

WORKSHEET 4. BIOLOGICAL CHANGE ASSESSMENT



GDE Unit ID _____

Biological Response Type		Yes	No	Insufficient Data
Terrestrial Vegetation				
Growth & Productivity	Are there visible signs (i.e., less canopy cover) of reduced growth in native vegetation over time?			
Growth & Productivity	Are NDVI or NDWI levels in terrestrial wildlife habitat areas progressively becoming lower over time?			
Growth & Productivity	Is there a decrease in species listed as a sensitive, threatened, or endangered species associated with the GDE? Is there a measurable and persistent decline in vegetation cover or leaf area index?			
Reproduction & Recruitment	Is the terrestrial wildlife habitat mostly composed of old mature trees with few seedlings and saplings present to take their place?			
Reproduction & Recruitment	Is there a decrease in the populations of perennial resident species compared to baseline conditions?			
Reproduction & Recruitment	Is there a reduction in the understory vegetation?			
Mortality	During the last drought, did large proportions of terrestrial vegetation die or appear to decrease?			
Mortality	Has there been loss of a species endemic to the area or listed as a sensitive, threatened, or endangered species associated with the GDE?			
Ecosystem Structure & Function	Is there a growing trend of non-native species becoming present? Are there observable trends in the vegetation community toward more xeric (dry) vegetation?			
Ecosystem Structure & Function	Do NDVI or NDWI maps show terrestrial wildlife habitat areas recovering in the wet years that follow a drought/dry period?			
Ecosystem Structure & Function	Are groundwater levels more than 3–6 feet below the average rooting depth?			
River/Stream/Estuary				
Growth & Productivity	Are there visible signs (i.e., less canopy cover) of reduced growth in native riparian vegetation over time?			
Growth & Productivity	Are flow-related migration impediments or barriers increased in number and/or severity compared to baseline conditions?			
Growth & Productivity	Is there a decrease in endemic species or species listed as a sensitive, threatened, or endangered species associated with the GDE?			

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River/Stream/Estuary				
Reproduction & Recruitment	Is the riparian habitat mostly composed of old mature trees with few seedlings and saplings present to take their place?			
Reproduction & Recruitment	Is there a decrease in the fish or amphibian rearing habitat for the GDE compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the population of certain animal classes (e.g., fish, amphibians, reptiles, mammals, birds, anthropods) compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the populations of perennial resident species compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the population of species seeking refuge during dry or drought periods compared to baseline conditions?			
Mortality	During the last drought, did large proportions of vegetation die or appear to decrease?			
Mortality	Has there been loss of a endemic species or species listed as a sensitive, threatened, or endangered species associated with the GDE?			
Ecosystem Structure & Function	Is there a growing density of non-native species?			
Ecosystem Structure & Function	Do NDVI or NDWI maps show a difference in terrestrial wildlife habitat areas in wet years and drought/dry periods?			
Ecosystem Structure & Function	Are portions of a stream that were once gaining groundwater now losing or disconnected systems?			
Ecosystem Structure & Function	Are portions of a stream that were once losing groundwater now disconnected systems?			
Ecosystem Structure & Function	Are groundwater levels more than 3–6 feet below the average rooting depth?			
Wetland/Seep/Spring				
Growth & Productivity	Are there visible signs (i.e., less canopy cover) of reduced growth in native vegetation over time?			
Growth & Productivity	Is there a decrease in the population of endemic species or species listed as a sensitive, threatened, or endangered species associated with the GDE?			

Biological Response Type		Yes	No	Insufficient Data
Wetland/Seep/Spring				
Reproduction & Recruitment	Is there a decrease in spawning habitat compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the fish or amphibian rearing habitat for the GDE compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the population of certain animal classes (e.g., fish, amphibians, reptiles, mammals, birds, anthropods) compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the populations of perennial resident species compared to baseline conditions?			
Reproduction & Recruitment	Is there a decrease in the population of species seeking refuge during dry or drought periods compared to baseline conditions?			
Mortality	During the last drought, did large proportions of vegetation die and/or did species population dwindle below average?			
Mortality	Has there been loss of a endemic species or species listed as a sensitive, threatened, or endangered species associated with the GDE?			
Ecosystem Structure & Function	Is there a growing density of non-native species?			
Ecosystem Structure & Function	Do NDVI or NDWI maps show vegetation areas recovering in the wet years that follow a drought/dry period?			