Submission in Support of Continued Native Game Bird Hunting in Australia

Additional supplemental information as requested by the committee.

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I have been asked to clarify the difference between Additive and Compensatory mortality in wildlife populations from a management standpoint.

Mortality is the total number of animals in a population in a given year that die. The concept of additive mortality is that each additional animal that dies is reducing the subsequent breeding population by one animal. From Bolen and Robinson (2003) "Wildlife ecology and management". "For example, given a population of 100 animals, food shortages and disease acting together might have the potential of removing 40 individuals during the course of several months. At the same time, however, predators also might have the potential of removing 40 individuals. If these factors-starvation, disease, and predation-were ***additive***, then a total of 80 individuals would die from the combined action of these forces. But it is unlikely that the mortality would reach such a level. Competition for food is often reduced when predators remove some animals from the population. As starvation lessons, so too does the incidence of disease-related mortality, and fewer animals actually die from malnutrition and sickness because of the interaction with predation. If predators remove 30 animals, only 10 might die of disease. Thus, the mortality factors act in a ***compensatory*** way."

Most game animals are relatively short-lived, have high reproductive rates, and have relatively high overall mortality rates. In the situation where game populations are hunted, the animals removed by hunting actually may create more opportunity for the remaining individuals to have a greater likelihood of survival. Most of the species of waterfowl that are listed as game species and are regularly available for harvest have breeding strategies as described above. As a result, when conditions are favorable for breeding they take full advantage and often produce multiple broods. When these conditions are present, the mortality via harvest by hunting is most likely ***compensatory*** for the population and reduces competition among the remaining individuals & increases their likelihood of subsequent survival. The impact of the hunting harvest is minimal on the core breeding population. The animals that are shot would have likely died from some other source of mortality. When environmental conditions are less optimal and breeding rates decline, the total population also likely declines and harvest may have a greater impact on survival rates.

Overall, in normal to good conditions hunting harvest for most hunted species (especially Grey teal, Pacific black duck, Wood duck, Pink-eared ducks, and Chestnut teal) will likely have minor to no impact on the population. More research is needed into the potential impacts of hunting harvest on species such as Hard head ducks and Mountain ducks.

LITERATURE CITED-

Bolen, Eric G. and William L. Robinson. 2003. Wildlife Ecology and Management, Fifth Edition. Pearson Education Inc. San Francisco, CA, USA.