Who am I?

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Genomics and Bioinformatics Cluster
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GROUP ACTIVITY

Best practices and recommendations for genomics research in wildlife diseases.

2017: Horizon Scan

American Genetic Association

Journal of Heredity, 2019, 261–274
doi:10.1093/jhered/esz001
Perspective
Advance Access publication January 12, 2019

Perspective

The Expectations and Challenges of Wildlife Disease Research in the Era of Genomics: Forecasting with a Horizon Scan-like Exercise

Robert R. Fitak, Jennifer D. Antonides, Eric J. Baitchman, Elisa Bonaccorso, Josephine Braun, Steven Kubiski, Elliott Chiu, Anna C. Fagre, Roderick B. Gagne, Justin S. Lee, Jennifer L. Malmberg, Mark D. Stenglein, Robert J. Dusek, David Forgacs, Nicholas M. Fountain-Jones, Marie L. J. Gilbertson, Katherine E. L. Worsley-Tonks, W. Chris Funk, Daryl R. Trumbo, Bruno M. Ghersi, Wray Grimaldi, Sara E. Heisel, Claire M. Jardine, Pauline L. Kamath, Dibesh Karmacharya, Christopher P. Kozakiewicz, Simona Kraberger, Dagan A. Loisel, Cait McDonald, Steven Miller, Devon O'Rourke, Caitlin N. Ott-Conn, Mónica Páez-Vacas, Alison J. Peel, Wendy C. Turner, Meredith C. VanAcker, Sue VandeWoude, and Jill Pecon-Slattery

2018: Best Practices

Retroviral resistance in a re-discovered tarsier species

Vector-borne bacterial outbreak in indigo snakes

Permafrost pathogen outbreak!

Viral biocontrol of an invasive rat species

2018: Best Practices

Specimen Collection, Handling, Preparation

Data Analysis Methodology

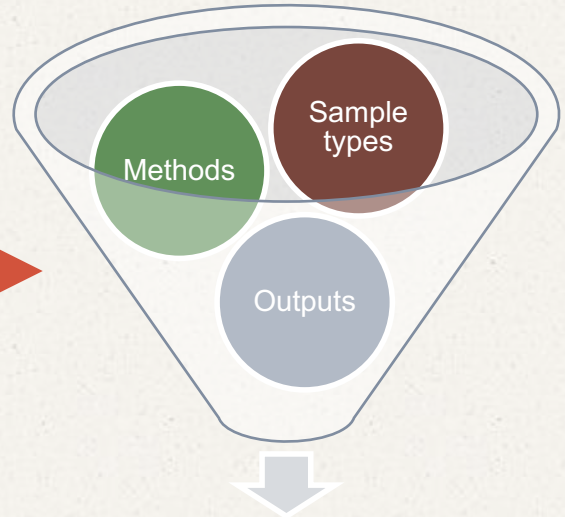
Results and Publishing

2019: PROJECT ROULETTE

Pathogen resistance in a re-discovered tarsier species

Vector-borne disease outbreak in indigo snakes

Permafrost pathogen outbreak!



Project Design

Project Roulette

Samples

- fresh tissue
- non-invasive

Technology

- MiSeq
- NovoSeq
- Oxford Nanopore (Gridion/Minion)

Output

- $$$ for data and open access publication costs
- no $$$

Etiological Agent

- bacterium
- virus
- fungus
- it's a PRION!

Tentative Schedule

- Sunday June 2
  - Meet your group
  - Vote on Projects
  - Pick project attributes
- June 3, 4, 5
  - Break into groups
  - ~30 minutes to discuss and outline your project
- Saturday morning, June 8
  - Group Presentations
    - Assess recommendations ‘shared’ across projects, and those unique to different projects

Randomly Assigned Groups

Group 1

- Borland, Neddermeyer, Johnson, Kuthyar, Goldsmith

Group 2

- Verdugo, Anderson, Bruce, Garwood, Crane

Group 3

- Mistrick, Lee, Maly, Yates, Valdivieso

Group 4

- Barandongo, Wright, Diss, Wild, Calatayud

2019: Project Roulette

Pathogen resistance in a re-discovered tarsier species

Vector-borne disease outbreak in indigo snakes

Permafrost pathogen outbreak!

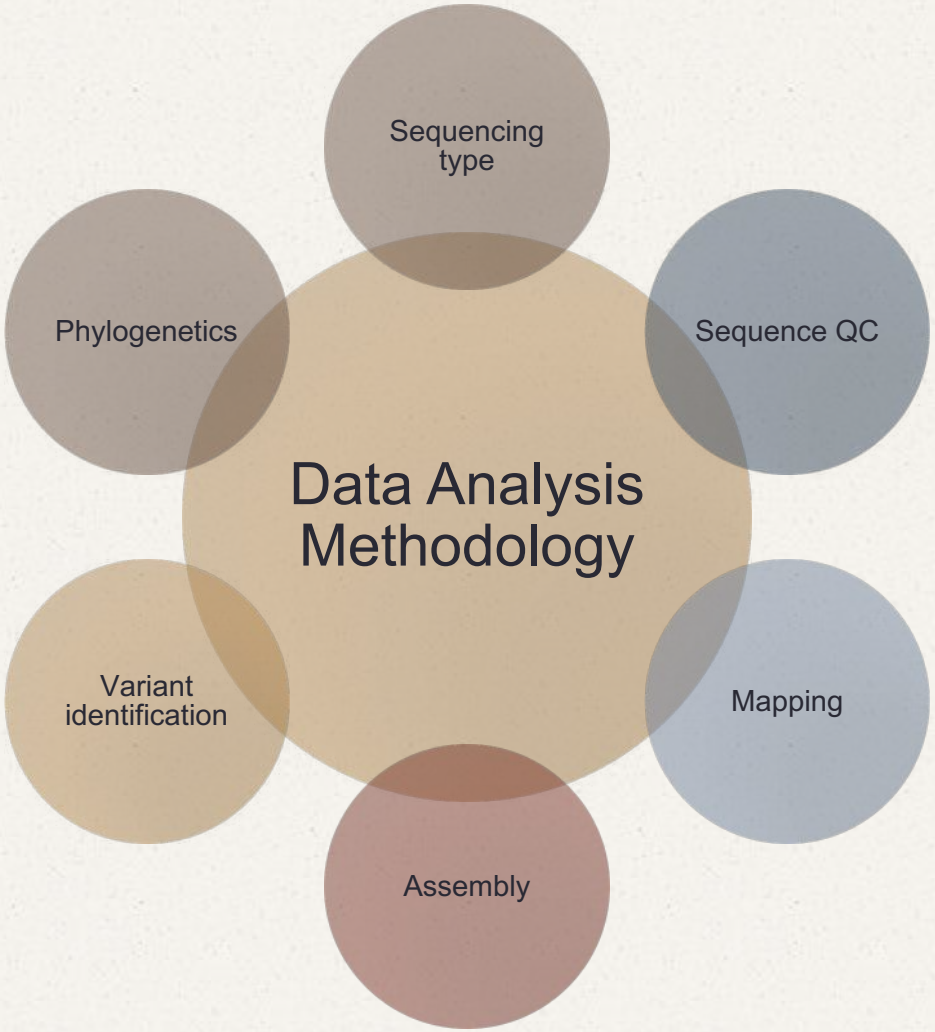
Presentations (essentially, a study proposal)

- What is your group's specific scenario?
- What are your questions?
- Study design
  - Sample types
  - Sequencing
  - Types of analyses?
- Research dissemination
  - Where will you publish?
  - How will you make your data and analyses available?

Day 1


Species
Library Preparation
Tissue
Specimen Collection, Handling, Preparation
Storage
Source
Provider
Pathology

Day 2


Sequencing type
Phylogenetics
Sequence QC
Data Analysis Methodology
Variant identification
Mapping
Assembly

Day 3


Archiving host pathogen sequences
Which journals?
Results and Publishing
Archiving variants
Archiving alignments, trees, etc