

Science-based guidelines for defining wildlife population objectives

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Conservation goals are more likely to be achieved if they can be defined in terms of specific conservation objectives. For example, to meet a goal of a self-sustaining and resilient wildlife population, a specific population size objective should be stated. But how large should a population be before it can be considered self-sustaining or resilient? Can we answer this question without extensive data on each species of interest? If so, it would allow setting a corresponding habitat acreage objective needed to support that population size, and then for conservation planning to get underway.

Together with Central Valley Joint Venture partners, we developed a general framework for setting population objectives based on conservation biology principles and recent research. It includes four population size categories and the thresholds at which most vertebrate populations are expected to change status: *very small* populations (<1,000 adults; at increased risk of problems due to inbreeding), *small* populations (<10,000; vulnerable to local extinction), *viable* populations (>10,000; likely self-sustaining

and reduced vulnerability to local extinction), and *large* populations (>50,000; minimized risk of local extinction and improved ability to maintain its role in the ecosystem).

We also defined two modifiers: a *steeply declining* population, which is at risk of local extinction until the causes of the decline are addressed, and a *resilient* population, which has more than one *viable* or *large* sub-population, improving its ability to recover from a disaster in one part of its range.

The framework can be applied on any geographic scale and adapted to the species of interest and the conservation goals. For example, a land manager may be able to support several *large* sub-populations of a species with a small home range if that is her goal, while several adjacent land managers may need to collaborate to support a *viable* population of a wide-ranging species.

The framework provides a method for setting initial population objectives that are “in the ballpark” of what is needed to achieve conservation goals, even when local species-specific data are lacking.

Main Points

Quantitative conservation objectives are essential to reaching conservation goals, and they should be based on the best available scientific information.

Together with Central Valley Joint Venture partners, we developed a general, science-based framework for defining wildlife population size objectives of an appropriate magnitude, even when local species-specific data are lacking.

The framework can be adapted to any geographic scale or updated to incorporate new data. It provides an invaluable starting point for setting population objectives, allowing conservation planning to get underway.

Dybala KE, Clipperton N, Gardali T, Golet GH, Kelsey R, Lorenzato S, Melcer R, Seavy NE, Silveira JG, and Yarris GS. 2017. [A General Framework for Setting Quantitative Population Objectives for Wildlife Conservation](#). San Francisco Estuary and Watershed Science 15(1).