotype designation. WGS requires a larger sample volume, and the Committee is requested to ensure at least 3 mL of uncoagulated blood is submitted to ACDP for standard NAMP testing, preferably in EDTA tubes (though lithium heparin is still acceptable). Virus isolation will continue, although isolate typing is being reduced due to increased reliance on WGS.

- The feasibility of using KC cells is being explored as an alternative to BTV isolation in embryonated chicken eggs (ECE), which raises animal welfare concerns. KC cells and ECE methods are now being run in parallel to generate comparative data supporting a transition away from ECE. KC cell lines are already established internationally.
- Serological reactivity to BTV-5 and BTV-9 were detected in a single animal in Harvey Range, QLD. These serotypes share strong antigenic similarity and cross-reactivity. No further evidence of exposure was found in other animals or blood samples tested via serology and PCR. The significance of this serological reactor is unclear however there is insufficient evidence to support a conclusion of BTV-5 or BTV-9 transmission in this herd. ACDP will maintain ongoing surveillance for these serotypes in Qld.
- A surveillance herd in West Kimberley showed a high prevalence of BTV ELISA reactivity during initial screening.
  Extensive testing failed to identify the causative virus, with the conclusion that an unidentified non-BTV orbivirus was likely the cause of the observed serological reactivity. Further surveillance is recommended.
- A NT sample that could not be typed using serotype-specific PCRs was sent to ACDP for further characterisation and was identified as BTV-20. Data has been shared with EMAI to support refinement of serotype-specific PCRs and ensure accurate detection of circulating serotypes.
- BTV-7 PCR-positive animals were not detected via Virus Neutralisation Tests (VNT). The ACDP serology lab is conducting further validation. Initial findings suggest no significant change in BTV-7 antigenicity based on the prototype isolate, but the virus may not be triggering a strong neutralising antibody response, potentially reducing VNT sensitivity.
- Peter K referenced a published method for bovine herpesvirus isolation involving 24-hour incubation at 37°C, which enhances neutralising antibody detection that could be used for BTV-7. He also noted success using C6/36 cells alongside the KC cell line for direct culture of PCR-positive samples.
- Cass W raised the possibility of moving away from VNT, which indicates exposure and if WGS can provide equivalent information. ACDP clarified that while WGS is valuable and require capturing live infection, VNTs still play a role, especially in cases where regular sampling is not feasible.

3.10 Reference entomology (G Bellis)

- Spoke to the report.
- No exotic *Culicoides* species were detected.
- The female *Culicoides* identification key, completed last year, is currently being converted into a manual. It will initially be released as a PDF, with plans for hard printed copies next year after users have had time to trial it.
- Work has begun on the male *Culicoides* key and manual with the aim to compile the manual next year, following the rollout of the female key.
- A Lumpy Skin Disease (LSD) DAFF-funded project was undertaken in Thailand, assessing the potential role of *Culicoides* species as vectors of LSD. Once the report has been cleared by the Thailand government it will be shared more widely.

3.11 NAMP Activity Summary 2024-25 (M Nye)

- Spoke to the summaries in Appendix A (page 6 and 7) of the draft Management Report.
- Once final sampling data is uploaded, adjustments will be made, and the updated report will then be circulated to the TC for confirmation.
- Committee members were asked to ensure that the activity numbers in the report align with their own records. Any instances of underactivity should be reflected in their Coordinator Reports, which will be incorporated into the Management Report for submission to the SC.

Conclusion

The Committee noted the updates provided by the Jurisdictions, NAQS, ACDP and the Reference Entomologist.

NAMP reporting

4.1 NAMP Annual Publication Plan (S Sakur)

- Spoke to the presentation
- Two NAMP articles were published—one in AHSQ Q4 based on the Annual Report, and another on the Farm Biosecurity website, also featured in an upcoming newsletter.
- Development of the 2024–25 NAMP Annual Report begins in early November. First draft to TC in late November (1.5-week turnaround), with a supplementary review in January. Final design review in late January (3–5 days), SC clearance by mid-February, and printing/distribution in early March.
- Efforts are underway to better integrate NAMP data into AHSQ. Current reporting includes sentinel herd testing and positives. Plans to expand include serosurvey data and *Culicoides* trapping events. New layout includes three tables with brief context: sentinel herd serology, serosurvey herd serology, and trapping events. Draft planned for AHSQ Q2 (Apr–Jun); mock-up to be shared with TC in early September for feedback.
- Committee raised concerns about showing positives without maps. Agreed to keep data high-level and include a note that all positives were within the transmission zone. Suggestions included adding a column for total insects collected and clarifying table descriptions (e.g. number of trapping events).
- Communication analytics show cumulative downloads of the NAMP Annual Report from AHA's website. Email campaign data shows increased recipients and open rates, but a decline in click rate in 2023–24, possibly due to changes in email layout. Other influencing factors include timing, subject lines, and seasonal trends.
- Top countries by engagement varied: 2021–22 and 2022–23 saw Australia, US, and Israel leading; 2023–24 saw US at the top, with New Zealand and Germany newly engaged. This may relate to recent trade policy changes allowing US beef imports.
- As of 12 May 2025, the NAMP collaborator brochure had 190 downloads. QLD requested a poster format for online use of the brochure.
- NT requested annual and historic prevalence maps for BEF, BTV, and Akabane. AHA will take this offline with NT and provide maps with respective date ranges. QLD raised interest in BTV serotype mapping with discussion to continue tomorrow.
- AHA to monitor media coverage of the NAMP article in AHSQ.
- Discussion on mapping significant vectors (e.g. possible to reselect combinations of 8 vectors). AHA is exploring database solutions and platforms for future vector-specific mapping.

Action items:

7. *AHA to incorporate suggested edits to the NAMP section in the AHSQ and circulate the revised version for review during the data validation process.*
8. *AHA to work internally with Comms team to see media pickup of the NAMP article recently featured in the AHSQ Q4 2024.*
9. *AHA to work internally with Comms team on how to make the NAMP collaborator brochure more electronically accessible.*
10. *AHA to work with NT regarding display of historic annual distribution maps for BEF, BTV, Akabane.*

Conclusion

The Committee noted the schedule for publication of the NAMP Annual Report and the integration efforts with AHSQ, including expanded data presentation with feedback to be implemented and a revised version to be circulated. Additional discussions covered mapping requests, communication analytics, and future improvements to vector surveillance and stakeholder engagement tools.

DAY 2 THURSDAY 22nd AUGUST

Prospective technical strategy (including proposed changes to monitoring for 2025-26 and 2026-27)

5.1 Post-seroconversion BTV detection within a multi-stereotypic ecosystem (J Bingham)

- Presented findings from a study investigating post-seroconversion BTV infections using qPCR.
- One herd (10 animals) was sampled monthly over a season. Results showed post-seroconversion infections were common and diverse, suggesting current testing likely missed later infections. For example, BTV-4 and other serotypes were only detected after initial seroconversion, with dominant serotypes shifting over the season.
- Viral RNA (VP7 and VP2) can persist for months, but no optimal sampling time was identified. Testing only the final bleed missed earlier infections, as later infections may suppress earlier RNA signals. This supports a more randomized sampling approach post-seroconversion.
- Current testing may not detect all BTV serotypes, especially exotic ones. Molecular assays (PCR) are needed to improve detection accuracy and cost-effectiveness. Existing systems rely too heavily on pattern recognition, which may not be sufficient for comprehensive surveillance.
- Peter K noted that refining the exotics we are looking for based on what is circulating in our region could be considered to support a more targeted and cost effective approach.

5.2 Whole genome sequencing of BTV (E de Vries)

- Presented an overview of WGS and its advantages over traditional capillary sequencing, which requires prior knowledge of the target and yields limited data. WGS, particularly through Next Generation Sequencing (NGS), enables high-throughput, full-genome analysis, offering deeper insights into virus evolution, mutation tracking, and epidemiology.
- Preliminary phylogenetic work revealed multiple introductions of BTV segments into Australia—information only detectable through WGS. This method can help answer key questions about reassortment and viral persistence and improve understanding of reservoir species and historical origins.
- WGS provides more comprehensive data than serotype-specific VNTs and supports future projections of viral movement. Sharing data in platforms like NextStrain enhances contextual understanding of virus spread.
- Preferred samples are 3 mL of uncoagulated blood in EDTA tubes; sequencing sensitivity is best below Ct 30, with acceptable results up to Ct 32.

- Glenn B raised the inclusion of insects in the scope, and Ellen V noted interest but uncertainty around project boundaries. Ellen V to circulate the presentation to the Committee.

5.3 Changes to ACDP BTV sequencing (V Bhardwaj)

- Presented a proposed update to BTV serotyping workflows, highlighting limitations of current VNTs—they're time-consuming, costly, and less effective for end-of-season analysis. VNTs detect incursions but don't provide timely or comprehensive insights into BTV dynamics.
- The new workflow for sentinel suggests using multiplex PCRs for BTV PCR-positive sentinel samples and VNTs only for PCR-negative ones. Noting that this testing is to be done at the respective jurisdictions designated laboratory and not at ACDP. There are three multiplex PCRs each with 4 serotypes, plus BTV 4 and 8. For Northern herds, all seropositive samples should undergo multiplex PCRs at the start, middle, and end of the season to capture multiple incursions.
- Virus isolation will be reserved for selected samples to support WGS and biobanking.
- The new workflow for serosurveys/NAQS, ELISA-positive samples will follow a similar workflow: PCR first, then multiplex PCRs if positive, or VNT if negative.
- ACDP can process two WGS batches per year (March and end-of-season), selecting 40–60 samples in consultation with jurisdictions. A biannual report will include phylogenetic trees, virus classification, mutation tracking, and movement insights. Sequence data will be added as an appendix, as it cannot yet be uploaded to the database.

5.4 Subsampling large insect collections discussion (G Bellis and B Madin)

- Light traps on cattle farms are used to estimate the diversity and presence of *Culicoides* species, helping distinguish between endemic and exotic species. Under good conditions, traps can collect large numbers of insects; midges are sorted and identified, with around 500 midges sampled to statistically estimate species diversity and abundance. The remaining sample is scanned to confirm no additional species are present, providing confidence in detection without needing to examine every insect.
- Since 1975, NAMP has recorded over 80,000 collections. Trapping aims to detect new introductions, monitor species distribution, and understand the ecology of *Culicoides*, especially those linked to BTV transmission. Sampling must remain random to ensure equal chances of detecting any species present. Reliable detection requires estimating abundance and prevalence, with a 95% confidence threshold (1 in 20 odds) guiding sample size.
- Detection sensitivity depends on insect presence and replication in samples. While light microscopy is useful, barcoding and high-frequency sequencing (e.g. NGS) offer more precise identification and can detect viruses simultaneously.
- Noting that site-specific thresholds of detection may vary—lower in endemic areas (NSW, southern QLD), higher in northern regions with fewer insects.
- Discussion included improving trap design (e.g. mesh to exclude large insects), refining sorting methods, and balancing detection vs. abundance scanning. The biggest investment remains sorting from fly catches, ideally around 1,000 insects should be selected to proceed to identification to support efficient processing.

Action items:

11. *AHA, Ausvet, Glen and entomologists to form a working group to explore subsampling methods for large insect collections, with the aim of developing a suitable protocol.*

5.5 Strategic virology testing and reporting into database discussion

BTV serotype detection across the season – an NSW Perspective (D Finlaison)

- Seasonal BTV transmission typically begins with seroconversions detected via ELISA in January, with the last new detections occurring around June. Serotypes 1, 16, and 21 are regularly transmitted—can be within the same herd in a single season. Herds in transmission zones are sampled monthly or quarterly, with ELISA performed pre- and post-seroconversion.
- BTV RNA can persist in blood for up to six months post-infection, often associated with red blood cells. Animals with higher initial Ct values on pan-PCR tend to clear the virus sooner. Duration of detection varies by serotype and test sensitivity, and secondary infections may shorten viremia from earlier serotypes.
- Monthly sampled herds (typically in endemic zones) are key for early detection. ELISA is performed at each collection, with pan-PCR at seroconversion. In NSW, initial detections are followed by multiplex PCRs (targeting serotypes 1, 2, 16, 21), with additional multiplexes and BTV-4 tested at end-of-season. Quarterly herds follow the same principles, though first detections usually occur later (e.g., April).
- A strategic question remains: if first detection occurs early (Jan–Feb), should all multiplex PCRs be run at the start or only at the end of the season? There's a risk of missing undetected serotypes, which could have implications for disease monitoring in sheep.

Multiplex PCR vs VNT (Committee)

- ACDP raised the transition from capillary sequencing and VNT to multiplex PCR for routine BTV serotyping.. NSW and BVL have already adopted multiplex PCR, and if jurisdictions agree, the current sending of samples to ACDP for serotyping can cease, allowing ACDP to focus on WGS.
- Budget for 2025–26 is already set, so major changes would need to be planned for 2026–27. QLD supports the shift to multiplex PCR but noted concerns of setup costs and the need for budget support for current financial year. WA's lab capacity is not yet ready for multiplex PCR, but they may begin with serotypes relevant to their region.
- Multiplex PCR is more efficient and informative than VNT, though cross-reactions can still occur. Running a full panel of VNT has been found to be more expensive than a multiplex PCR. ACDP does not want to lose the capabilities in VNT testing but would like such testing to be targeted.
- Committee discussed original blood samples vs isolates for WGS, with possibility of isolates losing sequence variation. ACDP mentioned the potential to lose information with isolates, but a side-by-side comparison has not been undertaken.
- If transitioning from VNT to multiplex is agreed, discussions between ACDP, Qld and WA will need to occur. This change is not expected to occur over night. NSW has also offered interim support to QLD and WA during the transition. Qld noted they do have one multiplex PCR (1, 16 and 21), with concerns regarding the other multiplexes.
- Consensus was reached to proceed with the transition to multiplex, and AHA will work on database reporting and reimbursement standards. QLD suggested a standard workflow to ensure consistency across jurisdictions, with updates to the operations plan.
- ACDP proposed a new reporting field for WGS, though details are still being developed. QLD recommended a separate WGS sheet, but AHA is moving toward a unified data standard for NAMP.
- Regarding sample tubes, ACDP confirmed both EDTA and lithium heparin are viable if filled correctly. Underfilled lithium heparin tubes may inhibit PCR. Cass noted that vacuum tubes subject to heat reduce vacuum ability ultimately affecting sample volume.

Action items:

12. *ACDP/NSW to work with WA and QLD to discuss the transition from VNT within-jurisdiction multiplex PCR.*
13. *ACDP, QLD, NSW, NT, WA and NAQS to continue discussions within each jurisdiction to develop a standardised workflow for identifying serotypes by PCR (including multiplex) at the jurisdictional-level, and sequencing of selected samples at ACDP, including guidance on the most suitable sample types for samples going to ACDP for sequencing (e.g. lithium heparin or EDTA), sample selection, standardised testing, reporting of sequence data and data sharing agreements*
14. *AHA to provide draft of updated data standards for virology testing to the Committee for feedback and implementation.*
15. *AHA to work with Ausvet around budget allocation for new virology testing arrangements (including multiplex and whole genome sequencing)*

NAQS monthly bleeding of Garrithiya and Gunbalanya (C Wittwer and C Burogyne)

- Due to challenges in obtaining consistent samples, monthly bleeding herds at Garrithiya and Gunbalanya are being transitioned to serosurveys. Instead of relying on station managers, either Charlotte or Cass will conduct the sampling directly.
- Samples are typically sent to EMAI for multiplex PCR and ACDP (around 50 samples), with VNT testing done on seropositive but PCR-negative samples. It was noted that transition to sending samples to BVL is more cost-effective due to lower freight costs.
- Garrithiya is expected to participate in the December muster, while Gunbalanya's involvement is still to be confirmed.

Use of propylene glycol for fixing insects (J Bingham)

- The committee discussed the use of propylene glycol for insect preservation. While effective, it was noted that immersion can be slow and fiddly, with insects tending to float. Alcohol-based alternatives were considered but not used due to health and safety concerns. Propylene glycol remains preferred for its ease of transport, lower cost, and good preservation qualities.
- NSW and Qld shared that they rinse insects with tap water using sieves to remove propylene glycol, then transfer them to ethanol for observation.
- AHA to add extra clarification sentences of the washing step within the Operations Plan.

5.7 NAMP-Info database management system update (E Sears)

- The Central Animal Health Database, which supports NAMP, has evolved over 20 years into a scalable and cost-effective platform for national surveillance. Recent work focused on cybersecurity and infrastructure upgrades, with ongoing efforts to implement single sign-on using Microsoft or Google accounts.
- These updates have stabilised the system, allowing AHA to begin consulting with members and program committees to plan future improvements. AHA engaged Accelio to lead consultations via surveys, workshops, and one-on-one sessions with CVOs; a final report is expected soon. Broader member engagement will continue, including updates during Members Engagement Week.
- AHA aims to build on the Central Animal Health Database, a cloud-based platform that continues to support surveillance, over the next 5–10 years, enhancing data sharing and analysis. Now is the time to raise NAMP-specific priorities to help guide future development.
- Suggestions included species distribution maps for easier tracking, automated alerts for unusual entomological detections (e.g. first detection in years), and improved serotype mapping. The Chair encouraged the committee to continue sharing ideas to help shape future priorities.

5.6 NAMP monitoring strategy discussion (M Nye)

- Committee agreed to a new Qld serosurvey site on the SA–QLD border for 2025-26, for approval from the SC as ongoing.
- NSW proposed increasing PCR and virus isolation (VI) testing which will be discussed further during the virology testing subgroup to provide a proposal to AHA to take to the SC.
- Following the acceptance from China for the zone free status around Campaspe, Vic to look to replace one of the two Campaspe site with the approved additional site on the edge of the zone boundary (V074).
- Tasmania requested an entomology site on King Island in addition to the site on Flinders Island. The committee requested further information around this addition out of session and the reasoning behind having both sites. The Flinders Island site was approved for 2024-25 only so will need to be taken to the SC for ongoing approval. AHA will consult with Tasmania and report back to the committee.
- Garrithiya (T080) and Gunbalanya transitioning from sentinel to serosurvey—no budget impact; updates will be reflected in the 2025–26 plan.
- South Australia noted they will be replacing three existing sites which will have no budgetary impact.

Management Report to Steering Committee

6.1 Draft Management Report to SC (M Nye)

- Data was extracted on 15 August; financial updates are pending and will be finalised ahead of the upcoming SC meeting in February 2026. The activity summary will also be updated once all final samples are uploaded. Post-meeting, AHA will follow up with jurisdictions to reconcile budgeted vs actual activities once final sampling is complete.
- SC has requested inclusion of TC annual coordinator reports. TC to ensure that underactivity/overactivity or recommendations are all included within their reports. Any updates to reports uploaded to the wiki must be sent to AHA to update manually.
- Appendix C outlines performance measures, with a 2024–25 column showing known activities. Committee to check this covers all activities that occurred during the year.
- As per the 2024 action item, the communications analytics have been included in Appendix C.
- AHA will revise and circulate the report in late October to early November for final review before submission to SC in February.

Conclusion

The Committee noted the draft Management Report and that it will be updated and circulated in late October for review prior to circulating it to the SC for approval at their meeting in February 2026.

Action item:

16. AHA to update management report and re circulate to the TC for approval prior to circulation to SC.

Business Plan

7.1 Draft Business Plan 2026-27 (M Nye)

- No proposed changes have been received by the TC for submission to the SC at this stage.
- Financial details are still pending, and broader work is underway at AHA on how risk registers are presented. These updates will be completed prior to the SC meeting in February.

7.2 Draft Operations Plan 2026-27 (M Nye)

- Proposed wording for Section 4.4 (page 18): If originally recruited sentinel animals are no longer suitable for follow-up sampling, an alternative group may be sampled using the serosurvey method outlined in Section 5.
- Section 22 (Entomology timing and frequency) will be updated to advise collaborators to use weather forecasts to avoid unsuitable conditions. Additionally, third-party light trap operators should be provided with a calendar indicating the monitoring period, lunar cycle, and the fortnight during which trapping should occur.
- A sentence will be added regarding insecticide-treated cattle: "Where possible, avoid placing traps near animals recently treated with insecticides." The Committee discussed whether insecticide use should be disclosed but noted that NAQS and QLD have observed no impact on insect trapping despite backline-treatment.
- An update will be included to note that when using propylene glycol, samples can be sieved, rinsed with water, and transferred to ethanol for easier identification. AHA will work with John B, Luke W, David B, and Natalie L to finalise the wording.

Conclusion

The Committee discussed updates required to the Operations Plan for 2026-27. AHA will implement updates and circulate a draft to the Committee for review prior to circulating it to the SC for approval at their meeting in February 2026. No updates were raised for the 2026-27 Business Plan.

Action item:

17. AHA to update the Operations Plan and re-circulate to the TC for approval prior to circulation to SC.

Wrap up

- The Committee agreed for the 2026 NAMP TC Meeting to be held over similar dates as 2025 in Western Australia.
- Meeting closed at 14:28pm (AEST)

NAMP TECHNICAL ANNUAL MEETING 2025 ACTION REGISTER

ID	ACTION	WHO	BY
1	Identify dubious records in NAMP data and jurisdictions to confirm whether corresponding samples can be re-identified.	G Bellis, AHA & NSW	MAR 2026 (carried over from 2024 TC meeting)
2	Investigate expanding the vector colour wheel displayed on the interactive NAMP map to include minor vectors.	AHA	SEP 2025
3	Hold offline scoping discussions regarding increased financial support for the Northern Territory research station herds.	AHA, NAQS and NT	OCT 2025
4	Share the abstract and poster on *C. nudipalpis* with the TC for review and endorsement prior to publication. Note: abstract will be sent first and then poster later.	NAQS	SEP 2025
5	Determine if detection of *C. nudipalpis* is notifiable to the World Organisation for Animal Health and whether this has occurred.	DAFF	COMPLETE
6	Amend coordinator report to include the *C. warangi* detected in Victoria.	VIC	OCT 2025
7	Incorporate suggested edits to the NAMP section in the AHSQ and circulate the revised version for review during the data validation process.	AHA	SEP 2025
8	Work internally with Comms team to see media pickup of the NAMP article recently featured in the AHSQ Q4 2024.	AHA	NOV 2025
9	Work internally with Comms team on how to make the NAMP collaborator brochure more electronically accessible.	AHA	NOV 2025
10	AHA to work with NT regarding display of historic annual distribution maps for BEF, BTV, Akabane.	AHA and NT	NOV 2025
11	Form a working group to explore subsampling methods for large insect collections, with the aim of developing a suitable protocol.	AHA, Ausvet, Glenn and entomologists	OCT 2025

12	ACDP/NSW to work with WA and QLD to discuss the transition from VNT within-jurisdiction multiplex PCR.	ACDP, WA and NT	SEP 2025
13	Develop a standardised workflow for identifying serotypes by PCR (including multiplex) at the jurisdictional-level, and sequencing of selected samples at ACDP, including guidance on the most suitable sample types for samples going to ACDP for sequencing (e.g. lithium heparin or EDTA), sample selection, standardised testing, reporting of sequence data and data sharing agreements	ACDP, QLD, NSW, NT, WA and NAQS	NOV 2025
14	Provide draft of updated data standards for virology testing to the Committee for feedback and implementation.	AHA	NOV 2025
15	AHA to work with Ausvet around budget allocation for new virology testing arrangements (including multiplex and whole genome sequencing)	AHA and Ausvet	MAR 2026
16	AHA to update management report and re circulate to the TC for approval prior to circulation to SC.	AHA	DEC 2025
17	AHA to update ops plan and re-circulate to the TC for approval prior to circulation to SC.	AHA	DEC 2025