

Small population paradigm and the Apennine brown bear conservation: need of a “cautious intermixing”?

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In a seminal paper of 1994, Graham Caughley distinguished two main threads in species conservation; the small population paradigm and the declining population paradigm. However, he wished that an integration was possible, and he mentioned a conservation program for the island endemic Lord Howe woodhen *Tricholimnas sylvestris* as a specific positive example.

It has been argued recently that infusion of small population theory could be extremely beneficial to the conservation strategy of the highly threatened Apennine brown bear. Instead, the current strategy is apparently based on a very pragmatic declining population paradigm with little theoretical underpinning.

The call for captive breeding and *ex situ* conservation efforts (i.e. cryopreservation of sperm and eggs, artificial insemination etc.) first and foremost means recognizing an unique taxonomic and ecological status for the isolated Apennine brown bear *Ursus arctos marsicanus* Altobello. This approach is challenged by initiatives such as the recently released Italian IUCN Red List in

which both *marsicanus* and *arctos* subspecies are classified as CR (Critically Endangered), even if the latter includes the thousands outside the Italian border. While we strongly advocated a “cautious intermixing” of the two Caughleyian paradigms, a cursory review of the National Action Plan for the Apennine bear suggests that such document needs integration and updating regarding several aspects of bear’s social behavior of high management relevance.

The integration of an *ex situ* component into the conservation strategy of *U. a. marsicanus* means involving professionals with a zoo-biology background and strengthening the international collaboration between public and private institutions under a unique technical–scientific consortium.

Furthermore, successful reintroductions of captive-bred bears may be accomplished looking at experience gained by practitioners releasing bear cub orphans of different species around the world.