ANNEXURE 11A: BIRD AND WILDLIFE HAZARD MANAGEMENT LANDSCAPE AND OPEN SPACE PLANNING GUIDELINES

Cape Winelands Airport

Bird and Wildlife Hazard Management

Landscape and Open Space Planning Guidelines



Albert Froneman

February 2024

Background & motivation

Bird and wildlife management on an aerodrome is a critical part of the airport safety management system and an integrated approach is required to adequately address this risk. The purpose of this document is to provide guidance for the pro-active management of bird and wildlife hazards through landscape and open space planning.

The Cape Winelands Airport is located within the Fynbos Biome. The primary vegetation type classification of the aerodrome site is the critically endangered Swartland Granite Renosterveld. Almost 80% of this vegetation type has been transformed as a result of agriculture and urban sprawl.

Fynbos vegetation typically has low animal biomass but very high levels of plan diversity and endemism. In its natural state fynbos vegetation does not support many large bird species that would pose a bird strike risk to aircraft. Most of the larger bird species that at present occur in large numbers (e.g. Egyptian Geese) within the fynbos biome have established and proliferated in the area as a result of agriculture (e.g. grassland type habitats) and the associated establishment of farm dams and other artificial water reservoirs.

As a general rule aerodromes typically establish grasslands on the airfield around the runways, taxiways and outer airfield. Grass is well suited for this purpose as it binds the soil and can easily be maintained, through regular mowing, at a short height.

The short grass habitat that is created and artificially maintained is a significant attractant for hazardous bird species. In the case of the Cape Winelands Airport the sandy soils and low rainfall during the hot dry summer months will make if exceptionally challenging to successfully maintain a dense growth of grass that will bind the soil. Vast open grassland habitats are not native to the western cape. Many or most of the bird species, with a potential high-risk classification for bird strikes with aircraft, that occur in the area (e.g. Egyptian Geese, Spur-winged Geese, Lapwings, Black-headed Herons and Hadada Ibises) are present in unnaturally high numbers as a result of grassland habitats created through agriculture and urbanisation. In addition, every time the grass is cut to maintain it at a short height it creates a significant disturbance event that attracts birds to the area to feed on invertebrates etc. The windrows of cut grass left behind following the grass cutting event also provide ideal micro habitats where invertebrates can proliferate and even rodents can hide under the dense grass mats.

A unique opportunity thus exists where natural fynbos vegetation could be established in stead of the typical grass and in so doing minimise (or to a large degree eliminate) the bird strike risk. Establishing natural renosterveld and fynbos could also contribute towards the conservation of a critically endangered vegetation type. If short growing renosterveld and fynbos species are selected and cultivated for this purpose maintenance costs (i.e. grass cutting) can be eliminated or at least greatly reduced.

The below table provides an overview of the different aerodrome landscapes and open spaces and provides guidance from a bird and wildlife management perspective.

Airport development area	Vegetation description	Motivation	Implementation & establishment	Management	Other considerations
Airside					
Airside – RWY strip (50m) & TWY strip (23m)	Short growing indigenous fynbos / renosterveld vegetation - 20cm maximum height	Offset initial cost through reduced maintenance over time.	Would need specialist guidance on soil preparation, species composition, cultivation of seedlings(?) and establishment planting of plugs etc? Uncertain about how long establishment would take / weed control etc.	As little as possible if the right vegetation has been established – may require annual or bi-annual 'trim' in case some elements grow a bit too tall. Will the fynbos need to burn every few years? i.e. burning regime requirement if any?	Establish a track for use by patrol vehicles on the edge of the short grass section around the runway that delineates the boundary between the runway strip and the rest of the airfield. Initial dust suppression during and post initial establishment.
Outer airfield – remainder of airfield vegetated area	Shorter growing fynbos vegetation - vegetation species composition can include some slightly taller growing species - not more than 40-50cm maximum.	Offset initial cost through reduced maintenance over time.	Would need specialist guidance on soil preparation, species composition, cultivation of seedlings(?) and establishment planting of plugs etc? Uncertain about how long establishment would take / weed control etc.	Annual or by annual trimming. Burning requirement -frequency.	Establish a 2m underground mole barrier fence around the outer perimeter.

Airport development area	Vegetation description	Motivation	Implementation & establishment	Management	Other considerations
Airport precinct – landside and tenant areas					
Airport landside precinct gardens and tenant garden areas	Follow the same theme of natural fynbos gardens throughout. No lawns! Do not establish any ponds or water features.	Drastic saving in terms of irrigation costs as most indigenous fynbos species is quite drought resistant.	Options should be more readily available through existing garden and landscaping service providers.	General garden maintenance – no grass cutting or mowing	
Stormwater retention ponds	Anything else than grass to cover the base of the stormwater retention ponds. Shorter wetland type fynbos and restios perhaps. Vegetation should not hinder quick drainage of the area. Any water that stands for long will become an attractant for birds	Retention of storm water should not create suitable habitat for birds. The areas should drain fairly rapidly and no residual wetland habitat should remain.			
Other open areas on land owned by CWA	Eliminate any agricultural or cultivation activities	Agricultural and cultivation activities will attract numerous large			

	on land owned or managed by CWA	hazardous birds to the area.			
Waste management				All waste skips should be covered at all time and waste storage facilities should all be under roofed and closed off.	

Airport development area	Vegetation description	Motivation	Implementation & establishment	Management	Other considerations
Off-airport habitats and considerations					
Existing water bodies on site and in immediate surrounds	Specific waterbodies or dams in the landscape are known to attract large numbers of waterbirds. Increase edge depth, remove shallow edges, establish dense typha or phragmites stands along the edge of the water. Remove all islands and eliminate dry tress that would provide roosting and perching space for the birds.	Minimise the attractiveness of existing water bodies to birds and have them move to alternate areas away from risk zones.	Challenges of changing existing dams and water bodies on private land?	Maintain vegetation along edges and monitor that shallow areas or islands don't form again over time.	Permits to do this?
Wastewater treatment works (WWTW)	Maintain status quo – short vegetation around evaporation ponds.	Few waterbirds were present during site visit.		Regular monitoring required.	Future expansion should maintain similar design.