Title: Congruences for Catalan–Larcombe–French numbers

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Let $\{P_n\}$ be the Catalan–Larcombe–French numbers given by $P_0 = 1$, $P_1 = 8$ and $n^2 P_n = 8(3n^2 - 3n + 1)P_{n-1} - 128(n-1)^2 P_{n-2}$ $(n \geq 2)$, and let $S_n = P_n/2^n$. In this paper, we deduce congruences for S_{np}, $S_{np+1} \pmod{p^3}$, $S_{mp^r-1} \pmod{p^r}$ and $S_{mp^r+1} \pmod{p^{2r}}$, where p is an odd prime and m, n, r are positive integers.

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