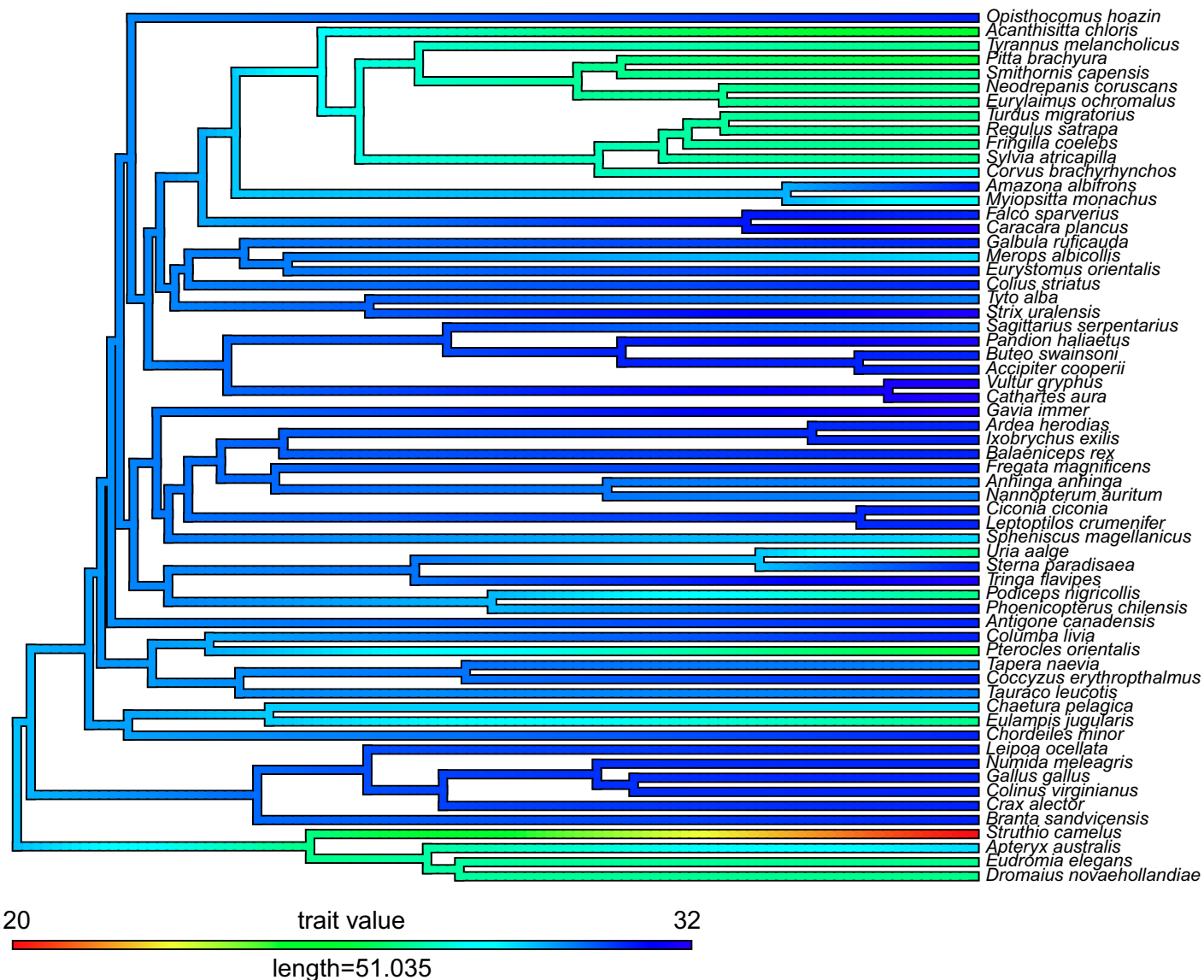


Supplementary Data 9. Character mapping of the network parameters

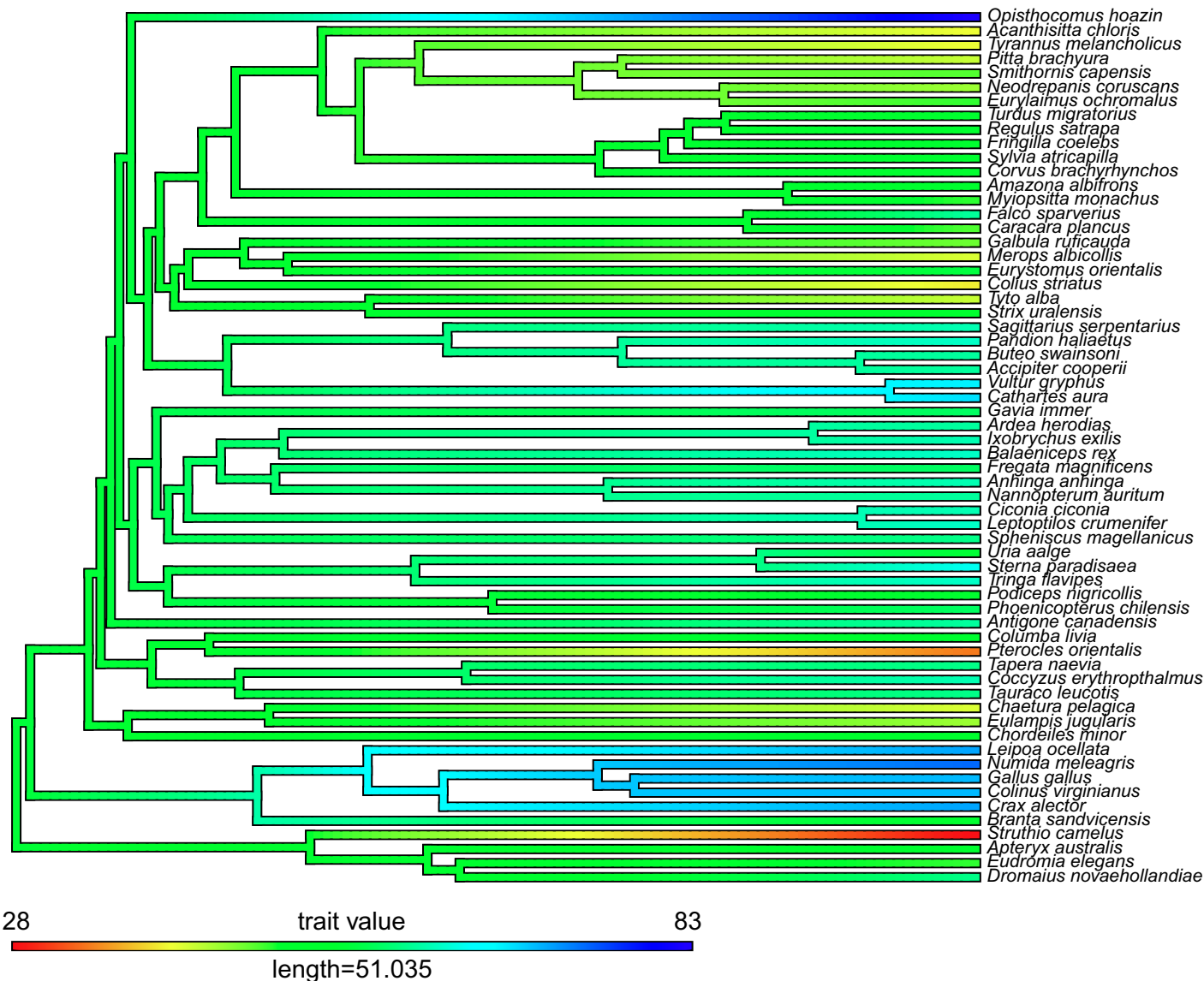
The ancestor of all birds probably had mid-values for L, D, ACC, H, AD and ND, and mid-high values for N, APL and P. Mapping also revealed that the ancestor of:

- (1) Palaeognathae had N mid-values (a);
- (2) Galloanserae had ND mid-high value (h), and particularly of Galliformes had L (b), D (c) and AD (g) mid-high values;
- (3) Cathartiformes had L mid-high values (b);
- (4) Strigiformes had D mid-low values (c);
- (5) Charadriiformes had ACC mid-high values (d);
- (6) Psittaciformes had ACC mid-low values (d);
- (7) Strigiformes, Caprimulgiformes, and Coraciimorphae (i.e, the clade including Piciformes + Coraciiformes + Coliiformes, among others) had high APL values (e);
- (8) Passeriformes had N (a) mid-values and H (f) values lower than the rest of the birds (except for *Tyrannus*);
- (9) Ciconiidae had PA (i) high value; and
- (10) Accipitridae had PA (i) low value. Notably, there are no intermediate values for the APL (e), since *Opisthocomus* has a significantly lower APL (e) value than the rest of birds.

a Number of nodes



b Number of connections (L)



c Density of connections (D)



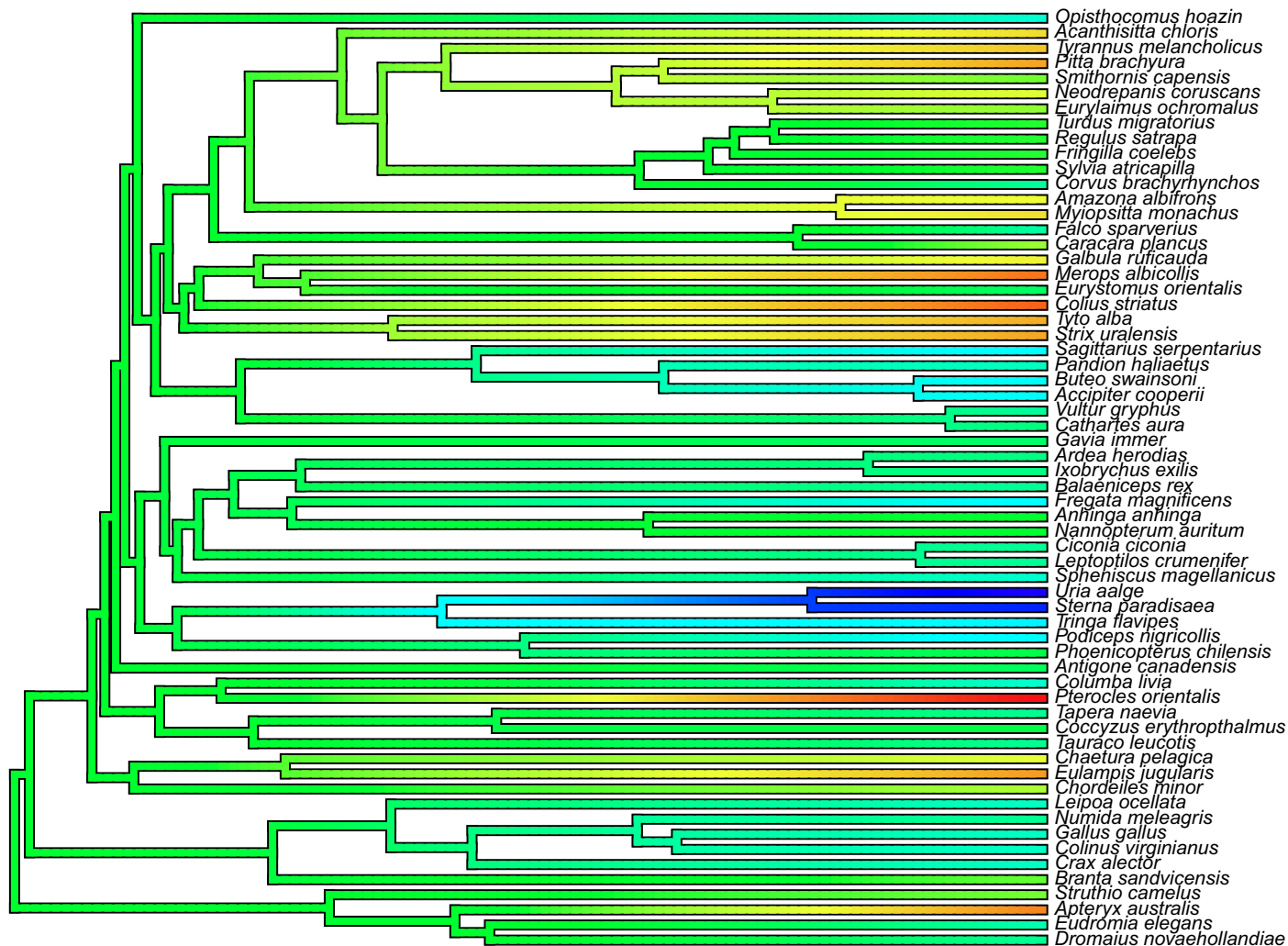
0.086

trait value

0.178

length=51.035

d Average clustering coefficient (ACC)



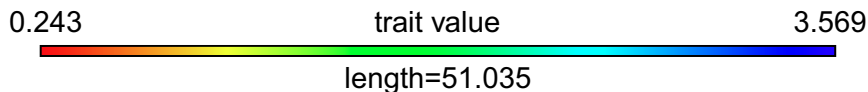
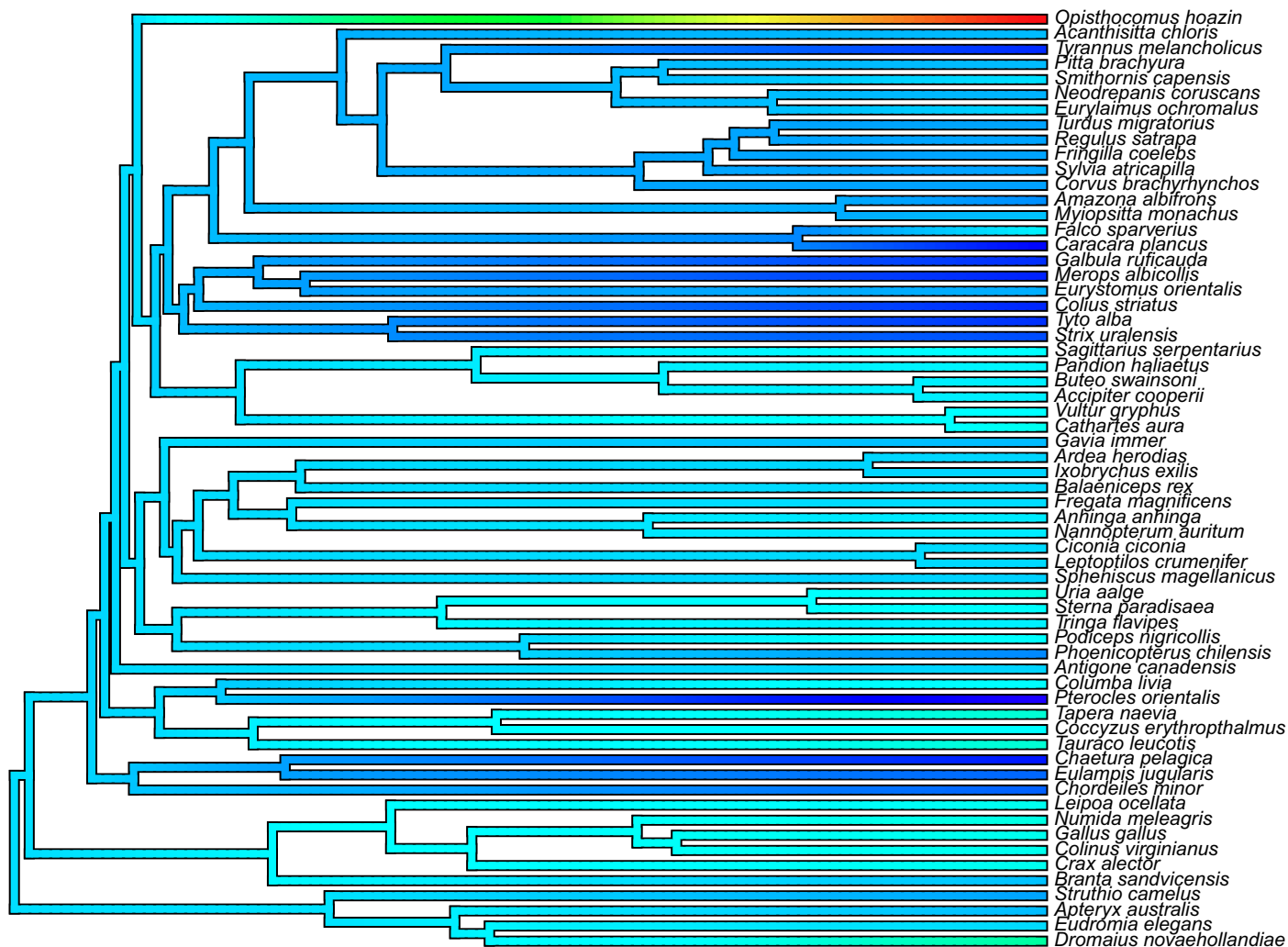
0.135

trait value

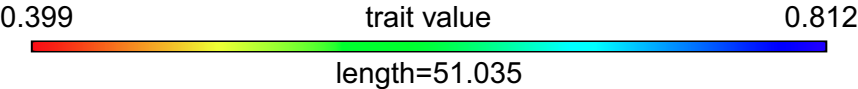
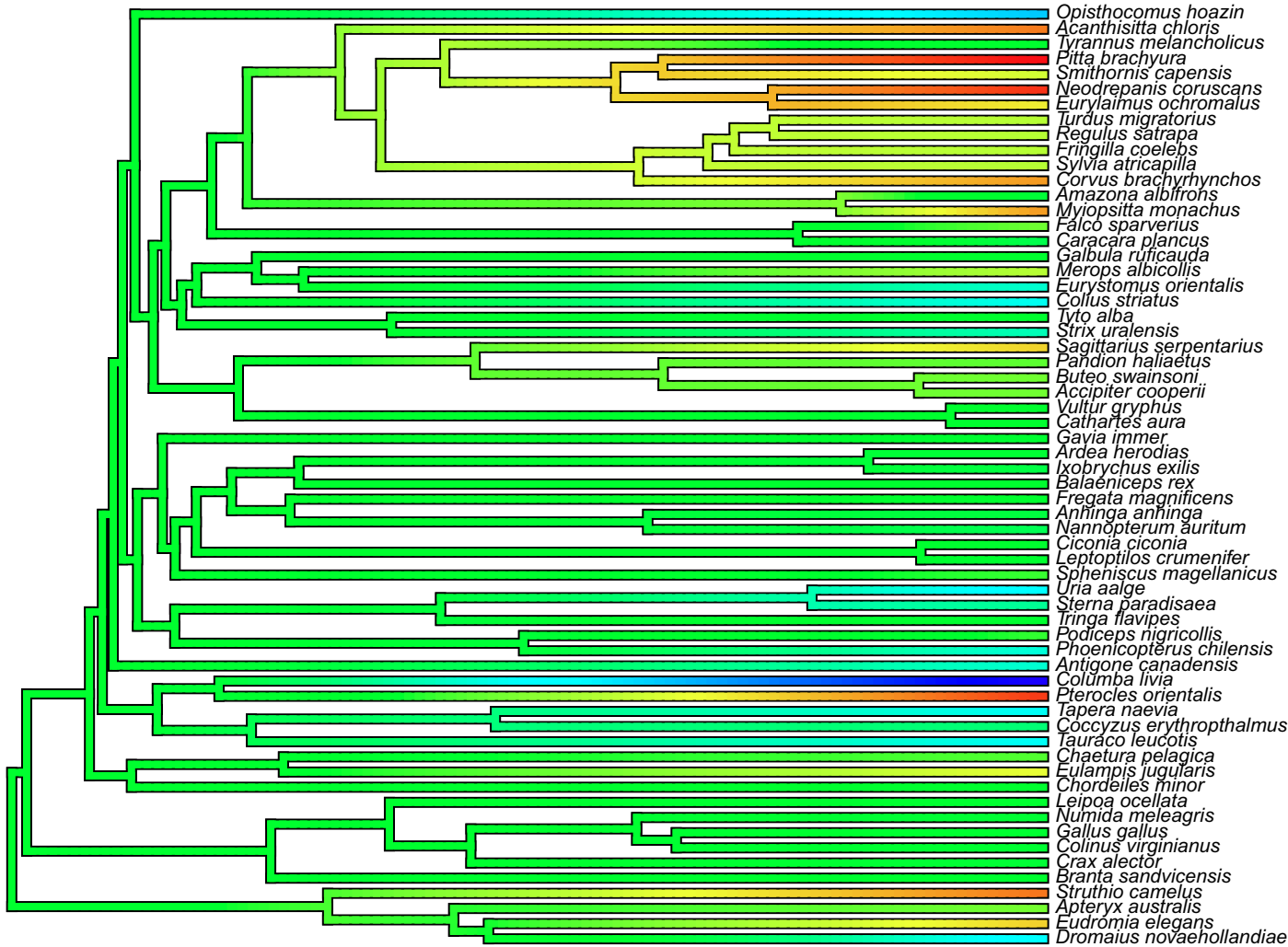
0.592

length=51.035

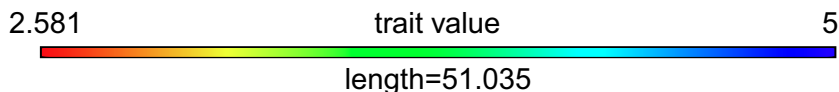
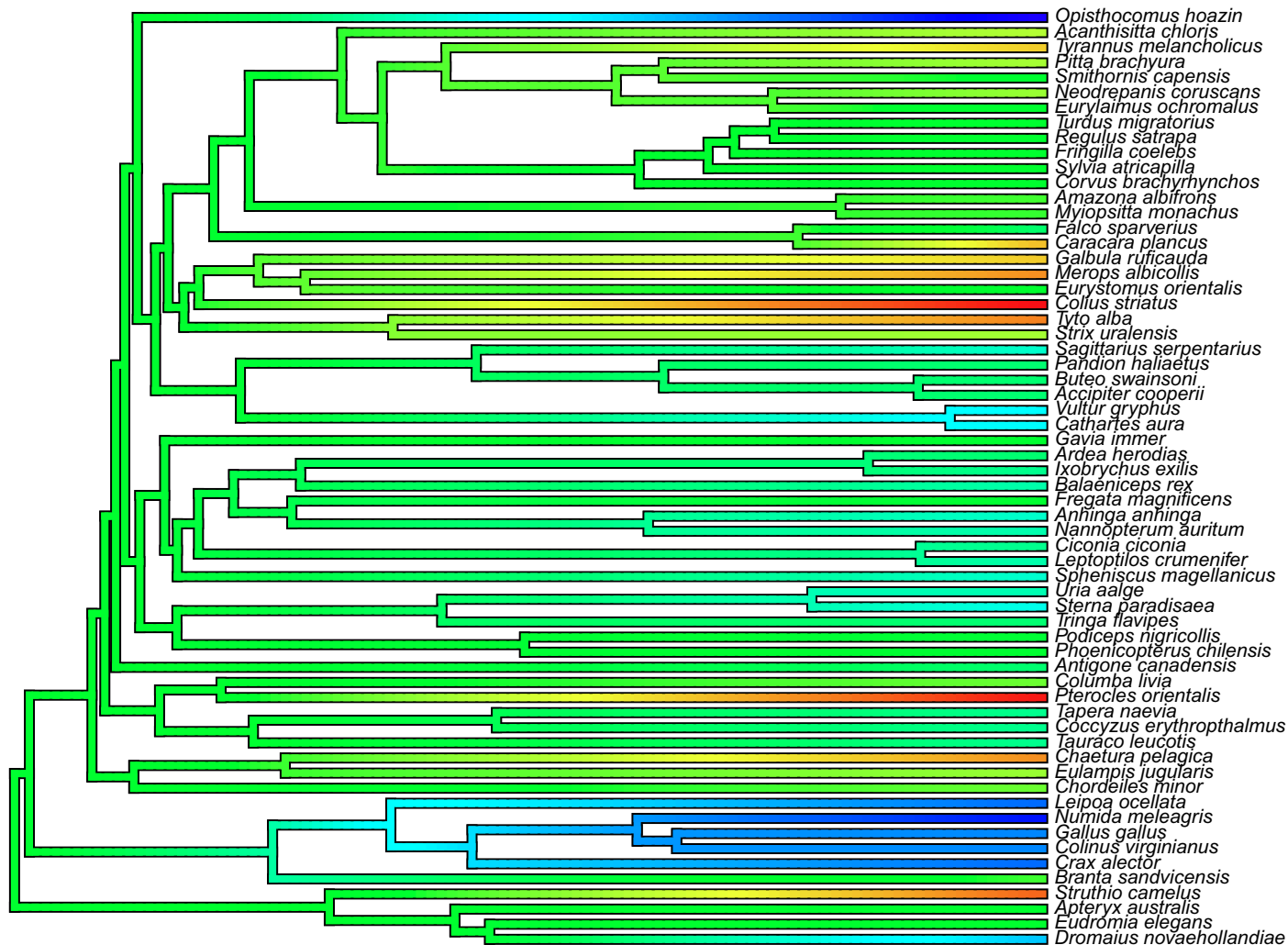
e Average path length (APL)



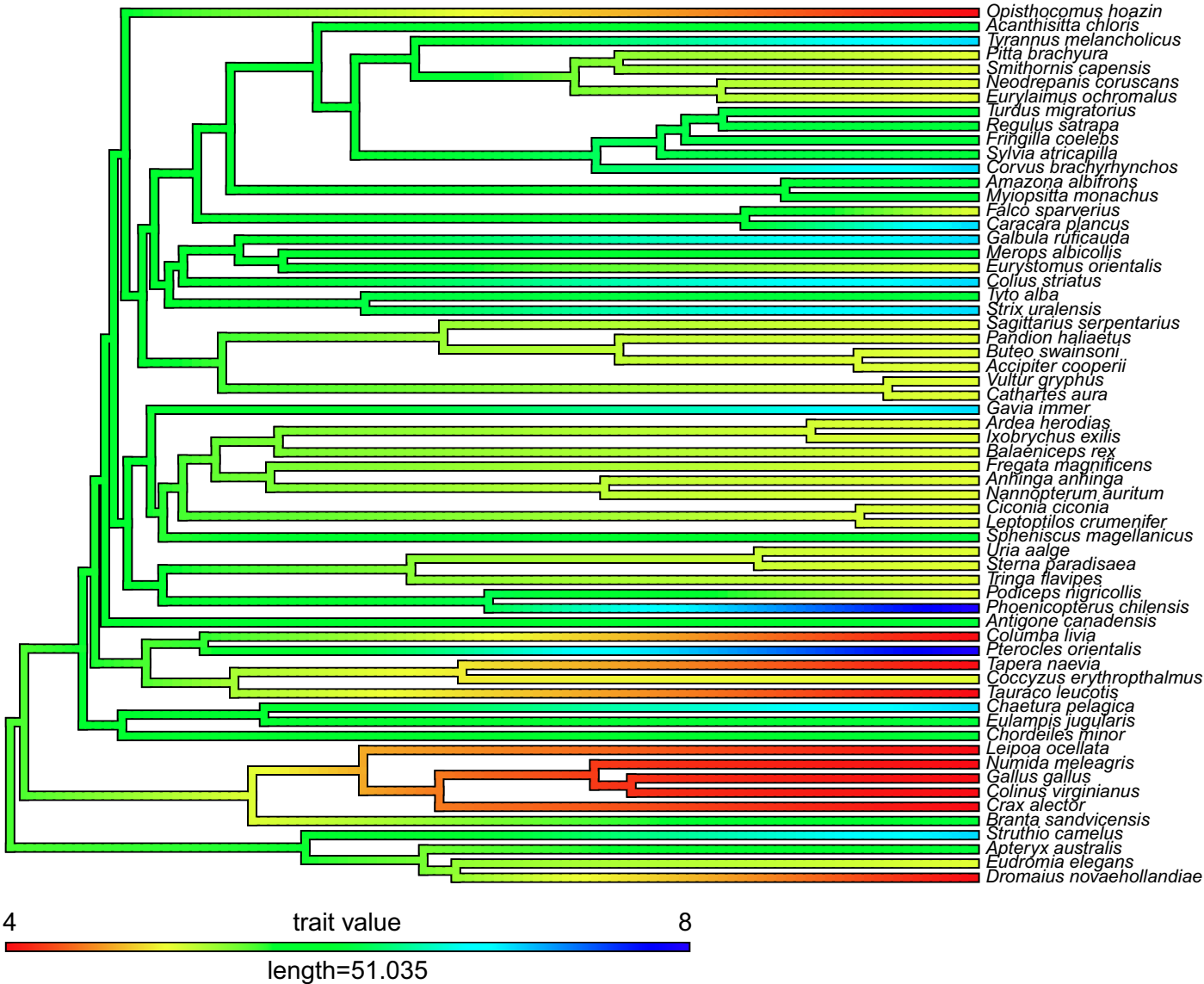
f Heterogeneity (H)



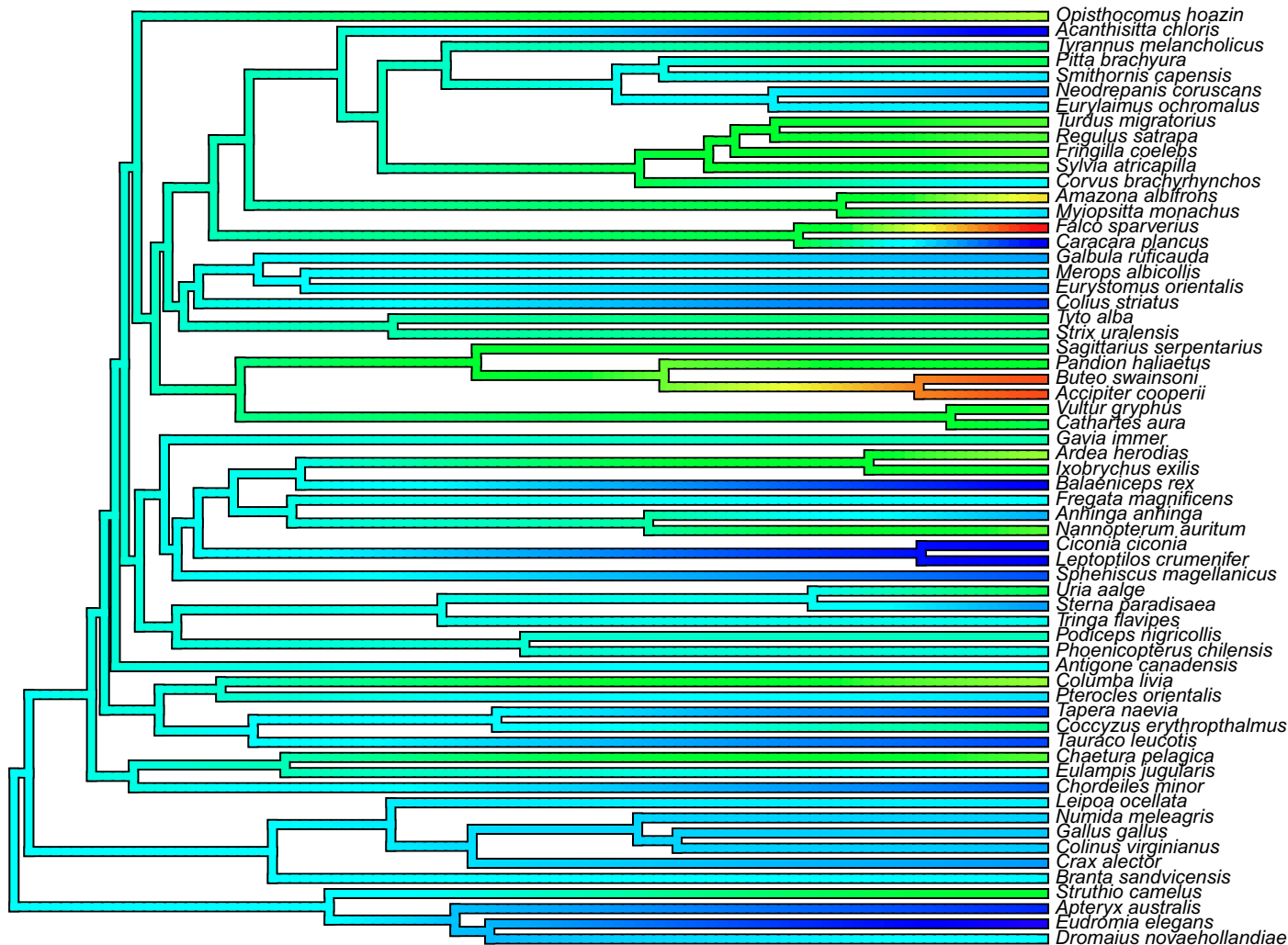
g Average degree (AD)



h Network diameter (ND)



i Parcellation (PA)



0.622

trait value

0.848

length=51.035