

Decline of unique Pontocaspian biodiversity in the Black Sea Basin: a review

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Abstract

Aim The unique aquatic Pontocaspian (PC) biota of the Black Sea Basin (BSB) is in decline. Lack of detailed knowledge on the status and trends of species, populations and communities hampers a thorough risk assessment and precludes effective conservation. This paper aims to review PC biodiversity trends using endemic molluscs as a model group. We aim to assess changes in PC habitats, community structure and species distribution over the past century and to identify direct anthropogenic threats. **Location** Black Sea Basin (Bulgaria, Romania, Moldova, Ukraine and Russia). **Methods** Presence/absence data of target mollusc species was assembled from literature, reports and personal observations. PC biodiversity trends in the NW BSB coastal regions were established by comparing 20th and 21st century occurrences. Direct drivers of habitat and biodiversity change were identified and documented. **Results** A very strong decline of PC species and communities during the past century is driven by a) damming of rivers, b) habitat modifications negatively affecting salinity gradients, c) pollution and eutrophication, d) invasive alien species and e) climate change. Four out of 10 studied regions, namely, the Danube Delta – Razim Lake system, Dniester Liman, Dnieper-South Bug Estuary and Taganrog Bay-Don Delta contain the entire spectrum of ecological conditions to support PC communities and still host threatened endemic PC mollusc species. Distribution data is incomplete, but the scale of deterioration of PC species and communities is evident from the assembled data, as are major direct threats. **Main conclusions** PC biodiversity in the BSB is profoundly affected by human activities. Standardised observation and collection data as well as precise definition of PC biota and habitats are necessary for targeted conservation actions. This study will help to set the research and policy agenda required to improve data collection to accommodate effective conservation of the unique PC biota.

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