



ICAO

ENVIRONMENT

Climate Adaptation Synthesis

Changes in biodiversity

Factsheet



2018

Aviation and Changes to Biodiversity

The main risks to aviation from changes to biodiversity are wildlife migration and propagation of invasive species. Composition of ecosystems may change, leading to changes in both local biodiversity and wildlife migration patterns. Climate change impacts are expected to lead to species loss, habitat loss especially for waterbirds and large bird species, and loss of breeding grounds.

Potential Effects

- Biodiversity changes may include shifts in the diversity of bird species that are present at an airport. For example, some areas may see an increase of heavy-weight migratory bird populations such as grey goose or white stork. Migratory birds are a challenge at airports in many regions due to their potential effects on aircraft operations, particularly the larger birds such as geese, eagles, and pelicans.
- Biodiversity changes may also change or increase other wildlife hazards at or in the vicinity of an airport, for instance an increase in flocking birds that commonly use aerodromes (for example, gulls, starlings, crows, pigeons). Changes in bird populations or migratory behaviour, or a combination of both, can increase the risk of bird-strikes. However, in the longer term, the changes described above such as less wintering and migrating are expected to lower the risks identified from larger bird species.
- There may be damage to landscaping and an increase in maintenance costs due to changes in local wildlife or an increase in invasive species. However, effects are likely to be localized depending on the ecosystem and climate change impacts in a particular area. For example, in North Africa and the Middle East, changes in rain events have increased the potential for locust swarms. Changing interactions between flora and fauna may also be possible as both are expected to migrate due to climate change. This migration may lead to introductions of alien species to new areas. For example, changes in vegetation around the airport operating area could lead to an increase or change in bird populations, which could lead to an increase in bird strikes.

Adaptation and Resilience Measures

- Airport officials can monitor wildlife populations to detect any change in timing such as timing of presence, numbers and species types. Additionally, understanding how climate change will affect birds and wildlife is essential to assess the risks to aviation and to develop adaptation and resiliency measures to reduce effects.
- Any measures should be developed in co-operation with environmental protection experts and organisations, and should also take into account environmental protection.
- Expanded use of bird strike avoidance models is a potential measure.
- Up-to-date data information will allow for the preparation and use of the most effective methods in wildlife hazard reduction, whilst taking account of nature protection and relevant environmental regulations.

- In some cases, vegetation management to address unwanted flora may be a solution.
 - Mowing or trimming can be a short-term fix. However, these strategies do not completely remove unwanted vegetation and may allow them to regrow. This may also attract birds as worms and mice become more visible in trimmed flora.
 - Herbicidal treatments may provide a longer-term solution, but could lead to groundwater contamination.
 - Permanent removal through extraction or landscaping changes may be used so that the plants do not grow back.

Sources and Additional Information:

2018 ICAO CAEP WG2 Task O7.0 Climate Adaptation Synthesis Analysis