



VULNERABILITY ASSESSMENT TABLE

Surface archaeological remains

This table highlights some of the ways surface archaeological remains may be vulnerable to the effects of climate change. It is not intended to be comprehensive and the examples of possible management approaches will not be appropriate in all cases. Qualified and experienced heritage specialists should be consulted in undertaking any climate vulnerability or risk assessment of your place or object.




EXPOSURE — GENERAL

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 Change in seasonal rainfall (chronic)	Increase in rainfall events and intensity leading to increased frequency and intensity of flooding, erosion and soil degradation	Depends on fabric and local conditions	<ul style="list-style-type: none"> Types of material (e.g. wood, brick, metal, stone, bone, ceramic, glass) will be affected differently Increased frequency and intensity of flooding may directly impact and destabilise and move structures and artefacts Frequent and prolonged saturation of soil may impact archaeological features, re-burying or exposing archaeological material Increased water erosion and movement of soils may destabilise structures causing cracking and collapse of structures 	<ul style="list-style-type: none"> Re-engineering drainage Monitor erosion or degradation and plan for removal and off-site conservation of material, if/where possible Plan for recording, excavation and off-site conservation if risk is unacceptable, and if appropriate and possible Retreat: plan for site recording and accept loss or relocation of site where feasible, in consultation with local community
 Increase in mean temperature				




EXPOSURE — GENERAL *continued*

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
<i>continued from previous page</i>	Increased frequency, duration and intensity of drought events	Loss of ground cover, drying and cracking of soils, and wind erosion	<ul style="list-style-type: none"> ○ Drying, cracking or movement of soils may affect the stability of structures and the location of artefacts ○ Increased dryness will affect materials (e.g. wood, brick, metal, stone, bone, ceramic, glass) in different ways 	<ul style="list-style-type: none"> ○ Increase monitoring and maintenance regime ○ Plan for recording, excavation and off-site conservation if risk is unacceptable, and if appropriate and possible ○ Retreat: plan for site recording and accept loss or relocation of site where feasible, in consultation with local community
 More hotter days (>35°C and >40°C)	Increased frequency and intensity of bushfires	Directly related to proximity and/or connectivity to bush	<ul style="list-style-type: none"> ○ Damage to, or destruction of structures, features and artefacts; types of material will be affected differently ○ Loss of vegetation cover, heating and cracking of soils, and increased erosion following a bushfire event may affect the stability of structures and location of artefacts ○ Increased visibility of archaeological material leading to increased susceptibility to looting 	<ul style="list-style-type: none"> ○ Increase maintenance regime (e.g. vegetation management) ○ Increased monitoring and/or targeted education around the illegality of disturbing archaeological sites ○ Plan for recording and relocation if risk is unacceptable, and if appropriate and possible ○ Plan for rescue excavation and off-site conservation of material, if/where possible
	Heatwaves and extreme temperatures	Soils susceptible to drying and cracking	<ul style="list-style-type: none"> ○ Impacts will vary for different types of materials (e.g. wood, brick, metal, stone, bone, ceramic, glass) ○ Drying, cracking and movement of soils may affect the stability of structures and location of artefacts 	<ul style="list-style-type: none"> ○ Increase monitoring and maintenance regime ○ Indoor relocation if appropriate and possible




EXPOSURE — GENERAL *continued*

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 <p>More extreme rainfall events (acute)</p>	<p>Flooding, erosion and landslips</p>	<p>Depends on terrain (i.e. local conditions)</p>	<ul style="list-style-type: none"> ○ Damage to or collapse of structures, impact to archaeological features and re-burying or exposing of archaeological material 	<ul style="list-style-type: none"> ○ Increase monitoring and maintenance regime ○ Plan for recording, excavation and off-site conservation if risk is unacceptable, and if appropriate and possible ○ Retreat: plan for site recording and accept loss or relocation of site where feasible, in consultation with local community




EXPOSURE — COASTAL

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 <p>Sea-level rise</p>	<p>Worsened coastal flooding, storm surge and coastal erosion that over time can result in permanent inundation of low-lying areas</p>	<p>Depends on terrain and potential defences (e.g. sea wall) – refer to local information</p>	<ul style="list-style-type: none"> ○ Potential for inundation, flooding and loss of archaeological features and artefacts ○ Damage and destruction of structures ○ Depending on the elevation of the archaeological material this may be intermittent during high tide and storm surge events (acute) and eventually permanent 	<ul style="list-style-type: none"> ○ Plan for recording, excavation and off-site conservation if risk is unacceptable, and if appropriate and possible ○ Retreat: plan for site recording and accept loss or relocation of site where feasible, in consultation with local community




EXPOSURE — COASTAL *continued*

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 <p>More intense or more frequent storms</p>	Coastal erosion impacts	Depends on terrain and potential defences (e.g. sea wall) – refer to local information	<ul style="list-style-type: none"> ○ Potential for storm damage or destruction of structures, archaeological features and artefacts during storms and through coastal erosion caused by individual and recurring storm events 	<ul style="list-style-type: none"> ○ Plan for recording, excavation and off-site conservation if risk is unacceptable, and if appropriate and possible ○ Retreat: plan for site recording and accept loss or relocation of site where feasible, in consultation with local community




EXPOSURE — URBAN

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 <p>More hotter days</p>	Heat island effect in urban areas can increase local temperatures by several degrees compared to nearby rural areas	Local ‘urban heat island’ mapping determines specific micro-climate risks	<ul style="list-style-type: none"> ○ Heat stress: types of material will be affected differently 	<ul style="list-style-type: none"> ○ Increase monitoring and maintenance regime ○ Indoor relocation if appropriate and possible



EXPOSURE — ALPINE

Climate change variables	Key climate change impacts	Sensitivity of the place to climate change impacts	Examples of impacts on the place or object and its values	Examples of possible management approaches
 Higher daily minimum temperatures and changes in precipitation	Changed freeze–thaw cycles, reduced snow cover and fewer cold days	Local distribution of native/non-native vegetation	<ul style="list-style-type: none"> Loss or change in ground cover may affect soil stability with potential to expose subsurface archaeological deposits 	<ul style="list-style-type: none"> Increase monitoring and maintenance regime

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