# Grassland Adaptation Menu: Strategies and Approaches

## **Strategy 1: Sustain fundamental functions in grasslands**

Approach 1.1. Maintain or restore soils and nutrient cycling

### Approach 1.2. Emulate natural disturbances from grazing

### Approach 1.3. Emulate disturbances from natural and indigenous fire

### Approach 1.4. Maintain or restore hydrology

## **Strategy 2: Reduce the impact of physical and biological stressors on grassland communities**

### Approach 2.1: Reduce impacts from extreme rainfall and drought

### Approach 2.2: Reduce the risk of unacceptably severe wildfire

### Approach 2.3. Reduce the impacts of climate change on grassland-dependent wildlife

### Approach 2.4. Prevent or reduce encroachment of woody species

Approach 2.5. Prevent the introduction, establishment, and spread of non-native invasive plants

Approach 2.6. Promote compatible management practices on agricultural land adjacent to grasslands Approach 2.7. Promote compatible management practices on rangelands

## **Strategy 3: Enhance plant genetic, species, and functional diversity and structural heterogeneity**

### Approach 3.1. Maintain and restore genetic diversity of grassland species

### Approach 3.2. Maintain and restore a diversity of native plant species and functional groups (C4 and C3 grasses, forbs, and legumes)

### Approach 3.3. Increase and retain heterogeneous vegetation structure

Approach 3.4. Maintain and restore wetland vegetation within grasslands

**Strategy 4: Restore or maintain the extent of grasslands across the landscape**

### Approach 4.1. Protect or conserve existing grasslands that are functionally intact or ecologically valuable

### Approach 4.2. Restore or establish grasslands in locations that are expected to remain suitable under future conditions

Approach 4.3. Protect existing grasslands in locations that are expected to remain suitable under future conditions.

Approach 4.4. Enlarge existing grassland habitats and protected areas

Approach 4.5. Create or maintain habitat that includes a wide variety of sites and conditions, including wetlands

Approach 4.6. Discourage or prevent conversion of grasslands for agriculture or development

## **Strategy 5: Provide for landscape-scale grassland resilience under future climate scenarios**

### Approach 5.1. Protect habitats along species’ range edges

### Approach 5.2. Maintain or create corridors for species migration

### Approach 5.3. Increase connectivity and reduce landscape fragmentation

### Approach 5.4. Preemptively protect non-grassland habitats projected to convert to grassland

**Strategy 6: Adjust management actions to account for changing conditions**

Approach 6.1: Adjust the timing, frequency, or intensity of prescribed fire to align with current and projected climate conditions

Approach 6.2: Adjust the timing, frequency, or intensity of grazing to align with current and projected climate conditions

Approach 6.3: Adjust the application of mechanical treatments such as haying, mowing, and brush removal to align with current and projected climate conditions.

Approach 6.4: Adjust planting practices and timing to promote germination and establishment of grassland vegetation under changing conditions

Approach 6.5: Adjust management of wetlands to align with current and projected climate conditions.

**Strategy 7: Facilitate species or community transitions to align with expected climate conditions**

### Approach 7.1. Promote plant species or genotypes expected to be adapted to future conditions

### Approach 7.2. Move at-risk species to locations expected to provide habitat

Approach 7.3: Facilitate shifts in grassland community type to align with future conditions

Approach 7.4: Convert non-grassland systems to grasslands if the climate can no longer support the current land cover (forest, savanna, marginal ag)

Approach 7.5. Identify areas where it does not seem feasible to restore or maintain grassland habitat, in order to focus efforts elsewhere

**Strategy 8: Engage human communities in grassland conservation and adaptation**

Approach 8.1. Develop outreach and technical assistance programs for private landowners

Approach 8.2. Increase local community involvement in grassland management

Approach 8.3. Respect and incorporate values of indigenous communities in management decisions

Approach 8.4. Develop economic incentives for grassland adaptation and conservation on private lands

Approach 8.5. Coordinate across landowners and scales to make sure adaptation actions are complementary