Let $X$ be a matrix of indeterminates. We form a ladder $Y$ from $X$ by removing certain indeterminates, and we form a ladder determinantal ring from $Y$, which is similar to the more familiar determinantal rings defined for $X$. Ladder determinantal rings are known to be Cohen-Macaulay ("nice rings"). We would like to, in some sense, measure how far a ladder determinantal ring is from being Gorenstein (a "nicer ring"). This is done by finding the number of isomorphism classes of semidualizing modules of the ring. We will show how to determine this number from the shape of the ladder $Y$ and display many examples. This is joint work with Sean Sather-Wagstaff and Sandra Spiroff. (Received September 17, 2018)