One Health Drivers of AMR
Lessons from research in the UK and Thailand

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Bacterial Infection in the UK

- Bloodstream infections: >100,000 cases/year
- Urinary Tract Infections: >250,000 cases/year

- **The majority of these are opportunistic and caused by colonising *E. coli*.**

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Zoonotic Bacterial Infections in the UK

E. coli

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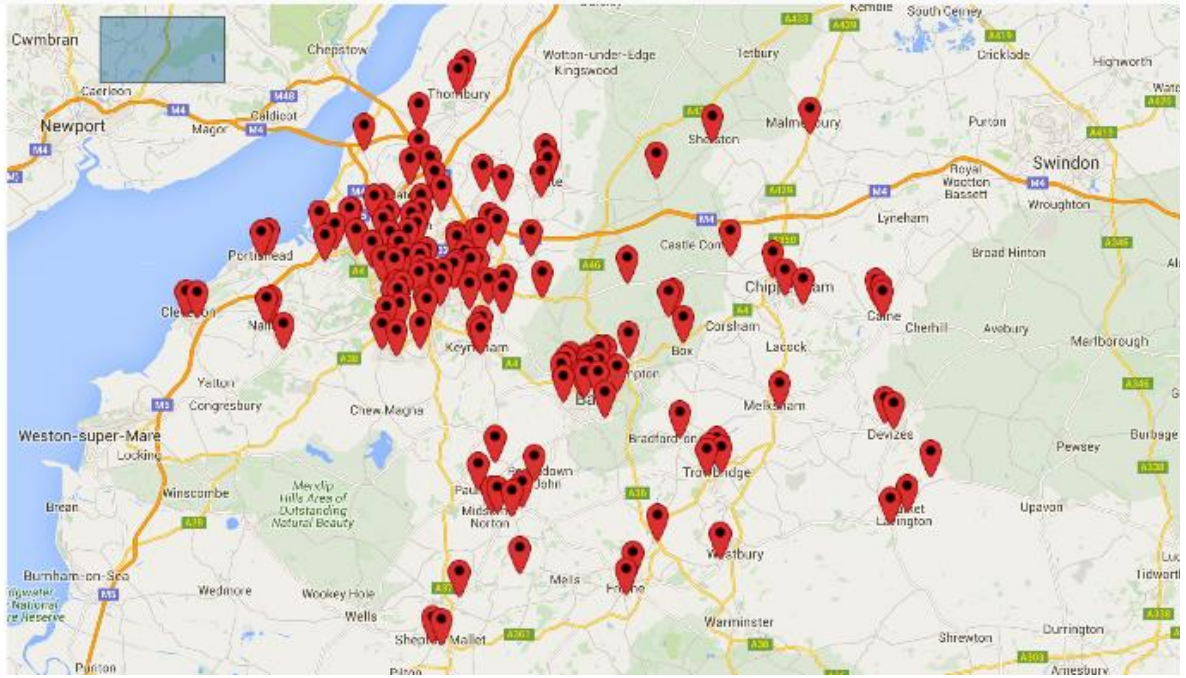
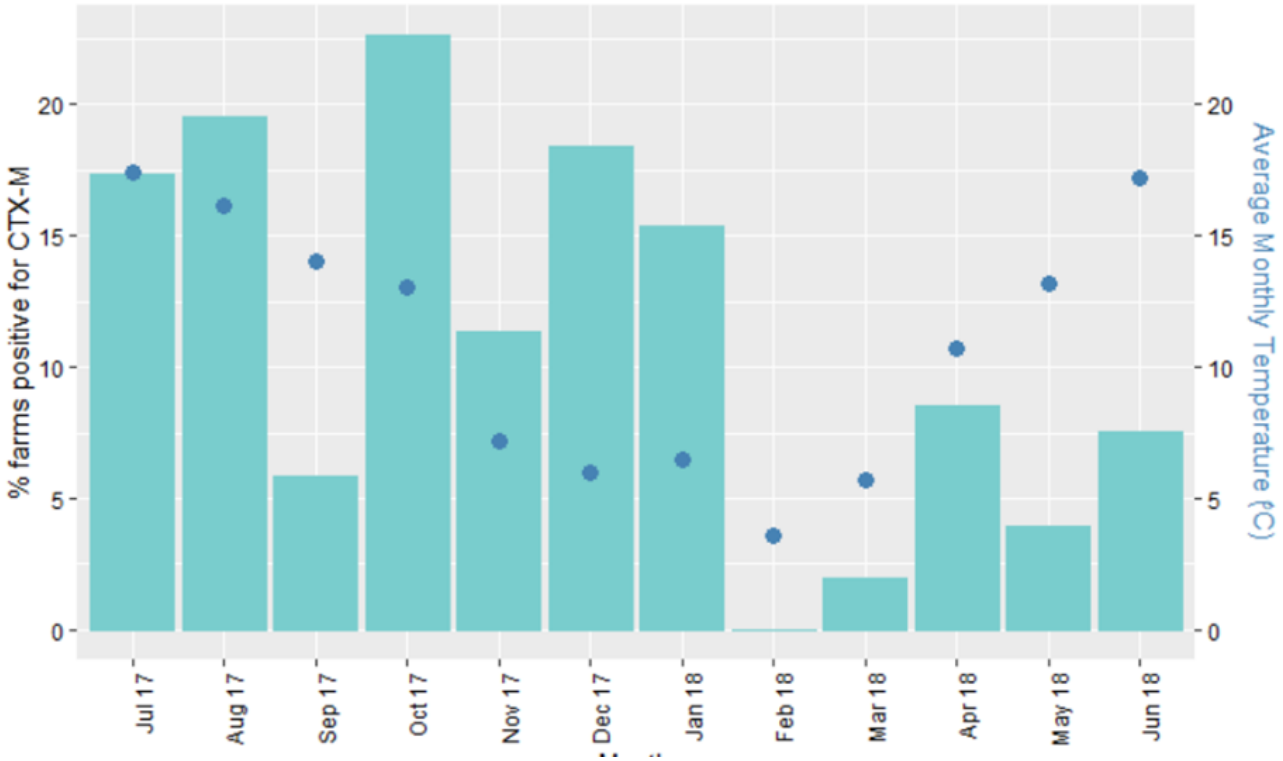
Temperature as a driver of AMR in *E. coli*





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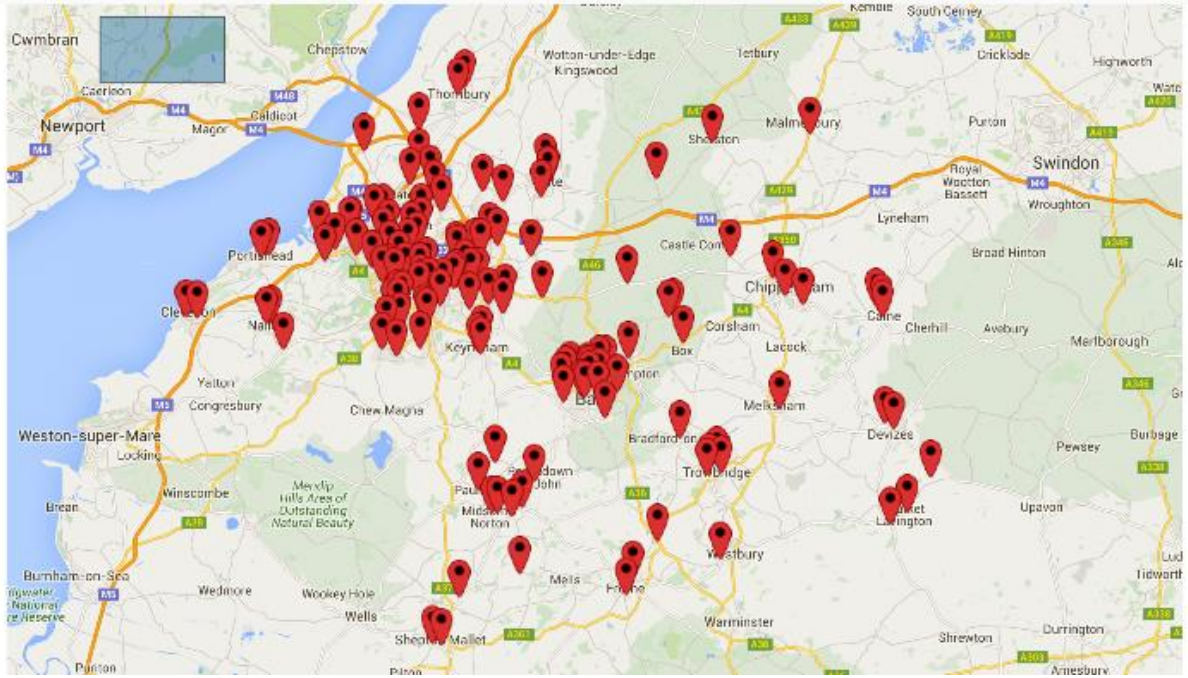
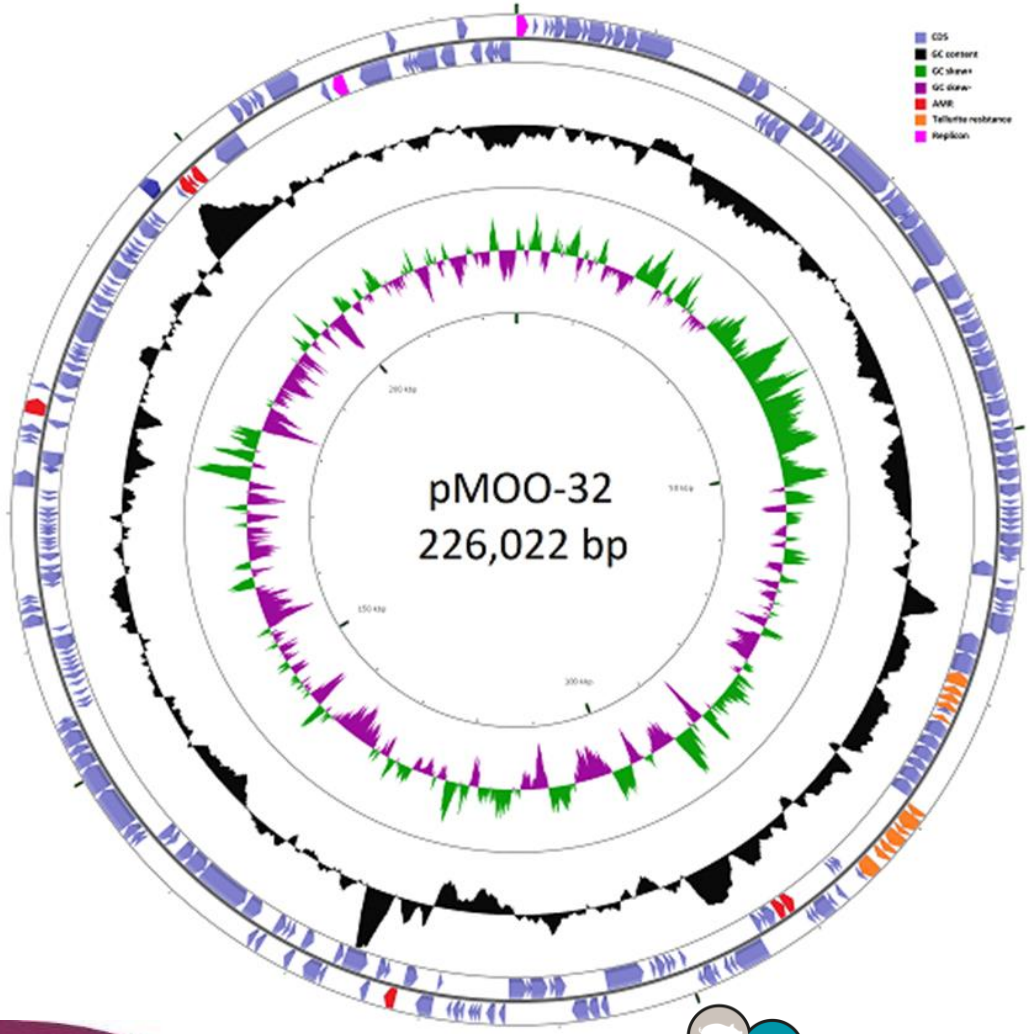
Farm to Farm transmission of AMR *E. coli*





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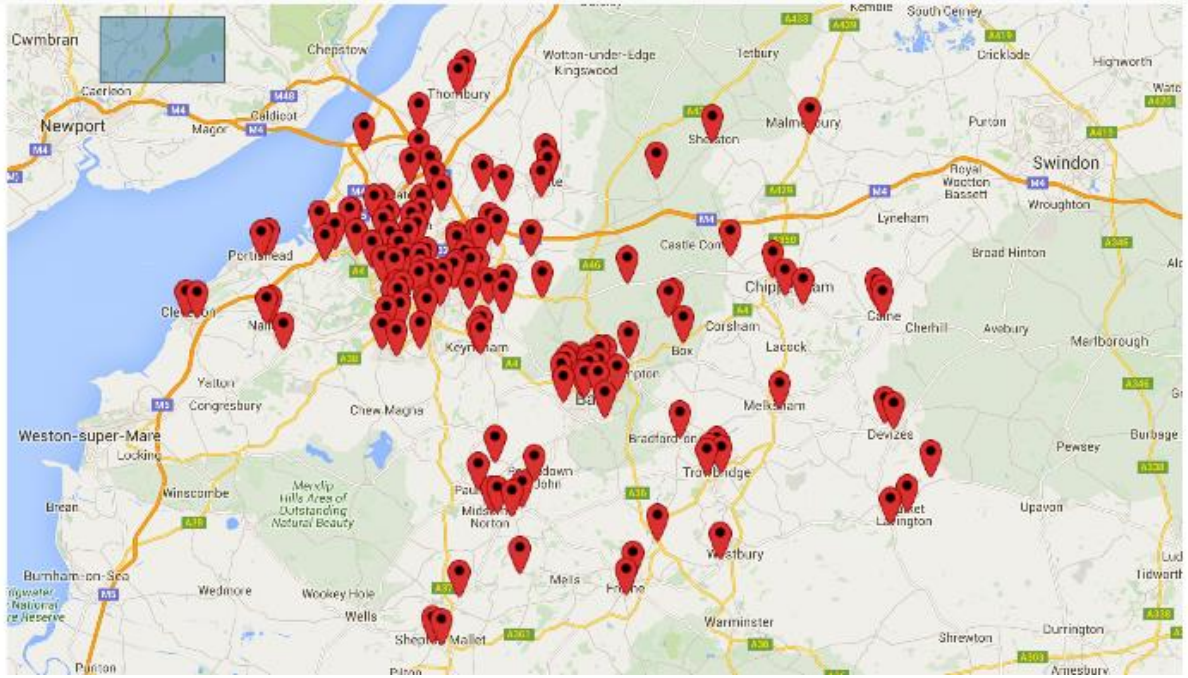
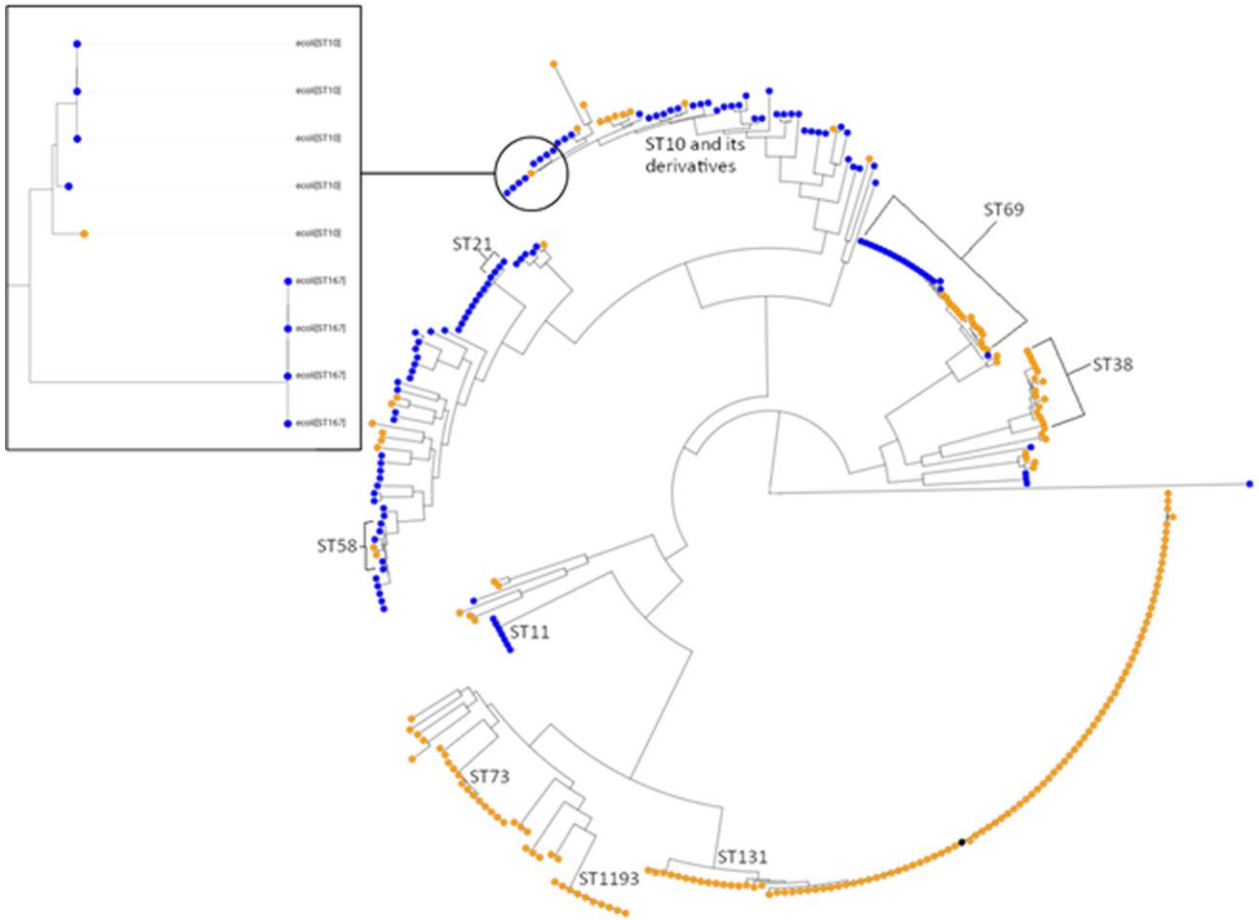
Minimal Human Disease Impact of Farm-Derived AMR *E. coli*





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OH-DART in Development

March 2017, Bristol

December 2017, Bangkok

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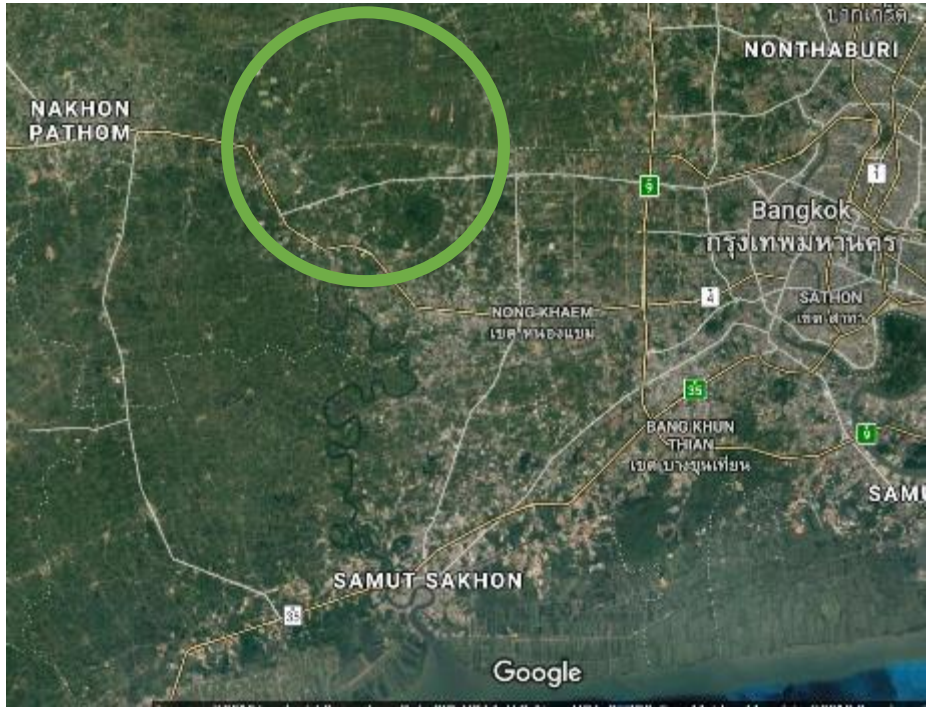
OH-DART Study Area

Community Carriage of Antibiotic Resistant Bacteria -

- 3 villages; 600 people; 40 households in detail.
- 50 animal farms including ducks, chickens, fish, shrimp.
- Crop based agriculture.
- Water systems linking these sites, including hospitals and industrial outflows.

Bang Len District – Study Area 200 km²



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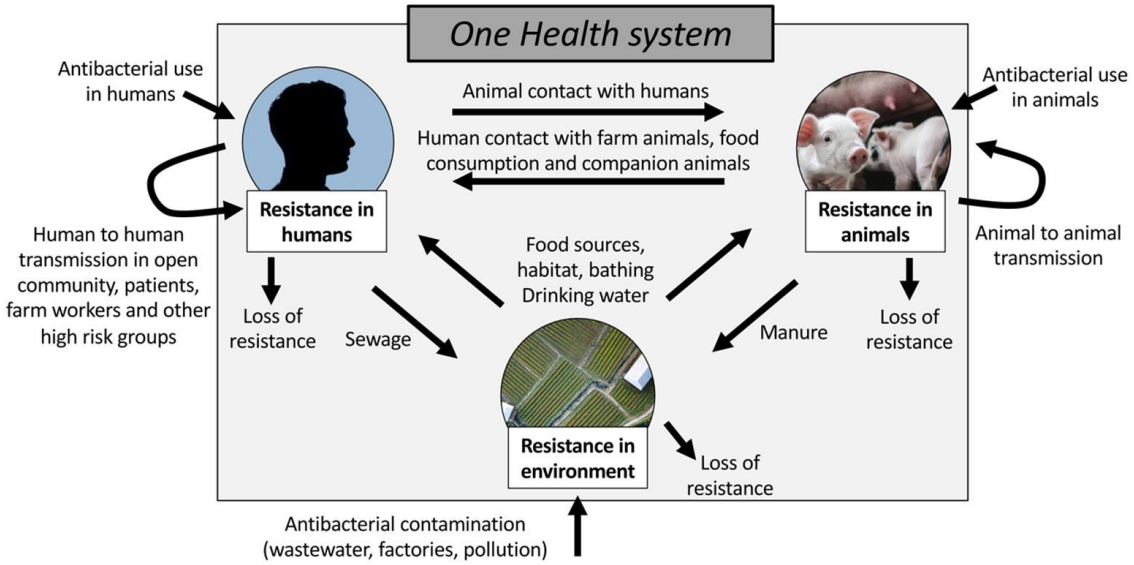
OH-DART. Quantifying Relative Impacts



Intervention or scenario	Median reduction in colonisation with resistant bacteria in humans (95% credible interval) 2020–2040
NSP-AMR, Thailand	12.2 (6.0–18.8)
NSP-AMR with 30% reduction in human ABU	16.7 (8.5–24.9)

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OH-DART Consortium

Medical Anthropology: Luechai Sringernyuang (Mahidol), Helen Lambert (Bristol)

Human Geography: Henry Buller (Exeter)

Stakeholder Analysis: Emma Pitchforth (Exeter)

Mathematical Modelling: Aronrag Meeyai (Mahidol), Katy Turner (Bristol)

Veterinary Science: Walasinee Sakcamduang (Mahidol) Kristen Reyher (Bristol)

Environmental Chemistry: Jutamaad Satayavivad (CRI), Andrew Singer (CEH)

Microbiology/Genomics: Visanu Thamlikitkul (Mahidol), Skorn Mogkolsuk (CRI), Ed Feil (Bath)

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