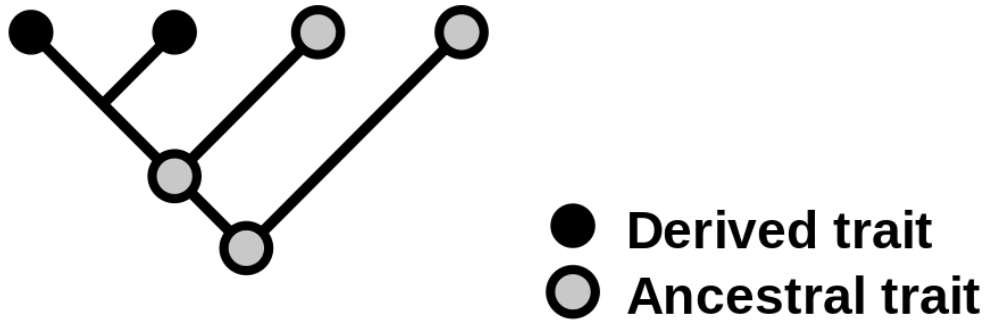


2024 Basic Course in Ornithology
Week 12 Assignment

1. The figure given below shows a phylogenetic tree of derived and ancestral traits. What would be the evolutionary relationship between the two individuals with derived traits here?



- A. Apomorphy**
- B. Autapomorphy
- C. Homoplasy
- D. Synapomorphy

2. You are interested in studying endoparasitic load in birds endemic to the Western Ghats. During mist netting you collect blood and store it on FTA cards and in _____.

- A. Queens lysis buffer**
- B. Kings lysis buffer
- C. Field lysis buffer
- D. Any of the above

3. A traditional method utilized to measure DNA fragment length is

- A. Thermomixer instrument
- B. Bioanalyzer instrument
- C. PCR instrument
- D. Gel electrophoresis**

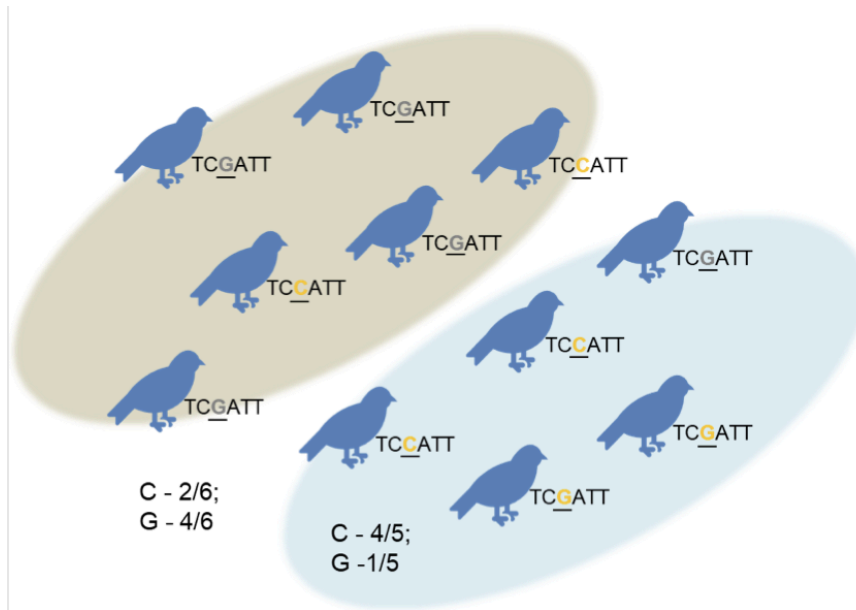
4. What tests for gene flow?

- A. ABBA-BABA
- B. STRUCTURE
- C. Both A & B**

D. None of the above

5. Individuals in this figure exhibit polymorphism known as

- A) SNAPP
- B) SNIP
- C) SNP**
- D) ATGC



6. The critically endangered bird, Kakapo has reduced drastically in numbers in one of the islands. Such population declines are known to result in the following genetic impact:

- A. Low heterozygosity**
- B. Low microsatellite diversity
- C. High deleterious alleles
- D. All of the above

7. Low depth in Next Generation sequencing is

- A. Low number of aligned reads for a part of the genome
- B. Low valleys between mountains as revealed by sequencing
- C. Low number of regions of the genome that is covered**
- D. All of the above

8. How can one determine if a bird is infected by Avian Malarial parasites at even very low levels?

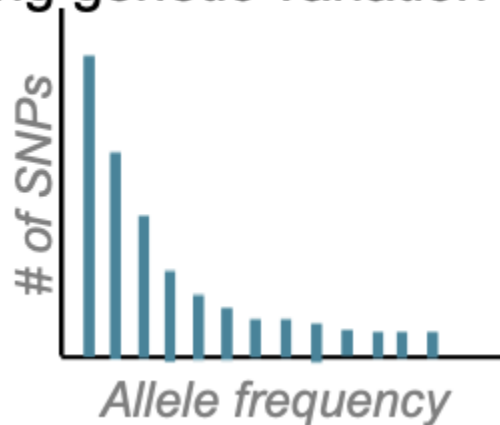
- A. Field observations
- B. Microscopic observations of blood smears

C. PCR-based methods that amplify a specific DNA fragment

D. Elisa test

9. The below summary of genetic variation is the

Summarizing genetic variation



A. Site Frequency Spectrum

B. Allele frequency Spectrum

C. Heterozygosity

D. Power Spectrum of the frequency

10 Of the various ways that genetic data has informed studies on evolution, which of the following laboratory techniques was developed by a two-time Nobel Laureate and involves the 'chain termination step' as a major component?

A. Sanger sequencing

B. Illumina sequencing

C. PCR

D. Next-Generation Sequencing

11. Which citizen bird monitoring programme that began in 2006 focused on a specific set of species that included Grey Wagtail and Rosy Starling?

A. Asian Waterbird Census

B. MigrantWatch

C. Common Bird Monitoring

D. Great Backyard Bird Count

12. Many migratory birds show fluctuating numbers year after year, with large numbers seen in some years but small numbers in others. Common Cuckoo is one such migrant through

southern India, passing through on its way to Africa. In the years 2018-2022, which year had the fewest Common Cuckoos passing through the four South Indian states – Kerala, Karnataka, Tamil Nadu and Goa? (Please refer to the lecture and the tools provided)

- A. 2022
- B. 2021
- C. 2020
- D. 2019**

13. How many audio recordings of Greenish Warbler have been uploaded on eBird/Macaulay Library from Karnataka? (Please refer to the lecture and the tools provided, round to the nearest 50)

- A. 250**
- B. 300
- C. 350
- D. 400

14. The State of India's Birds 2023 report found that birds have declined more in some habitats than in others. Which habitat has seen the most decline?

- A. Woodland
- B. Grassland and scrub**
- C. Wetland
- D. All equally threatened

15. Spot-billed Pelican occurs in the wetlands of Southern India and Assam and is an exclusive fish eater. According to the State of India's Birds 2023 report, what is the current status of the species in India?

- A. Declining**
- B. Increasing
- C. Stable
- D. Unknown

16. We usually hear of birds migrating south for the winter but which of these birds migrate eastwards for the winter, from the western Himalayan foothills to northeastern India (refer to the migration maps on the Bird Count India website)?

- A. Greenish Warbler
- B. Black Redstart**

C. Spot-winged Starling

D. Chestnut-tailed Starling

17. Birds are thought to travel south for the winter from their northern breeding grounds. Which of these birds actually travels south for the winter to breed from their northern non-breeding grounds?

A. Pallas's Fish Eagle

B. Common Tern

C. Wilson's Storm-Petrel

D. Indian Pitta

18. What do Indian Paradise-Flycatcher and Chestnut-headed Bee-eater have in common (check species maps in www.stateofindiabirds.in)?

[Please follow either the excel or the R tutorials linked here if you need to download eBird data Tutorials:

<https://www.youtube.com/watch?v=jBGVy7K7dH8&t=4s>

<https://www.youtube.com/watch?v=fYldtekOrZI>

<https://www.youtube.com/watch?v=CYQkciQSRFw&t=26s>

<https://www.youtube.com/watch?v=pgJYmUS6EWQ>]

A. Both are in decline and are of High Conservation Concern

B. Both breed in Europe and winter in India

C. Both are exclusively migrants and spend the winter almost exclusively in the Indian subcontinent

D. Both have migratory and resident populations in India

19. On eBird, which of these states has Rock Bush-Quail never been reported from?

A. West Bengal

B. Tamil Nadu

C. Madhya Pradesh

D. Rajasthan

20. As of today, how many observations have been uploaded to eBird from India (the answer is on the Bird Count India website)?

A. 0-10 million

B. 10-30 million

C. 30-50 million

D. More than 50 million