

NAMP TECHNICAL ANNUAL MEETING 2024

MEETING RECORD

TUESDAY 20-THURSDAY 22 AUGUST 2024

In attendance:

Participant	Organisation	Days attended
Bronwyn Hendry	AHA – Chair	All
Mikhaila Nye	AHA – record	All
Emily Sears	AHA	All
Skye Fruean	Aus. Gov. – proxy	All
Debbie Eagles	CSIRO ACDP	Day 2 (part); virtual
Tristan Reid	CSIRO ACDP – proxy	All
Glenn Bellis	Ref. Ento.	All
Catherine Hallatt	LiveCorp	All
Charlotte Burgoyne	Aus. Gov. NAQS – proxy	All
Luke Watson	Aus. Gov. NAQS	Day 2 & 3
Anna Genge	Aus. Gov. NAQS	Day 1 & 2; virtual
Cassandra Wittwer	Aus. Gov. NAQS – observer	Day 2; virtual
Amber Gane	Aus. Gov. NAQS – observer	Day 1 & 2; virtual
Deborah Finlaison	NSW virology	All
David Britton	NSW entomology (incoming rep.)	All
Birgit Loecker	NSW entomology (outgoing rep.)	All
Peter Kirkland	NSW	All (part)
Sarah Gestier	NSW – observer	All
David Gopurenko	NSW – observer; Item 3.1	All
John Bingham	NT (incoming rep.)	All
Vidya Bhardwaj	NT (outgoing rep.)	All
Lawrence Gavey	Qld	All
Leanne Nelson	Qld	All
Neelima Nair	Qld – observer	All; virtual
Kelly Harper	SA (interim rep.)	All
Deborah McSweyn	Tas (incoming rep.)	All; virtual
Debra Grull	Tas (outgoing rep.)	Day 2 (part); virtual
Berwyn Squire	Vic	All
Zoe Chatfield	WA	All

Apologies: Adam Robinson (Aus. Gov.); Teagan Fitzwater (NAQS).

Objectives of meeting:

1. Review monitoring results 2023–24 and finalise a monitoring plan for 2024–25
2. Develop a technical strategy and monitoring plan for 2025–26

DAY 1 TUESDAY 20 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.

1.1 Setting the scene (B Hendry)

- Spoke about the NAMP Technical Committee Terms of Reference.
- Noted highlights from the year including:
 - UK Department of Environment, Food and Rural Affairs (DEFRA) visited Australia in early 2024 to assess Bluetongue virus (BTV) control in Australia, including the NAMP. The reason for this visit was to assess whether the UK would be willing to accept alpacas exported from Australia. DAFF confirmed that feedback has been positive, and the report is waiting for internal approval from the UK DEFRA, following which it will be sent to DAFF.
 - Clinical BTV was confirmed on 36 premises within the BTV transmission zone during the year, with serotypes 1 and 16 identified. The Technical Committee provided advice to CVOs.
 - Noted that it was planned to discuss the NAMP 5-yearly review at this meeting, but consensus on the outcome of the tender process has not yet been reached by the Steering Committee. The aim is to reach consensus in the coming weeks, with the planned consultation with the TC occurring via a virtual format.
 - Noted that across multiple surveillance programs, there have been limitations with AusPestCheck[®] identified, and AHA is currently assessing whether it is fit for purpose via consultation with members. AHA has paused involvement due to competing priorities particularly the ongoing HPAI response.
 - During the season, the BTV transmission zone expanded west in QLD and NSW following detections in the Paroo Shire and Coonabarabran, and south in NSW following detections at Sutton Forest, Moruya and Bega, and with the buffer zone now crossing the border into north-east Victoria.
 - *Culicoides nudipalpis* has been confirmed as established on Croker Island, off the coast of the NT, with NAQS conducting further trapping in the area over the upcoming season. Update provided in the NAQS update under Section 5.4.

Conclusion

The Committee noted the key highlights from the 2023-24 year.

The year in review**2.1 Progress on 2023 Technical Committee meeting action list (M Nye)**

- Referred to the NAMP Technical Committee action item update paper.
- Qld noted that Action Item 28 (Qld to consult with industry on the value of retracting the BTV Transmission Zone) can be closed.
- AHA noted that Action Item 31 (AHA to update the Operations Plan in relation to trapping numbers to be taken to the SC for endorsement) is not complete. Following discussions later during this meeting, it has been superseded.

Conclusion

The Committee accepted the update on the 2023 Committee meeting action Items, noting that Action 28 can be closed, and Action 31 has been superseded.

Entomology and virology project updates

3.1 *Culicoides* metabarcoding project update (D Gopurenko)

- Provided an update on the metabarcoding project of *Culicoides* species.
- Noted that over 4400 DNA barcodes have been reported to BOLD by G Bellis and D Gopurenko from over 110 species of *Culicoides* and more than 50 other undescribed midge taxa from Australasia.
- Noted that NAMP takes ~1500 hrs/yr for taxonomic sorting and midge identification and that morphological IDs cannot distinguish cryptic genetic lineages detected in a variety of pest and non-pest species.
- Analysis by qPCR probes targeted for detection of pests is non-destructive, with pooled testing, using sample digestion and amplification to release DNA and retain intact specimens (some wing fading, and increased fragility have been observed). Unless otherwise designed, qPCR may not be specific for detection of some cryptic genetic lineages in pests and vagrant species.
- The *Culicoides* subgenus *Avaritia* in Australasia contains over 15 species. Of these, 41 highly divergent BINS (Barcode Index Numbers – proxy for species/sub-species level genetic lineages) have been genetically identified, 19 of which are in important pest arbovirus vector species.
- 2022-23 Biosecurity Innovation Program provided funding to investigate an efficient DNA metabarcoding of *Culicoides*. The method allows for efficient & simultaneous DNA barcoding of pooled specimens captured in NAMP traps. The method pipeline includes non-destructive handling of specimens from multiple traps, DNA extraction, target PCR enrichment / amplicon purification, PCR indexing/ purification for sorting barcode results to traps, normalization and pooling of indexed amplicons, and then simultaneous sequencing and data analysis of midges in each indexed trap.
- Five independent digestion trials were conducted to optimise non-destructive DNA extraction, and compared wing structure before and after extraction with different concentrations and temperatures. It was identified that the best digestion condition used Proteinase K at >0.1% at 56°C for up to 8 hrs.
- The project also included an activity to trailing PCR primers to be more specific for *Culicoides*. This included potential modification the universal COI primers to be more specific to *Culicoides* and looking at tailored *Culicoides* primer combinations.
- Mini-DNA barcodes were trialled, and it was confirmed that 300-400 base pairs was ideal.
- Trialled 133 species and detected all 133 but ran into major metabarcoding species bias. Then trialled 100 midges with 9 pest species; each were perfectly detected.
- Trialled metabarcoding of two NAMP traps; the 1st trap contained 3 orders of magnitude difference in the total quantity of (abundant) non-target insect bycatch to (scarce) target midges, and DNA barcode results missed 1 of 4 target species. In the 2nd trap at 4 orders of magnitude difference, DNA barcoding missed 2 of 4 target species. Thoughts are that the amount of insect bycatch adds too much water into the ethanol preserver, diluting it subsequently affecting DNA quality of the target midges.
- Noted that after digestion, specimens were clumping together which causes a problem for taxonomic identification of specimens.

- Noted where to go from here:
 - reduce sample degradation in order to increase sensitivity of detecting the target species: trap modifications or faster delivery of digestion; possibly using propylene glycol instead
 - alternative non-destructive digestion buffers, ones that are absent of ProtK to prevent clumping and reduce cost – could extract ethanol from traps directly with DNA in it – would work for qPCR but not sure about metabarcoding
 - specific primers for *Culicoides* that exclude other fauna
 - high cost: \$4K OPEX per MiSeq run estimate with 7 worker days to run the metabarcoding pipeline
 - removing the PCR enrichment bias is needed; metabarcodes and qPCR cannot be used as a proxy of species abundance. Might be able to get rid of the bias by minimising the PCR enrichment just to 2-4 cycles.
- The trials and SOP will be published to DAFF – Luke Watson and Darron Peck
- Suggestion around the use of Hot SOAK (NaOH/TE) as an alternative buffer which doesn't affect the wings or cause a coagulation and would be cheaper for DNA extraction so possibly worth investigating as an alternative.
- To support future work, would be looking to have continued support from NAMP for ongoing trials and the provision of specimens, as well as confirming that NAMP would benefit from the technology.
- Query on understanding of vector biology and the value in assessing gravid or blood fed specimens, noting that NAMP does not routinely record this at present.

Actions

1. *D Gopurenko to share presentation with AHA to circulate to the Committee in confidence.*

3.2 Data cleansing of historical entomology records (G Bellis)

- A review of entomology records within the NAMP-info database has been initiated and seeks to standardise species names and identify dubious records in relation to species identification and locations.
- Key areas of review include species recorded outside their known distributions and single records of a species at a site, likely due to misidentification, data entry error, or confusing group with species names. Those dubious records not easily fixed will be identified via a new data field, so they be excluded from research/publications/external data access requests. The focus is primarily on finding those records that are obviously dubious, as others that are species within their normal distribution won't impact data integrity to the same extent.
- Some sites have multiple names/codes in the system, so making sure each site only has only one name and one set of coordinates will prevent location issues in the future. Sites can easily be identified by mapping them.
- A new data field was recommended across all NAMP data projects to identify laboratory accession numbers, as this will assist with cross checking with state systems and follow up of specimens. Where a lab accession number is not available, such as for NSW entomology samples, the jurisdiction can assign its own code to the record based on the specific sample details such as date and location.
- Discussion on differences between jurisdictions in relation to site codes, coordinates and naming of sites. Noted that NAQS often samples at remote areas that change each time. AHA noted that during the data cleansing, locations (lat/long) were updated to three decimal places.

- Agreement that for large properties and NAQS samples, existing site codes can be used, and if more specific location data is needed, we can refer to the exact coordinates using the lab accession number and the state/territory/NAQS system. It was discussed that for these instances, distances of greater than a 10km area should prompt consideration of a new site.
- Lab numbers for recruitment and follow up bleeds that occur at the same sampling visit would need to be different/logged separately. Feedback from jurisdictions was that generally these are given different lab accession numbers.

Actions

2. *G Bellis and AHA to work with NSW to review dubious records in the NAMP database and confirm whether samples can be located in storage and re-identified.*

3.3 Optimal use of single plex vs multiplex PCR (All)

- Discussion on current use of PCR testing across jurisdictions.
- ACDP does not run multiplex PCRs; it currently uses capillary sequencing for serotype and genotype identification.
- NT transitioned to use the multiplex PCR assays this year; it continues to undertake some VNTs at the end of the season and for those instances where genetic material for PCR isn't available, or where multiplex doesn't give a clear result. Noted VNTs are very laborious, so NT usually narrows what serotypes are tested for to only those identified from the last two NAMP seasons.
- ACDP is moving towards whole genome sequencing over capillary sequencing. Cost and turnaround time are the challenge.
- Qld only does the pan BTV PCR at BSL, then send samples to ACDP for identification of serotypes.
- Discussion on further testing of seropositive animals. In the NT, with the current use of the multiplex assays, once a positive is identified, then further testing isn't performed. If there is a second viraemia, then the serotype won't be identified.
- Discussion on the limitations of serotyping only to track the spread of specific virus strains, such as in the clinical BTV 16 cases; it is currently difficult to distinguish if it is a new strain that has arisen, or if has spread from another region due to climatic factors.
- NSW and NT are currently the only jurisdictions running the multiplex assays, and usually only the first assay (1, 2, 16, 21) is run before a positive is reached. On rare occasions, the NT may run a second (3, 5, 7, 9) or third (12, 15, 20, 23) assay. NSW runs both these second and third multiplex BTV PCRs as well as a BTV4 PCR on all end of season samples for animals that seroconverted to BTV.
- Currently, the NAMP database doesn't allow for accurate reporting or costing of multiplex testing.
- NT noted it has been conducting extra testing under a separate sequencing project and has found that double infections (i.e. with different serotypes) in a season are occurring and aren't being detected as a PCR is only run on the first seroconversion. The Committee discussed whether from a trade perspective there is need to identify all serotypes that are occurring during the season, with agreement that our capability to identify new BTV incursions, and changes in serotypes, is important to supporting trade. Noted the role of the NT to identify new incursions of BTV and discussion on whether NAMP should be increasing strain identification capabilities and intelligence.
- NSW noted that in 2016 if they had tested seroconverted animals for more than BTV-1 and 21 (only 2 known serotypes of BTV in NSW at that time), they likely would have picked up the first incursion of BTV 16 into NSW that was a second infection after earlier seroconversion to BTV 1.

- The Committee discussed the value in undertaking a mid and end of season screen to detect seroconversions to more than one serotype, with samples stored to retest if needed. Strategic testing may focus on areas with increased transmission due to higher animal populations.
- The Committee noted that the current testing isn't focusing on detecting novel incursions of BTV, which is one of the program's goals – testing primarily focuses on identifying serotypes that are already present in Australia. Where a known serotype is not detected, this is then referred to ACDP for further analysis.
- Noted that serotype identification doesn't classify any of the viruses by their whole constellation of genetic factors, nor their pathogenicity. If we are seeking intelligence as to how a bluetongue virus is invading an area, then whole genome sequencing is required.
- ACDP was doing 15 serotypes but does a reduced panel now. Noted that a full panel is still done for Kalumburu.
- The Committee agreed that further discussions are needed, and a separate working group will be formed to look at the strategic and effective use of multiplex assays. This has been captured under a single action item that incorporates discussions that occurred later in the meeting.

Actions

3. *P Kirkland to send paper on serotyping to AHA for circulation to the Committee.*

Conclusion

The Committee noted the value of the presentations provided. The Committee agreed to the use of a new data field to identify laboratory accession numbers, as this will assist with cross checking with jurisdictional systems and follow up of specimens. The Committee also agreed that further discussions are needed around the use of multiplex PCR, and a working group will be formed to undertake this task and provide advice back to the Committee (see Action Item 24).

DAY 2 WEDNESDAY 21 AUGUST

Australian Government and Industry Reports

4.1 DAFF NAMP and Australian livestock market access (S Fruean)

- Referred to the presentation which will be shared with the Committee following the meeting.
- Highlighted the importance of the NAMP in supporting international market access for livestock through market access negotiations. The BTV transmission zone is utilised frequently in these negotiations.
- Praised the expertise within the NAMP Technical Committee which is valued and utilised.
- Noted that the most recent five years of export data is publicly available on DAFF's website (<https://www.agriculture.gov.au/biosecurity-trade/export/controlled-goods/live-animals/live-animal-export-statistics/livestock-exports-by-market>).
- Breeder cattle exports to China have abruptly paused as China's herds are now stocked, but it is expected to pick up again in 2025-26 when their herds need restocking. Exporters are looking at the US as an alternative market. Export of cattle to Japan has ceased due to high prices in Australia but may resume when domestic prices drop. Export of feeder/slaughter cattle to Indonesia are picking back up. Breeder sheep exports to China and Malaysia utilise the NAMP. The Philippines conduct PCR testing and post arrival serology for breeder sheep from Australia. Feeder/slaughter sheep to Israel and Jordan utilise the NAMP.
- DAFF meets with industry via LiveCorp multiple times per year in relation to markets and market drivers.

- The United Kingdom sent a delegation to Australia in early 2024 to assess Australia's systems for managing BTV in exported livestock. NAMP was a significant contributor to this audit, with both the program management and operational delivery of the program closely scrutinized. DAFF expresses its thanks to all those involved in NAMP who supported the audit. The UK's findings have not yet been finalised.
- Referred to the action item from the previous TC meeting about changes to the wool protocol for export to China, noting that DAFF will revise the protocol if/when appropriate.
- A high-level dialogue was held in June 2024 at which China indicated it may be willing to reassess the status of the previous (2017) 'temporary precautionary zone' for BTV in northern Victoria. DAFF will follow-up with China and keep stakeholders informed of any progress, noting this is a long-standing priority issue that industry would like resolved.
- The US is interested in other arboviruses in Australia including bovine ephemeral fever (BEF), Akabane and Aino viruses, and have been in contact in relation to information about free zones. DAFF advised them that Australia only has zones for BTV.

Actions

4. *AHA to share DAFF presentation with Committee.*

4.2 LiveCorp update (C Hallett)

- After very dry conditions in 2018-20, rainfall in many parts of Australia has improved, resulting in a retention of cattle and increased domestic prices. This cycle has 'topped out' and the number of cattle sold is increasing again, with 2024 getting to an ideal production stage. Exports markets are moving out of a maintenance phase into a growth phase.
- 2019 saw a regulation change to stocking density for export of cattle which resulted in a decline in exports, as did COVID-related travel restrictions. Exports of cattle in 2023 and 2024 are starting to increase again.
- In 2019 a regulation change led to a cessation of export sheep to the Middle East during the northern hemisphere summer months, which has resulting in a drop in export numbers. Two export vessels let their accreditation cease which also contributed to a drop in exports. The market to Saudi Arabia is currently reopening.
- Breeder goats are primarily exported to Indonesia to augment milking herds. Noted that PNG requires CAE testing for breeder goats.
- Breeder cattle exports to China have decreased, as the Chinese national herd is currently stable.
- LiveCorp is involved in a smallholder vaccination program for LSD and FMD in Indonesia.
- Note that Indonesia has brought in legislation to allow imports from countries with FMD free zones. This will mean that Brazil will likely become a competitor, although Australia will likely remain competitive when considering transport costs, despite our higher cattle prices.
- 9 of 30 markets use the NAMP BTV zone, and the NAMP supports 65% of exports by value, mainly feeder cattle to Indonesia. \$3.8 billion export market value from the NAMP over the last 4 years
- There is a requirement of freedom from serotype BTV-8. DAFF noted that BTV-8 is also frequently referred to in germplasm protocols.
- Discussion on whether Industry may have an appetite to increase BTV testing to a higher resolution, and whether Industry would fund additional testing. LiveCorp noted that industry would probably only pay for additional testing if market access would likely be lost without that additional testing.
- Noted that information on export requirements to different markets can be found of the Micor website (<https://micor.agriculture.gov.au/Pages/default.aspx>).

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 2023-24 season)

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

- Referred to the paper.
- Noted that just south of Broome, *Culicoides* species are trapped within the buffer zone, which is consistent with prior years.
- An increase in *C. brevitarsis* numbers occur from December to May each year.
- The new site at Esperance has revealed three *Culicoides* species that aren't seen elsewhere, but are common to that site, so they appear to only occur in the southeast of WA.

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

- Referred to the paper.
- Noted the NT objective of identifying new strains of BTV, as well as incursions of new vector species.
- NAQS oversees the sentinel herds at Gunbalanya and Garrithiya, the rest are overseen by the NT. Gunbalanya, Garrithiya and Victoria River are home grown cattle; the others along the highway are trucked up from Alice Springs.
- Additional testing at Douglas Daly and Katherine detected simultaneous infections (1, and 16 for Katherine, 1 and 21 at Douglas Daly) with a least one animal with two serotypes concurrently.
- Common challenges in the NT include access to herds during the wet season, incomplete mustering, tight deadlines for annual reporting, sourcing of naïve animals (shipping from Alice Springs is expensive), staffing issues, and funding shortfalls (funding for the five research stations has been substantially reduced). Also, it is difficult to engage farmers for serosurveys as they have lower financial incentives than for sentinel herds and are often suspicious of penalties in the instance of a positive result. Entomology challenges include timing issues and getting collaborators to set light traps, which they often consider to be low priority.
- NT proposes the following protocol changes:
 - Extend PCR testing to all sentinel herds
 - Extend molecular methods for general detection and typing
 - Use PCR detection after seroconversion more than just at the end of the season, to continue testing past the first seroconversion
- Noted that NT periodically runs a PCR for BTV-8 at its discretion.
- Noted that follow up typing of samples takes time to resolve (in some instances >12 months). This is a risk if there is a new incursion. If there are multiple infections, a novel infection may not be picked up as agent testing is only done upon detection of the first infection, and primarily focuses on testing of serotypes already circulating in Australia. NT noted that BTV-21 has been detected more frequently this season than last season, but we don't know why. The Committee discussed, and DAFF reiterated the value of potentially improving the system to detect all serotypes circulating and new detections, which would assist in understanding changes and support market access.

5.3 QLD virology and entomology (L Gavey and L Nelson)

- Referred to the paper.
- Noted the resolution of drought conditions in the south-west.
- Experienced delays in serosurvey bleeds due to staff turnover and training of new staff, which is an ongoing challenge. Four herds have withdrawn from the program and are still to be replaced.
- Noted that Qld has been assuming that there is little benefit in retesting animals that have already seroconverted. However, there was some retesting of a small numbers of animals following early widespread seroconversion. Qld has noted from the meeting that strategic retesting needs to be reassessed for future monitoring plans.
- Apart from the detection in Paroo Shire that resulted in a zone change, BTV detections during the season were as expected. There was a geographical 'pocket' at Innisfail that was late to seroconvert.
- The Qld producer reports have been well received with great feedback.
- Noted interest in how far *C. fulvus* and *C. actoni* are moving and will continue to move with changes in climate.
- Discussed adjustments to entomology timing at key sites of Normanton, Chillagoe and Cooktown.

5.4 NAQS virology and entomology (L Watson and C Burgoyne)

- Referred to the paper.
- NAQS monitor 4 sentinel herds (1 Qld, 2 NT and 1 WA).
- Noted NAQS is seeing some reversion of sero-positives to sero-negative and back, likely due in part to waning maternal antibodies, but other unknown factors could be at play. Delays in sampling have primarily been due to remoteness and samples taking a while to be received at the lab.
- Issues with feral dogs and stolen animals in the NT Gunbalanya herd. Station managers are confident they can get new animals for bleeding every year (not a breeder herd but large so breeding does occur anyway).
- Raised that the NT NAQS herds prefer to recruit in October and run through to the next October. The Committee agreed that this is acceptable, as the season is slightly different in different jurisdictions, the key will be to ensure that data uploaded to the NAMP database includes the relevant financial year that the activity was scheduled for, to support the correct payment amounts.
- Spoke to the paper regarding the establishment of *C. nudipalpis* on Croker Island.
- Noted that the *C. nudipalpis* specimens were dehydrated at Coburg Peninsula, with no apparent explanation. The rest of the bycatch were normal.
- Croker Island doesn't have many bovids, but it has many horses and pigs. NAQS counted 1,500 *C. nudipalpis* specimens which represented approx. 10% of the number trapped. Some sequencing has been performed on blood fed specimens to ascertain on what they are feeding.
- A trap will be set on Croker Island to gather more data over the next 12 months. G Bellis suggested looking at higher altitudes within its known distribution to see if it could potentially move to more temperate areas.
- The Committee noted that Cassandra Wittwer will replace Teagan Fitzwater on the NAMP Technical Committee.

5.5 NSW virology and entomology (D Finlaison, B Loecker, D Britton)

- Referred to the paper.
- Detected BTV transmission earlier than usual (January - February) in the north-west slopes region.
- BTV-1 during the 2023-24 season followed the distribution that BTV-16 had followed during the 2022-23 season, with BTV-16 extending further down into the south coast during 2023-24.
- Simbu ELISA detections occurred earlier and were more widespread than normal.
- 2023-24 was a big season for BEF clinical cases. Reports of high percentages of herds affected with clinical cases, particularly the south coast around Nowra, and inland regions such as the north-west slopes.
- Noted recommendations to the Committee including increasing PCR and isolations due to more widespread transmission. Also, ensuring there are enough herds either side of the zone for early detection of spread, and to support expansion of the free zone as required.
- Noted that the entomology team has moved from Orange to EMAI and will be led by David Britton. The new team is small, with plans to increase staffing soon, including consideration of a contractor in the peak NAMP season.
- *C. brevitarsis* numbers were higher in December than previously, which likely influenced the earlier transmission of BTV earlier this season. Lower numbers of *C. brevitarsis* were seen at Taree, and higher numbers at Bellingen, than in previous years. During the 2023-24 season several sites detected *C. brevitarsis* for the first time in recent years.
- The Committee agreed that the NT detections of *C. nudipalpis* and subsequent record of presence in Australian can be released to BOLD. There are no WOAHP notification requirements around this.

5.6 Vic virology and entomology (B Squire)

- Referred to the paper.
- The eighth herd that had results pending as per the paper has since been confirmed as negative.
- Noted the recommendation for an additional site in northern Victoria in the buffer zone, which will be discussed later in the meeting.

5.7 SA virology and entomology (K Harper)

- Noted that communications with Clifton Hills have continued to be challenging, and a follow-up bleed is pending for this site. Access to this site is also challenging.
- Noted that there are currently no entomology sites along the Murry River, with a potential entomology and virology site being sought at Cadell (a low security prison farm).

Actions

5. K Harper provide SA report to AHA out of session.

5.8 Tas virology and entomology (D Grull and D McSweyn)

- Referred to the paper.
- Noted that Deborah McSweyn has replaced Deb Grull as the Tasmanian NAMP TC Coordinator.

5.9 ACDP virology (T Reid)

- Referred to the paper.
- 48 NAMP submissions and 539 samples were received during 2023-24, which is a significant increase from submissions during the previous year.

- Noted a reduced panel for serology is being used; if clear resolution of samples is not achieved then they are sent for a whole panel.
- BTV-8 is not part of regular serological SNT panel testing at ACDP, but ACDP does get an overall picture and is confident that BTV-8 is absent. All clinical cases submitted for BTV testing have specific BTV-8 testing on any positive samples.
- BTV-1, 12, 15, 16 and 21 were the main serotypes detected during 2023-24. BTV-12 was only detected in the NT whilst the other serotypes were detected across the country.
- Noted the highly reactivity to BTV-21 in some submissions from in the SNT panel, if serial samples were to be collected from those animals it could assist in characterising their serological response.

5.10 Reference entomology (G Bellis)

- Referred to the paper.
- Identifications via the Reference Entomologist are down from previous years; noted that this may reflect strong attendance at the training workshop and improved identification support through the female key.
- G Bellis is reviewing the female key following formatting changes through AHA's designer, and then the manual will be published online, with a hard copy version then made available.
- Discussion on wording in the Operations Plan (Section 6.3; page 21) about frequency of collections. NT does 12 collections per year at Alice Springs as it is important to ensure that the area remains free of vectors. Particularly where there has been history of large numbers of animal movements, information about vector presence is important in understanding risk of BTV transmission. Agreement that this section should be updated to clarify that higher risk northern sites should have increased testing to support the early detection of any novel incursions.
- The Operations Plan is intended as a guide and there may be variation between jurisdictions and across years depending on various factors.

Actions

6. *AHA to lead a revision of Section 6.2 of the Operations Plan to better define the areas of high risk of exotic vector introduction and reflect that the section is intended for guidance.*

Additional Item – Detections via multiplex PCR (P Kirkland)

- Referred to a presentation which showed the results from a 2018 study from a sentinel herd from the Coastal Plains region (NT) that was sampled weekly. Across the course of the sampling period, multiple serotypes were detected concurrently in some individual animals, as well as different serotypes at different times. This demonstrates the occurrence of multiple infections within individual animals, and changes in infection status across a period of time.

5.11 NAMP Activity Summary 2023-24 (M Nye)

- Referred to the draft activity summary which will be updated as final monitoring activities are entered into NAMP-info. Coordinators to check that the numbers are as expected and that information on underactivity is included in the wiki annual reports, which will be summarised in the Management Report to the Steering Committee.

Conclusion

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

DAY 3 THURSDAY 22 AUGUST**Prospective technical strategy (including proposed changes to monitoring)****6.1 NAMP strategy discussion (B Hendry)**

- Noted the importance of the program and that the Steering Committee is impressed with the Technical Committee's expertise. Noted that while the monitoring strategy should be robust, the Committee should approach this strategically, as the financial sustainability of the program is important to the Steering Committee. Review of the funding splits is an important part of the five-year review of the NAMP.
- Tasmania proposed an additional site at Flinders Island, as transport of cattle between the island and both Tasmania and Victoria occurs regularly. There are home bred cattle on the island. The Committee agreed that a trapping site would be of most value on the island. A trap will be set as an additional budget trapping site for one season to assess the diversity and quantity of *Culicoides* it traps, noting the current trapping site in central Tasmania doesn't catch very much. The existing site will continue as per routine operations.
- Qld noted that there is limited data available to support the retraction of the zone around Q288 and Q333, primarily due to staff turnover and significant wet weather in the area. Qld felt that any retraction would be premature and ongoing monitoring needs to continue.
- Q398 has been used as serosurvey site on and off due to shifting participation, with positive bleeds during 2023-24. Qld proposed to make it a budget serosurvey herd going forward for 2025-26 and ongoing. Discussion on other sites in the area, noting that Melany (Q422) has dropped out and hasn't been replaced yet. The Committee agreed to propose to the Steering Committee that Q398 become a budgeted serosurvey site.
- LiveCorp noted that they have close connections to producers so could possibly support getting better pathways to properties if jurisdictions are experiencing access or participation challenges.
- NSW proposed making Milton (N195) a budget site for serology only and establishing a new sentinel herd at Cooma (serology only, with one follow up bleed) to support evidence of absence of BTV at the edge of the new zone. Noted that NSW have several non-budget sites along the zone to detect virus movement. The Committee discussed the number of sites in northeast NSW and noted their value in providing evidence to inform a retraction, confidence in the placement of the zone, and to detect new strains spreading from Queensland. The Committee agreed that the new site at Cooma should be added as an approved additional site for serology for the next two seasons to support the substantiation and further consideration (continuation or potential retraction) of the zone. If it continues to be valuable in defining the zone beyond that period, it could then be proposed to the Steering Committee for approval as an ongoing site. NSW identified that Tenterfield (N135) could be removed to accommodate activities at Milton (N195). NSW welcomes feedback long-term around the number of sites to support zoning for export.
- Discussion on the trapping site at Taree (N008), which is often already seeing yielding vector numbers at the first collection in the season, and whether this should be shifted to six collections (*Postscript: after the meeting, NSW decided to continue with four collections per year at this site*).
- Victoria proposed the addition of a new sentinel herd in the Delegate River area. The only other site along the margins of the updated zone is at Noorinbee (V066). The Committee supported the additional site for two years, noting that if China undertakes a reassessment of the 'temporary precautionary zone' in the Campaspe district of Victoria, one of the two sites in that locality can be removed to cover the new Delegate River site.

- SA proposed a new site further west along the Murry at a low security prison farm Cadell. The Committee agreed for the sentinel site at S049 to be removed and replaced with the new site at Cadell, with both serology and insect trapping to occur.
- NT noted that producers are frequently suspicious of becoming a cooperator and suggested that a fact sheet could be developed for producers and published on the NAMP website, highlighting the benefit of the NAMP and what is involved in being a cooperator. AHA confirmed that there had been a brochure in the past which they will refresh. The Committee agreed that pricing/financial benefits should not be included in the flyer as these vary depending on involvement. NT noted that for serosurveys, NT provides a free test to producers, of the producer's choice, when they submit samples for the NAMP. Discussion on current NT sites, noting that NT does the testing for Gunbalanya, but it is currently budgeted as a NAQS funded site. NT and AHA agreed to discuss offline other proposed monitoring changes to sampling and trapping frequencies across the NT, and the other recommendations in NT's annual report. The NT requested a statement to their Agricultural Department on the value of the government run research stations to the NAMP, and for continued support noting that animals are intensively looked after, and costs associated with transporting cattle up from Alice Springs. Cattle on these government research stations are also used for other reasons, but NAMP activities are an important component.
- The Committee noted that monitoring activities can be prioritised and adjusted across jurisdictions and that the program budget is national, not state based. Agreement for all jurisdictions to review their activities and identify any that could be reduced if prioritisation becomes required.
- The Committee noted that with the expansion of the zone into Victoria, it would be valuable to add Victorian property boundaries to the interactive map.
- DAFF queried whether there is a need for ongoing monitoring for BEF and Akabane, since BTV is the major focus of trade protocols as Australia doesn't have zones for BEF or Akabane; and whether there is anything else the program should be doing to better support trade. NSW noted that it has reduced BEF and Akabane testing, but that the testing that is undertaken does support trade, as NAMP herds can be a valuable source of negative data. Qld noted that it sees subtle yearly variations for BEF and Akabane infections, but both viruses are endemic throughout Qld and the message in the state continues to be that animals will be exposed to these viruses. Suggestion that testing could be reduced to once per year where these viruses are endemic, noting that it can be useful to know where the viruses are circulating if animals from those areas show clinical signs. WA noted that Akabane monitoring in the Pilbara area provides early warning for BTV infection. NT suggested reducing the amount of BEF testing to support increased lab testing for BTV.

Conclusion

The Committee agreed to update the monitoring strategy to:

- *add an approved additional entomology trapping site for 2024-25 at Flinders Island (Tas), trapping 4 times per year*
- *seek approval from the Steering Committee for Q398 to continue as an ongoing budgeted serosurvey site*
- *add Cooma as an approved additional sentinel site for 2024-25 and 2025-26 with two bleeds per year*
- *replace N135 for N195 (Milton)*
- *add an approved sentinel herd for 2024-25 and 2025-26 in the Delegate River area, with two bleeds per year*

- *replace S049 with a new sentinel herd at Cadelle with two bleeds per year, and seek approval from the SC to add insect trapping 4 times per year to this site*
- *update labtester for Gunbalanya (T121) to NT Gov.*

The Committee noted the value of a refreshed flyer targeting producers to increase involvement in the program. Further discussion with AHA and NT to occur out of session regarding the resourcing challenges raised by the NT in their paper. The Committee also agreed for all jurisdictions to review their activities and identify any that could be reduced if prioritisation was required. Following discussion on monitoring of BEF and Akabane across jurisdictions, it was noted that reduced BEF and Akabane testing in endemic areas could provide increased budget for further BTV testing.

Actions

7. *AHA to update the monitoring strategy for 2024-25 as agreed by the Committee (see Conclusion above).*
8. *AHA to refresh the flyer for NAMP co-operators, with input from LiveCorp, Qld, Vic and NT.*
9. *AHA to request Victorian property boundaries for inclusion in the interactive map from the Victorian CVO unit.*
10. *AHA to develop a letter to NT Agricultural Department (Chief Vet Officer) highlighting the value of NT research stations in supporting the NAMP.*
11. *AHA and NT to discuss farmer allowance and other proposed budget updates offline.*
12. *Committee to review all sites across their jurisdiction and identify sites/areas where activities could be reduced or swapped if prioritisation becomes required and provide a summary to AHA.*
13. *AHA to circulate the document on the history of BTV, Akabane and BEF viruses and their vectors.*
14. *LiveCorp to check which markets reference BEF, Akabane and Palyam viruses and provide advice to the Committee.*
15. *Qld and NT to review AKA and BEF testing frequency across their sites and determine whether reductions are feasible to support extra lab testing of BTV.*

NAMP-info database and reporting

7.1 NAMP Annual Publication Plan

NAMP Report (M Nye)

- Referred to the publication schedule noting that development will begin in early November, with the first draft going to the Committee for review in late November, along with the mailing list (one and a half week estimated turn around). A supplementary review by the Committee may be performed in early January. The final review by the Committee of the designed version is planned for late January (3-5 day turn around), with Steering Committee clearance for publishing in early to mid-February.
- The Committee discussed proposed updates to the annual report, including a more detailed entomology section showcasing the activities from the year and inclusion of entomology activities as part of a map.
- Discussion on challenges with word length last year that resulted in the need to condense the text late in the publication schedule. AHA will confirm the text length for each section.
- Discussion on readership of the NAMP Annual report. AHA will investigate inclusion of readership analytics within the Management Report for future years.

AHSQ Summary (E Sears)

- The Animal Health Surveillance Quarterly currently includes a summary table of the number of tests and positives of follow up bleeds across the previous 5 quarters. AHA is considering adding extra context to this section and will circulate proposed wording to the Committee out of session for review. AHA consider including some entomology data as well as a more descriptive summary of activities undertaken in the program.

Conclusion

The Committee noted the schedule for publication of the NAMP Annual Report and agreed to the inclusion of additional information on entomology activities to demonstrate its value. AHA will investigate inclusion of readership analytics of the NAMP Annual Report within the Management Report. AHA is working to update the NAMP activity summaries included in AHSQ and will propose updated wording and format of this section to the Committee for review.

Actions

16. *AHA to specify word length when circulating draft NAMP report for review by TC, to include proposed additional wording on entomology activities highlighting value added, and to include mapping of entomology activities from the year.*
17. *AHA to include readership analytics of the NAMP report in future Management Reports.*
18. *AHA to propose wording for a summary paragraph to be included in AHSQ, inclusive of entomology activity.*

7.2 NAMP-info database management system (E Sears)

- Provided an update on the AusPestCheck database project, noting significant delays and AHA's significant concerns that the system will not be able to meet NAMP's requirements in relation to having a fit-for-purpose database. AHA is proposes to use the updated data standards in the CAHD (Central Animal Health Database) in the interim.
- Referred to the presentation of the current data standards as discussed at the previous NAMP Technical Committee meeting and in follow up discussions. Proposed the addition of a field in both the virology and entomology data projects to capture a laboratory reference number or an alternative (refer to discussion under 3.2) to assist with sample tracking. Trap type had previously been agreed to be removed, however further discussions have highlighted that this field is useful when sharing data for research purposes to clearly identify which type of trap was used.
- Noted that entomology species lists will be updated following the work undertaken by G Bellis and AHA.
- Noted that the field for number of samples is problematic. Suggested a field to identify if total number has been estimated or is exact.
- AHA will circulate a marked-up workbook with suggested changes and will include an auto filled trap type.
- AHA shared PHA's email around the system requirement for a single 'status' to be used within AUSPestCheck and a proposed solution from PHA. The Technical Committee discussed the critical importance of data accuracy, noting differences between seroconversions in sentinel herds and sero-positives in sero-survey herds. The Committee reflected that when drafting the data standard for AUSPestCheck the advice had been that the system could work to accommodate a range of statuses. Members discussed the complexities in assigning a single 'status' and the risk of misinterpretation. Some members expressed concern with the system

being coded to perform this synthesis around status, rather than the jurisdictional agency being able to work through the depth of data.

- Query regarding the transfer of the NAMP historical data to AusPestCheck. AHA noted that only the last five years' worth of data is planned to be transferred from the CAHD to AusPestCheck under the current AusPestCheck project scope. The Committee strongly expressed concern in relation to the potential loss of the immense number of program records housed in the in the CAHD system dating back decades (to 1975). This valuable data could be lost if not maintained. Also noted that the loss of ability to interrogate historic data would impact predictive and trend analysis into the future, and impact data interrogation for trade and market access. For example, Vic was asked to pull historic data to inform information provided to a trade delegation. Qld, Vic, NSW and G Bellis all noted that they often access historic NAMP data to inform high level discussions and decision making, not only in relation to NAMP viruses, but also for other diseases.

Conclusion

The Committee noted the update on AusPestCheck and that AHA holds significant concerns that the system will not be able to meet NAMP's requirements in relation to having a fit-for-purpose database. Committee members voiced additional concerns, particularly that the NAMP requires a database system which can capture epidemiologically correct data within the system structure (such as the difference between seroconversion and seropositive results) and that historical data must be able to be accessed and interrogated. The Committee noted that a loss of historic data would negatively impact predictive and trend analysis capability into the future, and impact data interrogation for trade and market access. The Committee noted the plan to use the updated data standards in the CAHD in the interim, to capitalise on the work that done by the jurisdictions and AHA on improving data collection and reporting across Australia.

Actions

19. *AHA to circulate an updated entomology workbook to the Committee, with new lab reference number field, auto filled trap type, and a field to indicate if the sample has been subsampled.*
20. *AHA and G Bellis to progress update of species lists in NAMP-info.*

Management Report to Steering Committee

8.1 Draft Management Report to SC (M Nye)

- Referred to the paper noting it is a draft and will be updated in early October following final season activities being uploaded to NAMP-Info. It will be circulated to the Technical Committee for review prior to circulation to the NAMP Steering Committee.
- The Committee discussed the nature of the monitoring season and tight timings to finalise data, particularly for any late end of season bleeds. The Committee agreed that an additional paragraph should be added to the Activity Summary in the Management Report to highlight that underactivity is due in part to pending sample testing.

Conclusion

The Committee noted the draft Management Report and that it will be updated and circulated for approval to the Committee in early October. AHA will add a short paragraph to the Activity Summary to indicate that under activity is due in part to pending sample testing.

Actions

- 21. AHA to add an additional paragraph to the Management Report highlighting that underactivity is due in part to pending sample testing.*

Business Plan**9.1&2 Draft Business Plan 2025-26 (M Nye)**

- The Committee discussed proposed updates to the Business Plan.
- The Committee agreed that Deborah Finlaison take on the role of the NAMP TC representative on the Steering Committee from 2025. The Committee thanked D Eagles for her time on the Steering Committee.
- Noted update required to Section 1.3 (page 5) to clarify that clinical disease is an uncommon occurrence in Australian sheep and has never been reported in any other susceptible animal species in Australia.
- Noted update required throughout to replace OIE with WOAHA.
- Noted update required to Appendix A Table A1 to indicate that the measures are for 2024-25 in the current plan and ensure that the update carries through for 2025-26. Flagged for AHA to review the second target outcome and discuss with DAFF, and to make any required adjustments for the 2025-26 Plan.
- Noted updates to the Committee membership lists to include Elise Spark as SA CVO and D Finlaison as new Technical Advisor on the SC, and Cass Wittwer as the NAQS representative on the TC.
- Noted that Appendix D requires an amendment to clarify that budget amounts are GST exclusive. Noted updates to budget amounts may alter following the working group discussions around PCR testing.

Operations Plan

- The Committee discussed proposed updates to the Operations Plan.
- Update required for Section 6.2 (page 21) as discussed under Agenda Item 5.10.
- Update proposed for Appendix 5 to repeat table headings across pages. Also, prompt to be added to Annual Coordinator Reports to request any updates to Appendix 5, with specific wording to be provided by the jurisdiction in their report.
- Noted that the draft Business and Operations Plans for 2025-26 will be updated following this meeting and circulated to the Committee for comment in September. Following this, they will be circulated to the Steering Committee for approval as part of its November meeting.

Conclusion

The Committee discussed updates required to the Business and Operations Plans for 2025-26. AHA will implement updates and circulate a draft to the Committee for review prior to circulating it to the Steering Committee for approval at their meeting in November 2024.

Actions

- 22. AHA to add prompt in Annual Coordinator Reports via the wiki to include any updates to virology testing protocols in Appendix 5 of the Operation Plan.*
- 23. AHA to update the draft Business and Operations Plans 2025-26, for circulation to the TC for comment and the Steering Committee for approval.*

24. AHA, ACDP, NSW, NT, Qld and DAFF to form a working group to discuss strategic virology testing going forward in NAMP to report to the TC.

Zone change proposals

10.1 Bluetongue virus zone change proposal

- No zone change proposals received.

Wrap up

11.1 Summary of actions (M Nye)

- Actions from the meeting were summarised and are included in the table at the end of this record.

11.2 Location and date of next meeting

- The Committee agreed for the 2025 NAMP TC Meeting to be held in Canberra over two full days from Wednesday 20th to Thursday 21st August 2025.

NAMP TECHNICAL ANNUAL MEETING 2024

MEETING RECORD

TUESDAY 20-THURSDAY 22 AUGUST 2024

#	ACTION	WHO	BY
1	Share presentation with AHA to circulate to the Committee in confidence.	D Gopurenko	September 2024
2	Review dubious records in the NAMP database and confirm whether samples can be located in storage and re-identified.	G Bellis, AHA & NSW	August 2025
3	Send paper on serotyping to AHA for circulation to the Committee.	P Kirkland	September 2024
4	Share DAFF presentation with Committee.	AHA	September 2024
5	Provide SA report to AHA out of session.	K Harper	September 2024
6	Lead a revision of Section 6.2 of the Operations Plan to better define the areas of high risk of exotic vector introduction and reflect that the section is intended for guidance.	AHA	February 2025
7	Update the monitoring strategy for 2024-25 as agreed by the Committee.	AHA	October 2024
8	Refresh the flyer for NAMP co-operators, with input from LiveCorp, Qld, Vic and NT.	AHA	February 2025
9	Request Victorian property boundaries for inclusion in the interactive map from the Victorian CVO unit.	AHA	October 2024
10	Develop a letter to NT Agricultural Department (Chief Vet Officer) highlighting the value of NT research stations in supporting the NAMP.	AHA	October 2024
11	Discuss farmer allowance and other proposed budget updates offline.	AHA & NT	October 2024
12	Review all sites across their jurisdiction and identify sites/areas where activities could be reduced or swapped if prioritisation becomes required and provide a summary to AHA.	Committee	October 2024
13	Circulate the document on the history of BTV, Akabane and BEF viruses and their vectors.	AHA	September 2024
14	Check which markets reference BEF, Akabane and Palyam viruses and provide advice to the Committee.	LiveCorp	October 2024

15	Review AKA and BEF testing frequency across their sites and determine whether reductions are feasible to support extra lab testing of BTV.	Qld & NT	October 2024
16	Specify word length when circulating draft NAMP report for review by TC, to include proposed additional wording on entomology activities highlighting value added, and to include mapping of entomology activities from the year.	AHA	November 2024
17	Include readership analytics of the NAMP report in future Management Reports.	AHA	August 2025
18	Propose wording for a summary paragraph to be included in AHSQ, inclusive of entomology activity.	AHA	January 2025
19	Circulate an updated entomology workbook to the Committee, with new lab reference number field, auto filled trap type, and a field to indicate if the sample has been subsampled.	AHA	October 2024
20	Progress update of species lists in NAMP-info.	AHA & G Bellis	August 2025
21	Add an additional paragraph to the Management Report highlighting that underactivity is due in part to pending sample testing.	AHA	October 2024
22	Add prompt in Annual Coordinator Reports via the wiki to include any updates to virology testing protocols in Appendix 5 of the Operation Plan.	AHA	August 2025
23	Update the draft Business and Operations Plans 2025-26, for circulation to the TC for comment and the Steering Committee for approval.	AHA	October 2024
24	Form a working group to discuss strategic virology testing going forward in NAMP to report to the TC.	AHA, ACDP, NSW, NT, Qld & DAFF	June 2025