More than 500 bird species could vanish within the next century, researchers have found, calling for urgent “special recovery programmes” such as captive breeding and habitat restoration to rescue unique species.

Birds such as the puffin, European turtle dove and great bustard will be among those to disappear from our skies if trends continue, according to the paper. Their loss threatens to unravel ecosystems across the globe.

“We face a bird extinction crisis unprecedented in modern times,” said Kerry Stewart, lead author of the research from the University of Reading, who described the headline finding of the paper as a “shocking statistic”. It is triple the number of birds that went extinct in the previous 500 years.

But even if habitat loss, hunting and climate breakdown stopped today, about 250 species could still die out, as they are already teetering on the brink of extinction. Local conservation efforts may feel small but they are essential to save a species from going extinct, the researchers found. “Many birds are already so threatened that reducing human impacts alone won’t save them. These species need special recovery programmes, like breeding projects and habitat restoration, to survive,” said Stewart.

The latest State of the World’s Birds report found nearly half of the planet’s bird species are in decline. Habitat loss, logging, invasive species, exploitation of natural resources and climate breakdown were highlighted as the main threats.

“There is no magic bullet for solving the extinction crisis,” said Stuart Butchart, chief scientist at BirdLife International, who was not involved in the research. “Protected areas can play a key role, while abating threats from agriculture, logging, fisheries, hunting and other sources is essential. However, some species require targeted recovery efforts, involving interventions like captive breeding and release, translocation, or supplementary feeding, to overcome barriers to recovery.