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Determining the supports of weighted extremal measures is important in pluripotential theory and approximation theory. In one complex variable, it is known that a compact set K is the support of the Laplacian of a logarithmic potential with an external field if and only if K is nonpolar at any point. In this talk, we prove that a compact set K is the support of the Monge-Ampère measure of a weighted extremal function if and only if K is nonpluripolar at any point. At the end we will present some related open problems. (Received August 28, 2012)