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**Martin Rolek\*** (msrolek@wm.edu), Department of Mathematics, College of William & Mary, P.O. Box 8795, Williamsburg, VA 23187-8795, and **Zi-Xia Song**. *Clique minors in double-critical graphs.*

A connected  $t$ -chromatic graph  $G$  is *double-critical* if  $G - \{u, v\}$  is  $(t - 2)$ -colorable for each edge  $uv \in E(G)$ . A long standing conjecture of Erdős and Lovász that the complete graphs are the only double-critical  $t$ -chromatic graphs remains open for all  $t \geq 6$ . Given the difficulty in settling Erdős and Lovász's conjecture, and motivated by the well-known Hadwiger's conjecture, Kawarabayashi, Pedersen, and Toft proposed a weaker conjecture that every double-critical  $t$ -chromatic graph contains a  $K_t$  minor and verified their conjecture for  $t \leq 7$ . A computer-assisted proof of their conjecture for  $t = 8$  has been given by Albar and Gonçalves. We provide a shorter, computer-free proof for the cases  $t \leq 8$  and prove the next step by showing that every double-critical  $t$ -chromatic graph contains a  $K_9$  minor for all  $t \geq 9$ . (Received February 12, 2018)