

## Supplementary material

### Reproductive dynamics, age and growth of *Astyanax aff. fasciatus* in a Neotropical basin

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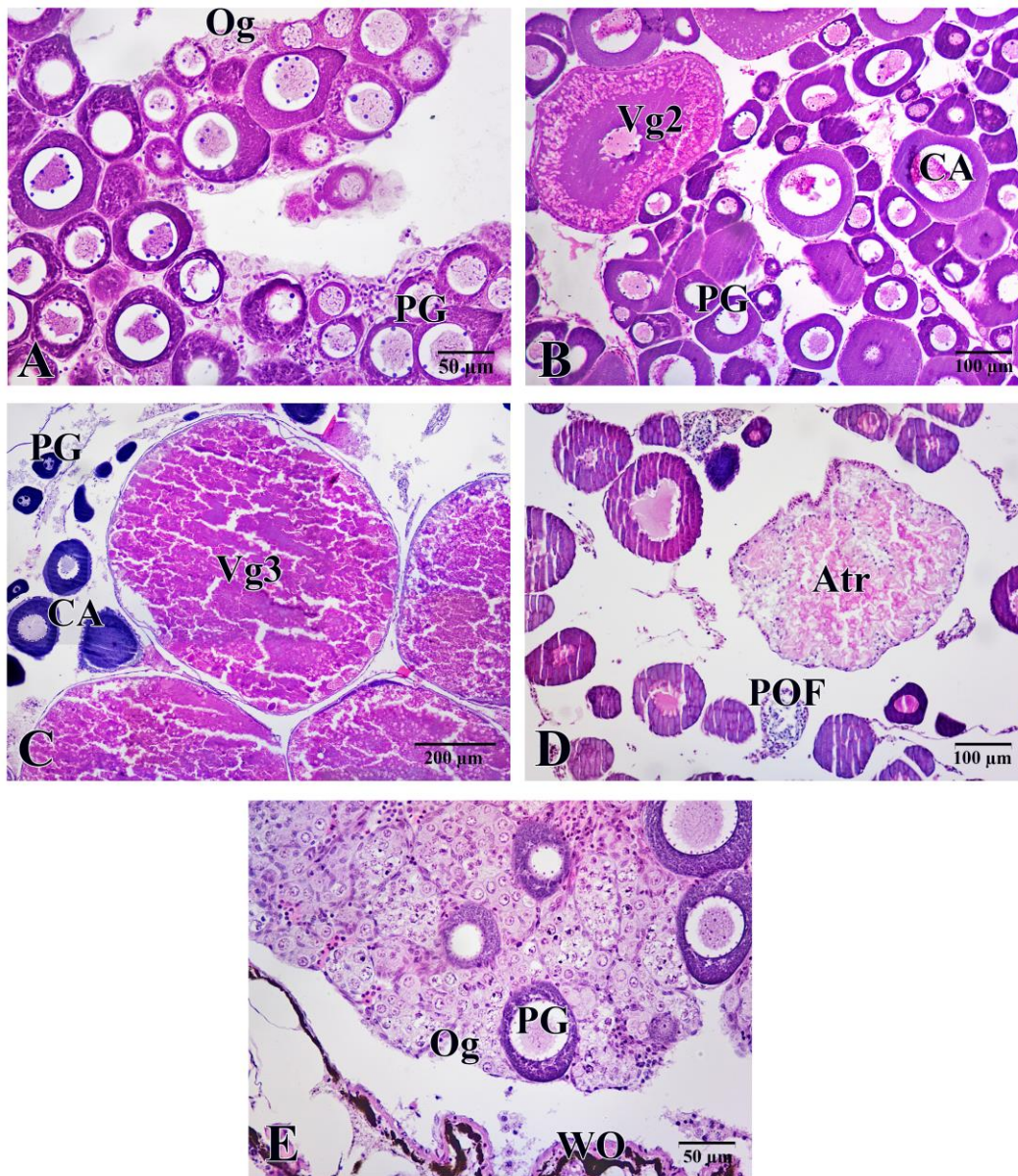
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**Table S1. Microscopic description of the ovarian development phases of *Astyanax aff. fasciatus* from the São João River basin**

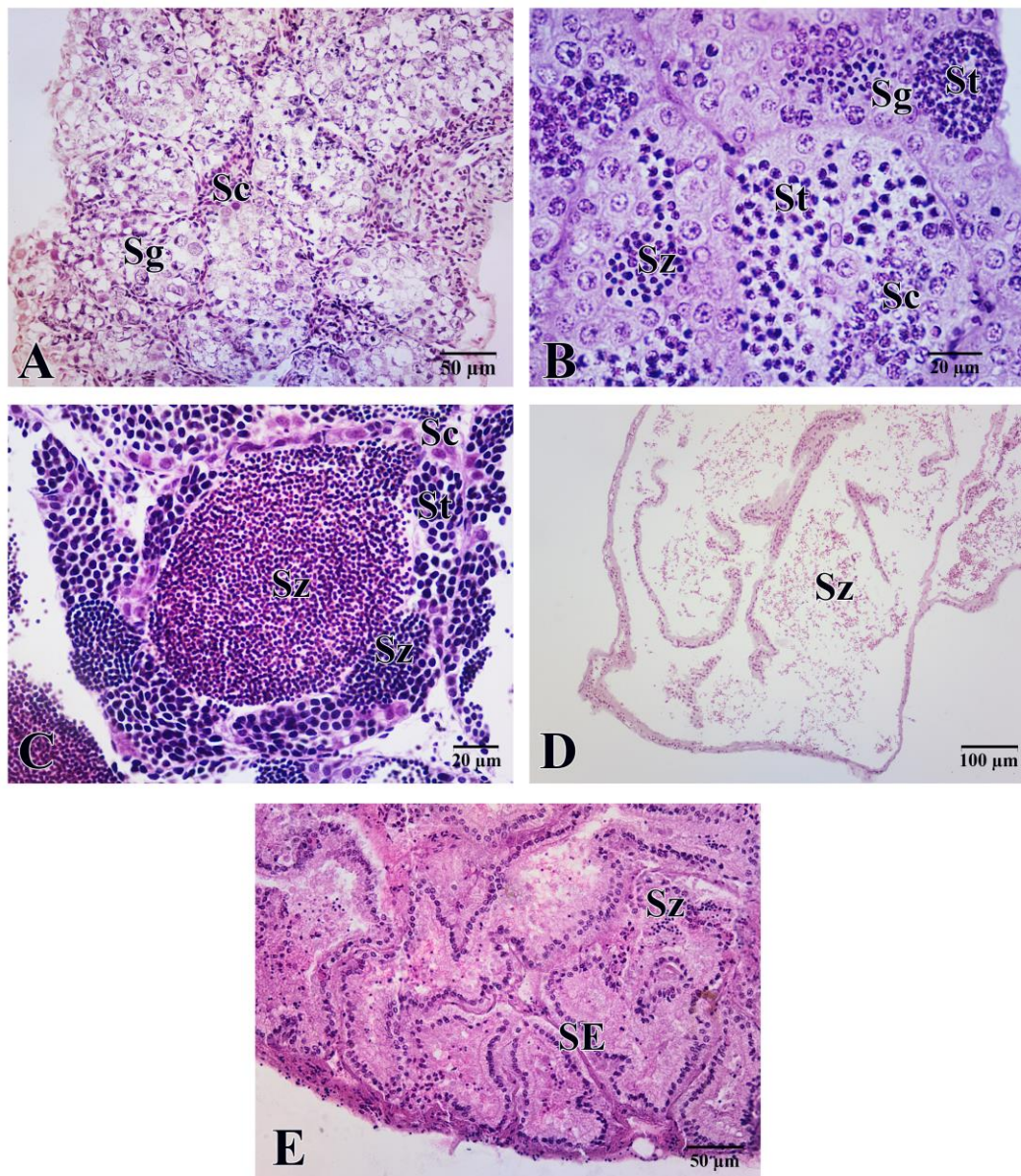
Ovarian development phases	Microscopic features
Immature	Presents oogonia (Og) and oocytes in primary growth (PG). There is scarce connective tissues and little space among the oocytes. The ovarian wall is thin (Fig. S1a).
Developing	Presents oocytes in PG and in secondary growth (SG). Characterises the SG stage the vitellogenic activity, which can present cytoplasmic inclusion of lipid vacuoles (cortical alveolar oocyte, CA) and of yolk (Vg2) (Fig. S1b).
Spawning capable	Presents great amounts of vitellogenic oocytes with complete cytoplasmic yolk accumulation (Vg3). The occurrence of a few number of postovulatory follicle (POF) complexes are common. Oocytes in PG, CA and Vg2 stages also are present, characterising the species as a batch spawning (Fig. S1c).
Regressing	Presents oocyte atresia (Atr) and great amount of POF. The occurrence of oocytes at PG and CA stages are common, characterising the species as a batch spawning (Fig. S1d).
Regenerating	Presents Og and PG oocytes. Both POF and oocyte atresia in degeneration can be showed in this phase. The ovarian wall is thicker when compared with the immature phase. In addition, the space among PG oocytes show connective tissue, capillaries and muscle bundles (Fig. S1e).



**Fig. S1.** Sections of ovaries of *Astyanax* aff. *fasciatus* at different gonadal development phases. (a) Immature phase showing oogonia nest (Og) and oocytes in primary growth (PG). (b) Development phase showing oocytes in PG, as well as cortical alveolar oocyte (CA) and vitellogenic oocyte with cytoplasmic inclusions of lipid vacuoles and yolk (Vg2). (c) Spawning capable phase showing vitellogenic oocyte with complete yolk accumulation in the cytoplasm (Vg3) and PG oocytes. (d) Regressing phase showing postovulatory follicle complexes (POF) and oocyte in atresia (Atr). (e) Regenerating phase showing Og and PG oocytes, as well as thick ovarian wall (OW).

**Table S2. Microscopic description of the testicular development phases of *Astyanax aff. fasciatus* from the São João River basin.**

Testicular development phases	Microscopic features
Immature	Presents thick germinal epithelium (GE) forming early testis lobules (TL). The TL shows absolute predominance of spermatogonia (Sg) in mitotic division, and the absence of lumen and spermatozoa (Sz) (Fig. S2a).
Developing	The GE is continuous in this phase, showing germinal cells in different developmental stages, including Sg, spermatocytes (Sc), spermatids (St) and spermatozoa (Sz). TL presents lumen but do not show Sz (Fig. S2b).
Spawning capable	In this phase, the lumen of TL and spermatid ducts (SpD) present great amounts of Sz embedded in acidophilus secretions. The GE is thin, and can presents all stages of germinal cells (Sg, Sc, St and Sz). The GE can be continuous or discontinuous, according the degree of anastomoses among neighbour TL (Fig. S2c).
Regressing	This phase is characterised by the stock depletion of Sz in both TL and Spd lumens. These structures may contain some amount of residual Sz. The GE is thin, presenting few or no cells in active spermatogenesis (Sc, St and Sz) (Fig. S2d).
Regenerating	In this phase, the GE is continuous throughout, predominating elongated Sertoli cells (Str). The Str cells touch and enclose premature Sg. Residual Sz occasionally remain in both TL and Spd lumens (Fig. S2e).



**Fig. S2.** Testis sections of *Astyanax aff. fasciatus* at different gonadal development phases. (a) Immature phase showing spermatogonia (Sg) and spermatocyte (Sc) cells. (b) Development phase showing Sg, Sc, spermatid (St) and spermatozoa (Sz) cells in the germinal epithelium (GE). (c) Spawning capable phase with Sz cells present in the lumen of the testis lobules (TK). (d) Regressing phase showing TL lumen with Sz residuals. (e) Regenerating phase showing thin GE with predominance of Sertoli cells (SE) and some residual Sz cells.