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We present two novel feedback control methods for population management. We assume that only partial measurements of the population are available for use in these management strategies, and refer to these measurements as observations. For instance, the observation of a stage-structured population might be just the population in a reproductive stage. The first strategy uses integral control, which is a dynamic feedback of the observation which is used to regulate the whole population to a desirable constant population. The second strategy involves the notion of an observer, a dynamical process for estimating the whole population based solely on the observation; in this case the estimated state can be used in a feedback instead of just the observation. Integral control and observers are ubiquitous in control engineering, but have not received much attention in ecological modeling. This type of control is robust to model uncertainty and external disturbances, important considerations for ecological models. We illustrate these control strategies with population management examples. (Received September 15, 2014)