Light 3-stars in embedded graphs

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For integers $k \geqslant 1$ and $1 \leqslant t \leqslant 3$, let $g(k,t)$ be the minimum integer such that every graph with girth at least $g(k,t)$, minimum degree at least 2 and no $(k+1)$-path consisting of vertices of degree 2, has a 3-vertex with at least t neighbors of degree 2. For the class of plane graphs there are many results concerning existence of a 3-vertex with specified number of 2-neighbors. Recently, Borodin and Ivanova established the value of $g(k,t)$ for all combinations of k and t (where $k \geqslant 1$ and $t \in \{1,2,3\}$). In the talk we present how the situation changes for the class of graphs embedded on a surface(s) with non-positive Euler characteristic.