

Arizona Drought Impacts Reporting System

- Impact Survey Reference Sheet -

A. Water Resources and Hydrology

- Surface Water Impacts
 - Unusually low water levels in reservoirs, lakes and ponds
 - Unusually low flows in streams, rivers, and springs
 - Poor water quality due to low levels/low flows
 - Impacts on hydro-electric power generation
 - Need for supplemental water due to drought impacts on local surface water resources (e.g. hauling water)
- Groundwater Impacts
 - Unusually low groundwater levels due to long-term precipitation deficits/lack of recharge
 - Need for deepening of existing wells to reach groundwater supplies
 - Need for developing new wells to meet water demands (existing wells are going dry due to drought impacts)
 - Land subsidence and desiccation cracks observed due to depletion of groundwater supplies
 - Need for supplemental water due to drought impacts on local ground water resources (e.g. hauling water)

B. Agricultural Impacts (food crops, cash crops and aquaculture)

- Soil Impacts
 - Soil erosion due to loss of vegetation/organic matter
 - Reduction in soil quality/fertility (e.g. increasing salinity due increased irrigation and lack of precipitation)
- Crop Impacts
 - Unusual levels of plant stress due to lack of sufficient soil moisture
 - Unusual levels of plant mortality due to lack of sufficient soil moisture
 - Reduction in overall crop quality
 - Reduction in productivity
 - Unusual levels of plant disease or insect infestations related to drought
 - Unusual levels of herbivory from drought stressed wildlife
 - Encroachment of drought-tolerant invasive species
- Agricultural Water Resource Impacts
 - Unusual need for irrigation from surface or groundwater sources
 - Need for supplemental water sources to meet irrigation demands (e.g. wells, dams, diversions, hauling)
 - Supplemental water needs for aquaculture operations (e.g. additional groundwater pumping or surface water diversions)

C. Livestock Production and Grazing Land Impacts

- Soil Impacts
 - Soil erosion due to loss of vegetation/organic matter
 - Soil degradation/reduction in fertility due to drought
- Forage/Vegetation Impacts
 - Unusually low range productivity (e.g. forage amounts per acre)
 - Unusually low plant diversity
 - Poor forage nutritional quality/increased toxicity of forage
 - Unusual levels of forage herbivory by drought-stressed wildlife (e.g. Competition with deer and elk on grazing lands)
 - Unusual levels of insect forage herbivory related to drought (e.g. grasshopper infestations)
 - Loss of rangeland forage to drought-related wildfires
- Livestock Health
 - Drought-related livestock mortality
 - Disruption of reproductive cycles (e.g. delayed breed, more miscarriages)
 - Reduced rate of livestock fattening
 - Livestock predation by drought-stressed wildlife
 - Need for supplemental feed due to drought impacts
 - Forced reduction of herd numbers due to drought impacts
- Rangeland Water Resources
 - Unusually low water levels in stock ponds/tanks
 - Need for supplemental water sources to meet livestock water demands (e.g. new wells, diversions, water hauling, pipelines)

D. Societal and Community Impacts

- Conflicts over water resources
- Impact on property value/declining property sales due to drought (e.g. lack of water resources, ordinances, changes in landscape)
- Unemployment related to drought impacts (e.g. businesses closing due to lack of water)
- Property damage/injuries related to drought moderated natural hazards (e.g. erosion related to drought causing damage to roadways, bridges, and residences during precipitation events)
- Strain on local communities due to drought impacts (e.g. business closures, property foreclosures, declining population, economic strain)
- Community water systems:
 - Low water supplies or lack of water for public consumption
 - Poor drinking water quality due to drought impacts
 - Need for supplemental water sources to meet public water demands (e.g. water hauling)
 - Need for new or upgraded water infrastructure to meet public water demands (e.g. new wells, pipelines)

E. Tourism and Recreation

- Public land/park closures to recreational users due to lack of water or increased wildfire danger
- Impact on key tourism/recreation areas due to drought (e.g. lack of streamflow at key fishing/camping area)
- Impact on hunting license sales due to drought-related land closures or declining wildlife population
- Impact on recreational boating due to low streamflow or lake/pond/reservoir levels
- Impact on tourist visitation numbers/revenues due to drought impacts (e.g. local park closures impacting tourist stops at local businesses)

F. Ecological Impacts

F.1 Plant Species and Plant Community Impacts

- Forest/woodlands
 - Plant stress due to unusually low soil moisture
 - Newly observed plant mortality
 - Drought induced leaf cast/needle drop
 - Unusual plant phenology (e.g. weak bud break on trees)
 - Unusual wildfire activity (e.g. extreme wildfire behavior or unusually early or late wildfires due to drought)
 - Unusually dry dead fuels or increased fuel loads due to drought
 - Drought related insect infestations and impacts
 - Unusual wildlife herbivory due to drought impacts
 - Soil erosion due to drought-related loss of vegetation/organic matter
 - Drought impacts on endangered/threatened species
 - Drought-related encroachment of invasive species
- Grasslands/chapparral
 - Plant stress due to unusually low soil moisture
 - Newly observed plant mortality
 - Drought induced leaf drop
 - Unusual plant phenology (e.g. weak bud break on shrubs)
 - Unusual wildfire activity (e.g. extreme wildfire behavior or unusually early or late wildfires due to drought)
 - Unusually dry dead fuels or increased fuel loads due to drought
 - Drought related insect infestations and impacts
 - Unusual wildlife herbivory due to drought impacts
 - Soil erosion due to drought-related loss of vegetation/organic matter
 - Drought impacts on endangered/threatened species
 - Drought-related encroachment of invasive species
- Desert
 - Plant stress due to unusually low soil moisture
 - Newly observed plant mortality
 - Drought induced leaf drop
 - Unusual plant phenology (e.g. weak bud break on shrubs)
 - Unusual wildfire activity (e.g. extreme wildfire behavior or unusually early or late wildfires due to drought)
 - Unusually dry dead fuels or increased fuel loads due to drought
 - Drought related insect infestations and impacts
 - Unusual wildlife herbivory due to drought impacts
 - Soil erosion due to drought-related loss of vegetation/organic matter
 - Drought impacts on endangered/threatened species
 - Drought-related encroachment of invasive species

F.2 Aquatic Species Impacts (Aquatic plants and animals)

- Impacts to Habitat
 - Reduction in habitat area (e.g. due to unusually low water levels)
 - Poor water quality (e.g. unusual eutrophication due low water levels)
- Impacts on Species
 - Stress on native aquatic species (due directly to drought-related habitat changes or indirectly by competition with non-native species)
 - Stress on endangered/threatened aquatic species (due directly to drought-related habitat changes or indirectly by competition with non-native species)

F.3 Terrestrial Species Impacts

- Impacts on Habitat
 - Reduction in habitat area (e.g. due to drought-related plant mortality or wildfire)
 - Altered migration patterns/shifts in range due to poor habitat/lack of food and water sources (e.g. wildlife entering urban areas to find food)
- Impacts on Species
 - Stress on native species due to lack of food/water sources
 - Stress on endangered/threatened species due to lack of food/water sources
 - Unusual levels of disease in wildlife due to drought stress