DESERT LCC PRIORITY STRESSORS BY ECOSYSTEM:
A PRODUCT OF THE LANDSCAPE-SCALE MONITORING TEAM

Ecosystems are based on Brown and Lowe's Biotic Communities of the Southwest. Stressors are adapted from the nomenclature framework presented by Salafsky et al. 2008.

Chihuahuan Desertscrub

1. Unsustainable grazing
2. Decrease in water availability to the ecosystem
3. Changes in groundwater recharge
4. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
5. Increased competition between invasive species and native species due to climate change
6. Desertification
7. Increased length, frequency and intensity of drought
8. Increase frequency of extreme heat events
9. Change in community composition
10. Habitat fragmentation (e.g., from development, land conversion, etc.)

Coastal Aquatic Wetlands

1. Increased spread of invasive species due to livestock
2. Competition from livestock for water resources and forage
3. Harmful/toxic byproducts (including in ponds and downstream) from mining and quarrying
4. Altered hydrology due to dams and water management
5. Changes in sediment flow due to water management
6. Habitat shifting and alteration due to climate change
7. Sea level rise due to climate change
8. Uncoupling of community relationships due to climate change
9. Increased habitat fragmentation (e.g., from development, land conversion, etc.)
10. Increased erosion during rain events due to logging and vegetation removal

Grassland

1. Unsustainable grazing
2. Increased groundwater pumping
3. Decreasing water availability to the ecosystem
4. Changes in groundwater recharge
5. Spread of invasive non-native or natives species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
6. Changes in community composition
7. Increased length, frequency and intensity of drought
8. Increased frequency of extreme heat events
9. Changes in frequency, timing and intensity of storms
10. Increased habitat fragmentation (e.g., from development, land conversion, etc.)

Interior Chaparral

1. Increasing fire frequency, size, and/or severity outside of historical range of variability (e.g.,from increased human-caused fire ignition rates, build-up of fuels)
2. Decreasing fire frequency, size, and/or changes in severity outside of historical range of variability (e.g., from fire suppression)
3. Increased length, frequency and intensity of drought
4. Changes to soil temperature and soil moisture
5. Altered annual average temperature
6. Spread of invasive non-native and native species non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
7. Decrease in water availability to ecosystem
8. Unsustainable grazing
9. Altered stream bank structure and erosion from domestic animal pressure
10. Conditions exceeding species adaptive capacity (due to climate change)

Madrean Woodland

1. Increasing fire frequency, size, and/or severity outside of history range of variability (e.g.,from increased human-caused fire ignition rates, build-up of fuels)
2. Changes in community composition
3. Shifting of climate zones/envelopes
4. Increased length, frequency and intensity of drought
5. Changes in storm frequency and intensity
6. Decrease in water availability to ecosystem
7. Changes to soil temperature and soil moisture
8. Extreme heat events
9. Increased habitat fragmentation (e.g., from development land conversion, etc.)
10. Changes in disturbance regimes

Mohave Desertscrub

1. Unsustainable grazing
2. Increasing fire frequency, size, and/or severity outside of historical range of variability (e.g.,from increased human-caused fire ignition rates, build-up of fuels)
3. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
4. Changes in community composition
5. Decrease in water availability to the ecosystem
6. Change in timing, frequency and intensity of storms
7. Habitat fragmentation (e.g., from development, land conversion, etc.)
8. Direct mortality of wildlife from wind and solar power infrastructure
9. Increased human water use
10. Changes in groundwater recharge
11. Change in disturbance regimes
12. Increased length, frequency or intensity of drought

Petran Sub-alpine and Montane Conifer Forests/Great Basin Conifer Woodland

1. Changing fire frequency, size and/or severity outside of historic range of variability (e.g., from increased human-caused ignition rates, build-up of fuels, from fire suppression)
2. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
3. Shifting of climate zones/envelopes
4. Increased length, frequency and intensity of drought
5. Decrease in water availability to ecosystem
6. Conditions exceeding species adaptive capacity
7. Altered annual average temperature
8. Changes to soil temperature and soil moisture
9. Changes in evapotranspiration
10. Changes in precipitation type (e.g., rain versus snow)

Riparian

1. Increased groundwater pumping
2. Decreased water availability to the ecosystem
3. Altered hydrology
4. Stream channelization
5. Increasing fire frequency, size, and/or severity outside of historical range of variability (e.g.,from increased human-caused fire ignition rates, build-up of fuels)
6. Uncoupling of community relationships (e.g., host plant-insect, predator-prey, trophic or phenological mismatch)
7. Increased length, frequency, and intensity of drought
8. Changes in disturbance regimes
9. Habitat fragmentation (e.g., from development, land conversion, etc.)
10. Spread of invasive native and non-native species

Sinaloan Thornscrub

1. Unsustainable grazing
2. Altered streambank structure and erosion from domestic animal pressure
3. Harmful/toxic byproducts (including in ponds and downstream) from mining and quarrying
4. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, buffelgrass) due to fire regimes, grazing
5. Increased length, frequency or intensity of drought
6. Decrease of water availability in ecosystem
7. Increased frequency of extreme heat events
8. Changes in frequency and intensity of flooding/storms (e.g., altered pulse flows or flows in dry washes)
9. Increased habitat fragmentation (e.g., from development, land conversion, etc.)
10. Change in disturbance regimes

Sonoran Desertscrub

1. Increasing fire intensity, size and/or frequency due to non-native species
2. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
3. Changes in community composition
4. Changes in timing of flooding due to changes in precipitation timing
5. Changes in frequency, timing and intensity of storms
6. Decrease in water availability to ecosystem
7. Increased length, frequency and intensity of drought
8. Changes to soil temperature and soil moisture
9. Increased habitat fragmentation (e.g., from development, land conversion, etc.)
10. Change in disturbance regimes

Springs

1. Increased groundwater pumping
2. Changes in groundwater recharge
3. Reduced connectivity between aquatic habitats
4. Increased length, frequency and intensity of drought
5. Decreased water/moisture availability to the ecosystem
6. Conditions exceeding adaptive capacity of organisms
7. Shifting of climate zones/envelopes
8. Changes in evapotranspiration
9. Invasive species out-competing native species due to climate change impacts
10. Changes in community composition due to invasive species

Streams

1. Altered hydrology
2. Increased groundwater pumping
3. Stream channelization
4. Changes in groundwater recharge
5. Increased length, intensity and frequency of drought
6. Decrease in water availability to the ecosystem
7. Spread of invasive non-native and native species (e.g., bark beetle, creosote, mesquite, tamarisk, etc.)
8. Unsustainable grazing
9. Changes in sediment flow
10. Conditions exceeding adaptive capacity of organisms