

## Supplementary material 1

The NONA format data file (Goloboff 1999), exported from WinClada (Nixon 2002), supporting the cladistic analysis of *Tropopterus* spp. with *Pharetis thayerae* as outgroup is below. Characters used in the analysis are described in the text. To replicate the cladistic analysis, export this PDF to "Text(Plain)" and save as a file with an ".ss" suffix. Open the .ss file in Notepad and delete all verbiage before "xread" and save as ANSI txt. Then the file may be imported into WinClada, making certain the Input file dialog box accepts "ALL files." Save the file in WINC format and then you may view the single most parsimonious cladogram and the character distributions under various optimizations.

```
xread
''37 10
Pharetis_thayerae_EOZ      00100000111000100000220000000000?2110
Tropopterus_duponchelii_San+NV 1[12]021230000001[12]1012130211111112101112
Tropopterus_giraudyi_San+NV+SV 120212[12]100001111032112311111102112012
Tropopterus_montagnei_San  010111[12]0000001110322102101111???12001
Tropopterus_canaliculus_NV 120122[23]10000111102210211011110010211[12]
Tropopterus_fieldianus_SV  12022220000101[12]1121131111111111?1012
Tropopterus_minimucro_NV+SV 12022210000[01]1111121132110011111110012
Tropopterus_peckorum_San   010221100000010102221[12]3101111001?2111
Tropopterus_robustus_NV    01021[12][23]000010121000100110011102110001
Tropopterus_trisinuatus_NV 12022110010[01]01111211023111?1?????0012
;
cc + 0.36;
proc /;
optcode f 0.22 24.36;
optcode u 23;

#
$
;
cn {0 Antennomere_9_length/width_ratio 1.42<x<=1.97 2.0<x<2.8;
{1 Number_of_ommatidia-horizontal_diameter 12-17 18-21 23-26;
{2 Paraglossae_relative_to_ligula adjacent
set_off_laterally_from_basal_portion_of_glossal_sclerite;
{3 Mentum_paramedial_depression broad_shallowly_depressed
deep_but_without_abrupt_pit deep_with_narrow,_distinct_pit_at_depth;
{4 Labral_apical_margin straight moderately_concave deeply_concave;
{5 Ocular_ratio <1.30 1.30-1.40 1.40-1.50;
{6 Ocular_lobe_ratio <0.70 0.76-0.83 0.85-0.90 0.91-0.94;
{7 Anterior_pronotal_margin smooth_medially_margined_laterally
with_marginal_bead_medially_and_laterally;
{8 Pronotal_median_base coplanar_with_disc_medially
depressed_relative_to_disc_medially;
{9 Pronotal_basal_margin straight trisinuate;
{10 Lateral_setal_position 1_setal_diameter_from_lateral_marginal_depression
2_setal_diameters_from_lateral_marginal_depression;
{11 Pronotal_breadth_ratio_MPW/PL 1.20-1.32 1.33-1.40;
```

{12 Prosternum\_and\_prosternal\_process  
 broadly\_depressed\_medially\_in\_basal\_half\_of\_pronotum  
 deeply\_and\_narrowly\_depressed\_medially\_in\_basal\_half;  
 {13 Apex\_of\_scutellum\_extended\_onto\_elytral\_disc\_between\_elytral\_bases  
 not\_or\_only\_slightly\_extended\_onto\_disc\_mostly\_in\_basal\_groove;  
 {14 Elytral\_shape\_MEW/EL 0.66-0.68 0.69-0.74 0.75-0.81;  
 {15 Elytral\_humeral\_angle rounded\_tightly\_rounded\_to\_obtuse-angulate;  
 {16 Elytral\_basal\_groove present\_from\_scutellum\_to\_humeral\_angle  
 absent\_medially\_at\_most\_present\_just\_mesad\_humeral\_angle;  
 {17 Elytral\_striae\_on\_disc 1-4\_shallow,\_punctate\_5-7\_progressively\_obsolete  
 1-2\_shallow,\_punctate,\_3-7\_progressively\_obsolete  
 only\_sutural\_stria\_1\_present,\_2-7\_obsolete\_all\_discal\_striae\_obsolete;  
 {18 Elytral\_striae\_on\_apex 1-3\_to\_1-  
 5\_traceable\_on\_apex\_7\_evident\_mesad\_subapical\_situation\_only\_striae\_1-  
 2\_&\_7\_visible\_near\_apex\_3-6\_obsolete  
 only\_sutural\_stria\_or\_no\_striae\_traceable\_near\_apex;  
 {19 Sutural\_stria\_at\_apex\_(when\_present) uniformly\_punctate  
 with\_anteapical\_punctate\_section\_and\_apical\_canalicula  
 absent\_anteapically,\_smooth\_apically;  
 {20 Elytral\_stria\_8 smooth\_throughout\_length,\_deep\_at\_midlength  
 smooth\_throughout,\_shallow\_at\_midlength  
 deep\_fore\_and\_aft,\_isolated\_punctures\_at\_midlength  
 present\_fore\_and\_aft,\_absent\_at\_midlength;  
 {21 Mesepisternum\_smooth-3\_small\_punctures\_with\_~4-7\_punctures\_in\_1\_row  
 with\_8-18\_punctures\_in\_2-3\_rows;  
 {22 Metepisternum\_width/length <0.75 0.78-0.83 0.85-0.88 1.0;  
 {23 Metathoracic\_flight\_wing foreshortened,\_stenopterus  
 vestigial,\_apex\_not\_extended\_past\_metanotum;  
 {24 Lateral\_abdominal\_suture\_between\_ventrites\_1\_and\_2  
 straight\_or\_slightly\_sinate  
 sinuate\_with\_ventrite\_2\_depressed\_within\_sinuosity;  
 {25 Base\_of\_ventrites\_4-6  
 smooth\_small\_punctures\_may\_be\_present\_along\_basal\_margin  
 sulcate\_the\_sulcus\_lined\_with\_distinct\_punctures;  
 {26 Apical\_abdominal\_ventrite\_6\_(male) with\_1\_seta\_each\_side\_(total\_of\_2)  
 with\_2\_setae\_each\_side\_(total\_of\_4);  
 {27 Metatarsomere\_4\_apex truncate\_apically  
 emarginate,\_outer\_lobe\_longer\_than\_inner\_lobe;  
 {28 Male\_aedeagal\_orientation plesiomorphic\_right\_side\_ventral  
 inverted\_left\_side\_ventral;  
 {29 Abdominal\_IX\_antecostal\_apodeme  
 distinctly\_angulate\_distally,\_extension\_may\_be\_present  
 rounded\_or\_obtusely\_rounded\_distally;  
 {30 Aedeagal\_median\_lobe\_apex smoothly\_rounded\_or\_acuminate  
 with\_small\_mucro\_on\_ventral\_margin\_with\_large\_mucro\_on\_ventral\_margin;  
 {31 Male\_aedeagal\_median\_lobe\_ostial\_opening surrounded\_by\_smooth\_membrane  
 surrounded\_by\_pleated\_membrane;  
 {32 Female\_basal\_gonocoxite\_1 with\_one\_apical\_fringe\_seta\_each\_side  
 with\_two\_apical\_fringe\_setae\_each\_side\_(one\_may\_be\_smaller);

```
{33 Microsculpture_of_vertex evident_isodiametric_mesh
shallow_isodiametric_mesh indistinct,_surface_glossy;
{34 Microsculpture_of_pronotum dense_transverse_mesh transverse_lines;
{35 Microsculpture_of_elytra transverse_mesh,_up_to_3-4X
elongate_transverse_mesh_to_transverse_lines_iridescent;
{36 Standardized_body_length <_5.0_mm 5.0-6.1_mm 6.7-8.4_mm;
;
tread 'wha' (0(8(((1(5(6 9))) (2 4)) (3 7))))
;
```