Responsible Editor: Oscar Puebla.

✉ F

Fig. 1 *Orthopyxis*

caliculata, O. crenata F *Sargassum Carpophyllum*

Patterns of genetic variation

Orthopyxis %

F

F 4

FF

O. crenata O. caliculata

O. sargassicola *apex* *pegas* *mmod* F

% + F

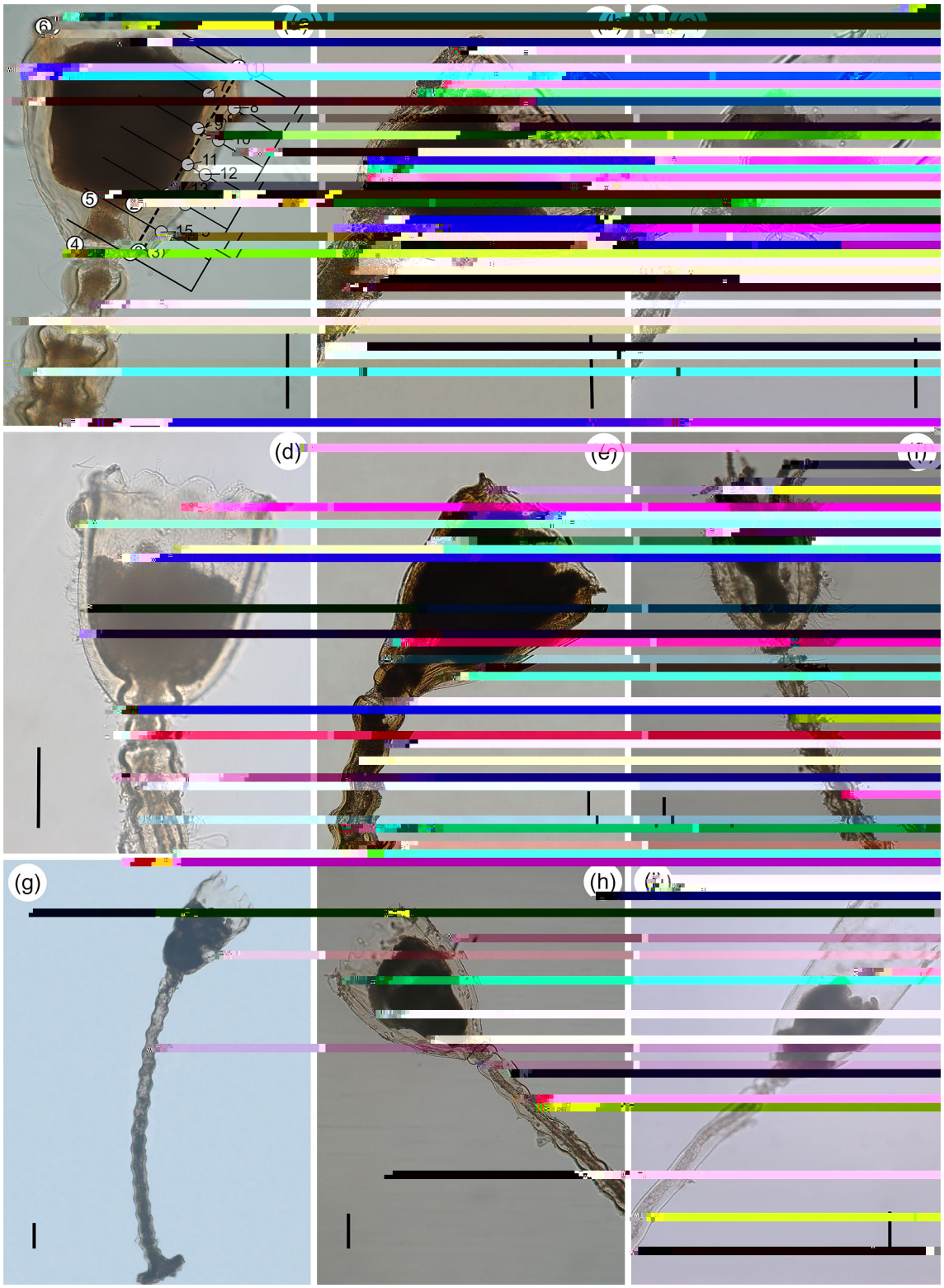


Fig. 2 *Orthopyxis* (**a** *O. caliculata* 4 **b** *O. caliculata* w 4 ( ) ( ) **c** *O. crenata* ◢ **d** *O. crenata* 4 ◢ **e** *O. crenata* w 4 (**f i** *O. sargassicola* **f** (◢) **g** (◢) **h i** h ◢ **i** ◢

geomorph

geomorph *RRPP*

Morpho

(*geomorph*) (*RRPP*)

O. caliculata

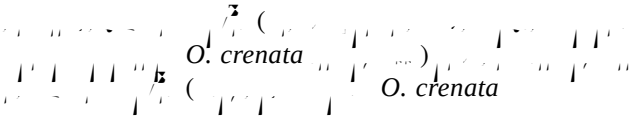
Environmental data and covariation with morphological data

sdmpredictors *leaflet*

Orthopyxis

geomorph *mixOmics*

usdm


O. crenata
O. crenata

Morphological variation

O. caliculata … *O. caliculata*- … (*F* … *P* … F … (*F* … *P* … F … 4 4% … *O. caliculata*- … (F … F …)

O. crenata … (*O. crenata* …) … (*O. crenata* … *F* … 4 … *P* … F …) … *O. crenata* … *O. crenata* … *F* … *P* …) … 4% … (F … F …)

O. sargassicola (*F* … *P* … F …) … 4%) … (*F* … *P* … F …) … (F … F …)

Association between environmental and morphological data

Orthopyxis … (F …)

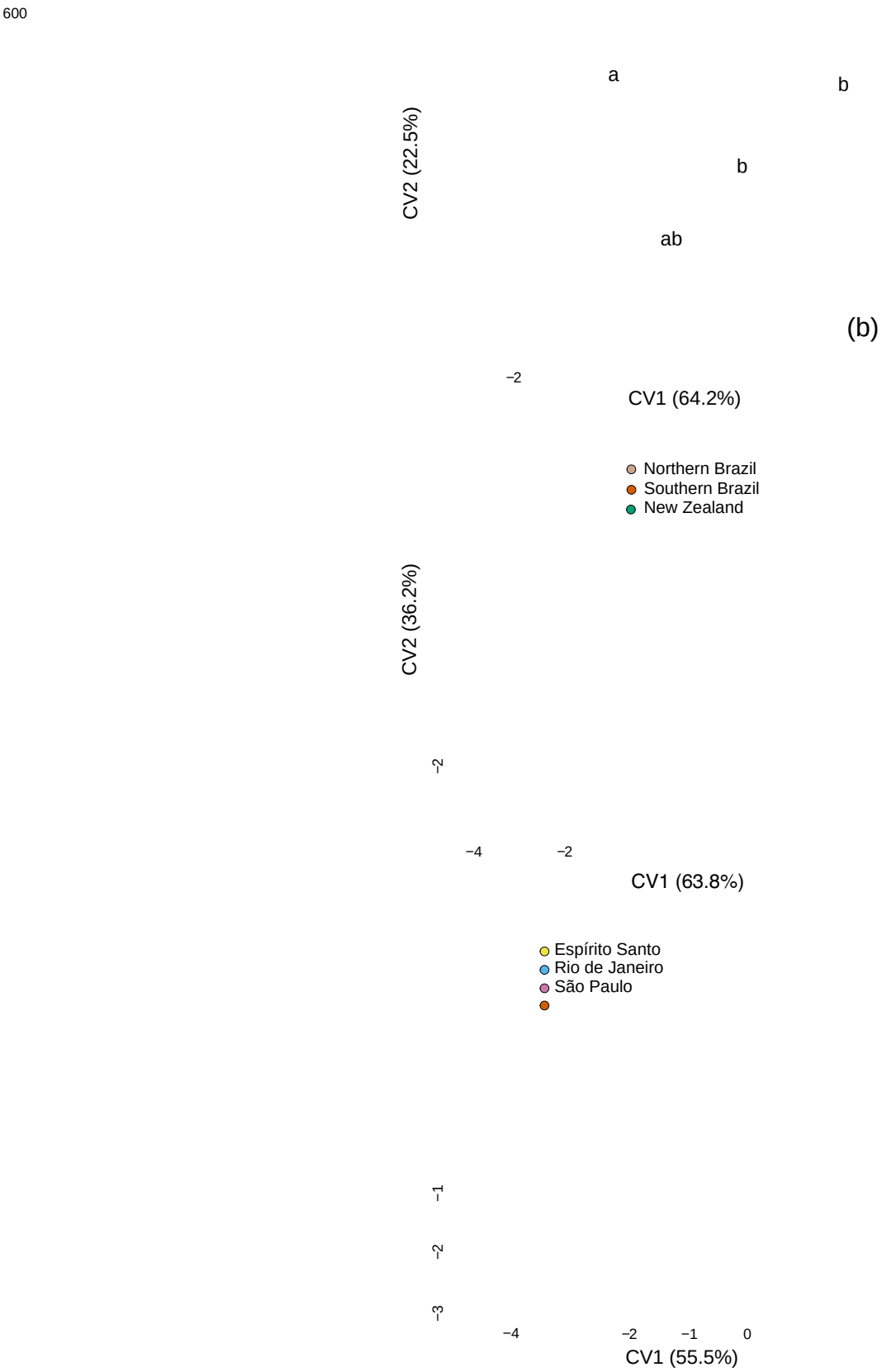
… (*O. caliculata* … *P* … *O. crenata* … *P* … *O. sargassicola* … *P* …) … (F …) F … *O. caliculata* … *O. crenata* … *O. sargassicola* … *O. sargassicola* (F …)

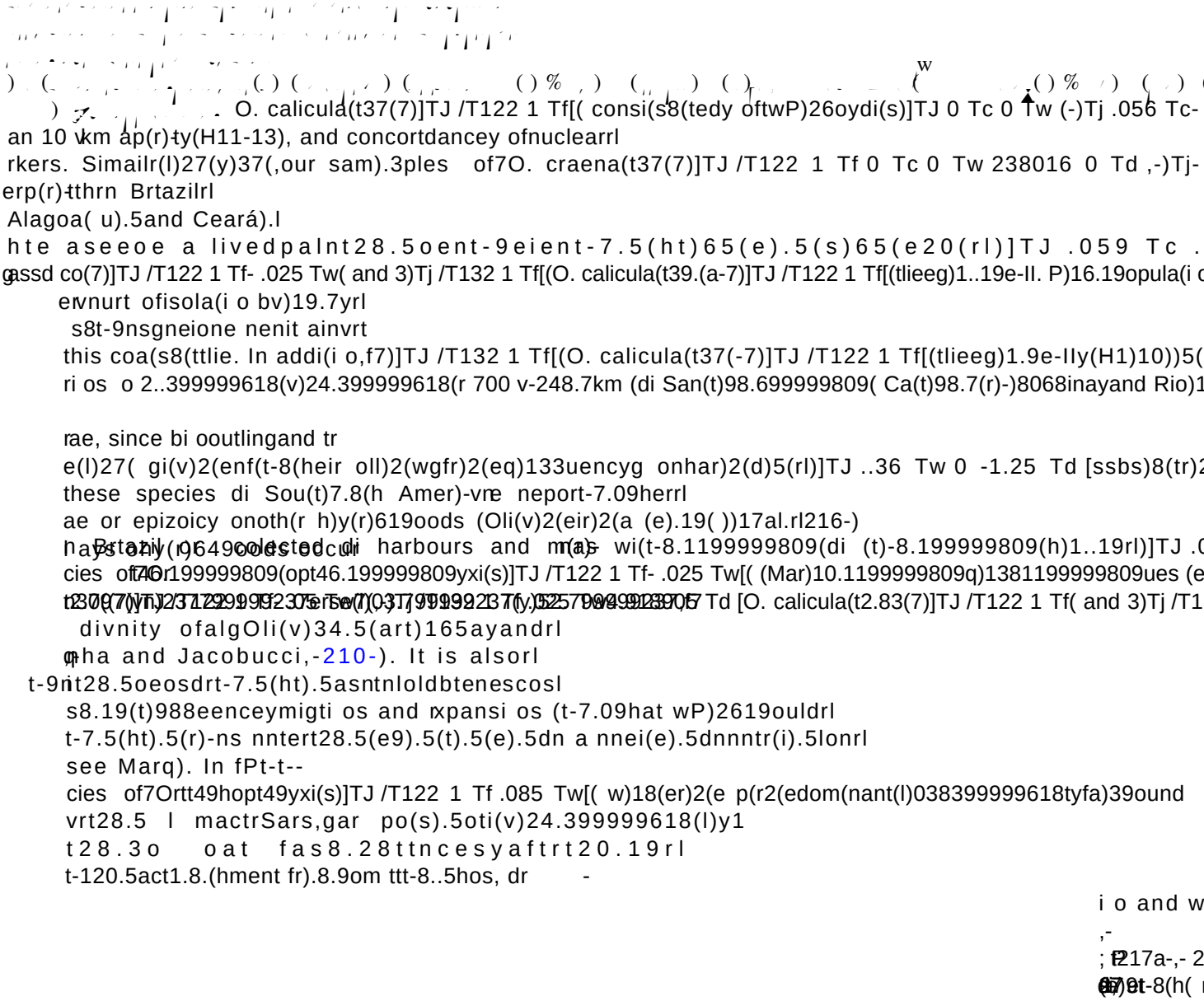
Discussion

Orthopyxis … *O. sargassicola* … *O. caliculata* … *O. crenata* … *O. caliculata* …

Spatial patterns of genetic variation

Orthopyxis …


600
a
b
b
ab
CV2 (22.5%)
(b)
−2
CV1 (64.2%)
Northern Brazil
Southern Brazil
New Zealand
CV2 (36.2%)
−2
−4
−2
CV1 (63.8%)
Espírito Santo
Rio de Janeiro
São Paulo
−1
−2
−3
−4
−2
−1
0
CV1 (55.5%)



Orthopyxis.

Morphological and environmental variation

Orthopyxis

O. crenata

(F)

O. caliculata.

O. caliculata (

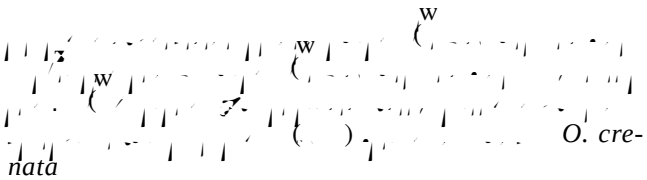
(F)

O. crenata

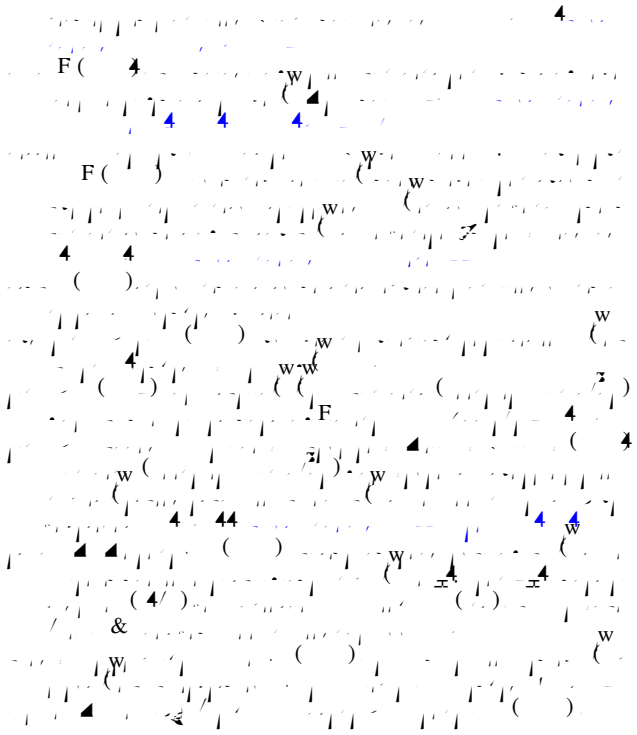
F) *O. caliculata* *O. crenata* (

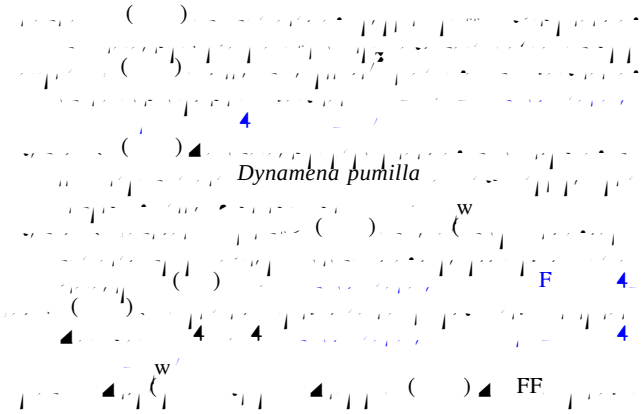
O. crenata

4



O. crenata




Dynamena pumilla

Macrorhynchia phoenicea