Three new species of *Strandesia* (Ostracoda, Cyprididae) from the Alluvial Valley of the Upper Paraná River (Brazil)

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Introduction

- Cypricercinae is one of the most speciose subfamilies of (recent) freshwater Ostracoda (170 species, 11 genera). They are especially common in the (sub-) tropics.
- A species cluster related to the *S. obtusata/ elliptica lineage* in the Upper Parana River floodplain remained taxonomically unclear, because of absence of males and variable valve outlines.
- Here, we combine morphological and molecular methods to unravel this cluster.

Material and Methods

- Specimens of *Strandesia* were collected from 32 localities (fig. 1) between 2004 and 2011, mostly from pleuston in roots from floating plants. Most localities were sampled at several occasions.
- Specimens were dissected , valves used for SEM, soft parts partly drawn.
- The mitochondrial COI1 gene was sequenced for 13 specimens. Baysian phylogenies (fig. 2) and parsimonious networks (not shown) were constructed. We applied Birky's 4x rule to test for the specific validity of the resulting clusters.
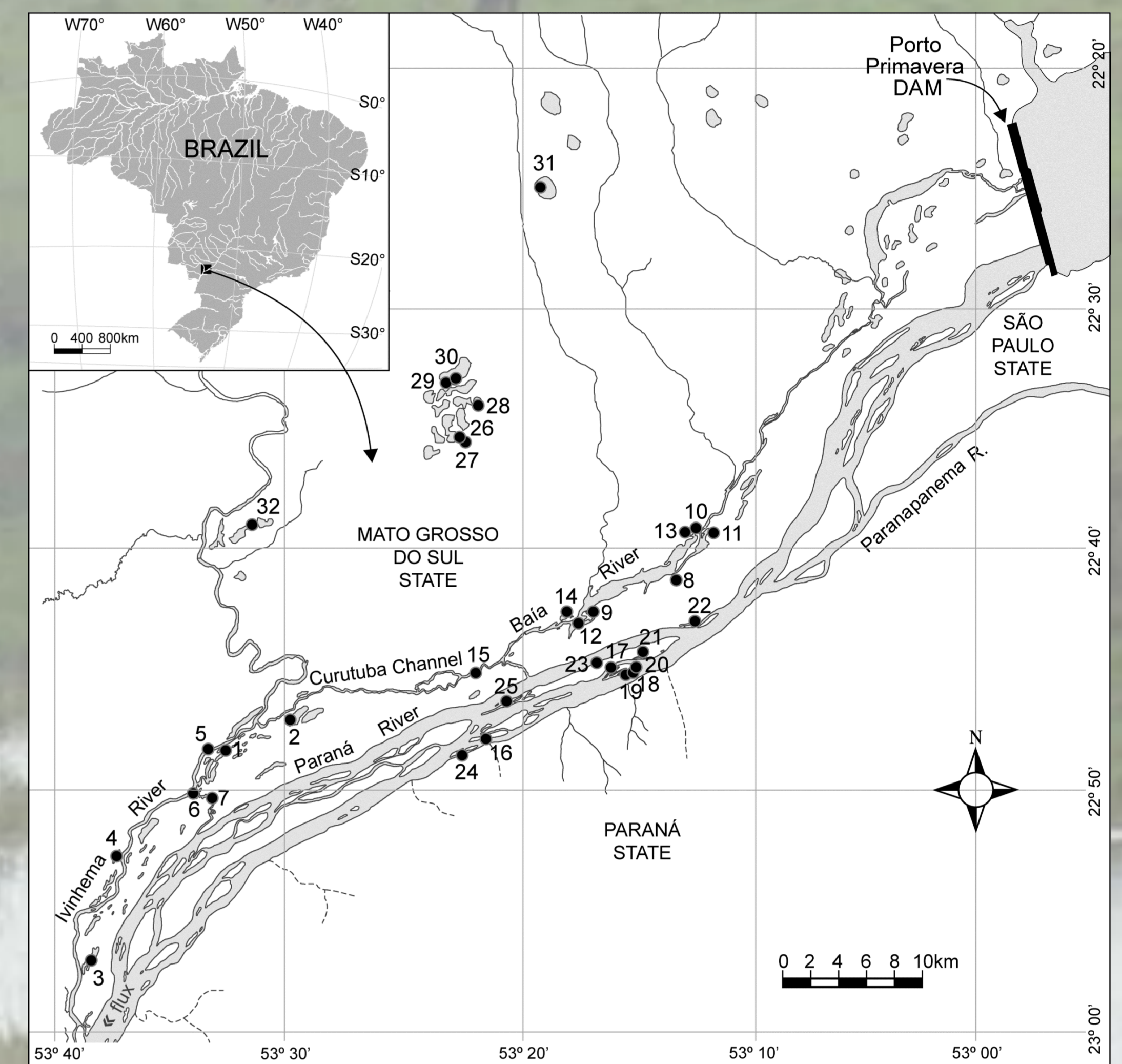

Fig.1: Localities in the alluvial valley of the Upper Paraná River floodplain from which the *Strandesia* specimens were collected.
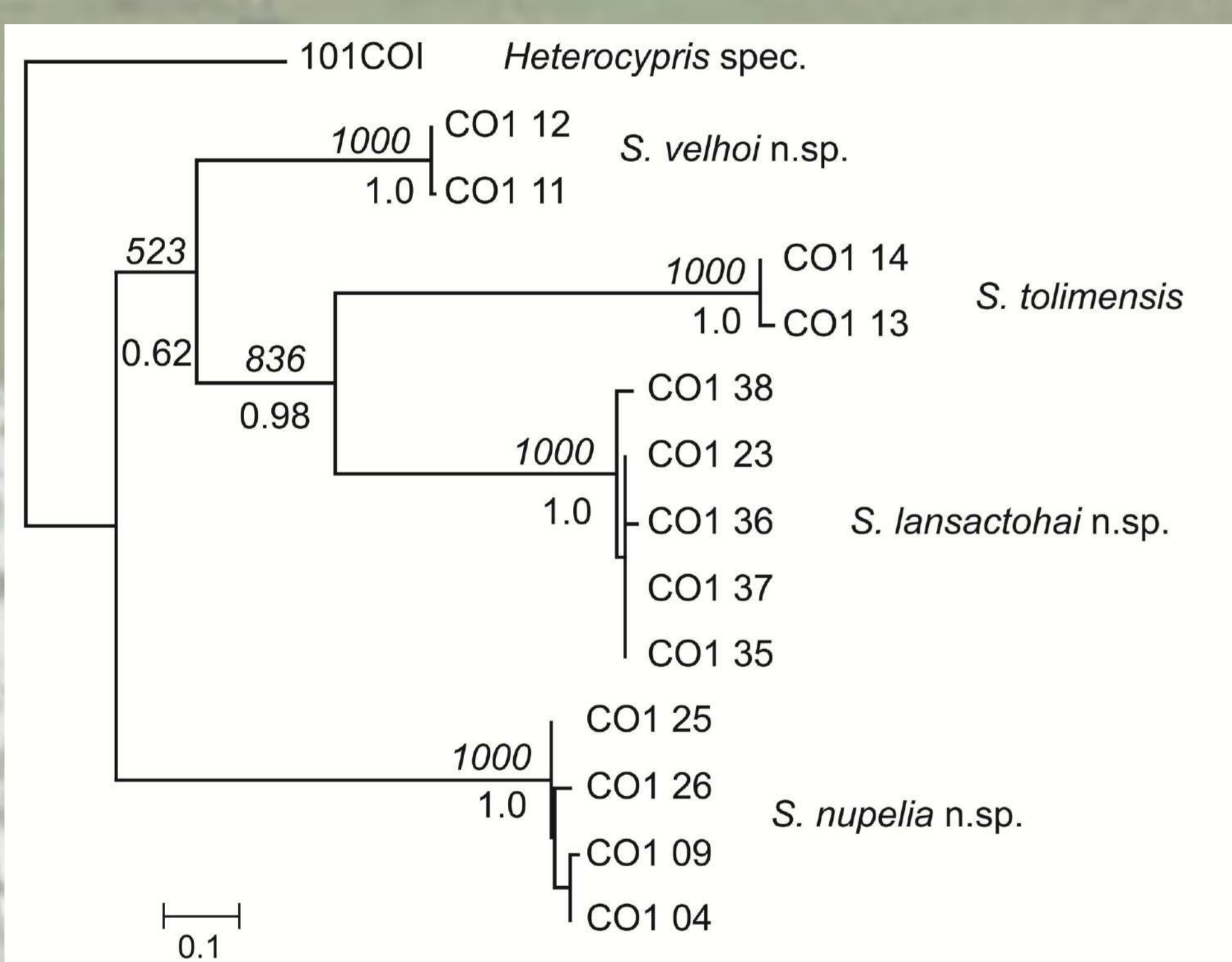

Fig. 2: Phylogenetic COI tree of the four *Strandesia* species, (re-) described here, constructed with Maximum-Likelihood (ML) and Baysian (B) methods.

Fig. 3: SEM images of the four *Strandesia* species.
1. *S tolimensis* Roessler, 1990, 2. *S. lansactohai* n.sp., 3. *S. velhoi* n.sp., 4. *S. nupelia* n.sp.
A,D,G,J = RV, external view. B,E,H,K = Carapace, dorsal view. C, F, I, L = carapace, frontal view.
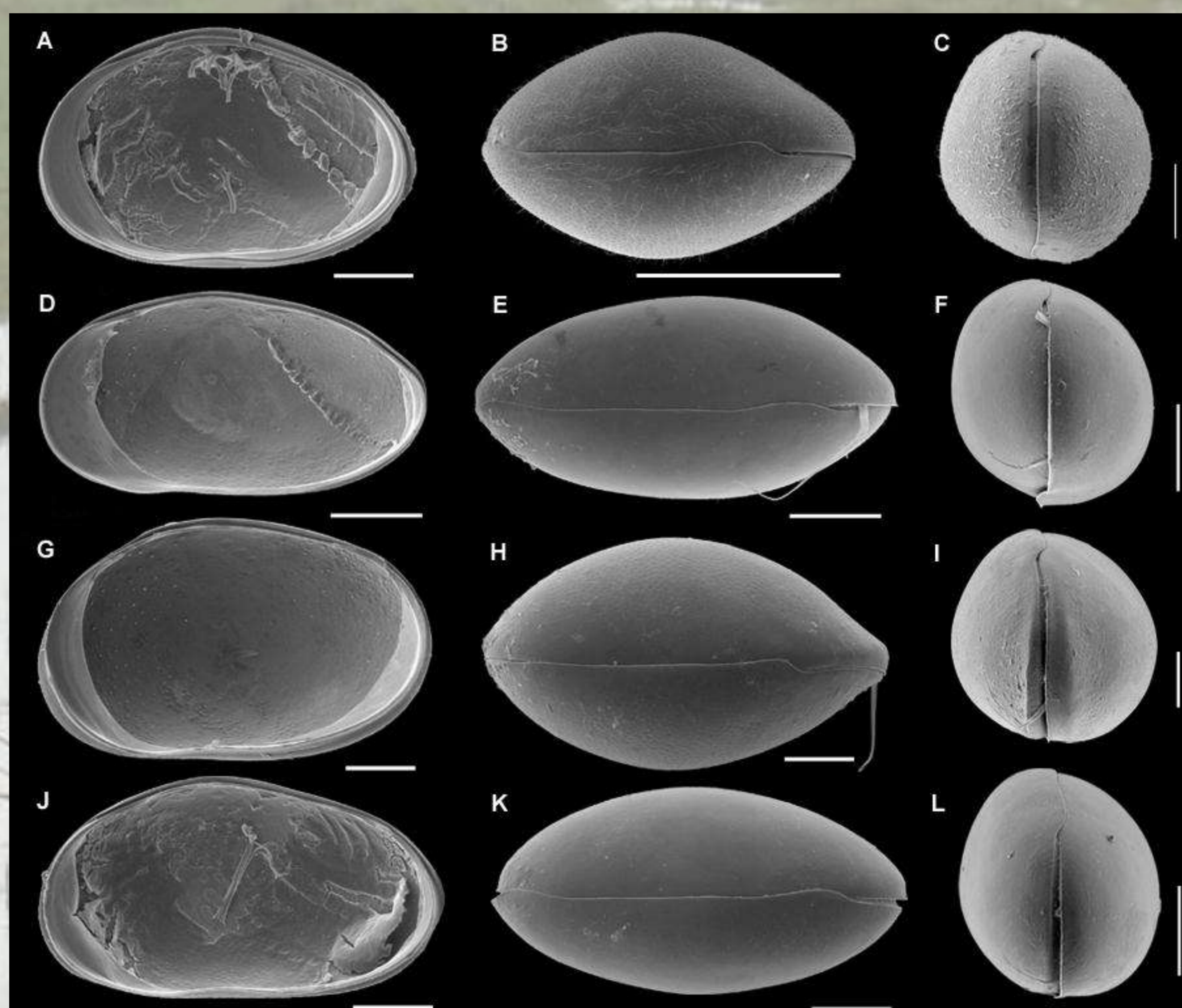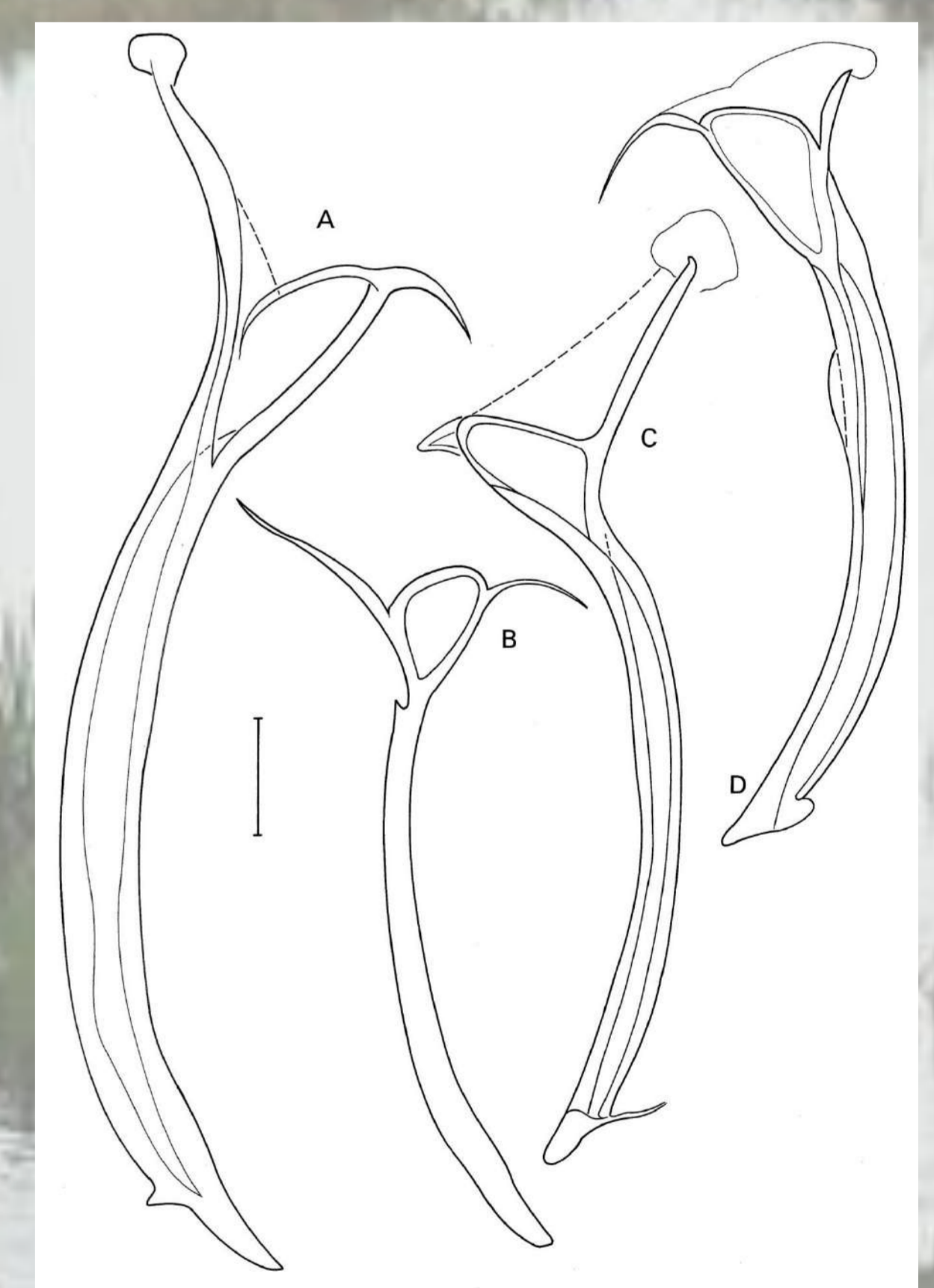Scale bars: A, C - K: 200 um, B: 500 um, L: 250 um

Fig. 4: Attachment of caudal ramus of the *Strandesia* species. A, *S. velhoi* n. sp.; B, *S. tolimensis* Roessler, 1990; C, *S. nupelia* n. sp.; D, *S. lansactohai* n. sp.

Results, Discussion

- Four clearly separated clusters appear in the phylogeny (with maximal support) (fig. 2) and in the networks (not shown). Molecular analyses confirm the specific status of the four clusters.
- Morphological valve analyses show that the four species can be identified based on valve morphology (fig. 3) and shape and size of the attachment of the caudal ramus (fig. 4) . All other soft part features appear uninformative.
- One species can be identified as *Strandesia tolimensis* Roessler, 1990. The three other species are described as new to science: *S. velhoi* n.sp., *S. lansactohai* n.sp., *S. nupelia* n.sp.

Reference:
Higuti, J. I. Schön, L. Audenaert & K. Martens (in press). On the *Strandesia obtusata/ elliptica* – lineage (Ostracoda, Cyprididae) in the alluvial valley of the upper Paraná river (Brazil), with the description of three new species. *Crustaceana*.