q-series related to weighted odd Ferrers diagrams

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Odd Ferrers diagrams are an analogue of integer partitions that were first introduced by George Andrews as a combinatorial interpretation of $q\omega(q) = \sum_{n=0}^{\infty} \frac{q^{n+1}}{(q;q^2)_{n+1}}$. In this talk, I explore the generating functions that result from attaching various weights to these diagrams. In the process, I give new combinatorial interpretations of some of Ramanujan's false theta function identities and two second-order mock theta functions.