

Figure S1 – Wings of the species **A)** *Liopiophila varipes*, **B)** *Piophila casei*, **C)** *Parapiophila flavipes*, **D)** *Protopiophila litigata*, **E)** *Protopiophila latipes*, **F)** *Piophila megastigmata*, **G)** *Prochyliza nigrimana*, **H)** *Parapiophila vulgaris*, **I)** *Stearibia nigriceps*, **J)** *Centrophlebomyia furcata* and **K)** *Thyreophora cynophila*

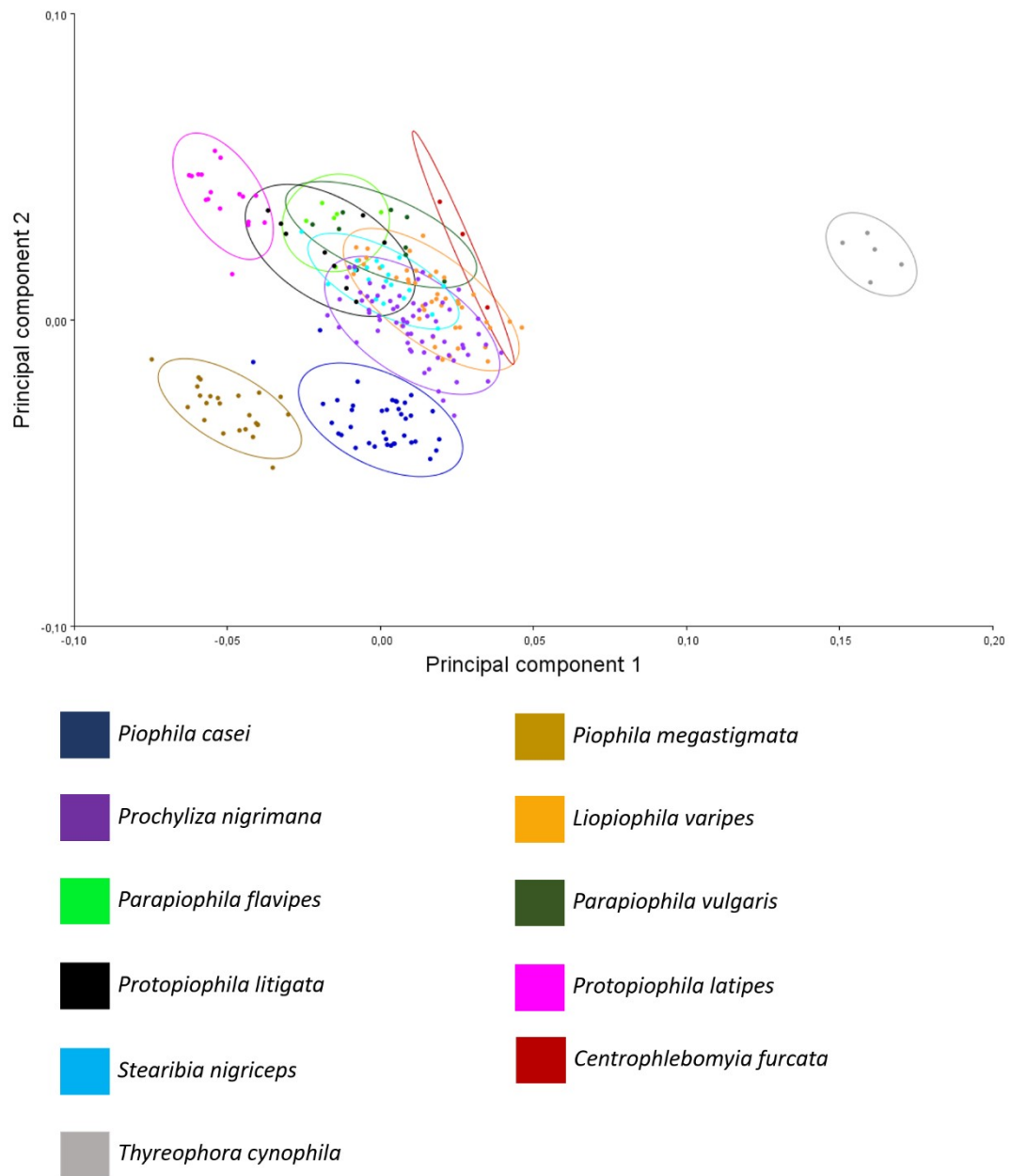


Figure S2 – Projection of the results of the PCA carried out in order to show the wing morphology differences of the different species of Piophilidae

| | <i>C. furcata</i> | <i>L. varipes</i> | <i>P. casei</i> | <i>Pa. flavipes</i> | <i>Prot. litigata</i> | <i>Prot. latipes</i> | <i>P. megastigmata</i> | <i>Proc. nigrimana</i> | <i>Pa. vulgaris</i> | <i>S. nigriceps</i> | <i>T. cynophila</i> |
|------------------------|-------------------|-------------------|-----------------|---------------------|-----------------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|
| <i>C. furcata</i> | | <.0001 | <.0001 | 0.0116 | 0.003 | 0.0002 | 0.0004 | <.0001 | 0.0043 | <.0001 | 0.0007 |
| <i>L. varipes</i> | 8.2914 | | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |
| <i>P. casei</i> | 12.0686 | 10.074 | | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |
| <i>Pa. flavipes</i> | 11.0959 | 7.922 | 13.1108 | | 0.0001 | 0.0001 | <.0001 | <.0001 | 0.0001 | <.0001 | 0.0018 |
| <i>Prot. litigata</i> | 10.9621 | 6.3319 | 11.6738 | 8.5674 | | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 | 0.0004 |
| <i>Prot. latipes</i> | 11.904 | 8.9832 | 13.3488 | 8.4452 | 5.0497 | | <.0001 | <.0001 | <.0001 | <.0001 | <.0001 |
| <i>P. megastigmata</i> | 18.895 | 16.0236 | 11.0323 | 16.9609 | 16.7723 | 17.7321 | | <.0001 | <.0001 | <.0001 | <.0001 |
| <i>Proc. nigrimana</i> | 8.2426 | 4.3151 | 8.3892 | 9.376 | 7.6037 | 9.3368 | 15.8022 | | <.0001 | <.0001 | <.0001 |
| <i>Pa. vulgaris</i> | 10.9127 | 6.2308 | 13.2457 | 6.8751 | 4.1821 | 7.0374 | 17.605 | 8.4986 | | <.0001 | 0.0007 |
| <i>S. nigriceps</i> | 8.658 | 5.0473 | 9.5735 | 6.8778 | 6.4118 | 8.0617 | 15.6722 | 5.6431 | 6.7842 | | <.0001 |
| <i>T. cynophila</i> | 21.8429 | 23.8927 | 28.6926 | 24.572 | 26.5544 | 27.6433 | 32.3147 | 24.9488 | 24.1589 | 25.7689 | |

Table S1 – Mahalanobis distances among Piophilidae species (lower triangle) and *p-value* obtained after a permutation test with 10000 rounds (upper triangle)

Table S2 – Mahalanobis distances and *p*-value obtained between sexes in the Piophilidae species studied (N° specimens by sex > 5)

| | <i>Liopiophila varipes</i> | <i>Piophila megastigmata</i> | <i>Piophila casei</i> | <i>Prochyliza nigrimana</i> | <i>Protopiophila latipes</i> | <i>Protopiophila litigata</i> | <i>Stearibia nigriceps</i> |
|-----------------------------|----------------------------|------------------------------|-----------------------|-----------------------------|------------------------------|-------------------------------|----------------------------|
| Mahalanobis distance | 4.3287 | 4.9929 | 3.1578 | 3.9812 | 3.4548 | 2.7686 | 2.3431 |
| <i>p</i>-value | <.0001 | <.0001 | <.0001 | <.0001 | 0.0006 | 0.0002 | 0.0115 |

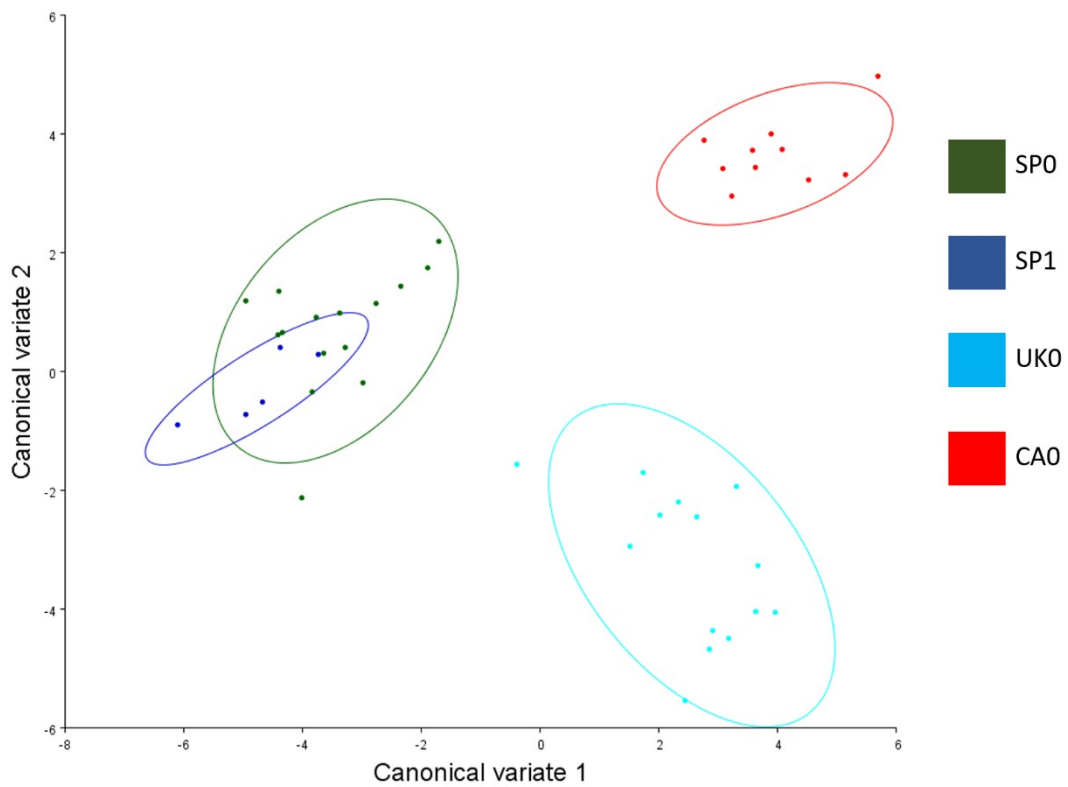


Figure S3 – Projection of the results of the CVA carried out between populations for the species *Liopiophila varipes*

Table S3 – Mahalanobis distances between *Liopiophila varipes* populations (lower triangle) and *p*-value obtained after a permutation test with 10000 rounds (upper triangle)

| | CA0 | SP0 | SP1 | UK0 |
|-----|--------|--------|--------|--------|
| CA0 | | 0.0001 | 0.0003 | <.0001 |
| SP0 | 8.0872 | | 0.0003 | <.0001 |
| SP1 | 9.8442 | 3.9238 | | <.0001 |
| UK0 | 7.074 | 7.2418 | 8.3282 | |

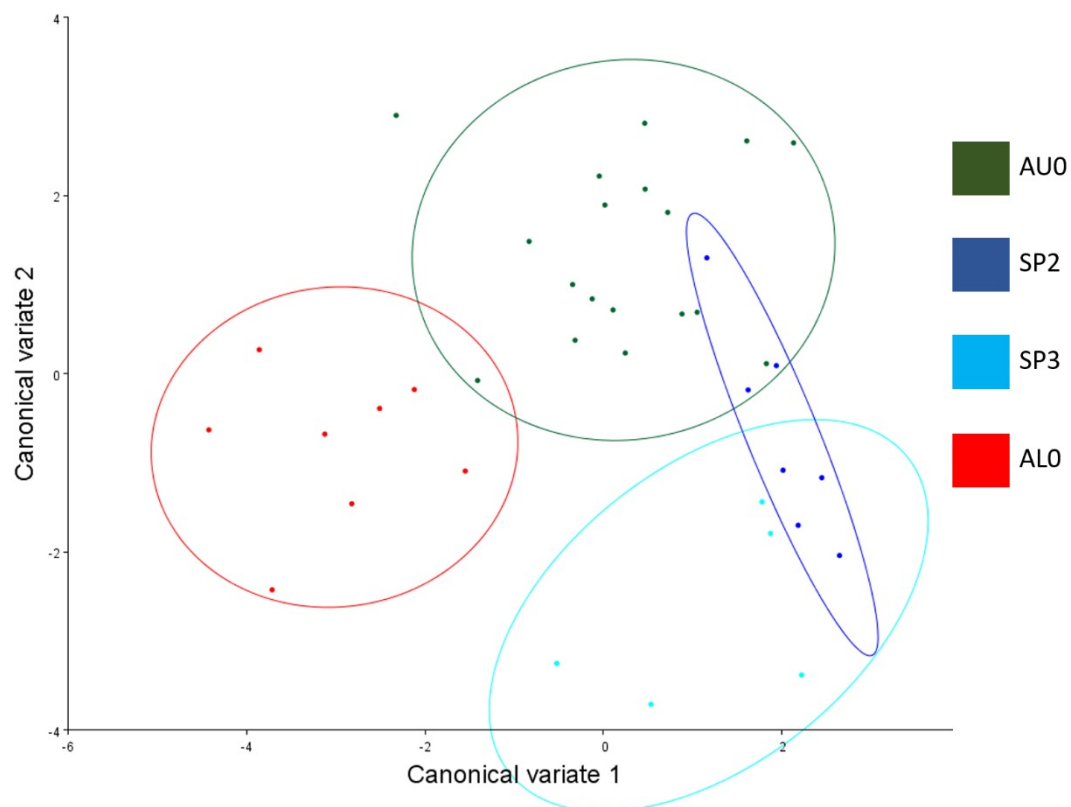


Figure S4 – Projection of the results of the CVA carried out between populations for the species *Piophila casei*

Table S4 – Mahalanobis distances between *Piophila casei* populations (lower triangle) and *p*-value obtained after a permutation test with 10000 rounds (upper triangle)

| | AL0 | AU0 | SP3 | SP2 |
|------------|------------|------------|------------|------------|
| AL0 | | <.0001 | 0.0006 | 0.0002 |
| AU0 | 4.0783 | | <.0001 | <.0001 |
| SP3 | 5.2456 | 4.4383 | | 0.0022 |
| SP2 | 5.2107 | 3.6919 | 4.4769 | |